Year 2045 Sheboygan Area Transportation Plan (SATP)

May, 2015

Prepared by:
Bay-Lake Regional Planning Commission

BAY-LAKE
REGIONAL PLANNING COMMISSION
Brown•Door•Florence•Kewaunee•Manitowoc•Marinette•Oconto•Sheboygan

YEAR 2045
SHEBOYGAN AREA TRANSPORTATION PLAN (SATP)

Prepared by:
Bay-Lake Regional Planning Commission

May, 2015

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CHAPTER 1 : INTRODUCTION

STUDY PURPOSE AND NEED

Metropolitan Planning Organizations (MPOs), as the official agencies required to complete short- and long-range transportation plans for urbanized areas with populations of 50,000 or more, were federally mandated by the 1962 Federal Aid Highway Act. Each MPO is required to develop a transportation plan with a minimum 20-year planning horizon that includes "both long-range and short-range strategies and actions that lead to the development of an integrated intermodal transportation system that facilitates the efficient movement of people and goods."

As transportation and community needs have changed, executive orders and Federal acts have been drafted and adopted to address those needs. Title VI of the Civil Rights Act of 1964, the Clean Air Act Amendments (CAAA) of 1990, the Americans with Disabilities Act (ADA) of 1990, the Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991, the Transportation Equity Act for the 21st Century (TEA-21), the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU), and now the "Moving Ahead for Progress in the 21st Century" Act (MAP-21) have all had a profound influence on how transportation planning is conducted.

In order to comply with new, current and changing Federal regulations, as well as to address the needs of the ever evolving urbanized and metropolitan planning areas, the Sheboygan MPO must update its transportation plan at least every four years as part of a continuing, cooperative and comprehensive transportation planning process. Because Sheboygan County is a nonattainment area for ground-level ozone, the transportation plan must be adopted every four years, while transportation plans in attainment areas (areas that meet USEPA air quality standards for particulates, carbon monoxide, ozone and other criteria pollutants) must be adopted every five years.

The purpose of this study is to prepare an updated transportation plan for the Sheboygan metropolitan planning area to guide local units of government in making appropriate transportation decisions through 2045. This document is the *Year 2045 Sheboygan Area Transportation Plan (SATP)*.

PLAN OVERVIEW

This *Year 2045 SATP* is organized into the following nine chapters:

Chapter 1: Introduction discusses the purpose of and need for the transportation plan and the overall organization of the *Year 2045 SATP*.

Chapter 2: Metropolitan Transportation Planning Process discusses the metropolitan transportation planning process; various Federal regulations which impact the planning process; the structure of the Sheboygan MPO; the MPO annual certification process; the geographic extent of the urbanized area and of the metropolitan planning area; the basic functions of the MPO; coordination and consistency of the plan with various State-level plans and programs; and the years of analysis of the plan (for air quality conformity purposes).

Chapter 3: Profile of the Metropolitan Planning Area provides an overview and analysis of common socioeconomic characteristics, including population, households, housing stock and employment, as well as travel characteristics of persons in the metropolitan planning area. These

data serve as background information in understanding current and projected trends for the metropolitan planning area and its communities, as discussed in Chapter 6 (Transportation and Land Use).

Chapter 4: Mission Statement, Goals and Objectives discusses a shared mission statement for the metropolitan planning area and the goals and objectives identified to help fulfill that mission statement.

Chapter 5: Existing Condition of the Transportation Network provides an inventory of existing (and, in some cases, planned) transportation networks, including the bicycle, pedestrian, transit, intercity passenger, freight and roadway networks. Current conditions, which focus on regulatory, user, safety and access issues, are addressed for each network to the extent possible.

Chapter 6: Transportation and Land Use discusses: the land use inventory and the 2045 control total socioeconomic projections completed for the plan update; the process used to allocate socioeconomic projections to traffic analysis zones in the Sheboygan metropolitan planning area and elsewhere in Sheboygan County under three land use scenarios; and the selection of a "preferred" land use scenario to be carried forward in the plan by the Sheboygan MPO Technical and Policy Advisory Committees. Chapter 6 also discusses the results of travel demand forecast modeling activities, including projected deficiencies in 2045 under the selected growth scenario on the "Existing + Committed" network, projects suggested by the Sheboygan MPO Technical and Policy Advisory Committees for testing by the travel demand forecast model, and final decisions by the Sheboygan MPO Technical and Policy Advisory Committees on capacity modifying projects to be included in the plan.

Chapter 7: Recommended Transportation Plan discusses recommended street and highway improvement projects; recommended transit funding, projects and strategies; recommended and illustrative bicycle transportation projects; the recommended pedestrian transportation policy; recommended and illustrative pedestrian transportation projects; other recommended bicycle and pedestrian programs of a non-construction nature; recommended bicycle and pedestrian transportation strategies; recommended freight policies and strategies; recommended intercity passenger policies and strategies; recommended safety projects, policies and strategies; and recommended security policies and strategies. Chapter 7 also discusses recommended future studies. Finally, Chapter 7 has discussion pertinent to a comparison of travel demand projections under 2010 and 2045 baseline conditions and under 2045 conditions with the recommended transportation plan.

Chapter 8: Mitigation of Environmental Impacts on Major Transportation Projects involves: a summary of the "major" transportation (recommended capacity modifying street and highway improvement) projects included in the plan; an inventory of mapping completed with an overlay of the major transportation projects (features mapped include: land use; prime agricultural soils; parks and recreation; environmental corridors; wetlands; woodlands; surface water features; watersheds; and historical sites); other inventories and plans consulted but not mapped (including: State-level inventories and plans related to natural resources and outdoor recreation; a State archaeological inventory; Sheboygan County plans related to natural areas and critical resources, farmland preservation, and outdoor recreation and open space; and county and local comprehensive plans); a summary of the environmental consultation meeting conducted; an analysis of impacts of the major transportation projects on the natural and human environments (including the impacts of individual projects and a summary of total impacts of the capacity

expansion projects in the plan); environmental mitigation policies and strategies; and a reference to the environmental justice analysis in the plan.

Chapter 9: Financial Plan discusses the funds and funding programs that should reasonably be available through local, State and Federal sources for the programming of projects through 2045.

In addition, the following appendices are part of the *Year 2045 SATP*:

- **Appendix A: Glossary of Terms;**
- **Appendix B: Transportation System Performance Indicators;**
- **Appendix C: Assessment of Conformity of the *Year 2045 SATP* and the *2015 - 2018 Sheboygan Metropolitan Planning Area Transportation Improvement Program (TIP)* with Respect to the State of Wisconsin Air Quality Implementation Plan;**
- **Appendix D: Financial Plan Supporting Documentation;**
- **Appendix E: Statement of Impacts of Projects in the *Year 2045 SATP* on Environmental Justice;**
- **Appendix F: Public Participation Process for Plan Update;**
- **Appendix G: Minutes of the Multi-Agency Environmental Consultation Meeting; and**
- **Appendix H: Sheboygan MPO Technical and Policy Advisory Committee Membership.**

CHAPTER 2: METROPOLITAN TRANSPORTATION PLANNING PROCESS

PLANNING PROCESS

Metropolitan transportation planning involves a comprehensive and collaborative process that seeks to identify the vision and goals for a metropolitan planning area and its people through early, open and timely public participation. Because of the interrelationships between transportation and community goals (with community goals possibly pertinent to health and safety, mobility and accessibility, and land use), transportation planning requires not only consideration of transportation issues, but also consideration of those issues that can affect (and can be affected by) the transportation system now and in the future.

The metropolitan transportation planning process includes several key elements. The planning process begins with a proactive public participation process where communities and their residents identify their vision, goals and objectives for the metropolitan planning area. The process continued by identifying transportation issues and recommending projects and policies to address those issues. Once the transportation plan is approved, recommendations are implemented through program and project development. Because the transportation planning process is a continuing, cooperative and comprehensive planning process, the process does not end after the plan is completed. Plans may be modified and updated to reflect the results of monitoring, as well as the constantly changing needs of the metropolitan planning area and its people.

Major responsibilities of the transportation planning process in all Metropolitan Planning Organizations (MPOs) include development and maintenance of a long-range transportation plan, development and updating of transportation improvement programs, providing a forum for cooperative transportation planning and decision making, and establishment of a public participation plan for all planning activities. Additional responsibilities of the Sheboygan MPO include (but are not limited to) the formulation of transit development programs, assessing the conformity of the long-range transportation plan and transportation improvement programs with the State Implementation Plan for air quality, and development of work programs on an annual basis.

FEDERAL REGULATIONS IMPACTING THE TRANSPORTATION PLANNING PROCESS

Clean Air Act Amendments of 1990

The Clean Air Act Amendments (CAAA) of 1990 were signed into law on November 15, 1990. Counties that do not meet the Clean Air Act National Ambient Air Quality Standards (NAAQS) are designated by the U.S. Environmental Protection Agency (USEPA) as nonattainment areas. For Sheboygan County, the CAAA regulations continue to require a reduction of ozone precursors such as volatile organic compounds (VOCs) and nitrogen oxides (NOx). Sheboygan County is subject to transportation conformity, meaning that emissions projected in transportation plans and transportation improvement programs are less than emission budgets established in the State Implementation Plan (SIP) developed by the Wisconsin Department of Natural Resources (WDNR). The current Wisconsin One-Hour Ozone Maintenance SIP does not currently commit Sheboygan County to any transportation control measures (TCMs).

A maintenance plan (for the one-hour ozone standard) for Sheboygan, Manitowoc, Kewaunee and Door counties was prepared by the WDNR in 2002, and was submitted to the USEPA in January of 2003. This maintenance plan, the Wisconsin 2003 One-Hour Ozone SIP, had three of four parts approved by USEPA in October 2003, while a fourth part (updates to maintenance plans in Sheboygan and Kewaunee counties) was approved by USEPA shortly thereafter. The motor vehicle emission budgets in this plan were all determined to be adequate for transportation conformity purposes in a letter from USEPA dated March 25, 2003.

On July 18, 1997, the USEPA established an eight-hour standard of 0.08 parts per million for ground-level ozone which would be used for air quality determinations around the United States. The Governor of the State of Wisconsin recommended designation of Sheboygan County as a nonattainment area under this new standard based on air monitoring readings in the county in the summer of 2003. On April 15, 2004, the USEPA designated Sheboygan County as a nonattainment area for ground-level ozone under the new eight-hour standard for that pollutant; the effective date for that designation was June 15, 2004. In response to this designation, the WDNR submitted an *Attainment Demonstration for the 1997 Eight-Hour Ozone National Ambient Air Quality Standard (NAAQS)* and a *Redesignation Request for the Current Nonattainment Counties for the 1997 Eight-Hour Ozone NAAQS* to USEPA on September 11, 2009. The USEPA did not approve these revised SIP elements as they applied to Sheboygan County (although Door and Manitowoc counties were re-designated as attainment/maintenance areas based on the same documentation). However, the USEPA did find the motor vehicle emission budgets in this documentation adequate for transportation conformity purposes in a letter to WDNR dated April 7, 2010; the update to the *Year 2035 Sheboygan Area Transportation Plan (SATP)* adopted in March of 2011 conformed to these motor vehicle emission budgets.

On March 27, 2008, the USEPA revised and strengthened the 8-hour ozone NAAQS to 0.075 parts per million. On April 30, 2012, USEPA issued final area designations for the 2008 ground-level ozone standard; Sheboygan County was designated as nonattainment. Under Section 182(c) of the Clean Air Act, due to its designation as a "marginal" nonattainment area, Sheboygan County has three years from designation to attain the NAAQS, and is not required to submit an attainment demonstration.

On June 27, 2013, WDNR requested that the USEPA reconsider the nonattainment area boundary for Sheboygan County. WDNR recommended that the boundary be adjusted from the Sheboygan County boundaries to only a narrow strip of land adjacent to Lake Michigan. WDNR based this recommendation on a comparison of ozone concentrations from three monitors located at varying distances from the Lake Michigan shoreline. On January 22, 2014, WDNR presented supplemental technical support data to USEPA, including ozone modeling results, ozone monitoring and meteorological results, NOx and VOC emissions data, areas of significant future growth, and recommendations for a boundary based on a roadway. USEPA is still reviewing the ozone boundary adjustment at this time.

In 2014, the Wisconsin Department of Natural Resources prepared the latest SIP element applicable to Sheboygan County. This document was titled *The State of Wisconsin's 2015 Transportation Conformity Budgets for the Kenosha and Sheboygan County 2008 8-Hour Ozone Nonattainment Areas: A CAA-required State Implementation Plan addressing the 2008 8-Hour Ozone National Ambient Air Quality Standard*. A public hearing on this SIP element was held in December 2014, and the public comment period on this SIP element ran through mid-January of

2015. This SIP element was submitted to USEPA for adequacy review in early 2015, and the USEPA found these budgets adequate in April 2015.

Americans with Disabilities Act (ADA) of 1990

The Americans with Disabilities Act (ADA) was signed into law in the summer of 1990. The Bay-Lake Regional Planning Commission submitted annual ADA Paratransit Plan updates to the Federal Transit Administration (FTA) on behalf of the Sheboygan Parking and Transit Utility each January from 1992 through 1997. The Sheboygan Parking and Transit Utility was found compliant with the paratransit service provisions of the ADA in 1997, and therefore no longer needed to submit ADA paratransit plans to the FTA. However, coordination between staff from the MPO, the Sheboygan Parking and Transit Utility/Shoreline Metro (and its Metro Connection service, which provides the ADA paratransit service as well as other paratransit services in Sheboygan County), and the Sheboygan County Health and Human Services Department (and its Aging and Disability Resource Center) continues to occur.

The 1990 ADA requires Shoreline Metro to provide complementary paratransit service to the disabled deemed eligible for such service, for trip origins and destinations within three-fourths of one mile of any fixed route of Shoreline Metro. In addition to the complementary paratransit service, newly acquired or substantially rehabilitated fixed-route vehicles must include lifts for disabled passengers.

Environmental Justice

Executive Order 12898 – Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations was issued in 1994. This Executive Order was issued in response to public concerns that certain populations were bearing a large part of the adverse impacts associated with government actions; among cases cited were some associated with transportation, such as freeway building. Each Federal agency, including the U.S. Department of Transportation (USDOT), was directed to make environmental justice a part of its mission. In an effort to implement Executive Order 12898, the USDOT issued **DOT Order to Address Environmental Justice in Minority Populations and Low Income Populations** in 1997.

According to the USDOT, there are three fundamental principles at the core of environmental justice: (1) to avoid, minimize or mitigate disproportionately high and adverse human health and environmental effects, including social and economic effects, on minority populations and on low-income populations; (2) to ensure the full and fair participation by all potentially affected communities in the transportation decision making process; and (3) to prevent the denial of, reduction in, or significant delay in the receipt of benefits by minority and low income populations. All transportation plans and transportation improvement programs will be analyzed for compliance with this directive as long as it is in effect, and the public participation plan for the MPO has been updated to comply with this directive.

Some of the population groups emphasized in environmental justice efforts in Executive Order 12898 include the following:

Minority Populations

Minority populations are defined as African American, Hispanic, Asian American, Native American and Alaska Native, Native Hawaiian or Other Pacific Islander, persons of "some other race" (non-white), and persons of two or more races. Although the ten communities within the

metropolitan planning area had an overall fairly low percentage of minorities in 2010 (a little more than 16.2 percent of the population), minority populations were often concentrated in a few census block groups in the City of Sheboygan (especially, in many cases, in census block groups surrounding the central business district), and therefore may be subject to disproportionate impacts by certain transportation projects.

Low Income Populations

A low income person (as defined by the USDOT in 1997) is a person whose household income is at or below the poverty guidelines established by the U.S. Department of Health and Human Services.

In addition, the USDOT order implementing Executive Order 12898 added the following population groups to be considered in the transportation planning process:

Limited English Proficiency (LEP)

Simply identifying the locations of minority populations is not sufficient if persons within those groups cannot participate in the planning process because of a language barrier. For this reason, **Executive Order 13166: Improving Access to Services for Persons with Limited English Proficiency** was issued in August of 2000. This Executive Order requires that any agency that receives Federal funds establish a means of including LEP persons in their activities, and is applicable to this MPO planning process.

The *2008 – 2012 American Community Survey (ACS) 5-Year Estimates* (Table B16004: Age by Language Spoken at Home by Ability to Speak English for the Population 5 Years and Over) estimated that just over 2.1 percent of the total population of the communities wholly or partially in the Sheboygan Metropolitan Planning Area was LEP; nearly 1.1 percent of the population involved Spanish speaking LEP persons; over 0.8 percent of the population involved Asian and Pacific Island language speaking LEP persons; and over 0.2 percent of the population involved other (non-Spanish) Indo-European speaking LEP persons. LEP persons are defined as individuals who speak English "not well" or "not at all." Again, LEP populations tended to be concentrated in a few census block groups in the City of Sheboygan (especially, in many cases, in census block groups surrounding the central business district).

Elderly and Developmentally and Physically Challenged Populations

With an aging population, two major medical facilities, numerous clinics and various elderly and/or disability-specific housing facilities (these include market rate senior apartment complexes), an analysis of transportation impacts in the metropolitan planning area would not be complete without explicitly considering other disadvantaged groups living in the area and including them in the public participation process. Many of the residents and users of these facilities have special transportation needs that require access to transit, paratransit and to other mobility services.

Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU)

The Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) was signed into law on August 10, 2005. SAFETEA-LU "authorized Federal surface transportation programs for Federal-aid highways, highway safety and transit for the five-year period covering Federal fiscal years 2005 through 2009." After the end of Federal fiscal year 2009 (September 30, 2009), SAFETEA-LU was extended nine times until the next

Federal surface transportation authorization bill was signed into law in mid 2012.

SAFETEA-LU included eight metropolitan planning factors, as follows:

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

The original *Year 2035 SATP* was amended in July 2008 to be fully compliant with SAFETEA-LU. The amended plan included new sections which discussed transportation safety and transportation security. In addition, the amended plan included a new section related to the mitigation of environmental impacts of major transportation projects (this included an interagency environmental consultation process). The financial plan was also updated from the original plan. While not required by Federal statute, the MPO took advantage of the opportunity to utilize Sheboygan County's bicycle and pedestrian transportation plan completed in 2007 to update the bicycle and pedestrian transportation recommendations for the metropolitan planning area through this amendment to the *Year 2035 SATP*.

In addition, the update to the *Year 2035 SATP* that was adopted in March 2011 was prepared so that it was fully compliant with SAFETEA-LU.

Moving Ahead for Progress in the 21st Century Act (MAP-21)

The "Moving Ahead for Progress in the 21st Century" Act (MAP-21) was signed into law on July 6, 2012. MAP-21 was a two-year, $105 billion surface transportation authorization. MAP-21 reauthorized the Federal-aid highway, highway safety and transit programs that were last authorized by SAFETEA-LU. Programs and funding levels under SAFETEA-LU continued through September 30, 2012, while programs and funding levels under MAP-21 began on October 1, 2012, and continue through September 30, 2014, unless they are extended. MAP-21 also extended the Highway Trust Fund and tax collections through September 30, 2016.

MAP-21 did not significantly change the existing metropolitan planning factors (noted above under SAFETEA-LU) or the process of administering federal planning funds to MPOs.

According to the Federal Highway Administration, several modifications to the metropolitan planning process were made in MAP-21, as follows:

- Performance-based planning:
    - MPOs will be required to establish and use a performance-based approach to

transportation decision making and development of transportation plans.

- Each MPO will establish performance targets that address the MAP-21 surface transportation performance measures.
- The performance targets selected by an MPO will be coordinated with the relevant State to ensure consistency to the maximum extent practicable.
- Performance targets selected by an MPO will be coordinated with public transportation providers, to the maximum extent practicable, to ensure consistency with Sections 5326(c) and 5329(d) of Title 49.
- MPOs are required to integrate into the metropolitan transportation planning process other performance-based transportation plans or processes.
- The MPOs will establish performance targets not later than 180 days after the date that the relevant State or public transportation provider establishes performance targets.
- Within two years of enactment of MAP-21, the structure of all MPOs will be required to include officials of public agencies that administer or operate public transportation systems.

- Long-Range Transportation Plan
  - The long-range transportation plan will include a description of the performance measures and performance targets used in assessing the performance of the transportation system.
  - The long-range transportation plan will also include a system performance report and subsequent updates evaluating the condition and performance of the transportation system with respect to the established performance targets.
  - MPOs have the option of developing multiple scenarios for consideration during the development of the long-range transportation plan.
- Transportation Improvement Program (TIP)
  - The TIP will include, to the maximum extent practicable, a description of the anticipated effect of the TIP toward achieving the performance targets established in the long-range transportation plan, linking investment priorities to those performance targets.

Every attempt is being made to prepare the *Year 2045 SATP* so that it is complaint with all metropolitan planning provisions of MAP-21. However, if WisDOT and/or Shoreline Metro have not set their performance targets by late 2014, the *Year 2045 SATP* may need to be amended following its adoption to incorporate the new performance targets, so that the *Year 2045 SATP* can be adopted on its required four year update cycle.

SHEBOYGAN METROPOLITAN PLANNING ORGANIZATION (MPO)

The Bay-Lake Regional Planning Commission was designated the Metropolitan Planning Organization (MPO) for the Sheboygan, Wisconsin, urbanized area in 1982. The Bay-Lake Regional Planning Commission was designated the MPO after results of the 1980 U.S. Census determined that the population of the Sheboygan urbanized area exceeded 50,000 people.

Pursuant to the Federal Surface Transportation Assistance Act of 1973, all urbanized areas with populations greater than 50,000 are required to have an MPO to carry out transportation planning functions.

All transportation planning activities conducted by the MPO are reviewed by technical and policy advisory committees (Appendix H):

- The MPO Technical Advisory Committee is comprised of transportation and planning staff at the municipal, county, state and federal levels of government; private sector providers of mass transportation; individuals representing airport, bicycling, pedestrian and rail modal interests; and individuals with air quality, water quality, highway safety and land use planning perspectives.
- The MPO Policy Advisory Committee is comprised on one elected executive (or their alternate) from each unit of government in the study area, as well as officials from the Wisconsin Department of Transportation Northeast Region office and the Sheboygan Transit Commission.

Once the MPO Technical and Policy Advisory Committees (which usually meet jointly) recommend approval of a planning document to the Bay-Lake Regional Planning Commission, the Bay-Lake Regional Planning Commission takes final action on the document as the MPO for the Sheboygan urbanized area.

MPO ANNUAL CERTIFICATION

According to 23 CFR 450.334, "The State and the MPO shall annually certify to the FHWA (Federal Highway Administration) and the FTA (Federal Transit Administration) that the planning process is addressing the major issues facing the area, and is being conducted in accordance with all applicable requirements." Pursuant to U.S. Department of Transportation regulations, the Bay-Lake Regional Planning Commission is allowed to self-certify at the time of submittal of the MPO Work Program and the Transportation Improvement Program (TIP). The Bay-Lake Regional Planning Commission, as the MPO, certifies that the metropolitan transportation planning process is addressing major issues facing the metropolitan planning area, and is being conducted in accordance with the requirements of:

(1) 23 U.S.C. 134 and 49 U.S.C. 5303, and this subpart;

(2) Sections 174 and 176 (c) and (d) of the Clean Air Act as amended (42 U.S.C. 7504, 7506 (c) and (d)) and 40 CFR Part 93;

(3) Title VI of the Civil Rights Act of 1964, as amended (42 U.S.C. 2000d-1) and 49 CFR Part 21;

(4) 49 U.S.C. 5332, prohibiting discrimination on the basis of race, color, creed, national origin, sex, or age in employment or business opportunity;

(5) Sections 1101 (b) of the "Moving Ahead for Progress in the 21st Century" Act (MAP-21, Pub. L. 112-141) and 49 CFR Part 26 regarding the involvement of disadvantaged business enterprises in the US DOT funded projects;

(6) 23 CFR Part 230, regarding the implementation of an equal employment opportunity program on Federal and Federal-aid highway construction contracts;

(7) The provisions of the Americans with Disabilities Act of 1990 (42 U.S.C. 12101 *et. seq.*)

and 49 CFR Parts 27, 37 and 38;

(8) The Older Americans Act, as amended (42 U.S.C. 6101), prohibiting discrimination on the basis of age in programs or activities receiving Federal financial assistance;

(9) Section 324 of Title 23, U.S.C., regarding the prohibition of discrimination based on gender; and

(10) Section 504 of the Rehabilitation Act of 1973 (29 U.S.C. 794) and 49 CFR 27 regarding discrimination against individuals with disabilities.

SHEBOYGAN URBANIZED AREA

Within the metropolitan planning area lies the Sheboygan, Wisconsin, urbanized area, as designated by the U.S. Bureau of the Census. An "urbanized area" involves "contiguous census block groups with a population density of at least 1,000 per square mile, with any census block groups around this core having a population density of 500 per square mile," and with a total population greater than 50,000. The U.S. Bureau of the Census applies other criteria related to place and density in determining the exact delineations of the urbanized area. After the U.S. Bureau of the Census has delineated the urbanized areas, the Wisconsin Department of Transportation (in cooperation with the affected MPOs) adjusts the urbanized area boundaries outward to follow logical planning boundaries. The MPO then approves the "adjusted urbanized area boundary" as the official urbanized area boundary. The adjusted urbanized area should "encompass areas outside of municipal boundaries that have urban characteristics with residential, commercial, industrial or national defense land uses that are consistent with or related to the development patterns within the boundary." The adjusted urbanized area should also "encompass all large traffic generators (such as industrial parks) that are within a reasonable distance from the urbanized area. This would include transportation terminals (such as airports) and their access roads."

The adjusted Sheboygan urbanized area, shown in Map 2.1, includes the Cities of Sheboygan and Sheboygan Falls, the Villages of Howards Grove and Kohler, all of the Town of Sheboygan, a significant portion of the Town of Wilson, and small portions of the Towns of Herman, Lima, Mosel and Sheboygan Falls. The adjusted Sheboygan urbanized area was developed in cooperation with members of the MPO Technical and Policy Advisory Committees in the summer of 2012 and in January of 2013, and was recommended for approval by the MPO advisory committees in February of 2013. The Bay-Lake Regional Planning Commission endorsed the adjusted Sheboygan urbanized area boundaries in March of 2013. The adjusted Sheboygan urbanized area boundaries are used in the administration of the Surface Transportation Urban (STP-Urban) program.

In 2000, the adjusted Sheboygan urbanized area was 47.11 square miles. By 2010, the adjusted Sheboygan urbanized area had expanded by nearly 4.8 percent to 49.35 square miles. Between 2000 and 2010, the adjusted urbanized area expanded to include additional portions of the City of Sheboygan Falls, the Village of Howards Grove and the Towns of Mosel and Wilson, but also contracted to exclude a portion of the Town of Sheboygan Falls.

SHEBOYGAN METROPOLITAN PLANNING AREA

The Sheboygan metropolitan planning area, shown in Map 2.2, is comprised of the Cities of Sheboygan and Sheboygan Falls, the Villages of Howards Grove and Kohler, all of the Town of Sheboygan, and significant portions of the Towns of Herman, Lima, Mosel, Sheboygan Falls and

Wilson. The Sheboygan metropolitan planning area was developed in cooperation with members of the MPO Technical and Policy Advisory Committees in the summer of 2012 and in January of 2013, and was recommended for approval by the MPO advisory committees in February of 2013. The Bay-Lake Regional Planning Commission endorsed the Sheboygan metropolitan planning area boundaries in March of 2013.

The metropolitan planning area covers just over 108 square miles, or just over 21 percent of Sheboygan County's 513.7 square miles. The metropolitan planning area did not change in size from 2000 to 2010. The metropolitan planning area is the area beyond the adjusted urbanized area that is "likely to become urbanized within the next 20 years."

It should be noted that the Sheboygan metropolitan planning area boundaries serve as the jurisdiction covered by this *Year 2045 SATP*. However, all of Sheboygan County has been included in the development of the travel demand forecast model; this was done to make air quality conformity analyses easier to perform. This Sheboygan County component of the WisDOT Northeast Region multicounty travel demand forecast model was used to develop this long-range transportation plan, and was also used to assess the conformity of the long-range transportation plan and the *2015 – 2018 TIP*.

SHEBOYGAN MPO FUNCTIONS

As the federally mandated agency for ensuring a continuing, cooperative and comprehensive planning process, the Bay-Lake Regional Planning Commission plays a significant role in the coordination of transportation activities and in the programming of transportation-related funds in the Sheboygan metropolitan planning area. The Bay-Lake Regional Planning Commission has four essential functions as the MPO for the Sheboygan metropolitan planning area:

- To establish a neutral setting for regional cooperation and decision making;
- To evaluate transportation alternatives (as outlined in the Transportation Planning Work Program) that are relevant to the area;
- To develop and update a long-range transportation plan with a minimum 20-year planning horizon; and
- To develop and periodically amend a short-range (four year) Transportation Improvement Program (TIP) that conforms to the transportation plan.

The Bay-Lake Regional Planning Commission also has a fifth function that integrates public involvement into the decision making processes of the four essential functions. The Bay-Lake Regional Planning Commission has developed a separate document, the *2012 MPO Public Participation Plan Update*, which specifically addresses public participation activities and stakeholders.

Transportation Planning Work Program

The Transportation Planning Work Program lists transportation studies and activities to be conducted by the Bay-Lake Regional Planning Commission staff and/or contracted entities over a one-year period. The funding sources, the responsible entities for each study or activity, and the relative timeframe for each study or activity are identified and illustrated in a schedule of activities. The Transportation Planning Work Program is revised and updated annually.

Transportation Improvement Program (TIP) and TIP Amendments

The *Sheboygan Metropolitan Planning Area TIP* is a short-range (four year) program that allocates transportation funds among the region's priority projects. The project listing illustrates projects that are financially constrained, which means that the projects can reasonably expect to be funded within the time allotted for implementation. An illustrative table can also be included for prospective projects in the TIP; these projects have yet to have their costs determined and/or have yet to obtain available funding. Inclusion of illustrative projects in the TIP can help to reaffirm the area's transportation priorities, and can help to facilitate funding and implementation once funding becomes available. Funding sources for projects in the TIP are typically broken down as Federal, State and local sources.

Although the TIP is a four year program, it is updated or amended every year (if not more frequently), and is subsequently incorporated into the Wisconsin Statewide Transportation Improvement Program (STIP).

Transportation Plan

As required by Title 23 of the Code of Federal Regulations Part 450 (23 CFR 450.322), "the transportation plan shall include both long-range and short-range strategies/actions that lead to the development of an integrated multimodal transportation system to facilitate the safe and efficient movement of people and goods in addressing current and future transportation demand." The long-range component of the plan is to estimate transportation needs 20 or more years into the future. In order to adequately address estimated needs, the transportation plan was required by SAFETEA-LU (and later MAP-21) to address eight metropolitan planning factors, which were previously identified in the discussion regarding SAFETEA-LU and MAP-21 (pages 2-4 and 2-5).

Both the transportation plan and the TIP must be fiscally constrained documents. However, the transportation plan and the TIP may contain "illustrative" or "visionary" projects that fulfill the long-term goals and objectives of the region whose costs and funding sources have yet to be determined.

Public Participation Plan

As required by Title 23 of the Code of Federal Regulations Part 450 (23 CFR 450.316), "the MPO shall develop and use a documented participation plan that defines a process for providing citizens, affected public agencies, representatives of public transportation employees, freight shippers, providers of freight transportation services, private providers of transportation, representatives of users of public transportation, representatives of users of pedestrian walkways and bicycle transportation facilities, representatives of the disabled, and other interested parties with reasonable opportunities to be involved in the metropolitan transportation planning process." A vital aspect of this process is what has been termed "environmental justice." A full discussion of environmental justice and the MPO public participation process can be read in the *2012 Sheboygan MPO Public Participation Plan Update* adopted in July 2012 by the Bay-Lake Regional Planning Commission, which is available at the Commission office or online on the Commission's website (www.baylakerpc.org).

Annual Listing of Obligated Projects

Federal law requires MPOs to publish an annual listing of obligated projects from the previous calendar year. The Sheboygan MPO places this listing on its webpage by March 31 each year.

The information in this listing is typically supplied to the Sheboygan MPO staff by Federal Highway Administration Wisconsin Division staff, as well as by Federal Transit Administration Region 5 staff, with editing of the list in consultation with WisDOT and local officials.

Other Planning Efforts

Other planning studies are conducted by MPO staff, but are not statutorily required components of the MPO program. Examples of these studies include Transit Development Programs (TDPs), subarea transportation plans, and freestanding bicycle and pedestrian transportation plans.

COORDINATION AND CONSISTENCY WITH THE STATE

Pursuant to various sections of Title 23 of the Code of Federal Regulations Part 450 (23 CFR 450.322, 450.324, and other sections), MPOs are required to consult with the State to assure the preparation of integrated plans and TIPs. In this case, the Sheboygan MPO must coordinate with the Wisconsin Department of Transportation (WisDOT).

The following state transportation plans and programs have either been completed or are under development by WisDOT staff:

Connections 2030

Connections 2030 is the statewide long-range transportation plan, and has a horizon year of 2030. *Connections 2030* addresses all modes of transportation – roadways, air, water, rail, bicycle, pedestrian and transit – and ways to make the individual modes work better as an integrated transportation system.

Connections 2030 differs from WisDOT's previous mode-based planning efforts in that its policies are organized according to seven themes:

- Preserve and maintain Wisconsin's transportation system;
- Promote transportation safety;
- Promote transportation security;
- Foster Wisconsin's economic growth;
- Provide mobility and transportation choice;
- Promote transportation efficiencies; and
- Preserve Wisconsin's quality of life.

Connections 2030 is a policy-based plan. The plan defines 37 policies that have been organized under their primary theme chapter. The policies address specific issues and areas of activity either underway or proposed to be undertaken during the life of the plan. The policy recommendations include a series of action steps to be accomplished in the short-term (through 2013), mid-term (2014 through 2019), and long-term (2020 through 2030) future.

Connections 2030 emphasizes improving the link between statewide policies and implementation activities occurring at the WisDOT Region or corridor level. As part of this planning effort, WisDOT "adopted a corridor management approach." WisDOT defines "corridor management" as being "a coordinated transportation planning, project development and facility operations approach that enables consideration of the transportation system from a state and 'corridor' – regional or local – perspective." As part of its planning process, WisDOT identified 37 "system-

level priority corridors." Several maps illustrate "how the plan might be implemented during the next 20 years."

Connections 2030 was adopted by the WisDOT Secretary in October 2009 following an extensive public involvement process.

WisDOT also provides facility development and policy guidance in modal plans. The following modal plans (some of which have likely been superseded by *Connections 2030*) have been completed by WisDOT:

Wisconsin State Airport System Plan 2020

The *Wisconsin State Airport System Plan 2020* "provides a framework for the preservation and enhancement of a system of public use airports adequate to meet the current and future aviation needs of the State of Wisconsin." The plan determines the number, location and type of aviation facilities required to adequately serve the state's aviation needs through 2030. The plan defines the state airport system, establishes the current and future role of each airport in the system, and reviews the level of public investment needed to upgrade, preserve or enhance airport features.

The *Wisconsin State Airport System Plan* is currently being updated so that it has a horizon year of 2030. WisDOT has also produced an "Airport Classification Review and Update" report to assist with this plan update. In addition, WisDOT updates its "Airport Five-Year Improvement Plan" on a monthly basis.

Wisconsin Bicycle Transportation Plan 2020

The *Wisconsin Bicycle Transportation Plan 2020* establishes goals, objectives and policies regarding the provision of bicycle accommodations that are realistic and can be implemented. Plan components pertinent to bicycling include: current conditions; benefits and impacts; an intercity element; an urban/suburban element; safety (education and enforcement); and implementation.

Wisconsin Pedestrian Policy Plan 2020

The *Wisconsin Pedestrian Policy Plan 2020* provides a basic description of existing and emerging pedestrian needs over a 20 year period, with a set of recommendations to meet those needs. WisDOT's efforts "ensure that this plan complements both existing and future long-range transportation plans." The plan establishes goals, objectives and actions regarding the provision of pedestrian accommodations that are realistic and can be implemented in a reasonable timeframe and in a cost effective manner.

Wisconsin State Highway Plan 2020

WisDOT developed this "21-year strategic plan," which "considers the highway system's current condition, analyzes future uses, assesses financial constraints, and outlines strategies to address Wisconsin's preservation, traffic movement, and safety needs." This plan was updated periodically "to reflect changing transportation technologies, travel demand and economic conditions in Wisconsin."

Wisconsin Rail Plan 2030

WisDOT is in the process of finalizing the *Wisconsin Rail Plan 2030*, which "will provide a vision for freight rail, intercity passenger rail and commuter rail over the next 20 years." The *Wisconsin Rail Plan 2030* also "identifies rail network issues and recommendations," and "provides the framework within which the state and stakeholders may maintain, improve and

plan for the state's rail network." The final draft of this plan was released for public review in early November of 2013. An open house and public hearing on the plan were held in Madison in early December of 2013. The public review and comment period on the draft plan ran through late December of 2013.

Prior to development of the *Wisconsin Rail Plan 2030*, the *Wisconsin Rail Issues and Opportunities Report* (2004) informed rail transportation policy in Wisconsin, and was used in the formulation of rail transportation policies in *Connections 2030*.

Other State Level Plans

WisDOT partnered with eight other state transportation agencies, Amtrak and with the Federal Railroad Administration (FRA) to connect nine Midwest states with high-speed rail through the Midwest Regional Rail Initiative (MWRRI).

In addition to long-range transportation planning, WisDOT also is involved with project programming at the state level, as follows:

Statewide Transportation Improvement Program (STIP)

While state transportation plans provide the framework for planning goals and activities, Statewide Transportation Improvement Programs (STIPs) provide the conduit for state and Federal funding and programming of projects. The STIP and the MPO TIP must be consistent. According to WisDOT, "the STIP produces a four-year plan of highway and transit projects for the State of Wisconsin. Revised every year, the plan (STIP) is a compilation of all highway (state or local) and transit (capital or operating) projects in urban and rural areas. The STIP adopts the TIPs prepared by the state's 14 MPOs by reference. The STIP is approved by the Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA)." In addition, the STIP is amended periodically.

The process for determining TIP/STIP inclusion is as follows: WisDOT uses a process for investing Federal highway funds by allowing the MPOs to select their local system projects. The Sheboygan MPO prioritizes its local system projects, and then sends them to the WisDOT Central Office in Madison for inclusion in the STIP. All WisDOT state-funded projects within the metropolitan planning area must be included in the Sheboygan Metropolitan Planning Area TIP for informational purposes.

Six-Year Highway Improvement Program: 2014 – 2019

Wisconsin has over 114,000 miles of public roads, from Interstate freeways to city and village streets. The *Six-Year Highway Improvement Program* covers only the 11,773 mile state highway system, which is administered and maintained by WisDOT. The remaining public roads are improved and maintained by the counties, cities, villages and towns in which they are located.

The state highway system consists of 743 miles of Interstate freeways and 11,030 miles of state and U.S. marked highways. While the 11,773 miles of state highways represent only slightly more than 10 percent of all public road mileage in Wisconsin, they carry over 35 billion vehicle miles of travel (VMT) a year, or slightly more than 59 percent of the total annual statewide highway travel.

The most current *Six-Year Highway Improvement Program* covers the period from 2014 through 2019. There are two subprograms for implementing improvements to state highway facilities: major highway development; and state highway rehabilitation. In addition, state highway

rehabilitation is divided into three parts: existing highways; state bridges; and backbone rehabilitation.

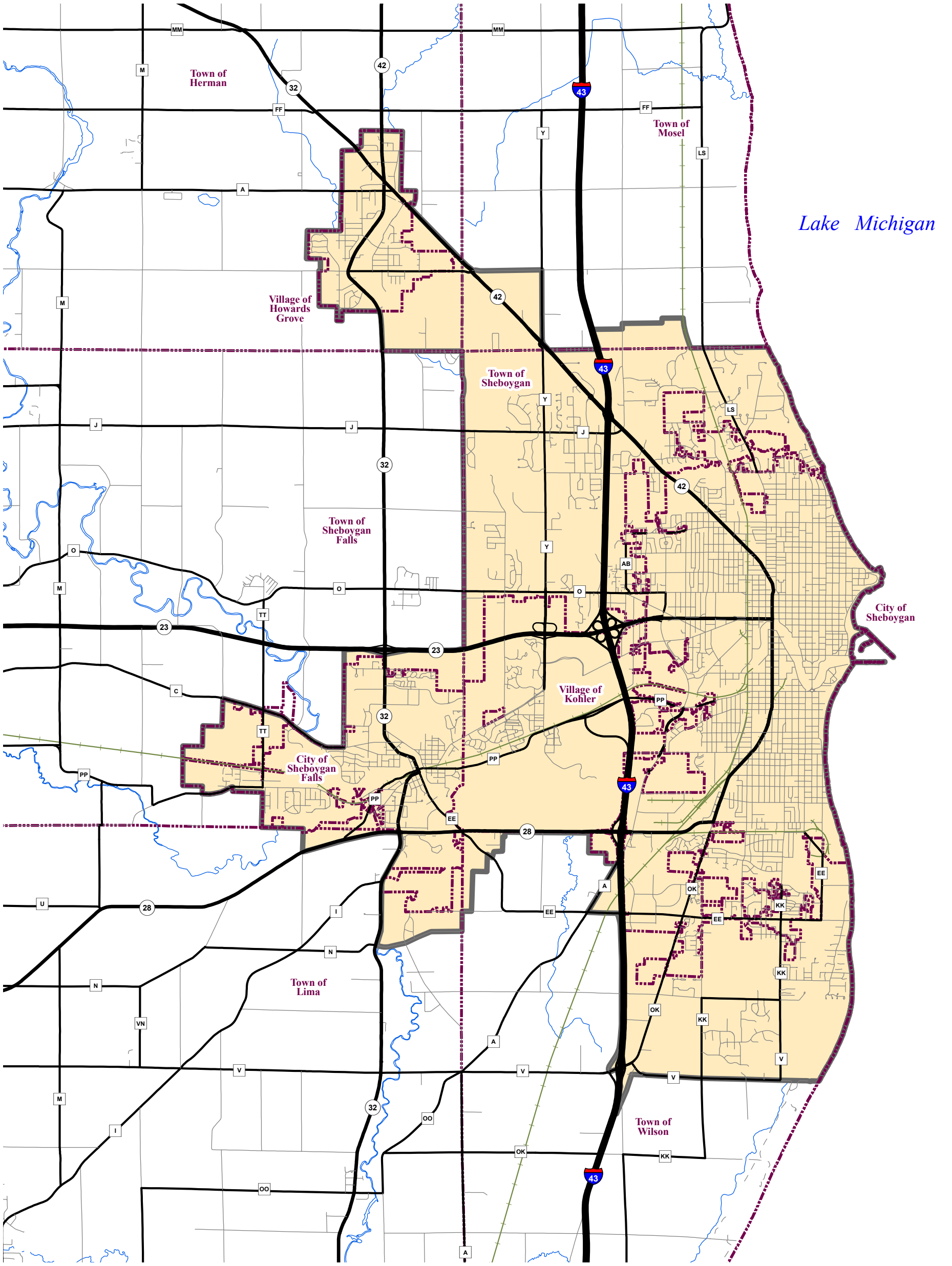
YEARS OF ANALYSIS

The horizon year of 2045 selected for this plan is consistent with MAP-21 provisions calling for a minimum 20-year planning horizon. Milestone years selected for intermediate points of evaluation in this plan are 2015, 2025 and 2035. The milestone years of 2015 is consistent with the year for which the Wisconsin Department of Natural Resources (WDNR) has established mobile sector emission budgets in the latest State Implementation Plan (SIP) element for Sheboygan, the *State of Wisconsin's 2015 Transportation Conformity Budgets for the Kenosha and Sheboygan County 2008 8-Hour Ozone Nonattainment Areas: A CAA-required State Implementation Plan addressing the 2008 8-Hour Ozone National Ambient Air Quality Standard*. The milestone years of 2025 and 2035 are reasonable intermediate years between 2015 and 2045 in accordance with analysis year conformity requirements of the 1990 CAAA (the 1990 CAAA requires no greater than ten years between analysis years in a conformity analysis).

Map 2.1

Adjusted Sheboygan Urbanized Area Boundary

Year 2045 Sheboygan Area Transportation Plan (SATP)



Sheboygan Urbanized Area Boundary

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Miles

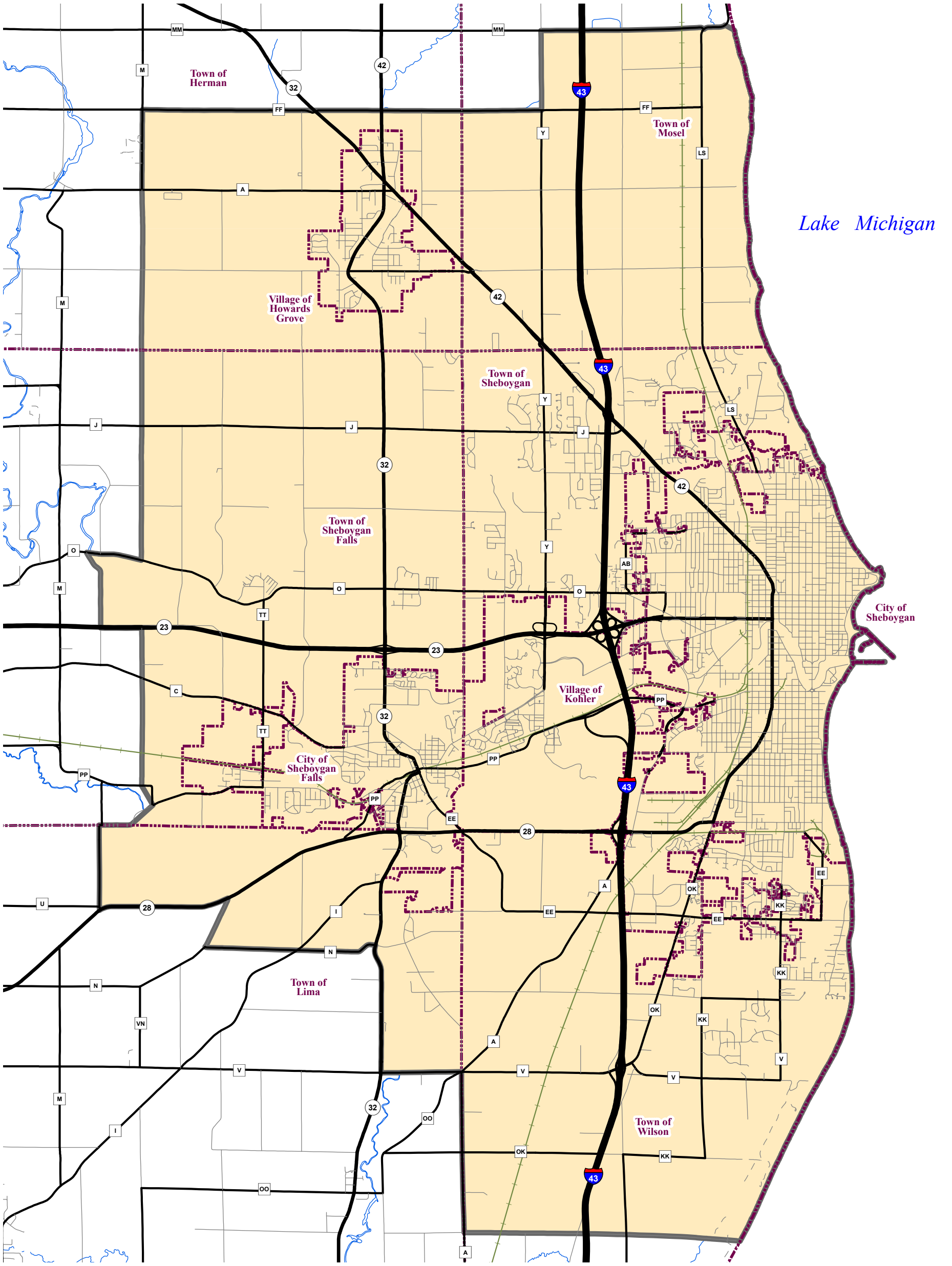
BAY-LAKE REGIONAL PLANNING COMMISSION

G:/Sheboygan/MPO/SATP/2045
Source: WDNR, 2009; WDOT, 2013; Sheboygan County, 2015; Bay-Lake Regional Planning Commission, 2015.

Map 2.2

Sheboygan Metropolitan Planning Area Boundary

Year 2045 Sheboygan Area Transportation Plan (SATP)



Sheboygan Metropolitan Planning Area Boundary

N
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0 0.5 1 2
Miles

BAY-LAKE REGIONAL PLANNING COMMISSION

G:/Sheboygan/MPO/SATP/2045
Source: WDNR, 2009; WDOT, 2013; Sheboygan County, 2015; Bay-Lake Regional Planning Commission, 2015.

CHAPTER 3: PROFILE OF THE METROPOLITAN PLANNING AREA

INTRODUCTION

Because transportation planning responds to changes in population, composition of the population, population migration, economic activity, travel patterns, building trends, and other factors, existing demographic patterns and their change over time are discussed relative to the United States, the State of Wisconsin, Sheboygan County, and the cities, villages and towns within the Sheboygan metropolitan planning area. This chapter discusses these data as background information for understanding the demographic and economic composition of the metropolitan planning area, and for better understanding the basis for the information presented in Chapter 6 (Transportation and Land Use).

GEOGRAPHY

The Sheboygan metropolitan planning area is located within Sheboygan County in eastern Wisconsin, and its eastern edge borders Lake Michigan. As with many areas in Wisconsin, the metropolitan planning area has physical constraints that can present a challenge for development, especially for the development of transportation infrastructure. Map 3.1 illustrates the physical constraints within the metropolitan planning area; these constraints include: wetlands (including a 50-foot setback from wetlands); open water (including a 75-foot setback from water bodies); 100-year floodplains; and steep slopes (grade of 12 percent or greater, as established in the environmental corridors mapping for Manitowoc and Sheboygan counties prepared by the Bay-Lake Regional Planning Commission).

Major water boundaries in the metropolitan planning area include the Pigeon, Sheboygan and Black Rivers, Fisherman's Creek, and, of course, Lake Michigan. Wetlands (defined in Section 23.32 of the *Wisconsin Statutes* as "areas where water is at, near or above the land surface long enough to be capable of supporting aquatic or hydrophytic vegetation and which have soils indicative of wet conditions") spread out from many of these water bodies, serving to filter and replenish groundwater. While development in or near wetlands has an obvious negative environmental impact, it also has a less obvious negative economic impact in that development in or near wetlands reduces the ability to clean water naturally, which in turn requires municipal systems to accommodate and process greater volumes of water and causes customers to bear higher costs. The Federal Clean Water Act (which amended Title 33 of the *United States Code*) and state statutes and administrative codes regulate the impacts on waterways, wetlands, shorelands and floodplains.

Map 3.1 also shows steep slopes in the metropolitan planning area. Negative impacts associated with development on steep slopes include accelerated erosion and stormwater runoff. Eroded soils, debris and pollutants are deposited in rivers and streams through stormwater runoff, degrading the water quality of these receiving waters. Erosion and sedimentation control plans are enforced in the metropolitan planning area to ensure that water quality is maintained.

POPULATION

Because the metropolitan planning area boundary follows Census blocks and not the boundaries of minor civil divisions, the total population of the metropolitan planning area was 75,812 in 2010. A majority of the population of the metropolitan planning area lives in the City of

Sheboygan. However, the City of Sheboygan Falls, the Villages of Howards Grove and Kohler, the Town of Sheboygan, and portions of the surrounding towns also have significant populations within the metropolitan planning area. The total population for the ten communities (cities, villages and towns) that are wholly or partially included in the metropolitan planning area was estimated to be 80,548 in 2013, according to the Wisconsin Department of Administration's Demographic Services Center. The metropolitan planning area boundary includes the area expected to be urbanized within 20 to 30 years of its delineation (this boundary was last delineated in 2013).

Population Change

In order to illustrate how the communities in the metropolitan planning area compare in population to Sheboygan County, the State of Wisconsin, and to the United States, Table 3.1 presents the numerical and percentage change in population for the United States, the State of Wisconsin, the urbanized area, Sheboygan County, and for the cities, villages and towns that are wholly or partially included in the metropolitan planning area. It was not possible to calculate estimated population change for the Sheboygan metropolitan planning area.

Table 3.1: Population Change by Geography

Region or Jurisdiction	2010 Census Population	Current Estimated Population[1]	Numerical Change	Percentage Change
United States	308,745,538	316,128,839	7,383,301	2.4%
Wisconsin	5,686,986	5,717,110	30,124	0.5%
Metropolitan Planning Area	TBD	NA	NA	NA
Sheboygan Urbanized Area	71,313	71,074	(239)	-0.3%
Sheboygan County	115,507	115,386	(121)	-0.1%
City of Sheboygan	49,288	48,965	(323)	-0.7%
City of Sheboygan Falls	7,775	7,853	78	1.0%
Village of Howards Grove	3,188	3,209	21	0.7%
Village of Kohler	2,120	2,119	(1)	0.0%
Town of Herman	2,151	2,169	18	0.8%
Town of Lima	2,982	2,984	2	0.1%
Town of Mosel	790	784	(6)	-0.8%
Town of Sheboygan	7,271	7,390	119	1.6%
Town of Sheboygan Falls	1,718	1,723	5	0.3%
Town of Wilson	3,330	3,352	22	0.7%
Total for Communities[2]	80,613	80,548	(65)	-0.1%

NOTES:

[1]The source for the current estimated population of the United States is a July 1, 2013, population estimate from the U.S. Bureau of the Census. There is no current population estimate for the Sheboygan Metropolitan Planning Area. The source for the current estimated population of the Sheboygan Urbanized Area is demographic and housing estimates from the *American Community Survey (ACS): 2012* from the U.S. Bureau of the Census. The source for the current estimated population of the State of Wisconsin, Sheboygan County, and for the 10 cities, villages and towns that are wholly or partially located in the metropolitan planning area involves January 1, 2013, population estimates from the Wisconsin Department of Administration's Demographic Services Center.

[2]The totals for communities are calculated only from the 10 cities, villages or towns that are wholly or partially located in the metropolitan planning area.

Source: U.S. Bureau of the Census, 2010 (Summary File 1), 2012 (American Community Survey), and 2013 (Population Estimates); Wisconsin Department of Administration, Demographic Services Center, 2013; and Bay-Lake Regional Planning Commission, 2014.

The population of Sheboygan County is estimated to have decreased by 0.1 percent between 2010 and 2013, while the population increased for the State of Wisconsin (0.5 percent) and for the United States (2.4 percent) between those same years. The Sheboygan Urbanized Area is

estimated to have lost 0.3 percent of its population between 2010 and the 2012 timeframe when the American Community Survey (ACS) was conducted by the U.S. Bureau of the Census. The percentage change in population for the ten local jurisdictions in the metropolitan planning area illustrated both estimated gains and losses in population between 2010 and 2013.

Table 3.1 indicates that the Town of Sheboygan had the greatest estimated numerical gain in population (119) from 2010 to 2013, followed by the City of Sheboygan Falls (78), the Town of Wilson (22), the Village of Howards Grove (21), and the Town of Herman (18). Two other local jurisdictions in the metropolitan planning area were estimated to have had modest numerical gains in population from 2010 to 2013: the Town of Sheboygan Falls (5), and the Town of Lima (2). Three local jurisdictions in the metropolitan planning area were estimated to have had population losses from 2010 to 2013: the Village of Kohler (loss of one person), the Town of Mosel (loss of six persons), and the City of Sheboygan (loss of 323 persons).

In addition, Table 3.1 indicates that the Town of Sheboygan also had the greatest estimated percentage gain in population (1.6 percent) from 2010 to 2013. Other jurisdictions with estimated percentage increases in population from 2010 to 2013 included the City of Sheboygan Falls (1.0 percent), the Town of Herman (0.8 percent), the Town of Wilson and the Village of Howards Grove (0.7 percent each), the Town of Sheboygan Falls (0.3 percent), and the Town of Lima (0.1 percent). Again, the three local jurisdictions in the metropolitan planning area that had estimated population losses (on a percentage basis) from 2010 to 2013 were the Village of Kohler (loss of less than 0.1 percent), the City of Sheboygan (loss of 0.7 percent), and the Town of Mosel (loss of 0.8 percent).

Table 3.2 indicates area and population density (in persons per square mile) for the ten communities currently in the metropolitan planning area. Table 3.2 indicates that the City of Sheboygan increased in area by 2.4 percent, but is estimated to have decreased in population density by 3.0 percent between 2010 and 2013. Table 3.2 also indicates that the City of Sheboygan Falls stayed the same in area and increased in population density by 1.0 percent between 2010 and 2013. Among villages, the Village of Howards Grove stayed the same in area, and is estimated to have increased in population density by 0.7 percent between 2010 and 2013; while the Village of Kohler stayed the same in area and in general population density between 2010 and 2013.

Table 3.2 indicates that among the towns located in the metropolitan planning area, the Towns of Herman, Lima, Mosel and Sheboygan Falls saw no changes to their respective areas between 2010 and 2013. The Town of Wilson saw a small decrease in its area (0.3 percent) between 2010 and 2013, while the Town of Sheboygan saw a more significant decrease in its area (2.5 percent) between 2010 and 2013.

Table 3.2 also indicates varying changes in estimated population density among the towns in the metropolitan planning area between 2010 and 2013. Only one town saw a decrease in population density over that period: the Town of Mosel, with a 0.8 percent population density decrease. On the other hand, the Town of Sheboygan saw a 4.3 percent increase in population density between 2010 and 2013, and the Town of Wilson saw a 1.0 percent increase in population density between 2010 and 2013. The other three towns saw population density increases of less than one percent, including the Towns of Herman (0.8 percent), Lima (0.1 percent), and Sheboygan Falls (0.3 percent).

Table 3.2: Change in Geographic Area and Population Density for Metropolitan Planning Area Communities

Municipality	2010 Area (Sq. Miles)[1,2]	2010 Population[3]	2010 Population Density[4]	2013 (Estimate) Area (Sq. Miles)[1,2]	2013 (Estimate) Population[3]	2013 (Estimate) Population Density[4]	Percent Change Area	Percent Change Density
City of Sheboygan	14.256	49,288	3,457.4	14.603	48,965	3,353.0	2.4%	-3.0%
City of Sheboygan Falls	5.428	7,775	1,432.4	5.428	7,853	1,446.8	0.0%	1.0%
Village of Howards Grove	2.246	3,188	1,419.4	2.246	3,209	1,429.1	0.0%	0.7%
Village of Kohler	5.490	2,120	386.2	5.490	2,119	386.0	0.0%	0.0%
Town of Herman	34.046	2,151	63.2	34.046	2,169	63.7	0.0%	0.8%
Town of Lima	35.806	2,982	83.3	35.806	2,984	83.3	0.0%	0.1%
Town of Mosel	21.134	790	37.4	21.134	784	37.1	0.0%	-0.8%
Town of Sheboygan	10.940	7,271	664.6	10.664	7,390	693.0	-2.5%	4.3%
Town of Sheboygan Falls	31.360	1,718	54.8	31.360	1,723	54.9	0.0%	0.3%
Town of Wilson	22.994	3,330	144.8	22.922	3,352	146.2	-0.3%	1.0%

NOTES:
[1]The area in square miles is equal to the number of square miles over which the municipality has jurisdiction. This includes water and not just land area.
[2]Area measurements for 2010 and for 2013 were derived from municipal boundary files for those years.
[3]The 2010 population is from the 2010 Census. The 2013 population is an estimate from the Wisconsin Department of Administration's Demographic Services Center.
[4]Population density equals the number of persons per square mile.
Source: U.S. Bureau of the Census, 2010; Wisconsin Department of Administration, Demographic Services Center, 2013; Sheboygan County Planning and Conservation Department, 2010 and 2013; and Bay-Lake Regional Planning Commission, 2014.

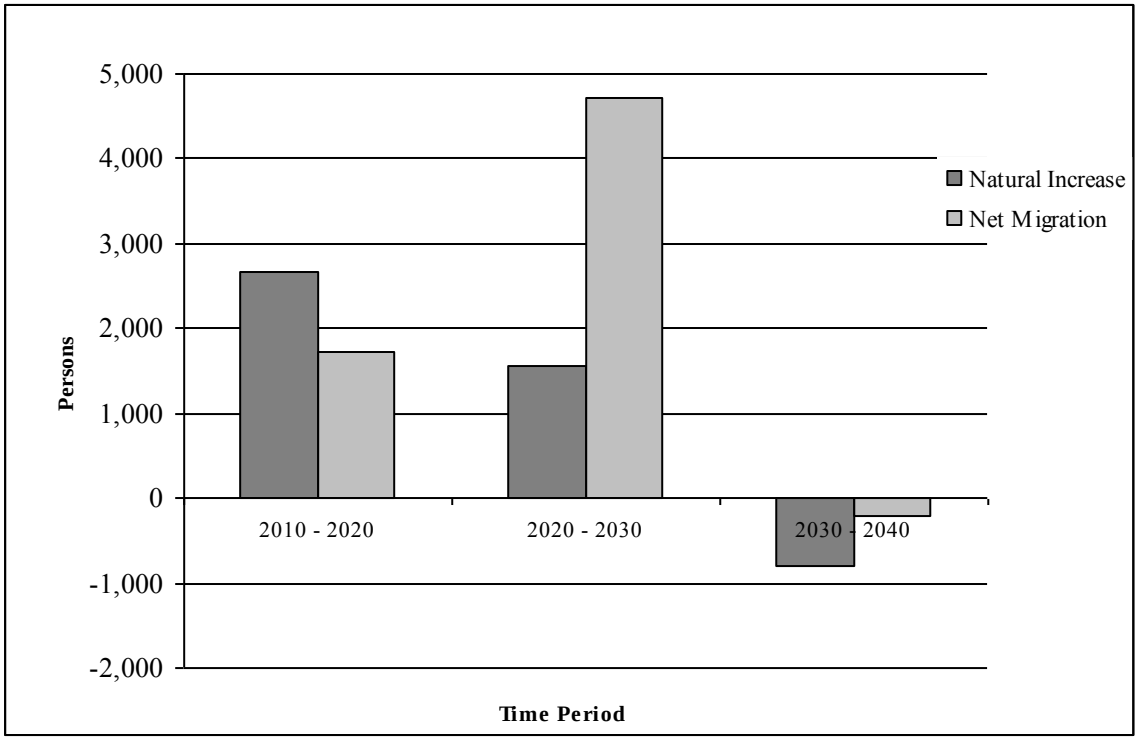
Components of Population Change

The most predictive attributes by which overall population growth can be assessed involve examination of the components of population change (natural increase and net migration) for Sheboygan County. Natural increase equals the number of births minus the number of deaths, while net migration equals the number of persons moving into a region minus the number of persons moving out of that region.

Figure 3.1, which is based on projections prepared by the Wisconsin Department of Administration's Demographic Services Center, illustrates how natural increase is greatest from 2010 through 2020, still occurs (but at a decreasing rate) from 2020 through 2030, then actually involves natural **decrease** from 2030 through 2040, as "baby boomers" (those born between 1946 and 1964) begin to reach mortality in large numbers. There is county net migration from 2010 through 2020, and county net migration is at its peak from 2020 through 2030. County net migration also involves a modest **decrease** from 2030 through 2040.

The natural increase in population is expected to decline substantially from 2010 through 2030, as the natural increase projected for 2020 to 2030 (1,560 persons) is less than 59 percent of the natural increase projected for 2010 to 2020 (2,662 persons). In addition, between 2030 and 2040, there will be 801 more deaths than births, leading to some natural decrease in population in Sheboygan County.

Figure 3.1: Components of Population Change, Sheboygan County

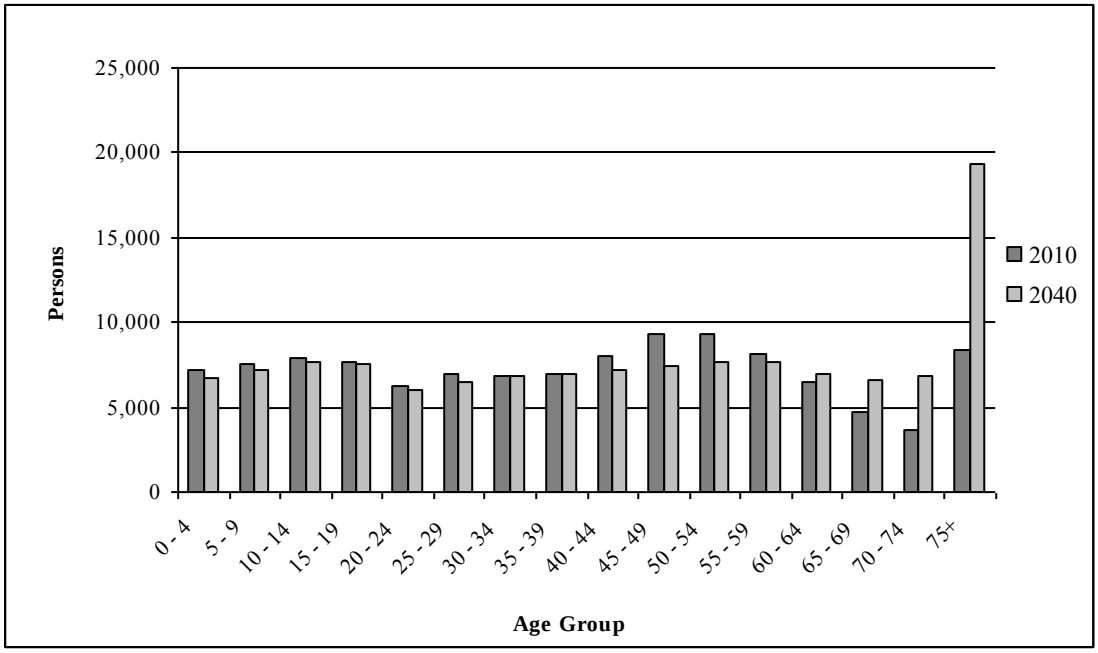


Note: all values are projections.
Source: Wisconsin Department of Administration, Demographic Services Center, 2013.

The main factor that will drive natural increase downward is the aging population. Figure 3.2 shows that over 19,000 people (or more than 15 percent of the projected population) will be 75 or older by 2040; over 55 percent of this group will be women. Over 45 percent of all females in 2040 will be 50 years old or older and beyond their child-bearing years.

Figure 3.2 also indicates that some of the more productive age groups in terms of labor (40 to 44, 45 to 49, 50 to 54, and 55 to 59) will decrease in population over the planning horizon. In fact the only age groups that increase in population between 2010 and 2040 are 30 to 34, 35 to 39, and all age groups that are 60 and over. This is of concern in the area of maintenance of social insurance programs over time. In addition, many have speculated that large proportions of those attending college in Wisconsin are leaving the state after graduation.

Figure 3.2: Total Population by Age Group, Sheboygan County



Source: Wisconsin Department of Administration, Demographic Services Center, 2013.

It should be noted that the Wisconsin Department of Administration (WDOA) Demographic Services Center has not developed population projections in five year increments, as has been the case in the past. In addition, 2040 is the latest year in which detailed projections are provided; extensions of projections to the plan horizon year of 2045 will not come with the level of detail typically provided by the WDOA.

Educational Attainment

Similar to many portions of the Midwest and throughout the nation, Sheboygan County is gradually experiencing a shift in the economy from the manufacturing and agricultural sectors to the service sector. For now, manufacturing remains an important component of the county's economy, but that is expected to change over time. Many service jobs are found in the health and technology fields, which require a more educated workforce.

Table 3.3 illustrates how the percentage of the population age 25 and older without a high school diploma decreased between 2006 – 2010 and 2008 – 2012 for the United States, the State of Wisconsin, Sheboygan County, the Sheboygan Urbanized Area, and for seven of ten local jurisdictions in the Sheboygan Metropolitan Planning Area, the exceptions being the Village of Kohler (which already had a low percentage of individuals without a high school diploma) and the Towns of Herman and Sheboygan. Table 3.3 also illustrates how the proportion of the population age 25 and older with a high school diploma and no additional education decreased between 2006 – 2010 and 2008 – 2012 for the nation, the state, the county, the Sheboygan Urbanized Area, and for six of ten local jurisdictions in the Sheboygan Metropolitan Planning Area, the exceptions being the Villages of Howards Grove and Kohler and the Towns of Lima and Mosel.

Table 3.3 illustrates how the percentage of the population age 25 and older with some college (including those with Associate's degrees) increased between 2006 – 2010 and 2008 – 2012 for

the nation, the state, the county, the Sheboygan Urbanized Area, and for six of ten local jurisdictions in the Sheboygan Metropolitan Planning Area, the exceptions being the City of Sheboygan Falls, the Villages of Howards Grove and Kohler, and the Town of Mosel. Table 3.3 illustrates how the percentage of the population age 25 and older with a Bachelor's degree or higher increased between 2006 – 2010 and 2008 – 2012 for the nation, the state, the county, the Sheboygan Urbanized Area, and for eight of ten local jurisdictions in the Sheboygan Metropolitan Planning Area, the exceptions being the Village of Kohler (which already had, by far, the highest percentage of college graduates in the area) and the Town of Herman.

Educational attainment information is no longer collected in the decennial Census, but rather is collected through the Census Bureau's American Community Survey (ACS). Information is only available in jurisdictions with a population under 20,000 over a five-year collection period; therefore, ACS five-year estimates were used in preparing Table 3.3.

It should be noted that the universe that the Census Bureau uses for collecting educational attainment data is persons age 25 and older. Therefore, it would not be possible to compare persons age 25 and older in the 2006 – 2010 period with persons age 27 and older in the 2008 – 2012 period in terms of their educational attainment. In general, there is a trend toward more education on the part of persons age 25 and older from 2006 – 2010 to 2008 – 2012.

Table 3.3: Educational Attainment by Geography

Region or Jurisdiction[2]	Percentage of the Population[1]							
	No High School Diploma		High School Diploma		Some College or Associate's Degree		Bachelor's Degree or Higher	
	2006 - 2010	2008 - 2012	2006 - 2010	2008 - 2012	2006 - 2010	2008 - 2012	2006 - 2010	2008 - 2012
United States	15.0%	14.3%	29.0%	28.2%	28.1%	29.0%	27.9%	28.5%
Wisconsin	10.6%	9.8%	34.0%	33.1%	29.6%	30.6%	25.8%	26.4%
Sheboygan County	10.5%	9.7%	38.7%	37.5%	30.2%	30.6%	20.5%	22.3%
Sheboygan Urbanized Area	11.1%	10.4%	39.1%	36.9%	29.2%	30.2%	20.6%	22.5%
City of Sheboygan	13.0%	12.7%	40.7%	39.0%	28.9%	29.6%	17.4%	18.7%
City of Sheboygan Falls	9.5%	7.5%	35.8%	35.7%	32.5%	32.3%	22.2%	24.5%
Village of Howards Grove	4.6%	2.1%	34.5%	37.1%	34.3%	33.4%	26.6%	27.4%
Village of Kohler	1.9%	2.3%	12.9%	16.0%	30.8%	27.9%	54.4%	53.8%
Town of Herman	11.7%	12.9%	42.0%	39.9%	30.6%	32.7%	15.7%	14.6%
Town of Lima	8.6%	6.1%	48.4%	49.2%	29.5%	30.0%	13.5%	14.7%
Town of Mosel	5.6%	5.3%	37.6%	40.7%	37.5%	30.5%	19.3%	23.4%
Town of Sheboygan	5.8%	6.8%	40.5%	34.2%	26.9%	30.8%	26.8%	28.2%
Town of Sheboygan Falls	12.2%	9.7%	44.5%	43.9%	26.7%	29.6%	16.6%	16.9%
Town of Wilson	5.6%	3.2%	28.8%	23.0%	27.2%	31.3%	38.4%	42.5%
Total for Communities	10.8%	10.1%	39.5%	37.4%	28.6%	30.3%	21.0%	22.3%

NOTES:

[1]The universe for this table is the population for each jurisdiction that is age 25 and older.

[2]Educational attainment estimates for the U.S., the State of Wisconsin, Sheboygan County, the Sheboygan Urbanized Area and all local jurisdictions in the Sheboygan Metropolitan Planning Area come from the *2006 – 2010 American Community Survey 5-Year Estimates* and from the *2008 – 2012 American Community Survey 5-Year Estimates*.

Source: U.S. Bureau of the Census, *2006 – 2010 American Community Survey 5-Year Estimates* (Table DP-02, Selected Social Characteristics in the United States: 2006 – 2010), *2008 – 2012 American Community Survey 5-Year Estimates* (Table DP-02, Selected Social Characteristics in the United States: 2008 – 2012); and Bay-Lake Regional Planning Commission, 2014.

Diversity

Table 3.4 indicates the racial and ethnic composition of communities in the Sheboygan Urbanized Area in 2000 and in 2010, including population and percentage changes between 2000 and 2010 for each noted racial or ethnic group.

Table 3.4: Racial and Ethnic Composition of Total Population of the Sheboygan Urbanized Area

Racial/Ethnic Group	2000		2010		Change	
	Population	Percentage	Population	Percentage	Population	Percentage
White, Non-Hispanic	60,441	88.1%	58,837	82.5%	-1,604	-2.7%
African American, Non-Hispanic	444	0.6%	928	1.3%	484	109.0%
American Indian and Alaska Native, Non-Hispanic	228	0.3%	246	0.3%	18	7.9%
Asian, Non-Hispanic	3,471	5.1%	4,881	6.8%	1,410	40.6%
Native Hawaiian or Other Pacific Islander, Non-Hispanic	5	0.0%	6	0.0%	1	20.0%
Other Race or Two or More Races, Non-Hispanic	786	1.1%	1,025	1.4%	239	30.4%
Hispanic (All Races)	3,225	4.7%	5,390	7.6%	2,165	67.1%
Total	**68,600**	**100.0%**	**71,313**	**100.0%**	**2,713**	**4.0%**

Source: U.S. Bureau of the Census, *Census 2000* (Summary File 1, Table P004, Hispanic or Latino, and Not Hispanic or Latino by Race), *2010 Census* (Summary File 1, Table P9, Hispanic or Latino, and Not Hispanic or Latino by Race); and Bay-Lake Regional Planning Commission, 2014.

Table 3.4 indicates that in 2000, the population of the Sheboygan Urbanized Area was 88.1 percent white. In 2000, the Asian population was 5.1 percent of the population of the urbanized area, while the Hispanic population (of all races) was 4.7 percent of the urbanized area population. Non-Hispanic persons of "other race" or "two or more races" constituted 1.1 percent of the population of the urbanized area in 2000. The African American population was 0.6 percent of the population of the urbanized area in 2000, while the American Indian and Alaska Native population was 0.3 percent of the urbanized area population in 2000. The Native Hawaiian or Other Pacific Islander population was less than 0.1 percent of the urbanized area population in 2000.

Table 3.4 also indicates that in 2010, the white population decreased to 82.5 percent of the population of the Sheboygan Urbanized Area. The African American population increased to 1.3 percent of the population of the urbanized area in 2010. The American Indian and Alaska Native population stayed at 0.3 percent of the population of the urbanized area in 2010. The Asian population increased to 6.8 percent of the urbanized area population in 2010. The Native Hawaiian or Other Pacific Islander population stayed at less than 0.1 percent of the urbanized area population in 2010. Non-Hispanic persons of "other race" or "two or more races" increased to 1.4 percent of the urbanized area population in 2010. Finally, the Hispanic population (of all races) increased to 7.6 percent of the urbanized area population in 2010.

Table 3.4 shows that between 2000 and 2010, the white population decreased by 2.7 percent in the Sheboygan Urbanized Area. However, the other racial and ethnic groups registered percentage increases in population between 2000 and 2010 (the overall urbanized area population increased by 4.0 percent), as follows:

- The African American population increased by 109 percent between 2000 and 2010;
- The American Indian and Alaska Native population increased by nearly eight percent between 2000 and 2010;
- The Asian population increased by nearly 41 percent between 2000 and 2010;
- The Native Hawaiian or Other Pacific Islander population increased by 20 percent between 2000 and 2010 (although this was a small increase in numerical terms);
- Non-Hispanic persons of "other race" or "two or more races" increased by over 30 percent between 2000 and 2010; and
- The Hispanic population increased by over 67 percent between 2000 and 2010.

The largest numerical gains in population from 2000 to 2010 were made in the Hispanic population (2,165 persons), followed by the Asian population (1,410 persons), the African American population (484 persons), and by Non-Hispanic persons of "other race" or "two or more races" (239 persons). More modest numerical gains were made by the American Indian and Alaska Native population (18 persons) as well as by the Native Hawaiian or Other Pacific Islander population (one person). A loss of 1,604 persons occurred in the white population between 2000 and 2010. The overall urbanized area population increased by 2,713 persons between 2000 and 2010.

The Sheboygan Urbanized Area and the Sheboygan Metropolitan Planning Area are expected to become more diverse over the period covered by this plan.

Persons in Poverty

The U.S. Bureau of the Census uses income thresholds that vary by family size and increase at the rate of inflation to determine who is in poverty. Ratios are used to identify the relationship an individual or family has to national poverty thresholds. For example, a ratio of 1.0 means that the individual or family is at their respective poverty threshold. Those with a ratio less than 1.0 are below poverty, while those with a ratio greater than 1.0 are above poverty.

Table 3.5: Persons in Poverty[1]

Region or Jurisdiction	Percentage of the Population in Poverty	
	2006 - 2010 ACS	2008 - 2012 ACS
United States	13.8%	14.9%
Wisconsin	11.6%	12.5%
Sheboygan County	8.4%	8.8%
Sheboygan Urbanized Area	9.9%	10.1%
City of Sheboygan	12.4%	12.9%
City of Sheboygan Falls	7.0%	8.1%
Village of Howards Grove	1.3%	1.5%
Village of Kohler	1.4%	1.0%
Town of Herman	6.0%	3.7%
Town of Lima	2.9%	4.8%
Town of Mosel	8.6%	7.2%
Town of Sheboygan	2.0%	2.4%
Town of Sheboygan Falls	6.3%	3.5%
Town of Wilson	1.0%	1.4%
Total for Communities	9.1%	9.5%

NOTE:
[1]The universe for this table is persons for whom poverty status is determined.
Source: U.S. Bureau of the Census, *2006 – 2010 American Community Survey 5-Year Estimates* (Table S1701, Poverty Status in the Past 12 Months), *2008 – 2012 American Community Survey 5-Year Estimates* (Table S1701, Poverty Status in the Past 12 Months); and Bay-Lake Regional Planning Commission, 2014.

Table 3.5 indicates that about 14.9 percent of the nation's population for whom poverty status was determined lived in poverty over the period from 2008 to 2012, according to the American Community Survey (ACS). Table 3.5 also indicates that Wisconsin fared a little better than the nation, with about 12.5 percent of its population in poverty over the period from 2008 to 2012. Sheboygan County fared better than Wisconsin, with 8.8 percent of its population in poverty over the period from 2008 to 2012. The Sheboygan Urbanized Area fared better than the state and nation but worse than the county, with a poverty rate of 10.1 percent over the period from

2008 to 2012. Of the local jurisdictions, the City of Sheboygan had the highest rate of poverty (12.9 percent), which was higher than the state, county and urbanized area, but was lower than the nation. The City of Sheboygan Falls and the Town of Mosel had poverty rates between five and ten percent, and all other local jurisdictions had poverty rates of less than five percent. The overall poverty rate for the ten communities in the Sheboygan Metropolitan Planning Area was 9.5 percent over the period from 2008 to 2012.

The poverty rate increased for the nation, the state, the county, and for the urbanized area between the 2006 – 2010 ACS and the 2008 – 2012 ACS. The poverty rate also increased for six of the ten local jurisdictions in the Sheboygan Metropolitan Planning area between the 2006 – 2010 ACS and the 2008 – 2012 ACS, the four exceptions being the Village of Kohler and the Towns of Herman, Mosel and Sheboygan Falls; the poverty rate decreased in these four jurisdictions. The overall poverty rate for the ten communities in the Sheboygan Metropolitan Planning Area increased by 0.4 percent between the 2006 – 2010 ACS and the 2008 – 2012 ACS.

Each ACS measured poverty status "in the past 12 months (presumably 2005 to 2009 in the case of the 2006 – 2010 ACS, and presumably 2007 to 2011 in the case of the 2008 – 2012 ACS).

Per Capita Income

Per capita income, as measured by the U.S. Bureau of the Census, is an average of the reported personal income of all surveyed persons within a given geography. Personal income is one component of household income, which will be discussed in the next section. Census reporting of per capita income is subject to two limitations: (1) a person underreporting his or her annual income; and (2) a skewing of values either above or below a realistic per capita income (this depends on the number of extremely low or extremely high income values).

Table 3.6 indicates that the 2008 - 2012 per capita income for the State of Wisconsin was $625 lower than the per capita income for the nation, while the 2008 – 2012 per capita income for Sheboygan County was $1,633 lower than the per capita income level for the state. Table 3.6 also indicates that the 2008 – 2012 per capita income level for the Sheboygan Urbanized Area was $1,231 lower than the per capita income level for the county. Similar disparities between the nation, state, county and urbanized area were also evident over the 2006 – 2010 period.

Table 3.6 also indicates that the 2008 – 2012 per capita income for the following jurisdictions was below the urbanized area average of $24,562: City of Sheboygan ($21,562) and Town of Herman ($23,084); all other jurisdictions had per capita incomes above the urbanized area average. The same eight local jurisdictions that were above the urbanized area average in 2008 – 2012 were also above the Sheboygan County per capita income average of $25,793 over that period. Five local jurisdictions were above the state per capita income average of $27,426 from 2008 to 2012, including the Villages of Howards Grove and Kohler, along with the Towns of Sheboygan, Sheboygan Falls and Wilson; these same five jurisdictions were also above the national per capita income average of $28,051 over that period. The City of Sheboygan Falls and the Towns of Lima and Mosel had average per capita incomes higher than the county average, but below the state and national averages.

In addition, Table 3.6 indicates that between the 2006 – 2010 and 2008 – 2012 American Community Survey (ACS) periods, real per capita income decreased by 2.5 percent for the nation, decreased by 2.2 percent for the state, decreased by 1.9 percent for the county, and decreased by 1.5 percent for the urbanized area. Seven of the ten local jurisdictions in the

Sheboygan Metropolitan Planning Area saw decreases in average real per capita income between the 2006 – 2010 and the 2008 – 2012 ACS periods; these decreases ranged from 2.2 percent (Town of Wilson) to 10.8 percent (Village of Kohler). The three local jurisdictions that saw real increases in average real per capita income between the two ACS survey periods were the Village of Howards Grove (5.8 percent), the Town of Lima (6.1 percent), and the Town of Mosel (3.0 percent).

Both American Community Surveys measured per capita income "in the past 12 months" (presumably 2005 to 2009 in the case of the *2006 – 2010 ACS*, and 2007 to 2011 in the case of the *2008 – 2012 ACS*).

Table 3.6: Per Capita Income by Geography[1, 2]

Region or Jurisdiction	Income in 2006 - 2010	2006 - 2010 Income in 2008 - 2012 Dollars	Income in 2008 - 2012	Percentage Change
United States	$27,334	$28,780	$28,051	-2.5%
Wisconsin	$26,624	$28,033	$27,426	-2.2%
Sheboygan County	$24,976	$26,298	$25,793	-1.9%
Sheboygan Urbanized Area	$23,678	$24,931	$24,562	-1.5%
City of Sheboygan	$21,423	$22,557	$21,924	-2.8%
City of Sheboygan Falls	$25,630	$26,986	$26,178	-3.0%
Village of Howards Grove	$28,230	$29,724	$31,443	5.8%
Village of Kohler	$39,180	$41,253	$36,817	-10.8%
Town of Herman	$22,652	$23,851	$23,084	-3.2%
Town of Lima	$24,091	$25,366	$26,903	6.1%
Town of Mosel	$23,964	$25,232	$25,998	3.0%
Town of Sheboygan	$32,279	$33,987	$32,244	-5.1%
Town of Sheboygan Falls	$27,910	$29,387	$28,577	-2.8%
Town of Wilson	$33,347	$35,111	$34,326	-2.2%

NOTES:

[1]Per capita income for 2006 to 2010 was obtained from the *2006 – 2010 American Community Survey 5-Year Estimates*. Per capita income for 2008 to 2012 was obtained from the *2008 – 2012 American Community Survey 5-Year Estimates*. These data represent an average of annual personal income of surveyed persons. Not all persons received the *American Community Survey (ACS)* form in either period of analysis. Incomes reported in 2006 – 2010 and in 2008 – 2012 represent the per capita incomes for those periods, respectively. Because 2006 – 2010 dollars are not equal to 2008 – 2012 dollars, 2006 – 2010 dollars were inflated to 2008 – 2012 dollars by about 5.29 percent using the Consumer Price Index (CPI). This was the inflation rate from 2010 to 2012, since ACS dollar amounts are inflation adjusted to the final year of the ACS survey period.

[2]The universe of respondents for this table is the total population in each jurisdiction.

Source: U.S. Bureau of the Census, *2006 – 2010 American Community Survey 5-Year Estimates* (Table B19301, Per Capita Income in the Past 12 Months in 2010 Inflation-Adjusted Dollars), *2008 – 2012 American Community Survey 5-Year Estimates* (Table B19301, Per Capita Income in the Past 12 Months in 2012 Inflation-Adjusted Dollars); U.S. Department of Labor, Bureau of Labor Statistics, CPI Inflation Calculator, 2010 and 2012; and Bay-Lake Regional Planning Commission, 2014.

HOUSEHOLDS

Median Household Income

Household income equals the total income earned by all persons age 15 and older living within a housing unit. However, group quarters (such as nursing homes and college dormitories) are not classified as housing units, and therefore are not included in the calculation of median household income. While per capita income is an average of reported personal income, median household income is the middle value of all reported household income, with half of the values below and half of the values above this level. Median household income is a better indicator of how people are living than is per capita income because (1) not all persons who earn an income live alone, and (2) the value is not skewed by exceptionally high or low income values, as may be the base with a mean-based average.

Table 3.7 compares the median household incomes reported in the *2006 – 2010 American Community Survey* to those reported in the *2008 – 2012 American Community Survey* by geography. All incomes are inflated to 2012 dollars so that the value of the dollar is comparable for the two periods of analysis.

Table 3.7 indicates that the U.S., the State of Wisconsin and Sheboygan County all had decreases in median household income (when adjusted for inflation) between the 2006 – 2010 and the 2008 – 2012 ACS periods, while the Sheboygan Urbanized Area registered a modest (0.5 percent) increase in median household income between these periods. The following local jurisdictions had a decrease in median household income between the two ACS periods: City of Sheboygan; Village of Kohler; and the Towns of Herman, Mosel, Sheboygan and Sheboygan Falls. The largest decreases in median household income occurred in the Town of Sheboygan (10.7 percent), the Town of Herman (7.7 percent), the Town of Mosel (7.0 percent), and the City of Sheboygan (5.4 percent). The following local jurisdictions had an increase in median household income between the two ACS periods: City of Sheboygan Falls; Village of Howards Grove; and the Towns of Lima and Wilson. The largest increases in median household income occurred in the Town of Wilson (12.6 percent) and in the City of Sheboygan Falls (6.5 percent).

Table 3.7 indicates that the nation and the state had fairly similar median household income levels in the 2008 – 2012 ACS period, with the nation's median household income level being $419 higher than the state's median household income level. Sheboygan County had a median household income level that was $340 higher than the state's median household income level, but was $79 lower than the nation's median household income level. The median household income level for the urbanized area was significantly lower than similar levels for the nation, state and county in the 2008 – 2012 ACS period; the urbanized area had a median household income level that was $4,326 (8.2 percent) lower than the median household income for the nation.

It is evident in Table 3.7 that nearly all local jurisdictions in the metropolitan planning area had median household income levels in the 2008 – 2012 ACS period that exceeded median household income levels not just for the urbanized area, but also for the county, state and nation. The one exception to this rule was the City of Sheboygan, which at $42,549, was significantly lower than the median household income levels for the urbanized area, the county, the state and for the nation.

Both American Community Surveys measured median household income "in the past 12

months" (presumably 2005 to 2009 in the case of the *2006 – 2010 ACS*, and 2007 to 2011 in the case of the *2008 – 2012 ACS*).

Table 3.7: Median Household Income by Geography[1, 2]

Region or Jurisdiction	Income in 2006 - 2010	2006 - 2010 Income in 2008 - 2012 Dollars	Income in 2008 - 2012	Percentage Change
United States	$51,914	$54,661	$53,046	-3.0%
Wisconsin	$51,598	$54,328	$52,627	-3.1%
Sheboygan County	$51,127	$53,832	$52,967	-1.6%
Sheboygan Urbanized Area	$46,031	$48,467	$48,720	0.5%
City of Sheboygan	$42,708	$44,968	$42,549	-5.4%
City of Sheboygan Falls	$51,968	$54,718	$58,283	6.5%
Village of Howards Grove	$66,516	$70,036	$70,349	0.4%
Village of Kohler	$77,946	$82,070	$81,625	-0.5%
Town of Herman	$62,500	$65,807	$60,714	-7.7%
Town of Lima	$66,979	$70,523	$73,384	4.1%
Town of Mosel	$61,429	$64,679	$60,139	-7.0%
Town of Sheboygan	$68,341	$71,957	$64,250	-10.7%
Town of Sheboygan Falls	$60,156	$63,339	$61,688	-2.6%
Town of Wilson	$74,500	$78,442	$88,315	12.6%

NOTES:

[1]Median household income for 2006 to 2010 was obtained from the *2006 – 2010 American Community Survey 5-Year Estimates*. Median household income for 2008 to 2012 was obtained from the *2008 – 2012 American Community Survey 5-Year Estimates*. These data represent an average of reported annual household income of surveyed households. Not all households received the *American Community Survey (ACS)* form in either period of analysis. Incomes reported in 2006 – 2010 and in 2008 – 2012 represent the median household incomes for those periods, respectively. Because 2006 – 2010 dollars are not equal to 2008 – 2012 dollars, 2006 – 2010 dollars were inflated to 2008 – 2012 dollars by about 5.29 percent using the Consumer Price Index (CPI). This was the inflation rate from 2010 to 2012, since ACS dollar amounts are inflation adjusted to the final year of the ACS survey period.

[2]The universe of respondents for this table is the total number of households in each jurisdiction.

Source: U.S. Bureau of the Census, *2006 – 2010 American Community Survey 5-Year Estimates* (Table S1903, Median Income in the Past 12 Months in 2010 Inflation-Adjusted Dollars), *2008 – 2012 American Community Survey 5-Year Estimates* (Table S1903, Median Income in the Past 12 Months in 2012 Inflation-Adjusted Dollars); U.S. Department of Labor, Bureau of Labor Statistics, CPI Inflation Calculator, 2010 and 2012; and Bay-Lake Regional Planning Commission, 2014.

Composition of Households

Households are comprised of either families or non-families. Family households include a householder and one or more persons related to the householder by birth, marriage or adoption. Non-family householders include a householder who lives alone or lives with non-relatives. (An example of a non-family household with more than one person could be two or more unrelated college students sharing a non-university owned apartment. Students who live on campus in dormitories or live off-campus in university-owned apartments are considered to live in "group quarters," and are not included in household counts.

The total number of households in Sheboygan County increased by over 6.5 percent (up over 2,800 to nearly 46,400 households) from 2000 to 2010, with an increase of nearly 960 (or nearly 3.2 percent) in family households, and an increase of nearly 1,890 (or nearly 13.9 percent) in non-family households. The total number of households in the Sheboygan Urbanized Area increased by over 6.9 percent (up nearly 1,920 to over 29,500 households) from 2000 to 2010, with an increase of over 640 (or nearly 3.6 percent) in family households, and with an increase of over 1,270 (or nearly 13.2 percent) in non-family households. These figures compare to a nearly 10.7 percent household growth rate for the U.S. from 2000 to 2010 (an 8.0 percent growth rate in family households, and a nearly 16.3 percent growth rate in non-family households), as well as a

nearly 9.4 percent household growth rate for the State of Wisconsin from 2000 to 2010 (a 5.9 percent growth rate in family households, and a 16.2 percent growth rate in non-family households.

As far as the cities of the metropolitan planning area were concerned, the total number of households in the City of Sheboygan *decreased* by nearly 2.3 percent (down over 470 to just over 20,300 households) from 2000 to 2010, with a *decrease* of nearly 580 (or 4.5 percent) in family households, but with an increase of over 100 (or over 1.3 percent) in non-family households. The total number of households in the City of Sheboygan Falls increased by nearly 26.8 percent (up over 730 to 3,480 households) from 2000 to 2010, with an increase of over 280 (or over 15.1 percent) in family households, and with an increase of over 450 (or nearly 51.6 percent) in non-family households.

As far as the villages of the metropolitan planning area were concerned, the total number of households in the Village of Howards Grove increased by over 23.6 percent (up nearly 240 to over 1,240 households) from 2000 to 2010, with an increase of 130 (or 16.0 percent) in family households, and with an increase of nearly 110 (or nearly 55.4 percent) in non-family households. The total number of households in the Village of Kohler increased by nearly 6.4 percent (up nearly 50 to over 780 households) from 2000 to 2010, with an increase of 40 (or over 7.0 percent) in family households, and with an increase of fewer than ten (or over 4.1 percent) in non-family households.

As far as the towns of the metropolitan planning area were concerned, the total number of households in the Town of Herman increased by over 6.4 percent (up 37 to 611 households) from 2000 to 2010, with an increase of 13 (or over 2.8 percent) in family households, and with an increase of 24 (or nearly 20.7 percent) in non-family households. The total number of households in the Town of Lima increased by over 8.0 percent (up 81 to 1,089 households) from 2000 to 2010, with an increase of 69 (or over 8.3 percent) in family households, and with an increase of 12 (or 6.7 percent) in non-family households. The total number of households in the Town of Mosel *decreased* by nearly 0.7 percent (down by 2 to 308 households), with a *decrease* of 10 (or 4.0 percent) in family households, but with an increase of eight (or over 13.1 percent) in non-family households.

The total number of households in the Town of Sheboygan increased by over 39.6 percent (up 851 to 2,999 households) from 2000 to 2010, with an increase of 384 (or nearly 22.3 percent) in family households, and with an increase of 467 (or 110.4 percent) in non-family households. The total number of households in the Town of Sheboygan Falls increased by nearly 7.5 percent (up 49 to 706 households) from 2000 to 2010, with an increase of 27 (or nearly 5.4 percent) in family households, and with an increase of 22 (or nearly 14.3 percent) in non-family households. The total number of households in the Town of Wilson increased by 6.4 percent (up 79 to 1,314 households) from 2000 to 2010, with an increase of 73 (or nearly 7.5 percent) in family households, and with an increase of 6 (or 2.3 percent) in non-family households.

The total number of households in the ten communities of the Sheboygan Metropolitan Planning Area increased by nearly 5.3 percent (up 1,644 to 32,844 households) from 2000 to 2010, with an increase of 433 (or nearly 2.1 percent) in family households, and with an increase of 1,211 (or over 11.6 percent) in non-family households.

Sheboygan County, the Sheboygan Urbanized Area and the total of the ten communities that are wholly or partially included in the Sheboygan Metropolitan Planning Area have all lagged

behind the state and nation in terms of overall household growth. In addition, non-family households are growing at a faster rate than are family households in most jurisdictions examined in this analysis, the exceptions being the Village of Kohler and the Towns of Lima and Wilson.

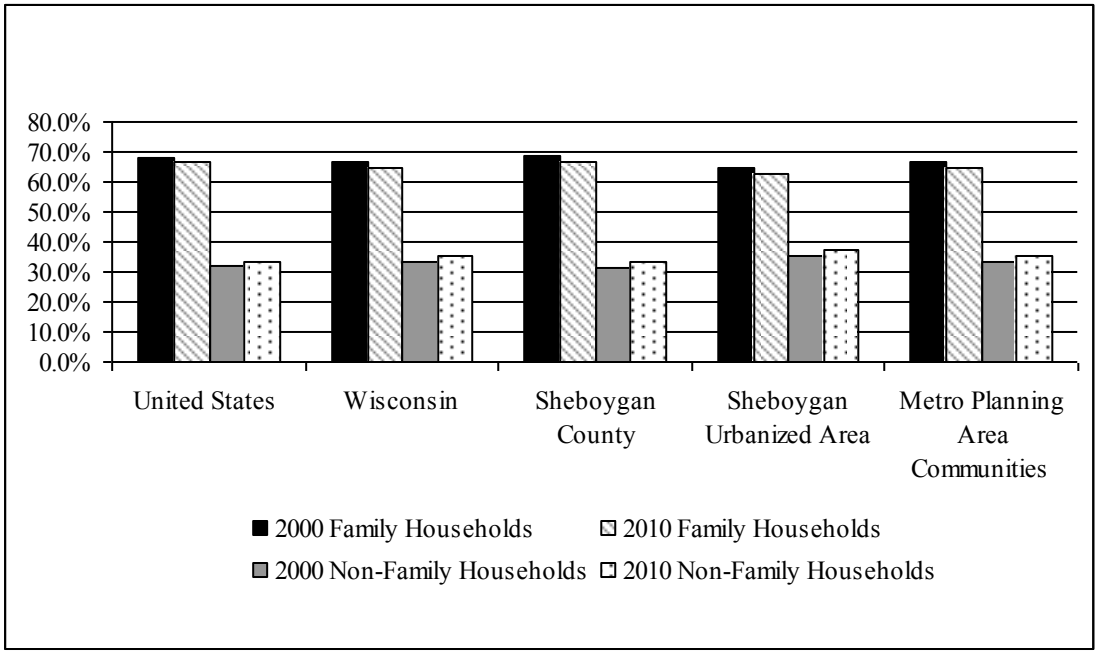
Figure 3.3 illustrates family and non-family households for 2000 and 2010 as a percentage of all households. The proportion of family households decreased in the following larger geographic areas:

- United States: Decrease from 68.1 percent in 2000 to 66.4 percent in 2010;
- State of Wisconsin: Decrease from 66.5 percent in 2000 to 64.4 percent in 2010;
- Sheboygan County: Decrease from 68.7 percent in 2000 to 66.6 percent in 2010;
- Sheboygan Urbanized Area: Decrease from 65.0 percent in 2000 to 62.9 percent in 2010; and
- Sheboygan Metropolitan Planning Area Communities: Decrease from 66.6 percent in 2000 to 64.6 percent in 2010.

In addition, the proportion of family households decreased in seven of the ten local jurisdictions in the Sheboygan Metropolitan Planning Area, with the three exceptions again being the Village of Kohler and the Towns of Lima and Wilson.

The average size of a family household decreased in most measured jurisdictions from 2000 to 2010, with three exceptions: the nation (where it stayed the same), and the City of Sheboygan and the Village of Kohler (where it increased slightly). Decreases in family household size were never higher than 0.18, and the few increases in household size that occurred were never higher than 0.06. The average size of a non-family household increased for the nation, the Village of Kohler and for the Town of Wilson between 2000 and 2010, while it decreased for the urbanized area, the City of Sheboygan Falls, and the towns of Herman, Lima, Mosel, Sheboygan and Sheboygan Falls between those years. The state, the county, the City of Sheboygan and the Village of Howards Grove saw essentially no change in the average size of a non-family household between 2000 and 2010. Decreases in non-family household size were never higher than 0.08, while increases in non-family household size were never higher than 0.12. For all measured jurisdictions, there was an average of three persons in a family household (with all jurisdictions within 0.2 of that average), while there was an average of around 1.2 persons in a non-family household (with all jurisdictions within 0.1 of that average) in 2010.

Figure 3.3: Household Composition as a Percentage of Total Households



Source: U.S. Bureau of the Census, *Census 2000* (Summary File 2, Table QT-P10: Households and Families), *2010 Census* (Summary File 2, Table QT-P11: Households and Families); and Bay-Lake Regional Planning Commission, 2014.

HOUSING STOCK

Home Ownership

Studies have shown that the most common reason for saving money is to purchase a home. As home ownership increases in a community, stability and strength in that community also tend to increase. Home owners tend to occupy their homes for more years, while renters tend to move from rental to rental, often spending a year or less in one location. For example, areas of high student rental typically experience high occurrences of transient behavior where residents live in one location for a semester or an academic year and then move on. These brief stays do little to promote a sense of home and neighborhood. Home owners, in general, tend to take better care of their own homes, and often become involved in their neighborhoods and communities.

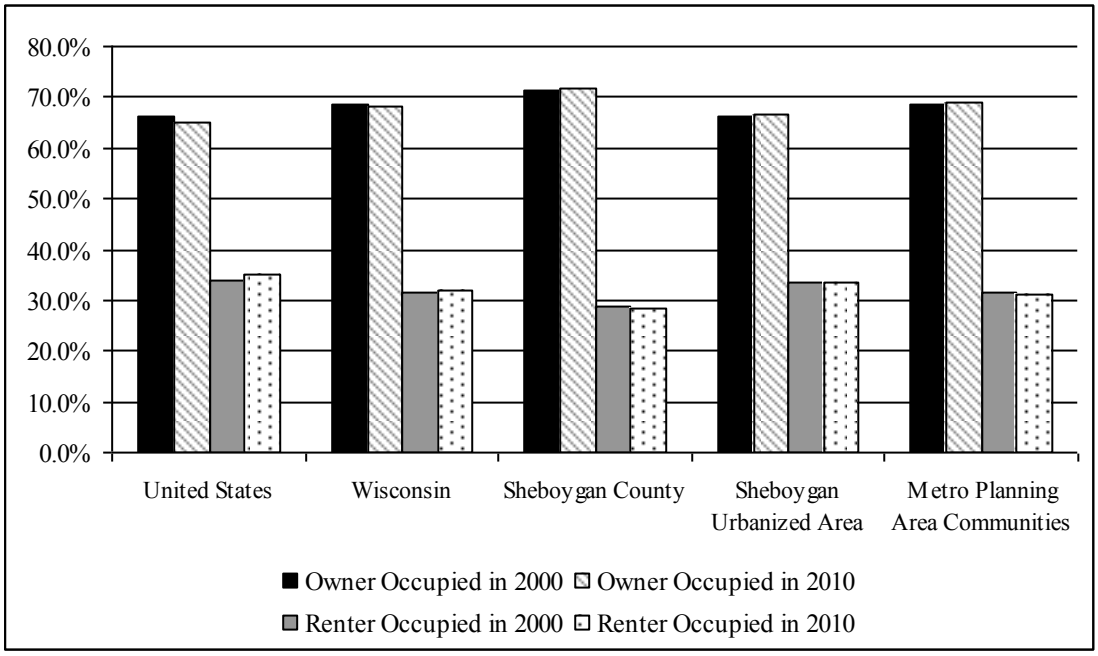
As a means of analyzing home ownership, the U.S. Bureau of the Census gathers data on the tenure (owner-occupied or renter-occupied status) of housing units. Figure 3.4 illustrates and compares owner-occupied and renter-occupied housing units for 2000 and for 2010 as percentages of total occupied housing stock. The United States and the State of Wisconsin saw decreases in their proportion of owner-occupied housing (and therefore saw increases in their proportion of renter-occupied housing) from 2000 to 2010. On the other hand, Sheboygan County, the Sheboygan Urbanized Area and the ten communities that constitute the Sheboygan Metropolitan Planning Area saw modest increases in their proportion of owner-occupied housing (and therefore saw slight decreases in their proportion of renter-occupied housing) over that same period. Most increases or decreases in owner-occupied housing were 0.3 percentage points or less; one exception was the nation, which saw a 1.1 percent decrease in owner-occupied housing between 2000 and 2010.

Seven of the ten communities in the Sheboygan Metropolitan Planning Area saw increases in their proportions of owner-occupied housing from 2000 to 2010. The three communities that saw decreases in their proportions of owner-occupied housing were the City of Sheboygan Falls, the Village of Kohler, and the Town of Sheboygan. The City of Sheboygan Falls and the Town of Sheboygan saw significant building of rental housing between 2000 and 2010, while the Village of Kohler has had an owner occupancy rate in excess of 92 percent, one of the highest owner occupancy rates in the area. The Town of Wilson saw the largest increase in owner occupancy between 2000 and 2010 (5.9 percent), followed by the Town of Herman (5.8 percent) and the Village of Howards Grove (2.3 percent). The remaining four local jurisdictions saw increases in owner occupancy of less than two percent.

The two cities in the metropolitan area saw owner occupancy rates between 60 and 70 percent in 2010, with the City of Sheboygan having the area's lowest owner occupancy rate at 61.2 percent. The Town of Sheboygan had an owner occupancy rate just below 80 percent in 2010. The Village of Howards Grove and the Towns of Herman, Mosel and Sheboygan Falls had owner occupancy rates between 80 and 90 percent in 2010. The Village of Kohler and the Towns of Lima and Wilson had owner occupancy rates in excess of 90 percent in 2010.

Among the geographic areas measured in Figure 3.4, the nation had the lowest percentage of owner-occupied housing units in 2010 (65.1 percent), followed by the Sheboygan Urbanized Area (66.5 percent), the State of Wisconsin (68.1 percent), and the communities of the Sheboygan Metropolitan Planning Area (68.8 percent). At 71.7 percent, Sheboygan County had the highest percentage of owner-occupied housing units of the geographic units measured in Figure 3.4 in 2010.

Figure 3.4: Housing Tenure as a Percentage of Occupied Housing Stock



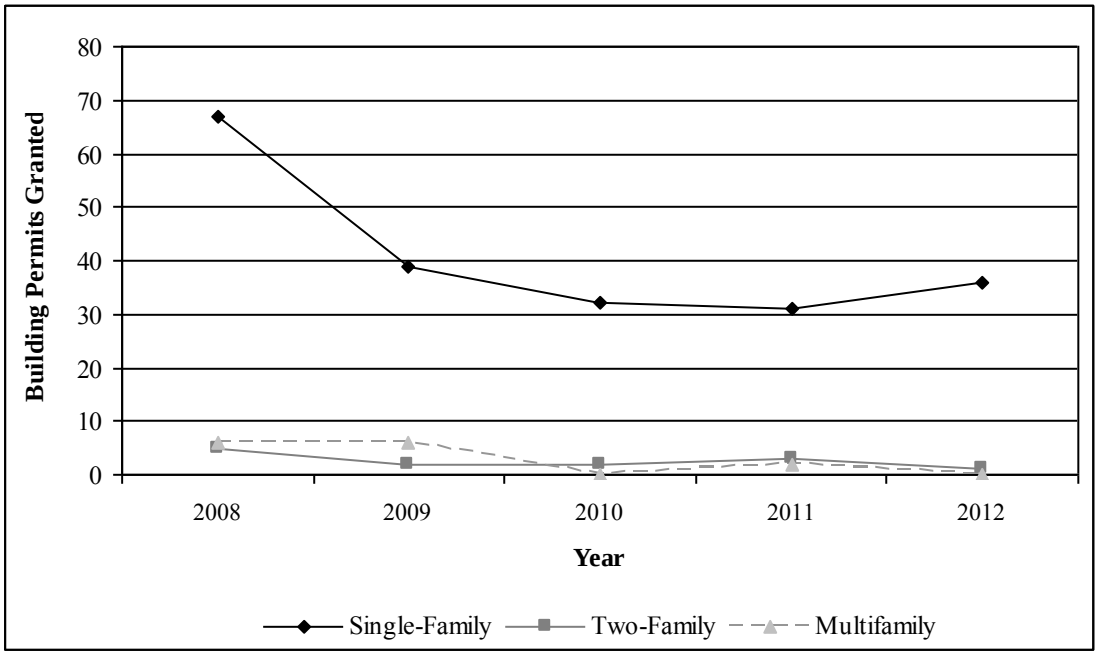
Source: U.S. Bureau of the Census, *Census 2000* (Summary File 1, Table H004: Tenure), *2010 Census* (Summary File 1, Table H4: Tenure); and Bay-Lake Regional Planning Commission, 2014.

Residential Housing Construction

Building construction is a strong indicator of the health of a region. Building construction creates a multiplier effect within the economy by providing construction jobs to residents who, in turn, increase their spending as their disposable income rises. New housing also provides additional tax base for the communities within which construction has occurred. However, the demand for new housing depends on several factors, such as income, job stability and interest rates.

Figure 3.5 illustrates residential housing construction permits issued from 2008 through 2012 in the ten communities of the Sheboygan Metropolitan Planning Area. Each line represents the total number of permits granted by type of housing by year for all of the cities, villages and towns in the metropolitan planning area. The greatest number of permits granted occurred in 2008 (78 permits); of these, 67 permits were for single-family homes, five permits were for two-family structures, and six permits were for multifamily residential structures. There was a large decrease in single-family residential building permits between 2008 and 2009, along with smaller decreases between 2009 and 2011. The number of single-family residential building permits hit its low point in 2011, and increased slightly between 2011 and 2012. There were five or fewer two-family residential building permits in each year of analysis, with five permits being the high in 2008, and with one permit being the low in 2012. There were six multifamily residential building permits issued in each of 2008 and 2009; no multifamily residential building permits were issued in 2010 and 2012, and two multifamily residential building permits were issued in 2011.

Figure 3.5: Residential Housing Construction Permits Issued, 2008 – 2012



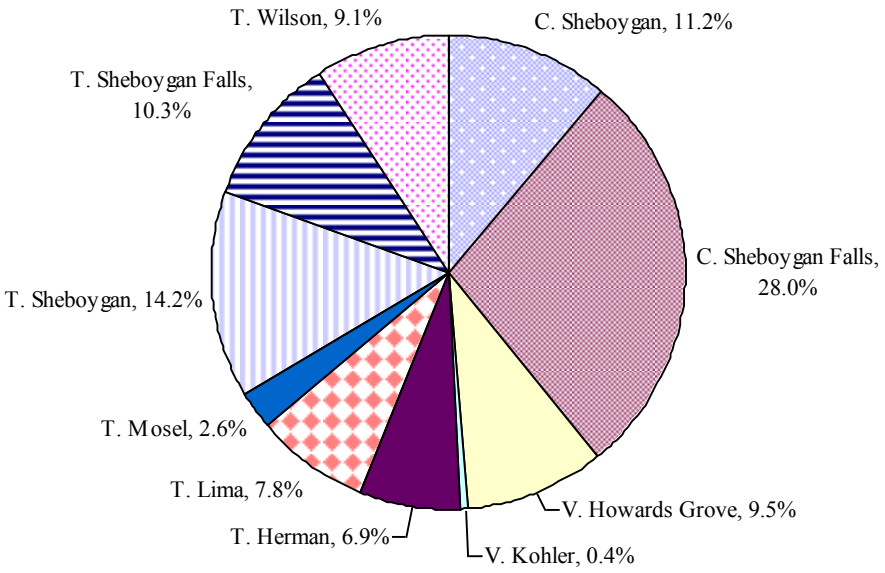
Source: U.S. Bureau of the Census, Building Permit Data, *censtats.census.gov* (for all years listed); and Bay-Lake Regional Planning Commission, 2014.

The City of Sheboygan Falls had the majority of the two-family (53.8 percent) and multifamily (85.7 percent) residential building permits in the communities of the metropolitan planning area

for the period from 2008 through 2012. The Village of Howards Grove also had three two-family and two multifamily residential building permits, while the City of Sheboygan and the Towns of Herman and Sheboygan each had one two-family residential building permit during that period.

Figure 3.6 illustrates the community share of all residential construction permits for the period from 2008 through 2012. Over the five year period, the City of Sheboygan Falls took the lead in residential construction permits with 28.0 percent of permits granted. The Town of Sheboygan (14.2 percent) also had a significant proportion of residential construction permits granted. In addition, the City of Sheboygan (11.2 percent) and the Town of Sheboygan Falls (10.3 percent) had notable proportions of residential construction permits granted. The Village of Howards Grove and the Towns of Herman, Lima and Wilson each had between six and ten percent of all residential construction permits granted. The Town of Mosel had between two and three percent of all residential construction permits granted, while the Village of Kohler had less than one percent of all such permits granted from 2008 through 2012. There was a nearly even split in the proportion of residential construction permits granted between incorporated communities (cities and villages) and towns.

Figure 3.6: Community Share of Residential Construction, 2008 – 2012



Source: U.S. Bureau of the Census, Building Permit Data, *censtats.census.gov* (for all years listed); and Bay-Lake Regional Planning Commission, 2014.

It should be noted that the above data involved estimates for: the Town of Herman in 2008 and 2009; for the Town of Sheboygan Falls in 2009, 2010, 2011 and 2012; and for the Town of Wilson for all years of analysis. In addition, there was a difference between the estimated and reported residential construction permit data for the Town of Lima in 2009 and 2010 (reported

numbers were used in writing this chapter). Census Bureau sampling procedures meant that certain jurisdictions were not asked to report this information at times, meaning that estimates were used as opposed to actual reported numbers in those cases.

INDUSTRIES AND OCCUPATIONS

Major Industries and Employers

The Sheboygan area economy has traditionally placed greater reliance on the manufacturing sector than economies in other similarly sized manufacturing areas. According to the Wisconsin Department of Workforce Development (*Sheboygan County Workforce Profile 2013*), the largest industry in Sheboygan County in all four quarters of 2012 was manufacturing, with 33.4 percent of the county's jobs. Other important sectors of employment included: education and health (18.6 percent); trade, transportation and utilities (17.0 percent); leisure and hospitality (8.8 percent); and professional and business services (7.7 percent). All of the other six economic sectors (financial activities, construction, other services, public administration, natural resources, and information) involved less than five percent of total employment over all four quarters of 2012.

As noted in Table 3.8, the Wisconsin Department of Workforce Development has identified the following industry groups as employing the greatest number of workers (for all four quarters of 2012) in Sheboygan County:

Table 3.8: Top Ten Industries in Sheboygan County, 2012 Average

Industry Group	Number of Employees
Fabricated Metal Product Manufacturing	7,504
Educational Services	3,695
Food Services and Drinking Places	3,282
Ambulatory Health Care Services	2,980
Food Manufacturing	2,551
Plastics and Rubber Products Manufacturing	2,368
Nursing and Residential Care Facilities	2,236
Administrative and Support Services	2,226
Merchant Wholesalers, Nondurable Goods	1,547
General Merchandise Stores	1,386

Source: Wisconsin Department of Workforce Development, Office of Economic Advisors, *2013 Sheboygan County Workforce Profile*; and Bay-Lake Regional Planning Commission, 2014.

The top ten employers (all private sector) in ranked order, from largest to smallest, in September of 2013 included:

1. Kohler Company;
2. Bemis Manufacturing Company;
3. J. L. French, LLC;
4. Sargento Foods, Inc.;
5. Johnsonville Sausage, LLC;
6. Aurora Medical Group, Inc. (physician offices);

7. Acuity Mutual Insurance Company;
8. Rockline Industries, Inc.;
9. Aurora Health Care Central, Inc. (hospitals); and
10. Piggly Wiggly Supermarkets.

In 2000, Sheboygan County had a low unemployment rate of 2.5 percent, a rate that was reflective more of the 1990s than of the decade that followed. From 2001 through 2008, unemployment ranged from 3.8 percent in 2001 to 5.1 percent in 2003, and typically was in the four to five percent range, a little higher than the 1990s rate (due to economic difficulties following September 11, 2001, and other factors), but not as high as what was to come. Because of local job losses and an overall poor economy throughout the state, nation and world, Sheboygan County had an annual unadjusted unemployment rate of 9.3 percent in 2009. Monthly unemployment started to increase around November 2008, and remained quite high for several months, but slight decreases in the unemployment rate were beginning to be observed by mid 2010. The average annual unemployment rate has decreased gradually since 2009, from 8.9 percent in 2010 to 7.7 percent in 2011 and to 6.6 percent in 2012. The monthly unemployment rate had decreased to 5.0 percent by December 2013. Typically, the City of Sheboygan has a somewhat higher unemployment rate than does Sheboygan County.

Once the local economy recovers, it is likely that there will be labor shortages in the long-range future. This is because of the projected increase in the elderly population, the projected decrease in middle aged adults, and the probability that there will be an out-migration of college graduates; all of these trends are discussed in the "Components of Population Change" section presented earlier in this chapter. In order to fill many of the positions projected for the future that are discussed in the next section, the Sheboygan area must attract and retain educated workers.

Projected Occupations

The shift from manufacturing to service employment is being experienced throughout the nation, not just in the Sheboygan area. Table 3.9 has been created with information from the Wisconsin Department of Workforce Development Office of Economic Advisors' Occupational Projections for the Bay Area Workforce Development Area: 2010 – 2020. This area involves several counties in northeastern Wisconsin, including: Brown, Door, Florence, Kewaunee, Manitowoc, Marinette, Menominee, Oconto, Outagamie, Shawano and Sheboygan counties. Table 3.9 illustrates the occupations which the Wisconsin Department of Workforce Development projects as the top ten in fastest growth and the top ten for most openings for the Bay Area Workforce Development Area (including Sheboygan County) in 2020. All of the occupations listed in Table 3.9 are considered service or retail sector occupations, and are characterized by the amount of education and training required and the average wage.

Table 3.9 looks somewhat different from the appearance of this table in previous versions of the *Sheboygan Area Transportation Plan (SATP*). When it comes to occupations with the fastest growth, unlike previous versions of this table, only one higher paying position appears as a fast growth occupation by 2020, that being registered nurses, which requires an Associate's Degree at a minimum. Four additional occupations (heavy and tractor-trailer truck drivers; office clerks; nursing aides, orderlies and attendants; and customer service representatives) require a high school diploma, and in some cases, post-secondary non-degree training, and pay between $11

and $17 per hour. One occupation (janitors and cleaners, except maids and housekeeping cleaners) pays slightly less than $11 per hour, and requires short-term on-the-job training but no high school diploma. The remaining fastest growing occupations (combined food preparation and serving workers, including fast food; waiters and waitresses; retail salespersons; and personal and home care aides) all pay less than $10 per hour, and require short-term on-the-job training but no high school diploma.

Table 3.9 also indicates that when it comes to occupations with the most projected openings, again, unlike previous versions of this table, only one higher paying position appears as a fast growth occupation by 2020, that being registered nurses, which requires an Associate's Degree at a minimum. Three additional occupations (heavy and tractor-trailer truck drivers; office clerks; and customer service representatives) require a high school diploma, and pay between $13 and $17 per hour. One occupation (laborers and freight, stock and material movers) pays over $12 per hour, and requires short-term on-the-job training but no high school diploma. The remaining occupations with the most openings (waiters and waitresses; cashiers; retail salespersons; combined food preparation and serving workers; and bartenders) all pay less than $10 per hour, and require short-term on-the-job training but no high school diploma.

"Fastest growing" occupations have the greatest amount of absolute growth between 2010 and 2010, while occupations with the "most openings" have the largest amount of opened positions due to absolute growth plus replacement of those leaving these positions for various reasons.

Table 3.9: Occupational Projections for Northeastern Wisconsin, 2020

Top Ten Occupations	Education and Training[1]	Average Wage[2]
Fastest Growth		
Combined Food Preparation and Serving Workers, Including Fast Food	Short-term on-the-job training	$8.40
Registered Nurses	Associate's Degree	$28.11
Truck Drivers, Heavy and Tractor-Trailer	High School Diploma or Equivalent	$16.71
Waiters and Waitresses	Short-term on-the-job training	$8.55
Retail Salespersons	Short-term on-the-job training	$9.53
Office Clerks, General	High School Diploma or Equivalent	$13.01
Nursing Aides, Orderlies and Attendants	Post-Secondary Non-Degree Training	$11.56
Customer Service Representatives	High School Diploma or Equivalent	$14.49
Janitors and Cleaners, Except Maids and Housekeeping Cleaners	Short-term on-the-job training	$10.92
Personal and Home Care Aides	Short-term on-the-job training	$9.15
Most Openings		
Waiters and Waitresses	Short-term on-the-job training	$8.55
Cashiers	Short-term on-the-job training	$8.64
Retail Salespersons	Short-term on-the-job training	$9.53
Combined Food Preparation and Serving Workers, Including Fast Food	Short-term on-the-job training	$8.40
Truck Drivers, Heavy and Tractor-Trailer	High School Diploma or Equivalent	$16.71
Registered Nurses	Associate's Degree	$28.11
Office Clerks, General	High School Diploma or Equivalent	$13.01
Customer Service Representatives	High School Diploma or Equivalent	$14.49
Laborers and Freight, Stock, and Material Movers, Hand	Short-term on-the-job training	$12.36
Bartenders	Short-term on-the-job training	$8.79

Notes:

[1]This represents the most common way to enter the occupation, not the only way.

[2]This is the annual average wage divided by 2,080 hours of full-time work in a year. Wages from Occupational Employment Statistics (OES) survey responses from the Bay Area Workforce Development region, 2010. The Bay Area Workforce Development region includes Brown, Door, Florence, Kewaunee, Manitowoc, Marinette, Menominee, Oconto, Outagamie, Shawano and Sheboygan Counties.

Source: Wisconsin Department of Workforce Development, 2013; and Bay-Lake Regional Planning Commission, 2014.

TRAVEL HABITS

Commuting Patterns

The move out of the central city and into the rural countryside began in the late 1800s, when affluent city dwellers decided to escape what they perceived as the congestion and pollution of the city for room to breathe in the country. Congestion in the late 1800s was not caused by cars, but rather was caused by concentrations of people, horse-drawn carriages and streetcars. Urban planners in that era actually encouraged such migration, and with the expansion of rail systems, workers could easily live in the suburbs of the time and commute into the core city.

Industrial migration to the suburbs was initiated when improvements in manufacturing required industries to acquire large tracts of land for equipment that operated horizontally rather than vertically, as had been common practice during the industrial revolution. With people and businesses moving out to the suburbs, there was an opportunity for people to work in their

community of residence.

When businesses relocate within the same metropolitan area, they already possess a local workforce. These workers can either choose to relocate with their place of employment or they can engage in what has become known as the reverse commute; workers commuting from the central city to the suburbs.

Unfortunately, detailed data regarding commuting patterns has not been made available since the 2000 Census. The *2008 – 2012 American Community Survey (ACS) 5-Year Estimates* only examine commuting patterns in the context of whether a person worked in or outside their place of residence. This information was available for comparison purposes between the U.S., the State of Wisconsin, Sheboygan County, the Sheboygan Urbanized Area, and applicable communities within the Sheboygan Metropolitan Planning Area. The *2008 – 2012 ACS 5-Year Estimates* revealed the following generalized commuting patterns for the nation, state, county, urbanized area, and totality of the ten communities in the Sheboygan Metropolitan Planning Area:

- For the United States, 42.4 percent of workers age 16 and older who lived in a place (incorporated community) worked in their place of residence, while 57.6 percent of such workers were employed outside their place of residence.
- For the State of Wisconsin, 41.2 percent of workers age 16 and older who lived in a place worked in their place of residence, while 58.8 percent of such workers were employed outside their place of residence.
- For Sheboygan County, 47.3 percent of workers age 16 and older who lived in a place worked in their place of residence, while 52.7 percent of such workers were employed outside their place of residence.
- For the Sheboygan Urbanized Area, 54.3 percent of workers age 16 and older who lived in a place worked in their place of residence, while 45.7 percent of such workers were employed outside their place of residence.
- For the City of Sheboygan, 61.9 percent of workers age 16 and older who lived in the city also worked within the city, while 38.1 percent of such workers lived in the city but worked elsewhere.
- For the City of Sheboygan Falls, 29.4 percent of workers age 16 and older who lived in the city also worked in the city, while 70.6 percent of such workers lived in the city but worked elsewhere.
- For the Village of Howards Grove, 13.5 percent of workers age 16 and older who lived in the village also worked in the village, while 86.5 percent of such workers lived in the village but worked elsewhere.
- For the Village of Kohler, 40.5 percent of workers age 16 and older who lived in the village also worked in the village, while 59.5 percent of such workers lived in the village but worked elsewhere.

Most towns in the Sheboygan Metropolitan Planning Area had no residents who lived in a "place;" therefore, information on where they worked (at the local community level) could not be obtained. The only exception was the Town of Lima, where 43.7 percent of workers age 16

and older lived in a "place" (typically an unincorporated village). Of these, 7.8 percent of workers age 16 and older worked in their place of residence, while 92.2 percent of such workers were employed outside their place of residence.

Mode of Travel to Work

Like the nation and the state, Sheboygan County, the Sheboygan Urbanized Area and the City of Sheboygan have experienced increases in the percentage of workers employed outside the home who drove alone to work between the 2006 – 2010 and 2008 – 2012 ACS periods.

The core of the urbanized area (the City of Sheboygan) is served by a fixed-route transit system, Shoreline Metro, which offers an alternative to driving for those who live within the transit service area. Shoreline Metro also offers more limited service to the Village of Kohler and to the City of Sheboygan Falls. Despite this offering, the percentage of workers employed outside the home using public transportation in the Sheboygan Urbanized Area decreased from 0.8 percent in the 2006 – 2010 ACS period to 0.7 percent in the 2008 – 2012 ACS period; in the City of Sheboygan, this proportion stayed at 0.9 percent in both ACS periods. Bicycling in the Sheboygan Urbanized Area decreased from 1.1 percent in the 2006 – 2010 ACS period to 0.9 percent in the 2008 – 2012 ACS period; in the City of Sheboygan, bicycling decreased from 1.4 percent in the 2006 – 2010 ACS period to 1.1 percent in the 2008 – 2012 ACS period. On the other hand, walking stayed at 2.7 percent of all work trips in both ACS periods in the Sheboygan Urbanized Area, and in the City of Sheboygan, walking increased from 2.6 percent of all work trips in the 2006 – 2010 ACS period to 2.8 percent of all work trips in the 2008 – 2012 ACS period.

The percentage of those who drove alone to work in the Sheboygan Urbanized Area increased from 85.0 percent in the 2006 – 2010 ACS period to 86.4 percent in the 2008 – 2012 ACS period; in the City of Sheboygan, this proportion increased from 83.1 percent to 84.4 percent over the same period. The percentage of those who carpooled to work in the Sheboygan Urbanized Area decreased from 9.7 percent in the 2006 – 2010 ACS period to 8.5 percent in the 2008 – 2012 ACS period; in the City of Sheboygan, this proportion decreased from 11.1 percent to 9.7 percent over the same period.

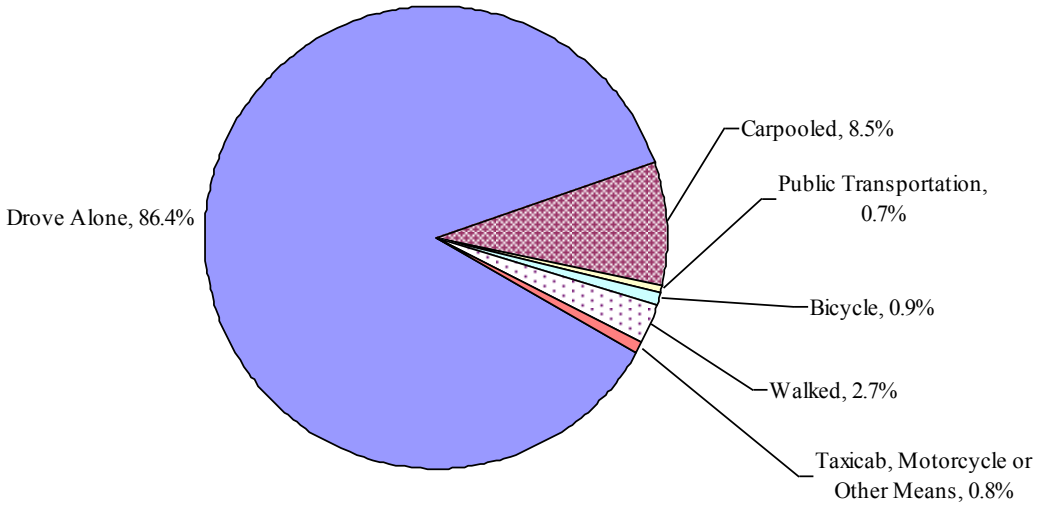
The percentage of workers 16 and older working outside of the home who drove alone to work in the 2008 – 2012 ACS period in all of Sheboygan County was 86.2 percent, which was lower than the Sheboygan Urbanized Area percentage for that period (86.4 percent), but was higher than the City of Sheboygan percentage for that period (84.4 percent).

Figure 3.7 illustrates travel to work by mode for all persons age 16 and older who lived in the Sheboygan Urbanized Area and who worked outside the home in the 2008 – 2012 ACS period. The vast majority of workers (86.4 percent) drove alone, while an additional 8.5 percent carpooled. Despite access to transit service by a majority of the urbanized area's workforce (i.e.: both the residence and the workplace trip ends are in the three communities served by Shoreline Metro: the Cities of Sheboygan and Sheboygan Falls and the Village of Kohler), only 0.7 percent of workers took public transportation in the 2008 – 2012 ACS period. Low transit ridership is likely the result of abundant free or very low cost parking, ease of travel between origins and destinations, and, until the recent past few years, gasoline prices that have not been sufficiently cost prohibitive to divert workers from driving alone to other alternatives.

As one would expect, the majority of workers in the Sheboygan Urbanized Area who walked or biked to work lived in the City of Sheboygan, where places of work are often within short

distances of residences. Of the 0.9 percent of workers in the urbanized area who biked to work, 81.7 percent lived in the City of Sheboygan. In addition, of the 2.7 percent of workers in the urbanized area who walked to work, 72.0 percent lived in the City of Sheboygan.

Figure 3.7: Travel Mode to Work for All Workers 16 and Older Who Work Outside the Home, Sheboygan Urbanized Area



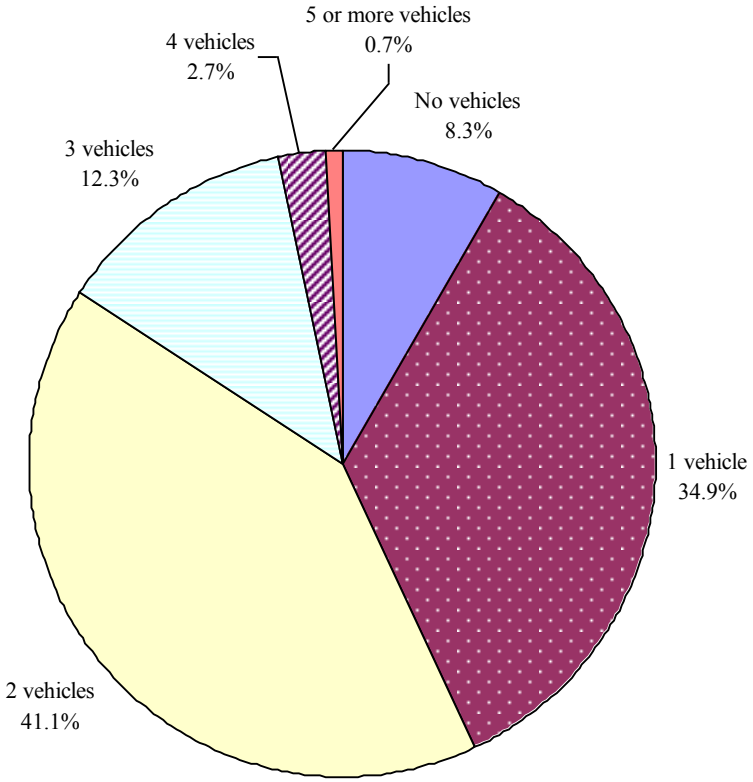
Source: U.S. Bureau of the Census, *2008 – 2012 American Community Survey 5-Year Estimates* (Table S0801: Commuting Characteristics by Sex); and Bay-Lake Regional Planning Commission, 2014.

Vehicle Availability

Although the Sheboygan area has facilities for bicyclists and pedestrians and a dependable transit system, natural and man-made barriers and inhospitable winters can make traveling by means other than the private automobile difficult. Factors such as dual income households; high growth in the Town of Sheboygan; moderate growth in the City of Sheboygan Falls, the Village of Howards Grove, and the towns of Herman and Wilson; and having many commuters living in the metropolitan planning area but outside the City of Sheboygan commuting into the City of Sheboygan make vehicle ownership a basic necessity for many workers in the metropolitan planning area.

Figure 3.8 illustrates that 41.1 percent of households in the Sheboygan Urbanized Area had two vehicles available, while many (34.9 percent) had only one vehicle available. Over 88 percent of the 8.3 percent of households without a vehicle available were in the City of Sheboygan. In addition, nearly 75 percent of households with only one vehicle available were in the City of Sheboygan. Less than 70 percent of urbanized area households with two, three, four and five or more vehicles available were located in the City of Sheboygan.

Figure 3.8: Household Vehicle Availability, Sheboygan Urbanized Area

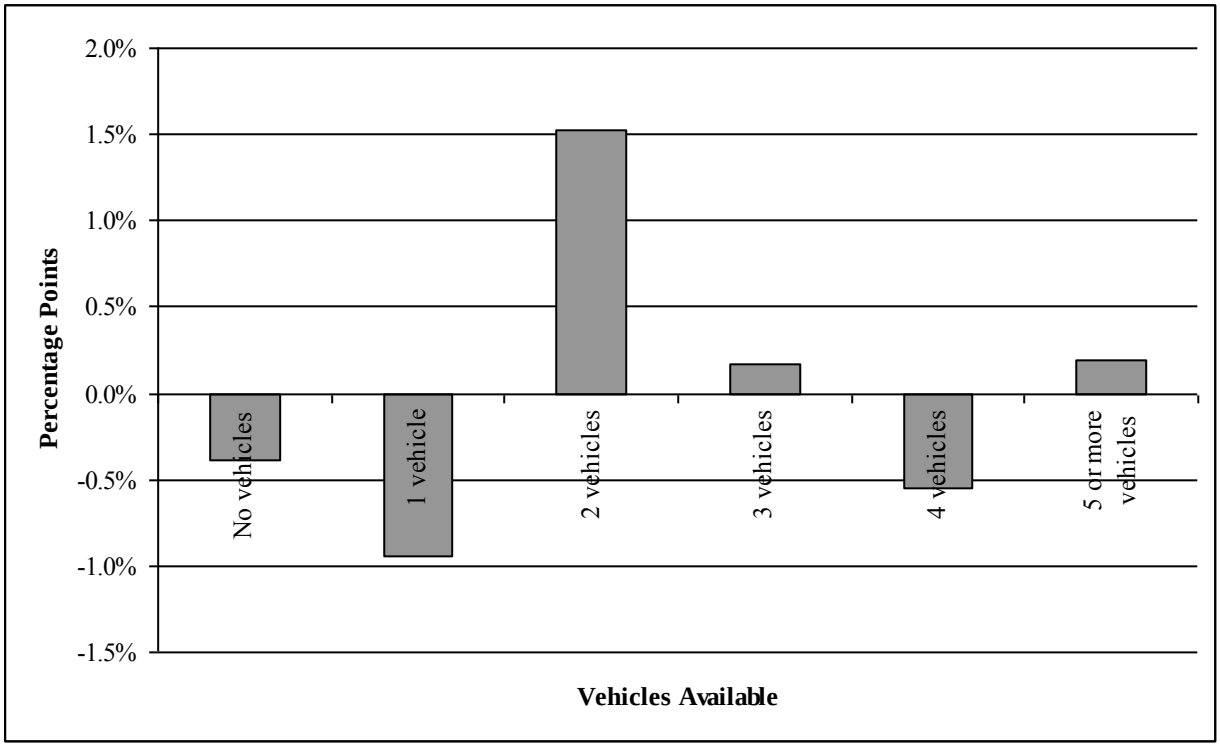


Source: U.S. Bureau of the Census, *2008 – 2012 American Community Survey 5-Year Estimates* (Table B25044: Tenure by Vehicles Available); and Bay-Lake Regional Planning Commission, 2014.

The change in vehicle availability between the 2006 – 2010 ACS and the 2008 – 2012 ACS for the Sheboygan Urbanized Area is illustrated in Figure 3.9. Despite the fact that the percentage of persons in poverty in the Sheboygan Urbanized Area increased slightly from 9.9 percent in the 2006 – 2010 ACS to 10.1 percent in the 2008 – 2012 ACS (see the previous discussion under "Persons in Poverty"), the percentage of households with no vehicles available decreased by 0.4 of a percentage point between the two ACS periods. The percentage of households with only one vehicle available also decreased by 0.9 of a percentage point between the 2006 – 2010 ACS and the 2008 – 2012 ACS. The percentage of households with two vehicles available increased by 1.5 percentage points between the 2006 – 2010 ACS and the 2008 – 2012 ACS; two vehicle households are often likely an indicator of two worker households. The percentage of households with three vehicles available increased by 0.2 of a percentage point between the 2006 – 2010 ACS and the 2008 – 2012 ACS; this is also a likely indicator of two or more worker households, and may also indicate the presence of teenage children driving in the household. The percentage of households with four vehicles available decreased by 0.5 of a percentage point between the 2006 – 2010 ACS and the 2008 – 2012 ACS, while the percentage of households with five or more vehicles available increased by 0.2 of a percentage point between the 2006 –

2010 ACS and the 2008 – 2012 ACS.

Figure 3.9: Change in Vehicle Availability for the Sheboygan Urbanized Area, 2006 – 2010 American Community Survey to the 2008 – 2012 American Community Survey



Source: U.S. Bureau of the Census, *2006 – 2010 American Community Survey 5-Year Estimates* (Table B25044: Tenure by Vehicles Available), *2008 – 2012 American Community Survey 5-Year Estimates* (Table B25044, Tenure by Vehicles Available); and Bay-Lake Regional Planning Commission, 2014.

SUMMARY

The Sheboygan area has changed significantly in recent years. According to the American Community Survey (ACS, 2012 One-Year Estimates), the population of the Sheboygan Urbanized Area has decreased slightly since the 2010 Census. In addition, according to the Wisconsin Department of Administration (DOA) Demographic Services Center, the population of Sheboygan County has decreased slightly since the 2010 Census. On the other hand, the population of the state and the nation has grown, with the nation having a faster rate of growth than the state. According to the Wisconsin DOA Demographic Services Center, the communities in the metropolitan planning area that have had the largest estimated population increases since the 2010 Census have included: the City of Sheboygan Falls; the Village of Howards Grove; and the Towns of Herman, Sheboygan and Wilson; on the other hand, the City of Sheboygan, the Village of Kohler and the Town of Mosel are estimated to have lost population since the 2010 Census. In addition, the area has become more diverse since 2000, particularly in the City of Sheboygan.

Per capita income (when adjusted for inflation) has decreased in the county, urbanized area and in seven of the ten communities of the metropolitan planning area in recent years (the exceptions being the Village of Howards Grove and the Towns of Lima and Mosel). Median household income (when adjusted for inflation) decreased for the county, increased for the urbanized area, and decreased for six of the ten communities in the metropolitan planning area in recent years

(the exceptions being the City of Sheboygan Falls, the Village of Howards Grove, and the Towns of Lima and Wilson). Decreases in real income indicate the economic difficulties faced in the area in the past decade, particularly the loss of overall jobs, and within the jobs that remain, a gradual move from higher paying manufacturing jobs to lower paying jobs in the service sector.

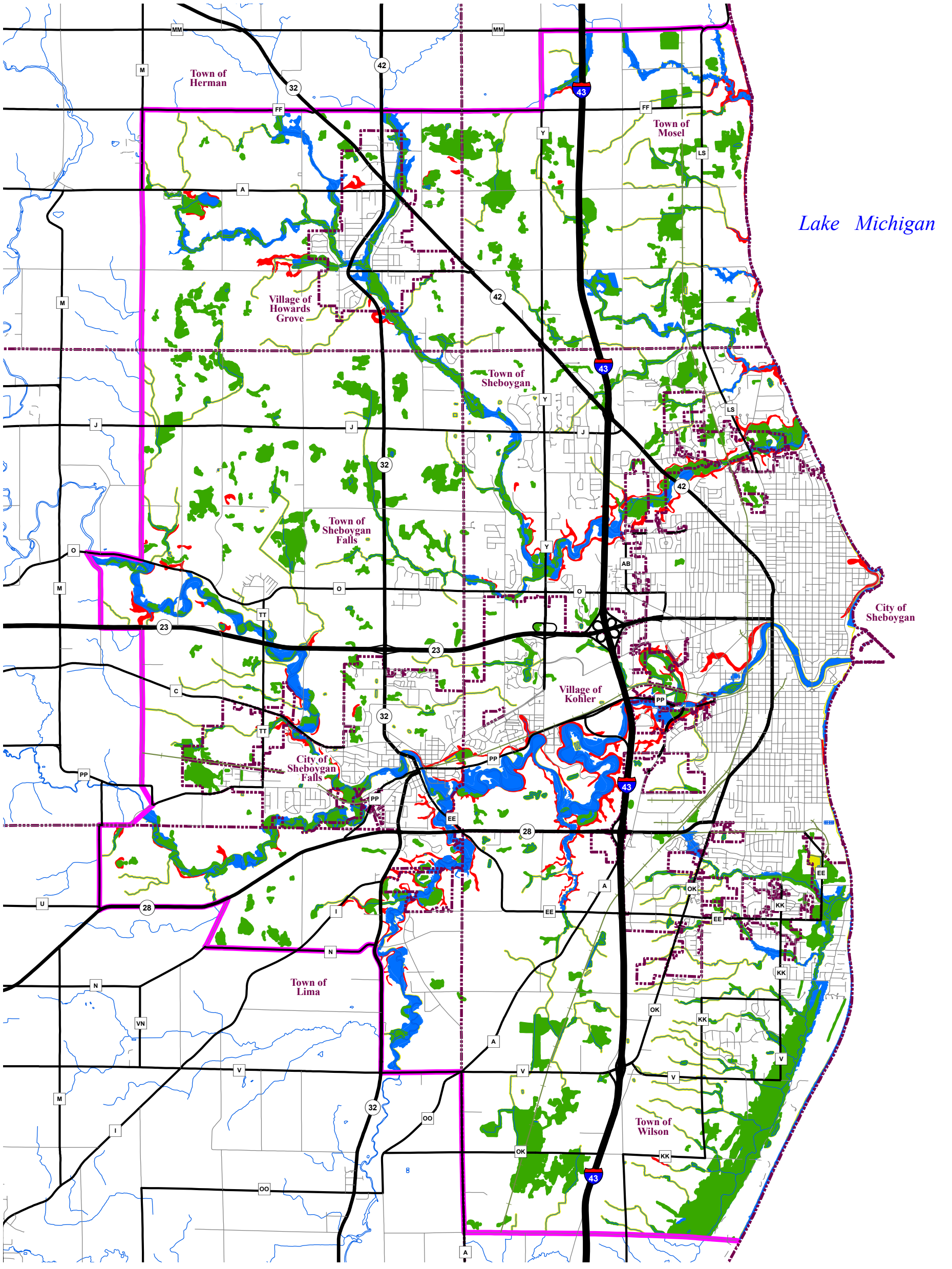
With the Sheboygan area adjusting to the shift from a manufacturing economy to a service economy, the area is working to accommodate the needs of the expanding service economy. As commerce in these areas grows, the demand on the transportation system will also grow. Chapter 6 discusses alternative development scenarios (including a preferred growth scenario), and also discusses projects proposed for inclusion in this transportation plan, which will address current and future demand on the transportation system.

Map 3.1

Physical Constraints to Development

Sheboygan Metropolitan Planning Area

Year 2045 Sheboygan Area Transportation Plan (SATP)



Sheboygan Metropolitan Planning Area Boundary

Wetlands (Greater than 2 Acres) with 50-Foot Setback

100-Year Floodplain

Steep Slope (12% or Greater)

Surface Water with 75-Foot Setback

N
W E
S

0 0.5 1 2

Miles

BAY-LAKE Regional Planning Commission

G:/Sheboygan/MPO/SATP/2045

Source: WDNR, 2008, 2009; FEMA, 2009; NRCS, 2004; WDOT, 2013; Sheboygan County, 2015; Bay-Lake Regional Planning Commission, 2015.

CHAPTER 4 : MISSION STATEMENT, GOALS AND OBJECTIVES

INTRODUCTION

The Sheboygan area is well known for Lake Michigan, beautiful natural features and parks, and for outdoor recreation. People all over Sheboygan County and elsewhere in northeastern Wisconsin value activities in the great outdoors, including bicycling, walking, boating, fishing and hunting. Because residents value the area's remaining natural resources highly, yet desire a transportation system that will efficiently and effectively move people and goods through and between communities, it is important to find a balance between these two competing community values.

This chapter summarizes the mission statement for the area, and the goals and objectives identified to help realize that mission statement. Each goal has a set of objectives that more specifically addresses the desired results. The mission statement, goals and objectives were developed and modified by members of the Sheboygan MPO Technical and Policy Advisory Committees at joint meetings of those committees in 2014.

MISSION STATEMENT

The mission of the *Year 2045 Sheboygan Area Transportation Plan (SATP)* is to plan for a means of providing safe, efficient, effective, economical, convenient, aesthetic and multimodal transportation facilities for people, goods and services within the Sheboygan Metropolitan Planning Area, for all trip purposes.

GOALS AND OBJECTIVES

Goal 1: Economic Vitality

Support the economic vitality of the metropolitan planning area (especially by enabling global competitiveness, productivity and efficiency) by recommending transportation investments that recognize the mobility needs of business and industry and that enhance access for economic development and tourism.

Objective 1.1

Expand State Highway 23 to four lanes from State Highway 67 to Fond du Lac.

Objective 1.2

Make improvements to/modernize the Interstate Highway 43/State Highway 23 interchange.

Objective 1.3

Promote safe and efficient transportation, in particular for industry.

Objective 1.4

Provide additional funding for rail services in an effort to encourage the use of rail to remove truck traffic.

Objective 1.5

Continue to provide adequate funding to maintain and improve the Sheboygan County Memorial Airport facility, and make sure that capital projects involving the airport are included in Sheboygan County's five-year Capital Improvement Program as well as in the WisDOT Bureau

of Aeronautics Six-Year Program.

Objective 1.6

Coordinate future plans and proposals for the Sheboygan County Memorial Airport with plans and programs of the communities of the Sheboygan Metropolitan Planning Area; in particular, examine the county airport's usage levels and participation in future fire prevention activities.

Objective 1.7

Enhance the efficient movement of people, goods and services, both within and outside of the Sheboygan Metropolitan Planning Area; in particular, reduce the number of goods and services movement problem areas in the Sheboygan Metropolitan Planning Area across all modes.

Goal 2: Safety

Increase the safety of the transportation system for motorized and non-motorized users through programs and improvements that reduce or eliminate system deficiencies. (Note: Additional safety-related goals and objectives can be found in Goals 12 through 21 and their supporting objectives; these goals and objectives come from the *Wisconsin Strategic Highway Safety Plan: 2014 – 2016*, and have been adapted to fit the needs of the Sheboygan MPO).

Objective 2.1

Minimize deaths, injuries and crashes on streets and highways through safety belt usage, education, enforcement and engineering.

Objective 2.2

Address safety issues regarding transportation facilities as part of the transportation planning process; for streets and highways, this would include consideration of curb cut controls, vision triangles, intersection improvements, access control, rail crossing improvements, signals and other features as part of the street and highway design process.

Objective 2.3

Emphasize proactive prevention of accidents, in addition to the traditional "hot spot" analysis of high accident intersections and corridors, in the transportation planning process.

Objective 2.4

Foster public education efforts concerning proper skills and rules for jogging, walking, inline skating and bicycling in traffic and in rights-of-way.

Goal 3: Security

Increase the security of the transportation system for motorized and non-motorized users. Prevent, mitigate and/or respond to man-made or natural hazard incidents on or at highway, rail, marina, airport and other facilities in the Sheboygan Metropolitan Planning Area, and contribute data to assist in an effective, coordinated emergency response in the event of such incidents.

Objective 3.1

Support and coordinate with Federal, state and local agencies responsible for emergency management, disaster preparedness and homeland security, and provide these agencies with any transportation related information that they may require.

Objective 3.2

Work with local emergency responders to produce coordinated incident management plans.

Objective 3.3

Continue to work with Sheboygan County to update its *All Hazards Mitigation Plan*; incorporate transportation security related recommendations from those plans into the transportation security component of the *SATP* (where appropriate).

Objective 3.4

Compile and study evacuation plans for cities, villages and towns in the Sheboygan Metropolitan Planning Area in an effort to more effectively plan for the security of the transportation network.

Objective 3.5

Work with Shoreline Metro on its transportation security planning and programming activities, recognizing that Shoreline Metro and other urban transit operations report directly to the Federal Transit Administration (FTA) regarding all transportation security matters.

Objective 3.6

Work with the Sheboygan County Memorial Airport on its transportation security planning activities, recognizing that the Sheboygan County Memorial Airport and other general aviation airports report directly to the Transportation Security Administration (TSA) regarding all transportation security matters.

Objective 3.7

Promote the expansion of Intelligent Transportation Systems (ITS) in the Sheboygan Metropolitan Planning Area as a means to prevent or mitigate the impacts of incidents which have the potential to compromise the transportation security of the area.

Goal 4: Accessibility and Mobility

Increase the accessibility and mobility of people and for freight by ensuring a safe, affordable and intermodal system that minimizes the need for automobile travel and provides mobility options for the transportation disadvantaged.

Objective 4.1

Provide transportation choices that result in efficient trips without unexpected delays (transit availability, bicycle and pedestrian accommodations, roadway congestion/delay, etc.).

Objective 4.2

Encourage and offer planning assistance to interested governmental entities in the Sheboygan Metropolitan Planning Area to construct or reconstruct arterial streets as two-lane boulevards or as three-lane streets instead of four-lane streets unless transportation studies demonstrate that additional lanes are necessary. (This is a locally generated objective).

Objective 4.3

Encourage bicycle lanes and sidewalks in new developments.

Objective 4.4

Continue initiatives to encourage more bicycle and pedestrian movement; in particular, develop bicycle and pedestrian routes and paths, and maintain and enhance bike trails in the metropolitan planning area and elsewhere in Sheboygan County.

Objective 4.5

Provide economically viable mass transit options for local trips in portions of the Sheboygan

Metropolitan Planning Area with sufficient population density to justify such service, with particular examination of potential service in the Village of Howards Grove and denser portions of area towns.

Objective 4.6

Institute a "U-Pass" program at Shoreline Metro; at a minimum, this program could be offered to students at the University of Wisconsin Sheboygan. If there is sufficient interest, the program could be expanded to include students at Lakeshore Technical College's site at the Sheboygan County Job Center. If the geographic extent of Shoreline Metro's service expands, it is also possible that this service could be offered to students at Lakeland College.

Objective 4.7

Promote better land use planning and zoning to control urban sprawl in order to make mass transit a more viable travel option in the Sheboygan Metropolitan Planning Area.

Objective 4.8

Where financially feasible, expand the hours of mass transit service at Shoreline Metro.

Objective 4.9

Recruit businesses to participate in employee bus pass programs.

Objective 4.10

Identify heavily used bus stops and work with communities in the Shoreline Metro service area to increase the number of heavily used stops that have concrete pads and sidewalk access.

Objective 4.11

Identify additional revenue sources to increase service frequency and coverage at Shoreline Metro.

Objective 4.12

Address nontraditional forms of private sector transportation services (such as Uber) as they enter the market of the metropolitan planning area.

Objective 4.13

Develop, update and implement the recommendations in the *Sheboygan County Coordinated Public Transit - Human Services Transportation Plan*.

Objective 4.14

Determine if a mobility manager should be appointed in Sheboygan County to connect providers of specialized transportation services with the elderly and with persons with disabilities.

Objective 4.15

Work with the Sheboygan County Transportation Coordinating Committee (TCC) to identify the unmet transportation needs of the elderly and persons with disabilities.

Objective 4.16

Maintain and enhance intercity bus and other transportation serving the Sheboygan Metropolitan Planning Area.

Objective 4.17

Develop additional park-and-ride lots in the area, particularly in the northern portion of the

Sheboygan Metropolitan Planning Area.

Goal 5: Environmental Protection, Energy Conservation and Quality of Life

Protect and enhance the environment, promote energy conservation, improve the quality of life, and promote consistency between transportation improvements and State and local planned growth and economic development patterns.

Objective 5.1

Improve agency coordination of projects that involve multiple aspects and multiple players.

Objective 5.2

Encourage new industrial/manufacturing development in urban industrial parks rather than in suburbs or rural areas.

Objective 5.3

Maintain a "green" (environmentally friendly) philosophy in MPO transportation planning activities.

Objective 5.4

Examine the area's air quality nonattainment boundaries and how they impact planning.

Objective 5.5

Examine the effects and impacts of the plan on the human, natural and man-made environments.

Objective 5.6

Maintain consistency with applicable Federal, State and local energy conservation programs, goals and objectives.

Objective 5.7

Strike a balance between lessening congestion versus overbuilding roads.

Objective 5.8

Examine the likely effect of transportation policy decisions on land use and development.

Objective 5.9

Include projections of economic, demographic, environmental protection, growth management and land use activities consistent with metropolitan and local development goals in the long-range transportation plan.

Objective 5.10

Utilize land use planning as a component in the long-range transportation planning process so that streets, highways and the transit system do not become functionally obsolete because of inadequate local land use controls and unplanned development.

Objective 5.11

Ensure compatibility between the long-range transportation plan and other plans which have been developed for units of government in the Sheboygan Metropolitan Planning Area.

Objective 5.12

Minimize urban sprawl in the Sheboygan Metropolitan Planning Area.

Objective 5.13

Minimize the impacts of transportation projects on wetlands and woodlands in the Sheboygan Metropolitan Planning Area.

Objective 5.14

Improve billboard and sign control in the Sheboygan Metropolitan Planning Area.

Objective 5.15

Monitor development at the Interstate 43 and State Highway 23 interchanges in the Sheboygan Metropolitan Planning Area to ensure that development can adequately be handled by the current transportation system; take land use and/or transportation improvement measures at the local level in cases where the monitoring reveals emerging deficiencies.

Objective 5.16

Promote consideration of actions that make better use of the existing transportation system (transit, carpools, van pools, walking, bicycling, etc.).

Objective 5.17

Reduce greenhouse gas emissions through transportation strategies.

Objective 5.18

Identify key corridors to improve signal operations and reduce fuel consumption.

Goal 6: Integrated and Connected Network

Enhance the integration and connectivity of the transportation system, across and between modes, people and freight, by connecting automobile, truck, transit, bicycle, pedestrian, rail, airport and water transport facilities, yielding a competitive, economical, safe, efficient and environmentally sound way to transport people and goods.

Objective 6.1

Ensure that roads, bicycle facilities, and pedestrian facilities within the Sheboygan Metropolitan Planning Area are well connected to such facilities outside of the Sheboygan Metropolitan Planning Area.

Objective 6.2

Maintain a functional hierarchy within the street and highway system so that the design of facilities better represents the intended type of use of those facilities.

Goal 7: System Efficiency

Promote efficient system management and operation of intermodal infrastructure for the movement of people and goods.

Objective 7.1

Prepare a long-range plan for arterial streets and highways in order to make moving vehicles more efficient.

Objective 7.2

Use public funding for transportation projects in the most cost-efficient manner; make sure that projects are delivered on time and on (or under) budget.

Objective 7.3

Reevaluate signal timing in an effort to reduce emissions and to improve conditions at intersections for bicyclists and pedestrians.

Objective 7.4

Attempt to achieve a Level of Service (LOS) rating of "D" or better for every local street or county highway that is functionally classified as an arterial or collector in the Sheboygan Metropolitan Planning Area beginning in 2020 and thereafter through the plan horizon year of 2045.

Objective 7.5

Reduce total delay per vehicle mile of travel on the Sheboygan Metropolitan Planning Area's arterial and collector street and highway system beginning in 2020 and thereafter through the plan horizon year of 2045.

Objective 7.6

Coordinate and synchronize traffic control signals to improve the operation of the existing system.

Objective 7.7

Implement transportation improvements in congested corridors and intersections in the Sheboygan Metropolitan Planning Area, but consider improvements from alternative modes of transportation before assuming that a capacity expansion is the solution to the congestion problem.

Goal 8: System Preservation

Emphasize the preservation of the existing transportation system and current transportation infrastructure by responding to replacement and/or rehabilitation needs in accordance with recommended cycles.

Objective 8.1

Assure that there are appropriate revenues to meet increasing needs, especially for the routine maintenance and repair of existing facilities.

Objective 8.2

Work to assure that there is adequate Federal and state funding for transportation improvements.

Objective 8.3

Ensure that all transportation structures in the Sheboygan Metropolitan Planning Area have adequate sufficiency ratings beginning in 2020 and thereafter through the plan horizon year of 2045. (Note: According to WisDOT, the Federal Highway Administration (FHWA) is in the process of developing different performance measures for bridges, and WisDOT will be using these different measures when they are developed. This objective will be revised to reflect the new measures when they are established).

Objective 8.4

Improve and maintain the condition of all local streets and county highways that are functionally classified as arterials or collectors within the Sheboygan Metropolitan Planning Area to/at a minimum of "5" (Fair) on the state's Pavement Surface Evaluation and Rating (PASER) scale

beginning in 2020 and thereafter through the plan horizon year of 2045.

Objective 8.5

Improve and maintain the condition of all state highways (including Interstate Highway 43) within the Sheboygan Metropolitan Planning Area to/at a minimum rating of "Fair" on the state's pavement rating scale beginning in 2020 and thereafter through the plan horizon year of 2045.

Objective 8.6

Recommend specific rights-of-way for preservation for construction of future transportation projects.

Objective 8.7

Use life-cycle costing and benefit-cost analysis in considering design, engineering and construction of bridges or pavement surfaces.

Goal 9: Public Involvement and Environmental Justice

Maintain a transportation planning process that is responsive to the needs and interests of area residents, groups and public agencies, and ensure that minority and low-income residents do not bear the majority of adverse impacts from the transportation system.

Objective 9.1

Provide ample opportunity for the public and area jurisdictions to participate in policy and planning decisions.

Objective 9.2

Ensure that the public has early, continuing and proactive public involvement that leads to creative and effective transportation decisions.

Objective 9.3

Determine the impacts of all long-range transportation plan and TIP projects and amendments to ensure that minority and low income populations are not burdened with adverse human health or environmental impacts, and strive to work with local groups on this matter to identify needs and concerns.

Goal 10: Corridor-Level Planning and Design

Use corridor-level planning and design to develop street and highway corridors that are aesthetically pleasing.

Objective 10.1

Properly place interchanges and overpasses/underpasses on freeways and expressways at locations near the boundaries of the Sheboygan Metropolitan Planning Area for residents and farming traffic with minimal use of "J-turns" and fewer corridors in an effort to preserve existing traffic movements and allow for fire protection.

Objective 10.2

Consider the transportation needs of implements of husbandry (farm equipment) in the planning process (access points to highways, etc.).

Objective 10.3

Include landscaping of areas within the right-of-way of arterial and collector streets and

highways.

Objective 10.4

Strictly regulate the types, sizes and quantities of signage utilized within and adjacent to rights-of-way of arterial and collector streets and highways.

Objective 10.5

Include aesthetic considerations in the designs of arterial and collector routes.

Objective 10.6

Have municipalities in the Sheboygan Metropolitan Planning Area develop and exercise proper land use controls to prevent strip development from occurring, particularly along arterial and collector routes considered in the plan, and to prevent the proliferation of low value land uses in areas near prime interchanges and intersections.

Objective 10.7

Have municipalities in the Sheboygan Metropolitan Planning Area develop proper signage to direct the public to attractions and major trip generators offered by that municipality by means of the arterial and collector network.

Goal 11: Consideration of Future Trends in Transportation

Consider future trends in transportation and how they may impact transportation choices and demand over the life of the plan. Some of these trends may have measurable impacts as the plan is developed, while others may emerge to have measurable impacts before the following plan update is adopted or further into the future.

Objective 11.1

Consider the impacts of "smart cars" (or driverless cars) and how such vehicles may impact transportation choices or demand over the life of the plan.

Objective 11.2

Consider the impacts of nontraditional forms of private sector transportation services (such as Uber) and delivery drones and their impacts on the transportation network of the Sheboygan Metropolitan Planning Area over the life of the plan.

Goals 12 through 21 (and their supporting objectives) relate to transportation safety, come from the *Wisconsin Strategic Highway Safety Plan 2014 – 2016,* and have been modified to cover the Sheboygan Metropolitan Planning Area.

Goal 12: Improve the Design and Operation of Intersections

Find ways to improve the design as well as the operation of intersections in order to contribute to a reduction in the number of crashes in the metropolitan planning area, particularly fatal and injury intersection crashes.

Objective 12.1

Contribute toward reducing fatal, incapacitating injury, other injury and overall intersection crashes by 10 percent in the Sheboygan Metropolitan Planning Area (measured over a five-year average) between 2015 and 2018.

Objective 12.2

Encourage implementation and installation of reduced conflict intersections and interchanges

through design guidance, training and outreach.

Objective 12.3

Encourage and offer planning assistance to interested governmental entities in the Sheboygan Metropolitan Planning Area to continue to place roundabouts at arterial and collector street intersections when they are constructed or reconstructed unless adequate space is not available because of physical or environmental barriers. (This is a locally generated objective).

Objective 12.4

Educate the public on proper roundabout usage in order to reduce improper lane use and failure to yield issues.

Objective 12.5

Install signal head per lane at signalized intersections in the Sheboygan Metropolitan Planning Area to improve the visibility of traffic signals and signs.

Objective 12.6

Install flashing yellow arrows at signalized intersections to improve driver compliance with permissive left turn signal indications.

Objective 12.7

Attempt to retime and optimize traffic signals every three to five years in order to reduce the frequency and severity of rear end and right angle crashes at signalized intersections.

Goal 13: Reduce Speed Related Crashes and Curb Aggressive Driving

Contribute toward the reduction in the number of people killed or injured in speed or driver aggression related crashes in the Sheboygan Metropolitan Planning Area.

Objective 13.1

Contribute toward the reduction in speed-related/aggressive driving crashes by 10 percent in the Sheboygan Metropolitan Planning Area (measured over a five-year average) between 2015 and 2018.

Objective 13.2

Contribute toward the reduction in the number of fatal and injury speed-related/aggressive driving crashes by 10 percent in the Sheboygan Metropolitan Planning Area (measured over a five-year average) between 2015 and 2018.

Objective 13.3

Strike a balance between WisDOT's interest in maintaining high travel speeds on the state highway network and the local interest in maintaining lower travel speeds in an effort to promote transportation safety in the Sheboygan Metropolitan Planning Area. (This is a locally generated objective).

Goal 14: Reduce Head-On and Cross-Median Crashes, and Prevent/Mitigate Roadway Departure Crashes

Examine the roadway network to determine locations where head-on and cross-median crashes frequently occur, and make efforts to reduce such crashes at these locations.

Objective 14.1

Contribute toward reducing the number of lane departure crashes by 10 percent in the Sheboygan Metropolitan Planning Area (measured over a five-year average) between 2015 and 2018.

Objective 14.2

Contribute toward reducing the number of lane departure injury crashes by 10 percent in the Sheboygan Metropolitan Planning Area (measured over a five-year average) between 2015 and 2018.

Objective 14.3

Contribute toward reducing the number of fatal and incapacitating injury lane departure crashes by 10 percent in the Sheboygan Metropolitan Planning Area (measured over a five-year average) between 2015 and 2018.

Goal 15: Provide Safe Pedestrian and Bicycle Travel

Improve the safety of bicycle and pedestrian travel conditions in the Sheboygan Metropolitan Planning Area. (Note: More detailed and longer range goals and objectives can be found later in this chapter; many of those goals and objectives come from the *Sheboygan County Pedestrian and Bicycle Comprehensive Plan: 2045*).

Objective 15.1

Contribute toward reducing pedestrian and bicycle crashes by 10 percent in the Sheboygan Metropolitan Planning Area (measured over a five-year average) between 2015 and 2018.

Objective 15.2

Contribute toward reducing pedestrian and bicycle injury crashes by 10 percent in the Sheboygan Metropolitan Planning Area (measured over a five-year average) between 2015 and 2018.

Objective 15.3

Contribute toward reducing pedestrian and bicycle fatal and incapacitating injury crashes by 10 percent in the Sheboygan Metropolitan Planning Area (measured over a five-year average) between 2015 and 2018.

Goal 16: Reduce Alcohol and Drug Impaired Driving

Contribute toward decreasing the number of alcohol and drug related motor vehicle crashes, including fatalities and incapacitating injuries resulting from such crashes.

Objective 16.1

Contribute toward a reduction in the number of alcohol and drug impaired driving crashes by 10 percent in the Sheboygan Metropolitan Planning Area (measured over a five-year average) between 2015 and 2018.

Objective 16.2

Contribute toward a reduction in the number of alcohol and drug impaired driving injury crashes by 10 percent in the Sheboygan Metropolitan Planning Area (measured over a five-year average) between 2015 and 2018.

Objective 16.3

Contribute toward a reduction in the number of alcohol and drug impaired driving fatal and incapacitating injury crashes by 10 percent in the Sheboygan Metropolitan Planning Area

(measured over a five-year average) between 2015 and 2018.

Objective 16.4

Increase the perception of risk of being arrested and/or ticketed for operating while intoxicated. (This is a locally generated objective).

Goal 17: Improve Driver Alertness and Reduce Driver Distraction

Contribute toward decreasing the number of crashes related to inattentive driving, including fatalities and incapacitating injuries resulting from such crashes.

Objective 17.1

Contribute toward a reduction in the number of distracted driving crashes by 10 percent in the Sheboygan Metropolitan Planning Area (measured over a five-year average) between 2015 and 2018.

Objective 17.2

Contribute toward a reduction in the number of distracted driving injury crashes by 10 percent in the Sheboygan Metropolitan Planning Area (measured over a five-year average) between 2015 and 2018.

Objective 17.3

Contribute toward a reduction in the number of distracted driving fatal and incapacitating injury crashes by 10 percent in the Sheboygan Metropolitan Planning Area (measured over a five-year average) between 2015 and 2018.

Goal 18: Reduce the Number of Unbelted Fatalities and Serious Injuries

Contribute toward decreasing the number of fatalities and serious injuries resulting from failure to utilize seat belts in vehicles.

Objective 18.1

Contribute toward increasing the observed safety belt usage rate in the Sheboygan Metropolitan Planning Area to 86 percent.

Objective 18.2

Contribute toward reducing unrestrained passenger vehicle occupant fatalities by 10 percent in the Sheboygan Metropolitan Planning Area (measured over a five-year average) between 2015 and 2018.

Objective 18.3

Contribute toward reducing unrestrained passenger vehicle occupant serious injuries by 10 percent in the Sheboygan Metropolitan Planning Area (measured over a five-year average) between 2015 and 2018.

Goal 19: Improve Teen Driver Performance – Ensure that Drivers are Licensed and Competent – Sustain Proficiency in Older Drivers

Contribute toward a reduction in the number of crashes involving the youngest and oldest drivers, and ensure that drivers are licensed and competent.

There were no objectives listed to support this goal in the *Wisconsin Strategic Highway Safety Plan 2014 – 2016*. However, the WisDOT Traffic Safety Council has identified several tasks which support each of the components of this goal.

Goal 20: Improve Motorcycling Safety and Awareness

Contribute toward decreasing the number of crashes involving motorcyclists, including fatalities and incapacitating injuries resulting from such crashes.

Objective 20.1

Reduce the number of motorcycle crashes by 10 percent in the Sheboygan Metropolitan Planning Area (measured over a five-year average) between 2015 and 2018.

Objective 20.2

Reduce the number of motorcycle injury crashes by 10 percent in the Sheboygan Metropolitan Planning Area (measured over a five-year average) between 2015 and 2018.

Objective 20.3

Reduce the number of motorcycle fatal and incapacitating injury crashes by 10 percent in the Sheboygan Metropolitan Planning Area (measured over a five-year average) between 2015 and 2018.

Objective 20.4

Promote Class M endorsement among the motorcycle riding public in the Sheboygan Metropolitan Planning Area.

Goal 21: Improve Incident Management/Safe Travel in Bad Weather

Contribute toward decreasing the number of crashes occurring in poor weather conditions, and improve tools used to analyze crashes and improve traffic safety.

Objective 21.1

Reduce the number of fatalities and injuries in crashes in snow, ice, slush or wet conditions by 10 percent in the Sheboygan Metropolitan Planning Area (measured over a five-year average) between 2015 and 2018.

Objective 21.2

Utilize the emerging statewide crash map on the Wisconsin Information System for Local Roads (WISLR) in future MPO planning efforts.

Goals 22 through 26 (and their supporting objectives) relate to pedestrian transportation, and primarily come from the *Sheboygan County Pedestrian and Bicycle Comprehensive Plan: 2045*. Bay-Lake Regional Planning Commission staff has modified the goals and objectives in cases where a particular goal or objective needed to be customized for the Sheboygan Metropolitan Planning Area. In addition, Sheboygan County Planning and Conservation Department staff suggested additional objectives in the review of this section.

Goal 22: Create and foster a diverse pedestrian-friendly environment that increases the number of walking trips and offers a level of convenience, directness, safety and attractiveness that will encourage, stimulate and reward the pedestrian.

Objective 22.1

Provide and maintain a safe, convenient and enjoyable walking environment that responds to the varied needs of a diverse walking population.

Objective 22.2

Establish a walking environment that rewards the pedestrian with attractive visual stimulation.

Objective 22.3

Provide pavement treatments at intersections and street furnishings (such as benches).

Goal 23: Guide land use and site design that is conducive to pedestrian use.

Objective 23.1

Prepare a model pedestrian policy and design guidelines and work with area communities to adopt and implement these policies and guidelines (Sheboygan County initiative).

Objective 23.2

Foster coordination between the metropolitan planning area's local governmental jurisdictions in the planning and implementation of non-motorized transportation facilities and programs.

Goal 24: Improve the circulation, visibility and safety for pedestrians and reduce conflicts with vehicular traffic.

Objective 24.1

Provide crosswalks, raised crosswalks, pedestrian-activated traffic signals, and pedestrian refuge islands for at-grade crossings on arterial and other principal streets where needed. Where appropriate, construct grade-separated crossings or other similar measures.

Objective 24.2

Reconfigure streets and enforce speed limits to control and, where needed, reduce motor vehicle travel speeds.

Objective 24.3

Educate all residents of the metropolitan planning area in pedestrian safety, and conduct well-publicized regional and local multimedia pedestrian safety campaigns.

Objective 24.4

Enforce traffic laws, particularly infractions, which have the potential to put pedestrians in danger.

Objective 24.5

Eliminate and forbid motorized transportation on future shared use paths.

Objective 24.6

Improve the "Areas of Concern" identified in the *Sheboygan County Pedestrian and Bicycle Comprehensive Plan: 2045* that are in the Sheboygan Metropolitan Planning Area.

Objective 24.7

Reduce the average annual number of fatal pedestrian crashes to zero beginning in 2020 and thereafter through the plan horizon year of 2045. (This is a locally generated objective).

Objective 24.8

Reduce the average annual number of pedestrian crashes that involve incapacitating injuries by 20 percent beginning in 2020, and maintain this reduced level of such crashes through the plan horizon year of 2045. (This is a locally generated objective).

Objective 24.9

Encourage and offer planning assistance to interested governmental entities in the Sheboygan

Metropolitan Planning Area to construct curb extensions (or bump-outs) at collector and local street intersections and at other pedestrian crossing points when parking lanes are present. (This is a locally generated objective).

Goal 25: Ensure that the pedestrian system is fully accessible and convenient for all users, including persons with disabilities, children and the elderly.

Objective 25.1

Install ADA compliant curb ramps as a part of all new walkway projects.

Objective 25.2

Ensure that all applicable projects adhere to Wisconsin's Complete Streets legislation (Section 84.01(35) of the *Wisconsin Statutes*, and implemented by Chapter TRANS 75 of the *Wisconsin Administrative Code*).

Objective 25.3

Rebuild sidewalks of substandard width to the full best practice width, where practical and appropriate.

Objective 25.4

Relocate sidewalk obstructions created by utility poles, signposts, parking meters, traffic signals, and other street amenities to ensure that sidewalks have a minimum clear width of at least 60 inches.

Objective 25.5

Provide assistance to WisDOT, to Sheboygan County, and to communities in the Sheboygan Metropolitan Planning Area to increase the number of pedestrian countdown signals in the Sheboygan Metropolitan Planning Area. (This is a locally generated alternative).

Objective 25.6

Provide street trees and planting strips at the back of the curb to help separate vehicular and pedestrian traffic and to make the pedestrian experience more pleasant.

Objective 25.7

Provide guidance on buffer zones for future municipally-funded sidewalk and trail projects.

Objective 25.8

Install periodic benches, trash containers, and other similar amenities along pedestrian sidewalks to create a pleasant walking experience, where practical.

Objective 25.9

Provide guidance on street amenities for future municipally-funded nonmotorized projects.

Goal 26: Develop and implement a variety of educational programs that promote the benefits of walking and encourage implementation of pedestrian-oriented design.

Objective 26.1

Conduct public education and involvement campaigns to assist and encourage walking.

Objective 26.2

Establish a website containing pedestrian programs administered by Sheboygan County,

educational materials, and NOMO Sheboygan County milestones.

Objective 26.3

Implement walking incentive programs.

Objective 26.4

Implement a Safe Routes to School program within Sheboygan County.

Objective 26.5

Distribute pedestrian policies and design guidelines produced by Sheboygan County to municipalities in the Sheboygan Metropolitan Planning Area.

Objective 26.6

Improve motorists' understanding of the need to share the roadway with pedestrians, especially at intersections and at crosswalks, through "Share the Road" type campaigns.

Objective 26.7

Distribute the *Sheboygan County Pedestrian and Bicycle Comprehensive Plan: 2045* to all municipalities in the Sheboygan metropolitan planning area.

Objective 26.8

Regularly evaluate walking trends through manual and automated counts to provide data that can be shared with the public and assist when considering the need for future pedestrian facilities.

Goals 27 through 29 (and their supporting objectives) relate to bicycle transportation, and primarily come from the *Sheboygan County Pedestrian and Bicycle Comprehensive Plan: 2045*. Bay-Lake Regional Planning Commission staff has modified the goals and objectives in cases where a particular goal or objective needed to be customized for the Sheboygan Metropolitan Planning Area. In addition, Sheboygan County Planning and Conservation Department staff suggested additional objectives in the review of this section.

Goal 27: Create diverse bicycle-friendly facilities that increase the number of bicycling trips and offer a level of convenience, directness, safety, and attractiveness that will encourage bicycle use.

Objective 27.1

Increase bicycling throughout Sheboygan County (including the Sheboygan Metropolitan Planning Area), and triple the number of trips made by bicyclists by the plan horizon year of 2045.

Objective 27.2

Educate the public on the availability of bicycling facilities, resources, and programs.

Objective 27.3

Produce, publish, and widely distribute bicycling guides and maps informing the public of bicycle facilities and services.

Objective 27.4

Provide secure, appropriately designed, and conveniently located bicycle parking facilities in public areas (such as multifamily residential developments, park and ride lots, transit hubs, hospitals, government buildings, shopping centers, major employers, schools, parks and other

bicycling trip generators).

Objective 27.5

Complete an inventory of bicycle parking accommodations at locations identified in Objective 26.4 that are within the Sheboygan Metropolitan Planning Area to determine if such accommodations should be improved and/or increased. This inventory should be completed in time for adoption of the next long-range transportation plan update. (This is a locally generated objective).

Objective 27.6

Provide and promote incentives for bicycling by public agencies, private employers, and other entities.

Goal 28: Establish a safe, convenient, enjoyable and continuous bicycle route system within Sheboygan County (including the Sheboygan Metropolitan Planning Area) for use by utilitarian and recreational cyclists.

Objective 28.1

Implement appropriate bicycle best practice design guidelines that create safe and convenient bicycle facilities.

Objective 28.2

Follow guidance of Wisconsin's Complete Streets program (details can be found in (Section 84.01(35) of the *Wisconsin Statutes*, and implemented by Chapter TRANS 75 of the *Wisconsin Administrative Code*).

Objective 28.3

Increase the number of rating points that are awarded to projects that include appropriate bicycle and pedestrian facilities in the Sheboygan MPO's *Surface Transportation Program (STP) Urban System Project Prioritization Policy*. (This is a locally generated objective).

Objective 28.4

Ensure that bicycle and pedestrian facility components of construction and reconstruction projects are consistent with the guidance for bicycle and pedestrian facilities in Chapter 11-46 of the Wisconsin Department of Transportation's *Facilities Development Manual (FDM)* when prioritizing projects in the *Sheboygan Metropolitan Planning Area Transportation Improvement Program (TIP)*. (This is a locally generated objective).

Objective 28.5

Eliminate barriers to bicycling through the accommodation of bicyclists' needs in the design of bridges, underpasses, overpasses, intersections, railroad crossings, and the use of traffic control devices.

Objective 28.6

Fund the construction of on-street bicycle facility improvements in conjunction with roadway projects as a routine part of project planning and budgeting, where appropriate.

Objective 28.7

Provide adequate rest stop facilities, information, signage, and lighting along shared-use paths where appropriate and practical.

Objective 28.8

Improve bicycle connections and accessibility to Shoreline Metro, creating a truly multimodal network.

Objective 28.9

Provide secure, appropriately designed, and conveniently located bicycle parking facilities in public areas (such as multifamily residential developments, park and ride lots, transit hubs, hospitals, government buildings, workplaces, schools, and parks).

Objective 28.10

Accommodate bicyclists on roadways by providing appropriate on-street bicycle facilities on arterial, collector and local streets and highways, where possible.

Objective 28.11

Consider the needs of all bicyclists, including experienced, novice, commuter, and recreational users, when planning and designing bicycle facilities and programs.

Objective 28.12

Forbid motorized transportation on future shared use paths.

Objective 28.13

Provide safety information and materials at local hospitals, at police and fire departments, and at other relevant locations in the Sheboygan metropolitan planning area.

Objective 28.14

Regularly evaluate bicycling trends through manual and automated counts to provide data that can be shared with the public and assist when considering future bicycle facilities.

Objective 28.15

Correct a situation in which bicycle traffic mixes with and otherwise interacts with motorized traffic moving faster than 35 miles per hour with no designated lanes or paved shoulders.

Objective 28.16

Develop plans for safe bicycling at critical intersections in the Sheboygan Metropolitan Planning Area (an example would be the intersection of Calumet Drive/State Highway 42 and Mueller Road).

Goal 29: Reduce the number of crashes involving bicyclists with other users of the transportation system by 20 percent or more by the plan horizon year of 2045.

Objective 29.1

Educate law enforcement personnel on bicycle safety.

Objective 29.2

Consistently enforce traffic laws that enhance bicyclist safety by citing violations (particularly those most likely to lead to crashes) to both bicyclists and motor vehicle operators.

Objective 29.3

Educate both motorists and bicyclists with respect to compliance with traffic laws, especially their responsibilities toward each other.

Objective 29.4

Provide safety education and encouragement programs taught by qualified instructors and targeted to bicyclists and motorists.

Objective 29.5

Improve the "Areas of Concern" identified in the *Sheboygan County Pedestrian and Bicycle Comprehensive Plan: 2045* that are in the Sheboygan Metropolitan Planning Area.

Objective 29.6

Reduce the average annual number of fatal bicycle crashes to zero beginning in 2020 and thereafter through the plan horizon year of 2045. (This is a locally generated objective).

Objective 29.7

Reduce the average annual number of bicycle crashes that involve incapacitating injuries by 20 percent beginning in 2020, and maintain this reduced level of such crashes through the plan horizon year of 2045. (This is a locally generated objective).

CHAPTER 5 : EXISTING CONDITION OF THE TRANSPORTATION NETWORK

INTRODUCTION

This chapter provides an inventory of the bicycle, pedestrian, transit, intercity passenger, freight, and roadway networks in the Sheboygan metropolitan planning area. Each modal section discusses current, planned and proposed alignments (where applicable), as well as the current physical condition of facilities, development policies, user safety, physical barriers, and route connectivity.

BICYCLE NETWORK

The Sheboygan metropolitan planning area contains a variety of bicycle lanes, posted shared-use bike routes, and wider paved shoulders, along with a clearly defined network of multipurpose trails. The *Sheboygan County Pedestrian and Bicycle Comprehensive Plan* (since 2007) as well as the *Sheboygan County Safe Routes to School Plan, 2009* have guided and encouraged the development of bicycle facilities throughout Sheboygan County. Through the efforts of NOMO Sheboygan County and various stakeholders, the number of bicycle and multipurpose facilities has grown, providing the public with additional safe alternatives to driving, ultimately increasing bicycle ridership and reducing automobile usage. This section provides an overview of the Sheboygan metropolitan planning area's existing and planned bicycle network. More detailed information is also available through the county's safe routes to school plan and the pedestrian and bicycle plan, which was recently updated in 2015.

NOMO Sheboygan County

NOMO Sheboygan County is the local brand for the federally funded Nonmotorized Transportation Pilot Program (NMTPP). Sheboygan County was one of four jurisdictions in the United States that was chosen to receive up to $25 million for a NMTPP for federal fiscal years 2006 through 2009 in SAFETEA-LU. The intent of the program is to construct "a network of non-motorized transportation infrastructure facilities, including sidewalks, bicycle lanes, and pedestrian and bicycle trails that connect directly with transit stations, schools, residences, businesses, recreation areas, and other community activity centers." The purpose of the program is "to demonstrate the extent to which bicycling and walking can carry a significant part of the transportation load, and represent a major portion of the transportation solution."

NOMO Sheboygan County Mission Statement:

By 2045, Sheboygan County's pedestrian and bicycle facilities will be an efficient, connecting system of routes and facilities that provides a safe, convenient, and viable transportation choice for Sheboygan County residents and visitors.

A large number of the bicycle/pedestrian facilities in the Sheboygan Metropolitan Planning Area have been constructed through NOMO Sheboygan County.

Congestion Mitigation and Air Quality (CMAQ) Program

Jointly administered by FHWA and the Federal Transit Administration (FTA), CMAQ provides funding to areas in nonattainment or maintenance for ozone, carbon monoxide, and/or particulate

matter (Sheboygan County is designated as a nonattainment area for ground-level ozone). The CMAQ program was implemented to support surface transportation projects and other related efforts that contribute to air quality improvements and provide congestion relief. The CMAQ program typically covers up to 80 percent of project costs. The Shoreland 400 Rail Trail in the City of Sheboygan is an example of a project partially funded under the CMAQ program.

Inventory of Bicycle Facilities

Some facilities in the Sheboygan metropolitan planning area are signed for shared usage of motor vehicles and bicycles. Technically, all roadways located within the metropolitan planning area may be shared by motor vehicles and bicyclists except for Interstate Highway 43. However, the major connecting highways located in the metropolitan planning area (State Highways 23, 28, 32 and 42) are not recommended for bicycle travel due to high traffic volumes.

An inventory of the Sheboygan area's on-road bicycle facilities (bike lanes and paved shoulders), off-road multipurpose trails, as well as proposed bicycle projects, is listed in the following sections, while Map 5.1 of this plan displays the location of the bicycle facilities in the Sheboygan metropolitan planning area. Also refer to the *Sheboygan County Pedestrian and Bicycle Comprehensive Plan* for additional information on these bicycle facilities.

City of Sheboygan

Bike Lanes:

- Eisner Avenue - N. 21st Street to N. 8th Street;
- N. 8th Street - Eisner Avenue to Superior Avenue;
- S. 8th Street - S. 7th/S. 9th Streets to Indiana Avenue;
- S. 7th Street - Superior Avenue to S. 8th Street;
- S. 9th Street - Superior Avenue to S. 8th Street;
- North Avenue - Taylor Drive to N. 3rd Street;
- N. Taylor Drive ~ North Avenue to Wilgus Avenue;
- Superior Avenue (CTH O) - Interstate Highway 43 overpass to N. 3rd Street;
- N. 3rd Street - Superior Avenue to Michigan Avenue;
- N. 25th Street - Superior Avenue to the Sheboygan Urban Recreation Trail;
- New Jersey Avenue - Taylor Drive to S. 15th Street;
- S. 15th Street - New Jersey Avenue to Pennsylvania Avenue;
- Pennsylvania Avenue - S. 15th Street to the Sheboygan Urban Recreation Trail;
- Indiana Avenue – S. Taylor Drive to S. 7th Street;
- Wilson Avenue - S. Business Drive (STH 28) to Lakeshore Drive;
- S. 7th Street/Lakeshore Drive - Indiana Avenue to Weeden Creek Road/CTH EE;
- S. Business Drive - Camelot Boulevard to Weeden Creek Road/CTH EE;
- Weeden Creek Road/CTH EE - S. 12th Street to Evergreen Drive;
- Evergreen Drive - Weeden Creek Road to Indian Mound Road;
- Indian Mound Road - Evergreen Drive to S. 12th Street (CTH KK); and
- S. 12th Street (CTH KK) - Wilson Avenue to Riverdale Avenue (start of the Interurban Trail).

Combined On-Road Bicycle Route/Off-Road Multipurpose Pathway:

Sheboygan Urban Recreation Trail

The Sheboygan Urban Recreation Trail is an off-road and on-road facility that provides an east-west link between the Old Plank Road Trail and Sheboygan's Harbor Center and lakefront. The trail accommodates bikers, walkers and in-line skaters. This facility follows clearly marked routes which incorporate bike paths, on-road bicycle routes, bike lanes, and wide curb lanes.

Off-Road Multipurpose Pathway:

The Shoreland 400 Rail Trail

Completed in 2013 through a combination of NMTPP, CMAQ and local matching funds, this 1.7 mile multi-use asphalt trail travels on a former Union Pacific rail corridor through the City of Sheboygan between Pennsylvania Avenue and Martin Avenue. Ultimately, it is hoped that the trail can be expanded north to North Avenue and south to Mead Avenue.

City of Sheboygan Falls

The City of Sheboygan Falls vicinity contains numerous bicycle facilities including bike lanes, paved shoulders, and multipurpose pathways, many of which were most recently constructed in 2013 as part of the Sheboygan Falls Comprehensive Bicycle and Pedestrian Plan Project. The following is a listing of streets with these facilities. Refer to Map 5.1 for an illustration of these bicycle facilities in the City of Sheboygan Falls vicinity.

Bike Lanes:

- Pinehaven Lane - N. 6th Street west to the city limits;
- N. 6th Street - Pinehaven Lane to Fond du Lac Avenue;
- Main Street/Broadway Street - Fond du Lac Avenue to Monroe Street; and
- Monroe Street (CTH PP) - Mill Street to Buffalo Street.

Paved Shoulders (4-5 foot):

- Monroe Street (CTH PP) - Mill Street to CTH PPP;
- CTH PP - CTH PPP to CTH TT;
- CTH PPP - Monroe Street (CTH PP) to STH 28;
- CTH TT - Sheboygan County Memorial Airport to CTH PP;
- Fond du Lac Avenue (CTH C) - N. Main Street (STH 32) to CTH TT;
- N. Main Street (STH 32) (8 foot shoulders) - Forest Avenue to Fond du Lac Avenue; and
- Forest Avenue - N. Main Street (STH 32) to Rangeline Road.

Village of Kohler

Paved Shoulders (5 foot):

- Highland Drive (CTH Y) - Greenfield Drive to Superior Avenue (CTH O).

Off-Road Multipurpose Pathways:

Village of Kohler Trail System

The Village of Kohler has an extensive system of multipurpose recreational trails that are

interconnected. Users of the Kohler trail system are also able to access the Old Plank Road Trail.

Village of Howards Grove

Bike Lanes:

- College Avenue (CTH A) - S. Wisconsin Drive (STH 32) west to the village limits.

Paved Shoulders (4-5 foot):

- N. Wisconsin Drive (STH 42) - Northern village limits to Madison Avenue; and
- S. Wisconsin Drive (STH 32) - Madison Avenue to the south village limits.

Off-Road Multipurpose Pathway:

- A multi-use pathway connects Audubon Road to Howards Grove High School.

Unincorporated Portions of the Sheboygan Metropolitan Planning Area

Paved Shoulders:

- CTH A (5 foot shoulders) - Village of Howards Grove to Village of Elkhart Lake (Town of Herman);
- CTH LS (3 foot shoulders) - City of Sheboygan to Manitowoc County (Towns of Sheboygan and Mosel);
- CTH Y (4 foot shoulders) - Just south of STH 42 to CTH O (Town of Sheboygan);
- CTH J (5 foot shoulders) - Interstate Highway 43 to CTH M (Towns of Sheboygan and Sheboygan Falls);
- CTH V (3 foot shoulders) - Interstate Highway 43 frontage road to CTH M (Towns of Wilson and Lima); and
- CTH O (5 foot shoulders) - West of Woodland Road to State Highway 32 (Towns of Sheboygan and Sheboygan Falls).

Bike Lanes:

- Mueller Road - CTH Y to STH 42 (Town of Sheboygan);
- CTH O - Interstate Highway 43 overpass to Woodland Road (Town of Sheboygan); and
- Sheboygan County Interurban Trail (on-road segments), including S. 12th Street, Sand Dune Drive, Old Park Road, Sauk Trail Road, Wilson Lima Road, and Minderhaud Road. (Town of Wilson).

Combined On-Road Bicycle Route/Off-Road Multipurpose Pathway:

Sheboygan Interurban Trail

The Sheboygan Interurban Trail is a 14-mile on-road and off-road multipurpose trail that spans from the City of Sheboygan south to the Ozaukee County line. The on-road segments travel south from the City of Sheboygan on S. 12th Street and traverse town roads, including through Kohler-Andrae State Park, before arriving in the Village of Oostburg. From the Village of Oostburg to the County line, the trail is off-road. This trail then links to the Ozaukee Interurban Trail, which ultimately connects to Milwaukee County. The Sheboygan Interurban Trail is intended for year round uses, such as biking, walking, running, and cross-country skiing. Horses and motorized vehicles (including

snowmobiles) are not allowed on the trail.

Off-Road Multipurpose Pathway:

Old Plank Road Trail

Paralleling State Highway 23, the Old Plank Road Trail is a year-round recreational trail that runs from the City of Sheboygan west for approximately 17 miles to the Town of Greenbush. The Old Plank Road Trail is among the longest multipurpose trails in Wisconsin that is available for a variety of uses, including cycling, walking, jogging, skating, horseback riding, cross-country skiing and snowmobiling.

Other Improvements:

- NOMO Sheboygan County installed bicycle racks in eleven different municipalities. Over 700 bike racks have been installed at a variety of locations, including schools, businesses, churches, parks and bus stops.

Planned Improvements

The following bicycle facility improvements have been planned in the Sheboygan Metropolitan Planning Area over the next few years; all of these projects are completely or mostly funded by NOMO Sheboygan County:

- The Taylor Drive Multi-use Pathway is a roughly three mile project that will run from Kohler Memorial Drive to Crocker Avenue. The 10 to 14 foot wide asphalt trail will be situated on the east side of Taylor Drive. This is NOMO Sheboygan County's highest prioritized project;
- Construction of multi-use pathways on North Taylor Drive between Kohler Memorial Drive and Superior Avenue and from the intersection of North Taylor Drive and North Avenue into Evergreen Park;
- Construction of a multi-use pathway in the Alliant Energy Utility corridor on the south side of the City of Sheboygan;
- Construction of Sidewalks and Striping of Bicycle Lanes on Millersville Avenue/CTH JJ and Audubon Road (Village of Howards Grove);
- Implementation of the Village of Kohler Comprehensive Pedestrian and Bicycle Plan;
- Multi-use pathway beginning at the southern end of Ebben Field and connecting to Woodlake Road (Village of Kohler);
- Expansion of the Shoreland 400 Rail Trail south to Mead Avenue and north to North Avenue;
- Construction of a bridge for bicyclists and pedestrians over the Sheboygan River near the former Tecumseh Engines plant in the City of Sheboygan Falls; and
- In 2014, traffic calming measures were constructed around twelve Sheboygan Area School District schools and at the Sheboygan YMCA. Facilities such as speed tables, in-ground crosswalk lighting, flashing stop signs, curb bumpouts, solar powered radar signs, and traffic circles were installed.

In addition, several non-infrastructure projects have been or are being accomplished through NOMO Sheboygan County, including: NMTPP marketing and branding; program oversight (including education and outreach); countywide bicycle and pedestrian comprehensive plan updates; bicycle friendly communities workshops; a guaranteed ride home program; ReBike (a bicycle repair and education program to provide bicycles to residents in need); bike corrals; the annual countywide bike and walk to work week; the annual countywide bike and walk to school day; Safe Routes to Schools initiatives, etc.

Current Conditions

Regulations

State Statutes

The State of Wisconsin has established laws based on the national Uniform Vehicle Code affording bicyclists the same rights and responsibilities as motorists. In enacting these laws, bicyclists must adhere to the same rules of the road as motorists. Bicyclists operating on sidewalks must adhere to the same regulations for crossing streets as do pedestrians. However, bicyclists must continue to yield the right-of-way to pedestrians on sidewalks.

For specific regulations pertaining to the rules of the road for motorized and non-motorized modes of transportation, please refer to Chapter 346 (Rules of the Road) of the *Wisconsin Statutes*.

Local Bicycling Ordinances

Most metropolitan planning area communities allow bicyclists to ride on sidewalks, as long as they give the right-of-way and audible warning to pedestrians. However, in the central business districts of the cities and villages of the metropolitan planning area, bicyclists are required to ride on the street because bicyclists riding on the sidewalks would pose a hazard to pedestrians.

Land Development Ordinances

While bicycle and multipurpose facilities are of great value to residents of the metropolitan planning area, few area municipalities have included language in their land development codes regarding the provision of bikeways into new developments.

Facility Maintenance

Local jurisdictions in the metropolitan planning area are responsible for the maintenance of intercity and intra-city trails. The cities of Sheboygan and Sheboygan Falls; the villages of Howards Grove and Kohler; and the Town of Sheboygan in the metropolitan planning area have signed agreements with the Sheboygan County Planning and Conservation Department committing to maintaining bicycle facilities that were built utilizing funding from the Sheboygan County NMTPP.

Bicycling Facts

Bicycling to Work

Table 5.1 indicates that the number of persons age 16 and older who worked outside the home and biked to work in Sheboygan County, the City of Sheboygan, and the Sheboygan Urbanized Area as indicated in the 2006 – 2010 and 2008 - 2012 American Community Survey (ACS) 5-Year Estimates.

The number of persons age 16 and older who worked outside the home and biked to work decreased from the 2006 – 2010 ACS to the 2008-2012 ACS for each aforementioned region/jurisdiction. Sheboygan County dropped by 103 bikers, the City of Sheboygan declined by 72 riders, and the Sheboygan Urbanized Area had 71 fewer bicyclists. This is an approximately 21 percent decline of bikers for Sheboygan County and the City of Sheboygan, and an 18 percent decline for the Sheboygan Urbanized Area.

The percentage of persons age 16 and older who worked outside the home and biked to work in Sheboygan County decreased from 0.9 percent of all workers in the 2006 – 2010 ACS to 0.7 percent of all workers in the 2008 - 2012 ACS.

The percentage of persons age 16 and older who worked outside the home and biked to work in the City of Sheboygan declined from 1.4 percent of all workers in the 2006 – 2010 ACS to 1.1 percent of all workers in the 2008 - 2012 ACS.

The percentage of persons age 16 and older who worked outside the home and biked to work in the Sheboygan Urbanized Area decreased from 1.2 percent of all workers in the 2006 – 2010 ACS to 0.9 percent of all workers in the 2008 - 2012 ACS.

The relatively low proportion of commuters by bicycle could be due to several factors, including the ability for more persons to own a motor vehicle, the lack of bicycle parking, a lack of shower facilities at work, and increased driving. An increase in average daily traffic (ADT) can intimidate many persons who may want to bike, but are afraid to do so. Another factor for a lower number of workers biking to their job could be the improvement and development of pedestrian facilities (e.g., sidewalks, multi-purpose pathways, etc.) through NOMO Sheboygan County, especially in the City of Sheboygan and the Sheboygan Urbanized Area. The result is more workers walking to their jobs versus biking (see the Pedestrian Network section in this chapter).

It is important to note that the journey to work numbers represent only a fraction of all trips being made in the metropolitan planning area. People cite many reasons for not biking to work, the most common reason being that they have a professional job with a strict dress code. Most employers do not provide showers or changing rooms, which creates a disincentive to bike to work. Midwest winters are also a huge disincentive for biking with the short periods of daylight, sub-zero temperatures and heavy snows.

Table 5.1: Persons Who Biked to Work, 2006-2010 and 2008-2012 American Community Survey*

Region or Jurisdiction	2006 - 2010 ACS**	2008 - 2012 ACS**	Numerical Change	Percentage Change
Sheboygan County	488	385	-103	-21.1%
Sheboygan Urbanized Area	384	313	-71	-18.5%
City of Sheboygan	334	262	-72	-21.6%

Notes:

*Workers 16 years and over (sample respondents, not based on a 100 percent count).

**American Community Survey (ACS) data is not available for all of the individual local jurisdictions of the Sheboygan Metropolitan Planning Area. The ACS data is only available for Sheboygan County, the Sheboygan Urbanized Area, and the City of Sheboygan.

Source: U.S. Census Bureau, 2006-2010 and 2008-2012 American Community Survey (ACS) 5-Year Estimates ("Commuting Characteristics"); and Bay-Lake Regional Planning Commission, 2014.

Other Indicators of Bicycle Travel Demand

As part of the federal requirements for the NMTPP, each community is required to complete manual bicycle counts on an annual basis. In the fall between 2007 and 2013, a staff member or volunteer was stationed at one of several intersections in the county for a two hour period in the morning or evening, during which they counted and recorded bicycle activity for that area. This is to gauge an on-the-ground increase or decrease in nonmotorized activity.

To address the variability of bicyclists on a daily basis at the same location, the results of the counts are presented as a three-year moving average, with each annual count calculated as the average of the current and previous two years. For example, the 2010 count is the average of the 2008, 2009 and 2010 counts.

The following are the annual bicyclist counts in Sheboygan County, 2007-2013 (three-year moving averages, except for the 2007 baseline year) according to the FHWA *Nonmotorized Transportation Pilot Program: 2014 Report*:

2007 = 66	2011 = 74
2009 = 71	2012 = 70
2010 = 76	2013 = 65

Using 2007 as a baseline, biking in Sheboygan County decreased an estimated 1.5 percent between 2007 and 2013. The estimated annual rate of decrease for bicycling was 0.25 percent when comparing 2013 to 2007; however, increases were observed in the intermediate years.

Bicycle use fluctuated in the county but remained relatively steady overall since the base year of 2007. Bicycle counts declined beginning in 2011 likely due to construction of NMTPP-funded facilities at the count locations at the time counts were recorded; this construction likely make bicycling very difficult.

Safety

Pavement Marking and Signage

The ability for bicyclists to travel safely and confidently is essential if the goal is to increase the number of bicycle riders and bicycle trips. Signage and pavement markings warn motorists that bicyclists are sharing the road, plus they guide bicyclists between origins and destinations.

Sharrow

In 2011, over 30 centerline miles of bike lanes and sharrows were striped on roadways throughout Sheboygan County. Bike lanes provide an on-street area designated solely for use by bicyclists, while sharrows are symbols placed in or near the travel lane itself, indicating that motorists and bicyclists are to share the road with each other.

While pavement striping has not been proven to increase safety, merely the perception of increased safety can increase the number of users.

Bicycle route signage used in the metropolitan planning area is generally consistent with the Manual on Uniform Traffic Control Devices (MUTCD). However, supplemental pavement markings are not always installed, and even when signs are present, the intended routing is not

always clear. Signage along trails is also important because it serves as a method of wayfinding. Those unfamiliar with a trail could easily find themselves exiting at an undesired location.

Marked on-road facilities and specific striped bike lanes in the Sheboygan metropolitan planning area are listed in the "Inventory of Bicycle Facilities" portion of this chapter, and are displayed on Map 5.1.

Roadway Hazards

Two major roadway hazards exist for bicyclists:

- Drainage grates and utility covers: Drainage grates and utility covers should sit flush to the roadway to be safe for bicyclists to travel over them. Bicycle-safe grates can replace existing unsafe grates during reconstruction projects, and should be incorporated into new construction. Most grates and covers sit flush to the roadway, but the freeze and thaw cycle tends to cause the pavement around manhole covers to crack and heave, producing a safety hazard.
- At-grade railroad crossings: Ideally, railroad tracks should sit flush and intersect at right angles with the roadway. Normal train usage causes rail beds to buckle over time, resulting in the track rails sitting above grade. This situation, along with having tracks that intersect the roadway at sharp angles, can result in the front tire of a bicycle getting trapped next to the rail and the bicyclist losing control. In order to reduce this risk, bicyclists should attempt to cross perpendicular to the tracks. Communities in the metropolitan planning area should install wider sidewalks or trails at at-grade railroad crossings where the rail intersects at a sharp angle so that bicyclists can maneuver to cross perpendicular to the tracks.

Bicycle Crashes

During the period from 2010 through 2012 in the communities of the Sheboygan metropolitan planning area, 60 bicycle crashes were reported, in which 60 bicyclists were injured and one bicyclist was killed. This translates to one bicyclist being injured or killed on Sheboygan area streets and highways about every eighteen days. Figure 5.1 shows that 19 crashes occurred in 2010 (all injury crashes), 21 crashes occurred in 2011 (20 injury crashes and one property damage crash), and 20 crashes occurred in 2012 (19 injury crashes and one fatal crash). The one fatal crash in 2012 also had two injured persons; all injury crashes had one injured person. Most bicycle crashes occurred during daylight hours (over 88 percent) and on dry pavement (over 93 percent of the crashes in which pavement condition was reported). The most frequent cause of crashes involving bicyclists was "failure to yield the right-of-way" on the part of both motorists and bicyclists. Other less frequent (but nonetheless common) factors in crashes were: inattentive driving; disregard of traffic control devices; improper turn movements; driving at speeds too fast for conditions; failure to control one's vehicle; other unspecified factors; and combinations of various factors. In many cases, there was no specific cause of the crash cited in the crash report.

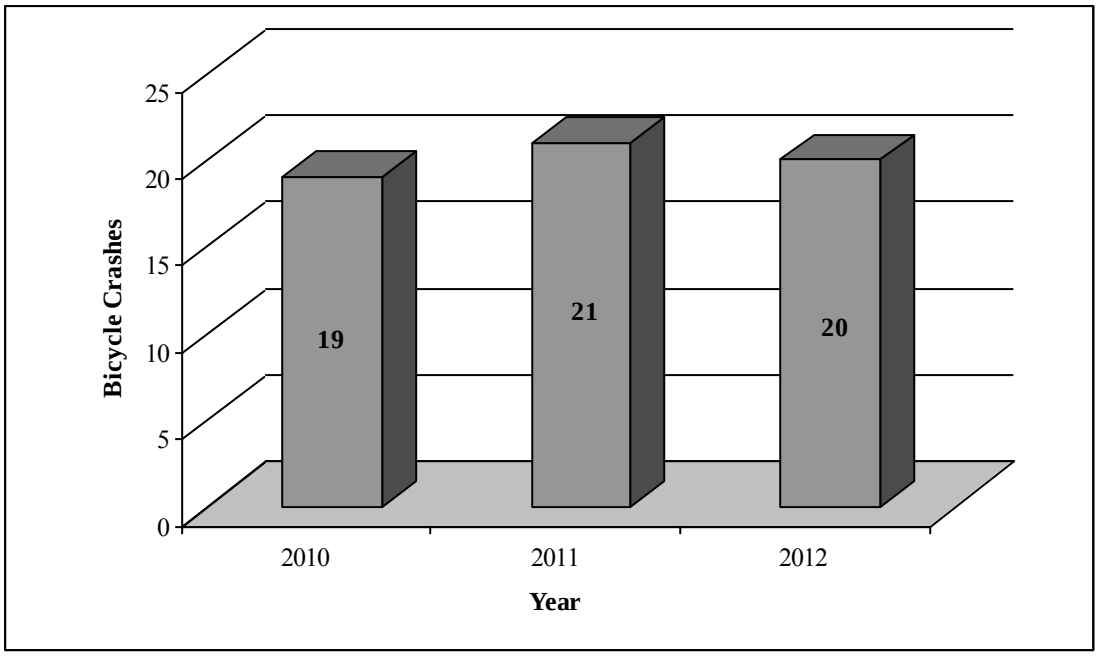
Of the 60 reported bicycle crashes occurring from 2010 to 2012, 41 occurred at intersections; 39 of these intersection crashes occurred in the City of Sheboygan, one more occurred in the City of Sheboygan Falls, and one other crash occurred in the Town of Sheboygan. Because of the number of conflict points, intersections pose a greater safety hazard to all modes of travel. One method for reducing conflicts at intersections is to restrict turning movements. Medians are often used for this purpose, as well as to provide the added safety benefit of a mid-street refuge. Nearly

all intersections in the metropolitan planning area that had a crash involving a bicycle had only one such crash at the intersection. However, two intersections stand out as having multiple bicycle crashes from 2010 through 2012 (both of these intersections were located in the City of Sheboygan):

- 14th Street (State Highway 28) and Pennsylvania Avenue; and
- Water Street and Pennsylvania Avenue.

Both of these intersections had two bicycle crashes each.

Figure 5.1: Bicycle Crashes in the Sheboygan Metropolitan Planning Area, 2010 - 2012



Source: Wisconsin Department of Transportation (for all years listed); and Bay-Lake Regional Planning Commission, 2014.

Map 5.2 illustrates the reported bicycle crash locations that occurred at intersections over the period from 2010 through 2012. The high crash locations are those that have experienced two or more bicycle crashes over that period of time. Corridors which stand out as being problematic for bicycle crashes at intersections include the following:

- Erie Avenue from North 12th Street to North 19th Street;
- Geele Avenue from Calumet Drive/STH 42 to North 11th Street;
- Pennsylvania Avenue from 8th Street to 14th Street;
- Superior Avenue from North 16th Street to North 25th Street;
- South Business Drive/STH 28 from Broadway Avenue to Mead Avenue;
- North 14th Street/STH 28 from Ontario Avenue to Erie Avenue; and
- South 16th Street from South Business Drive/STH 28 to Union Avenue.

In addition, it should be noted that while not adhering to a traditional corridor-based analysis of crashes, a large cluster of bicycle crashes occurred in portions of the City of Sheboygan surrounding the central business district, particularly in areas north of the Sheboygan River.

Facility Maintenance

Multipurpose trails in the area have been paved with asphalt, and, with a few exceptions, tend to be in good condition. Area municipalities care for their own trails by trimming bordering vegetation and by removing debris. Snow removal during the winter keeps paths open and available to bicyclists and pedestrians. On-road routes are used mainly by motor vehicles, and therefore undergo much more wear. The pavement is cracked and heaved in many sections along designated bicycle routes, but area municipalities regularly program repaving and reconditioning projects for such routes.

Access – Barriers and Connectivity

The main transportation barriers for bicyclists in the metropolitan planning area are active rail lines in the area as well as Interstate Highway 43, and State Highway 23 west of North 25th Street.

Along with man-made barriers, natural features such as wetlands, rivers and streams serve as barriers that must be crossed by bridge. However, most bridges have sidewalk accommodations for pedestrians that are wide enough to also accommodate bicyclists.

PEDESTRIAN NETWORK

The Sheboygan metropolitan planning area contains a variety of pedestrian walkways (including sidewalks, paths or trails, and roadway shoulders) that are necessary to encourage safe pedestrian circulation and travel. Since 2007, the *Sheboygan County Pedestrian and Bicycle Comprehensive Plan* as well as the *Sheboygan County Safe Routes to School Plan* (adopted in 2009) have guided and encouraged the development of these facilities throughout Sheboygan County. Through the efforts of NOMO Sheboygan County and various stakeholders, the number of pedestrian accommodations has grown, providing the public with additional safe alternatives to driving, ultimately increasing the number of walkers and reducing automobile usage. This section provides an overview of the Sheboygan metropolitan planning area's existing and planned pedestrian network. More detailed information is also available through the county's safe routes to school plan and the pedestrian and bicycle comprehensive plan, which was recently updated in 2015.

A walkable community encourages more walking through:

- Continuous sidewalks;
- Safe street crossings;
- Pedestrian signs, signals and markings;
- Compact land use;
- Sidewalks and setbacks; and
- Landscaping and lighting.

A walkable community also reduces the number of pedestrian/motor vehicle crashes and injuries, and better accommodates those who use walking as their primary mode of transportation.

Obstacles and conditions that can act as deterrents to walking include:

- Missing sections of sidewalks;
- Uneven walking surfaces;

- Poor or no lighting;
- Misuse of pedestrian facilities;
- Poor maintenance;
- Narrow walkways;
- Missing curb cuts;
- Difficult street crossings;
- Lack of respect for pedestrians (motorists not yielding the right-of-way when a pedestrian is in a crosswalk);
- Barriers on walking routes (such as rivers and railroads);
- Auto-oriented land development; and
- High traffic levels or speeds (especially near schools, parks or retirement centers).

Disabled persons (e.g., those who use wheelchairs and electric personal assistive mobility devices) also need to be considered when planning pedestrian facilities.

Inventory of Facilities

Pedestrian travel is accommodated through a system of walkways that includes sidewalks, paths or trails, and highway shoulders. Sidewalks offer the most efficient and effective means for making short trips in urban areas. Sidewalks run parallel to streets and highways, providing equivalent connections between origins and destinations as the streets and highways themselves. Generally, streets and highways in suburban and urban fringe portions of the metropolitan planning area are constructed with curb and gutter, yet these streets and highways generally lack sidewalks. The lack of sidewalks forces pedestrians to walk in the roadway, increasing the likelihood of pedestrian/motor vehicle crashes. Paths include walkways through parking lots and multipurpose paths for shared use with bicyclists, in-line skaters, and other users. Multipurpose paths often provide less direct connections, and generally serve more recreational purposes than do sidewalks. Highway shoulders are often paved, but may also be composed of gravel or aggregate. Because shoulders are shared by pedestrians, bicyclists and motorists, pedestrians must take extra care and should walk on the side of the road that faces traffic.

The Cities of Sheboygan and Sheboygan Falls, and the Villages of Howards Grove and Kohler contain the bulk of the sidewalk system within the metropolitan planning area. In addition, several of the unincorporated portions of the Sheboygan Metropolitan Planning Area also contain pedestrian facilities. The pedestrian network within the metropolitan planning area is displayed on Map 5.3.

Planned Improvements

The following pedestrian facility improvements have been planned in the Sheboygan Metropolitan Planning Area over the next few years; all of these projects are completely or mostly funded by NOMO Sheboygan County:

- Sidewalk gap filling occurred throughout the City of Sheboygan in 2015 (construction to fill gaps helps provide a more complete sidewalk network); and
- In 2014, traffic calming measures were constructed around twelve Sheboygan Area School District schools and at the Sheboygan YMCA. Facilities such as speed tables, in-ground crosswalk lighting, flashing stop signs, curb bumpouts, solar powered radar signs,

and traffic circles were installed.

Current Conditions

Regulations

Federal Highway Administration (FHWA)

The FHWA has recommended guidelines for installing sidewalks based on recommendations of the Institute of Transportation Engineers (ITE). These guidelines suggest where sidewalks should be built based on land use, functional classification of the roadway in question, and the density of housing units. Table 5.2 illustrates these guidelines, as found in FHWA's *Implementing Pedestrian Improvements at the Local Level* (Publication Number FHWA-98-138).

The USDOT (including FHWA) also issued a policy statement on bicycle and pedestrian accommodation regulations and recommendations in March of 2010. According to this statement, "(US)DOT policy is to incorporate safe and convenient walking and bicycling facilities into transportation projects," and that "transportation agencies are encouraged to go beyond minimum standards to provide safe and convenient facilities for these modes."

The complete USDOT policy statement on bicycle and pedestrian accommodation can be found at: http://www.fhwa.dot.gov/environment/bikeped/policy_accom.htm

State Statutes/Administrative Code/Policies

Chapter 346 of the *Wisconsin Statutes* (Rules of the Road, 2007 – 2008 update) outlines the expected behavior of all persons who use the road, including bicyclists, pedestrians, motorists and riders of personal assistive mobility devices. When bicyclists and riders of personal assistive mobility devices operate on sidewalks, they must operate under the same rules and regulations for crossing streets as do pedestrians. More information on the policies of Chapter 346 can be found at: http://www.legis.state.wi.us/Statutes/Stat0346.pdf

WisDOT also created Chapter TRANS 75 of the *Wisconsin Administrative Code*, which "relates to bikeways and sidewalks in highway projects." This chapter implements "2009 Wisconsin Act 28 (Section 84.01(35) of the Wisconsin Statutes), which requires WisDOT to ensure that bicycle and pedestrian facilities are included in all new highway construction and reconstruction projects funded in whole or in part from certain state or federal funds." With minor exceptions, this rule "mirrors the 'Complete Streets' policy recommended by the National Complete Streets Coalition, and supported by the FHWA as a 'livability initiative.'"

More on Chapter TRANS 75 of the *Wisconsin Administrative Code* can be found at: http://www.dot.wisconsin.gov/library/research/law/docs/trans-75-rule.pdf

Table 5.2: Guidelines for Installing Sidewalks

Land Use/Roadway Class/ Housing Unit Density	New Urban and Suburban Streets	Existing Urban and Suburban Streets
Commercial and Industrial/ All Streets[3]	Both sides[1]	Both sides. Every effort should be made to add sidewalks where they do not exist to complete missing links.
Residential/ Major Arterials[3]	Both sides[2]	Both sides.
Residential/ Collectors	Both sides[2]	Multifamily residential - both sides. Single-family residential - prefer both sides, but require at least one side.
Residential/ Local Streets/ More than 4 units per acre	Both sides[2]	Prefer both sides, but require at least one side.
Residential/ Local Streets/ 1 to 4 units per acre[1]	Prefer both sides, but require at least one side.	One side preferred, with at least a 4-foot shoulder on both sides required.
Residential/ Local Streets/ Less than 1 unit per acre[1]	One side preferred; a shoulder on both sides is required[4]	At least a 4-foot shoulder on both sides required[4]

Notes:

[1]Any local street within two blocks of a school site that would be on a walking route to school requires a sidewalk and curb and gutter

[2]Sidewalks may be omitted on one side of a new street where that side clearly cannot be developed and where there are no existing or anticipated uses that would generate pedestrian trips on that side of the street.

[3]Where there are service roads, the sidewalks adjacent to the main road may be eliminated and replaced by a sidewalk adjacent to the service road on the side away from the main road.

[4]For rural roads not likely to serve development, a shoulder of at least 4 feet in width (preferably 8 feet on primary highways), should be provided. Surface material should provide a stable, mud-free walking surface.

Source: Design and Safety of Pedestrian Facilities, Institute of Transportation Engineers, 1998.

Sidewalk Maintenance

The cities and villages in the metropolitan planning area have general regulations regarding the maintenance of sidewalks, streets and alleys. In all cases, these municipalities require property owners to clean and maintain the sidewalks along their properties; this includes shoveling snow and salting ice within 24 hours of the end of a snow or ice storm. If property owners do not abide by the regulations, they are subject to a fine and a charge for municipal workers to perform the required maintenance.

Land Development Ordinances

The most efficient and effective way for communities to provide pedestrian facilities is for the communities to require installation of sidewalks within new developments. Refer to the municipal codes of the metropolitan planning area communities for any sidewalk requirements, including location and sidewalk widths.

Table 5.3: Sidewalks as a Required Improvement of Development

Jurisdiction	Sidewalk Location	Sidewalk Width	Required Improvement
City of Sheboygan	City discretion	Not stated	Yes (in areas specified by ordinance); No elsewhere
City of Sheboygan Falls	Specified residential subdivisions and commercial/industrial zones	4 feet, 6 inches	Yes (in areas specified by code); No elsewhere
Village of Kohler	Village discretion	Not stated	No
Village of Howards Grove	Village discretion	5 feet in residential areas; 8 feet in commercial areas	No
Towns (County regulations)	Town discretion. Generally, one side of frontage streets; one or both sides of all other streets within platted subdivisions	Not stated[1]	No

[1]The Town of Wilson refers to a minimum sidewalk width of five feet in its ordinances.
Source: Local public works and/or subdivision/development ordinances.

Pedestrian Facts

Walking to Work

Table 5.4 indicates the number of persons age 16 and older who worked outside the home and walked to work in Sheboygan County, the City of Sheboygan, and the Sheboygan Urbanized Area as indicated in the 2006 – 2010 and 2008 - 2012 American Community Survey (ACS) 5-Year Estimates.

The number of persons age 16 and older who worked outside the home and walked to work increased from the 2006 – 2010 ACS to the 2008 - 2012 ACS for the City of Sheboygan and the Sheboygan Urbanized Area, while Sheboygan County experienced a decline. The City of Sheboygan increased by 43 walkers, the Sheboygan Urbanized Area increased by 62 walkers, and Sheboygan County experienced a decline of 42 workers walking to work. The City of Sheboygan and the Sheboygan Urbanized Area both experienced a seven percent increase from the 2006 – 2010 ACS to the 2008 – 2012 ACS, while Sheboygan County had a 2.5 percent decline of individuals walking to work.

The percentage of persons age 16 and older who worked outside the home and walked to work in the City of Sheboygan increased from 2.6 percent of all workers in the 2006 – 2010 ACS to 2.8 percent of all workers in the 2008 - 2012 ACS.

The percentage of persons age 16 and older who worked outside the home and walked to work in the Sheboygan Urbanized Area increased slightly from 2.6 percent of all workers in the 2006 – 2010 ACS to 2.7 percent of all workers in the 2008 - 2012 ACS.

The percentage of persons age 16 and older who worked outside the home and walked to work in Sheboygan County decreased from 3.0 percent of all workers in the 2006 – 2010 ACS to 2.9 percent of all workers in the 2008 - 2012 ACS.

It should be noted that gains in employment in the Sheboygan Urbanized Area (an increase of

1,821 workers, or 5.3 percent) likely led to the increase in the number of walking commuters in the urbanized area. In addition, the improvements and development of pedestrian accommodations (e.g., sidewalks, multi-purpose pathways, etc.) through NOMO Sheboygan County contributed to the increase in number of workers walking to their job in the City of Sheboygan and the Sheboygan Urbanized Area. Continued efforts by NOMO Sheboygan County will likely increase the proportion of walking commuters in the metropolitan planning area in the years to come.

It is important to note that the number of journey to work trips represents only a fraction of all trips being made in the metropolitan planning area. People cite many reasons for not walking to work, the most common reason being that they have a professional job with a strict dress code. Most employers do not provide showers or changing rooms, which creates a disincentive to walk to work. Midwest winters are also a huge disincentive for walking with their short periods of daylight, sub-zero temperatures and heavy snows.

Table 5.4: Persons Who Walked to Work, 2006-2010 and 2008-2012 American Community Survey*

Region or Jurisdiction	2006 - 2010 ACS**	2008 - 2012 ACS**	Numerical Change	Percentage Change
Sheboygan County	1,685	1,643	-42	-2.5%
Sheboygan Urbanized Area	869	931	62	7.1%
City of Sheboygan	623	666	43	6.9%

Notes:

*Workers 16 years and over (sample respondents, not based on a 100 percent count).

**American Community Survey (ACS) data is not available for all of the individual local jurisdictions of the Sheboygan Metropolitan Planning Area. The ACS data is only available for Sheboygan County, the Sheboygan Urbanized Area, and the City of Sheboygan.

Source: U.S. Census Bureau, 2006-2010 and 2008-2012 American Community Survey (ACS) 5-Year Estimates ("Commuting Characteristics"); and Bay-Lake Regional Planning Commission, 2014.

Other Indicators of Pedestrian Travel Demand

As part of the federal requirements for the NMTPP, each community is required to complete manual pedestrian counts on an annual basis. In the fall between 2007 and 2013, a staff member or volunteer was stationed at one of several intersections in the county for a two hour period in the morning or evening, during which they counted and recorded pedestrian activity for that area. This is to gauge an on-the-ground increase or decrease in nonmotorized activity.

To address the variability of pedestrians on a daily basis at the same location, the results of the counts are presented as a three-year moving average, with each annual count calculated as the average of the current and previous two years. For example, the 2010 count is the average of the 2008, 2009 and 2010 counts.

The following are the annual pedestrian counts in Sheboygan County, 2007-2013 (3-year moving averages, except for the 2007 baseline year) according to the FHWA *Nonmotorized Transportation Pilot Program: 2014 Report*:

2007 = 80	2011 = 102
2009 = 83	2012 = 125
2010 = 86	2013 = 148

Using 2007 as a baseline, walking in Sheboygan County increased an estimated 85 percent between 2007 and 2013. This increase is an estimated 10.8 percent average annual growth rate for walking in the county comparing 2013 to 2007.

Actual walking counts in Sheboygan County nearly doubled each of the first three years of the NMTPP program and have continued to show considerable growth at the count locations throughout the county. Since sidewalks take less time to construct than the larger-scale projects like multiuse pathways and bicycle facilities; sidewalks were some of the first NMTPP projects to be completed. With the completion of new and improved pedestrian accommodations each year since 2007, the number of pedestrians also continues to increase.

Safety

Signage and Pavement Markings

Pedestrian signage and crosswalk markings not only serve to direct pedestrians to designated locations to cross busy streets, but also warn motorists to be more vigilant of pedestrian activity. Most intersections lack marked crosswalks altogether, but the lack of markings only becomes an issue on highly traveled corridors.

Local common councils and village and town boards and some of their standing committees (Public Protection and Safety and Public Works Committees in the case of the City of Sheboygan) address pedestrian issues in the metropolitan planning area.

Lighting

Lighting is an essential element in the pedestrian landscape as it illuminates the walking surface and offers pedestrians a sense of safety and security by deterring illegal activity.

Sidewalks in the downtown areas and in areas involving commercial strip development are generally well lit, but most sidewalks in the cities and villages of the metropolitan planning area receive indirect lighting from existing street lamps. While sidewalks are provided, the lack of sufficient lighting may deter use by potential pedestrians.

Pedestrian Crashes

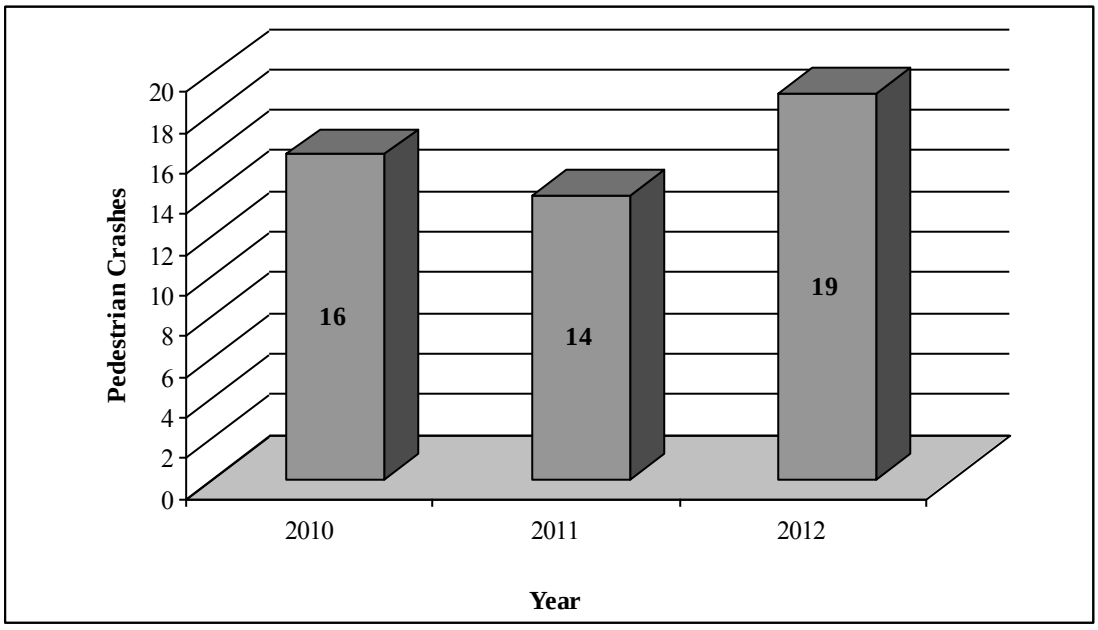
WisDOT estimates that one pedestrian was injured or killed every 6.5 hours in Wisconsin in 2012. Some 1,277 crashes involved pedestrians in 2012 in Wisconsin, including 45 pedestrian fatalities and 1,304 pedestrian injuries. Some 48.6 percent of these crashes occurred when the pedestrian was in the roadway, with an additional 34.7 percent of crashes occurring in a crosswalk. Since 1998, the number of pedestrians killed in crashes in Wisconsin has had its increases and decreases, while the number of pedestrians injured in the state has tended to steadily decrease. At the state level, pedestrian crashes occur most often on weekdays, particularly between the hours of 3:00 p.m. and 6:00 p.m. Most pedestrian crashes occur on local

roads and streets in urban areas. Children were involved in about 27.5 percent of all pedestrian injury crashes at the state level in 2012.

During the period from 2010 through 2012 in the communities of the Sheboygan metropolitan planning area, 49 pedestrian crashes were reported, in which 53 individuals were injured and two individuals were killed. This translates to one person being injured or killed in a pedestrian-related crash nearly every 20 days. Figure 5.2 shows that 16 crashes occurred in 2010 (all injury crashes), 14 crashes occurred in 2011 (including two fatal crashes and one property damage only crash), and 19 crashes occurred in 2012 (all injury crashes). It should be noted that two crashes involving pedestrians (one in 2010 and one in 2011 that was also a fatality) had two injuries each, while two additional crashes involving pedestrians (in 2010 and 2012) had three injuries each; it is possible that some of the injuries in these four crashes involved parties other than pedestrians, but this cannot be determined in the crash records that were made available.

Over 71 percent of the pedestrian crashes occurred during daylight hours, and nearly 76 percent of the pedestrian crashes occurred on dry pavement. Motorists were at fault for 26 of the 49 crashes (53.0 percent), while pedestrians were responsible for seven of the crashes (14.3 percent). Four of the reported pedestrian crashes (8.2 percent) appeared to be the joint fault of the motorist and the pedestrian, and 12 crashes (24.5 percent) had unreported or undetermined fault. Of the five pedestrian-related crashes in the metropolitan planning area involving excessive alcohol consumption (based on citations and other factors), four involved the fault of the motorist, one involved the fault of the pedestrian, none involved joint fault of the motorist and the pedestrian, and none involved unreported or undetermined fault.

Figure 5.2: Pedestrian Crashes in the Sheboygan Metropolitan Area, 2010 - 2012



Source: Wisconsin Department of Transportation (for all years listed); and Bay-Lake Regional Planning Commission, 2014.

The most frequent single causes of pedestrian crashes on the part of motorists involved failure to yield the right-of-way and inattentive driving; other causes of pedestrian crashes on the part of motorists were driving at a speed too fast for conditions, disregard of traffic control devices, failure to have control of one's vehicle, condition of the driver, and "other" causes, with a high number of multiple causes also being reported. The most frequent single cause of pedestrian crashes on the part of pedestrians involved "other" causes, with failure to yield the right-of-way and disregard of traffic control devices also appearing as causes on the part of pedestrians.

WisDOT has estimated through analysis of statewide crash statistics that 48.6 percent of pedestrian crashes occurred outside of a crosswalk in the roadway in calendar year 2012. While it is difficult to distinguish between crosswalk crashes versus non-crosswalk crashes based on the crash data supplied by WisDOT, we can analyze intersection versus non-intersection crashes as a good substitute. Of the 49 reported pedestrian crashes occurring from 2010 through 2012, 29 (59.2 percent) occurred at intersections; all but two of these intersection crashes occurred in the City of Sheboygan. Of these 29 intersection crashes, 20 crashes (69.0 percent) were exclusively the fault of the motorist, while three crashes (10.3 percent) were exclusively the fault of the pedestrian. In addition, one crash (3.5 percent) was the joint responsibility of the motorist and the pedestrian, while five crashes (17.2 percent) had unreported or undetermined fault.

Map 5.4 illustrates the reported intersection pedestrian crash locations that occurred in the metropolitan planning area from 2010 through 2012. Nearly all intersections that had a crash involving a pedestrian had only one such crash at the intersection. However, the intersection of Union Avenue and South 12th Street stood out as the one intersection in the metropolitan planning area that had multiple (two) pedestrian crashes from 2010 through 2012. Corridors which stand out as being problematic for pedestrian crashes at intersections include the following:

- Erie Avenue from North 14th Street (STH 28/STH 42) to North 8th Street;
- North 14th Street (STH 28/STH 42) from Pennsylvania Avenue to Superior Avenue;
- Union Avenue from South 12th Street to South 10th Street;
- Wilson Avenue from South 18th Street to South 15th Street;
- Indiana Avenue from South 17th Street to South 12th Street;
- Superior Avenue from North 14th Street (STH 42) to North 11th Street;
- Pennsylvania Avenue from 14th Street (STH 28) to 13th Street; and
- North Taylor Drive from STH 23 to Wilgus Avenue.

Safe Routes to School

Pedestrian safety and childhood obesity are increasingly becoming problems for school-age children. While many children live close to the school that they attend (particularly in the elementary grades), many more children are driven to school each day. Two of the main reasons that parents drive their children to school are safety concerns and the convenience of dropping their children off at school on the way to work.

Records analyzed in this "safe routes to school" analysis involved all reported pedestrian crash locations for children ages 5 through 17 in the cities, villages and towns of the metropolitan planning area. While the crash file contains a wealth of information, the most interesting attributes describe: the intersection or mid-block location where each crash took place; the day, hour and date of each crash; the roadway and weather conditions; the conditions affecting the driver of the motor vehicle; and the age of the driver. All of the crashes involved children between the ages of 5 and 17 who were presumably (based on the location, day, hour and date of the crash) traveling to or from school. One of the ten crashes in the metropolitan planning area involving school-age pedestrians during school days and hours was also confirmed to have involved a teenage driver (ages 16 through 18), also presumably heading to or from school. One of the ten crashes involved poor (snow or slush) road conditions.

School age child pedestrian crashes have been analyzed for periods when school is in session (September through early June, on weekdays, and between the hours of 7:00 a.m. and 4:00 p.m.). The City of Sheboygan had eight of the ten crashes in the metropolitan planning area involving school-age pedestrians during school days and hours; the other two crashes occurred in the City of Sheboygan Falls and in the Town of Wilson.

One of the ten crashes involving child pedestrians traveling to or from school occurred within a short distance of North High School and Urban Middle School, and involved a high school age pedestrian. One additional child pedestrian crash occurred at the intersection of Geele Avenue and North 20th Street, within a short distance of Cooper Elementary School, and involved two elementary school age pedestrians. Three other child pedestrian crashes occurred on portions of North 14th Street and Superior Avenue; these crashes involved elementary and possibly middle school age pedestrians. Two other child pedestrian crashes occurred along Union Avenue near Farnsworth Middle School, and involved middle school age students. One child pedestrian crash occurred along Wilson Avenue near Wilson Elementary School and South High School, and involved an elementary school age student. The one child pedestrian crash in the City of Sheboygan Falls involved a middle school age student, and occurred in the downtown of that

community. The one child pedestrian crash in the Town of Wilson involved a high school age student, and occurred a considerable distance from South High School.

Additional crossing guards are warranted for schools in the City of Sheboygan at all levels. The Village of Howards Grove could also use crossing guards to serve the high school and St. Paul's Lutheran School. The Village of Kohler and the City of Sheboygan Falls are best served with crossing guards, but additional crossing guards might be helpful in downtown Sheboygan Falls. Town of Sheboygan children would benefit from having crossing guards serving Lincoln Erdman Elementary School, while Town of Wilson children would similarly benefit from having crossing guards serving Jackson Elementary School. Implementation of Sheboygan County's "Safe Routes to School Action Plan" will go a long way toward making these and other improvements for school age pedestrians in the metropolitan planning area and elsewhere in Sheboygan County.

Facility Maintenance

Despite local sidewalk maintenance ordinances, maintenance does not always occur. A lack of maintenance can lead to cracked and up-heaved sidewalks, making walking on these facilities unsafe at best, and do not encourage people to walk or forcing them to walk in the street.

Access – Barriers and Connectivity

Barriers to pedestrian travel can include parking lots, rivers and creeks, railroads and major roadways. Direct, safe and convenient connections between areas divided by such barriers can be challenging, and is only made worse by the acceptance of poor development practices. The metropolitan planning area has several barriers that serve to separate neighborhoods from commercial areas.

Major roadways such as Interstate Highway 43 and State Highways 23, 28, 32 and 42 (outside of core portions of the City of Sheboygan and the City of Sheboygan Falls) involve significant barriers to most pedestrians, particularly disabled persons and children.

TRANSIT NETWORK

Inventory of Facilities

Transit service in the metropolitan planning area is offered in two forms: specialized transportation services and fixed-route transit. Descriptions of transit programs presented in this section are a snapshot inventory of conditions as of June 2014, and are subject to change.

Public Specialized Transportation Services in the Metropolitan Planning Area

Specialized transportation services include services for disabled persons, the elderly and those eligible to participate in Sheboygan County programs. Since the mid-1980s, Sheboygan County and the Sheboygan Parking and Transit Utility (also known as Shoreline Metro) have had a relationship in the operation of transportation services for the disabled, and this relationship continued and strengthened following passage of the Americans with Disabilities Act (ADA) in 1990. Through this cooperative relationship, Sheboygan County and Shoreline Metro have saved thousands of dollars over the past nearly 30 years. Sheboygan County is the administrative agent for the operation of an elderly (60+), disabled and program-oriented transportation program throughout the county, but Metro Connection (operated by Shoreline Metro) actually provides this service under contract to Sheboygan County. Metro Connection also operates the complementary ADA paratransit program for eligible disabled persons in the Shoreline Metro service area.

Service under the Sheboygan County elderly and disabled transportation program operates from 7:30 a.m. to 3:30 p.m. Monday through Friday. Routes operated under this service include: a daily route to the City of Plymouth (9:00 a.m. to 1:30 p.m.), as well as Tuesday meal site transportation service to the Village of Adell (involving pickups from Random Lake, Cascade, Hingham and Adell). This program has also established grocery shopping routes to the City of Sheboygan.

Shoreline Metro ADA Transportation Services

In order to meet the special needs of persons with disabilities and to comply with the Americans with Disabilities Act (ADA), Shoreline Metro operates low floor buses on its regular, fixed-route system. For disabled persons who qualify for ADA paratransit service, Shoreline Metro offers demand-response paratransit service during the same hours of operation as its fixed-route service within three-fourths of a mile of all Shoreline Metro fixed routes and within its current transit service area (Cities of Sheboygan and Sheboygan Falls and the Village of Kohler). The ADA paratransit service is provided through Shoreline Metro's "Metro Connection" division. Current hours of operation are 5:45 a.m. to 8:45 p.m. Monday through Friday and 7:45 a.m. to 5:45 p.m. on Saturdays. There is no service on Sundays or on major holidays.

Clients make their own arrangements for transportation service. ADA certified persons can request next day service prior to 3:00 p.m. the day before the scheduled service. Shoreline Metro can be reached at 920-459-3420 regarding this service, or on their website, www.shorelinemetro.com(.)

Sheboygan County Health and Human Services Department

The Sheboygan County Health and Human Services Department offers transportation services to persons in Sheboygan County who are eligible to participate in various County programs.

In addition, the Sheboygan County Health and Human Services Department's Aging and Disability Resource Center (ADRC) administers and Metro Connection provides transportation services to the elderly (60 years and older) and to adults with disabilities throughout Sheboygan County. The Sheboygan County Health and Human Services Department's ADRC receives funds from the Elderly and Disabled Transportation Program (Section 85.21); this program involves 80 percent State funding, with a 20 percent local (County) match. For more information regarding this program, contact the Sheboygan County ADRC office (920-467-4100) or Shoreline Metro (920-459-3420).

Table 5.5 summarizes the types of transportation services offered by the Sheboygan County Health and Human Services Department's ADRC and operated by Metro Connection. Transportation services generally do not go outside Sheboygan County. Clients make their own arrangements for transportation service. Reservations must be made for transportation to and from meal sites and for other county provided transportation services by 3:00 p.m. for the following day. Subscription service is continuing for ongoing appointments.

Table 5.5: Sheboygan County Health and Human Service Department Aging and Disability Resource Center (ADRC) Transportation Programs

Service Type	Hours of Service	Fare
Trips to County Operated Nutrition Sites for Meals	Mid-Day Period, Monday - Friday	$2.50/Round Trip
All Other Trips	7:30 a.m. - 3:30 p.m. Monday - Friday	$2.50/One Way Trip

Source: Sheboygan County Health and Human Services Department ADRC, 2013.

The Sheboygan County Health and Human Service Department's ADRC also sponsors a Volunteer Driver Program. Rides are provided based on a suggested donation, which is determined by the distance traveled. This program mainly focuses on elderly individuals needing transportation to medical appointments but who are denied transportation through the paratransit program. Some 3,770 rides were provided to 157 customers through the volunteer driver program in 2013. Contact the Sheboygan County ADRC (920-467-4100) for more information regarding the volunteer driver program.

Other Public Specialized Transportation Services

Medical Transportation Management, Inc. (MTM) is a broker of non-emergency medical transportation for Wisconsin residents who participate in Medicaid and who are not Family Care members. Potential riders need to call at least two days in advance to determine eligibility or to make a reservation for rides. The following contact information has been provided by MTM:

- Routine Ride Reservations: 1-866-907-1493.
- "Where's My Ride:" 1-866-907-1494.
- Deaf or Hearing Impaired Line: 1-800-855-2880;
- "We Care" Ride Concerns Line: 1-866-436-0457.
- Website: www.mtm-inc.net/wisconsin(.)

The American Cancer Society "Road to Recovery" program provides transportation to and from treatment for people who have cancer who do not have any other means of transportation. Volunteer drivers donate their time and the use of their cars so that patients can receive the life-saving treatments they need. The phone number to inquire about this service is 1-800-227-2345.

The Sheboygan County Interfaith Organization (SCIO) has a volunteer transportation program that provides rides to individuals in the community who would otherwise not be able to attend medical appointments, treatments, dental appointments and counseling. The SCIO can be reached at 920-457-7272, Ext. 11, or at the SCIO website, www.sheboygancountyinterfaith.org.

Private specialized transportation services are discussed in the "Intercity Passenger Network" section of this chapter.

Fixed-Route Transit Service

The Sheboygan Parking and Transit Utility (Shoreline Metro) is the only fixed-route transit service in the metropolitan planning area. Shoreline Metro operates ten regular fixed routes and one seasonal fixed route. The downtown transfer point (across from City Hall on the 800 block

of Center Avenue) is the origin for all of the fixed routes, which are as follows:

- **Route 3 North** travels for a length of 6.6 miles from its southern terminus at the downtown transfer point to its northern terminus at Eisner Avenue and North 21st Street. Major trip generators served by Route 3 North include the north side Piggly Wiggly supermarket, Cooper and Pigeon River Elementary Schools, the north side Walgreen's pharmacy, the Rehabilitation Center of Sheboygan (RCS) plant, and Locate Staffing temporary employment agency.
- **Route 3 South** travels for a length of 7.2 miles from its southern terminus at the south side Piggly Wiggly supermarket (inside the Washington Square Shopping Center) to its northern terminus at the downtown transfer point. Major trip generators served by Route 3 South include Sheridan Elementary School, Labor Ready temporary employment agency, the south side Pick & Save and Piggly Wiggly supermarkets, Washington Square Shopping Center, the Old Wisconsin Sausage plant, and Horace Mann Middle School.
- **Route 5 North** travels for a length of 6.9 miles from its southern terminus at the downtown transfer point to its northern terminus at North 10th Street and Eisner Avenue. Many students attending Urban Middle School and North High School use Route 5 North, since the route drops off and picks up passengers within a short walking distance of both schools. Besides these two schools, major trip generators served by Route 5 North include the Save A Lot supermarket, Ridge Court Apartments, Aurora Sheboygan Memorial Medical Center, and the Sheboygan YMCA. Route 5 North has been revised so that it covers many of its previous destinations plus those of the former Route 1 North, which was removed from service through a route revision process in 2011.
- **Route 5 South** travels for a length of 7.7 miles from its southern terminus at Indian Meadows Mobile Home Park to its northern terminus at the downtown transfer point. Many students attending Farnsworth Middle School use Route 5 South, since the route drops off and picks up passengers within a short walking distance of the school. Besides this school, major trip generators served by Route 5 South include the Shoreline Metro Garage and Offices, Rockline Industries, Indian Meadows Mobile Home Park, and Wilson Elementary School.
- **Route 7 North** travels for a length of 7.4 miles from its southern terminus at the downtown transfer point to its northern terminus at North Taylor Drive and Main Avenue. Trip generators served by Route 7 North include the Pick & Save store on North 25th Street, the Sheboygan Clinic, St. Nicholas Hospital, the Mead Public Library, the Sheboygan Police Department, the "Field of Dreams" (baseball/softball and soccer fields), and Jefferson Elementary School.
- **Route 7 South** travels for a length of 8.7 miles from its southern terminus at South 12th Street and County Highway EE/Weeden Creek Road (Sunnyside Mall vicinity) to its northern terminus at the downtown transfer point. Many students attending Farnsworth Middle School and South High School use Route 7 South, since the route drops off and picks up passengers within a short walking distance of both schools. Besides these two schools, major trip generators served by Route 7 South include Blue Harbor Resort (and other destinations in the South Pier District), Longfellow Elementary School, the Sunnyside Mall, and the Boys' and Girls' Club.

- **Route 10 North**, previously known as the Mall Route, travels for a length of approximately 7.6 miles from its eastern terminus at the downtown transfer point to its western terminus at the Memorial Mall. Trip generators served Route 10 North include the Sheboygan Clinic, the Sheboygan County Job Center, the Memorial Plaza Shopping Center and the Tamarack Apartments, in addition to the traditional destinations of the Memorial Mall, Shopko, and the Taylor Heights Shopping Center (including Festival Foods).

- **Route 10 South** is a new route that serves west central and southwest Sheboygan. This route travels for a length of 9.2 miles from its eastern terminus at the downtown transfer point to its western terminus at the University of Wisconsin Sheboygan campus. Trip generators served by Route 10 South include the City of Sheboygan's Municipal Service Building, Aldi supermarket, the UW Sheboygan campus, the south side Walmart store, the Southtown Mall, Washington Square Shopping Center, and the south side Pick & Save supermarket.

- **Route 20** (the Kohler/Sheboygan Falls Route) travels for an average length of 25.5 miles; the western terminus for this route is at Monroe and Broadway Streets in downtown Sheboygan Falls, while the eastern terminus for this route is the downtown transfer point. Most of the runs for this route are 90 minutes in length. There is one weekday run at 5:15 a.m. that is 60 minutes in length, and two Kohler Company Special Runs at 5:45 a.m. and at 2:45 p.m. on weekdays that are 30 minutes in length. On weekdays, this route runs five times plus the two Kohler Company Special Runs. On Saturdays, this route also runs five times.

  Destinations in the City of Sheboygan that are served by Route 20 (on outbound 90 minute trips, and on inbound 90 minute trips by request) include Memorial Plaza Shopping Center, Memorial Mall, Shopko and Taylor Heights Shopping Center (including Festival Foods). Destinations in the Village of Kohler served by this route include the Kohler Company, the Shops at Woodlake (including Woodlake Market), and Kohler High School. Destinations in the City of Sheboygan Falls served by this route include the Sheboygan County ADRC, the old Sheboygan Falls Industrial Park, Forest Avenue Mobile Home Park, the Sheboygan Falls Piggly Wiggly supermarket, the Sheboygan Falls Municipal Building, the Sheboygan Falls YMCA, downtown Sheboygan Falls, and Sheboygan Falls Middle School.

- **Route 30** (the Industrial Park Route) travels for an average length of 17.3 miles from its southern terminus at the County Village Apartments on South Business Drive to its northern terminus at the downtown transfer point. Many students attending Horace Mann Middle School use Route 30, since the route drops off passengers within a short walking distance of the school; these passengers can use Route 3 South at the end of the school day to return home, although they do need to walk some distance to access that route. Besides Horace Mann Middle School, major trip generators served by Route 30 include the Country Village Apartments, Bio Life Plasma Center, Acuity Insurance, the Sheboygan County Detention Center, Deer Trace Shopping Center, Washington Square Shopping Center, the Southtown Mall, the south side Wal-Mart Supercenter, Indian Meadows Mobile Home Park, the City of Sheboygan's two industrial parks and James Madison Elementary School.

- **Route 40** (the Harbor Centre Express) is a new seasonal route that was started in 2014. Route 40 travels for a length of 4.5 miles. Route 40 starts and ends at the downtown transfer point, and serves downtown Sheboygan, the lakefront and marina, the riverfront, and the South Pier. Route 40 is a seasonal route that runs from Memorial Day through Labor Day. Service is more limited on Route 40 in comparison with the other routes, as Route 40 operates from 10:00 a.m. to 8:00 p.m. on weekdays and from 10:00 a.m. to 6:00 p.m. on Saturdays. Major trip generators served by Route 40 include Blue Harbor Resort, the Riverfront, the Sheboygan County Chamber of Commerce, the John Michael Kohler Arts Center, the Harbor Centre Marina, Fountain Park, the Above and Beyond Children's Museum, the Stefanie Weill Center, the Mead Public Library, City Hall, Deland Park, the Military Heritage Museum, Harbor Pointe Mini Golf, the Northside Municipal Beach, and the Sheboygan Space Port.

Map 5.5 illustrates the existing fixed routes and the downtown transfer point for Shoreline Metro.

Besides its regular, fixed-route service, Shoreline Metro offers transportation to students of the Sheboygan Area School District who reside in the transit service area. Three customized school transportation routes (which are regular routes open to the public) transport students to school each morning that school is in session, and four similar routes transport students from school each afternoon that school is in session. Weekday afternoon school transportation routes have different hours of operation on certain Wednesdays from other weekdays, largely because of early dismissal days in the Sheboygan Area School District. All of the regular school transportation routes run for two hours and cover between 15.9 and 24.6 miles.

Yellow school buses primarily transport students of the Sheboygan Area School District residing outside the City of Sheboygan to schools in the city; the school district has relied on Shoreline Metro to provide much of this service within the city. Exceptions are made where yellow school buses will transport students in cases where it is extraordinarily hazardous to get to school or where students live more than two miles from school (both provisions in state law) and where Shoreline Metro does not offer reasonably close service to the student. The Sheboygan Area School District has found this intergovernmental cooperative arrangement to yield substantial savings in comparison to contracting with private transportation services.

Shoreline Metro completed a Transit Development Program (TDP) for calendar years 2012 through 2016 in mid-2012. The Bay-Lake Regional Planning Commission (through the Sheboygan MPO program) assisted Shoreline Metro in the completion of this TDP.

Shoreline Metro can be contacted at 920-459-3281 or 920-459-3285 for more information regarding its services. Shoreline Metro's website is www.shorelinemetro.com(.)

Current Conditions

Regulations

State Statutes

As the cost of transit operations rises and federal and state funds allocated to public transit decline, public transit providers often look to other types of funding sources for operating revenues. One method for generating local revenues as well as for coordinating regional transit operations is to create a regional transit (or transportation) authority (RTA). Many states (including California, Michigan, Illinois, Colorado and New York) have enabling legislation

allowing the formation of RTAs for the operation and management of transit systems.

Wisconsin approved enabling legislation for a limited number of RTAs in the state a few years ago. However, this legislation was repealed in 2011. More recently, efforts have been made to get the state legislature to approve enabling legislation to authorize an RTA in the Fox Cities, but this legislation has not been approved. An RTA has never been authorized for the Sheboygan area.

Before 1999, Chapter 66 of the *Wisconsin Statutes* included Section 66.94, which allowed each county having a population of 125,000 or more to form a metropolitan transit authority without taxing authority. This section of the state statutes has been repealed. Chapter 66 of the *Wisconsin Statutes* does enable cities, villages and towns to enact an ordinance for establishing, maintaining and operating a "comprehensive unified local transportation system," which would be managed by a transit commission created under Section 66.1021. The City of Sheboygan has established a parking and transit utility commission in the manner specified in Section 66.1021. Transit service to the Village of Kohler and to the City of Sheboygan Falls is provided by purchase of service agreements.

Local Transit-Supporting Ordinances

None of the cities, villages or towns in the metropolitan planning area has ordinances that support transit through land use planning. Neither transit-oriented development (TOD) ordinances nor transit corridor overlay districts have been created to support or encourage transit.

Parking is always an issue for transit in that free or inexpensive (and usually abundant) parking offers no disincentive for people to drive, especially when it takes so little time to get anywhere in the metropolitan planning area by private vehicle. None of the communities in the metropolitan planning area have enacted parking ordinances that address parking pricing, shared parking, or parking space maximums. Public parking (operated by the Sheboygan Parking and Transit Utility in the City of Sheboygan) costs 30 cents per hour at metered lots and at on-street locations, and costs $22 per month for street permit parking to $29 per month for reserved parking stalls in city-owned lots. The $48 monthly bus pass may seem far more expensive than the monthly cost of parking. However, once the costs of gasoline, maintenance, insurance and vehicle payments are considered, the bus pass appears significantly cheaper.

Transit Stop and Shelter Maintenance

The Sheboygan Parking and Transit Utility is responsible for the maintenance of transit stops and shelters; this includes the removal of snow at key transit stops and shelters. Individual property owners are responsible for the maintenance of sidewalks that passengers use to arrive at these stops and shelters.

Transit Facts

Transit to Work

The number of persons 16 years of age and older who worked outside the home and who took bus transit services increased for the nation, but decreased for the state, Sheboygan County, the Sheboygan Urbanized Area and for the City of Sheboygan between the 2006 – 2010 American Community Survey (ACS) and the 2008 – 2012 ACS. The United States experienced a 2.5 percent increase in the number of commuters to work via transit bus (up from 6,823,497 in the 2006 – 2010 ACS to 6,994,682 in the 2008 – 2012 ACS). The State of Wisconsin experienced a 0.2 percent decrease in the number of commuters to work via transit bus (down from 50,631 in

the 2006 – 2010 ACS to 50,541 in the 2008 – 2012 ACS).

Sheboygan County experienced a 1.0 percent decrease in the number of persons reporting that they commuted to work via transit bus, decreasing from 293 persons in the 2006 – 2010 ACS to 290 persons in the 2008 – 2012 ACS. The Sheboygan Urbanized Area experienced an 8.1 percent decrease in the number of commuters to work via transit bus, decreasing from 273 persons in the 2006 – 2010 ACS to 251 persons in the 2008 – 2012 ACS. The City of Sheboygan experienced a 2.3 percent decrease in the number of commuters to work via transit bus, decreasing from 221 persons in the 2006 – 2010 ACS to 216 persons in the 2008 – 2012 ACS. Within the Sheboygan Urbanized Area, about 0.7 percent of all persons making a journey to work in the 2008 – 2012 ACS made the journey using bus transit services, down from about 0.8 percent in the 2006 – 2010 ACS.

Transit Ridership

Unlike journey-to-work data in which the numbers are represented by persons, transit ridership is represented by person trips. One person may take two person trips (ride one bus and then transfer to another) on his or her way to work. Total ridership for Shoreline Metro fixed-route services has increased by nearly fourteen percent from 2009 to 2013, while Shoreline Metro's complementary ADA paratransit service (operated by Shoreline Metro's "Metro Connection" division) decreased in ridership by about 30 percent between 2009 and 2013. The Sheboygan County non-ADA specialized transportation program (also operated by Metro Connection) decreased in ridership by nearly 41 percent between 2009 and 2013.

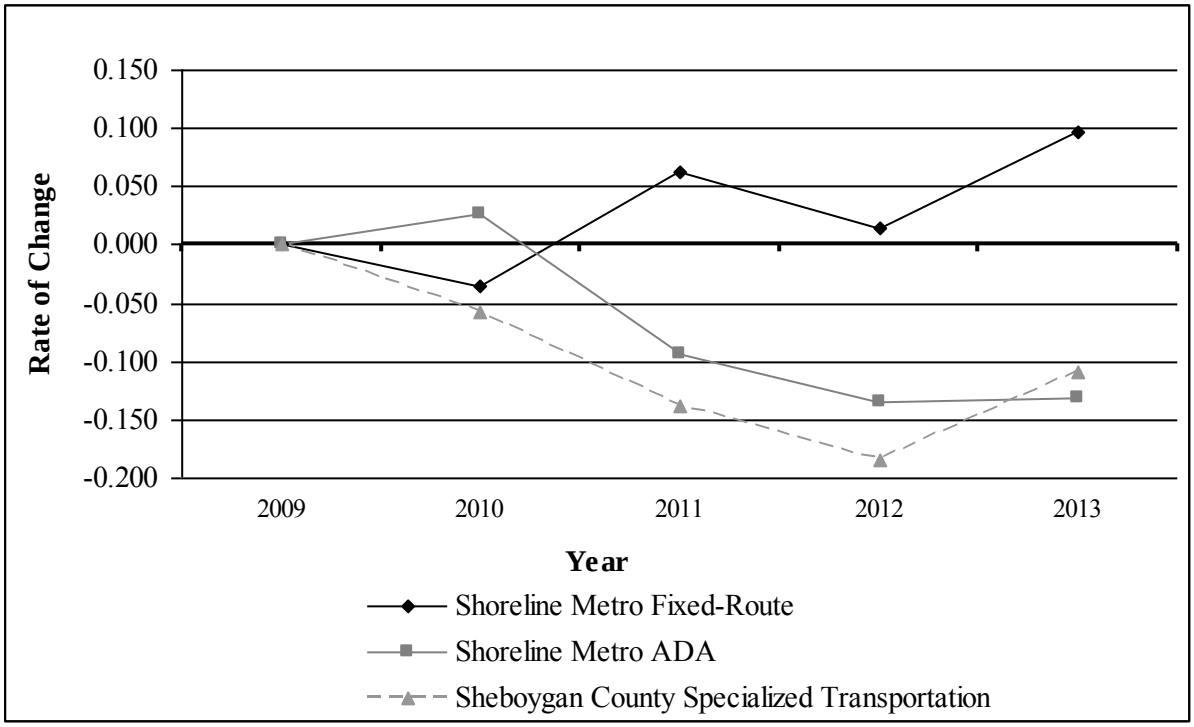
Figure 5.3 illustrates the rate of change in transit ridership for Shoreline Metro fixed-route service, Shoreline Metro ADA paratransit service, and for the Sheboygan County specialized transportation program. The difference between percentage change and the rate of change is that percentage change only illustrates the change between two given years without consideration of changes that might have occurred during intermediate years. However, rate of change is a cumulative look at change from one year to the next.

Figure 5.3 indicates that Shoreline Metro fixed-route service had a 3.6 percent decrease in ridership from 2009 to 2010, followed by a 6.3 percent increase in ridership from 2010 to 2011, a 1.5 percent increase in ridership from 2011 to 2012, and a 9.6 percent increase in ridership from 2012 to 2013. The one decrease in ridership (from 2009 to 2010) was likely caused by several factors, including the lingering effects of service cuts in 2008 and 2009 (Route 2 elimination and elimination of most shuttles on Saturdays) and cash fare increases in 2009, along with the economic recession leading to less overall travel demand. Factors that led to ridership increases after 2010 included institution of a $3 "day pass," route restructuring, and institution of a "bus buddy" program in 2012 that led many ADA passengers who were able to use fixed-route transit to gain confidence in using fixed-route transit service.

Figure 5.3 also indicates that Shoreline Metro ADA paratransit service ridership increased by 2.7 percent from 2009 to 2010, but decreased by 9.4 percent from 2010 to 2011, decreased by 13.5 percent from 2011 to 2012, and decreased by 13.1 percent from 2012 to 2013. ADA ridership peaked at 28,617 trips in 2010. Factors that led to significant decreases in ADA ridership after 2010 included introduction of the "agency fare" in 2011, as well as institution of a "bus buddy" program in 2012 that led many ADA passengers who were able to use fixed-route transit to gain confidence in using fixed-route transit service. It is also possible that the poor economy has also contributed to the decrease in ADA ridership over this period.

Finally, Figure 5.3 indicates that ridership in the Sheboygan County specialized transportation program decreased by 5.8 percent from 2009 to 2010, decreased by 13.8 from 2010 to 2011, decreased by 18.4 percent from 2011 to 2012, and decreased by 10.9 percent from 2012 to 2013. Sheboygan County specialized transportation program ridership peaked at 37,919 trips in 2009. Many of the same factors that caused the decrease in ADA ridership also caused the decrease in Sheboygan County specialized transportation program ridership, although the "bus buddy" program is not as active in portions of the county outside the Shoreline Metro transit service area.

Figure 5.3: Change in Transit Ridership, 2009-2013



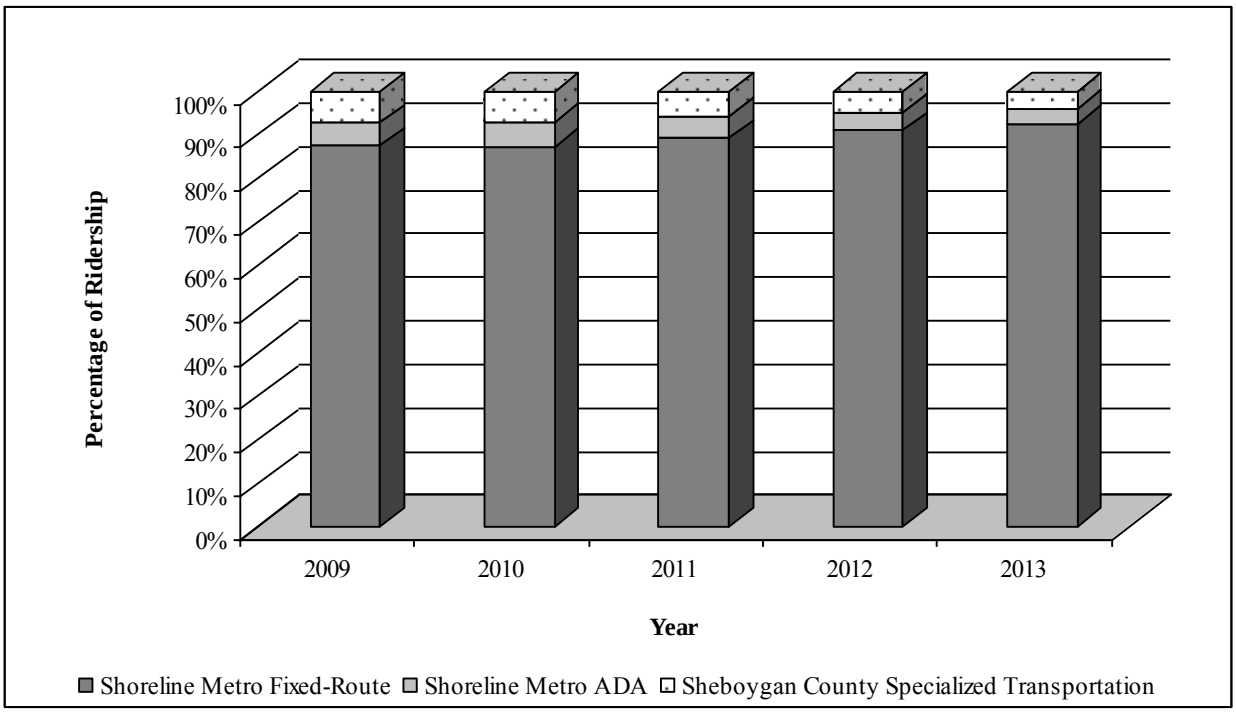
Source: Shoreline Metro and Sheboygan County Health and Human Services Department Aging and Disability Resource Center (for all years listed).

Figure 5.4 illustrates the distribution of ridership (person trips) among local transit services during the period from 2009 through 2013. Most transit ridership occurred on Shoreline Metro fixed routes, and the share of total transit ridership (Shoreline Metro fixed route, Shoreline Metro ADA paratransit services, and Sheboygan County specialized transportation services) as fixed-route ridership increased from 87.4 percent in 2009 (and 87.3 percent in 2010) to 92.6 percent in 2013, indicating a gradual shift from paratransit services to fixed-route transit.

The share of all transit trips as Shoreline Metro ADA trips hovered between three and six percent throughout the 2009 to 2013 period, from a low of 3.5 percent in 2013 to a high of 5.7 percent in 2010. The number of ADA paratransit trips decreased by about 30 percent, from 27,867 trips in 2009 to 19,498 trips in 2013. Factors that have led to decreases in ADA ridership included introduction of the "agency fare" in 2011, as well as institution of a "bus buddy" program in 2012 that led many ADA passengers who were able to use fixed-route transit to gain confidence in using fixed-route transit service. It is also possible that the poor economy has also contributed to the decrease in ADA ridership over this period.

The share of all transit trips provided under the Sheboygan County specialized transportation program decreased from 7.3 percent of all trips in 2009 to 4.0 percent of all trips in 2013. The number of specialized transportation trips provided by Sheboygan County decreased by nearly 41 percent over the five-year period, from 37,919 trips in 2009 to 22,394 trips in 2013. Many of the same factors that caused the decrease in ADA ridership also caused the decrease in Sheboygan County specialized transportation program ridership, although the "bus buddy" program is not as active in portions of the county outside the Shoreline Metro transit service area.

Figure 5.4: Distribution of Ridership Among Transit Services, 2009-2013

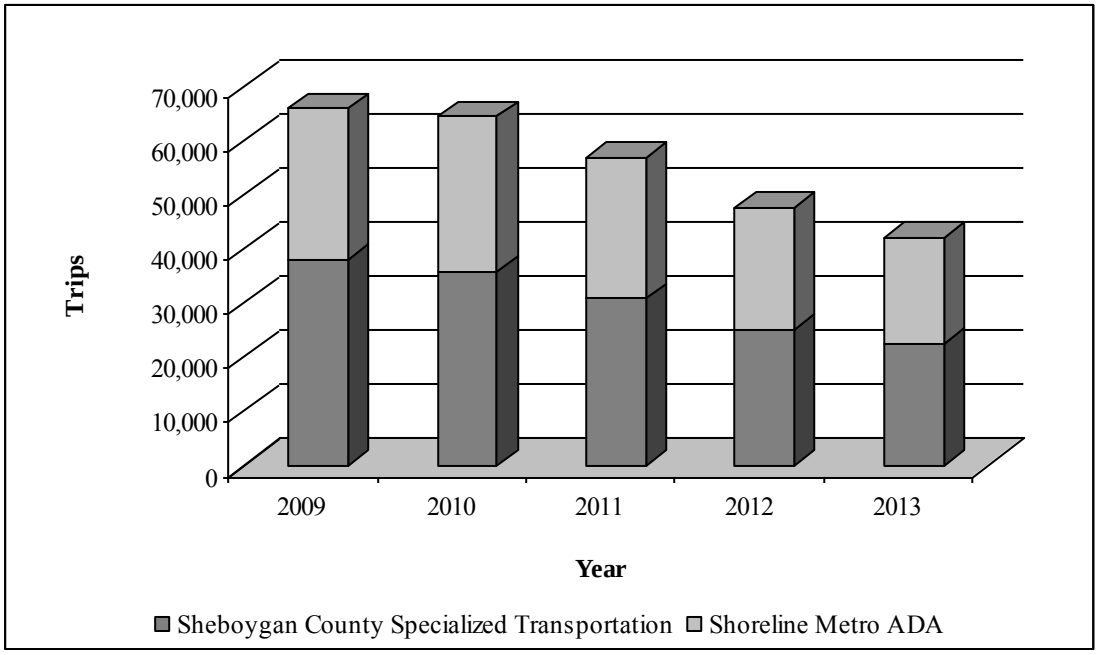


Source: Shoreline Metro and Sheboygan County Health and Human Services Department Aging and Disability Resource Center (for all years listed).

Total transit ridership across all three transit programs increased by 7.6 percent, from 522,969 trips in 2009 to 562,752 trips in 2013. Ridership across all three programs peaked at 562,752 trips in 2013, hovered between 520,000 and 530,000 trips in 2009, 2011 and 2012, and hit a low point of 505,135 trips in 2010. Strong, continuous increases in fixed-route transit ridership after 2010 led to these overall increases in total transit ridership.

Figure 5.5 indicates that over the five-year period, total paratransit trips decreased by more than 36 percent, from 65,786 trips in 2009 to 41,892 trips in 2013. Relatively high numbers of trips occurred in 2009 and 2010, with the lowest numbers of trips occurring in 2012 and 2013. Sheboygan County specialized transportation trips accounted for 52 to 58 percent of the paratransit trips, while Shoreline Metro ADA trips accounted for the remaining 42 to 48 percent of the paratransit trips. Sheboygan County specialized transportation trips accounted for 57.6 percent of total paratransit trips in 2009, but this proportion decreased to 53.5 percent of total paratransit trips in 2013. This percentage decreased to 52.8 percent of all paratransit trips in 2012, but increased somewhat between 2012 and 2013.

Figure 5.5: Paratransit Trips, 2009-2013



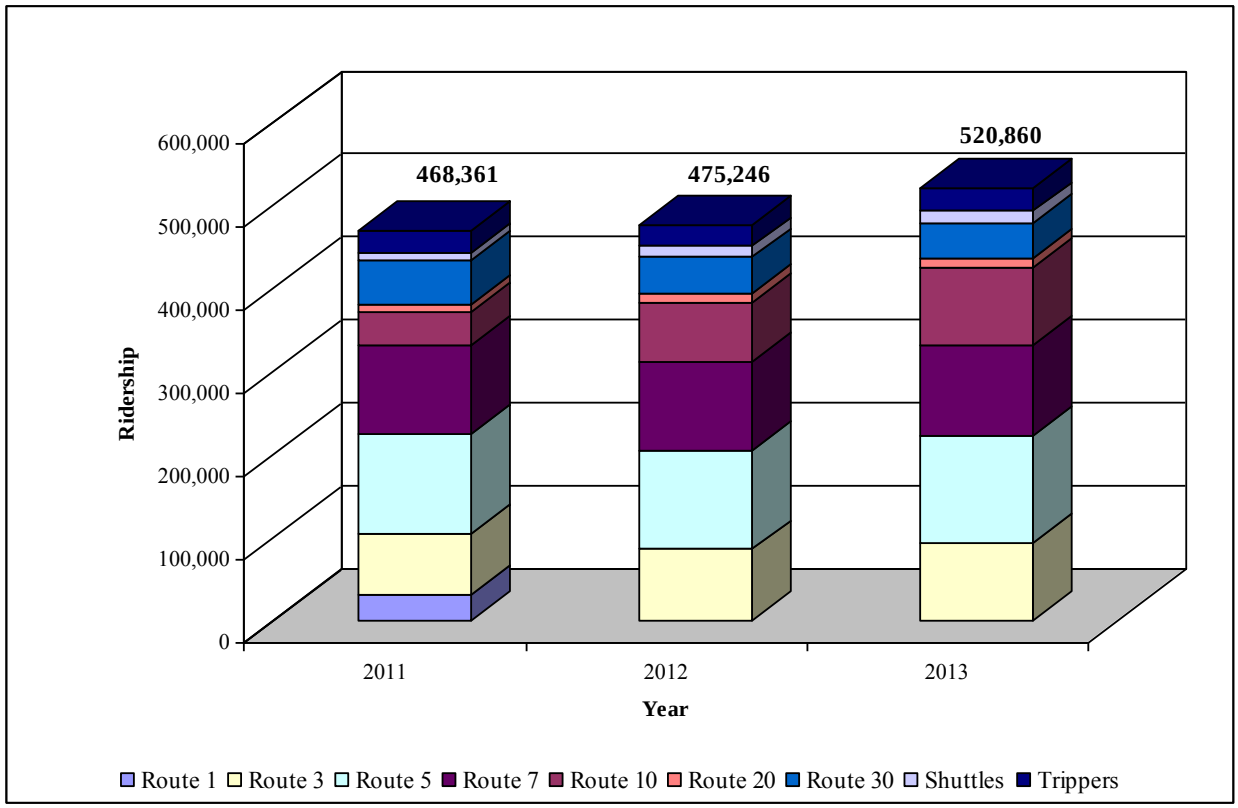
Source: Shoreline Metro and Sheboygan County Health and Human Services Department Aging and Disability Resource Center (for all years listed).

Shoreline Metro has been operated by the City of Sheboygan since 1973, when the city took over transit from a private operator. The route structure has changed relatively little in the 37 years since the City of Sheboygan assumed transit operations.

Figure 5.6 illustrates ridership by route by year for the period from 2011 through 2013. While each bar represents total ridership by year, the individual segments of each bar represent ridership by route. As shown in the figure, Route 5 consistently carried the highest number of riders for all years, while Route 7 carried the second highest number of riders. In 2011 and 2012, Route 3 carried the third highest number of riders, but in 2013, Route 3 carried the fourth highest number of riders. In 2011 and 2012, Route 10 carried the fourth highest number of riders, but in 2013, Route 10 carried the third highest number of riders. One route that consistently showed a moderate level of ridership during all three years was Route 30 (the Industrial Park Route). Routes with low to moderate levels of ridership during all three years included Route 1 (only in operation in 2011), and the collection of school tripper routes operated by Shoreline Metro during the school year. Route 20 (the Kohler/Sheboygan Falls Route) showed low levels of ridership, yet this route has been important for connecting people to their jobs. Limited service on the North and South Shuttles has existed for years during the early morning and evenings on weekdays as well as all day on Saturdays.

Route changes resulting from the *Sheboygan Transit Development Program (TDP): 2012 – 2016* were implemented in late 2011 and into 2012. Routes 1 North and 5 North were consolidated, which led to the elimination of Route 1 North. Route 10 South was created, which has led to increased ridership for Route 10, but decreased ridership for Route 30, since Route 10 South serves some of the destinations that Route 30 served. Routing changes were made to most numbered Shoreline Metro routes as well.

Figure 5.6: Ridership by Route, 2011-2013



Source: Shoreline Metro (for all years listed).

Overall, fixed-route ridership increased by over 11 percent, from over 468,000 trips in 2011 to nearly 521,000 trips in 2013. Most of this increase (nearly 9.6 percent) occurred between 2012 and 2013. Ridership was at its peak in 2013, due to the offering of a $3 "day pass," route structuring and institution of a "bus buddy" program in 2012 that led many ADA passengers who were able to use fixed-route transit to gain confidence in using fixed-route transit service. Ridership was at its lowest level in 2011 due to several factors, including the lingering effects of the economic recession.

Shoreline Metro Operations

Vehicle Fleet

Shoreline Metro acquired five new buses in 2005 and five new buses in 2010 to replace ten 1996 and 1997 Chance buses in its fleet. The fixed-route fleet now contains 24 buses (17 of which are used during peak travel periods, and 20 of which are available for active service). The fleet ranges in age from four years to 12 years. The average age of the fleet is now about 9.46 years (8.95 years if the reserve fleet buses are excluded). Buses left inactive during peak times provide a 29 percent spare ratio (15 percent if the reserve fleet buses are excluded) in case of road failure.

Table 5.6 provides a summary of the current fleet size and composition. All of the buses are equipped with either wheelchair lifts or a low floor platform that accommodates disabled passengers. All of the buses also accommodate at least one wheelchair.

Table 5.6: Shoreline Metro Fixed-Route Bus Fleet Size and Composition, 2014

Year and Make	Size	Seating Capacity	Standing Capacity	Lift Equipped	Quantity
2002 New Flyer*	29 ft.	23	35	Yes	4
2002 New Flyer	29 ft.	23	35	Yes	4
2003 Gillig Low-Floor Bus	35 ft.	32	44	Yes	6
2005 Gillig Low-Floor Bus	29 ft.	24	36	Yes	5
2010 Gillig Low-Floor Bus	35 ft.	32	44	Yes	5

*Reserve fleet bus – not in service or used for parts at this time.

Source: Shoreline Metro, 2014.

Operating Budget

Table 5.7 illustrates Shoreline Metro operating expenses for 2009, 2012 and 2013, as well as inflated expenses for 2009 and 2012. Because the value of the dollar changes from year to year, monetary values must be inflated for years prior to a designated comparison year or deflated for years that follow that year of comparison. The Consumer Price Index (CPI) is used to determine the amount of inflation that should be applied when calculating the percent change in operating expenses and revenues. For Tables 5.7 and 5.8, the year of comparison is 2013, thus requiring the monetary values for the years 2009 and 2012 to be inflated to 2013 dollars.

Administration expenses decreased by 28.7 percent in inflation-adjusted dollars from 2009 to 2013, while bus maintenance expenses increased by 30.2 percent and bus operations expenses increased by 7.9 percent in inflation-adjusted dollars during that period. However, expenses for ADA paratransit services decreased by 42.5 percent from 2009 to 2013.

Administrative expenses decreased by 1.9 percent in inflation-adjusted dollars from 2012 to 2013. Bus maintenance expenses increased by 2.3 percent from 2012 to 2013, while bus operations expenses decreased by 0.1 percent from 2012 to 2013 (both figures are adjusted for inflation). Expenses for ADA paratransit services increased by 4.3 percent between 2012 and 2013.

The percentage of total operating expenses attributed to administration decreased by 5.3 percentage points from 2009 to 2013, with 19.8 percent of the operating budget allocated to administration in 2009 and 14.5 percent in 2013. The percentage of total operating expenses attributed to bus maintenance increased by 4.4 percentage points from 2009 to 2013, with 13.2 percent of the operating budget allocated to bus maintenance in 2009 and 17.6 percent in 2013. The percentage of total operating expenses attributed to bus operations increased by 5.8 percentage points from 2009 to 2013, with 55.0 percent of the operating budget allocated to bus operations in 2005 and 60.8 percent in 2009. Finally, the percentage of total operating expenses attributed to ADA paratransit services decreased by 4.9 percent from 2009 to 2013, with 12.0 percent of the operating budget allocated to ADA paratransit in 2009 and 7.1 percent in 2013.

Table 5.7: Shoreline Metro Operating Expenses, 2009-2013

Expense Category	2009	2012	2009 in 2013 Dollars[1]	2012 in 2013 Dollars[1]	2013	Percent Change 2009 - 2013	Percent Change 2012 - 2013
Administration	$624,030	$485,538	$677,609	$492,650	$483,213	-28.7%	-1.9%
Bus Maintenance	$417,032	$567,865	$452,838	$576,183	$589,422	30.2%	2.3%
Bus Operations	$1,735,950	$2,005,809	$1,884,997	$2,035,190	$2,034,132	7.9%	-0.1%
Paratransit	$379,627	$223,872	$412,221	$227,151	$236,912	-42.5%	4.3%
Total	$3,156,639	$3,283,084	$3,427,665	$3,331,175	$3,343,679	-2.5%	0.4%

[1]Expenses for 2009 and 2012 were inflated or deflated to 2013 dollars for direct comparisons to 2013 expenses. Inflation from 2009 to 2013 amounted to 8.5859 percent. Inflation from 2012 to 2013 amounted to 1.4648 percent.

Source: Federal Transit Administration, *National Transit Database*, 2009; Shoreline Metro, 2012 and 2013; Bureau of Labor Statistics, *Consumer Price Index (CPI) Calculator*, 2009 - 2013 and 2012 - 2013; and Bay-Lake Regional Planning Commission, 2014.

Table 5.8 illustrates Shoreline Metro operating revenues for 2009, 2012 and 2013, as well as inflated revenues for 2009 and for 2012. State funding of Shoreline Metro, when adjusted for inflation, decreased by 0.9 percent over the period from 2009 to 2013, and decreased by 12.4 percent from 2012 to 2013. Regular Federal funding of Shoreline Metro, when adjusted for inflation, decreased by 18.7 percent between 2009 and 2012, but increased by 4.8 percent between 2008 and 2009. Combined state and regular federal funding of Shoreline Metro (the typical measure of outside funding support), when adjusted for inflation, decreased by 12.1 percent from 2009 to 2013, and decreased by 3.2 percent from 2012 to 2013.

Shoreline Metro started receiving Community Development Block Grant (CDBG) funds to run transit services starting in 2002; these are funds awarded by the U.S. Department of Housing and Urban Development (HUD) and administered by the City of Sheboygan Department of Planning and Development. HUD CDBG funding of Shoreline Metro, when adjusted for inflation, decreased by 26.2 percent between 2009 and 2013, and decreased by 1.4 percent between 2012 and 2013.

Funding of Shoreline Metro from the three participating municipalities, when adjusted for inflation, decreased by 24.0 percent from 2009 to 2013, and decreased by 1.4 percent from 2012 to 2013. Passenger revenues, when adjusted for inflation, increased by 27.1 percent between 2009 and 2013, but decreased by 9.4 percent from 2012 to 2013. Miscellaneous revenues, when adjusted for inflation, increased by 21.7 percent from 2009 to 2013, but decreased by 22.4 percent from 2012 to 2013. Increased use of the $3 day pass, charging of "agency fares" in the case of some ADA paratransit rides, and overall ridership increases have generally led to increases in passenger revenues over the past five years.

Funding of Shoreline Metro from all funding sources, when adjusted for inflation, decreased by 7.6 percent from 2009 to 2013, and decreased by 5.4 percent from 2012 to 2013. All of these figures compare 2013 funding levels to inflation-adjusted 2009 and 2012 funding levels.

Table 5.8: Shoreline Metro Operating Revenues, 2009-2013

Revenue Category	2009	2012	2009 in 2013 Dollars[1]	2012 in 2013 Dollars[1]	2013	Percent Change 2009 - 2013	Percent Change 2012 - 2013
Wisconsin DOT	$848,311	$1,027,044	$921,146	$1,042,088	$912,780	-0.9%	-12.4%
USDOT - FTA	$1,446,594	$1,201,893	$1,570,797	$1,219,498	$1,277,528	-18.7%	4.8%
HUD - CDBG Funding	$53,000	$42,493	$57,551	$43,115	$42,493	-26.2%	-1.4%
Municipalities[2]	$674,555	$556,634	$732,472	$564,788	$556,622	-24.0%	-1.4%
Passenger Revenue[3]	$522,787	$785,307	$567,673	$796,810	$721,646	27.1%	-9.4%
Miscellaneous Revenue	$142,646	$239,564	$154,893	$243,073	$188,531	21.7%	-22.4%
Total	$3,687,893	$3,852,935	$4,004,532	$3,909,373	$3,699,600	-7.6%	-5.4%

Notes:

[1]Revenues for 2009 and 2012 were inflated to 2013 dollars for direct comparison to 2013 revenues. Inflation from 2009 to 2013 amounted to 8.5859 percent. Inflation from 2012 to 2013 amounted to 1.4648 percent.

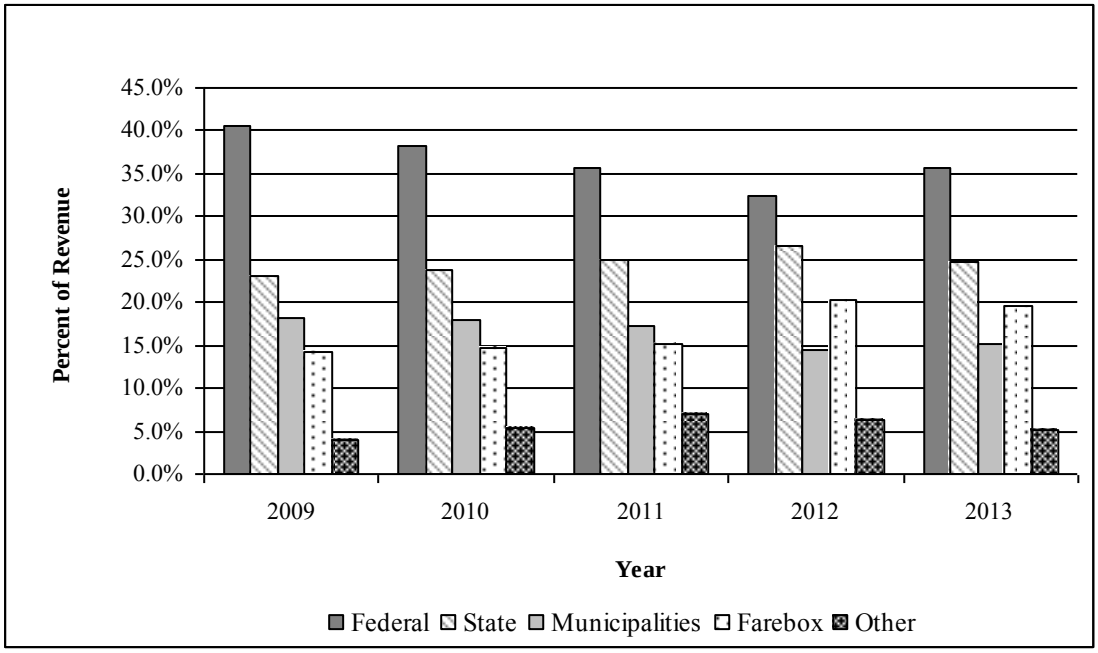
[2]Municipalities funding Shoreline Metro include the Cities of Sheboygan and Sheboygan Falls and the Village of Kohler.

[3]Passenger revenues include cash fares, day passes, monthly passes, adult and student tokens, 10 ride student punch passes, elderly and disabled half fares (including half fare punch passes) during non-peak travel periods, and ADA paratransit fares.

Source: Federal Transit Administration, *National Transit Database*, 2009; Shoreline Metro, 2012 and 2013; Bureau of Labor Statistics, *Consumer Price Index (CPI) Calculator*, 2009 - 2013 and 2012 - 2013; and Bay-Lake Regional Planning Commission, 2014.

Figure 5.7 illustrates the percentage of total operating revenue by source by year for 2009 through 2013. The percentage of total revenue from the farebox ranged from a low of 14.2 percent in 2009 to a high of 20.4 percent in 2012. The combination of federal and state subsidies was normally in the range of 60 to 64 percent of total revenue for most of the years in this analysis, the only exception being 2012, when federal and state funding provided 59.0 percent of all revenues; it should be noted that HUD CDBG funds have been counted as a federal funding source for purposes of the analysis in Figure 5.7. Municipal contributions were in the 17 to 19 percent range in 2009, 2010 and 2011, dropped to 14.4 percent in 2012, then increased to 15.0 percent in 2013. Finally, other (miscellaneous) revenues were 3.9 percent of total operating revenues in 2009, increased to 7.1 percent by 2011, and then decreased to 5.1 percent by 2013.

Figure 5.7: Shoreline Metro Revenue Sources, 2009-2013



Source: Federal Transit Administration, *National Transit Database*, 2009; Shoreline Metro, 2010, 2011, 2012 and 2013; and Bay-Lake Regional Planning Commission, 2014.

Shoreline Metro Fixed-Route Measures of Effectiveness

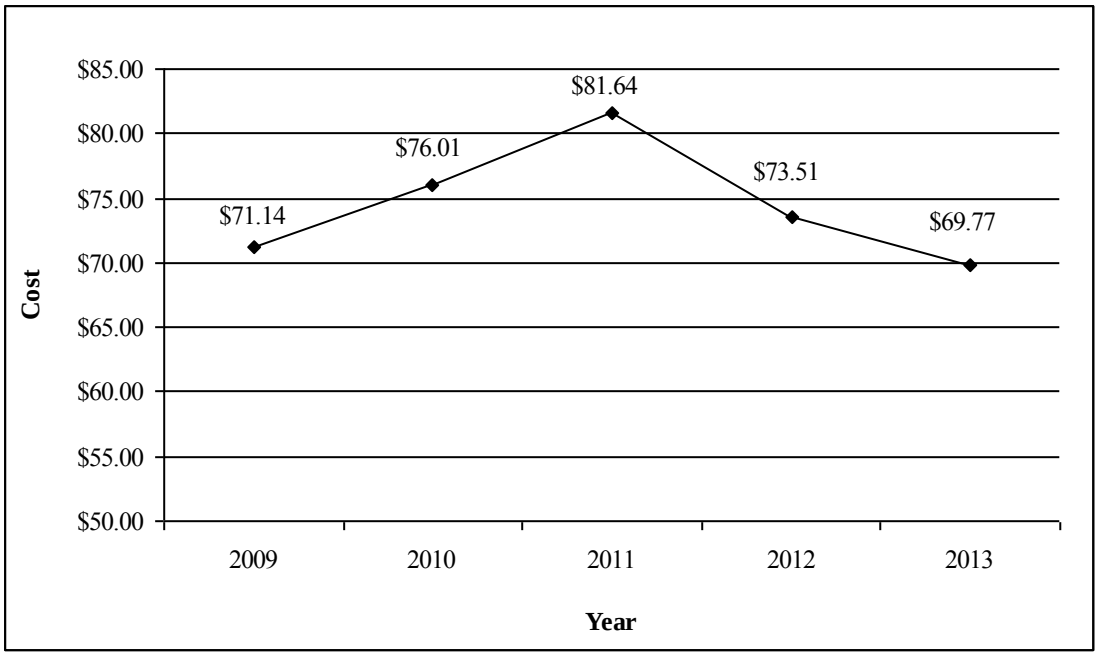
Transit performance is usually measured by financial and non-financial indicators. Financial indicators include expenses, revenues and subsidies, while non-financial indicators may include ridership, service quality, level of service and safety. These indicators have two major uses: (1) to assess how well the system is doing with respect to the standards established by management; and (2) to identify areas within the system that need attention or corrective action.

The Federal Transit Administration (FTA) assesses the financial performance of transit systems with measures for cost efficiency and effectiveness. Ratios such as operating expense per vehicle revenue hour (the hours a vehicle travels while available for passenger service) and operating expense per vehicle revenue mile (the miles a vehicle travels while available for passenger service) are used to describe cost efficiency. Operating expense per passenger trip is one measure used to describe cost effectiveness.

Cost Efficiency

Figure 5.8 illustrates operating expense per vehicle revenue hour as a measure of service efficiency for Shoreline Metro's fixed-route service. Figure 5.8 indicates that the operating expense per vehicle revenue hour increased by 6.8 percent from 2009 to 2010, increased by 7.4 percent from 2010 to 2011, decreased by 10.0 percent from 2011 to 2012, and decreased by 5.1 percent from 2012 to 2013. Operating expense per vehicle revenue hour decreased by 1.9 percent over the five-year period. The main culprit in the increase in operating expense per vehicle revenue hour from 2009 to 2011 was the increased cost of benefits (particularly health insurance) as well as the increased cost of fuel over the past several years. In late 2011, Shoreline Metro responded to state legislation calling for a 10 percent decrease in state aid for transit operations by reducing less productive routes and hours of service; this led to a decrease in operating expense per vehicle revenue hour between 2011 and 2012. These policy changes also led to another (albeit smaller) decrease in operating expense per vehicle revenue hour between 2012 and 2013.

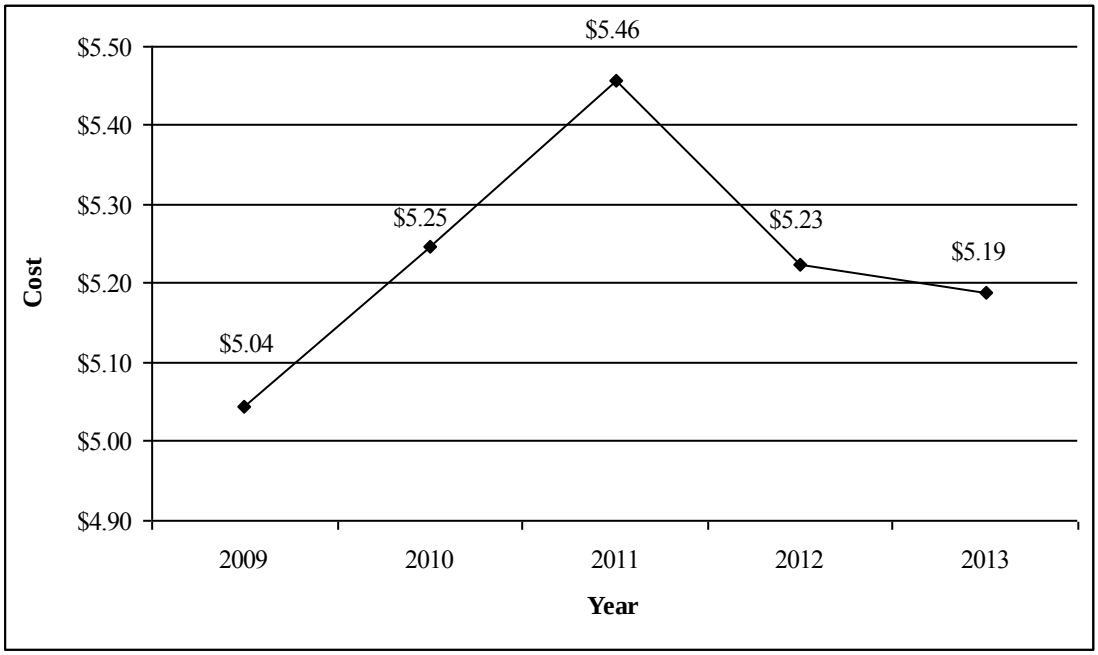
Figure 5.8: Operating Expense per Vehicle Revenue Hour



Source: Federal Transit Administration, *National Transit Database* (for 2009 – 2012 data); Shoreline Metro (for 2013 data); and Bay-Lake Regional Planning Commission, 2014.

Figure 5.9 indicates that the operating expense per vehicle revenue mile increased by 4.2 percent between 2009 and 2010, increased by 4.0 percent between 2010 and 2011, decreased by 4.2 percent between 2011 and 2012, and decreased by 0.8 percent between 2012 and 2013. The overall increase in operating expense per vehicle revenue mile was 3.0 percent over the five year period. As with the operating expense per vehicle revenue hour, the main culprits in the overall increase in operating expense per vehicle revenue mile from 2009 to 2011 were the increased cost of benefits (particularly health insurance) as well as the increased cost of fuel over the past several years. Operating expense per vehicle revenue mile decreased from 2011 to 2012 due to routing and service changes made by Shoreline Metro, as discussed in the above section on operating expense per vehicle revenue hour. These policy changes also led to another (but smaller) decrease in operating expense per vehicle revenue hour between 2012 and 2013.

Figure 5.9: Operating Expense per Vehicle Revenue Mile

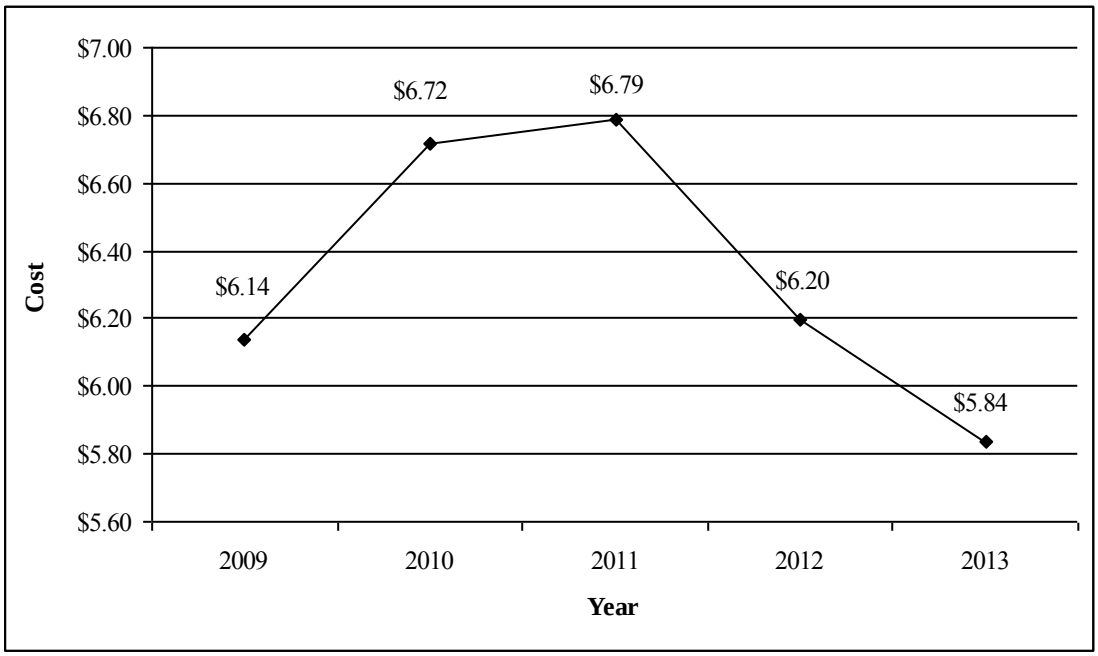


Source: Federal Transit Administration, *National Transit Database* (for 2009 – 2012 data); Shoreline Metro (for 2013 data); and Bay-Lake Regional Planning Commission, 2014.

Cost Effectiveness

Figure 5.10 illustrates operating expense per passenger trip. Figure 5.10 indicates that the operating expense per passenger trip increased by 9.4 percent between 2009 and 2010, increased by 1.0 percent between 2010 and 2011, decreased by 8.7 percent between 2011 and 2012, and decreased by 5.8 percent between 2012 and 2013. The overall decrease in operating expense per passenger trip was 4.9 percent over the five year period. Certain inefficient transit services combined with the lingering effects of the economic recession (which depressed ridership) drove up this ratio in 2010 and 2011, while routing and service changes along with the start of the economic recovery lowered this ratio between 2011 and 2012. The trends between 2011 and 2012 also continued between 2012 and 2013. Ridership "bottomed out" in 2010, and has been increasing since that year.

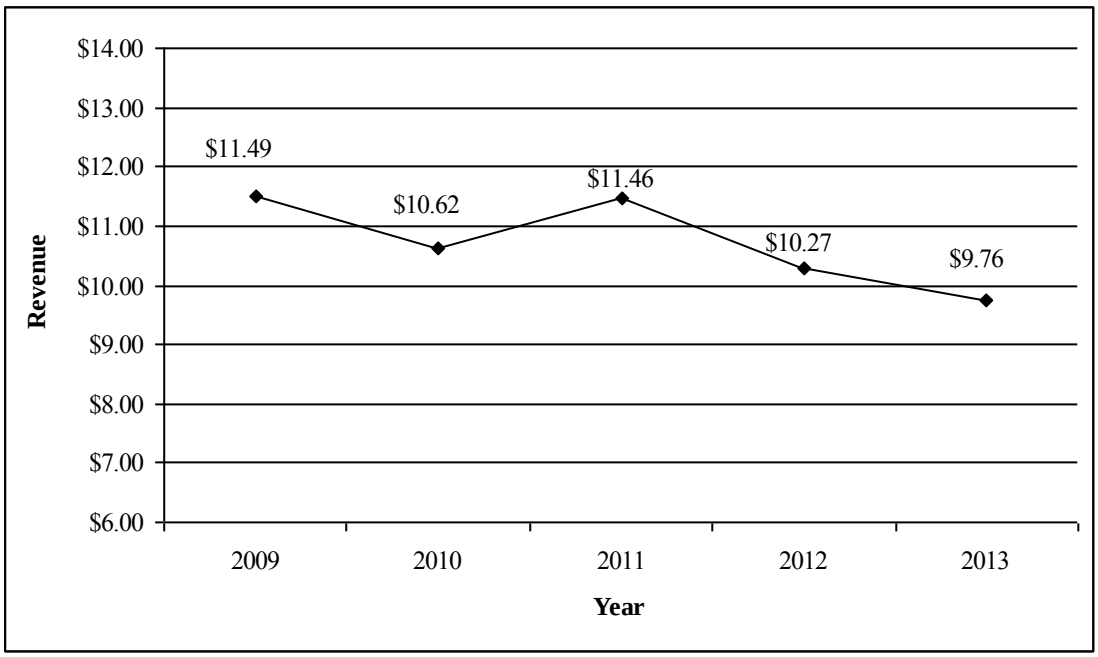
Figure 5.10: Operating Expense per Passenger Trip



Source: Federal Transit Administration, *National Transit Database* (for 2009 – 2012 data); Shoreline Metro (for 2013 data); and Bay-Lake Regional Planning Commission, 2014.

Figure 5.11 illustrates passenger revenue per vehicle revenue hour. Figure 5.11 indicates that passenger revenue per vehicle revenue hour decreased by 7.6 percent between 2009 and 2010, but increased by 7.9 percent between 2010 and 2011. Figure 5.11 also shows that passenger revenue per vehicle revenue hour decreased by 10.4 percent between 2011 and 2012, and then decreased by 5.0 percent between 2012 and 2013. The overall decrease in passenger revenue per vehicle revenue hour was 15.1 percent over the five year period. Factors such as increases in vehicle revenue hours as well as the institution of a $3 "day pass" led to decreases in the amount of passenger revenue per vehicle revenue hour over time.

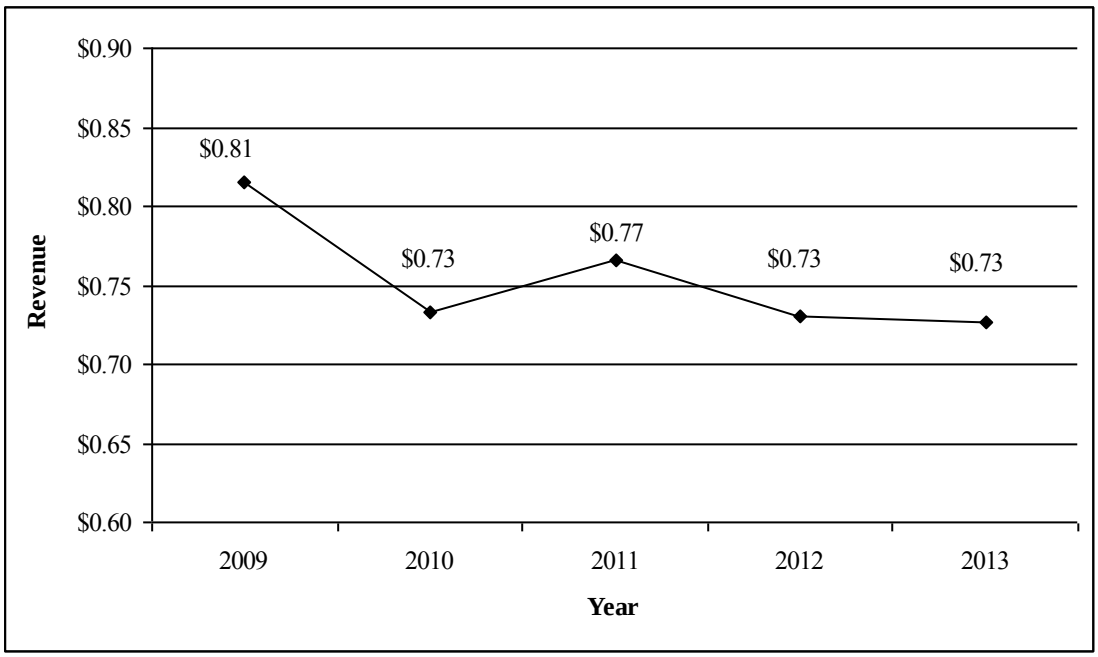
Figure 5.11: Passenger Revenue per Vehicle Revenue Hour



Source: Federal Transit Administration, *National Transit Database* (for 2009 – 2012 data); Shoreline Metro (for 2013 data); and Bay-Lake Regional Planning Commission, 2014.

Figure 5.12 illustrates passenger revenue per vehicle revenue mile. Figure 5.12 indicates that passenger revenue per vehicle revenue mile decreased by 9.9 percent between 2009 and 2010, increased by 5.5 percent between 2010 and 2011, and decreased by 5.2 percent between 2011 and 2012. Figure 5.12 also shows that there was no change in the amount of passenger revenue per vehicle revenue mile between 2012 and 2013. The overall decrease in passenger revenue per vehicle revenue mile was 9.9 percent over the five year period. Factors such as steady increases in vehicle revenue miles as well as the institution of a $3 "day pass" led to a general decrease in the amount of passenger revenue per vehicle revenue mile over time.

Figure 5.12: Passenger Revenue per Vehicle Revenue Mile



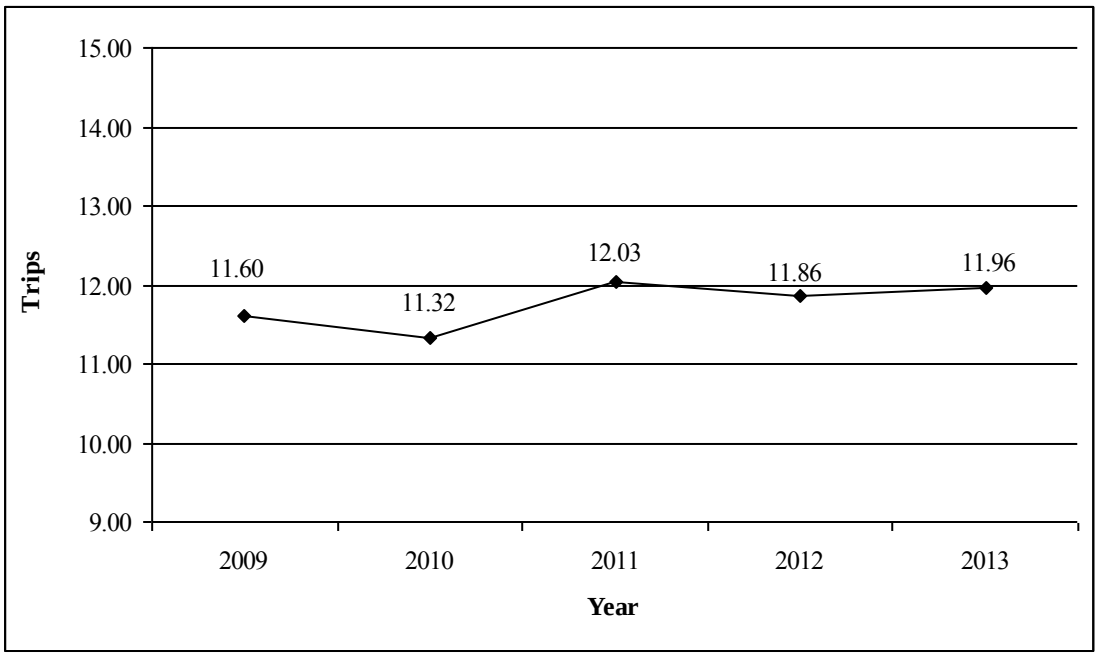
Source: Federal Transit Administration, *National Transit Database* (for 2009 – 2012 data); Shoreline Metro (for 2013 data); and Bay-Lake Regional Planning Commission, 2014.

Service Effectiveness

Figures 5.13 and 5.14 illustrate the effectiveness of Shoreline Metro's fixed-route service.

Figure 5.13 illustrates passenger trips per vehicle revenue hour. Figure 5.13 indicates that passenger trips per vehicle revenue hour decreased by 2.4 percent between 2009 and 2010, but increased by 6.3 percent between 2010 and 2011. Figure 5.13 also shows that passenger trips per vehicle revenue hour decreased by 1.4 percent between 2011 and 2012, but increased by 0.8 percent between 2012 and 2013. The overall increase in passenger trips per vehicle revenue hour was 3.1 percent over the five year period. Ridership has increased since 2010, but vehicle revenue hours have also increased since 2011, leading to a rather flat passenger per vehicle revenue hour ratio since 2011.

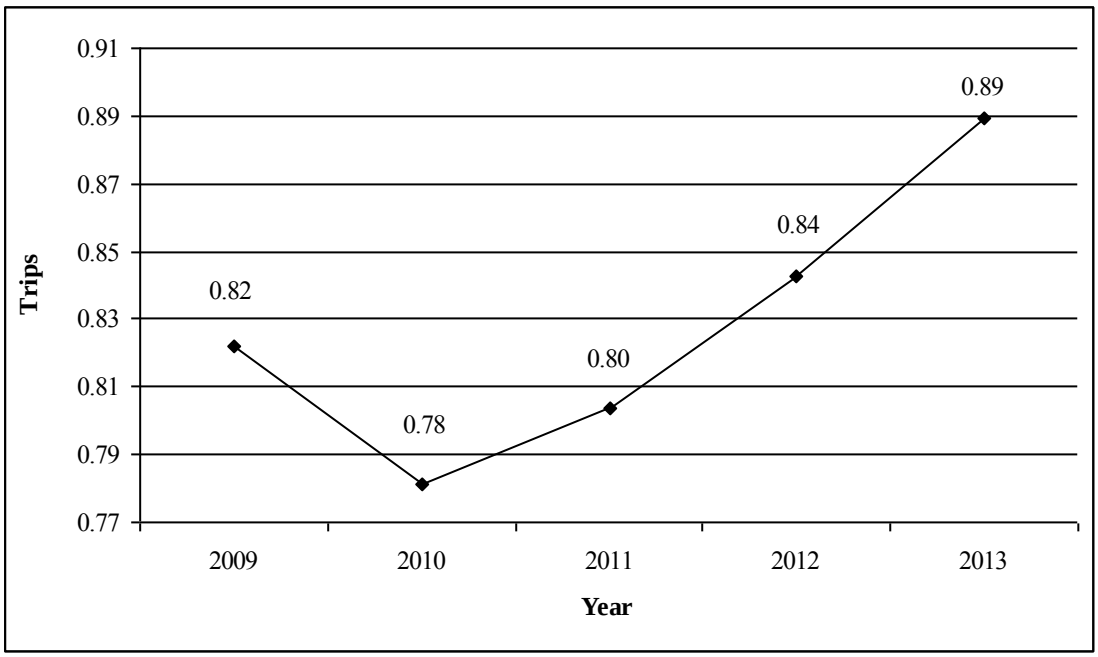
Figure 5.13: Passenger Trips per Vehicle Revenue Hour



Source: Federal Transit Administration, *National Transit Database* (for 2009 – 2012 data); Shoreline Metro (for 2013 data); and Bay-Lake Regional Planning Commission, 2014.

Figure 5.14 illustrates passenger trips per vehicle revenue mile. Figure 5.14 indicates that passenger trips per vehicle revenue mile decreased by 4.9 percent between 2009 and 2010, increased by 2.6 percent between 2010 and 2011, increased by another 5.0 percent between 2011 and 2012, and increased by 6.0 percent between 2012 and 2013. The overall increase in passenger trips per vehicle revenue mile was 8.5 percent over the five year period. These increases have occurred because ridership has generally increased faster than vehicle revenue miles over the five year period; this was due to many of the policies that were discussed in the analysis accompanying Figures 5.8 through 5.13.

Figure 5.14: Passenger Trips per Vehicle Revenue Mile



Source: Federal Transit Administration, *National Transit Database* (for 2009 – 2012 data); Shoreline Metro (for 2013 data); and Bay-Lake Regional Planning Commission, 2014.

Shoreline Metro Fixed-Route Quality of Service

Many factors affect whether or not someone will take transit: service coverage, pedestrian environment, scheduling, transfers, amenities, transit information, trip time, cost, safety and security, passenger loads, appearance and comfort, and reliability. These factors ultimately define the quality of service of the system from the user's perspective. Traditional transportation planning has considered level of service for streets and highways only; however, levels of service can now be determined for transit and for bicycle facilities as well. Levels of service are assigned (when appropriate) based on the *Transit Capacity and Quality of Service Manual* from the Transit Cooperative Research Program (TCRP).

Service Coverage

Whether or not transit service is available near a person's origin and destination is a key factor in the choice to use transit. The service area for fixed-route transit is typically defined as the area within a quarter mile (a typical five minute walk) of a fixed route. Although the service area may be defined as being within a quarter mile of a route, barriers (including major roadways, overpasses, railroad lines, rail yards and bodies of water) can obstruct would-be transit users from accessing transit service (see the upcoming section on "pedestrian environment").

The areas currently served by fixed-route transit are compared to the Shoreline Metro service district in Map 5.6. As Map 5.6 illustrates, Shoreline Metro provides excellent coverage in its service district within the City of Sheboygan. Through service agreements with the Village of Kohler and the City of Sheboygan Falls, Shoreline Metro has expanded its service area beyond the City of Sheboygan. Many of the portions of the service area that are not covered by existing service involve natural features, or are too sparsely populated or have relatively little employment to sustain transit service.

Transit Propensity

The true test of service coverage is whether or not service is being provided to those areas with the highest propensity (inclination or tendency to take transit) and need. An analysis of transit propensity helps to identify areas of likely transit ridership. Analysis of transit propensity also incorporates environmental justice, which "assures that services and benefits allow for meaningful participation, and are fairly distributed to avoid discrimination." Some demographic groups are known to have more of an inclination toward taking transit, while others have a basic need for transit service. Low income (persons at or below the poverty line) and minority populations must be considered explicitly in order to avoid any disproportionate negative impact that could result from changes in transit service. This type of analysis can also help to identify areas where service could be added, modified or discontinued.

Because both ends of a transit trip must be considered, the first step is to identify transit-supportive areas (areas that generate enough trips potentially to support transit service) by calculating household and employment densities. Map 5.6 illustrates areas (traffic analysis zones, or TAZs) considered transit-supportive for 30 minute and for 60 minute service (headways) in relation to Shoreline Metro's service district and coverage areas. TAZs with employment densities of nine jobs or more per acre and/or household densities of seven households or more per acre can support fixed-route transit service at 30 minute headways (dark green), while TAZs with employment densities between four and nine jobs per acre and/or household densities between three and seven households per acre can support fixed-route transit service at 60 minute headways (light yellow). Areas in gray are in the legal transit service area, but do not meet minimum employment or household densities required to support fixed-route transit service. Areas in white are outside the legal transit service area.

Table 5.9 shows that the coverage area of Shoreline Metro (the quarter mile buffer around all transit routes) is slightly less than 72 percent of the legal transit service/district area (the Cities of Sheboygan and Sheboygan Falls and the Village of Kohler). The square mileage for the transit supportive area covered is nearly 98 percent of the square mileage for the district transit supportive area. However, a few small transit supportive areas within the transit district are partially unserved, as can be seen in Map 5.6. While most of the transit supportive areas within the transit district that are unserved by transit are fairly small and are virtually invisible on Map

5.6, a few of these areas are significant; these areas include two areas on the northwest side west of North 36th Street and north of Superior Avenue (some of this area is in the Town of Sheboygan, which currently does not financially participate in Shoreline Metro), an industrial area just west of downtown Sheboygan Falls, an area on the south end of the City of Sheboygan Falls, a portion of the old City of Sheboygan Industrial Park (a portion of which is located in the Town of Sheboygan), and the City of Sheboygan Public Works building on New Jersey Avenue. It should be noted that the Kohler Company plant in the Village of Kohler has a high level of employment but did not meet the employment density threshold because the census block group where it is located is quite large. Three of these unserved transit supportive areas are located in census block groups with high minority populations (the areas on the northwest side, the portion of the old City of Sheboygan Industrial Park, and the City of Sheboygan Public Works building), while one unserved transit supportive area is located in a census block group with a large low income population (the area including the City of Sheboygan Public Works building). With the exception of the City of Sheboygan Public Works building, the Town of Sheboygan would likely need to agree to finance the local share of transit service in order to get these areas properly served.

Table 5.9: Shoreline Metro Service Areas

Area Type	Area (square miles)
District Area	25.520
Coverage Area	18.340
District Transit Supportive Area	7.776
Transit Supportive Area Covered	7.613

Source: Bay-Lake Regional Planning Commission, 2014.

Even though there are small transit supportive areas that are not served, Shoreline Metro easily achieves a level of service (LOS) "A" for fixed-route service covered, as determined in Tables 5.9 and 5.10.

Table 5.10: Service Coverage Level of Services (LOS), Shoreline Metro

LOS	Percent of Transit-Supportive Area Covered
A	90.0 to 100.0
B	80.0 to 89.9
C	70.0 to 79.9
D	60.0 to 69.9
E	50.0 to 59.9
F	0.0 to 49.9

Source: Transit Capacity and Quality of Service Manual, Transit Cooperative Research Program.

While the previous analysis addresses transit supportive areas in terms of household and employment densities, the analysis must go a step further and identify those areas whose population characteristics suggest a propensity for transit. Map 5.7 illustrates the environmental justice component of transit propensity. Low income and minority populations, as well as zero-vehicle households, are used to calculate propensity, while the locations of elderly and disabled facilities are used to establish proximity to service. (Elderly and disabled persons tend to travel less than the typical quarter mile to a bus stop; therefore, these populations were not included in

the calculation of propensity).

Map 5.7 illustrates the excellent service coverage which Shoreline Metro provides to disadvantaged populations in its service district. Portions of the City of Sheboygan that are not within the service coverage area are generally of insufficient population density to warrant transit service; this is also true of most portions of the City of Sheboygan Falls and the Village of Kohler outside the service coverage area. Portions of the Towns of Herman, Lima, Mosel, Sheboygan, Sheboygan Falls and Wilson, the Villages of Howards Grove and Kohler, and the City of Sheboygan Falls outside the service coverage area also appeared to have a "moderate" propensity for transit service; these areas should continue to be examined for potential "targeted" transit services. With the exception of four facilities in the Village of Howards Grove and four facilities in the Town of Sheboygan, all elderly and disabled residential facilities (i.e.: affordable non-subsidized housing, assisted living facilities, senior apartments and condominiums, and subsidized rental housing projects) were within or adjacent to the service coverage area of Shoreline Metro. Two additional elderly and disabled residential facilities are on the edge of the service coverage area (possibly a short distance beyond being within a quarter mile of a bus route). It should be noted that data for zero vehicle households and for persons in poverty came from the *2008 – 2012 American Community Survey (ACS)*, and was only available at the Census tract level. On the other hand, data for minority populations came from the *2010 Census*, and was available at the Census block group level.

In examining population and employment densities, the vast majority of TAZs that qualify for either 30 minute or 60 minute service are adequately served by Shoreline Metro at this time. Notable exceptions are two areas on the northwest side west of North 36th Street and north of Superior Avenue, an industrial area just west of downtown Sheboygan Falls, an area on the south end of the City of Sheboygan Falls, a portion of the old City of Sheboygan Industrial Park, and the City of Sheboygan Public Works building on New Jersey Avenue. However, these TAZs which appear to qualify for transit service based on density also exhibit a moderate propensity in regard to zero-vehicle households and low-income and minority populations, making transit service to these areas more challenging than it would be in areas of high or very high propensity.

It should be noted that Shoreline Metro currently serves several low density TAZs in the City of Sheboygan, particularly on the south and west sides of the city. However, these areas either have significant trip generators important to Shoreline Metro and its customers (i.e.: UW Sheboygan, Horace Mann Middle School, Acuity Insurance, and the two industrial parks), or have emerged as significant trip generators in recent years (i.e.: the Interstate Highway 43/State Highway 28 interchange commercial development, including the south side Wal-Mart Supercenter).

Environmental justice impacts of the planned transit network are addressed in greater detail in Appendix E of this plan.

Pedestrian Environment

Barriers within the walking environment, gaps in the sidewalk system, poor sidewalk and transit stop maintenance, and poor street lighting act to discourage pedestrian travel and transit use. Even if transit service is available (as defined by the coverage area), the areas around and leading to the transit stop must be comfortable in order for transit to be truly available.

Barriers and Connectivity

Barriers to transit within the pedestrian environment include: major roadway facilities; natural features (such as steep slopes, rivers and wetlands); and man-made features (such as railroad

lines and culs-de-sac). Many of these features can be seen in Map 5.8. The physical constraints of the area limit transit service between areas north and south of the Sheboygan River to four corridors. Fortunately, all four corridors are local streets (as opposed to state highways). One of the facilities where a Shoreline Metro route crosses the Sheboygan River is Taylor Drive. Taylor Drive is not an ideal transit corridor because it is a minor arterial with high traffic volumes, high speeds and poor pedestrian accommodations that make it difficult for pedestrians to cross in a safe and timely manner. Route 10 South crosses the Sheboygan River on Taylor Drive on all of its trips. The other three locations where transit routes cross the Sheboygan River in the City of Sheboygan (South 8th Street, Pennsylvania Avenue and New Jersey Avenue) all have slower speeds and better pedestrian accommodations. Route 10 South also crosses the Sheboygan River at New Jersey Avenue on all of its trips. Several routes cross the Sheboygan River at Pennsylvania Avenue on all of their trips, including Routes 3 South, 5 South, 10 South and 30, and the inbound portion of all trips of Route 10 North. Routes 7 South and 40 cross the Sheboygan River at South 8th Street on all of their trips. The City of Sheboygan Falls has one Shoreline Metro route (Route 20) crossing the Sheboygan River (along State Highway 32) that has slow speeds and pedestrian accommodations.

In addition, Fisherman's Creek can serve as a barrier for pedestrians trying to access Routes 5 South, 7 South and 30 on the south side of the City of Sheboygan. Route 7 is situated along South 12th Street in this area, which can involve higher speeds and poor pedestrian accommodations. Pedestrians south of Fisherman's Creek trying to access Route 5 South may also find it challenging to walk to access points for this route in some locations. Route 30 has similar characteristics to Route 7 South in that it is situated along South Business Drive (County Highway OK), which can also involve higher speeds and poor pedestrian accommodations; however, pedestrian accommodations have improved somewhat since this facility was recently reconstructed.

Maintenance of Transit Stops and Sidewalks

An issue of pedestrian access characteristic of the Sheboygan area that can be improved with local policy and enforcement pertains to poorly maintained transit stops and sidewalks. As a northern state, Wisconsin experiences heavy snows that must be dealt with in a timely manner to allow for access to transit. As stated previously under transit stop and shelter maintenance, Shoreline Metro is responsible for the maintenance of transit stops and shelters. Individual property owners are responsible for the maintenance of sidewalks that passengers use to arrive at these stops and shelters; this includes curb cuts. The condition of transit shelters in the winter is generally satisfactory. Transit shelters generally have the pavement shoveled for full access to the street, which is satisfactory for both ambulatory and physically disabled persons, including persons in wheelchairs. Generally, in order for a wheelchair to gain access to a bus, the edge of the lift ramp for the bus must be able to sit flush with the pavement; this generally requires a clearance of 2.5 feet in width.

Transit stops that do not have shelters tend to receive more maintenance attention if they are observed as highly utilized, but if they are underutilized, they are inadequately maintained in the winter. In cases of inadequate maintenance, transit stops can be virtually inaccessible (unless a passenger walks in the street). Shoreline Metro buses stop at nearly all street intersections involving a route, making maintenance of every bus stop by transit staff cost prohibitive. With snow piled in the street and no pathways shoveled from the sidewalks to the bus stop adjacent to the street, mid-block bus stops (where they exist) are almost always inaccessible, while those

located near intersections are accessed in the intersection. Poorly maintained curb cuts are also a problem at these bus stops, particularly in the winter.

Scheduling

Shoreline Metro currently provides transit service six days per week. The following is a summary of current weekday service characteristics (also noted in Table 5.11):

- Routes 3 North and South, 5 North and South, and 7 North and South offer half hour service between the hours of 5:45 a.m. and 5:45 p.m., with hourly service offered between 5:45 p.m. and 8:45 p.m.
- Routes 10 North and South offer half hour service between 7:15 a.m. and 5:15 p.m. Routes 10 North and South offer hourly service between 6:15 a.m. and 7:15 a.m. as well as between 5:15 p.m. and 8:45 p.m.
- Seven trips on Route 20 (the Kohler/Sheboygan Falls Route) are offered on weekdays. These trips are offered at 5:15 a.m. (a one hour abbreviated run), 5:45 a.m. (Kohler Company Special Run), 8:15 a.m., 12:15 p.m., 2:45 p.m. (Kohler Company Special Run), 2:45 p.m. (regular trip), and at 5:15 p.m. The Kohler Company Special Runs are approximately a half hour in length. All regular trips except the 5:15 a.m. trip are 90 minutes in length. The 5:15 a.m. trip does not serve certain portions of the regular route in the City of Sheboygan Falls.
- Route 30 (the Industrial Park Route) offers half hour service between 5:45 a.m. and 7:45 a.m. Route 30 offers hourly service between 7:45 a.m. and 8:45 p.m.
- Route 40 (the Harbor Centre Express) offers half hour service between 10:00 a.m. and 8:00 p.m. from Memorial Day to Labor Day. There is a 15 minute wait time to connect to other routes.
- North and South Shuttles operate between 5:15 a.m. and 5:45 a.m., as well as between 8:45 p.m. and 9:15 p.m. In addition, North Shuttles are offered at 6:15 p.m., 7:15 p.m., and 8:15 p.m., while South Shuttles are offered at 5:45 p.m., 6:45 p.m., and 7:45 p.m.

The following is a summary of Saturday service characteristics:

- Routes 3 South, 5 South, 7 South, and 10 South involve hourly departures, with buses leaving the downtown transfer point at 15 minutes past the hour. Service on these routes is provided between 8:15 a.m. and 5:45 p.m.
- Routes 3 North, 5 North, 7 North, and 10 North involve hourly departures, with buses leaving the downtown transfer point at 45 minutes past the hour. Service on these routes is provided between 7:45 a.m. and 5:15 p.m.
- Five trips on Route 20 (the Kohler/Sheboygan Falls Route) are offered on Saturdays. These trips are offered with departure times at 8:45 a.m., 10:15 a.m., 11:45 a.m., 1:15 p.m., and at 4:15 p.m. All five Saturday trips on the Kohler/Sheboygan Falls Route are 90 minutes in length.
- Route 30 (the Industrial Park Route) offers ten trips on Saturdays. All of the trips start at 45 minutes past the hour, are one hour in length, and run from 7:45 a.m. to 5:45 p.m.
- Route 40 (the Harbor Center Express) offers half hour service between 10:00 a.m. and

6:00 p.m. from Memorial Day to Labor Day. There is a 15 minute wait time to connect to other routes.

- North and South Shuttles operate between 7:15 a.m. and 7:45 a.m., as well as between 5:45 p.m. and 6:15 p.m. In addition, between 7:45 a.m. and 5:45 p.m., North Shuttles are offered at 15 minutes past the hour, while South Shuttles are offered at 45 minutes past the hour.

No transit service is offered on Sundays. In addition, it should be noted that Shoreline Metro does not offer service on the following holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving and Christmas.

Table 5.11: Shoreline Metro Fixed-Route Service

Route	Hours of Operation		Service Frequency (in minutes)	
	Weekday	Saturday	Weekday	Saturday
3	5:45 a.m. - 8:45 p.m.	7:45 a.m. - 5:45 p.m.	30; 60 after 5:45 p.m.	60
5	5:45 a.m. - 8:45 p.m.	7:45 a.m. - 5:45 p.m.	30; 60 after 5:45 p.m.	60
7	5:45 a.m. - 8:45 p.m.	7:45 a.m. - 5:45 p.m.	30; 60 after 5:45 p.m.	60
10	6:15 a.m. - 8:45 p.m.	7:45 a.m. - 5:45 p.m.	30 from 7:15 a.m. to 5:15 p.m; 60 from 6:15 to 7:15 a.m. and from 5:15 to 8:45 p.m.	60
20	5:15 a.m. - 6:45 p.m.	8:45 a.m. - 5:45 p.m.	Irregular service; 60 minute trip at 5:15 a.m.; Kohler Special trips at 5:45 a.m. and at 2:45 p.m.; and 90 minute trips at 8:15 a.m., 12:15 p.m., 2:45 p.m., and at 5:15 p.m.	Continuous service with 90 minute trips from 8:45 a.m. to 2:45 p.m., and one 90 minute trip starting at 4:15 p.m.
30	5:45 a.m. - 8:45 p.m.	7:45 a.m. - 5:45 p.m.	30 from 5:45 a.m. to 7:45 a.m.; 60 after 7:45 a.m.	60
40	10:00 a.m. - 8:00 p.m.	10:00 a.m. - 6:00 p.m.	30	30
Shuttles	5:15 to 5:45 a.m. and 5:45 to 9:15 p.m.	7:15 a.m. to 6:15 p.m.	30 from 5:15 to 5:45 a.m. and from 8:45 to 9:15 p.m.; 60 from 5:45 to 8:45 p.m.	30 from 7:15 to 7:45 a.m. and from 5:45 to 6:15 p.m.; 60 from 7:45 a.m. to 5:45 p.m.

Source: Shoreline Metro, 2014.

Based on the levels of service outlined in Table 5.12 for hours of service, Shoreline Metro would achieve a level of service of "C" for Routes 3, 5, 7, 10 and 30 on weekdays, and would achieve a level of service of "E" for Routes 20 and 40 and for the North and South Shuttles on weekdays. Shoreline Metro would achieve a level of service of "E" for all of its routes on Saturdays.

Table 5.12: Level of Service for Hours of Service

Level of Service	Hours per Day	Nature of Service
A	19 to 24	Night or owl service provided
B	17 to 18	Late evening service provided
C	14 to 16	Early evening service provided
D	12 to 13	Daytime service provided
E	4 to 11	Peak hour service/limited mid-day service
F	0 to 3	Very limited or no service

Source: Transit Capacity and Quality of Service Manual, Transit Cooperative Research Program.

Table 5.13 illustrates levels of service by service frequency for fixed-route transit. Routes 3, 5 and 7 have a level of service of "D" during the daytime and a level of service of "E" during the evening hours on weekdays. Route 10 has a level of service of "D" during most daytime hours and a level of service of "E" during the early morning as well as during the evening hours on weekdays. Route 20 has a level of service of "F" at all times on weekdays. Route 30 has a level of service of "D" during its first two hours of operation, and has a level of service of "E" during the remainder of the service day on weekdays. Route 40 has a level of service of "D" during the summer weekday hours in which it operates. The North and South Shuttles have a level of service of "D" during the first and last half hours of the service day, a level of service of "E" during most of the evening, and are nonexistent during the daytime hours on weekdays.

On Saturdays, Routes 3, 5, 7, 10 and 30 all have a level of service of "E" throughout the service day. Route 20 has a level of service of "F" at all times on Saturdays. Route 40 has a level of service of "D" during the summer Saturday hours in which it operates. Finally, the North and South Shuttles have a level of service of "D" during the first and last half hours of the service day, and have a level of service of "E" during the remainder of the service day on Saturdays.

Table 5.13: Frequency Level of Service for Scheduled Urban Transit Service

Level of Service	Headway (minutes)	Vehicles per Hour	Nature of Service
A	Less than 10	More than 6	Passengers do not need schedules
B	10 to 14	5 to 6	Frequent service; passengers consult schedules
C	15 to 20	3 to 4	Maxumum desirable time to wait if bus is missed
D	21 to 30	2	Service unattractive to choice riders
E	31 to 60	1	Service available during hour
F	Greater than 60	Less than 1	Service unattractive to all riders

Source: Transit Capacity and Quality of Service Manual, Transit Cooperative Research Program.

Total Trip Time

Trip time is a major reason that people cite for not taking transit. In a metropolitan area where automobile trip times are low, converting motorists to transit usage can be difficult. The disutility of travel (the real and perceived cost of time) from mode choice studies has placed a high value on out-of-vehicle time (which includes walking, waiting and transferring) as being 1.5 to 7 times as important as in-vehicle time. What this means is that a motorist is willing to spend as much as seven times longer driving a car than the combined time of walking to and waiting and/or transferring at a transit stop. Ironically, motorists do not really consider the time that they walk from their automobiles to where they work as out-of-vehicle time any more than they consider filling their gas tanks as an out-of-pocket cost. In recognizing these considerations, the disutility of a trip can be calculated as:

In-Vehicle Time + (2.5 X Out-of-Vehicle Time) + (Fare/Value of Time)

In this calculation:

- **In-Vehicle Time** equals the total time riding in one or more vehicles from origin to destination;
- **Out-of-Vehicle Time** includes the total time walking, waiting and transferring;
- **Fare** equals out-of-pocket costs for a trip, including the cost of parking; and
- The **Value of Time** equals, for all practical purposes, one's hourly wage (the value of time will be different from one person to another).

With all else being equal, a five minute walk (out-of-vehicle time) will add 12.5 minutes to the disutility of a trip, while a ten minute wait at the downtown transfer point would add 25 minutes to the disutility of that same trip.

Table 5.14 illustrates **perceived** travel times by travel activity, as derived from mode choice studies. The perceived times for each activity can be calculated by taking the actual time and multiplying or adding its perceived time. For example, the perceived time riding while sitting is equal to the actual time riding while sitting, but the perceived time riding while standing is three times the actual time riding while standing. In addition, the perceived time for a timed transfer is 10 minutes longer than the actual time for a timed transfer.

Table 5.14: Perceived Travel Times (in minutes)

Activity	Perceived Time
Time riding while sitting	Actual time
Time riding while standing	3 times actual time
Time walking	1.3 times actual time
Time waiting	1.9 times actual time
Time transferring	16 times actual time
Initial wait	Actual time plus 8 minutes
Each regular transfer	Actual time plus 24 minutes
Each timed transfer	Actual time plus 10 minutes

Source: Transit Route Planning Course, Center for Urban Transportation Studies, University of Wisconsin - Milwaukee.

Actual travel time for transit users includes walking time from the origin to the bus stop where the passenger boards (averaged to be 3 minutes), waiting time (5 minutes), in-vehicle travel time (variable), walking time from the bus stop where the passenger alights to his or her destination (3 minutes), and transfer time (variable). Travel time for motorists includes in-vehicle travel time, time required to park the vehicle, and time it takes to walk from the vehicle to the motorist's destination (3 minutes). In order for transit to be competitive with the automobile, its level of service must be at worst "tolerable for choice riders," as outlined in Table 5.15. (Choice riders are persons who have at least two modes of transportation available and choose one mode to use).

With headways of 30 minutes and direct connections to downtown Sheboygan, Routes 3, 5, 7, 10 and 30 achieve levels of service "B" or "C" (depending on the time of day) for those whose destination is anywhere along the route between the origin and downtown. For those who live in Kohler or Sheboygan Falls and wish to travel to downtown Sheboygan using Route 20, the level of service ("D") would not be tolerable due to a long travel time by bus versus the automobile. When they operate, the North and South Shuttles have a tolerable level of service from

downtown to destinations on the north and south sides of the City of Sheboygan.

For travel between the north and south sides of the City of Sheboygan on Routes 3, 5 or 7, under good travel conditions, the level of service would be "C," which is tolerable for choice riders; however, poor travel conditions could reduce this level of service to "D," which is not tolerable for choice riders. A similar level of service would occur on a trip involving a transfer between the west side of the City of Sheboygan (likely riding Route 10) and either the north or south side of the City of Sheboygan (riding Route 3, 5 or 7).

The trip from downtown Sheboygan Falls to either the north side or the south side of the City of Sheboygan takes an hour or longer, which is tedious for all riders (level of service "E"). This can easily deteriorate to becoming unacceptable to most riders (level of service "F") when poor weather or other conditions cause delays. The trip from the Industrial Park vicinity to either the north or south side of the City of Sheboygan (via Route 30, then transferring to Route 3, 5 or 7) takes about an hour; when compared to the automobile trip time, this trip is at level of service "E" (tedious for all riders).

For Route 40, trips to portions of the City of Sheboygan outside the central business district could be at levels of service "C" or "D," depending on the destination, and could be at levels of service "D" or "E" for trips to the Village of Kohler or to the City of Sheboygan Falls. This is because of the 15 minute wait at the downtown transfer point to connect from Route 40 to other routes.

Table 5.15: Transit/Auto Travel Time Difference Level of Service

Level of Service	Travel Time Difference (in minutes)	Comments
A	0 or Less	Faster by transit than by automobile
B	1 to 15	About as fast by transit as by automobile
C	16 to 30	Tolerable for choice riders
D	31 to 45	Round trip at least an hour longer by transit
E	46 to 60	Tedious for all riders; may be the best possible in small cities
F	61 or More	Unacceptable to most riders

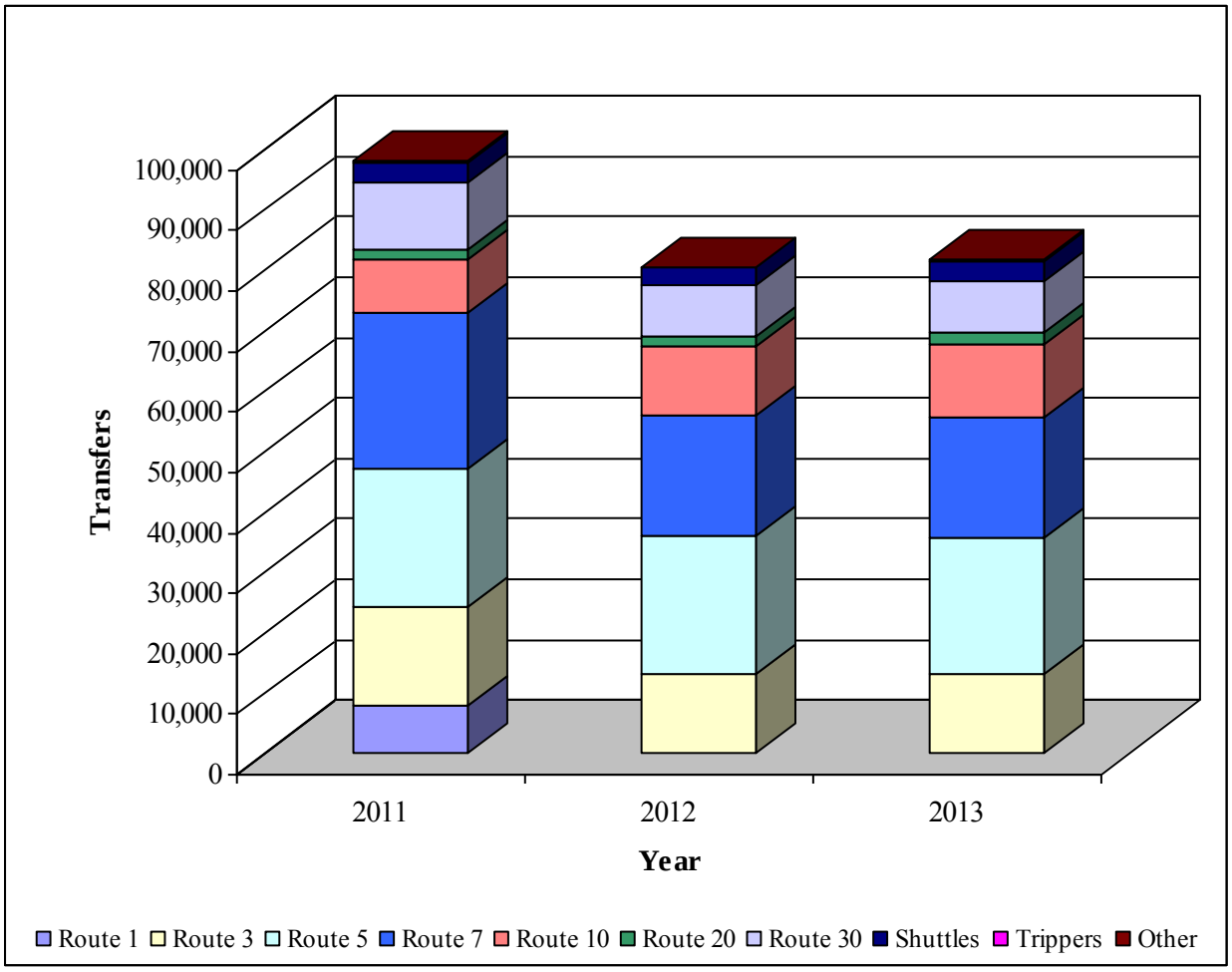
Source: Transit Capacity and Quality of Service Manual, Transit Cooperative Research Program.

Transfers

A transfer, the need to get off one bus and on to another to complete a trip, can add significantly to a passenger's total trip time. Timed transfers can reduce trip time when compared to untimed transfers; however, the chance of missing a connection is always present. Shoreline Metro drivers work very hard to notify their fellow drivers of transferring passengers so that missed transfers are kept to a minimum. Transfers can increase the complexity of a trip, especially for a new transit rider. On the other hand, transfers can increase the size of the service area.

Figure 5.15 illustrates total transfers received by route by year for Shoreline Metro for the period from 2011 through 2013. The total number of transfers systemwide decreased from a high of 97,851 in 2011 to a low of 80,345 in 2012, and then increased slightly to 81,400 in 2013. The number of transfers decreased between 2011 and 2012 in spite of a slight increase in overall ridership between those years. The number of transfers increased at a slower rate (1.3 percent) than did overall ridership (9.6 percent) between 2012 and 2013. As would be expected, with the exception of the school tripper routes, the routes with the highest ridership generally also had the highest number of transfers.

Figure 5.15: Shoreline Metro Transfers by Route

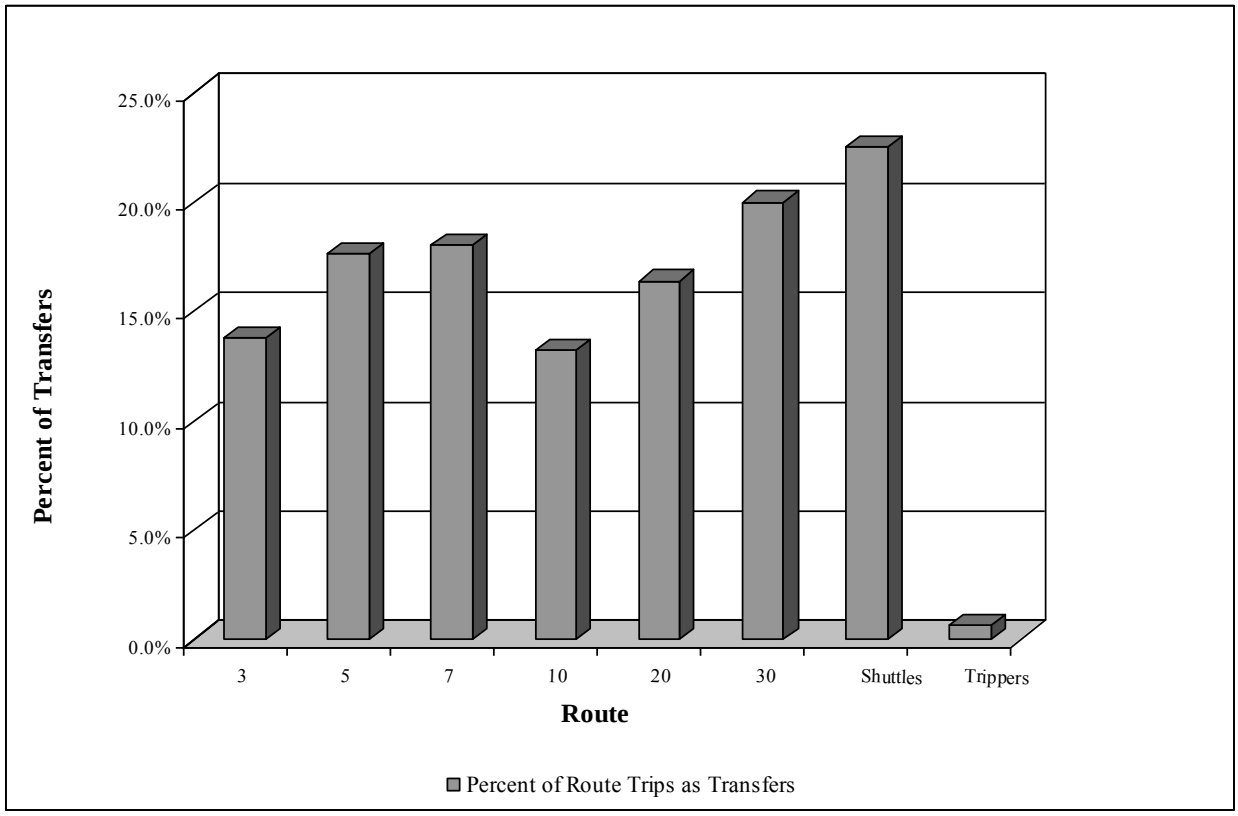


Source: Shoreline Metro (for all years listed).

Figure 5.16 illustrates transfers as a percentage of total route ridership in 2013. The North and South Shuttles had the highest transfer rate of all of the routes (22.5 percent), which is logical, due to the interdependence between the shuttles and the regular route structure. Route 30 had the second highest transfer rate of all the routes (20.0 percent). Routes 5, 7 and 20 had average transfer rates of between 16 and 19 percent of all ridership on those routes in 2013. Routes 3 and 10 had transfer rates of between 13 and 14 percent of all ridership in 2013. School tripper routes have the lowest transfer rate (0.6 percent); this is because school trippers are designed to be self-contained, and transport nearly all students (and other paying passengers) to where they want to go.

The systemwide transfer rate in 2013 was 15.6 percent. Shoreline Metro's downtown transfer point can be viewed on Map 5.9.

Figure 5.16: Shoreline Metro Transfers by Route, 2013



Source: Shoreline Metro, 2014.

Amenities

Transit stop amenities make transit service more comfortable and convenient for current users and more attractive to potential users. The types of amenities provided are generally related to the number of passengers boarding at a stop. Amenities may also extend to the transit vehicle itself. Common amenities include:

- **Shelters** in which passengers may be protected from the elements.
- **Informational signs** to identify the routes using the stop, as well as scheduled arrival times.
- **Trash receptacles** to reduce the amount of litter around the area.
- **Air conditioning** on the buses themselves to provide comfort to passengers on hot summer days.

Map 5.9 indicates the location of Shoreline Metro's passenger shelters and the downtown transfer point. There are 31 passenger shelters owned by Shoreline Metro that are scattered around the service area, including 17 on the north side of the City of Sheboygan, 11 on the south side of the City of Sheboygan, and three in the City of Sheboygan Falls. One passenger shelter owned by Aurora Sheboygan Memorial Medical Center is located on North Avenue immediately west of the hospital building, while an unenclosed passenger shelter owned by Tamarack Apartments is located on Erie Avenue near that apartment complex.

There are three information boards with a map showing the system route structure; these boards

are located at the west entrance of the Memorial Mall, the passenger shelter owned by Aurora Sheboygan Memorial Medical Center, and at the downtown transfer point. Shoreline Metro has also placed signs at its various bus stops along its routes noting the route numbers served at the bus stops as well as times of arrival for the buses at these stops.

The downtown transfer point has trash receptacles, and many of the most utilized passenger shelters have trash receptacles as well. The *Sheboygan Press* is for sale inside the customer service office at the downtown transfer point (when that office is open) at a reduced price.

All of the buses that provide regular fixed-route service have been equipped with air conditioning, although some of the buses that provide school transportation services do not have air conditioning.

Transit Information

Potential passengers need to know where and when transit service is available before they can begin using it, while regular users need to be informed in a timely manner of any changes that may be planned to existing service. Shoreline Metro does a good job of posting information regarding route changes and other service modifications on its buses in readily visible locations for passengers. The Shoreline Metro website is a good place to get information on the system for all residents, including those who are not current users. The most convenient locations for a potential passenger to obtain route schedules are from off of the buses at the downtown transfer point or by accessing the Shoreline Metro website. Residents can find out where to purchase fare media by calling the transit office or by accessing the Shoreline Metro website.

The Shoreline Metro office is the best source of information concerning how to get from one location to another via Shoreline Metro. All fare media (including monthly and day passes as well as tokens) are sold at the Shoreline Metro office, as well as at the downtown transfer point during normal business hours. In addition, the following locations sell monthly passes and adult and student tokens to ride the bus during their normal business hours:

- Both Piggly Wiggly Supermarkets in the City of Sheboygan (2905 North 15th Street and 3124 South Business Drive);
- Both Pick & Save Supermarkets in the City of Sheboygan (1317 North 25th Street and 2625 South Business Drive); and
- Festival Foods (595 South Taylor Drive).

Additional fare media may also be purchased at these locations during their normal business hours:

- Senior Activity Center of Sheboygan (930 North 6th Street): adult tokens and half fare punch cards; and
- Sheboygan Falls Municipal Building (375 Buffalo Street, Sheboygan Falls): adult and student tokens.

In addition, transit drivers sell passes and token packs to interested passengers; exact change is required.

Bus schedules and other information can be obtained online at: www.shorelinemetro.com(.)

Cost

The true cost of driving versus taking transit is rarely considered because most motorists only consider the immediate out-of-pocket cost associated **daily** with driving; paying a toll or paying for parking. Rarely does anyone factor into the equation the cost of gasoline, insurance and maintenance. Free parking is a huge disincentive for commuters to use transit. However, transportation demand management (TDM) practices seek to overcome this obstacle by asking employers who provide free parking to encourage transit use through transit pass programs. Unfortunately, businesses and institutions in the transit system service area have not been especially receptive to such programs.

Table 5.16 illustrates the fare structure of Shoreline Metro. The full cash fare is $1.75. Cash fares for qualified elderly and disabled persons are less than or equal to half the regular cash fare. Adult tokens are $1.30 each, while student tokens are $1.10 each; both adult and student tokens are sold in packs of ten. A student punch pass (good for ten rides) costs $11.00. Half fare passes for qualifying elderly and disabled persons (good for ten rides) cost $8.50 each. The monthly pass is $48.00; frequent riders can save $22.00 or more per month (this assumes two rides per day, five days per week for four weeks) by purchasing a monthly pass from Shoreline Metro administrative staff or from one of the drivers. The systemwide day pass costs $3.00, and is less expensive than paying for a round trip at the full cash fare. The day pass for Route 40 (the Harbor Centre Express seasonal route) costs $1.00. The standard ADA paratransit fare is $3.50, or twice the regular cash fare. Transfers between routes are issued free of charge, and children under age 5 ride free when accompanied by an adult.

Table 5.16: Shoreline Metro Fare Schedule

Payment Type	Cost
Full Cash Fare	$1.75
Elderly/Disabled Half Fare[1]	$0.85
Adult Tokens (each - sold in packs of 10)	$1.30
Student Tokens[2] (each - sold in packs of 10)	$1.10
Student Passes[2] (Good for 10 rides)	$11.00
Elderly/Disabled Half Fare Passes[1] (Good for 10 rides)	$8.50
Monthly Pass	$48.00
Day Pass - Systemwide	$3.00
Day Pass - Route 40 Only	$1.00
ADA Paratransit Fare	$3.50
Transfers	Free

[1]For the elderly, a Medicare card can be presented to the driver to qualify for half fare. For the disabled, a disabled identification card issued by the transit operator or ADA paratransit certification can be presented to the driver to qualify for half fare. A second form of identification may be required as proof of identity.

[2]Only students in grades K - 12 are eligible for student fares.

Note: Children under age 5 ride free when accompanied by an adult.

Source: Shoreline Metro, 2014; and Bay-Lake Regional Planning Commission, 2014.

Passenger Loads

The load factor is a ratio between the number of passengers on a bus and the number of seats available. A load factor of 1.0, for example, means that every seat is taken. Load factors greater than 1.0 require some passengers to stand, and are not acceptable for long-distance commuter travel. Crowded buses are generally acceptable for short, intra-city travel, but they are uncomfortable and prevent passengers from using their time productively (one potential advantage to taking transit over the personal automobile). Crowded buses also slow the operation of transit by increasing the time for passengers to get on and off the bus. Transit is most attractive when passengers can sit by themselves and use the seat next to them for personal belongings. Table 5.17 assigns level of service ratings to ranges for load factors (passengers per seat).

Table 5.17: Passenger Load Level of Service

Level of Service	Load Factor	Comments
A	0.00 to 0.50	No passengers need sit next to another
B	0.51 to 0.75	Passengers can choose where to sit
C	0.76 to 1.00	All passengers can sit
D	1.01 to 1.25	Comfortable standee load for design
E	1.26 to 1.50	Maximum schedule load
F	1.51 or More	Crush loads

Source: Transit Capacity and Quality of Service Manual, Transit Cooperative Research Program.

Most Shoreline Metro regular fixed-route service experiences a passenger load level of service "A." There are occasions where passenger load level of service "B" or "C" is experienced during peak travel times, particularly during commutes to and from school. Passenger load level of service "D" or below is a rare occurrence with Shoreline Metro regular fixed-route service. However, it is possible that regular route trips to and from middle schools and high schools in the City of Sheboygan have temporary standee loads on occasion on Shoreline Metro buses at certain times on weekdays when school is in session.

Safety and Security

How safe and secure a person feels while walking to and waiting at a transit stop will significantly influence whether or not a person uses transit. Poor lighting, a lack of sidewalks, crime and vehicular conflicts can all contribute to feelings of insecurity and of being unsafe. Although the Sheboygan area is considered a relatively safe small urban area, crime still occurs. Safety lighting can help to deter such crime; unfortunately, very few passenger shelters and bus stops have their own lighting. Most passenger shelters and bus stops rely on indirect lighting from muted street lights.

The lack of sidewalks is felt along portions of all routes. Areas where bus stops with passenger shelters exist but where it is difficult to access those shelters using sidewalks include the following (all in the City of Sheboygan unless otherwise indicated):

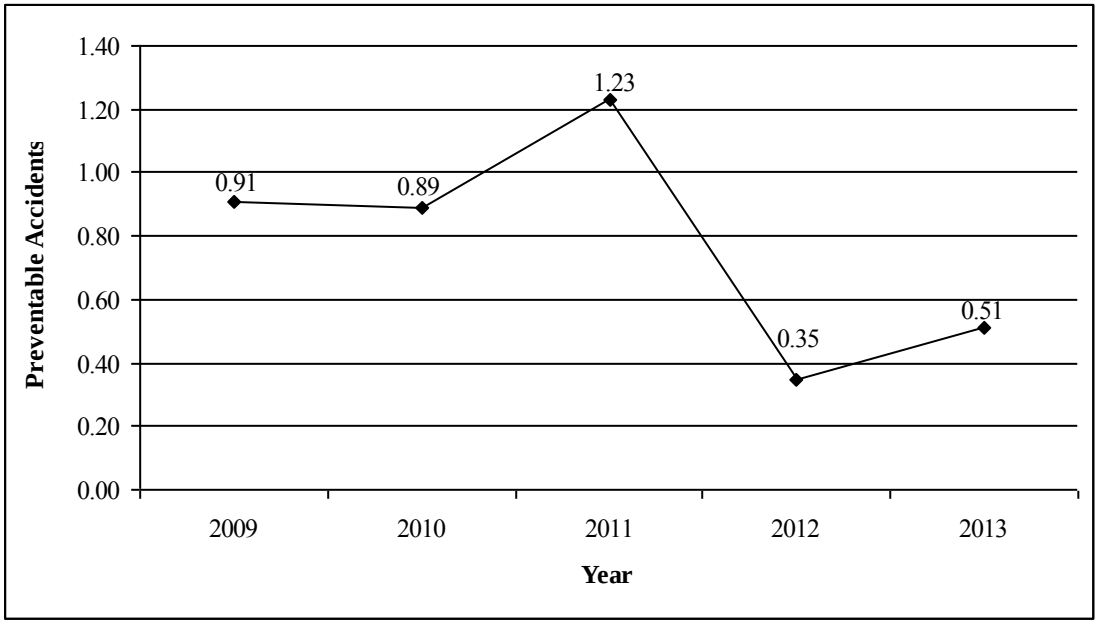
- Erie Avenue at Sunny Ridge (partial lack of sidewalks);
- North 10th Street and Willow Avenue (partial lack of sidewalks);
- South 12th Street and Parkwood Boulevard (partial lack of sidewalks);
- South Business Drive and Indian Meadows Trailer Park (nearly complete lack of sidewalks);

- Union Avenue and South 26th Street (partial lack of sidewalks);
- Sunnyside Mall area (South 12th Street and County Highway EE/Weeden Creek Road – nearly complete lack of sidewalks);
- Sheboygan Clinic (partial lack of sidewalks);
- Leavens Avenue at the site of the old Lightfoot School in Sheboygan Falls (partial lack of sidewalks - east side of Main Street/State Highway 32 north of Leavens Avenue);
- Giddings Avenue (State Highway 32) and Park Street in Sheboygan Falls (partial lack of sidewalks – Park Street east of Giddings Avenue); and
- Buffalo Street at the former Austin's supermarket in Sheboygan Falls (partial lack of sidewalks on both sides of Buffalo Street south of the passenger shelter).

In some cases, bus stops and passenger shelters are accessed by sidewalks, but they are positioned in such a manner that passengers need to cross several lanes of traffic. This type of pedestrian access is not only inconvenient for pedestrians trying to access transit, but it is also dangerous because it exposes pedestrians to several potential conflicts with vehicles and encourages pedestrians to cross streets at locations where they should not cross.

As far as safety and security on the buses is concerned, the number of preventable accidents per 100,000 vehicle revenue miles is one measure of safety for transit. Preventable accidents include accidents where the bus hit some object and where the bus driver could have prevented an accident. As Figure 5.17 illustrates, the number of preventable accidents per 100,000 vehicle revenue miles decreased slightly from 0.91 to 0.89 from 2009 to 2010, increased to its highest level over the five year period (1.23) between 2010 and 2011, decreased to its lowest level over the five year period (0.35) between 2011 and 2012, and increased to 0.51 between 2012 and 2013. This analysis only relates to fixed-route service, and does not include paratransit operations.

Figure 5.17: Preventable Accidents per 100,000 Miles: Shoreline Metro Fixed-Route Service



Source: Federal Transit Administration, *National Transit Database* (for vehicle revenue mile data for 2009 through 2012); Shoreline Metro (for vehicle revenue mile data for 2013 and for preventable accident data for all years); and Bay-Lake Regional Planning Commission, 2014.

There were three (3) preventable bus-related accidents in 2013. Shoreline Metro staff indicates that the number of preventable accidents reported does not necessarily reflect insurance claims; all accidents, however minor, have been reported since 2004. The 0.51 preventable accidents per 100,000 vehicle revenue miles in 2013 included:

- Bus struck a parked bus (1);
- Bus struck a moving car (1); and
- Bus struck a parked car (1).

According to information that Shoreline Metro supplied for the National Transit Database (NTD), a total of 585,749 vehicle revenue miles was traveled in 2013.

Reliability

Transit reliability affects how long a person must wait for transit, as well as whether or not that person will reach their destination on time. Reliability can be critical if a passenger needs to transfer to another bus. Because most of the routes run on 30 minute headways, Shoreline Metro strives to prevent missed transfers through active radio communication between bus drivers. There are few delays that are caused by bridge openings and trains on railroad crossings, at least not at the level observed in many other urban areas. However, the expansion of the City of Sheboygan and the demands that such expansion places on transit to serve new trip generators is the greatest threat to the reliability of the 30 minute pulse system.

One measure of reliability that has been reported is the average number of miles traveled before road failure (when a bus breaks down on the road and needs to be replaced by another bus). The number of miles before "major mechanical failure" (the need to immediately take a bus out of service) decreased from 14,879 in 2009 to 9,563 in 2010, a decrease of nearly 36 percent; this

was right before five Gillig low floor buses acquired in 2010 came to the fleet. The number of miles before "major mechanical failure" increased to 30,017 from 2010 to 2011, an increase of nearly 214 percent; this increase can be largely attributed to having the five new Gillig low floor buses in service. The number of miles before "major mechanical failure" increased to 40,945 from 2011 to 2012, an increase of over 36 percent. The number of miles before "major mechanical failure" decreased to 34,456 from 2012 to 2013, a decrease of nearly 16 percent, but still above the 2011 level. Over the period from 2009 through 2013, the number of miles before "major mechanical failure" increased by nearly 132 percent, largely due to the bus acquisition in 2010.

Summary

For a small urban transit system, Shoreline Metro provides good quality of service. Its service coverage is good within the City of Sheboygan, and extends into portions of the City of Sheboygan Falls and the Village of Kohler. Service frequencies by route appear appropriate for the densities and populations served. The "capture rate" for transit is not dependent on density alone; it is based on characteristics of the population, land use and travel. Household and population characteristics identify areas of propensity (areas where populations have a greater inclination toward taking transit). Areas of higher propensity and lower density can generate just as many, if not more, trips using transit than areas of higher density. The objective is to connect origins (households) with destinations (work, shopping, etc.).

The analyses on density and propensity show that Shoreline Metro provides service frequencies appropriate for the areas served. However, these analyses are insufficient for recommending changes in service. These analyses help identify areas for more detailed analyses. A transit development program (TDP) will be completed for Shoreline Metro in 2016 which will include tabulations from boarding and alighting and passenger opinion surveys that will be completed in late 2015 or early 2016, and which will examine service levels in areas identified as having high propensity.

System efficiency could be improved through bi-directional service and more direct connections. However, the biggest constraints to improving quality of service are natural features and barriers, existing transportation infrastructure, and land use policies. Shoreline Metro routes between the north and south sides of the City of Sheboygan are constrained to four corridors (as is all traffic), and many roadway segments along the routes lack sidewalks and lighting. Maintenance of existing sidewalks can be poor, particularly in winter. In spite of these issues (over which Shoreline Metro has no control), the system performs well.

INTERCITY PASSENGER NETWORK

Inventory of Intercity Passenger Facilities

Four passenger services are available to residents of the Sheboygan metropolitan planning area: Indian Trails Bus Lines, Jefferson Bus Lines, Lamers Bus Lines, and the Sheboygan County Memorial Airport. In addition, other passenger bus services provide charter and school bus services to the area, but these services are not regularly scheduled intercity passenger services open to all passengers. Map 5.10 illustrates the alignment of intercity bus services in the area (including their jointly shared stop/station at the Shoreline Metro downtown transfer point), as well as the location of the Sheboygan County Memorial Airport.

Existing Services

Indian Trails Bus Lines

Indian Trails Bus Lines is a Michigan-based intercity passenger bus transportation provider. Indian Trails provides "charters, tours, shuttles, airport transfers, casino runs and daily scheduled routes." While most of Indian Trails' services are provided in the State of Michigan, there are also routes that connect the Upper Peninsula to Milwaukee and Chicago, as well as routes that connect the Lower Peninsula to Chicago. Indian Trails service to and from Sheboygan is part of a route that connects Hancock, Marquette and Escanaba, Michigan, to Green Bay, Manitowoc and Milwaukee.

Amtrak passengers can use Indian Trails to make connections to cities not served by rail.

The Indian Trails station serving Sheboygan is located at the Shoreline Metro transfer point (Map 5.10). This provides seamless transportation for Indian Trails passengers wishing to continue their trip to a destination within Sheboygan via Shoreline Metro, at least during the service hours of Shoreline Metro. Passengers can arrange for ticket purchase by contacting Indian Trails at a toll free number. Alternatively, passengers can purchase their ticket for travel online or when they board the bus.

One southbound bus and one northbound bus serve the Sheboygan area, with the southbound bus leaving the station at 8:00 a.m. each day for Milwaukee, and with the northbound bus leaving at 10:45 p.m. each day for Green Bay. Passengers coming to Sheboygan arrive at these same times, since this stop is part of a larger service route between Milwaukee and Green Bay. As of April 2014, the fare to travel to and from Sheboygan and Milwaukee was $15, while the fare to travel to and from Sheboygan and Green Bay was $19.

Jefferson Bus Lines

Jefferson Bus Lines is a Minneapolis-based intercity passenger bus transportation provider. Jefferson Bus Lines provides "passenger and express scheduled service as well as charter and tour services." Jefferson serves eight states in the Midwest (including Wisconsin), as well as five states adjacent to the Midwest from the west and south. Sheboygan is served by a Jefferson route that connects Milwaukee to Green Bay; this same line also connects Green Bay to Wausau, Eau Claire and Minneapolis-St. Paul.

Amtrak passengers can also use Jefferson to make connections to cities not served by rail.

The Jefferson station serving Sheboygan is located at the Shoreline Metro transfer point (Map 5.10). This provides seamless transportation for Jefferson passengers wishing to continue their trip to a destination within Sheboygan via Shoreline Metro, at least during the service hours of Shoreline Metro. In fact, Jefferson has a link to local transit web sites from its website for the convenience of its passengers when planning their trip. Passengers can arrange for ticket purchase by contacting Jefferson at a toll free number or by arranging their ticket on Jefferson's website. In addition, passengers can purchase their ticket for travel at the next station that accepts payment for passenger travel.

One northbound bus and one southbound bus serve the Sheboygan area, with the northbound bus leaving the station at 9:50 a.m. each day for Green Bay (and continuing on to Wausau, Eau Claire-Chippewa Falls, and Minneapolis-St. Paul), and with the southbound bus leaving the station at 6:15 p.m. each day for Milwaukee. Passengers coming to Sheboygan arrive at these same times, since this stop is part of a larger service route between Milwaukee and Green Bay.

As of April 2014, it cost Sheboygan passengers $21 to travel one-way to Milwaukee and $18 to travel one-way to Green Bay on Jefferson Bus Lines; round trip to each of these destinations was double these costs.

Lamers Bus Lines

Lamers Bus Lines is a Green Bay-based provider of various transportation services, including "school route contract services, charter services, escorted tours and custom tour planning." Most of Lamers' services are provided to customers in Wisconsin, although Lamers also offers limited services in the state of Florida. Among the services provided by Lamers is a "Lamers Connect" service that specializes in transporting college students between their campuses and major communities across Wisconsin. The "Lamers Connect" route that serves Sheboygan connects Green Bay and Milwaukee, and only provides service on weekends (Fridays and Sundays).

As with the Indian Trails and Jefferson service, Lamers Connect can take Amtrak passengers to Milwaukee's Intermodal Station, and Lamers Connect also transports passengers to General Mitchell International Airport.

The Lamers Connect serving Sheboygan is located at the Shoreline Metro transfer point (Map 5.10). This provides seamless transportation for Lamers Connect passengers wishing to continue their trip to a destination within Sheboygan via Shoreline Metro. Customers can purchase their tickets online and print them for use on the day of their trip. Alternatively, "tickets can be purchased during business hours at bus stop agencies with ticketing services or by paying the driver cash for stops without ticketing services."

On Fridays and Sundays, one northbound bus and one southbound bus serve the Sheboygan area, with the northbound bus leaving the station at 4:20 p.m. for Green Bay, and with the southbound bus leaving the station at 10:45 a.m. for Milwaukee. Passengers coming to Sheboygan arrive at these same times, since this stop is part of a larger service route between Milwaukee and Green Bay. As of April 2014, it cost Sheboygan passengers $18 to travel one-way to UW-Milwaukee and to the Milwaukee Intermodal Station ($22 to General Mitchell International Airport), and $18 to travel one-way to all offered destinations in Green Bay (the Greyhound bus station, Green Bay Metro, and UW-Green Bay) on Lamers Connect; round trip to each of these destinations was double these costs. It should be noted that Lamers Connect does not offer service to UW-Green Bay in June, July or August.

Other Passenger Bus Services

Five companies provide miscellaneous bus services. These companies include Prigge's Discovery Coaches, Heidenreiter Bus Service, Johnson School Bus Service, NEW Coaches and Nichols Five Star Charters. Heidenreiter Bus Service provides predominantly school bus service to the Sheboygan Falls School District, and Johnson School Bus Service provides predominantly school bus service to the Plymouth and Elkhart Lake-Glenbeulah School Districts. NEW Coaches and Nichols Five Star Charters provide predominantly charter tour services to residents of the Sheboygan area. Prigge's Discovery Coach provides charter tour services, and also provides school bus services for the Sheboygan Area School District.

In addition, several companies provide miscellaneous transportation services, although the means of transport is an automobile or a van. Taxi companies that served the area (as of April 2014) included All Star Taxi, Custom Express Courier, Greco Cab Company and Independent Cab. The roster of taxi companies is always changing, and some unlicensed companies are always entering

and leaving the local market. Specialized transportation services for the disabled that serve the area include Custom Care and Transport, Lakeshore Transportation, TNJ Transport, Transtar Medical Transport, and Wheelchair Taxi and Transportation. The Sheboygan County Interfaith Organization also provides volunteer transportation services when needed, including medical trips. Ambulance services are provided by the City of Sheboygan Fire Department for city residents, and by Orange Cross Ambulance for residents of the metropolitan planning area outside the City of Sheboygan. Additional ambulance services exist in Oostburg, Plymouth and Random Lake.

Airport transportation services operating in the Sheboygan area include Airport Connection/GO Riteway and Stardust Exec Limousine. These services primarily transport Sheboygan area passengers to and from General Mitchell International Airport in Milwaukee, although Stardust Exec Limousine also transports passengers to other major Wisconsin airports.

Sheboygan County Memorial Airport

The Sheboygan County Memorial Airport is owned and operated by Sheboygan County. There is no passenger service provided by airlines at the airport. However, many local corporations operate their corporate aircraft from this airport.

The nearest airports with regularly scheduled airline passenger service are General Mitchell International Airport in Milwaukee and Austin Straubel International Airport in Green Bay.

Proposed Service

Midwest Regional Rail Initiative (MWRRI)

The Midwest Regional Rail Initiative (MWRRI) is an ongoing effort to develop an improved and expanded passenger rail system in the Midwest. The Midwest Regional Rail System (MWRRS) is a 3,000 mile, Chicago-based passenger rail network, offering high-speed travel competitive with driving and flying. As illustrated in Map 5.11, the system includes a combination of high-speed rail (usually above 90 miles per hour and up to 110 miles per hour), lower speed rail (less than 90 miles per hour, and in some cases, less than 79 miles per hour), and feeder bus service. At this time, the Sheboygan area is proposed to be served by feeder bus service to Milwaukee, where passengers could then access the high speed rail network; this feeder bus service would originate in Manitowoc.

The MWRRI was originally unveiled as a passenger rail vision for the Midwest in 2004. Unfortunately, political will has deteriorated since 2011, and there are doubts as to whether the original MWRRI vision will be realized any time in the future, at least in Wisconsin.

Current Conditions

Passenger Movement

Indian Trails Bus Lines

There are small numbers of passengers boarding the northbound and southbound buses of Indian Trails Bus Lines on an average daily basis. Numbers increase during peak periods such as major holidays.

Jefferson Bus Lines

There are small numbers of passengers boarding the northbound and southbound buses of Jefferson Bus Lines on an average daily basis. Similar to Indian Trails Bus Lines, numbers

increase during peak periods such as major holidays.

Lamers Bus Lines

There are small numbers of passengers boarding the northbound and southbound buses of Lamers Bus Lines, but they tend to be higher on average due to the weekend nature of the service and the marketing of this service to college students. Similar to Indian Trails and Jefferson Bus Lines, numbers increase during peak periods such as major holidays.

Sheboygan County Memorial Airport

Measurement of air operations at Sheboygan County Memorial Airport had always been challenging because the airport has no control tower and because there is no commercial airline service to the airport. Because of this, it is difficult to obtain data on activity at the airport from private sources or from Sheboygan County, WisDOT or Federal Aviation Administration (FAA) sources.

Civilian air operations at Sheboygan County Memorial Airport include local and itinerant general aviation and air taxi (charter) services. Air operations are equal to the number of flights arriving and departing at the airport. According to the Federal Aviation Administration (FAA), the Sheboygan County Memorial Airport had 66,000 annual operations in 2006, but had 62,000 such operations in the 12 month period that ended on June 9, 2011; this represents a decrease of just over six percent. Of the 62,000 annual operations recorded as of June 9, 2011, 57,000 operations were general aviation local and itinerant trips, while 5,000 operations involved air taxi services. These small decreases were likely the result of the slowdown in economic activity in recent years.

Sheboygan County appears to have had a steady level of military air operations (around 500 per year) between the last two observations collected for previous two iterations of this plan (2004 - 2005 and 2007 - 2008) and the 12 month period that ended on June 9, 2011.

Unlike airports in many other Wisconsin metropolitan planning areas, the Sheboygan County Memorial Airport does not have annual records on air traffic because the airport has no control tower and because there is no commercial airline service to the airport. The only air operation data maintained for the airport besides airport master records from 2002, 2004 and 2005 and besides FAA records from 2006, 2007-2008, and 2010-2011 dates back to 1996 and prior years. The most current air traffic observations (66,000 in 2006 and 62,000 in 2007-2008 as well as in 2010-2011) are comparable to air traffic levels observed for the airport from 1993 to 1995. Air traffic in 1996 was higher (73,150), and air traffic before 1993 was lower than current levels.

There are around 87 aircraft based at the Sheboygan County Memorial Airport. Of these, 61 are single engine aircraft, while fourteen are multiengine aircraft, seven are jet aircraft, and five are ultra-lights.

Safety and Security

The security of our transportation networks and the safety of their users have become the driving force for much of the transportation policy enacted since September 11, 2001. Accidents and incidents continue to occur for several reasons. Fortunately, none of these accidents and incidents has been attributed to premeditated attacks.

In the case of intercity bus lines, the Federal Motor Carrier Safety Administration (FMCSA) Safety and Fitness Electronic Records (SAFER) System "offers company safety data and related

services to industry and the public over the Internet. Users can search FMCSA databases, register for a USDOT number, pay fines online, order company safety profiles, challenge FMCSA data, access the hazardous material route registry, obtain national crash and out of service rates for Hazmat permit registration, get printable registration forms, and find information about other FMCSA information systems." SAFER shows vehicle and driver inspections in the U.S. and Canada, as well as Hazmat and intermodal equipment provider (IEP) inspections in the U.S. Fatal, injury and property damage crashes where a tow was required are also reported in SAFER for each bus line, for the U.S. as well as for Canada. Data reported are for all service operations of each provider, and do not focus on that carrier's performance within the Sheboygan metropolitan planning area.

Indian Trails Bus Lines

According to SAFER, Indian Trails Bus Lines had a rating of "satisfactory" in March of 2009. Out of 26 U.S. vehicle inspections, Indian Trails had no out of service vehicles, and out of one Canadian vehicle inspection, Indian Trails had no out of service vehicle. Out of 41 U.S. driver inspections, Indian Trails had no out of service drivers, and out of one Canadian driver inspection, Indian Trails had no out of service driver. Hazmat and IEP inspections were not applicable in the case of Indian Trails. Indian Trails had no fatal crashes, three injury crashes, and five property damage only crashes where a tow was required in the past two years in the U.S.; no such incidents were reported in Canada.

Jefferson Bus Lines

According to SAFER, Jefferson Bus Lines had a rating of "satisfactory" in July of 2013. Out of 45 U.S. vehicle inspections, Jefferson had one out of service vehicle (2.2 percent, which is below the national average of 20.7 percent); there were no Canadian vehicle inspections for Jefferson. Out of 46 U.S. driver inspections, Jefferson had four out of service drivers (8.7 percent, which is above the national average of 5.5 percent); there were no Canadian driver inspections for Jefferson. Hazmat and IEP inspections were not applicable in the case of Jefferson. Jefferson had no fatal crashes, four injury crashes, and seven property damage only crashes where a tow was required in the past two years in the U.S.; no such incidents were reported in Canada.

Lamers Bus Lines

According to SAFER, Lamers Bus Lines had a rating of "satisfactory" in August of 2011. Out of 106 U.S. vehicle inspections, Lamers had two out of service vehicles (1.9 percent, which is again below the national average of 20.7 percent); there were no Canadian vehicle inspections for Lamers. Out of 111 U.S. driver inspections, Lamers had three out of service drivers (2.7 percent, which is below the national average of 5.5 percent); there were no Canadian driver inspections for Lamers. Hazmat and IEP inspections were not applicable in the case of Lamers. Lamers had no fatal crashes, nine injury crashes, and 21 property damage only crashes where a tow was required in the past two years in the U.S.; no such incidents were reported in Canada.

Sheboygan County Memorial Airport

As reported in the Aviation Accident/Incident Database from the National Transportation Safety Board (NTSB), the Sheboygan County Memorial Airport experienced one accident between January 1, 2009, and December 31, 2013. No fatalities or serious injuries were suffered in this accident. This accident occurred on June 15, 2012, and was a local flight originating at the Sheboygan County Memorial Airport with one pilot and three passengers on board. The accident appears to have been caused by the pilot's failure to maintain directional control during the

takeoff roll; weather conditions were ideal for this flight.

After September 11, 2001, the federal government and the Federal Aviation Administration (FAA) required airports and other transportation hubs and systems to enhance security with trace detection inspections for explosives. As an airport that does not offer commercial passenger service, the Sheboygan County Memorial Airport is exempt from having magnometers, x-ray machines, or explosion detection inspections (since there is little or no checked luggage). However, the airport has secure fences around its perimeter, and there are secure entrances to all areas involving air traffic. In addition, since some airport customers have utilized the Sheboygan County Memorial Airport for international business travel (primarily to Canada and to points in Europe), U.S. Customs inspectors are occasionally brought in from Green Bay and from Milwaukee to conduct customs inspections of incoming passengers.

Access

Indian Trails/Jefferson/Lamers Bus Lines Station

The joint station for Indian Trails Bus Lines, Jefferson Bus Lines and Lamers Bus Lines (which is the downtown transfer point owned by Shoreline Metro) is easily accessible from all directions. From the north and south, 7th, 8th and 9th Streets are all in close proximity to the station. From the east and west, Pennsylvania Avenue abuts the block in which the station is located, and those traveling on Erie Avenue (State Highway 23 west of 14th Street) can use 9th Street and Center Avenue to arrive at the station.

Parking can be problematic for passengers who wish to park on a long-term basis while traveling on Indian Trails, Jefferson or on Lamers. Lots in the vicinity are either metered with upper time limits or are reserved for monthly parkers usually employed near where they are parked. Fortunately, most Indian Trails, Jefferson or Lamers passengers are simply dropped off as they begin their trip or are picked up when they arrive in Sheboygan.

Shoreline Metro has its transfer point at the Indian Trails/Jefferson/Lamers station. Indian Trails has an 8:00 a.m. departure for Milwaukee, which is well served by Shoreline Metro on weekdays, and is served by either regular routes or shuttles on Saturdays. Indian Trails also has a 10:45 p.m. departure for Green Bay, which is outside the range of service hours for Shoreline Metro every day of the week. Jefferson has a 9:50 a.m. departure for Green Bay, which is well served by Shoreline Metro on weekdays and on Saturdays. Jefferson also has a 6:15 p.m. departure for Milwaukee; this service can be accessed by Shoreline Metro regular routes or shuttles on weekdays, but this departure leaves at the end of the service day for Shoreline Metro on Saturdays. Lamers has a 10:45 a.m. departure for Milwaukee as well as a 4:20 p.m. departure for Green Bay on Fridays and Sundays; Shoreline Metro has service that connects to these departures on Fridays. Shoreline Metro transit service is not available on Sundays or holidays; therefore, Indian Trails, Jefferson and Lamers customers must find alternative arrangements to arrive at the station on these days.

Sheboygan County Memorial Airport

Access to the airport is best achieved by either taking County Highway O (Superior Avenue in the City of Sheboygan) west from the urban area to County Highway TT, or by taking State Highway 23 west and turning north on County Highway TT. The airport is located on Resource Drive just north of the intersection of County Highways O and TT.

The airport is outside the geographic range of service of Shoreline Metro. In any event,

passenger service at the airport is minimal, such that transit service to the airport, even if it did exist, would likely be unproductive.

The airport has 175 parking spaces for public parking: 75 spaces for short-term parking and 100 spaces for long-term parking. The airport also has 25 additional spaces for overflow parking. All parking at the Sheboygan County Memorial Airport is free of charge. Visitors to the area can make arrangements with the fixed base operator (FBO – Burrows Aviation) for car rental, and the FBO can also provide courtesy cars to "qualified aircrew members" who wish to travel to local destinations free of charge (however, there is a two hour limit for this service).

FREIGHT NETWORKS

Inventory of Freight Facilities

Metropolitan Planning Organizations (MPOs), as regional transportation planning organizations, are increasingly incorporating freight planning into their everyday planning activities. The Bay-Lake Regional Planning Commission and its Sheboygan MPO transportation planning program have not until recently addressed freight in the *Sheboygan Area Transportation Plan (SATP)*. As a beginner to freight planning, the Bay-Lake Regional Planning Commission has chosen to focus on collecting inventory and activity data. Some data have already shown to be unreliable, and other data are virtually impossible to obtain at a local level (states are the finest level of geographic detail available for many freight characteristics). Activities to address these limitations will be discussed in the "Recommended Freight Policies and Strategies" section of Chapter 7: Recommended Transportation Plan.

Freight movement within and through the metropolitan planning area occurs primarily via truck and rail. Freight transported by water and by air is negligible in the metropolitan planning area. Rail freight is primarily carried by the Union Pacific and the Canadian National Railroads, with some rail freight also carried by some other railroads. Truck freight is moved by many over-the-road freight carriers, primarily on the National Highway System (NHS). Service costs per pound of freight carried vary widely by mode of transport. Water transport is the cheapest per pound, followed by rail, then followed by truck, with air transport being the most expensive. In general, low-value, high-weight commodities are transported by water, and high-value, low-weight commodities are transported by air.

Larger Trucking Firms and Shipping and Receiving Companies

Map 5.12 shows larger trucking firms as well as shipping and receiving companies with the largest amounts of incoming and outgoing commodities in the Sheboygan metropolitan planning area. Map 5.12 also shows designated truck routes and rail lines in the area.

Intermodal facilities (rail stations which are also truck terminals) exist in the metropolitan planning area in the City of Sheboygan and in the Village of Kohler. One major distribution center which is also a major truck terminal involves Piggly Wiggly Midwest on Union Avenue in the City of Sheboygan. Navigation facilities are rarely applicable to water transported freight in the metropolitan planning area, since transport of freight via water has been minimal in recent years.

Railroad Facilities

Union Pacific Railroad

The Union Pacific Railroad is one of the largest railroads in North America, covering 23 states across the western two-thirds of the United States. The railroad "links major West Coast and Gulf Coast ports and provides service to the east through its four major gateways in Chicago, St. Louis, Memphis and New Orleans," and "operates key north/south corridors." The railroad also connects to rail systems in Canada and in Mexico.

National-level commodities of the Union Pacific Railroad include: agricultural products (including grain, grain products and food products); automotive products; chemicals; coal; and industrial products. The railroad "is the largest intermodal carrier in North America."

The Union Pacific Railroad "crosses Wisconsin from Superior in the northwest to Milwaukee in the southeast," and "main line tracks run from the Twin Cities on the western border across the state to Milwaukee and south along Lake Michigan into Chicago." Major commodities shipped by the railroad in Wisconsin in 2013 included: non-metallic minerals; corn and feed grains; food and beverages; crude oil; and roofing products. Major commodities received by the railroad in Wisconsin in 2013 included: coal; lumber and building materials; plastics; and fertilizer. Empty covered hoppers (rail cars) were also a significant item received by the railroad in Wisconsin in 2013, although they were not a commodity.

Union Pacific rail lines in Sheboygan County parallel the lakeshore north from Milwaukee, and end in the City of Sheboygan. Another Union Pacific line connects the City of Sheboygan to the Village of Kohler. A rail line from Kohler to Plymouth had its service discontinued by the Union Pacific; service on this line is being restored from Kohler to Plymouth (via the Wisconsin and Southern Railroad); this will greatly benefit many local industries along this line.

The source for quotes and other information concerning the Union Pacific was the railroad's web site (www.up.com), as well as the Wisconsin Department of Transportation's map "Wisconsin Railroads and Harbors: 2014."

Canadian National Railroad

While the Canadian National Railroad does not directly serve the Sheboygan metropolitan planning area or Sheboygan County, it does impact freight transportation in the area. The Canadian National Railroad acquired the Wisconsin Central Railroad in 2001. The Canadian National extends across eight provinces in Canada, and largely serves states bordering the Mississippi River valley in the United States, including Wisconsin. The Canadian National also serves U.S. cities outside the states bordering the Mississippi River, including Omaha, Mobile, Detroit, Pittsburgh and Buffalo. The Canadian National currently serves sixteen states in the U.S.

Canadian National lines in Wisconsin crisscross much of the northern half of the state, and can also be found in many eastern counties of the state. A Canadian National line can be found running a short distance south of Manitowoc. From Manitowoc, Canadian National lines travel north to near Rockwood and westward to the Fox River Valley and to western Wisconsin. Another Canadian National line connects Kiel to the Hilbert area, where the same connections to the Fox River Valley and to western Wisconsin (as well as to Manitowoc) exist. Some commodities transported via the Canadian National are loaded onto trucks in the Fox River Valley for destinations in the Sheboygan metropolitan planning area.

The source for information concerning the Canadian National was the railroad's web site

(www.cn.ca), as well as the Wisconsin Department of Transportation's map "Wisconsin Railroads and Harbors: 2014."

Wisconsin and Southern Railroad Company

When the Canadian National Railroad abandoned operations on its line from Saukville to Kiel in 2004, the Wisconsin and Southern Railroad assumed operations of this line (with support from the Wisconsin Department of Transportation and Sheboygan County). The Wisconsin and Southern operates on many former lines of other railroads that were earmarked for abandonment. The Wisconsin and Southern is a regional railroad operating in southern Wisconsin and in northeastern Illinois. Wisconsin and Southern lines connect with many other major railroad lines in Wisconsin. The Wisconsin and Southern transports the following major commodities: lumber; liquid and dry fertilizers; corn; beans; plastic; aggregates; ethanol; and liquid petroleum.

While the Wisconsin and Southern does not currently directly serve the metropolitan planning area, it does serve the central portion of Sheboygan County from Random Lake to Kiel (in Manitowoc County, just north of the Sheboygan County line). Commodities from the Wisconsin and Southern can be unloaded onto trucks in Random Lake, Adell or Waldo for transport to the metropolitan planning area. The Wisconsin and Southern also serves Plymouth, Elkhart Lake and Kiel, but these communities do not have interfacing truck terminals.

The Wisconsin and Southern will assume operations on a line formerly operated by the Union Pacific between Kohler and Plymouth in the near future. This has involved a major upgrading of this line at a cost of several million dollars. The Wisconsin Department of Transportation, Sheboygan County, local governments along the line and businesses that would benefit from the line have partnered to finance this improvement. This work should be nearing completion in the near future.

The source for most of the information concerning the Wisconsin and Southern Railroad was the railroad's web site (www.wsorrailroad.com), as well as the Wisconsin Department of Transportation's map "Wisconsin Railroads and Harbors: 2014."

Trucking Facilities

Truck Routes

The National Highway System (NHS) is comprised of interstate highways, many U.S. and state highways, as well as other roadways established as important connector routes by the Federal Highway Administration (FHWA). By federal law, NHS routes are available to all truck traffic. Local municipalities may prohibit truck traffic by ordinance, but only on local roads and functionally classified facilities that are not part of the NHS.

NHS facilities in the metropolitan planning area include: Interstate Highway 43; State Highway 23; State Highway 28 between State Highway 23 in the City of Sheboygan and State Highway 32 in the City of Sheboygan Falls; State Highway 32 between State Highway 23 and State Highway 28 in the City of Sheboygan Falls; and State Highway 42 between State Highway 23 in the City of Sheboygan and State Highway 32 in the Village of Howards Grove. Non-NHS state highways in the metropolitan planning area that have been designated by WisDOT as official long truck routes include all of State Highway 32 north of State Highway 23 and south of State Highway 28. In addition to these state highways, locally designated truck routes can be found on Map 5.12.

Truck Carriers

Several types of carriers operate within the metropolitan planning area:

- **Truckload (TL) carriers**, who dedicate a trailer to a single shipper;
- **Less-than-truckload (LTL) carriers**, who consolidate smaller loads from more than one shipper into one trailer (such as Consolidated Freightways and Yellow Freight);
- **Private fleets** (such as Wal-Mart and Target); and
- **Local delivery trucks** (such as UPS, FedEx and DHL).

Air Cargo

Use of the Sheboygan County Memorial Airport is primarily for general aviation purposes. Minimal amounts of freight were recorded as coming in by air to Sheboygan County or to the metropolitan planning area in 2011.

Current Conditions

Freight Movement

Overall Freight Movement

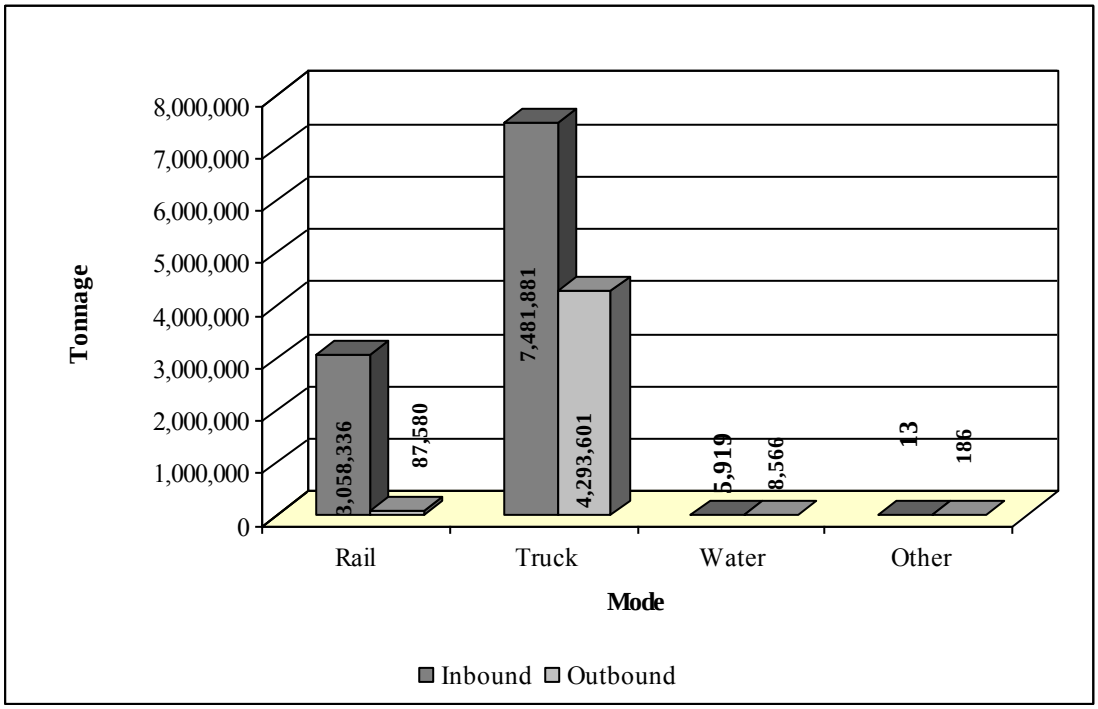
Truck and rail accounted for nearly all of the tonnage for commodities shipped out of and received in the Sheboygan County that year. Nearly 78.84 percent of total inbound and outbound freight processed in Sheboygan County was carried by truck in 2011, while rail transport carried over 21.06 percent of total inbound and outbound freight processed in the county that year. Nearly 0.10 percent of total inbound and outbound freight processed in Sheboygan County was carried by water transport in 2011. A small amount (less than 0.01 percent) of inbound and outbound freight processed in Sheboygan County was carried by an "unknown" mode of transportation (possibly air or other modes) in 2011.

Figure 5.18 illustrates the inbound and outbound commodity flows by mode for Sheboygan County in 2011; these values include commodity movement internal to the State of Wisconsin and to Sheboygan County. The total tonnage of inbound freight exceeded the total tonnage of outbound freight by more than 140.2 percent, meaning that Sheboygan County imported 140.2 percent more commodities by weight than it exported. This ratio was especially evident in rail transportation, where nearly 35 times as many commodities were imported by weight than were exported. For trucking, the total tonnage of inbound freight exceeded the total tonnage of outbound freight by nearly 74.3 percent. For the small amount of freight carried by water transportation, the total tonnage of outbound freight was more than 44.7 percent higher than the total tonnage of inbound freight. For the small amount of freight carried by other forms of transportation, the total tonnage of outbound freight was over 14 times higher than the total tonnage of inbound freight.

Nearly 38 percent of all inbound commodities came from counties in Wisconsin, and nearly 39 percent of all outbound commodities were shipped to counties in Wisconsin. Nearly 98 percent of all internal freight (movement only within Wisconsin) to and from Sheboygan County was transported by truck in 2011. Rail was the only other significant mode to transport freight between Sheboygan County and other locations within Wisconsin; however, the mode share was slightly more than two percent. A negligible amount of freight (42 tons) was transported via water between Sheboygan County and other locations within Wisconsin in 2011.

Commodities shipped out of the county and state were largely destined for other states in the Midwest (the states of Illinois, Michigan, Indiana, Minnesota, Ohio and Iowa alone accounted for nearly 43 percent of these commodities). In addition, the "sunbelt" states of Texas, California and Florida were a significant destination for these commodities (these states accounted for over four percent of these commodities). "Other" locations (other states, Canadian provinces and other locations around the world) accounted for over 14 percent of these commodities.

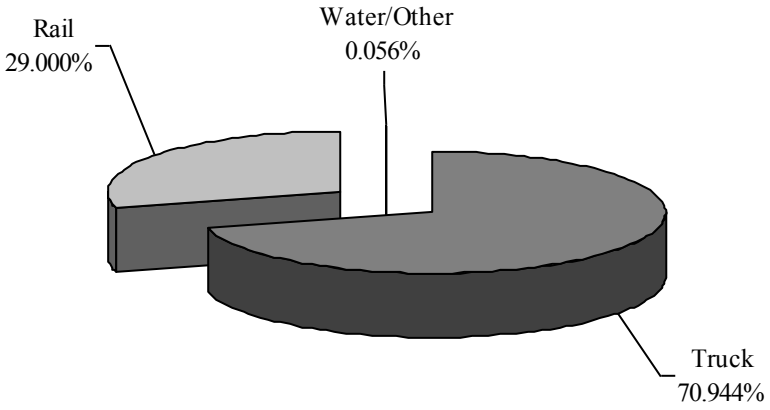
Figure 5.18: Commodity Flow by Mode, Sheboygan County, 2011



Source: Global Insight TRANSEARCH Wisconsin Commodity Flow Database, 2011.

Figure 5.19 illustrates the mode share of inbound freight as a percentage of tonnage carried. Nearly 71 percent of product is trucked in, with 29 percent of product arriving in Sheboygan County by rail; very little product arrives by water transport or by other modes of transportation.

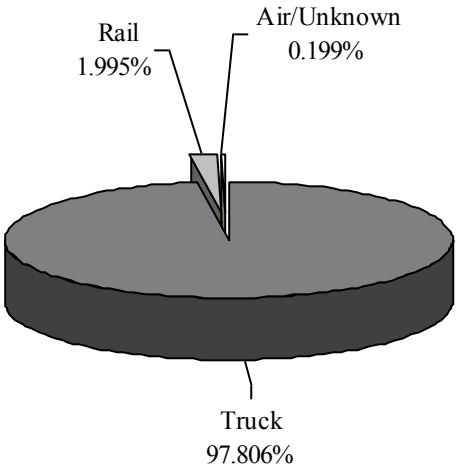
Figure 5.19: Mode Share for Inbound Tonnage, Sheboygan County, 2011



Source: Global Insight TRANSEARCH Wisconsin Commodity Flow Database, 2011.

Figure 5.20 illustrates the mode share of outbound freight as a percentage of tonnage carried. Just over 97.8 percent of product is trucked out, while slightly less than two percent of product is transported out of Sheboygan County by rail. Very little product (slightly less than 0.2 percent) is transported out of the county by water transport or by other modes of transportation.

Figure 5.20: Mode Share for Outbound Tonnage, Sheboygan County, 2011



Source: Global Insight TRANSEARCH Wisconsin Commodity Flow Database, 2011.

Because the mode share is illustrated as a percentage of weight, some disparity results from the predominance (based on cost per pound, weight, perishability and time sensitivity) of some commodities to travel via a preferred mode. For example, coal and grain have relatively low values, are heavy, and can be stored for long periods; therefore, these commodities tend to be shipped via rail, truck or water transport. On the other hand, medical equipment has high value, has relatively low weight, and is often needed within a certain time frame; therefore, it tends to be shipped by air to nearby airports for delivery to the area.

Table 5.18 illustrates the top ten commodities and their total tonnages for products originating and/or terminating in Sheboygan County in 2011. When both inbound and outbound commodities are combined, the most significant commodity was bituminous coal (nearly 2.7 million tons), followed by dairy farm products (over 1.5 million tons), gravel or sand (over 1.5 million tons); warehouse and distribution center products (nearly 1.4 million tons), processed milk (nearly 800,000 tons), and broken stone or riprap (nearly 780,000 tons). Other top commodities included: grain; wet ready-mix concrete; petroleum refining products; and aluminum or alloy castings. These top ten commodities represented over 69 percent of all commodities (by tonnage) transported into and out of Sheboygan County in 2011.

Table 5.18: Top Ten Commodities (Imported and Exported, All Modes), Sheboygan County, 2011

Rank	Commodity	Tons
1	Bituminous Coal	2,699,080
2	Dairy Farm Products	1,525,646
3	Gravel or Sand	1,516,718
4	Warehouse and Distribution Center Products	1,393,292
5	Processed Milk	792,808
6	Broken Stone or Riprap	776,955
7	Grain	494,419
8	Ready-Mix Concrete, Wet	424,712
9	Petroleum Refining Products	367,647
10	Aluminum or Alloy Castings	340,823

Source: Global Insight TRANSEARCH Wisconsin Commodity Flow Database, 2011.

Table 5.19 illustrates the top ten commodities and their total tonnages for products imported into Sheboygan County in 2011. The most significant inbound commodities were bituminous coal (nearly 2.7 million tons), followed by gravel or sand (over 1.5 million tons), dairy farm products (over 1.2 million tons), broken stone or riprap (over 700,000 tons), processed milk (nearly 700,000 tons), and warehouse and distribution center products (over 500,000 tons). Other top imported commodities included: petroleum refining products; plastic matter or synthetic fibers; miscellaneous field crops; and miscellaneous industrial organic chemicals. These top ten commodities represented nearly 79 percent of all commodities (by tonnage) transported into Sheboygan County in 2011.

Table 5.19: Top Ten Imported Commodities (All Modes), Sheboygan County, 2011

Rank	Commodity	Tons
1	Bituminous Coal	2,699,080
2	Gravel or Sand	1,516,718
3	Dairy Farm Products	1,218,467
4	Broken Stone or Riprap	703,576
5	Processed Milk	699,017
6	Warehouse and Distribution Center Products	500,589
7	Petroleum Refining Products	367,647
8	Plastic Matter or Synthetic Fibers	248,029
9	Miscellaneous Field Crops	193,037
10	Miscellaneous Industrial Organic Chemicals	155,592

Source: Global Insight TRANSEARCH Wisconsin Commodity Flow Database, 2011.

Table 5.20 illustrates the top ten commodities and their total tonnages for products exported from Sheboygan County in 2011. The most significant outbound commodities were warehouse and distribution center products (nearly 893,000 tons), followed by grain (nearly 438,000 tons), wet ready-mix concrete (nearly 353,000 tons), aluminum or alloy castings (nearly 341,000 tons), and dairy farm products (over 307,000 tons). Other top exported commodities included: miscellaneous plastic products; cheese or specialty dairy products; miscellaneous converted paper products; miscellaneous field crops; and processed milk. These top ten commodities represented nearly 68 percent of all commodities (by tonnage) exported from Sheboygan County in 2011. Although not technically a commodity, a significant amount of rail intermodal drayage to ramps was also exported from Sheboygan County in 2011.

Table 5.20: Top Ten Exported Commodities (All Modes), Sheboygan County, 2011

Rank	Commodity	Tons
1	Warehouse and Distribution Center Products	892,703
2	Grain	437,615
3	Ready-Mix Concrete, Wet	352,667
4	Aluminum or Alloy Castings	340,823
5	Dairy Farm Products	307,179
6	Miscellaneous Plastic Products	182,456
7	Cheese or Specialty Dairy Products	155,622
8	Miscellaneous Converted Paper Products	110,359
9	Miscellaneous Field Crops	103,145
10	Processed Milk	93,791

Source: Global Insight TRANSEARCH Wisconsin Commodity Flow Database, 2011.

Freight Movement by Water Transportation

A total of 5,919 tons of commodities were received in Sheboygan County via water transportation in 2011. The vast majority (5,894 tons) involved fertilizer, with the remainder involving other commodities.

A total of 8,566 tons of commodities were shipped from Sheboygan County via water transportation in 2011. Some 6,218 tons involved grain, while the remaining 2,348 tons involved oil kernels, nuts or seeds.

Freight Movement by Rail

The Union Pacific Railroad experiences about four trains per day on most of the rail lines it operates within the metropolitan planning area. At this time, no other railroads directly serve the Sheboygan metropolitan planning area. However, the Wisconsin and Southern Railroad will open a reactivated line between Kohler and Plymouth in the near future; many potential customers along the line (shippers and receivers) have been asking for this service for several years.

Carload Waybill Sample

The Surface Transportation Board (STB) requires that railroads that terminate over 4,500 cars per year report on various rail shipment data items (including origin and destination points, type of commodity, number of cars, tons, revenue, length of haul, participating railroads and interchange locations) on individual movements sampled from their traffic waybills. Because railroads are allowed to "mask" their revenues for purposes of confidentiality, revenues are not addressed in the following discussion. Generally tonnage information for commodities transported into and out of Sheboygan County is available for 2001, 2004, 2007 and 2011, while detailed commodity information is only available for 2007 and 2011. The STB Carload Waybill Sample data are already incorporated into the Transearch database that is being used to analyze commodity movement elsewhere in this section.

Ashes were the largest commodity group transported by rail from Sheboygan County (as reported in carload waybill samples) in 2011; about 71.6 percent of the tonnage exported from the county involved ashes. The only other significant commodities transported by rail from Sheboygan County in 2011 were malt (14.7 percent of all tonnage) and broken stone or riprap (13.7 percent of all tonnage). Total tonnage for all rail transported commodities originating in Sheboygan County was approximately 0.2 million tons in 2001 and 2004, and was less than 0.1 million tons in both 2007 and 2011.

Bituminous coal was by far the largest commodity transported by rail to Sheboygan County (as reported in carload waybill samples) in 2011; about 88.3 percent of the tonnage imported into the county involved bituminous coal. Other significant commodities transported into Sheboygan County in 2011 (in order of tonnage) included miscellaneous industrial organic chemicals (2.1 percent), followed by ashes (2.1 percent), cyclic intermediates or dyes (1.9 percent), cheese or specialty dairy products (1.9 percent), and plastic matter or synthetic fibers (1.3 percent). Other commodities arriving in Sheboygan County by rail in 2011 included: grain; malt; fiber, paper or pulpboard; processed nonmetallic minerals; petroleum refining products; fertilizers; potassium or sodium compound; condensed, evaporated or dry milk; and liquefied gases, coal or petroleum; these other commodities were less than 2.6 percent of total commodities (by weight) transported by rail to Sheboygan County in 2011. Total tonnage for all rail transported commodities terminating in Sheboygan County increased from approximately 2.8 million tons in 2001, to approximately 3.1 million tons in 2004, to approximately 3.5 million tons in 2007, but decreased to less than 3.1 million tons in 2011.

Commodity Information Management System

The Commodity Information Management System is conducted as part of the Economic Census by the U.S. Bureau of the Census in partnership with the Bureau of Transportation Statistics of the U.S. Department of Transportation. This survey obtains data on shipments by domestic establishments in manufacturing, wholesale trade, mining and other economic sectors, while the

carload waybill sample reports sample data from railroad waybills. Commodities are described as being **external outbound** (originating in Sheboygan County and destined for locations outside of Wisconsin), **external inbound** (terminating in Sheboygan County from origins outside of Wisconsin), **internal outbound** (originating in Sheboygan County and destined for locations in Wisconsin), and **internal inbound** (terminating in Sheboygan County from origins within Wisconsin). Internal inbound and internal outbound flows include movements within Sheboygan County itself.

The Wisconsin Department of Transportation used a private vendor source (the Global Insight TRANSEARCH Wisconsin Commodity Flow Database) to access this information for 2011.

According to the Commodity Information Management System, 3,058,336 tons of inbound commodities were transported by rail to Sheboygan County in 2011. The commodity share of inbound product transported by rail in 2011 is illustrated in Table 5.21. Of the total tonnage of inbound commodities, 88.3 percent involved bituminous coal, and 7.4 percent involved other commodities. Other common inbound commodities transported by rail to Sheboygan County included: miscellaneous industrial organic chemicals (2.1 percent); plastic matter or synthetic fibers (1.3 percent); grain (0.7 percent); petroleum refining products (0.2 percent); and fertilizer (0.1 percent).

Table 5.21: Top Imported Commodities Transported by Rail, Sheboygan County, 2011

Rank	Commodity	Tons	Percent of Total
1	Bituminous Coal	2,699,080	88.3%
2	Other Commodities	225,940	7.4%
3	Miscellaneous Industrial Organic Chemicals	63,160	2.1%
4	Plastic Matter or Synthetic Fibers	38,280	1.3%
5	Grain	21,076	0.7%
6	Petroleum Refining Products	6,800	0.2%
7	Fertilizer	4,000	0.1%
Total		3,058,336	100.0%

Source: Global Insight TRANSEARCH Wisconsin Commodity Flow Database, 2011.

According to the Commodity Information Management System, 87,580 tons of outbound commodities were transported by rail from Sheboygan County in 2011. The commodity share of outbound product transported by rail in 2011 is illustrated in Table 5.22. Of the total tonnage of outbound commodities, 71.6 percent involved ashes, while 14.7 percent involved malt, and 13.7 percent involved broken stone or riprap.

Table 5.22: Top Exported Commodities Transported by Rail, Sheboygan County, 2011

Rank	Commodity	Tons	Percent of Total
1	Ashes	62,700	71.6%
2	Malt	12,880	14.7%
3	Broken Stone or Riprap	12,000	13.7%
Total		87,580	100.0%

Source: Global Insight TRANSEARCH Wisconsin Commodity Flow Database, 2011.

Freight Movement by Truck

The trucking industry dominated freight movement in Sheboygan County in 2011, carrying 3.74 times the total tonnage transported by rail, carrying 812.94 times the total tonnage transported over water, and exceeding total tonnage transported by air millions of times over. Other than

bituminous coal, ashes and malt, trucks moved some portion of all commodities represented in the Commodity Information Management System for Sheboygan County in 2011. Nearly 11.8 million (about 78.8 percent) of over 14.9 million total tons of commodities were transported by truck in 2011.

Table 5.23 illustrates the top ten commodities and their total tonnages for products imported into Sheboygan County by truck in 2011. The most significant inbound commodities were gravel or sand (over 1.5 million tons), followed by dairy farm products (over 1.2 million tons), other commodities (nearly 990,000 tons), broken stone or riprap (over 700,000 tons), processed milk (nearly 700,000 tons), and warehouse and distribution center products (over 500,000 tons). Other top imported commodities included: petroleum refining products; plastic matter or synthetic fibers; miscellaneous field crops; and miscellaneous industrial organic chemicals. These top ten commodities represented nearly 87 percent of all commodities (by tonnage) transported into Sheboygan County by truck in 2011.

Table 5.23: Top Imported Commodities Transported by Truck, Sheboygan County, 2011

Rank	Commodity	Tons
1	Gravel or Sand	1,516,718
2	Dairy Farm Products	1,218,467
3	Other Commodities	988,113
4	Broken Stone or Riprap	703,576
5	Processed Milk	699,017
6	Warehouse and Distribution Center Products	500,589
7	Petroleum Refining Products	360,847
8	Plastic Matter or Synthetic Fibers	209,749
9	Miscellaneous Field Crops	193,037
10	Miscellaneous Industrial Organic Chemicals	92,432

Source: Global Insight TRANSEARCH Wisconsin Commodity Flow Database, 2011.

Table 5.24 illustrates the top ten commodities and their total tonnages for products exported out of Sheboygan County by truck in 2011. The most significant outbound commodities were warehouse and distribution center products (over 892,000 tons), followed by grain (over 431,000 tons), other commodities (nearly 367,000 tons), wet ready-mix concrete (nearly 353,000 tons), aluminum or alloy castings (nearly 341,000 tons), and dairy farm products (over 307,000 tons). Other top exported commodities included: miscellaneous plastic products; cheese or specialty dairy products; miscellaneous converted paper products; and miscellaneous field crops. These top ten commodities represented over 75 percent of all commodities (by tonnage) transported out of Sheboygan County by truck in 2011.

Table 5.24: Top Exported Commodities Transported by Truck, Sheboygan County, 2011

Rank	Commodity	Tons
1	Warehouse and Distribution Center Products	892,703
2	Grain	431,397
3	Other Commodities	366,987
4	Ready-Mix Concrete, Wet	352,667
5	Aluminum or Alloy Castings	340,823
6	Dairy Farm Products	307,179
7	Miscellaneous Plastic Products	182,456
8	Cheese or Specialty Dairy Products	155,622
9	Miscellaneous Converted Paper Products	110,359
10	Miscellaneous Field Crops	103,145

Source: Global Insight TRANSEARCH Wisconsin Commodity Flow Database, 2011.

Because trucking is such an integral part of freight movement in the Sheboygan metropolitan planning area, congestion issues on area National Highway System (NHS) routes can have a profoundly negative impact on the trucking industry and on the local economy. Reducing the efficiency of freight movement will only result in increased costs to the consumer. In addition, just-in-time deliveries are increasingly a requirement in the trucking industry.

In addition to the truck freight inbound to and outbound from Sheboygan County, there are several commodities being transported by truck through the county which have neither their origin nor their destination in Sheboygan County.

Freight Movement by Air

The Commodity Information Management System recorded minimal amounts of freight movement out of and into Sheboygan County in 2011; these were "masked" as being transported by "other" means that year. Some air cargo from industries based in the area does leave the Sheboygan County Memorial Airport destined to miscellaneous manufacturing industries around the country. Air cargo shipments from the Sheboygan County Memorial Airport occur sporadically, and inbound air cargo shipments to the airport are also rare. Integrated carriers (UPS, FedEx, etc.) do not operate at the Sheboygan County Memorial Airport; commodities transported by these carriers are flown into the Interstate 90 corridor in Winnebago County, Illinois, and Rock County, Wisconsin, and then are transported by truck into Sheboygan County.

Safety and Security

Navigation

In 2011, a minimal amount of freight entered the Sheboygan area via water transportation. The U.S. Coast Guard and its Sheboygan station stand available to assist in assuring safe and secure water transport operations.

Rail

The Federal Railroad Administration (FRA) is responsible for promoting the safety of all freight and passenger railroads in the United States. The FRA accomplishes this by enforcing safety regulations and by monitoring numerous components of the rail transportation system. Some facts that are unique to railroads illustrate the importance of promoting safety; some of these facts include:

- A fully loaded train moving at 50 miles per hour takes about 1.5 miles to come to a

complete stop;

- Motorists are 40 times more likely to die in a crash with a train than with a motor vehicle; and
- Most train/motor vehicle crashes are preventable.

FRA safety records indicate that nationally, total rail accidents and incidents increased from 2009 to 2013 by just over 1.3 percent, while total train miles increased by 12.0 percent during that same period. In addition, total rail-related fatalities and injuries increased by approximately 6.2 percent between 2009 and 2013; fatalities increased by approximately 9.4 percent over this period, while injuries increased by approximately 5.9 percent over this period. Total highway-rail grade crossing collisions increased by approximately 8.1 percent from 2009 to 2013, with the number of such collisions at its lowest point in 2009 and at its highest point in 2013. Other train accidents (derailings and other non-grade crossing accidents) increased by approximately 1.7 percent between 2009 and 2013, with the number of such accidents at its highest point in 2010 and at its lowest point in 2012.

Locally, an FRA database of train incidents by type (excluding highway-rail grade crossing collisions) from January 2009 through December 2013 reported one accident or incident occurring in Sheboygan County. This accident occurred in 2012, and involved a derailment due to an equipment defect. This accident occurred on yard track of the Union Pacific Railroad, and involved no fatalities or injuries.

Highway at-grade crossings are of significant concern because of the potential conflict between rail and the general public. Map 5.13 illustrates public highway-rail at-grade crossings in the Sheboygan metropolitan planning area. Normally, this map also includes highway-rail accidents in the metropolitan planning area, but there were no such accidents to report between January 2009 and December 2013. Outside of the metropolitan planning area but within Sheboygan County, an accident at a crossing occurred on County Highway W in or near the Village of Adell. This accident did not involve fatalities, but there were two injuries sustained in this accident. This accident also involved property damage. Neither the train nor the other vehicle in transit was carrying hazardous materials.

Table 5.25 indicates the details of the one highway-rail grade crossing accident in Sheboygan County over the period from January 2009 through December 2013.

Table 5.25: Highway-Rail Grade Crossing Accident Details, Sheboygan County, January 1, 2009-December 31, 2013

Crossing	Date	Highway User	Equipment	Warning Devices	Locomotives	Cars	Train Speed	Vehicle Speed
County Highway W (Near the Village of Adell)	08/23/09	Auto	Freight Train	Crossbucks, Other	1	4	10 mph	60 mph

Note: None of these accidents occurred within the Sheboygan Metropolitan Planning Area.

Source: U.S. Department of Transportation, Federal Railroad Administration, Form FRA 6180.57.

Trucking

According to the Wisconsin Department of Transportation (*2012 Wisconsin Traffic Crash Facts*), large trucks are involved in about 11.6 percent of fatal crashes; however, the driver of the truck is at fault only about one fourth of the time in the case of fatal crashes. Most motorists are uneducated as to the blind spots or "no zones" around a truck. These zones are located in the front, in the back, and on the sides of trucks. Some questions that can be used in determining whether a truck driver can see you on the road are:

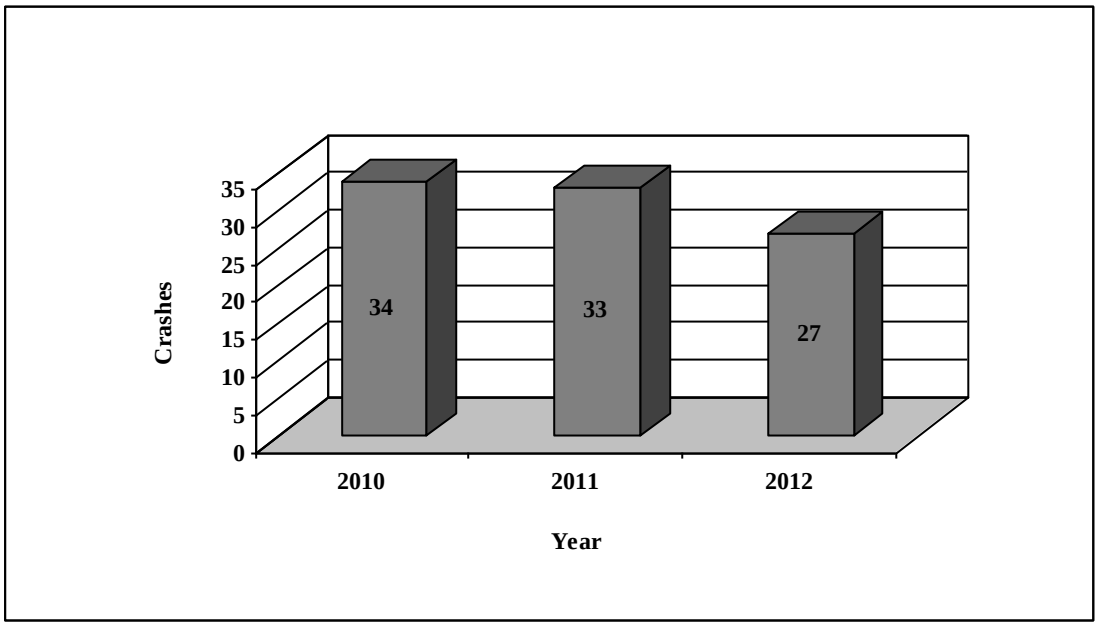
- When passing a truck, can you see the driver's face in his or her side mirror or window?

- When passing a truck, can you see the entire front of the truck in your rear view mirror before you pull back in front?
- When following a truck, can you see the truck's side mirrors?

If you answer "no" to any of these questions, then the truck driver cannot see you.

Data from the Federal Motor Carrier Safety Administration (FMCSA) and its Motor Carrier Management Information System (MCMIS) were available for this plan update, but were rather costly to acquire from the FMCSA's consultant. Therefore, MPO staff relied on WisDOT crash data for calendar years 2010 through 2012, isolating the following categories of truck tractors: double bottom, not attached, and semi attached; the vast majority of crashes involving heavy trucks were truck tractors with the semi attached. "Straight trucks" of all sizes were excluded from the analysis. As derived from WisDOT crash data and illustrated in Figure 5.21, there were 34 heavy truck crashes in 2010, 33 heavy truck crashes in 2011, and 27 heavy truck crashes in 2012. None of these heavy truck crashes involved fatalities.

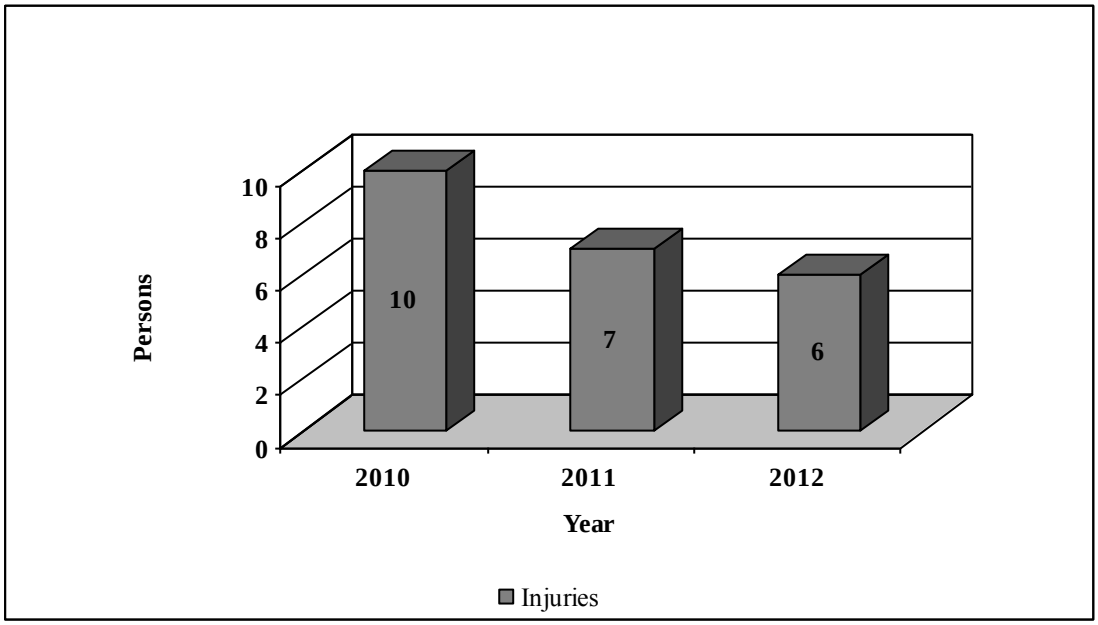
Figure 5.21: Heavy Truck Crashes, Communities in the Sheboygan Metropolitan Planning Area, 2010-2012



Source: Wisconsin Department of Transportation (for all years listed); and Bay-Lake Regional Planning Commission, 2014.

Figure 5.22 illustrates the number of injuries by year associated with the heavy truck crashes. The number of injuries in heavy truck crashes was ten in 2010, seven in 2011, and was six in 2012. No fatalities were observed over this three year period.

Figure 5.22: Injuries Resulting from Heavy Truck Crashes, Communities in the Sheboygan Metropolitan Planning Area, 2010-2012



Source: Wisconsin Department of Transportation (for all years listed); and Bay-Lake Regional Planning Commission, 2014.

Map 5.14 illustrates the locations of the heavy truck crashes occurring in the cities, villages and towns of the metropolitan planning area in 2012.

Air Cargo

To date, very little has been done to address air cargo operators and safety. On a global and national scale, the cargo accident rate is much higher than the equivalent accident rate of passenger flights. This can be caused by several factors, including pilot fatigue and an older aircraft fleet when compared to passenger carrying aircraft.

Major safety issues include: development of guidance for air cargo operators on air cargo operations; and Federal Aviation Administration (FAA) inspectors who oversee air cargo operators. Other major safety issues are pertinent to addressing operational problems with:

- Handling, loading and securing cargo;
- Calculating weight and balance;
- Moving cargo between carriers;
- Loading international versus domestic flights;
- Tracking dangerous goods; and
- Preventing cargo from shifting during flight.

One other major safety issue involves acknowledgement of the psychological challenges involved with night flying and flight duty time. In response to the unique burden that cargo pilots have in terms of long flying hours, several members of Congress have introduced the "Safe Skies Act," which would harmonize flight crew duty and rest requirements with similar requirements

for passenger carrying pilots. At this point, this proposed legislation has not been approved by either the U.S. House or the U.S. Senate, but concepts of the bill have enjoyed sponsorship by representatives of both parties in the recent past.

The Sheboygan County Memorial Airport experienced no air cargo related accidents between January 1, 2009, and December 31, 2013; the one accident that occurred during that period involved a general aviation flight.

ROADWAY NETWORKS

Inventory of Facilities

Functional Classification

The metropolitan planning area contains approximately 611 miles of roads, over 407 miles of which are classified as urban. Functional classification, the process by which roadways are grouped into classes according to the character of service they are intended to provide, include rural and urban counterparts of arterials, collectors and local roads. Rural and urban roadways are classified into the following functional categories:

- **Rural principal arterials** serve corridor movements having trip length and travel density characteristics of an interstate or interregional nature. These routes generally serve urbanized (populations of 50,000 or more) and urban (populations of 5,000 to 49,999) areas.
- **Rural minor arterials**, in conjunction with rural principal arterials, serve moderate to large-sized places (cities, villages, towns, and clusters of communities), and other traffic generators, providing intra-regional and inter-area traffic movements. These routes generally serve places with populations of 1,000 or more.
- **Rural major collectors** provide service to smaller-to-moderate sized places and other intra-area traffic generators, and link those generators to nearby larger population centers (cities, villages and towns) or higher function routes. These routes generally serve places with populations of 100 and over.
- **Rural minor collectors** provide service to all remaining smaller places, link the locally important traffic generators with their rural hinterland, and are spaced consistent with population density so as to collect traffic from local roads and bring all developed areas within a reasonable distance of a collector road. These routes generally serve places with populations of 50 and over.
- **Rural local roads** provide access to adjacent land and provide for travel over relatively short distances on an inter-township or intra-township basis. All rural roads not classified as arterials or collectors are local function roads.
- **Urban principal arterials** serve major economic activity centers of an urban area, the highest average daily traffic (ADT) corridors, and regional and intra-urban trip length desires. In every urban area, the longest trip lengths and highest ADT are characteristic of the main entrance and exit routes. Because they have the longest trip lengths, highest ADTs, and are generally extensions of the highest rural function routes, such routes should be principal arterials. Principal arterial trip lengths are indicative of the rural-oriented traffic entering and exiting the urban area on the rural arterial system, as well as the longest trans-urban area travel demands.

- **Urban minor arterials** serve important economic activity centers, have moderate ADT levels, and serve intercommunity trip length desires, interconnecting and augmenting the principal arterial system. Trip lengths are characteristic of the rural-oriented traffic entering and exiting the urban area on the rural collector system. In conjunction with principal arterials, minor arterials should provide an urban extension of the rural collector system to the urban area central business district (CBD), and connect satellite community CBDs with the main CBD. Although the predominant function of minor arterials is traffic mobility, minor arterials serve some local traffic while providing greater land access than principal arterials. Minor arterials may be stub-ended at major traffic generators.
- **Urban collectors** provide direct access to residential neighborhoods, commercial and industrial areas, and serve moderate to low ADTs and inter-neighborhood trips. These routes collect and distribute traffic between local streets and arterials. In the CBD and areas of similar development and traffic density, the collector system may include the street grid, which forms the logical entity for traffic circulation. Collectors may stub-end in penetrating residential neighborhoods and in serving isolated traffic generators, but should be linked to other collectors and arterials for traffic circulation. Generally, the travel mobility and land access functions of collectors are equal.
- **Urban local streets** predominantly serve to access adjacent land uses, and serve the ends of most trips. All urban streets not classified as arterials or collectors are local function streets.

Table 5.26 summarizes the typical distribution of traffic volume and length of roadway of the functional systems for urbanized areas.

Table 5.26: Functional Classification Guidelines for Urbanized Areas

Urban Functional Classification	Percent of all Mileage	Percent of all Traffic
Principal Arterial System	5% to 12%	40% to 65%
Principal Arterial plus Minor Arterial System	15% to 27%	65% to 80%
Collectors	5% to 11%	5% to 10%
Local Road System	65% to 80%	10% to 30%

Source: *Functional Classification Criteria*, Wisconsin Department of Transportation, 2013; and *A Policy on Geometric Design of Highways and Streets*, American Association of State Highway and Transportation Officials (AASHTO), 2004.

The functional classification of roads was updated in the fall of 2013 as needed with the increase in the size of the urbanized area (see the discussion in Chapter 2). When the urbanized area increased in size following the 2010 Census, roads that were previously classified as rural had to be reclassified as urban. This process also looked at reclassifying roadways to a higher (or lower) classification if warranted, and also examined whether facilities on the urbanized area boundary should be classified as urban or rural.

Table 5.27 illustrates current mileages by functional classification for streets and highways in the Sheboygan Urbanized Area. The expansion of the urbanized area from 47.11 square miles to 49.35 square miles actually led to a **decrease** in the amount of urban roadway; this was largely because 9.22 miles of freeways (primarily Interstate Highway 43) located on the urban/rural boundary were moved from urban to rural status. The mileage in roadways considered "classified" (those roadways with functions higher than "local") decreased by about 5.7 percent

from over 133 miles (nearly 32.0 percent of all mileage) to over 127 miles (nearly 31.3 percent of all mileage). The greatest decrease in mileage was in principal arterials due to the reclassification of freeway miles from urban to rural. There was no change in urban minor arterial mileage. Some 3.53 miles of urban local facilities were reclassified as urban collectors.

Table 5.27: Urban Mileage by Functional Classification

Functional Classification	Urban Mileage 2009	Urban Mileage 2013	Change in Total
Principal Arterial	29.95	20.73	(9.22)
Minor Arterial	55.84	55.84	0.00
Collector	47.29	50.82	3.53
Local	283.49	279.96	(3.53)
Estimated Total Mileage	**416.57**	**407.35**	**(9.22)**
Estimated Total Classified Mileage	**133.08**	**127.39**	**(5.69)**
Estimated Percentage Classified	**31.95%**	**31.27%**	

Source: Wisconsin Department of Transportation, 2009 and 2013.

Map 5.15 illustrates the updated functional classification of streets and highways in the Sheboygan metropolitan planning area.

Enhanced National Highway System (NHS)

The Enhanced NHS (as enacted in MAP-21) is made up of two components: the Base System and the Intermodal Connector System. In total, the NHS includes about 230,000 miles of roadway important to the nation's economy, defense and mobility. Roadways that make up the enhanced NHS base system at the national level (and local examples) include:

- **Interstates** (I-43 throughout the metropolitan planning area): The Eisenhower Interstate System of highways retains its separate identity within the NHS;
- **All Other Principal Arterials** (State Highway 23 throughout the metropolitan planning area; State Highway 28 from State Highway 23 in the City of Sheboygan to State Highway 32 in the City of Sheboygan Falls; State Highway 32 from State Highway 28 to State Highway 23 in the City of Sheboygan Falls; and State Highway 42 from State Highway 23 in the City of Sheboygan to State Highway 32 in the Village of Howards Grove);
- **Strategic Highway Network (STRAHNET)**: The network of highways important to U.S. strategic defense (Information on STRAHNET routes is limited due to security issues); and
- **STRAHNET Connectors**, which provide access between major military installations and STRAHNET highways (Again, information on STRAHNET connectors is limited due to security issues).

In addition, **intermodal connectors** are part of the enhanced NHS. Intermodal connectors provide motor vehicle access between the enhanced NHS and major intermodal transportation facilities. There are no intermodal connectors in the metropolitan planning area.

Map 5.16 illustrates the enhanced NHS system in the metropolitan planning area.

A subset of the NHS in Wisconsin is the Wisconsin Corridors 2030 network developed as part of *Connections 2030*. Interstate Highway 43 continues to function as a Corridors 2030 Backbone facility, while State Highway 23 west of Interstate 43 continues to function as a Corridors 2030

Connector facility. While all of the NHS routes are required to meet a minimum level of service, Corridors 2030 facilities have higher minimum standards. This is discussed more fully later in this section, as well as in Chapter 6.

Current Conditions

Regulations

Federal

The Federal Highway Administration (FHWA) adopted the 2004 "Green Book" (more formally known as *A Policy on Geometric Design of Highways and Streets* by the American Association of State Highway and Transportation Officials, or AASHTO) in early 2005 as the guide for minimum design standards for projects on NHS roadways. The minimum design standards establish thresholds for unacceptable levels of vehicular mobility. All states must apply these guidelines to new and reconstruction projects on the NHS. In the case of resurfacing, restoration and rehabilitation projects on the NHS, WisDOT and/or local authorities develop standards that FHWA approves. Title 23, Part 450 of the *Code of Federal Regulations* (23 CFR 450.322(f)(5)) requires the metropolitan transportation planning process to:

> *"Assess capital investment and other strategies to preserve the existing and projected future metropolitan transportation infrastructure and provide for multimodal capacity increases based on regional priorities and needs. The metropolitan transportation plan may consider projects and strategies that address areas or corridors where current or projected congestion threatens the efficient functioning of key elements of the metropolitan area's transportation system."*

State

As discussed in Chapter 11 of the Wisconsin Department of Transportation (WisDOT) *Facilities Development Manual* (Section 5, Part 3), established level of service (LOS) thresholds are used to trigger mobility improvements on highway segments. Wisconsin Corridors 2030 roadways are expected to maintain higher levels of service because of their importance to the NHS. Roadways with lower functional classifications are allowed lower levels of service (greater levels of congestion). The LOS thresholds for urban roadways illustrated in Table 5.28 allow higher levels of congestion on some routes than under previous WisDOT policy in order to balance the social, environmental and economic costs that would be incurred by using the traditional performance threshold of "moderate" congestion. (Chapter 6 includes pictures of traffic by LOS, as well as an extensive discussion on traffic forecasts).

Table 5.28: Level of Service Thresholds for Urbanized Areas in Wisconsin

Functional Classification or State Trunk Highway Subsystem	Examples of Roadway Facilities in the Metropolitan Planning Area	Threshold
Corridors 2030 Backbone	Interstate Highway 43	Minimal Congestion (LOS C)
Corridors 2030 Connectors	State Highway 23	Moderate Congestion (LOS D)
Other Principal Arterials	State Highways 28, 32 and 42	Severe Congestion (LOS E)
Minor Arterials	Taylor Dr., CTH PP, Superior Ave.	Severe Congestion (LOS E)
Collectors and Local Function Roads	CTH A, N. 25th St., S. 18th St.	Severe Congestion (LOS E)

Source: Wisconsin Department of Transportation, Facilities Development Manual, 11-5-3, Page 2, 2012.

Access Management

Access management is "the proactive management of vehicular access points to land parcels adjacent to all manner of roadways. Access management encompasses a set of techniques that

state and local governments can use to control access to highways, major arterials and other roadways." Access management techniques can include: "access spacing; driveway spacing; safe turning lanes; median treatments; and right-of-way management." The Wisconsin Department of Transportation regulates access to the state highway system through permit and review (outlined in Chapter TRANS 233 of the *Wisconsin Administrative Code*). However, only local units of government can regulate development adjacent to the highway system. Poor access management practices in the past by both state and local officials have resulted in major facilities whose connecting roadways or the facilities themselves have an overabundance of closely-spaced driveways. Two such examples are State Highway 28 near Deer Trace Shopping Center in the Village of Kohler and nearby commercial development in the City of Sheboygan, as well as portions of the Taylor Drive corridor. Characteristics of facilities suffering from poor access management include higher levels of congestion, higher incidences of crashes, and queuing of traffic from a connector facility into the main facility.

Roadway Facts

Driving to Work

The most significant contributor to traffic congestion is the single-occupant vehicle, or SOV. According to the U.S. Bureau of the Census, the absolute number and percentage of all workers 16 years of age and older working outside the home and driving to work alone increased for the nation, for Sheboygan County and for the ten communities which are wholly or partially in the Sheboygan metropolitan planning area between the *2006 – 2010 American Community Survey (ACS)* and the *2008 – 2012 ACS*. In the case of the State of Wisconsin, the absolute number of workers 16 and older working outside the home and driving to work alone decreased slightly, but the percentage of such individuals increased slightly. All of this information is presented in Table 5.29. The State of Wisconsin had a 0.1 percent decrease in workers driving alone. Sheboygan County had the smallest positive percentage change from the *2006 – 2010 ACS* to the *2008 – 2012 ACS* in workers driving alone (a 0.4 percent increase), followed by the United States, which had a 0.6 percent increase. The communities of the Sheboygan metropolitan planning area had the largest percentage increase from the *2006 – 2010 ACS* to the *2008 – 2012 ACS* in workers driving alone (a 1.0 percent increase). Sheboygan County and the communities of the metropolitan planning area both had over 83 percent of their workers driving alone to work in the *2008 – 2012 ACS*, while the State of Wisconsin had slightly less than 80 percent of workers driving alone, and the U.S. had slightly more than 76 percent of workers driving alone.

For all workers 16 years of age and older in the communities of the metropolitan planning area who worked outside the home in the *2008 – 2012 ACS*, 84.1 percent (up from 82.7 percent in the *2006 – 2010 ACS*) drove to work alone. Of the 34,282 persons driving alone to work in the communities of the metropolitan planning area in the *2008 – 2012 ACS*, 19,926 persons (58.1 percent) lived in the City of Sheboygan.

Table 5.29: Workers 16 Years and Older Who Worked Outside the Home and Drove to Work Alone

Geography	2006 - 2010 American Community Survey		2008 - 2012 American Community Survey		Percent Change
	Driving Alone	Percent of Workers	Driving Alone	Percent of Workers	
United States	105,840,717	76.0%	106,519,805	76.1%	0.6%
State of Wisconsin	2,245,648	79.8%	2,244,032	79.9%	-0.1%
Sheboygan County	48,232	82.4%	48,413	83.5%	0.4%
Metro Planning Area	33,953	82.7%	34,282	84.1%	1.0%

Note: The percent change represents the change in the actual number of workers driving alone.

Source: U.S. Bureau of the Census, *2006 - 2010 American Community Survey (ACS)* and *2008 – 2012 ACS* (Table S0802, Means of Transportation to Work by Selected Characteristics); and Bay-Lake Regional Planning Commission, 2014.

Table 5.30 and Map 5.17 illustrate daily commuter work flows into and out of Sheboygan County, as collected for the *2006 – 2010 American Community Survey (ACS)*. The following work commuter statistics are of interest:

- About 85.0 percent of work trips *from* Sheboygan County were to communities within Sheboygan County, and about 85.2 percent of all trips *to* Sheboygan County were from communities within Sheboygan County.
- Over 94.4 percent of work trips *from* Sheboygan County were to destinations in Sheboygan County or its five surrounding counties (Manitowoc, Calumet, Fond du Lac, Washington and Ozaukee), and nearly 97.4 percent of all work trips *to* Sheboygan County came from origins within those six counties.

Table 5.30: Work Commute Trips to and from Sheboygan County

County	Trips from County	Percentage of Trips from County	Trips to County	Percentage of Trips to County
Sheboygan County (Internal)	49,742	85.02%	49,742	85.17%
Ozaukee County	2,495	4.26%	1,170	2.00%
Milwaukee County	1,689	2.89%	457	0.78%
Manitowoc County	1,365	2.33%	3,706	6.35%
Washington County	865	1.48%	367	0.63%
Fond du Lac County	522	0.89%	1,042	1.78%
Brown County	271	0.46%	226	0.39%
Calumet County	268	0.46%	842	1.44%
Winnebago County	122	0.21%	81	0.14%
Other Counties or Out of State	1,164	1.99%	767	1.31%
Total	**58,503**	**100.00%**	**58,400**	**100.00%**

Source: U.S. Bureau of the Census, *2006 – 2010 American Community Survey (ACS), County Flow Files*; Wisconsin Department of Workforce Development, *County-to-County Worker Flow in Wisconsin*, 2013; and Bay-Lake Regional Planning Commission, 2014.

Unfortunately, similar work commute data are no longer available for the Sheboygan metropolitan planning area. The average travel time to work is about 18.6 minutes, with two thirds of Sheboygan County commuters being able to travel to work in less than 20 minutes.

Safety

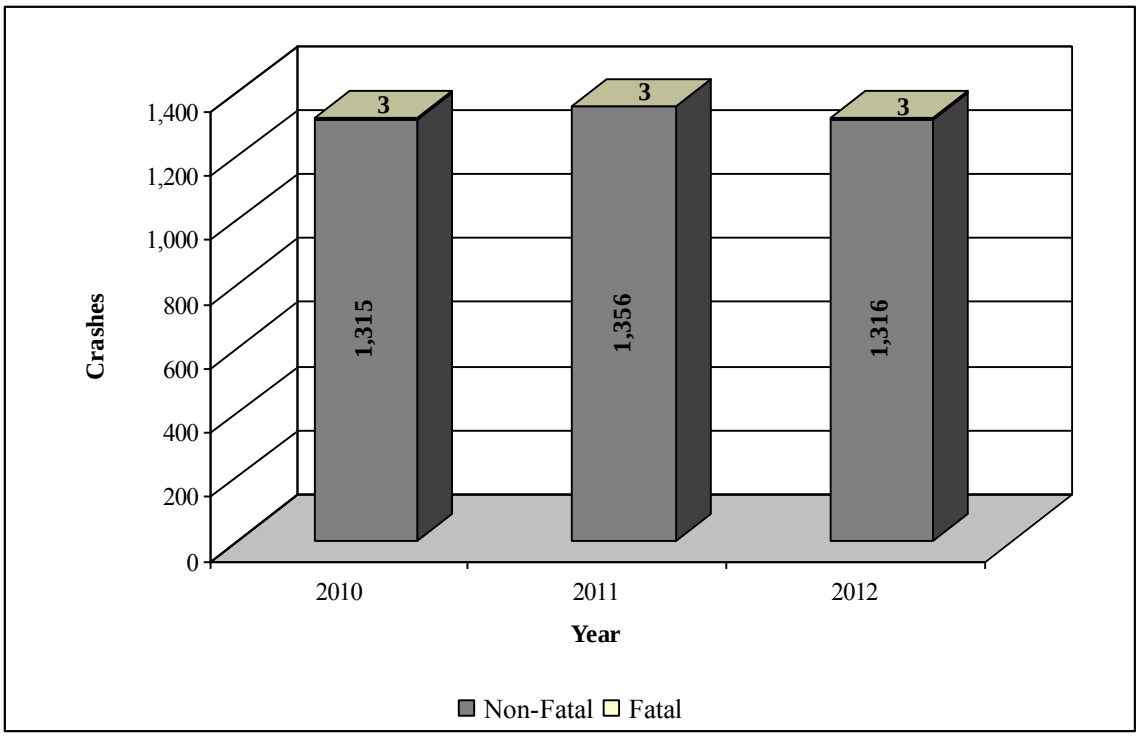
Vehicular Crashes

Figure 5.26 illustrates the total number of reported fatal and non-fatal crashes that occurred in the Sheboygan metropolitan planning area from 2010 through 2012. The total number of crashes increased by 3.1 percent from 1,318 crashes in 2010 to 1,359 crashes in 2011, then decreased by

over 2.9 percent to a figure close to the 2010 crash level (1,319 crashes) by 2012. These crash levels are similar to those observed in 2009, but are 15 to 20 percent lower than the pre-recession crash levels observed in 2007 and 2008.

As far as fatal crashes were concerned, three fatal crashes involving four fatalities occurred in 2010, while three fatal crashes involving three fatalities were observed in each of 2011 and 2012. One of the fatal crashes in each year of analysis (2010, 2011 and 2012) was alcohol-related. The percentage of all crashes as fatal crashes was about 0.22 to 0.23 percent for each year of analysis. The crash files do not report seatbelt use; therefore, a correlation between fatal crashes and failure to wear a seatbelt cannot be made.

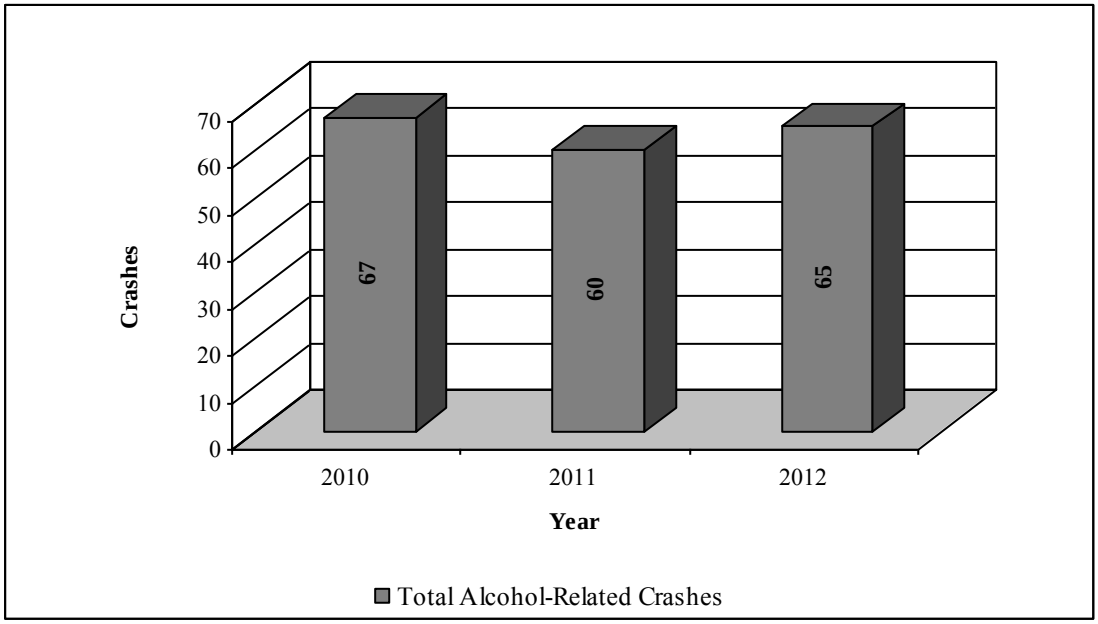
Figure 5.23: Vehicle Crashes, Sheboygan Metropolitan Planning Area, 2010 - 2012



Source: Wisconsin Department of Transportation (for all years listed); and Bay-Lake Regional Planning Commission, 2014.

Figure 5.24 illustrates the total number of reported **alcohol-related** crashes that occurred in the Sheboygan metropolitan planning area from 2010 through 2012. The total number of alcohol-related crashes decreased by over 10 percent from 67 crashes in 2010 to 60 crashes in 2011. However, the total number of alcohol-related crashes increased by over eight percent between 2011 and 2012, as there were 65 such crashes in 2012. These alcohol-related crash levels are also significantly lower than the pre-recession alcohol-related crash levels observed in 2007 and 2008.

Figure 5.24: Alcohol-Related Crashes, Sheboygan Metropolitan Planning Area, 2010 - 2012



Source: Wisconsin Department of Transportation (for all years listed); and Bay-Lake Regional Planning Commission, 2014.

The number of alcohol-related crashes involving drivers under the age of 18 decreased from three crashes in 2010, to two crashes in 2011, to zero crashes in 2012. The number of alcohol-related crashes involving drivers between the ages of 18 and 20 decreased from 10 crashes in 2010, to nine crashes in 2011, to four crashes in 2012. This analysis merely examines whether drivers in these age groups were involved in an alcohol-related crash, and does not necessarily imply that all of these drivers were under the influence at the time of the crash; in some cases, the impaired driver was an older driver operating another vehicle involved in the crash.

Table 5.31 indicates the intersections with the highest number of crashes over the three year period from 2010 through 2012. Some 22 of the top 27 locations for intersection crashes in the metropolitan planning area were situated in or at the boundaries of the City of Sheboygan. Two of the top crash locations (Broadway Street/County Highway EE and State Highway 28, as well as the State Highway 32/State Highway 28 roundabout) were located in or near the City of Sheboygan Falls, while one top crash location (County Highways PP and A) was located in the Village of Kohler, one top crash location (State Highway 42 and Vanguard Drive) was located in the Town of Sheboygan, and one top crash location (Weeden Creek Road/County Highway EE and County Highway A) was located in the Town of Wilson. Four of the top ten intersections involved the Taylor Drive corridor, while another two of the top ten intersections involved the Washington Avenue corridor, and another two of the top ten intersections involved State Highway 28 outside the City of Sheboygan. Other facilities where intersection crashes commonly occurred from 2010 through 2012 included: 14th Street (north and south), South Business Drive, Indiana Avenue, Erie Avenue, Superior Avenue, Calumet Drive, Union Avenue, and Geele Avenue.

Table 5.31: Top Intersection Crash Locations, Sheboygan Metropolitan Planning Area, 2010-2012

Rank	Intersection Location	Number of Crashes			
		2010	2011	2012	3-Year Total
1	Washington Ave./STH 28 & S. Taylor Dr.	10	12	11	33
2	Michigan Ave. & N. 14th St./STH 42	4	7	10	21
3 (tie)	Erie Ave. & Taylor Dr.	6	4	8	18
3 (tie)	STH 28 & Broadway St./CTH EE	4	7	7	18
5 (tie)	Wilgus Ave. & N. Taylor Dr.	7	2	7	16
5 (tie)	Washington Ave./STH 28 & S. Business Dr. (STH 28/CTH OK)	6	7	3	16
5 (tie)	CTH PP & CTH A	4	7	5	16
8 (tie)	Indiana Ave./CTH PP & S. Taylor Dr.	4	7	3	14
8 (tie)	STH 28 & STH 32	6	5	3	14
8 (tie)	Geele Ave. & N. 15th St.	2	7	5	14
11 (tie)	Indiana Ave. & S. 8th St.	3	4	6	13
11 (tie)	Indiana Ave. & S. 14th St./STH 28	2	5	6	13
13 (tie)	Wilson Ave. & S. Business Dr./STH 28	6	2	3	11
13 (tie)	Union Ave. & S. Taylor Dr.	1	5	5	11
13 (tie)	Erie Ave./STH 23 & N. 14th St. (STH 28/STH 42)	5	5	1	11
13 (tie)	Geele Ave. & Calumet Dr./STH 42	4	4	3	11
17 (tie)	Superior Ave. & N. Taylor Dr.	3	4	3	10
17 (tie)	Superior Ave. & N. 14th St./STH 42	2	3	5	10
17 (tie)	STH 42 & Vanguard Dr.	4	2	4	10
20 (tie)	Weeden Creek Rd./CTH EE & CTH A	3	2	4	9
20 (tie)	North Ave. & Calumet Dr./STH 42	3	2	4	9
20 (tie)	Erie Ave. & N. 10th St.	1	2	6	9
23 (tie)	Union Ave. & S. Business Dr./STH 28	2	2	4	8
23 (tie)	Taylor Dr. & Taylor Frontage Rd.	1	5	2	8
23 (tie)	Superior Ave. & N. 25th St.	4	2	2	8
23 (tie)	Broadway Ave. & S. Business Dr./STH 28	2	5	1	8
23 (tie)	Wisconsin Ave. & N. 14th St./STH 28	4	3	1	8

Source: Wisconsin Department of Transportation (for all years listed); and Bay-Lake Regional Planning Commission, 2014.

Map 5.18 illustrates high-crash intersections in 2012 in relation to the congested street and highway segments (for the base year of 2010) that were identified in recent travel demand forecast modeling efforts. The highest crash locations tend to occur on principal arterials and on minor arterials with high average daily traffic (ADT) levels.

Traffic Counts

Traffic counts were last collected for Sheboygan County in 2014, and are typically published every three years by WisDOT. Traffic counts can be found at the following website:

https://trust.dot.state.wi.us/roadrunner/

This is a statewide interactive map; zoom in to the Sheboygan metropolitan planning area is required. The paper version of the WisDOT traffic count maps is no longer published.

Pavement Condition

PASER data were compiled for the two cities, two villages and six towns in the Sheboygan metropolitan planning area. 2014 data were provided for the Town of Sheboygan Falls and the Village of Howards Grove, while 2013 data were provided for all other jurisdictions.

There was only one small segment (53 feet) of unimproved earthen road in the communities of the Sheboygan metropolitan planning area. On a scale from 1 to 4 (with 1 being poor and 4 being very good), this segment was rated a "2" (fair condition).

There were only a few small segments (total of 1,478 feet) of brick or block road in the communities of the Sheboygan metropolitan planning area. On a scale from 1 to 4 (with 1 being poor and 4 being very good), these segments were rated a "2" (fair condition).

There were approximately 3.17 miles of unpaved (gravel) and sealcoat roads in the communities of the Sheboygan metropolitan planning area. Of these, 2.37 miles were rated. These roads are rated on a scale from 1 to 5 (with 1 being failed and 5 being excellent). The distribution of ratings for unpaved and sealcoat roads in the communities of the Sheboygan metropolitan planning area was as follows:

- Rating of 1 (Failed) = 423 feet, or 0.08 miles (3.4 percent);
- Rating of 2 (Poor) = 3,325 feet, or 0.63 miles (26.6 percent);
- Rating of 3 (Fair) = 4,646 feet, or 0.88 miles (37.1 percent);
- Rating of 4 (Good) = 687 feet, or 0.13 miles (5.5 percent); and
- Rating of 5 (Excellent) = 3,432 feet, or 0.65 miles (27.4 percent).
- Average Rating = 3.27

There were approximately 490.78 miles of paved (typically asphalt and concrete) roads in the communities of the Sheboygan metropolitan planning area. Of these, 487.55 miles were rated. These roads are rated on a scale from 1 to 10 (with 1 being failed and 10 being excellent). The distribution of ratings for paved roads in the communities of the Sheboygan metropolitan planning area was as follows:

- Rating of 1 (Failed) = 14,203 feet, or 2.69 miles (0.5 percent);
- Rating of 2 (Very Poor) = 68,307 feet, or 12.94 miles (2.7 percent);
- Rating of 3 (Poor) = 105,149 feet, or 19.91 miles (4.1 percent);
- Rating of 4 (Fair) = 246,434 feet, or 46.67 miles (9.6 percent);
- Rating of 5 (Fair) = 454,211 feet, or 86.02 miles (17.6 percent);
- Rating of 6 (Good) = 458,991 feet, or 86.93 miles (17.8 percent);
- Rating of 7 (Good) = 490,313 feet, or 92.86 miles (19.0 percent);
- Rating of 8 (Very Good) = 350,085 feet, or 66.30 miles (13.6 percent);
- Rating of 9 (Excellent) = 202,270 feet, or 38.31 miles (7.9 percent); and
- Rating of 10 (Excellent) = 184,308 feet, or 34.91 miles (7.2 percent).
- Average Rating = 6.36

There were approximately 0.32 miles of facilities with an unknown pavement type in the communities of the Sheboygan metropolitan planning area. These roads were rated on a similar scale to paved roads (1 to 10). Of these, 651 feet (0.12 miles) had no rating, 422 feet (0.08 miles) had a rating of "6," and 642 feet (0.12 miles) had a rating of "10." The average rating for facilities with an unknown pavement type was 8.41.

Analysis for individual communities in the Sheboygan metropolitan planning area is also available upon request.

WisDOT has also supplied the MPO with Pavement Condition Index (PCI) data for the state trunk highway system. MPO staff has tabulated a summary of the condition of state trunk

highways that pass through the two cities, two villages and six towns in the Sheboygan metropolitan planning area. "A PCI is calculated based on the results of a detailed pavement distress survey that identifies pavement distress type, distress severity, and distress quantity. The PCI is a numerical rating that ranges from 0 for a totally failed pavement to 100 for a pavement in perfect condition."

There are approximately 107.54 miles of state trunk highway in the communities of the Sheboygan metropolitan planning area. Of these:

- No facilities were rated as "failed" (0 to 9.99 points) or as "serious" (10 to 24.99 points);
- 7,133 feet, or 1.35 miles (1.3 percent) were rated as "very poor" (25 to 39.99 points);
- 12,718 feet, or 2.41 miles (2.2 percent) were rated as "poor" (40 to 54.99 points);
- 61,206 feet, or 11.59 miles (10.8 percent) were rated as "fair" (55 to 69.99 points);
- 227,254 feet, or 43.04 miles (40.0 percent) were rated as "good" (70 to 84.99 points); and
- 259,503 feet, or 49.15 miles (45.7 percent) were rated as "very good to excellent" (85 to 100 points).

Structural Condition of Bridges

Bridges typically are assessed using a 0 to 100 point scale known as their "sufficiency rating." WisDOT considers bridges with a sufficiency rating of 0 to 49 as being "deficient," while bridges with a sufficiency rating of 49.01 to 79 are considered to be in "fair" condition, and bridges with a sufficiency rating of 79.01 and higher are "sufficient," or in good condition.

There are 54 bridges identified within the communities of the Sheboygan metropolitan planning area. Of these, 51 bridges (94.4 percent) are "sufficient," or in good condition. Two bridges (3.7 percent) are in "fair" condition; these bridges are located on State Highway 23/Erie Avenue over a railroad crossing west of North 17th Street, and on Interstate Highway 43 over a tributary to the Sheboygan River located just south of the Old Plank Road trailhead. One bridge (1.9 percent) is "deficient;" this bridge is located on State Highway 28/North 14th Street over the Sheboygan River, and replacement of the bridge deck is expected to take place at this location in 2015.

Culverts are rated on a scale of 0 to 9, with "0" meaning that the culvert has failed, with "1" or "2" meaning that the culvert is in critical condition, with "3" or "4" meaning that the culvert is in poor condition, with "5" or "6" meaning that the culvert is in fair condition, with "7" or "8" meaning that the culvert is in good condition, and with "9" mainly involving new culverts.

There are four culverts identified within the communities of the Sheboygan metropolitan planning area. All four culverts received a rating of "8," which signifies "good" condition.

Location of Signalized Intersections, Roundabouts and Bridges

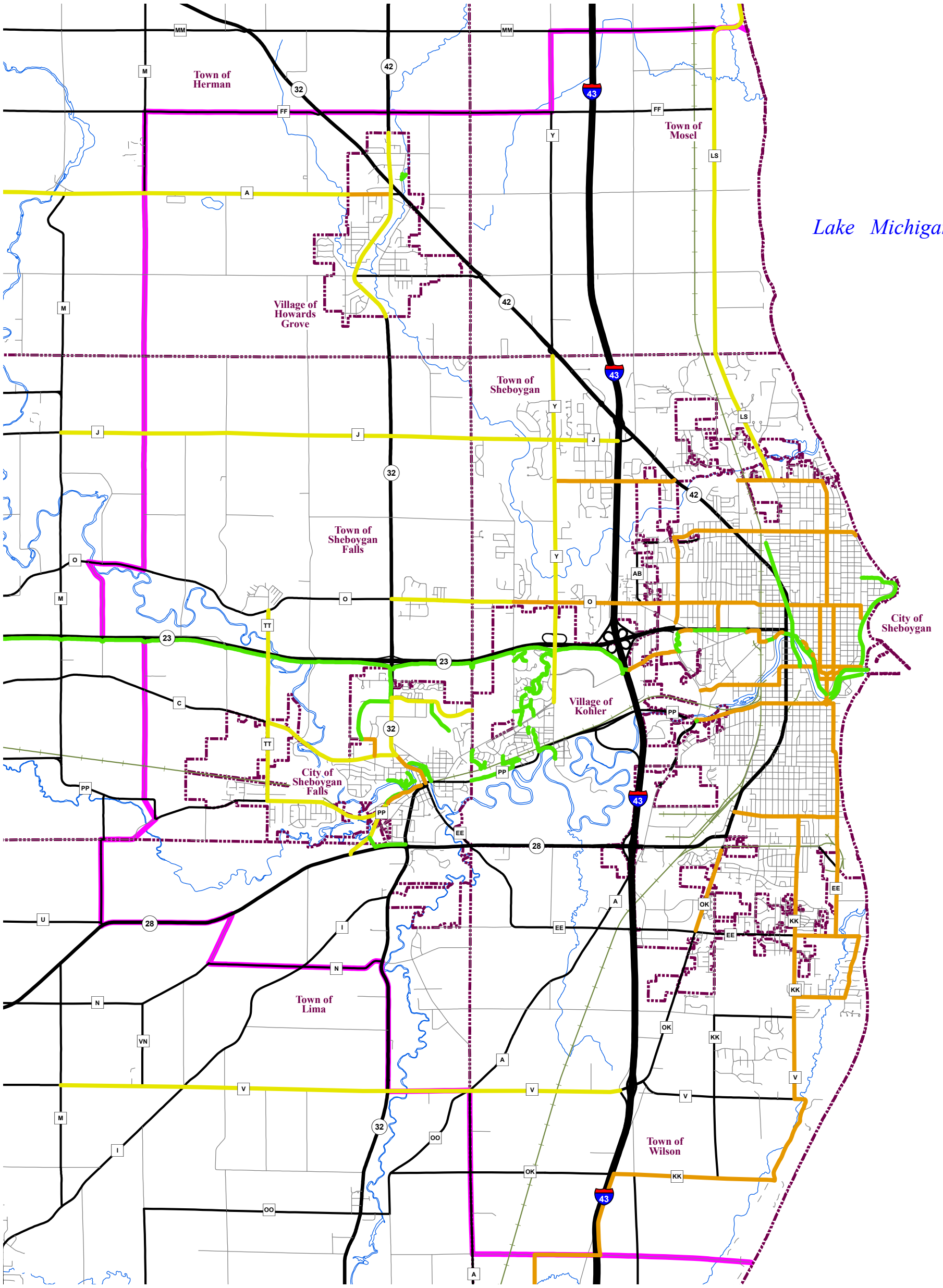
Map 5.19 shows the location of current signalized intersections, roundabouts and bridges in the Sheboygan Metropolitan Planning Area. This information has been added to this chapter at the request of members of the Sheboygan MPO Technical and Policy Advisory Committees.

Map 5.1

Existing Bicycle and Multipurpose Facilities

Sheboygan Metropolitan Planning Area

Year 2045 Sheboygan Area Transportation Plan (SATP)



Sheboygan Metropolitan Planning Area Boundary

Bike Lanes

Paved Shoulders

Multipurpose Pathways/Trails

N W E S

0 0.5 1 2

Miles

BAY-LAKE REGIONAL PLANNING COMMISSION

G:/Sheboygan/MPO/SATP/2045

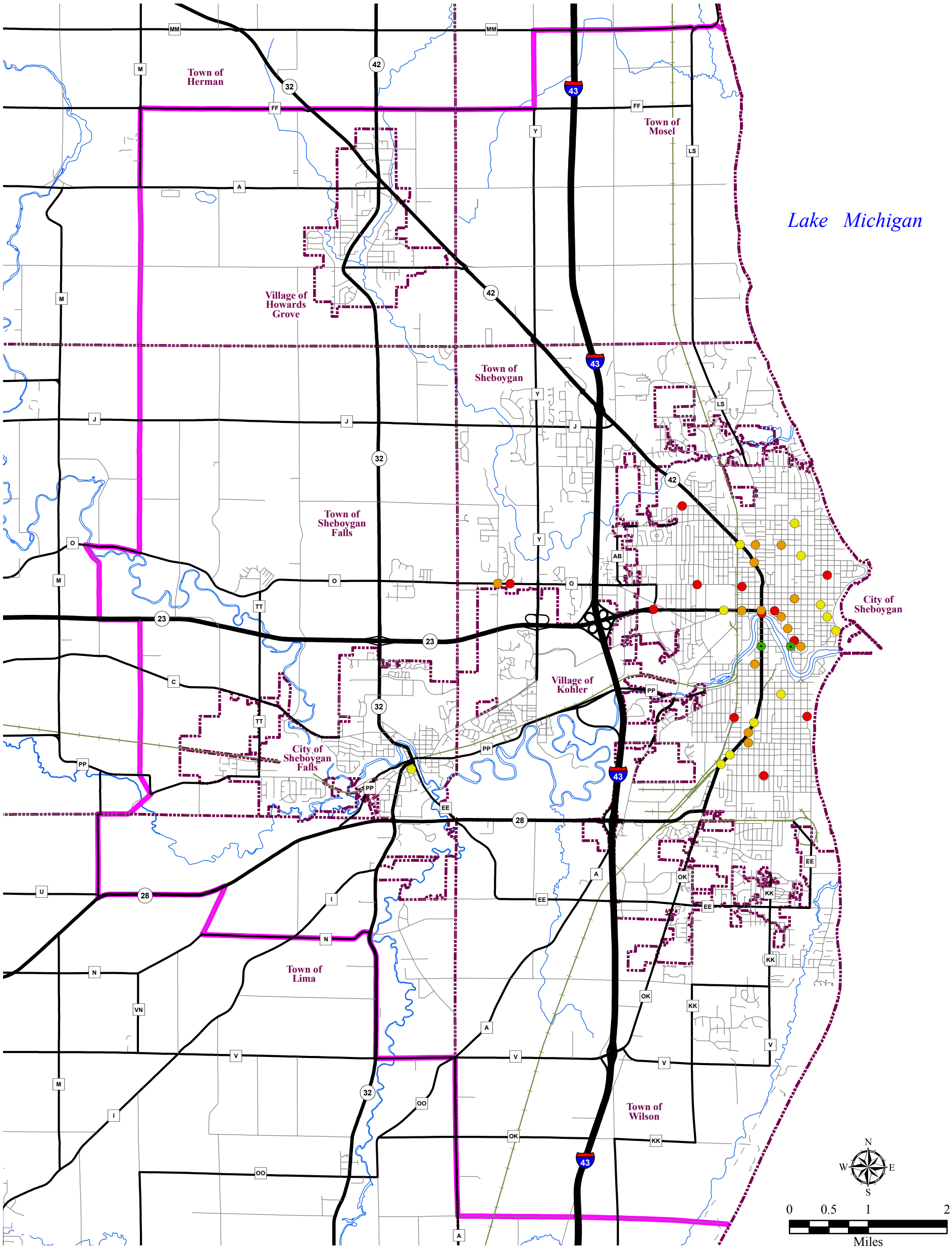
Source: WDNR, 2009; WDOT, 2013; City of Sheboygan, 2015; Sheboygan County, 2015; Bay-Lake Regional Planning Commission, 2015.

Map 5.2

Bicycle Intersection Crash Locations 2010-2012

Sheboygan Metropolitan Planning Area

Year 2045 Sheboygan Area Transportation Plan (SATP)



Year (# Crashes)

- 2010 (13)
- 2011 (15)
- 2012 (13)
- High Crash Location*

Sheboygan Metropolitan Planning Area Boundary

*Note: High Crash Locations
(2 Crashes at these Locations)
1. 14th St (STH 28) & Pennsylvania Ave
2. Water St & Pennsylvania Ave

BAY-LAKE Regional Planning Commission

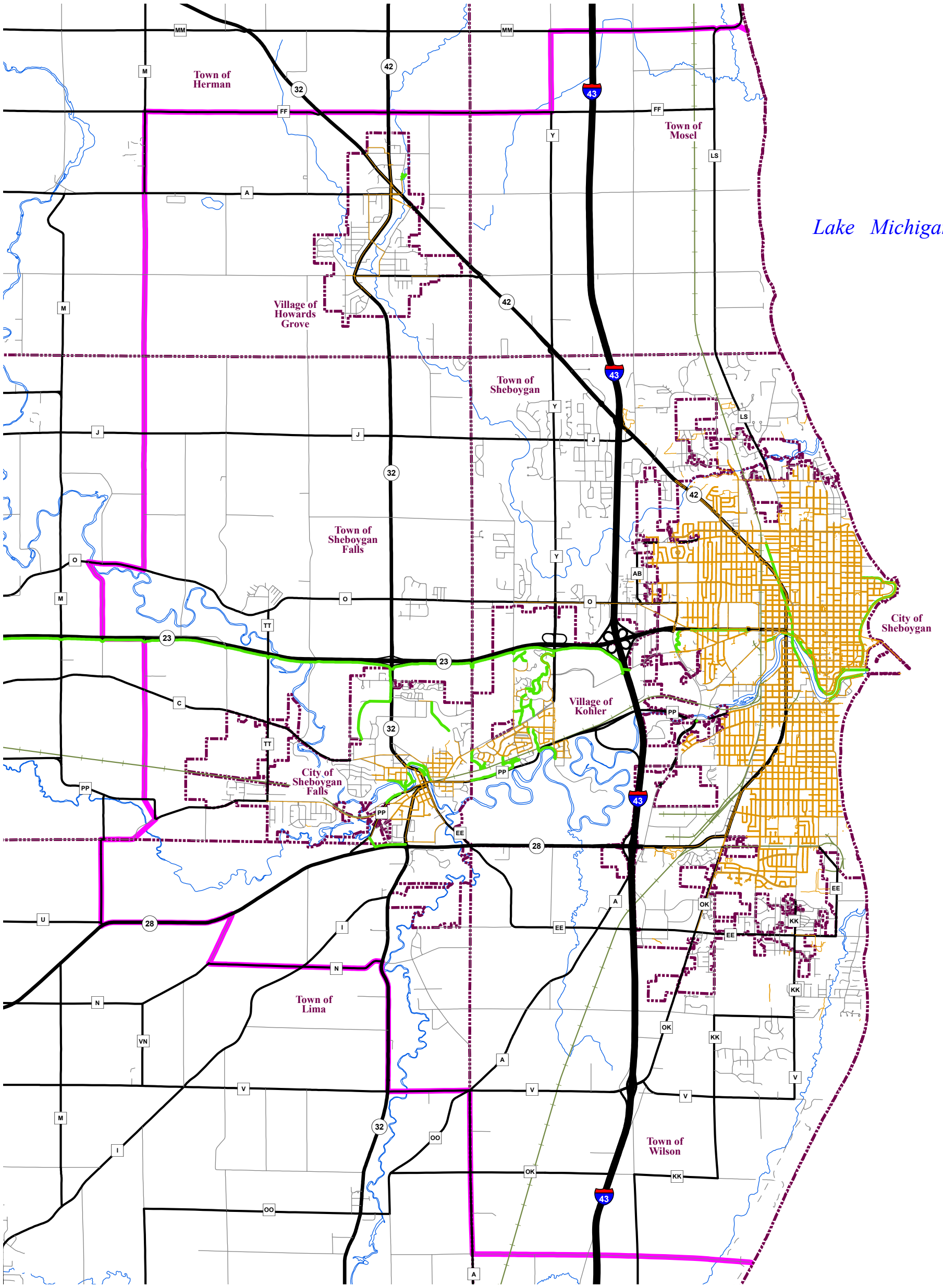
G:/Sheboygan/MPO/SATP/2045
Source: WDNR, 2009; WDOT, 2013; City of Sheboygan, 2015; Sheboygan County, 2015; Bay-Lake Regional Planning Commission, 2015.

Map 5.3

Existing Pedestrian Facilities

Sheboygan Metropolitan Planning Area

Year 2045 Sheboygan Area Transportation Plan (SATP)



Sheboygan Metropolitan Planning Area Boundary

Existing Sidewalks

Multipurpose Pathways/Trails

N W E S

0 0.5 1 2

Miles

BAY-LAKE Regional Planning Commission

G:/Sheboygan/MPO/SATP/2045

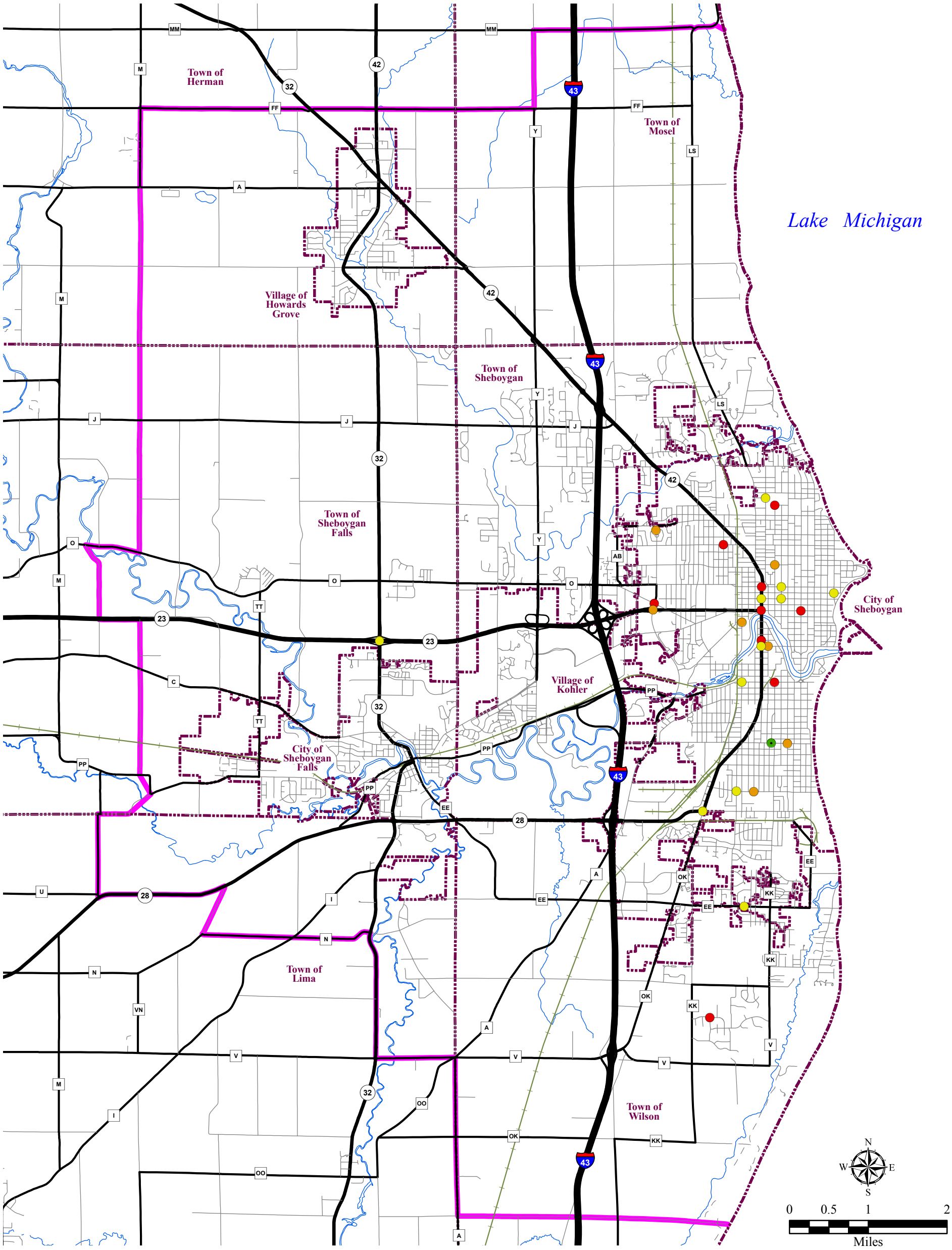
Source: WDNR, 2009; WDOT, 2013; City of Sheboygan, 2015
Sheboygan County, 2015; Bay-Lake Regional Planning Commission, 2015.

Map 5.4

Pedestrian Intersection Crash Locations 2010-2012

Sheboygan Metropolitan Planning Area

Year 2045 Sheboygan Area Transportation Plan (SATP)



Sheboygan Metropolitan Planning Area Boundary

Year (# Crashes)

- 2010 (9)
- 2011 (7)
- 2012 (13)
- High Crash Location*

*Note: High Crash Locations
1. Union Ave & S 12th St (2 Crashes)

BAY-LAKE Regional Planning Commission

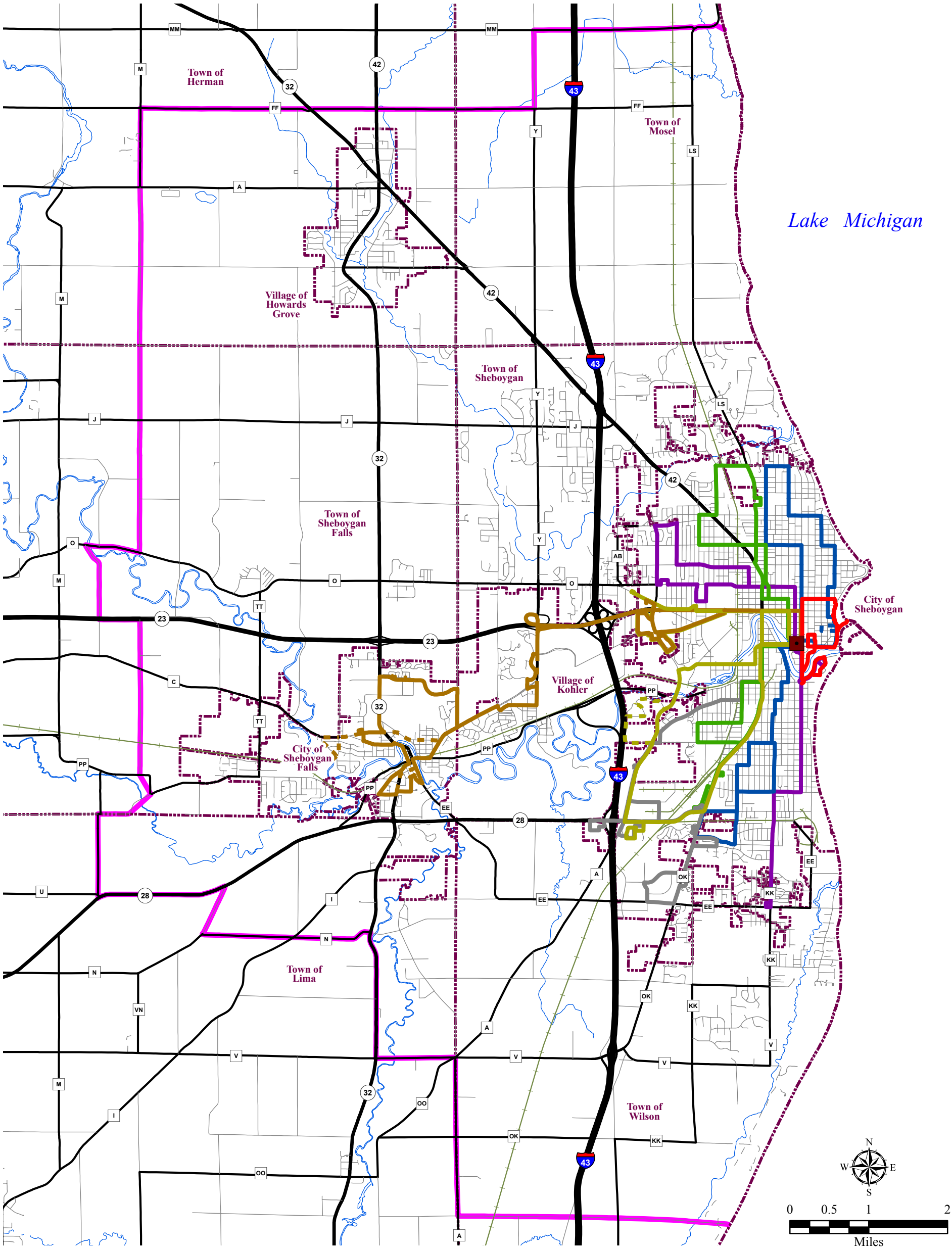
G:/Sheboygan/MPO/SATP/2045
Source: WDNR, 2009; WDOT, 2013; City of Sheboygan, 2015; Sheboygan County, 2015; Bay-Lake Regional Planning Commission, 2015.

Map 5.5

Shoreline Metro Fixed Routes, June 2014

Sheboygan Metropolitan Planning Area

Year 2045 Sheboygan Area Transportation Plan (SATP)



Sheboygan Metropolitan Planning Area Boundary

Route No. 3 North-South

Route No. 5 North-South

Route No. 7 North-South

Route No. 10 North-South

Route No. 20

Route No. 30

Route No. 40 (Seasonal)

Route Deviation

Transfer Point

BAY-LAKE Regional Planning Commission

G:/Sheboygan/MPO/SATP/2045

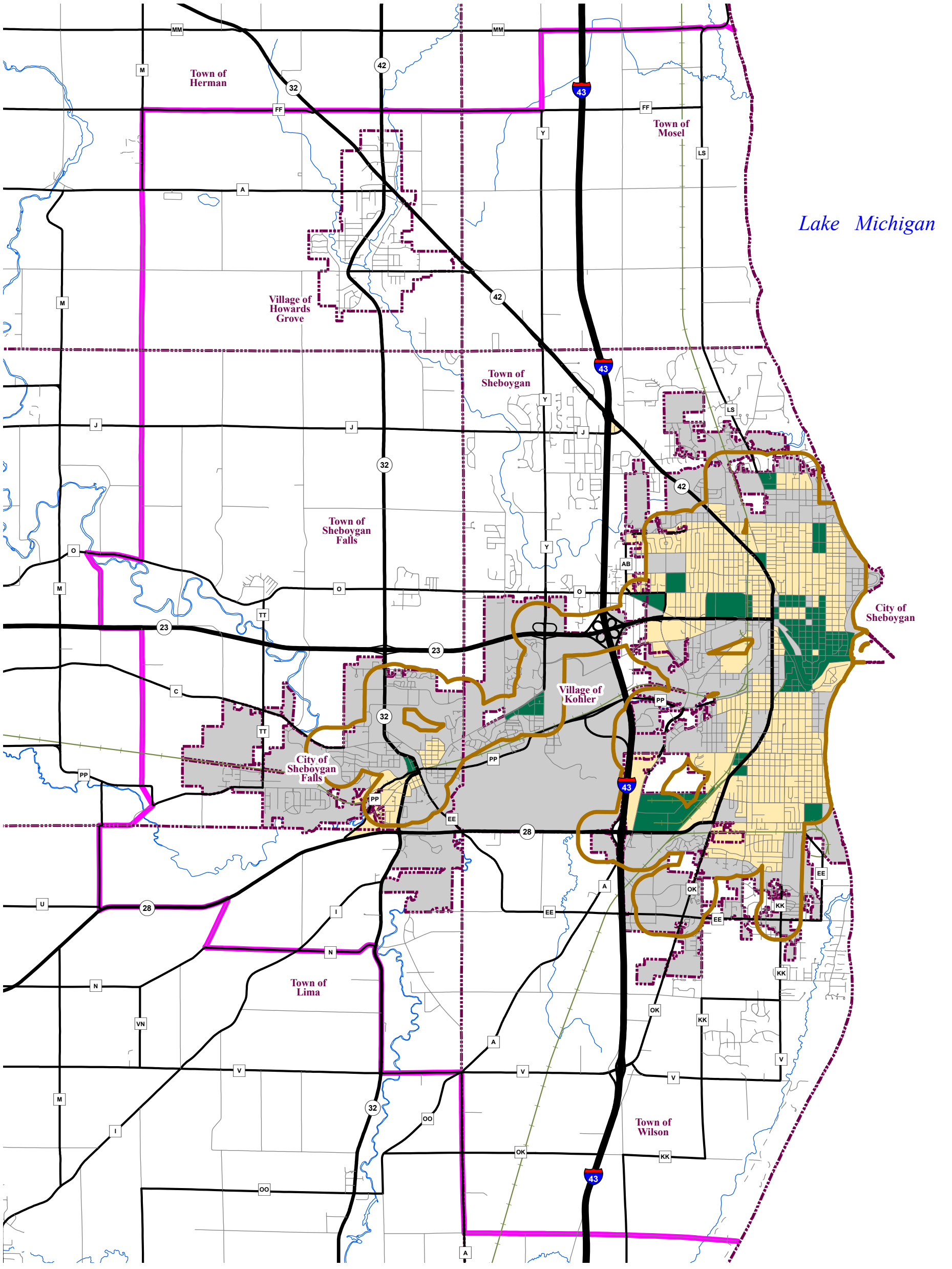
Source: WDNR, 2009; WDOT, 2013; Sheboygan Parking and Transit Utility, 2014; Sheboygan County, 2015; Bay-Lake Regional Planning Commission, 2015.

Map 5.6

Shoreline Metro Fixed-Route Service Coverage Area

Areas with Transit Supportive Household and Employment Densities

Year 2045 Sheboygan Area Transportation Plan (SATP)



BAY-LAKE Regional Planning Commission

G:/Sheboygan/MPO/SATP/2045

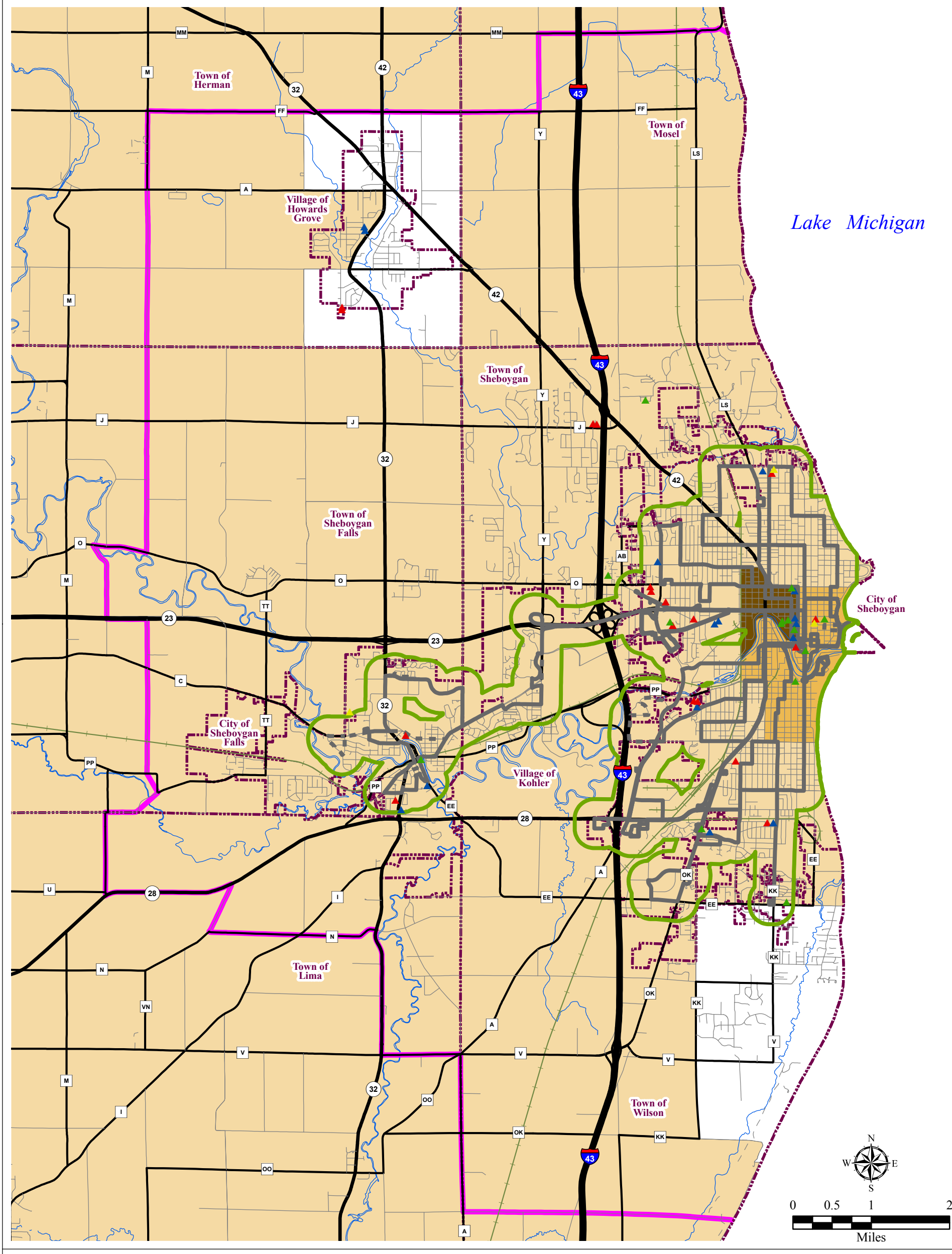
Source: WDNR, 2009; WDOT, 2013; Sheboygan Parking and Transit Utility, 2014; Sheboygan County, 2015; Bay-Lake Regional Planning Commission, 2015.

Map 5.7

Propensity of Disadvantaged Populations for Transit Service

Shoreline Metro

Year 2045 Sheboygan Area Transportation Plan (SATP)



Transit Propensity
- Very High
- High
- Moderate
- Low

Elderly & Disabled Facilities
- Affordable Non-Subsidized Housing
- Assisted Living Facility
- Senior Apartments and Condos
- Subsidized Rental Housing Projects

Sheboygan Metropolitan Planning Area Boundary

Service Area

Transit Fixed Routes

BAY-LAKE Regional Planning Commission

G:/Sheboygan/MPO/SATP/2045

Source: WDNR, 2009; WDOT, 2013; Sheboygan Parking and Transit Utility, 2014; Sheboygan County, 2015; Bay-Lake Regional Planning Commission, 2015.

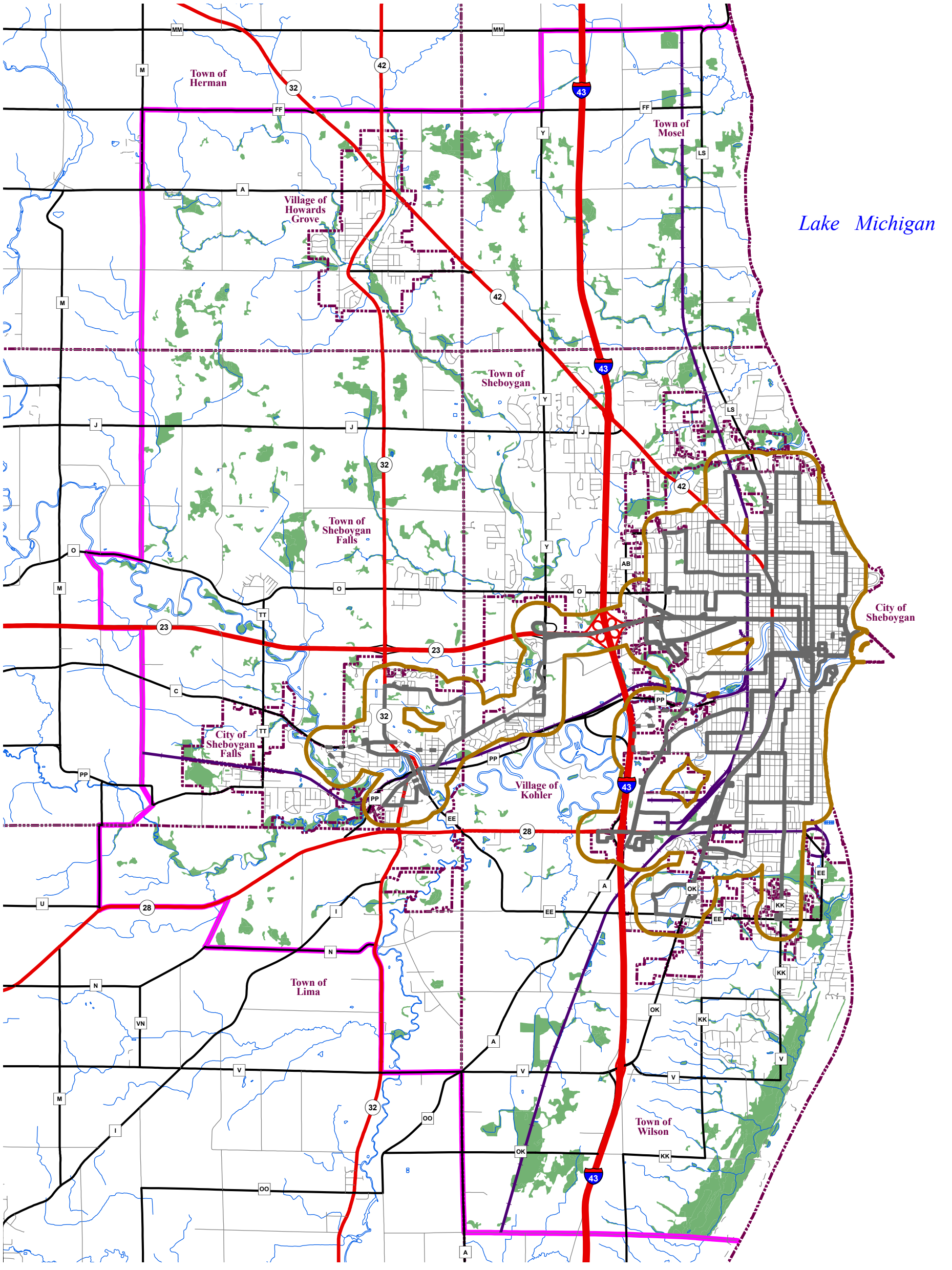
*Note: There was no "very low" transit propensity category among census block groups.

Map 5.8

Access Barriers to Transit Usage

Shoreline Metro

Year 2045 Sheboygan Area Transportation Plan (SATP)



Sheboygan Metropolitan Planning Area Boundary

State Highways

Rail Lines

Surface Water

Wetlands (Greater than 2 Acres)

Service Area

Transit Fixed Routes

N W E S

0 0.5 1 2

Miles

BAY-LAKE Regional Planning Commission

G:/Sheboygan/MPO/SATP/2045

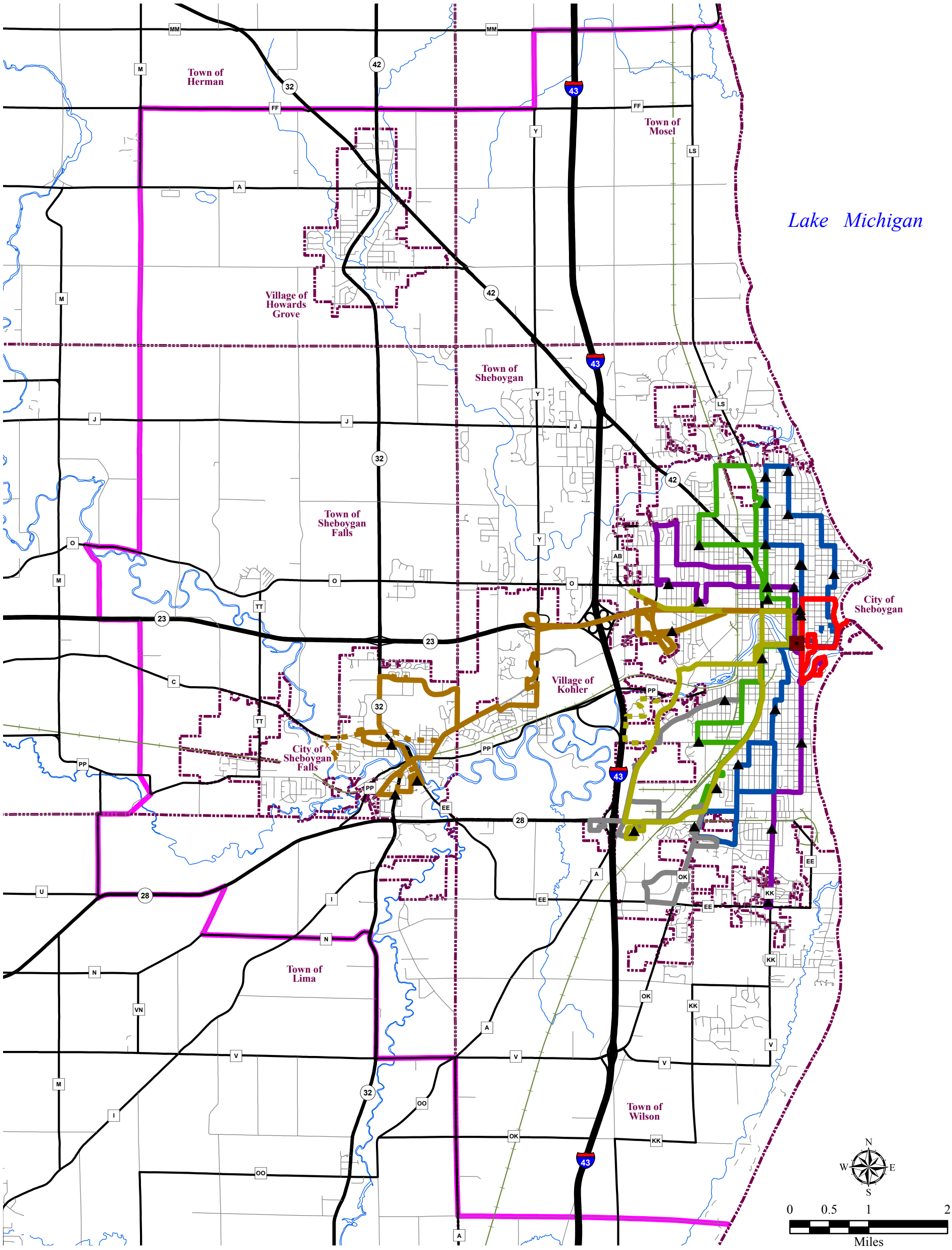
Source: WDNR, 2009; WDOT, 2013; Sheboygan Parking and Transit Utility, 2014; Sheboygan County, 2015; Bay-Lake Regional Planning Commission, 2015.

Map 5.9

Shoreline Metro Passenger Shelters and Downtown Transfer Point

Sheboygan Metropolitan Planning Area

Year 2045 Sheboygan Area Transportation Plan (SATP)



Sheboygan Metropolitan Planning Area Boundary

Route No. 3 North-South

Route No. 5 North-South

Route No. 7 North-South

Route No. 10 North-South

Route No. 20

Route No. 30

Route No. 40 (Seasonal)

Route Deviation

Transfer Point

Passenger Shelter

BAY-LAKE REGIONAL PLANNING COMMISSION

G:/Sheboygan/MPO/SATP/2045

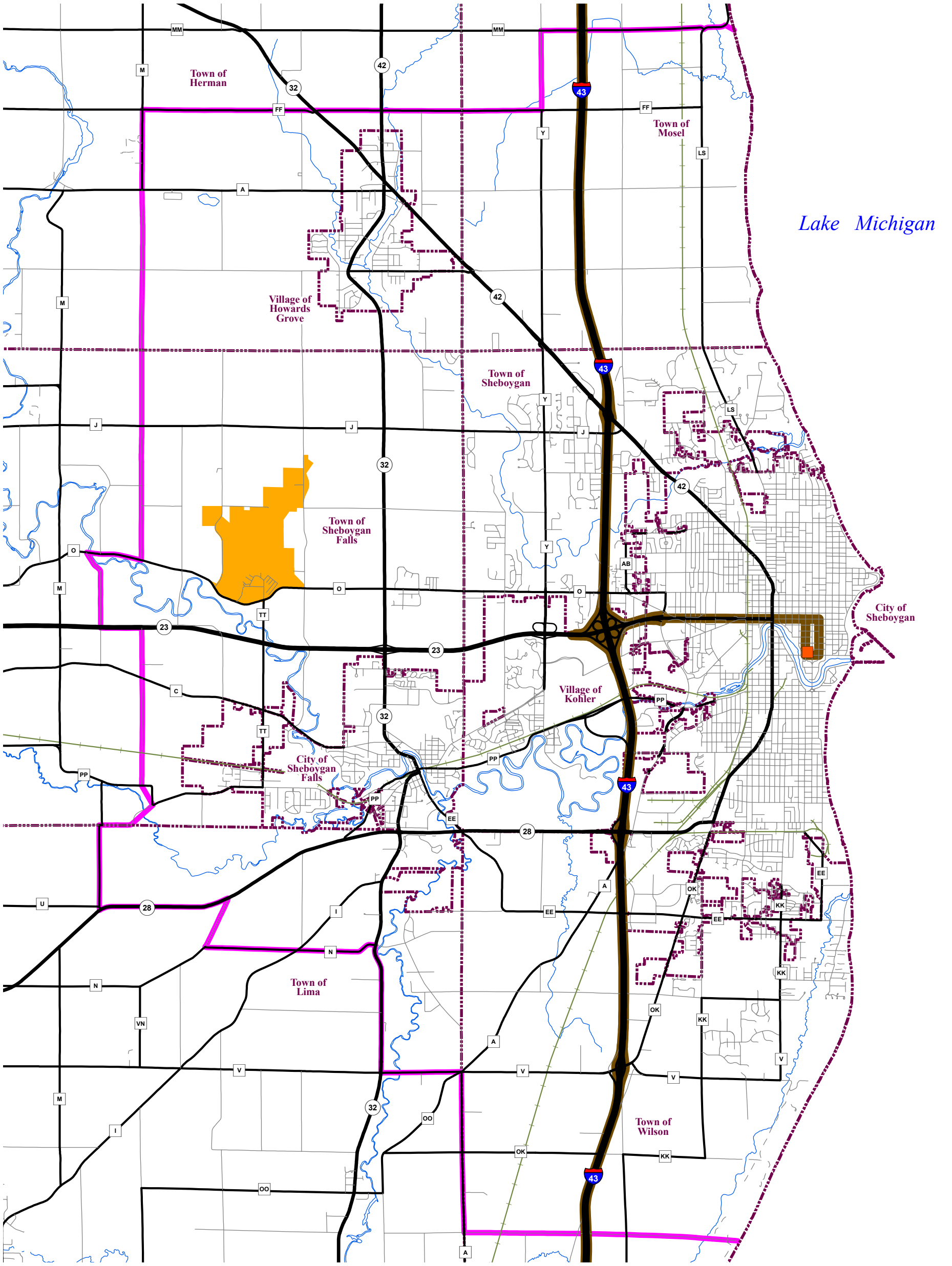
Source: WDNR, 2009; WDOT, 2013; Sheboygan Parking and Transit Utility, 2014; Sheboygan County, 2015; Bay-Lake Regional Planning Commission, 2015.

Map 5.10

Intercity Bus and Air Service

Sheboygan Metropolitan Planning Area

Year 2045 Sheboygan Area Transportation Plan (SATP)



Sheboygan Metropolitan Planning Area Boundary

Indian Trails, Jefferson and Lamers Bus Lines

Indian Trails, Jefferson and Lamers Station

Sheboygan County Memorial Airport

N
W
E
S

0 0.5 1 2

Miles

BAY-LAKE REGIONAL PLANNING COMMISSION

G:/Sheboygan/MPO/SATP/2045

Source: WDNR, 2009; WDOT, 2013; Sheboygan County, 2015; Bay-Lake Regional Planning Commission, 2015.

Proposed Midwest Regional Rail System

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

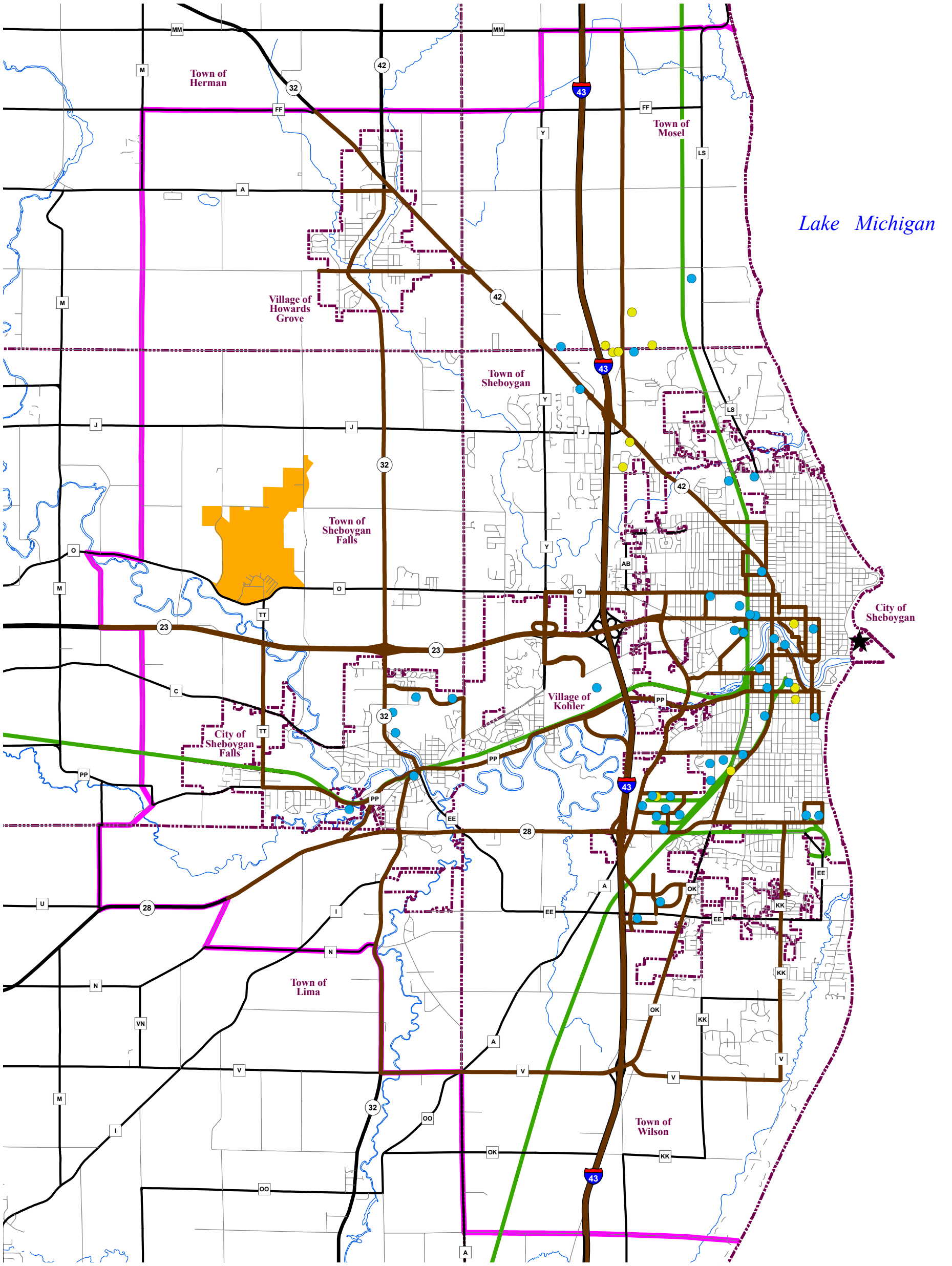
Source: Transportation Economics & Management Systems, Inc, *Midwest Regional Rail Initiative: A Transportation Network for the 21st Century.*

Map 5.12

Freight Routes and Terminals

Sheboygan Metropolitan Planning Area

Year 2045 Sheboygan Area Transportation Plan (SATP)



BAY-LAKE Regional Planning Commission

G:/Sheboygan/MPO/SATP/2045
Source: WDNR, 2009; WDOT, 2013; Sheboygan County, 2015; Bay-Lake Regional Planning Commission, 2015.

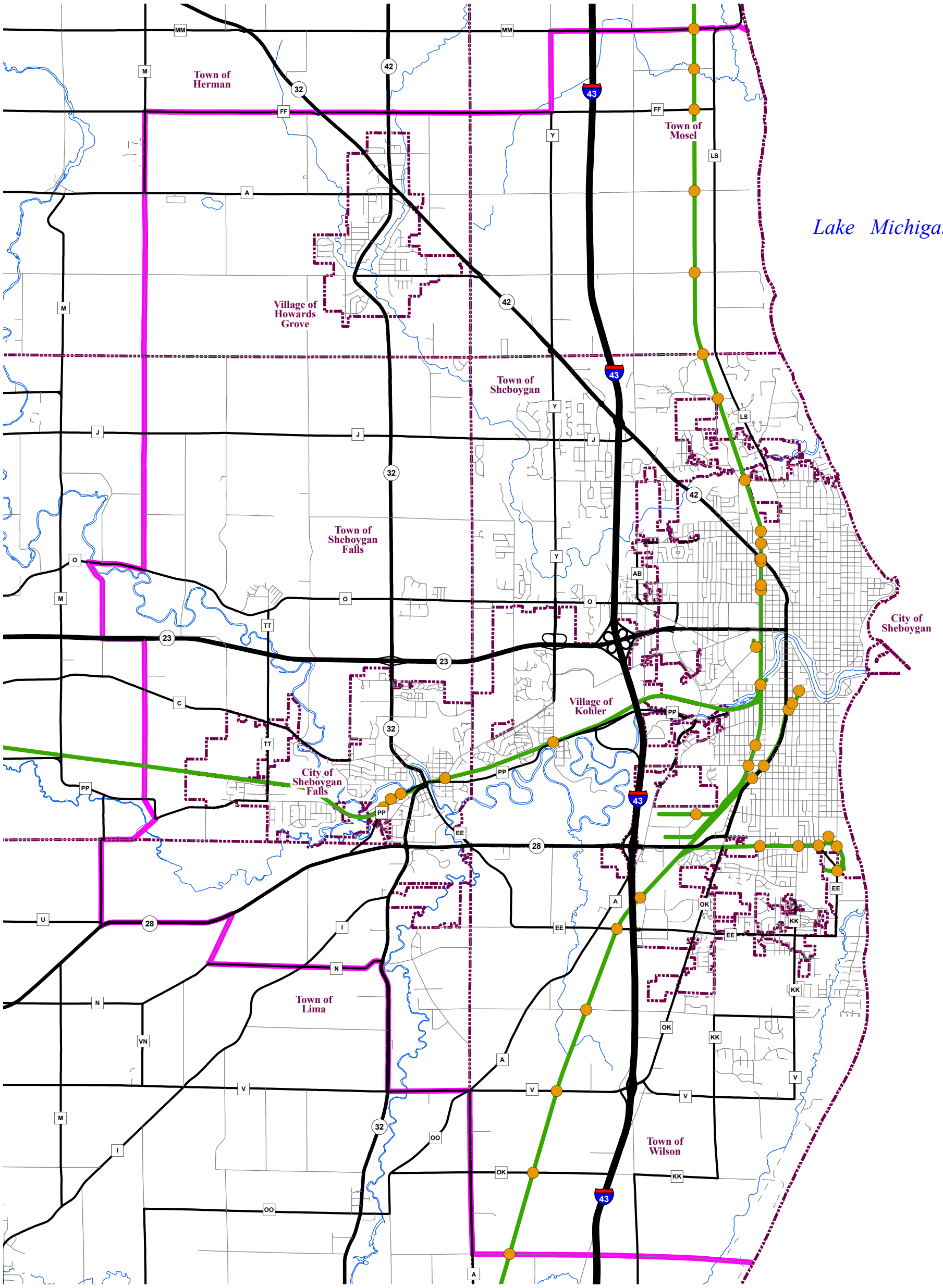
*Note: Some railroad lines are out of service.

Map 5.13

Public Highway-Rail At-Grade Crossings

Sheboygan Metropolitan Planning Area

Year 2045 Sheboygan Area Transportation Plan (SATP)



Sheboygan Metropolitan Planning Area Boundary

Public At-Grade Crossings

Railroad*

BAY-LAKE REGIONAL PLANNING COMMISSION

G:/Sheboygan/MPO/SATP/2045
Source: WDNR, 2009; WDOT, 2013; Sheboygan County, 2015; Bay-Lake Regional Planning Commission, 2015.

Note: There were no accidents at public highway/rail at-grade crossings between January 2009 and December 2013.

N W E S

0 0.5 1 2

Miles

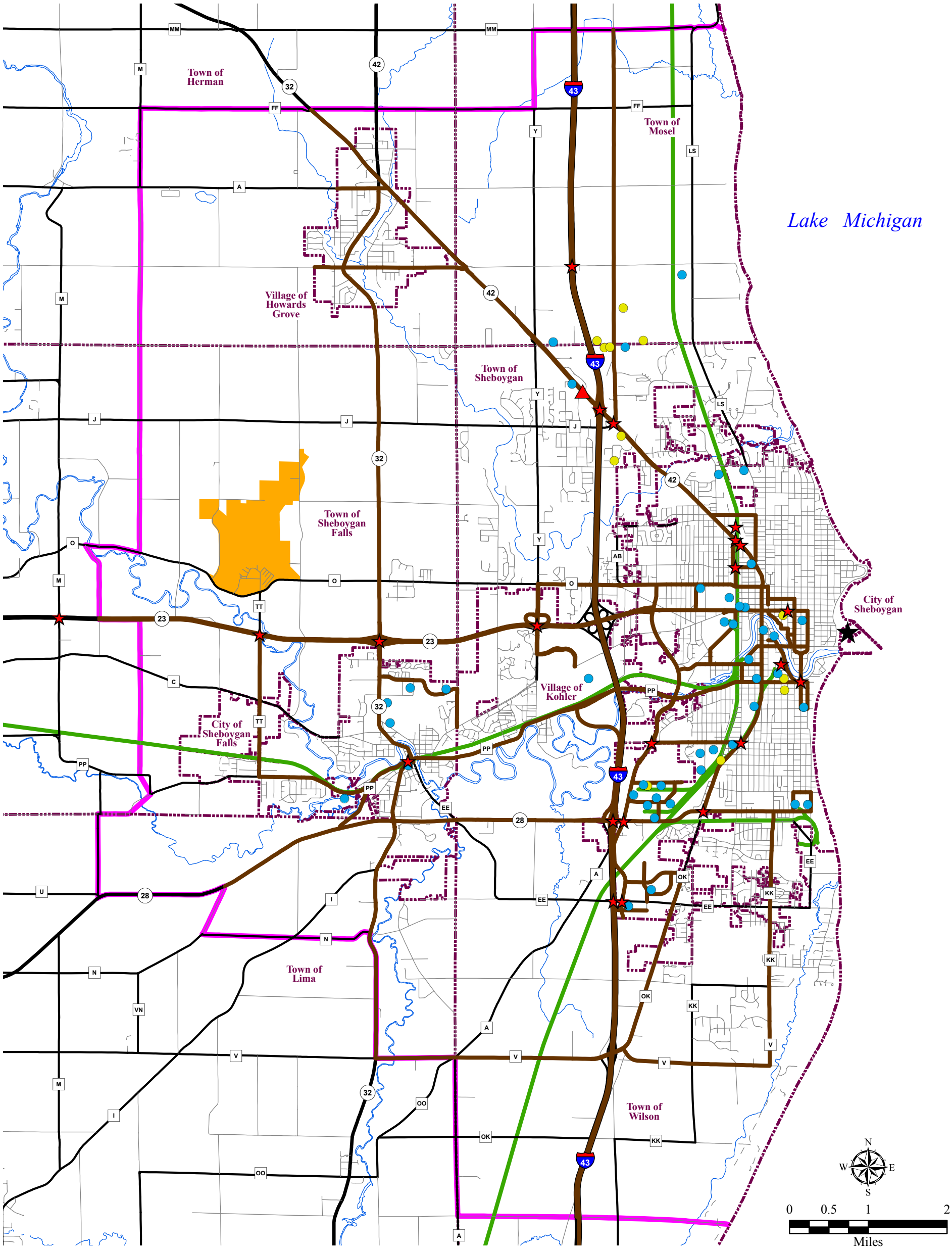
*Note: Some railroad lines are out of service.

Map 5.14

Heavy Truck Crashes in 2012

Sheboygan Metropolitan Planning Area

Year 2045 Sheboygan Area Transportation Plan (SATP)



Sheboygan Metropolitan Planning Area Boundary

Truck Tractor (Not Attached)

Truck Tractor (Semi Attached)

Truck Routes

Railroad Lines*

Trucking Firms

Harbor Center Marina

Freight Shipping/Receiving Companies

Sheboygan County Memorial Airport

*Note: Some railroad lines are out of service.

Multiple Heavy Truck Crashes Occurred at the Following Locations:
1. STH 28/Union Ave (2 Crashes)
2. IH 43/STH 42 (4 Crashes)

BAY-LAKE REGIONAL PLANNING COMMISSION

G:/Sheboygan/MPO/SATP/2045
Source: WDNR, 2009; WDOT, 2013; Sheboygan County, 2015; Bay-Lake Regional Planning Commission, 2015.

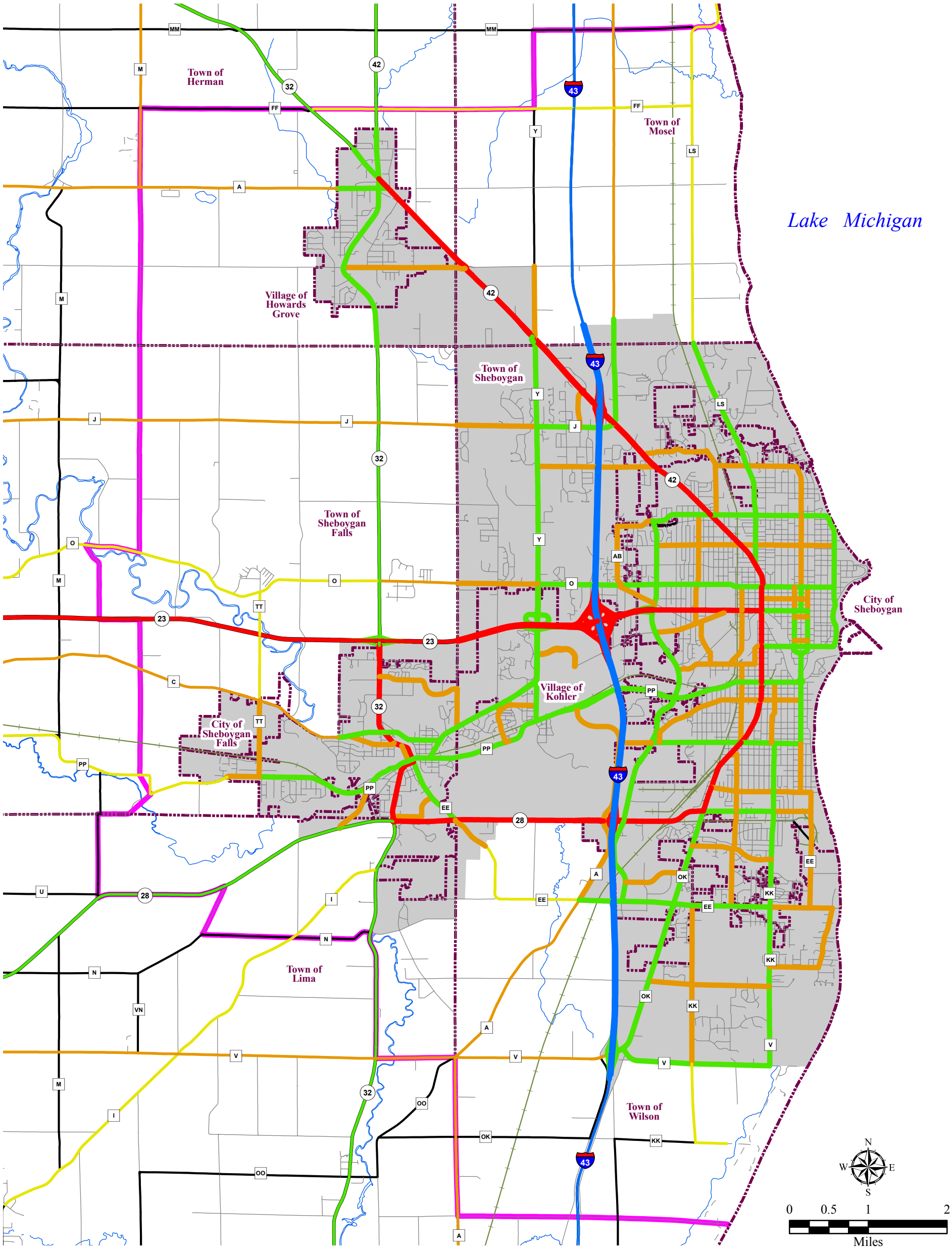
Map 5.15

Functional Classification

Sheboygan Urbanized Area and Metropolitan Planning Area*

Year 2045 Sheboygan Area Transportation Plan (SATP)

Approved May 8, 2014**



Sheboygan Metropolitan Planning Area Boundary

Urban Interstate
Urban Principal Arterial
Urban Minor Arterial
Urban Collector

Rural Interstate
Rural Principal Arterial
Rural Minor Arterial
Rural Major Collector
Rural Minor Collector

*Note: All other roads are functionally classified as local facilities

**Note: Approved by:

MPO TAC/PAC:	November 14, 2013
Bay-Lake RPC:	December 13, 2013
WisDOT:	May 7, 2014
FHWA:	May 8, 2014

BAY-LAKE Regional Planning Commission

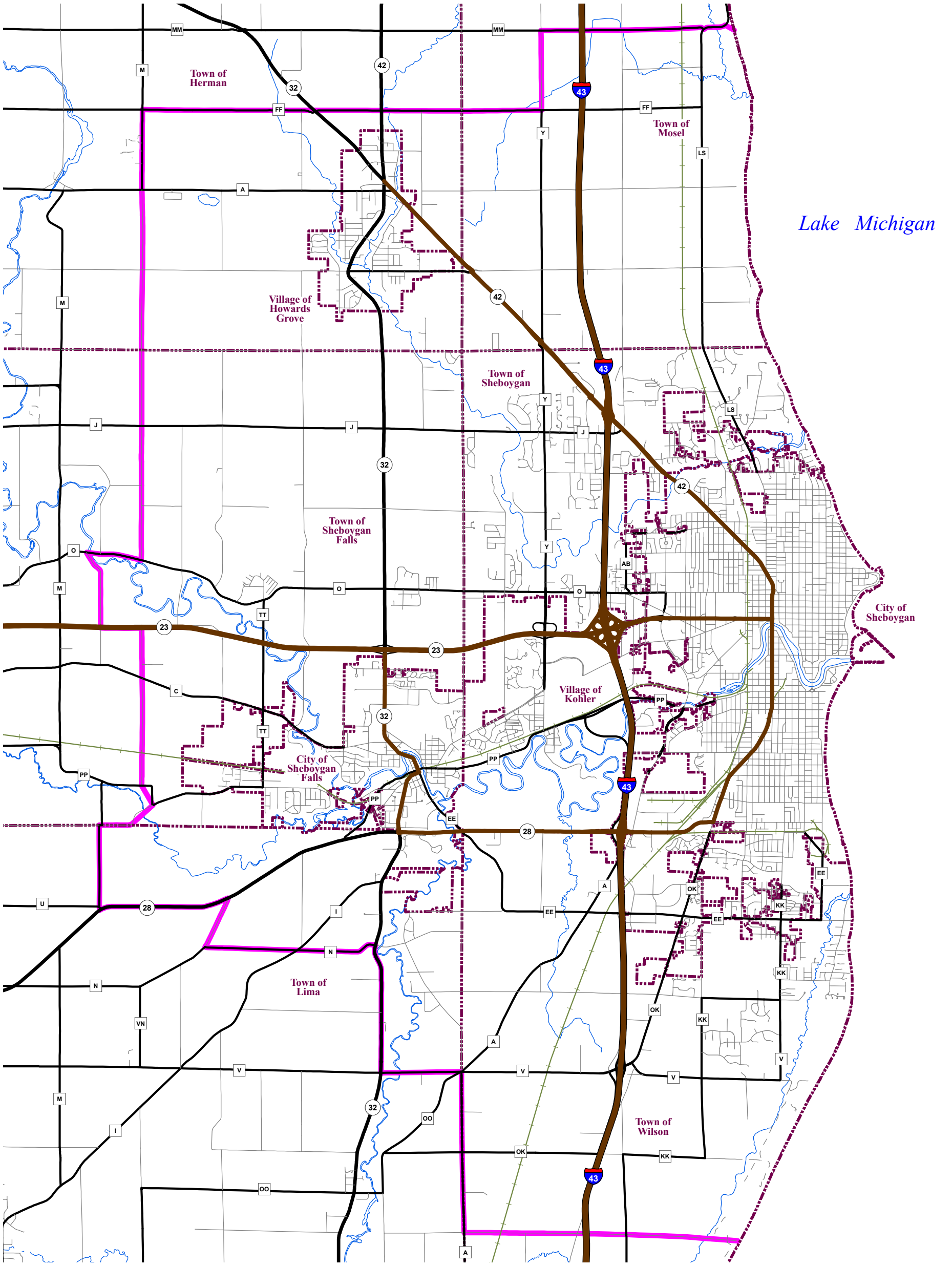
G:/Sheboygan/MPO/SATP/2045
Source: WDNR, 2009; WDOT, 2013, 2014; Sheboygan County, 2015; Bay-Lake Regional Planning Commission, 2015.

Map 5.16

Enhanced National Highway Base System

Sheboygan Metropolitan Planning Area

Year 2045 Sheboygan Area Transportation Plan (SATP)



Sheboygan Metropolitan Planning Area Boundary

Enhanced National Highway Base System

N W E S

0 0.5 1 2

Miles

BAY-LAKE REGIONAL PLANNING COMMISSION

G:/Sheboygan/MPO/SATP/2045

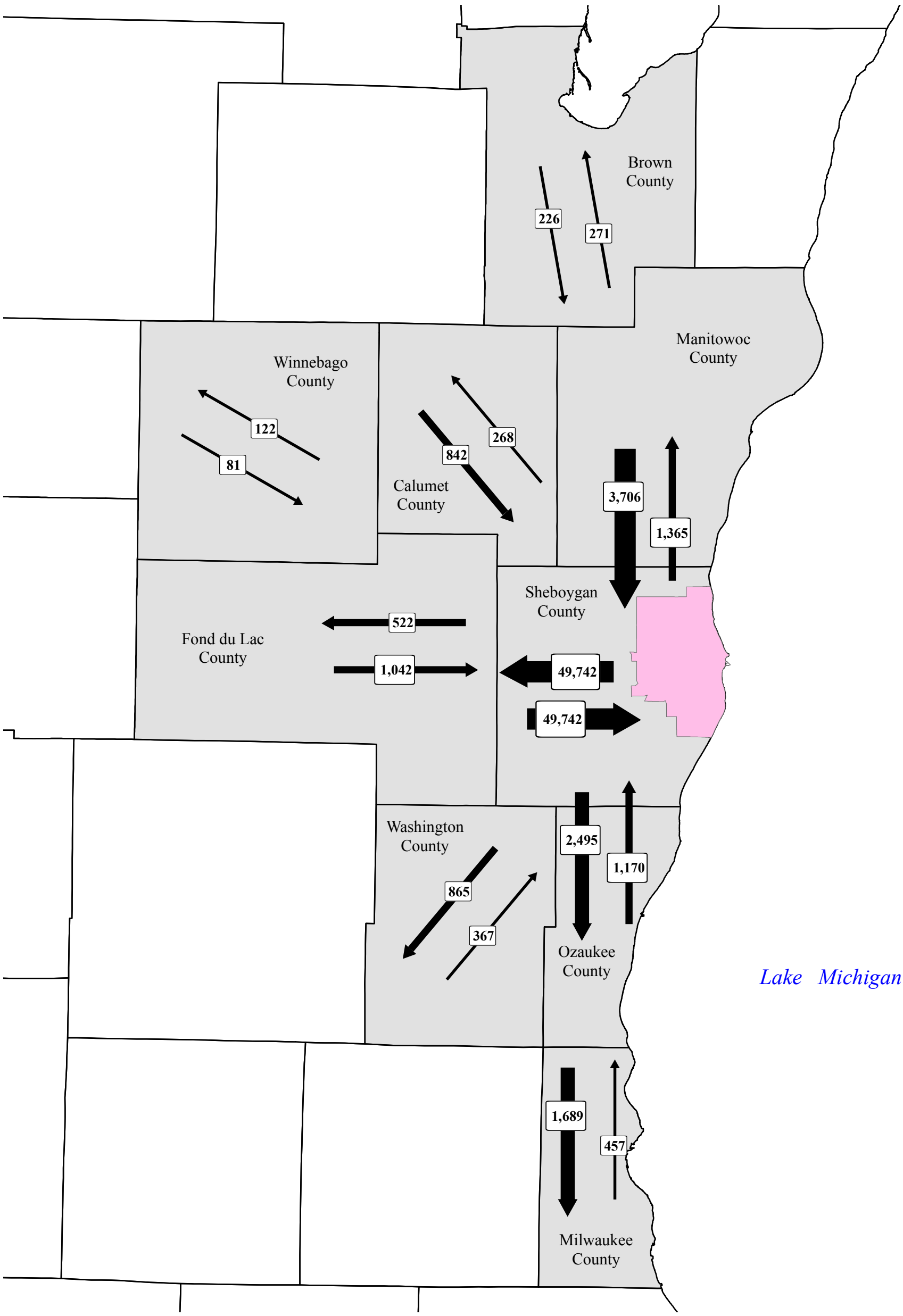
Source: WDNR, 2009; WDOT, 2013; Sheboygan County, 2015; Bay-Lake Regional Planning Commission, 2015.

Map 5.17

Daily Workplace Commuters

Sheboygan County

Year 2045 Sheboygan Area Transportation Plan (SATP)



Sheboygan Metropolitan Planning Area Boundary

N
W E
S

0 5 10 20
Miles

BAY-LAKE REGIONAL PLANNING COMMISSION

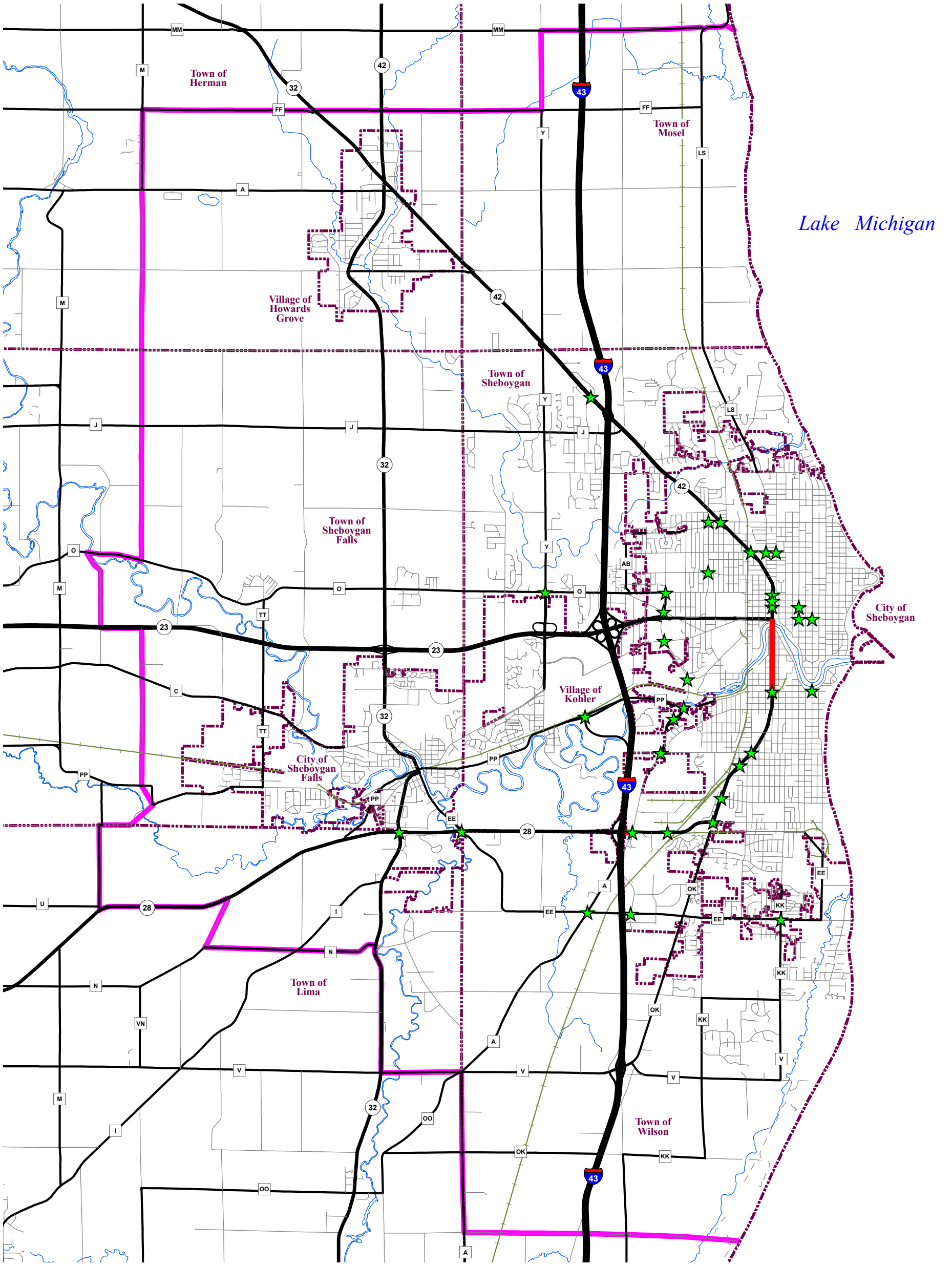
G:/Sheboygan/MPO/SATP/2045
Source: Sheboygan County, 2015;
Bay-Lake Regional Planning Commission, 2015.

Map 5.18

2012 High Crash Intersections and 2010 Congested Road Segments

Sheboygan Metropolitan Planning Area

Year 2045 Sheboygan Area Transportation Plan (SATP)



Sheboygan Metropolitan Planning Area Boundary

Potentially Congested Facilities

High Crash Sites - 2012

N W E S

0 0.5 1 2

Miles

BAY-LAKE REGIONAL PLANNING COMMISSION

G:/Sheboygan/MPO/SATP/2045

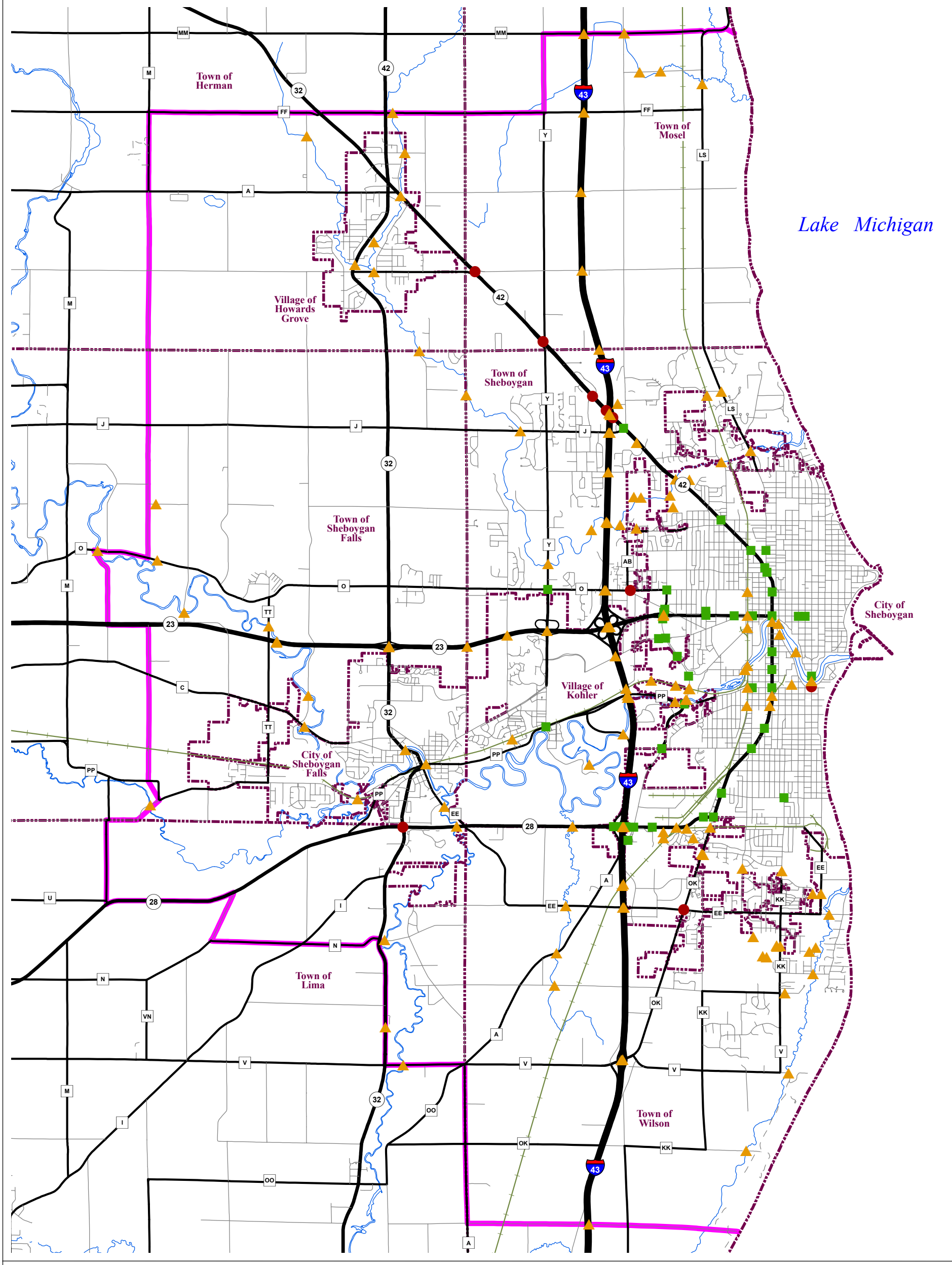
Source: WDNR, 2009; WDOT, 2013, 2014; Sheboygan County, 2015; Bay-Lake Regional Planning Commission, 2015.

Map 5.19

Location of Signalized Intersections, Roundabouts and Bridges

Sheboygan Metropolitan Planning Area

Year 2045 Sheboygan Area Transportation Plan (SATP)



Sheboygan Metropolitan Planning Area Boundary

Signalized Intersection

Roundabout

Bridge

N W E S

0 0.5 1 2

Miles

BAY-LAKE Regional Planning Commission

G:/Sheboygan/MPO/SATP/2045
Source: WDNR, 2009; WDOT, 2013; City of Sheboygan, 2014;
Sheboygan County, 2015; Bay-Lake Regional Planning Commission, 2015.

CHAPTER 6 : TRANSPORTATION AND LAND USE

INTRODUCTION

Transportation and land use are interconnected; access to transportation affects land use, and land use affects travel demand. The metropolitan planning area experiences changes in land use due to economic development and/or population increase.

Land use changes, such as new housing developments and business centers, can increase travel demand, creating the need for additional transportation accommodations in all modes. As the metropolitan planning area responds with new supply (new roads, travel lanes, bus routes, bicycle and pedestrian facilities, etc.), demand is addressed, and there is improved access to land. This accessibility results in new land uses, leading to new transportation demand, and the cycle continues.

ESTIMATING FUTURE TRANSPORTATION NEEDS

An accepted process for estimating future transportation needs is to project population, households, employment and other socioeconomic variables at the Traffic Analysis Zone (TAZ) level for input into a travel demand forecast model. The purpose of this process is to identify segments of the transportation network that will be stressed by additional travel demand. Modeling allows for the testing of potential transportation improvements to see which ones best address street and highway deficiencies.

Pre-Modeling Process

Before traffic could be forecasted, two necessary steps needed to be undertaken: (1) complete a land use inventory of all developed, developable and undevelopable land in Sheboygan County; and (2) forecast control total population, household, employment and other socioeconomic variables at the county level out to 2045. The Bay-Lake Regional Planning Commission conducted an initial land use inventory for Sheboygan County in 2002, and completed updating of this land use inventory for each of the cities, villages and towns in the Sheboygan metropolitan planning area in 2009. In 2014, the Wisconsin Department of Administration's Demographic Services Center completed population and household projections to 2040, and the Bay-Lake Regional Planning Commission used these projections to develop control total projections for all socioeconomic variables out to 2045. A third step was added to allocate projected population, households, employment and other socioeconomic variables to the nearly 470 TAZs in Sheboygan County under three land use scenarios developed for 2045.

Land Use Inventory

The land use inventory distinguishes between "developed," "developable" and "undevelopable" land. Examples of undevelopable lands include water bodies, designated scientific sites or areas, and other natural areas (including wetlands, grasslands, beaches, and other publicly owned natural areas). Developable land includes many agricultural land uses (including open space/fallow fields, croplands/pastures, long-term specialty crops, and vacant agriculture), as well as woodlands. (The term "developable" relates only to the condition of the land in that it has no physical constraints to preclude development. Categorizing land as "developable" does not mean that it should or will be developed). Developed land includes residential (including mobile homes), commercial, industrial, transportation (including roads), communications/utilities, governmental/institutional, and parks/recreational land uses. Developed land also includes

certain agricultural land uses (animal husbandry, fish hatchery/aquaculture, and farm buildings and accessories), and includes land that is under development.

Within Sheboygan County, there was a total of approximately 333,782 acres of total land in the most recent update to the land use inventory (2009). Of this, approximately 37,804 acres (11.3 percent) were developed, 4,985 acres (1.5 percent) were undevelopable, and 290,993 acres (87.2 percent) were considered developable.

Within the Sheboygan metropolitan planning area, there was a total of approximately 69,329 acres of total land in the 2009 update to the land use inventory. Of this, approximately 20,079 acres (29.0 percent) were developed, 801 acres (1.1 percent) were undevelopable, and 48,449 acres (69.9 percent) were considered developable.

Map 6.1 indicates the updated land use inventory as recorded for the Sheboygan metropolitan planning area. Land use information collected for the remainder of Sheboygan County that was used to assist in travel demand forecast model development and air quality conformity analysis in this *Year 2045 SATP* is available upon request.

2045 Control Total Socioeconomic Projections

Socioeconomic projections are an important component of any urban transportation system plan because they are used as inputs to predict travel demand in an urban area in the long-term future. A relationship between socioeconomic data and travel demand is established early in the planning process when the travel demand forecast model is adjusted to reflect trends in the "base year" of analysis (2010). Socioeconomic parameters which are used in projecting future travel demand in the Sheboygan County model include population, households, employment (including retail, service and other employment), and school enrollment. These data have been projected both for Sheboygan County and for TAZs.

Socioeconomic projections were prepared for the metropolitan planning area and for all of Sheboygan County, beginning with the base year of 2010 and projecting to the horizon year of 2045. Nearly 470 TAZs were forecasted using data from the 2010 Census, the Wisconsin Department of Administration's Demographic Services Center, the Wisconsin Department of Workforce Development, the Wisconsin Department of Public Instruction, and local knowledge for input into the travel demand forecast model; nearly 310 of these TAZs were located wholly or partially in the Sheboygan metropolitan planning area. TAZs, which are defined by their geographic, transportation, social, and economic patterns or activities, are reasonably homogenous. Accordingly, TAZs are smaller in areas of higher population density and larger in areas of lower population density. The geographic boundaries for the current TAZs were determined by MPO staff in 2011 and 2012 for use in developing the updated WisDOT Northeast Region travel demand forecast model.

Discussion here focuses solely on county-wide projections. Distribution of socioeconomic data projections among the TAZs is essential to the successful performance of the travel demand forecast model. Table 6.1 summarizes population, household, employment, and school enrollment projections for Sheboygan County through 2045.

Table 6.1: Control Total Socioeconomic Projections for Sheboygan County, 2010-2045

	2010 Census and Estimates	2015 Estimates	2020 Projection	2025 Projection	2030 Projection	2035 Projection	2040 Projection	2045 Projection
Population	115,507	115,915	119,890	123,400	126,160	126,830	125,160	125,897
Total Households	46,390	47,633	49,867	52,016	53,857	54,838	54,620	55,048
Group Quarters Population	3,023	3,013	3,086	3,217	3,404	3,608	3,792	3,970
Persons per Household	2.42	2.37	2.34	2.31	2.28	2.25	2.22	2.21
Total Employment	59,824	62,144	64,554	67,058	69,658	72,360	75,166	78,081
K - 12 School Enrollment	21,884	21,425	21,530	21,911	22,206	22,306	22,211	22,223
Post Secondary School Enrollment	4,068	3,983	4,002	4,073	4,128	4,146	4,129	4,132

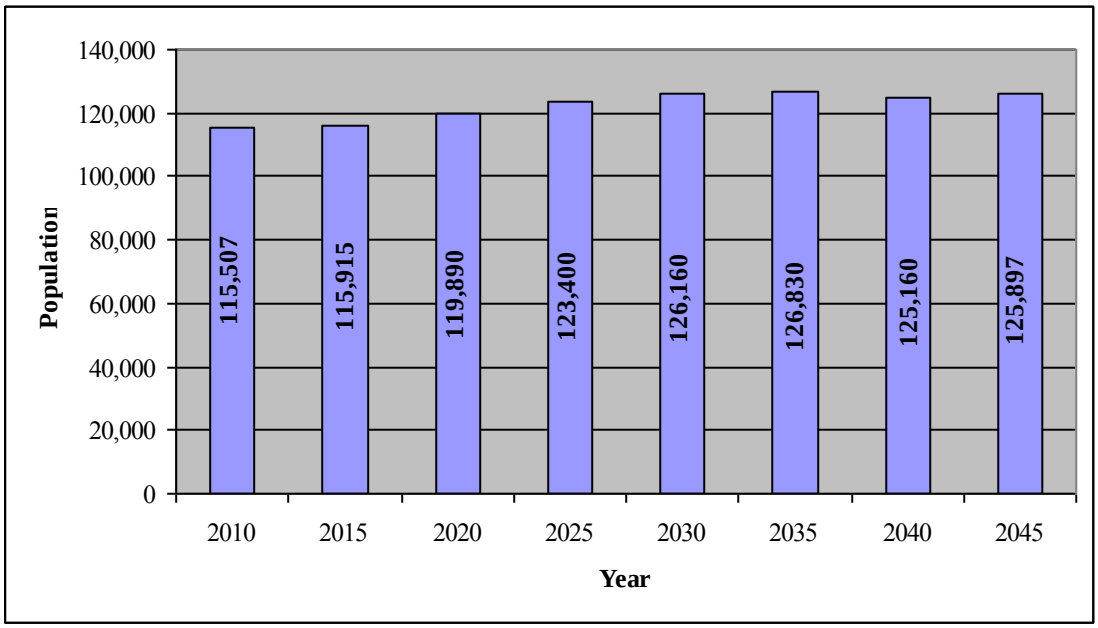
Source: U.S. Bureau of the Census, 2010; Wisconsin Department of Administration, Demographic Services Center, 2013 and 2014; Wisconsin Department of Public Instruction, 2010; SRF Consulting Group, Inc., 2012, 2013 and 2014; and Bay-Lake Regional Planning Commission, 2014.

The horizon year of 2045 selected for the SATP is consistent with MAP-21 provisions calling for a minimum twenty-year planning horizon. Milestone years selected for intermediate points of evaluation in this plan are 2015, 2025 and 2035. The milestone year of 2015 is consistent with the year for which the Wisconsin Department of Natural Resources (WDNR) established mobile sector emission budgets in the pending State Implementation Plan (SIP), the *State of Wisconsin's 2015 Transportation Conformity Budgets for the Kenosha and Sheboygan Nonattainment Areas: A Clean Air Act-Required SIP Addressing the 2008 8-Hour Ozone National Ambient Air Quality Standard (NAAQS)*, which was submitted to USEPA in early 2015, with the budgets being deemed adequate by USEPA in April 2015. The milestone years of 2025 and 2035 are reasonable intermediate years between 2015 and 2045 in accordance with analysis year conformity requirements of the 1990 Clean Air Act Amendments (the 1990 CAAA requires no greater than ten years between analysis years in a conformity analysis).

Population Projections

The 2010 population of Sheboygan County was 115,507. The 2045 population of Sheboygan County is projected to be 125,897. All population projections from 2015 through 2040 are based on the Wisconsin Department of Administration (WDOA) Demographic Services Center's official population projections for Sheboygan County. The 2045 population projection was calculated for this plan by the consulting team that assisted with the WisDOT Northeast Region model (SRF Consulting Group) based on WDOA projections through 2040; Sheboygan MPO staff concurred with this projection following its refinement. The 2045 projection of 125,897 persons represents nearly a 9.0 percent increase over the period between 2010 and 2045. Figure 6.1 illustrates population projections for Sheboygan County through 2045.

Figure 6.1: Population Projections, Sheboygan County, 2010-2045



Source: U.S. Bureau of the Census, 2010; Wisconsin Department of Administration, Demographic Services Center, 2013 and 2014; and Bay-Lake Regional Planning Commission, 2014.

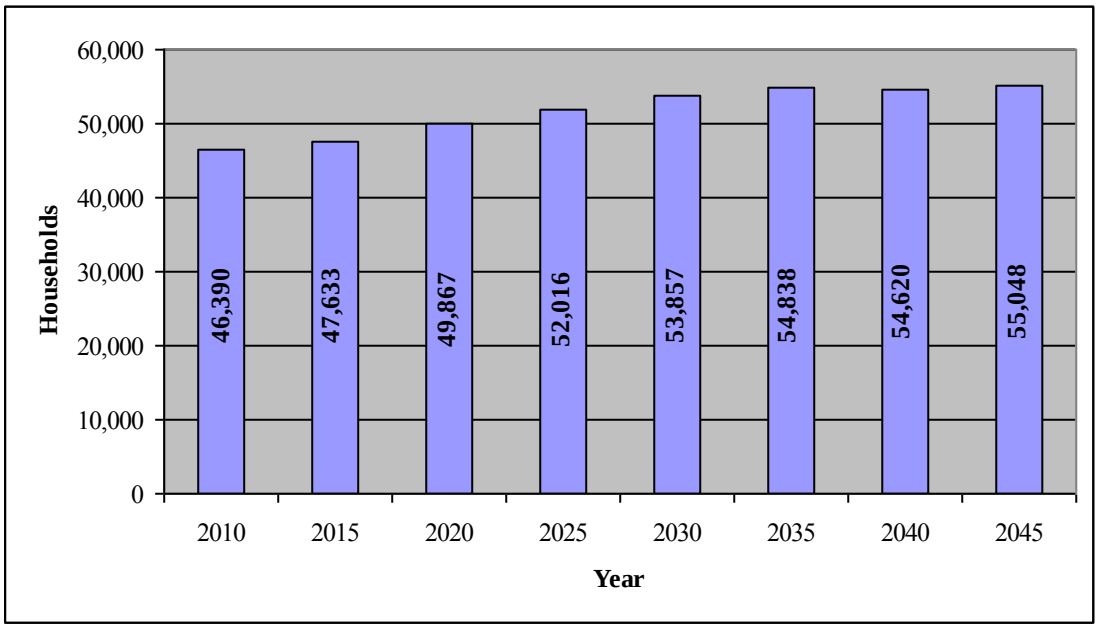
Household Projections

The number of households in Sheboygan County was 46,390 in 2010. The number of households projected for Sheboygan County in 2045 is 55,048. This represents nearly an 18.7 percent increase in households over the period between 2000 and 2045. All household projections from 2015 through 2040 are based on the Wisconsin Department of Administration (WDOA) Demographic Services Center's official household projections for Sheboygan County. The 2045 household projection was calculated for this plan by the consulting team that assisted with the WisDOT Northeast Region model (SRF Consulting Group) based on WDOA projections through 2040; Sheboygan MPO staff concurred with this projection following its refinement.

About 95.0 percent of all housing units are expected to be occupied by households in 2045; this is higher than the 91.4 percent housing occupancy rate in the 2010 Census. In other words, about 8.6 percent of all housing units were vacant in 2010 (one of the highest vacancy rates in the past several decades), but this rate is expected to decrease to 5.0 percent by 2045.

A decreasing person per household ratio from 2010 to 2045 means that the number of households is increasing at a faster rate than the population is increasing between 2010 and 2045. Figure 6.2 illustrates housing unit projections for Sheboygan County through 2045.

Figure 6.2: Household Projections, Sheboygan County, 2010-2045



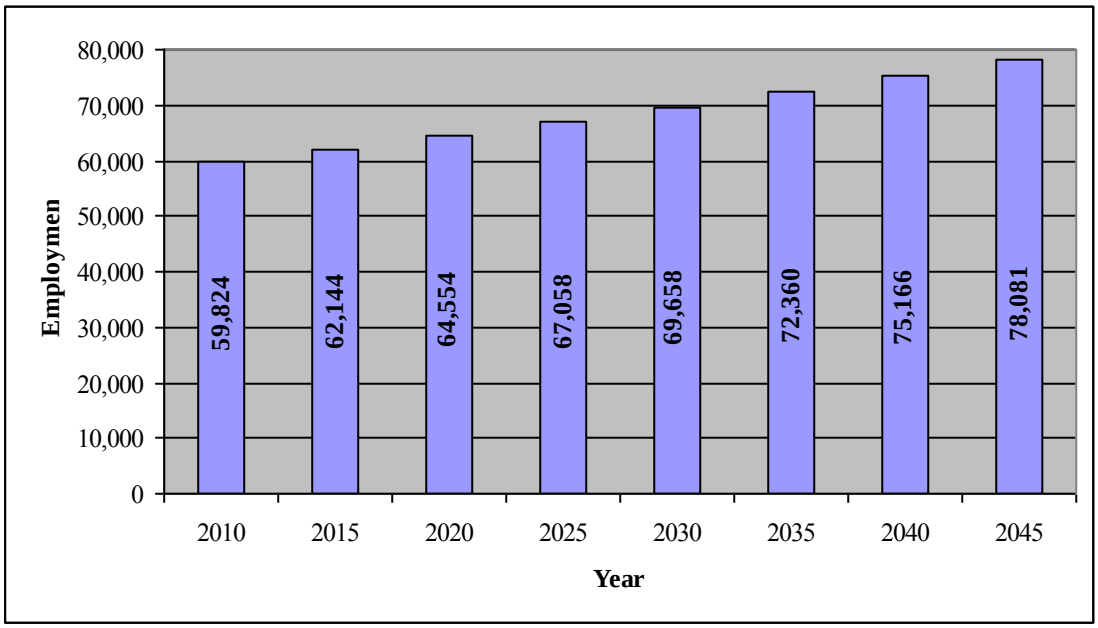
Source: U.S. Bureau of the Census, 2000; Wisconsin Department of Administration, Demographic Services Center, 2013 and 2014; and Bay-Lake Regional Planning Commission, 2014.

Employment Projections

In 2010, there were 59,824 employees within Sheboygan County; these numbers are based on the site of employment, not the site of residence. Of these, 6,303 were employed in retail activities, 22,755 were employed in the service sector, and 30,766 were employed in other categories of employment (the majority of this being in manufacturing).

A total of 78,081 employees are projected for 2045. This represents a 30.5 percent increase in the number of employees over the period between 2010 and 2045. Retail employment is expected to increase by more than 63 percent over the planning period, while service employment is expected to increase by nearly 19 percent between 2010 and 2045. "Other" employment is expected to increase by nearly 33 percent over the planning period; manufacturing employment is not expected to increase at as fast a rate as non-manufacturing employment within that sector. MPO staff utilized employment projections prepared by SRF Consulting Group in the development of the WisDOT Northeast Region model based on various sources, including Wisconsin Department of Workforce Development (DWD) information, second quarter 2010 data from the Quarterly Census of Employment and Wages (QCEW) from the Bureau of Labor Resources (BLS), 2010 ESRI Business Analyst employment data, and Woods and Poole employment projections, in forecasting employment levels through 2045. Figure 6.3 illustrates total employment projections for Sheboygan County through 2045.

Figure 6.3: Total Employment Projections, Sheboygan County, 2010-2045



Source: U.S. Bureau of Labor Statistics, Quarterly Census of Employment and Wages, (QCEW), Second Quarter 2010; Wisconsin Department of Workforce Development, 2010; ESRI Business Analyst, 2010; Woods & Poole, 2013; SRF Consulting Group, Inc., 2012, 2013 and 2014; and Bay-Lake Regional Planning Commission, 2014.

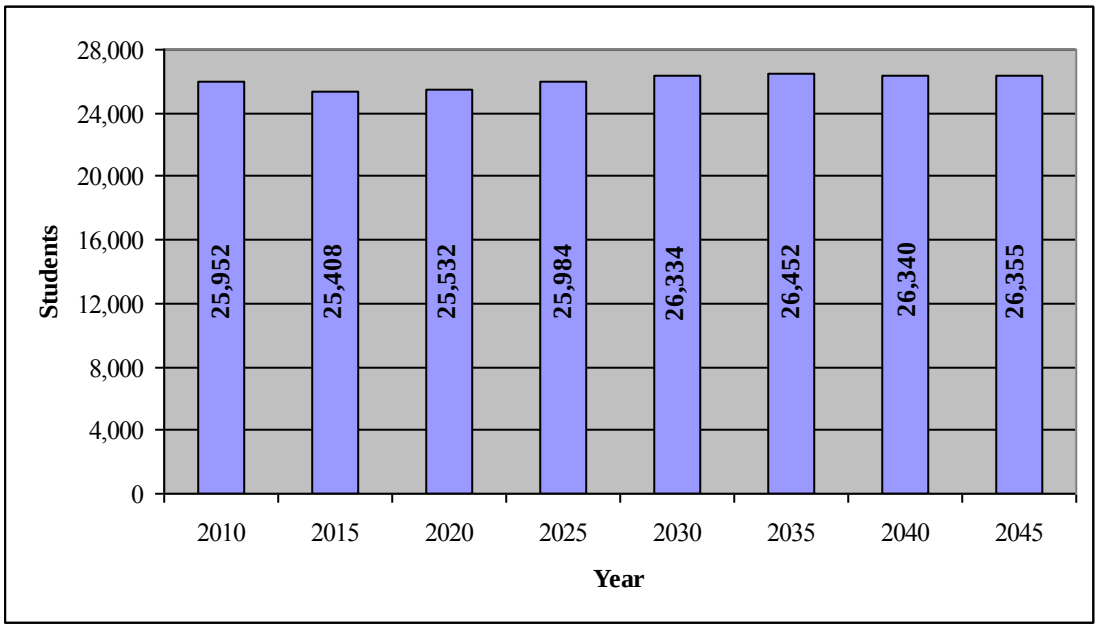
School Enrollment Projections

Site-based school enrollment data were compiled for all schools in Sheboygan County (Kindergarten through 12th Grade as well as post-secondary institutions) for the third Friday of the 2010 – 2011 school year. In addition, site-based school enrollment data were compiled for elementary and secondary schools in the county for the third Friday of the 2010 – 2011 school year.

In 2010, there were 25,952 students enrolled at school sites throughout Sheboygan County; this included all grade levels at public and private elementary and secondary schools, plus students enrolled full-time or part-time in post-secondary courses at three institutions located in Sheboygan County (UW Sheboygan, Lakeland College, and Lakeshore Technical College sites within Sheboygan County). A total of 26,355 enrolled students are projected for 2045. This represents a nearly 1.6 increase in the number of enrolled students over the period between 2010 and 2045. Projections decrease from 2010 to 2015, increase from 2015 to 2035, decrease from 2035 to 2040, and increase slightly from 2040 to 2045. Projected county-level variability in population over time in the age cohorts which feed elementary and secondary schools and colleges, universities and technical colleges (supplied by the Wisconsin Department of Administration Demographic Services Center) are the cause of the projected variation, even though increases in all other socioeconomic projections are generally anticipated. This variation demonstrates the cyclical nature of age cohort population projections.

Figure 6.4 illustrates school enrollment projections for Sheboygan County through 2045.

Figure 6.4: School Enrollment Projections, Sheboygan County, 2010-2045



Source: Wisconsin Department of Public Instruction, 2010; Sheboygan Area Post-Secondary Institutions (UW Sheboygan, Lakeland College and Lakeshore Technical College), 2010; Wisconsin Department of Administration, Demographic Services Center, 2013 and 2014; and Bay-Lake Regional Planning Commission, 2014.

Allocation of Socioeconomic Projections to TAZs Under Land Use Scenarios

Three growth scenarios were developed for the Sheboygan metropolitan planning area to spatially simulate potential development projections for the long-range future (2045). These growth scenarios were tested by the travel demand forecast model in terms of their impacts on the transportation network, and were based on the socioeconomic projections discussed in the previous section. The growth scenarios examined for the metropolitan planning area were as follows:

- **Scenario 1** involved the **"continuation of existing trends,"** and assumed that new development would follow the traditional development pattern of low-density, fragmented, noncontiguous development (Map 6.2);
- **Scenario 2** involved **"compact/infill development,"** and assumed that development would take place in a more compact fashion at higher densities (Map 6.3); and
- **Scenario 3** involved **"corridor development,"** and assumed that development would take place at low to medium densities along major transportation corridors (Map 6.4).

These growth scenarios were conceptually developed by the MPO Technical and Policy Advisory Committees in early 2013, and were quantitatively developed by MPO staff in much of 2013 and in the first quarter of 2014. *Development and quantification of growth scenarios is only done once each decade, following the completion of a decennial census.*

Table 6.2 shows that differences between the three land use scenarios are fairly small. Average daily vehicle miles traveled (VMT) and vehicle hours traveled (VHT) are minimized under Scenario 2, but there is only a small difference in VMT and VHT between the alternative land use scenarios. Table 6.2 also indicates that average speed is maximized under Scenario 2, but again, there is only a miniscule difference in average speed between the scenarios. Finally, Table 6.2 illustrates that there is little difference in the primary or secondary level of service (LOS) of streets and highways across the scenarios.

Table 6.2: Systemwide Transportation Impacts of 2045 Land Use/Development Scenarios, Sheboygan County

	2045 Scenario 1 Continuation of Existing Trends	2045 Scenario 2 Compact/Infill Development	2045 Scenario 3 Corridor Development
Average Daily Vehicle Miles Traveled (VMT)	3,433,570	3,411,823	3,445,255
Average Daily Vehicle Hours Traveled (VHT)	74,078	73,469	74,401
Average Speed (Miles per Hour)	46.35	46.44	46.31
Level of Service (Percent of System):			
A, B or C (Not Congested)	97.36%	97.36%	97.49%
D (Moderately Congested)	2.19%	2.19%	2.05%
E (Severely Congested)	0.18%	0.18%	0.19%
F (Breakdown Conditions)	0.27%	0.27%	0.27%

Notes:
(1) The 2045 systemwide transportation impact data are based on model assignments made to the existing plus committed street and highway network under each land use scenario.
(2) The congestion status of lane miles on the street and highway network was determined through a "level of service" (LOS) analysis. "Primary LOS" only measures LOS at locations on the network that have WisDOT traffic counts. "Secondary LOS" includes primary LOS, and also forecasts traffic levels at locations on the network where there have been no WisDOT traffic counts. This analysis uses secondary LOS to determine the congestion status of facilities. Table 5.28 can assist in determining whether a congested facility has intolerable congestion or if spot improvements are appropriate at such a facility.
(3) The percentage of the system at the various levels of service was calculated based on lane miles on the street and highway network in Sheboygan County.
Source: Wisconsin Department of Transportation, 2015; and Bay-Lake Regional Planning Commission, 2015.

Land taken (county-wide) for development (for both residential and economic development) involved about 6,347 acres for Scenario 1, 5,825 acres under Scenario 2, and 6,928 acres under Scenario 3. Most of the land taken under each scenario was for residential development.

Selection of a "Preferred" Development Scenario

The Sheboygan MPO Technical and Policy Advisory Committees deliberated over the selection of one of the three land use scenarios to carry forward in the remaining development of the *Year 2045 SATP* at its November 2014 joint meeting; this deliberation included evaluation of the benefits, costs and impacts of the scenarios. At the November 2014 meeting, members of both committees in attendance selected Scenario 1 (Continuation of Existing Trends) as the preferred development vision, primarily due to its conformity with locally adopted comprehensive plans in cities, villages and towns in the metropolitan planning area and throughout Sheboygan County. It was acknowledged that all three proposed scenarios were projected to have fairly similar

transportation impacts. *Selection of a "preferred" growth scenario is typically only done once each decade, following the completion of a decennial census*.

All statements made from this point forward in this update to the *Year 2045 SATP* assume implementation of Scenario 1 over the planning period.

Travel Demand Forecast Modeling Process

Background

The travel demand forecast modeling process began with a base model for 2010. The model used traffic counts from 2008, which best reflected traffic as it existed during the 2010 Census. The model estimated traffic in 2010 by inputting demographic and employment data from the 2010 Census, from various employment data sources, as well as local school enrollment data from the Wisconsin Department of Public Instruction, for the year 2010. The model was then calibrated to the traffic counts taken in 2008.

Socioeconomic projections produced by the MPO were inputted into the calibrated travel demand forecast model to identify roadway deficiencies in 2045. Based on the deficiencies, a package of possible capacity modifying projects was developed by MPO staff, the Sheboygan MPO Technical and Policy Advisory Committees, and with input from the public. These projects were tested by the model, and projects deemed to be effective were advanced to the recommended plan approved by the MPO. The recommended plan is a set of multimodal, policy-based and roadway capacity improvement actions designed to address projected deficiencies.

Preliminary modeling of the countywide roadway network in 2045 within the Sheboygan metropolitan planning area identified potential and actual deficiencies as: State Highway 28 (14th Street) from Indiana Avenue to State Highway 23/Erie Avenue; State Highway 42 (North 14th Street) from State Highway 23/Erie Avenue to Michigan Avenue and from Superior Avenue to Saemann Avenue; State Highway 28 in the vicinity of Interstate Highway 43; and County Highway OK/South Business Drive between the Country Village Apartments and Indian Meadows Mobile Home Park (although the new center turn lane present in much of this corridor, which could not be coded in the model, probably allows County Highway OK to function more efficiently than indicated).

Preliminary modeling also identified several links as being worthy of monitoring but not necessarily deficient, including: State Highway 28 (South 14th Street) between Georgia Avenue and Indiana Avenue; State Highway 42 (North 14th Street) between Michigan Avenue and Superior Avenue; State Highway 28 between County Highway EE and Interstate Highway 43 and between South Taylor Drive and South 32nd Street; the roundabout intersection of State Highways 28 and 32; State Highway 32 between County Highway C/Fond du Lac Avenue and State Highway 23; State Highway 42 between County Highway Y and County Highway A; portions of County Highway OK/South Business Drive immediately north and south of County Highway EE/Weeden Creek Road (although the center turn lane, which could not be coded in the model, probably allows the segment north of County Highway EE/Weeden Creek Road to function more efficiently than indicated); County Highway EE/Broadway Street just northwest of State Highway 28; County Highway O/Superior Avenue from County Highway Y to North 40th Street and Wilgus Avenue (although the center turn lane, which could not be coded in the model, probably allows County Highway O to function more efficiently than indicated); Erie Avenue east of North 14th Street; and North 40th Street north of State Highway 42.

In early 2015, Wisconsin Department of Transportation travel forecasting staff completed modeling for eight roadway improvement projects involving capacity modifications in the metropolitan planning area based on input from the public, local municipalities, WisDOT staff, and the MPO committees and staff. The MPO Technical and Policy Advisory Committees reviewed the results of the modeling, and were asked to consider the merits and impacts of the modeled projects. The MPO Technical and Policy Advisory Committees advanced seven of the eight projects to inclusion in this *Year 2045 SATP*. An eighth project, a full interchange on Interstate Highway 43 with County Highway PP/Lower Falls Road/Indiana Avenue, was not advanced due to anticipated development in a portion of the proposed interchange; instead, a half interchange (with an off ramp from the northbound lanes and an on ramp to the southbound lanes) has been advanced for inclusion in the plan.

Requirements and Guidance

Essentially, the MPO is required to identify roadways in the area that will exceed a standard level of service in the year 2045 and to recommend actions designed to bring forecasted traffic volumes within acceptable thresholds. These actions can be a combination of operational, policy-based, intermodal, and roadway improvements. Inclusion of this planning process in the long-range transportation plan ensures the continuation of Federal transportation funding in the area.

Federal

The Federal Highway Administration (FHWA) Wisconsin Division office issued guidance regarding "Metropolitan Transportation Plan Capacity Analysis" in March 2015. The following narrative relates to such analysis in the context of planning requirements and their application; project development requirements are also addressed in this guidance, but are not being incorporated into this discussion.

Federal planning regulations require that the metropolitan transportation plan include both long-range and short-range strategies and/or actions that lead to the development of an integrated multimodal transportation system to facilitate the safe and efficient movement of people and goods in addressing current and future transportation demand. The plan shall include an assessment of capital investment and other strategies to preserve the existing and projected future metropolitan transportation infrastructure, and provide for multimodal capacity increases based on regional priorities and needs. The metropolitan transportation plan may consider projects and strategies that address areas or corridors where current or projected congestion threatens the efficient functioning of key elements of the metropolitan area's transportation system. Design concept and design scope descriptions of all existing and proposed transportation facilities shall be provided in sufficient detail to develop cost estimates and determine air quality impacts.

Federal planning requirements do not specify procedures or thresholds for purposes of identifying acceptable levels of roadway congestion. For continuity between planning and project development, the WisDOT LOS thresholds are incorporated into the MPO travel demand forecast models to determine locations on area roadways that exceed or are expected to exceed acceptable levels of congestion during the plan period. Flexibility exists for an MPO to establish a more congested LOS for purposes of evaluating capacity in developing the long-range transportation plan. However, the level of analysis performed at the regional plan level will not in itself support an exception to the National Highway System (NHS) capacity requirement when projects are advanced for development.

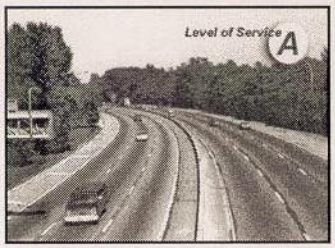
It is expected that MPOs will evaluate capacity needs identified in the planning process and

recommend cost-effective strategies and improvements necessary to maintain acceptable levels of service on the regional transportation system. Strategies may include operational improvements, system management, demand management, expansion of other travel modes, capacity expansion and new facilities. MPO long-range transportation plan recommendations are subject to fiscal constraint. The extent of major improvement recommendations and schedule for implementation should be coordinated with project sponsors and funding authorities to ensure consistency with anticipated funding programs and priorities. The plan should also acknowledge that capacity expansion recommendations will be thoroughly evaluated in more detailed planning or project National Environmental Policy Act (NEPA) studies to account for environmental and community factors in determining if expansion is a prudent alternative.

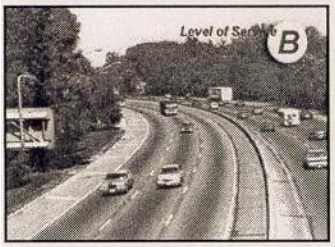
State

Projected LOS ratings (from "A" to "F") are determined by running the travel demand forecast model for the year 2045. Average daily traffic (ADT) volumes are assigned by the model for each roadway segment. Volumes are calibrated based on existing counts (where available), and are compared to a table which assigns an LOS rating. This rating is based on various roadway characteristics, including speed, travel time, freedom to maneuver, traffic interruptions, comfort, convenience, and safety. The LOS ratings are then compared to a threshold set by the Wisconsin Department of Transportation (see Table 5.28).

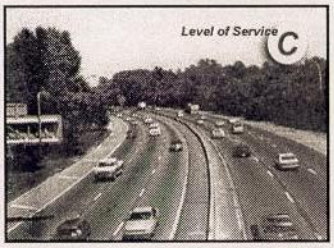
This *Year 2045 SATP* addresses roadways with LOS ratings that exceed LOS "C" for Interstate Highway 43, LOS "D" for State Highway 23, and LOS "E" for all other roadways in the metropolitan planning area. Levels of service range from free-flowing traffic at LOS "A" to gridlock at LOS "F." The following graphic illustrates level of service on an urban roadway.



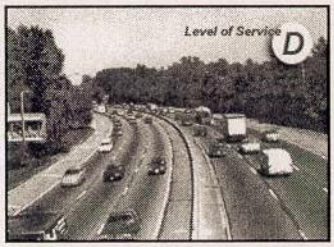
LOS A. Traffic is the most free-flowing. Vehicles are unaffected by other traffic. The driver is free to change lanes at will with little or no consideration to speed, local weather conditions, or other considerations. The level of comfort and convenience to the traveler, including pedestrians, is excellent.



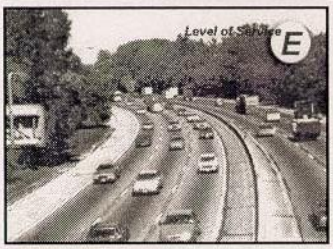
LOS B. Traffic flow is stable. The presence of other traffic users becomes noticeable. The driver may still select any speed but the ability to maneuver begins to decline. The presence of other vehicles begins to affect a driver's behavior. The driver does not have a totally open road.



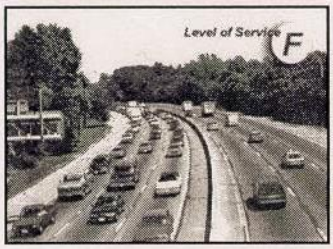
LOS C. The range of traffic flow is stable. However, the driver's range of choices is beginning to be significantly affected by the volume of traffic. Maneuvering is only accomplished by an alert driver.



LOS D. Traffic flow is still stable, but on the fringe of breaking down. The driver is in a high density of vehicles where both speed and freedom to maneuver are severely restricted. Drivers experience a poor level of driving comfort. The slightest increase of traffic volume will cause a break down in traffic flow. This LOS is the transition zone between acceptable and unacceptable levels of traffic.



LOS E. The street is at capacity or slightly over. Speeds are low but consistent. Maneuvering is accomplished by forcing into another lane. Driver frustration is high. Minute increases in traffic volume or the slightest traffic incident cause the street to fail in its ability to carry the maximum number of vehicles. Several motorists complain to local officials.



LOS F. The amount of traffic is beyond the street capacity. Long lines form. There is stop and go traffic. Drivers experience extreme frustration. Complaints pour into city, state, and federal transportation offices.

Model Testing

The travel demand forecast model is "calibrated" to current conditions. This means that the base year traffic volumes assigned by the model are statistically equivalent to actual traffic counts. This calibration, as well as the comparing and adjusting of projected volumes to actual counts in the base year, helps to determine the most accurate LOS ratings.

Scenario 1 (Continuation of Existing Trends) in 2045 with the Existing + Committed Network

The travel demand forecast model includes committed roadway projects expected to be completed by 2045. "Committed" projects are those projects that are included in WisDOT region plans, work plans, and/or Statewide Transportation Improvement Programs (STIPs). The list of projects is based on input from WisDOT and from local municipalities in the metropolitan planning area. The existing plus committed (E + C) model, with the socioeconomic projections allocated to the TAZ level, models the selected growth scenario (Scenario 1, Continuation of Existing Trends).

The following committed projects have an impact of the 2045 traffic network, and are modeled (where possible) as part of the E + C network:

- Reconstruction of State Highway 23 from Plymouth to the Fond du Lac County line with an increase from 2 to 4 lanes (to be completed over the next several years).
- Reconstruction of County Highway O/Superior Avenue from Woodland Road to Interstate Highway 43 (Town of Sheboygan) with the addition of a center turning lane (completed);
- Reconstruction of County Highway OK/South Business Drive from Camelot Boulevard to County Highway EE/Weeden Creek Road (City of Sheboygan) with the addition of a center turning lane (completed); and
- New "event only" half interchange (to serve traffic coming to and from the south) on Interstate Highway 43 at Rowe Road (Town of Mosel – completed);

In addition, although they cannot be modeled, several roundabouts have been committed for construction at the following locations:

- Intersection of County Highways A and EE (Town of Wilson – committed for 2015);
- Intersection of State Highway 32 and Happy Lane (City of Sheboygan Falls – committed for 2016); and
- Intersection of State Highway 28 and County Highway EE (boundary of multiple jurisdictions - committed for 2017 and 2018).

Projected Deficiencies

The current conditions model is compared to the 2045 model (assuming implementation of the Continuation of Existing Trends scenario) to determine the effects of increased development and traffic on the street and highway network.

The base year model indicates potential or actual deficiencies on the following links in 2010:

- State Highway 28/14th Street between Indiana Avenue and State Highway 23/Erie Avenue; and

- State Highway 28/Washington Avenue between Interstate Highway 43 and South Taylor Drive.

The base year model also identified the following links as being worthy of monitoring but not necessarily deficient in 2010:

- State Highway 28/South 14th Street between Georgia Avenue and Indiana Avenue;
- State Highway 28 between County Highway EE and Interstate Highway 43;
- State Highway 42/North 14th Street between State Highway 23/Erie Avenue and Saemann Avenue;
- State Highway 42 between just northwest of County Highway Y and County Highway A;
- State Highway 32 between Forest Avenue and State Highway 23;
- The roundabout intersection of State Highways 28 and 32; and
- County Highway OK between the Country Meadows Apartments and the Indian Meadows Mobile Home Park (although the center turn lane, which could not be coded in the model, probably allows County Highway OK to function more efficiently than indicated).

The horizon year "Continuation of Existing Trends" model indicates potential or actual deficiencies on the following links in 2045:

- State Highway 28 (14th Street) from Indiana Avenue to State Highway 23/Erie Avenue;
- State Highway 42 (North 14th Street) from State Highway 23/Erie Avenue to Michigan Avenue;
- State Highway 42 (North 14th Street) from Superior Avenue to Saemann Avenue;
- State Highway 28 in the vicinity of Interstate Highway 43; and
- County Highway OK/South Business Drive between the Country Village Apartments and Indian Meadows Mobile Home Park (although the new center turn lane present in much of this corridor, which could not be coded in the model, probably allows County Highway OK to function more efficiently than indicated).

In addition, the horizon year "Continuation of Existing Trends" model also identified several links as being worthy of monitoring but not necessarily deficient in 2045, including the following:

- State Highway 28 (South 14th Street) between Georgia Avenue and Indiana Avenue;
- State Highway 42 (North 14th Street) between Michigan Avenue and Superior Avenue;
- State Highway 28 between County Highway EE and Interstate Highway 43;
- State Highway 28 (Washington Avenue) between South Taylor Drive and South 32nd Street;
- The roundabout intersection of State Highways 28 and 32;
- State Highway 32 between County Highway C/Fond du Lac Avenue and State Highway

23;

- State Highway 42 between County Highway Y and County Highway A;
- Portions of County Highway OK/South Business Drive immediately north and south of County Highway EE/Weeden Creek Road (although the center turn lane, which could not be coded in the model, probably allows the segment north of County Highway EE/Weeden Creek Road to function more efficiently than indicated);
- County Highway EE/Broadway Street just northwest of State Highway 28;
- County Highway O/Superior Avenue from County Highway Y to North 40th Street and Wilgus Avenue (although the center turn lane, which could not be coded in the model, probably allows County Highway O to function more efficiently than indicated);
- Erie Avenue east of North 14th Street; and
- North 40th Street north of State Highway 42.

Map 6.5 illustrates the deficiencies forecasted in 2045 in the metropolitan planning area.

Projects Tested with the Model

Map 6.6 illustrates projects that were tested by the travel demand forecast model for the horizon year of 2045. The projects were proposed for testing by the MPO Technical and Policy Advisory Committees at their joint meeting in November 2014. WisDOT travel forecasting staff tested the projects with the model in late 2014 and early 2015. The following projects were tested:

(1) South Taylor Drive
County Highway EE/Weeden Creek Road to County Highway V
New 4 Lane Facility

(2) Interstate Highway 43
At County Highway FF
New Full Interchange

(3) South 18th Street
County Highway EE/Weeden Creek Road to County Highway V
New 2 Lane Facility

(4) Interstate Highway 43
At County Highway PP/Lower Falls Road/Indiana Avenue
New Full of Half Interchange (to serve traffic coming to and from the south in the case of a half interchange)

(5) County Highway TT
County Highway PP to STH 28
New 2 Lane Facility

(6) State Highway 42
County Highway Y to County Highway A/Howards Grove
Reconstruction from 2 to 4 Lanes

(7) State Highway 23
Western Boundary of the Sheboygan Metropolitan Planning Area to State Highway 32
Various Projects (from the Corridor Preservation and Freeway Designation Study)

One additional partial project was recommended for testing by the MPO advisory committees even though it is located outside the metropolitan planning area. This involved various improvements to State Highway 23 immediately west of County Highway C in the Plymouth area and between State Highway 57 and the western boundary of the Sheboygan metropolitan planning area. These improvements have been recommended in the State Highway 23 Corridor Preservation and Freeway Designation Study conducted by the Wisconsin Department of Transportation. Improvements between State Highways 67 and 57 in the Plymouth area have not been tested at this time because WisDOT and the local affected communities (City and Town of Plymouth) have not come to agreement as to the preferred alignments in this area.

All tested projects either improved traffic conditions or at least did not harm traffic conditions in 2045.

Roundabouts were significant elements of several of the projects that were tested by the model; however, as was stated earlier in this chapter, roundabouts cannot be directly tested by the model.

Final Decisions by the MPO Technical and Policy Advisory Committees on Capacity Modifying Projects to be Included in this *Year 2045 SATP*

The Sheboygan MPO Technical and Policy Advisory Committees agreed to advance the following capacity modifying projects to inclusion in this *Year 2045 SATP*:

(1) South Taylor Drive
County Highway EE/Weeden Creek Road to County Highway V
New 4 Lane Facility
Recommended implementation period: 2016 – 2025

(2) County Highway TT
County Highway PP to State Highway 28
New 2 Lane Facility
Recommended implementation period: 2016 - 2025

(3) Interstate Highway 43
At County Highway FF
New Full Interchange
Recommended implementation period: 2026 - 2035

(4) South 18th Street
County Highway EE/Weeden Creek Road to County Highway V
New 2 Lane Facility
Recommended implementation period: 2026 - 2035

(5) Interstate Highway 43
At County Highway PP/Lower Falls Road/Indiana Avenue
New Half Interchange (to and from the south)
Recommended implementation period: 2026 - 2035

(6) State Highway 42
County Highway Y to County Highway A/Howards Grove
Reconstruction from 2 to 4 Lanes
Recommended implementation period: 2036 - 2045

(7) State Highway 23
Western Boundary of the Sheboygan Metropolitan Planning Area to State Highway 32
Various Projects (from the Corridor Preservation and Freeway Designation Study)
Recommended implementation period: 2036 - 2045

A full interchange on Interstate Highway 43 with County Highway PP/Lower Falls Road/Indiana Avenue was not advanced to inclusion in the *Year 2045 SATP*. A potential development in the northeastern portion of this tested interchange precluded the ability to recommend a full interchange at this location. Instead, a half interchange (with an off ramp from the northbound lanes and an on ramp to the southbound lanes) has been advanced to inclusion in the plan.

The recommended interchanges will need to involve further study. Certain conditions will need to be considered in such studies, including: (1) fulfillment of the requirements of an Interstate Access Justification Report (IAJR); and (2) determination that the proposed interchanges would not worsen traffic conditions on Interstate Highway 43. In the case of the half interchange on Interstate Highway 43 at County Highway PP/Lower Falls Road/Indiana Avenue, there would also need to be a determination that the proposed improvement will not adversely impact the natural environment at its proposed location (the Sheboygan River valley is located in the area proposed for this interchange).

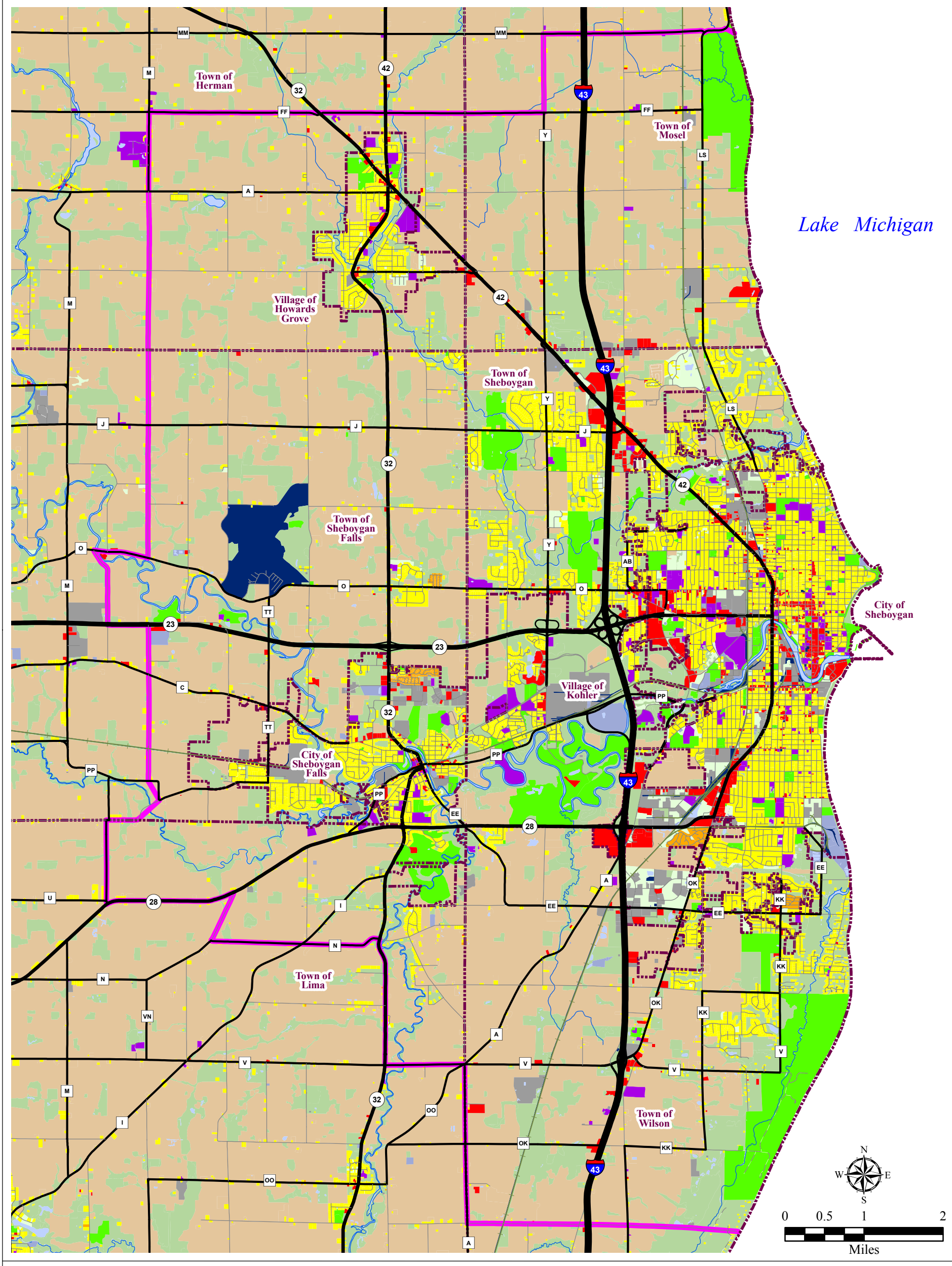
One additional partial project was recommended for implementation (from 2036 through 2045) even though it is located outside the metropolitan planning area. This involved various improvements to State Highway 23 immediately west of County Highway C in the Plymouth area and between State Highway 57 and the western boundary of the Sheboygan metropolitan planning area. These improvements have been recommended in the State Highway 23 Corridor Preservation and Freeway Designation Study conducted by the Wisconsin Department of Transportation. Improvements between State Highways 67 and 57 in the Plymouth area are not being modeled at this time because WisDOT and the local affected communities (City and Town of Plymouth) have not come to agreement as to the preferred alignments in this area.

Map 6.1

2009 Land Use Inventory

Sheboygan Metropolitan Planning Area

Year 2045 Sheboygan Area Transportation Plan (SATP)



Sheboygan Metropolitan Planning Area Boundary

Residential
Mobile Homes
Commercial
Industrial
Transportation
Communications/Utilities
Governmental/Institutional
Parks and Recreation
Open Space/Fallow Fields
Agricultural
Water Features
Woodlands/Natural Areas

BAY-LAKE REGIONAL PLANNING COMMISSION

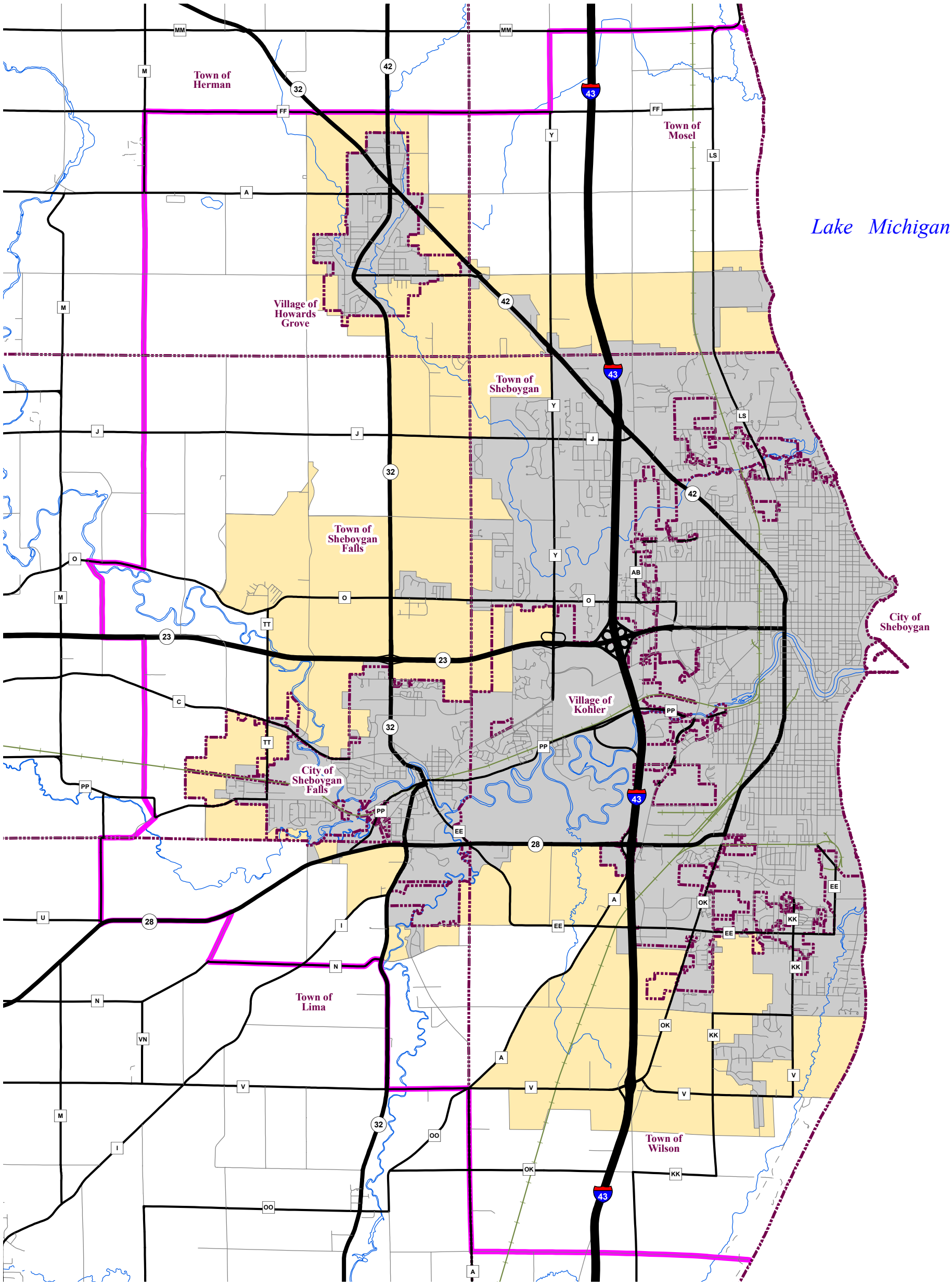
G:/Sheboygan/MPO/SATP/2045
Source: WDNR, 2009; WDOT, 2013; Sheboygan County, 2015; Bay-Lake Regional Planning Commission, 2009, 2015.

Map 6.2

Scenario 1: Continuation of Existing Trends

Sheboygan Metropolitan Planning Area

Year 2045 Sheboygan Area Transportation Plan (SATP)



Sheboygan Metropolitan Planning Area Boundary

2010 Existing Urban Development

2045 Development Trend

N W E S

0 0.5 1 2

Miles

BAY-LAKE Regional Planning Commission

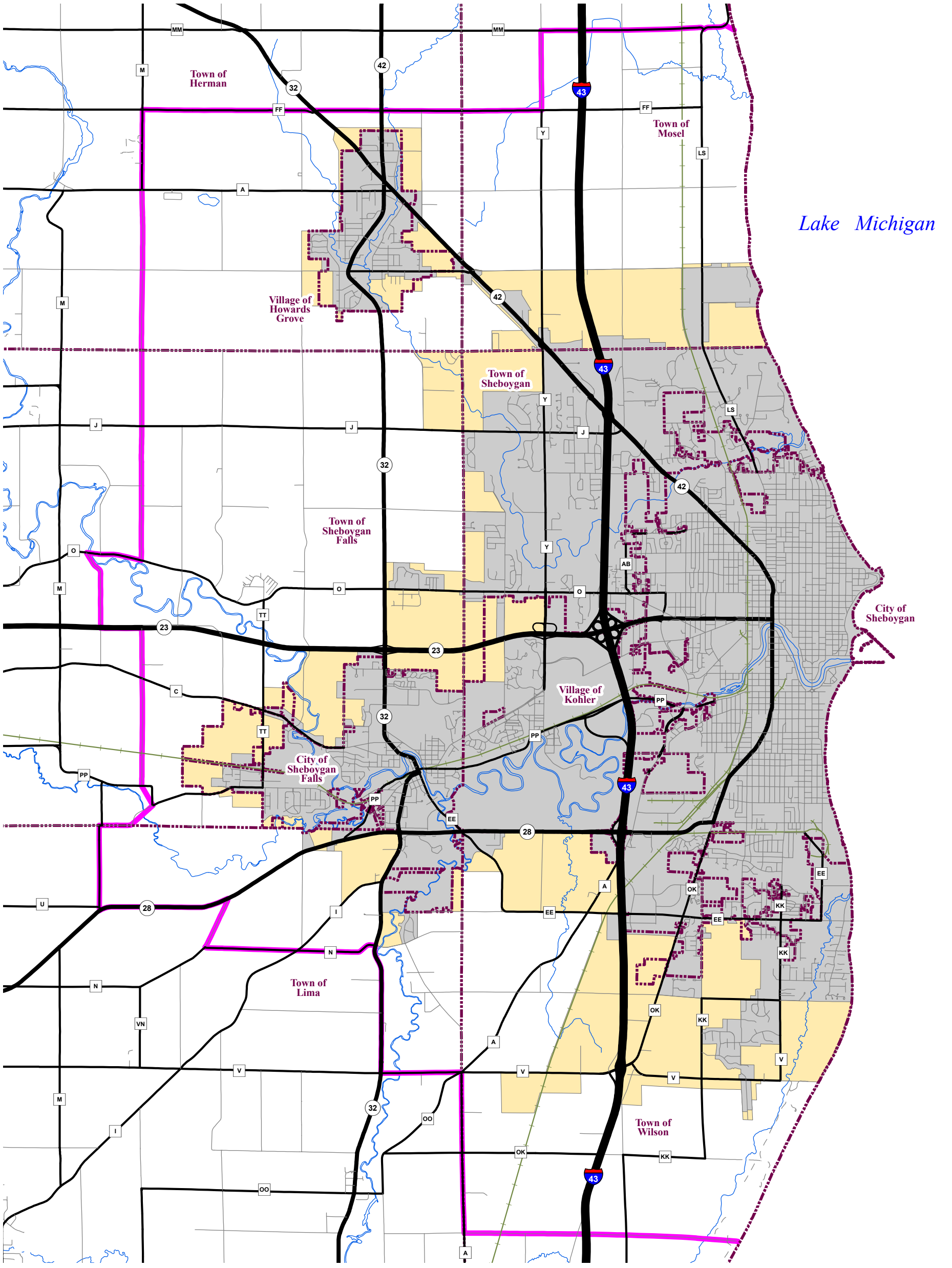
G:/Sheboygan/MPO/SATP/2045
Source: WDNR, 2009; WDOT, 2013; Sheboygan County, 2015; Bay-Lake Regional Planning Commission, 2015.

Map 6.3

Scenario 2: Compact/Infill Development

Sheboygan Metropolitan Planning Area

Year 2045 Sheboygan Area Transportation Plan (SATP)



Sheboygan Metropolitan Planning Area Boundary

2010 Existing Urban Development

2045 Development Trend

N W E S

0 0.5 1 2

Miles

BAY-LAKE Regional Planning Commission

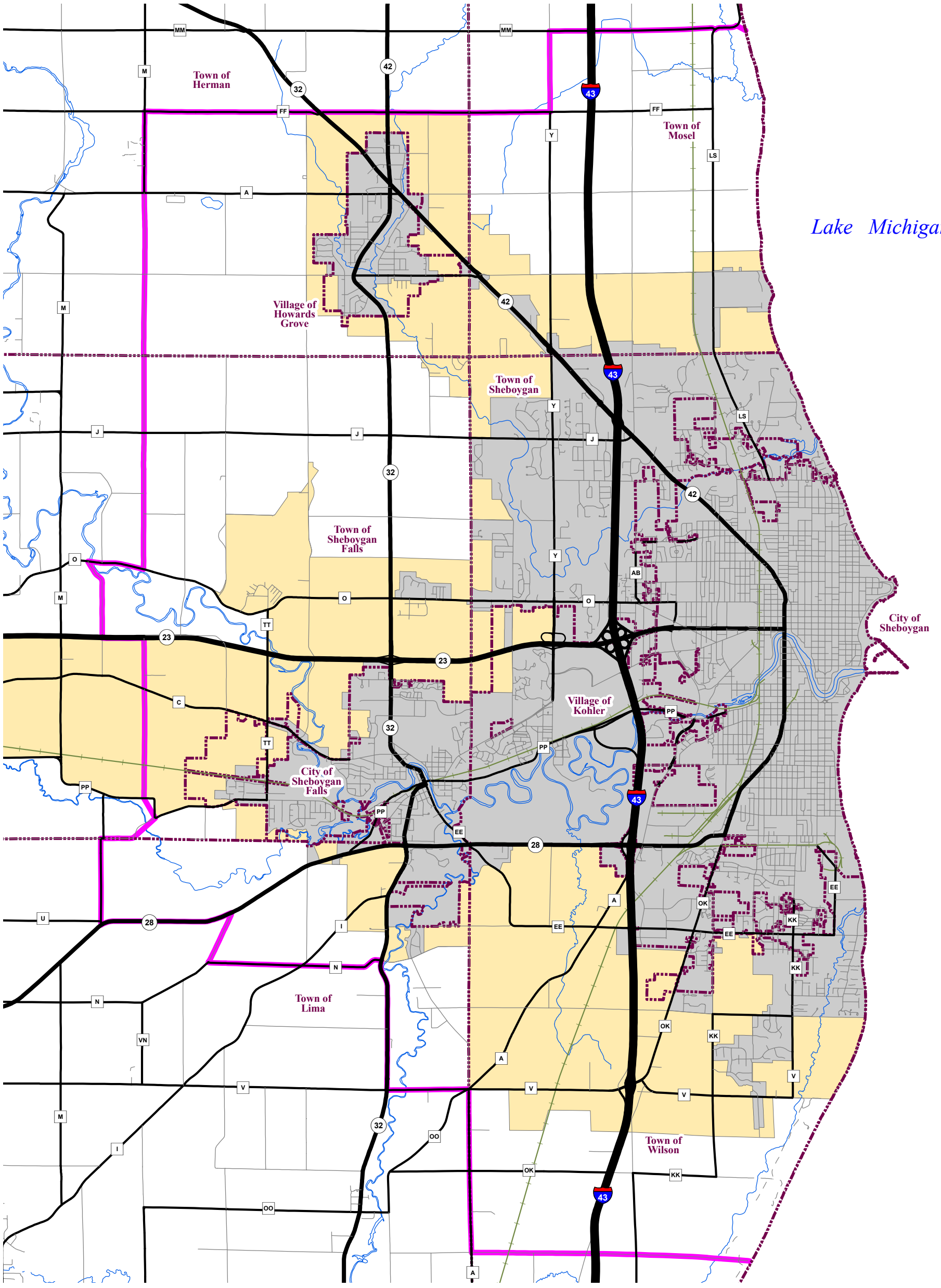
G:/Sheboygan/MPO/SATP/2045
Source: WDNR, 2009; WDOT, 2013; Sheboygan County, 2015; Bay-Lake Regional Planning Commission, 2015.

Map 6.4

Scenario 3: Corridor Development

Sheboygan Metropolitan Planning Area

Year 2045 Sheboygan Area Transportation Plan (SATP)



Sheboygan Metropolitan Planning Area Boundary

2010 Existing Urban Development

2045 Development Trend

N W E S

0 0.5 1 2

Miles

BAY-LAKE Regional Planning Commission

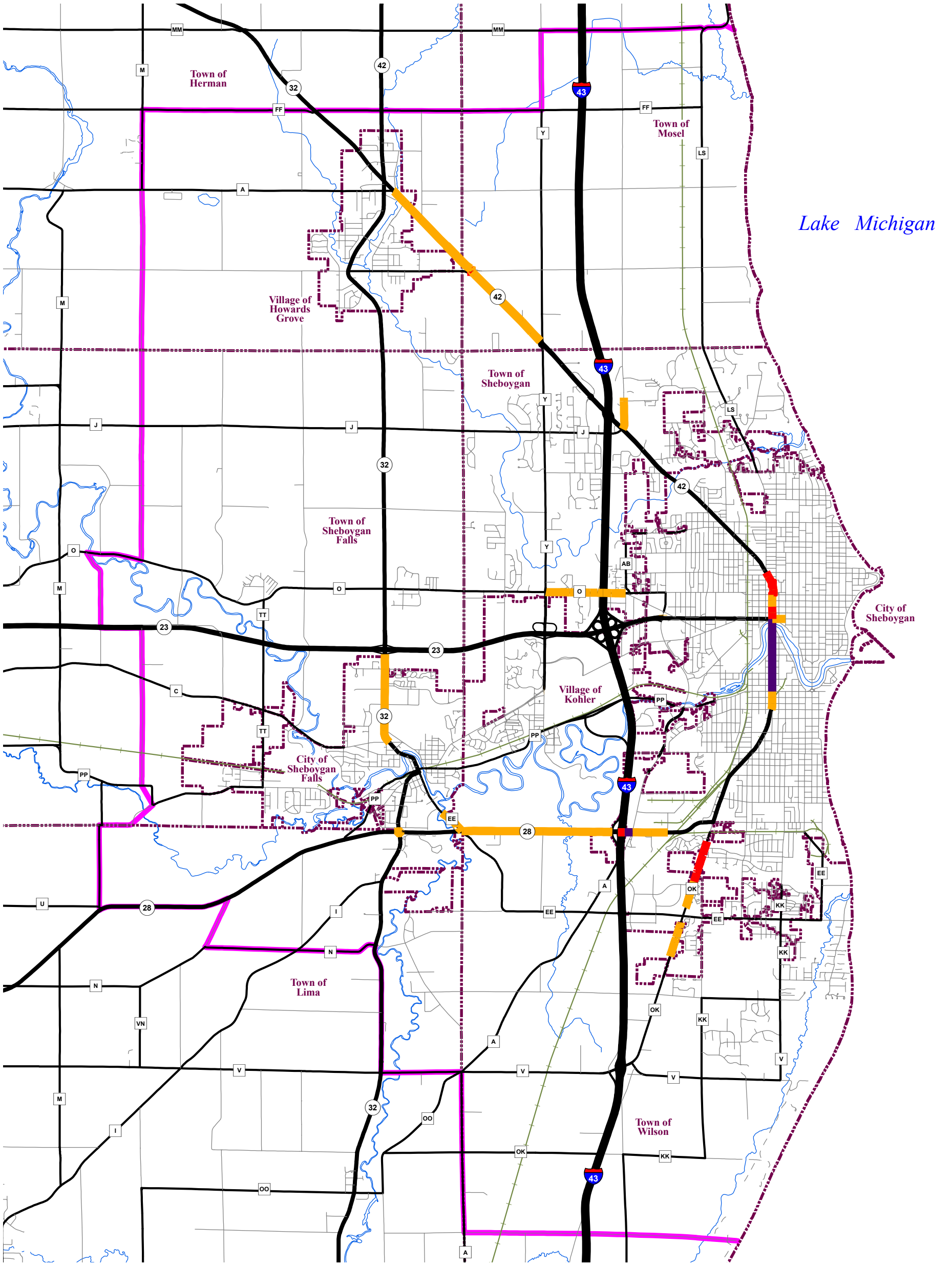
G:/Sheboygan/MPO/SATP/2045
Source: WDNR, 2009; WDOT, 2013; Sheboygan County, 2015; Bay-Lake Regional Planning Commission, 2015.

Map 6.5

Congestion Status of Streets and Highways in 2045

Sheboygan Metropolitan Planning Area

Year 2045 Sheboygan Area Transportation Plan (SATP)



Sheboygan Metropolitan Planning Area Boundary

Not Congested (LOS A-C)

Moderately Congested (LOS D)

Severely Congested (LOS E)

Breakdown Conditions (LOS F)

N W E S

0 0.5 1 2

Miles

BAY-LAKE Regional Planning Commission

G:/Sheboygan/MPO/SATP/2045

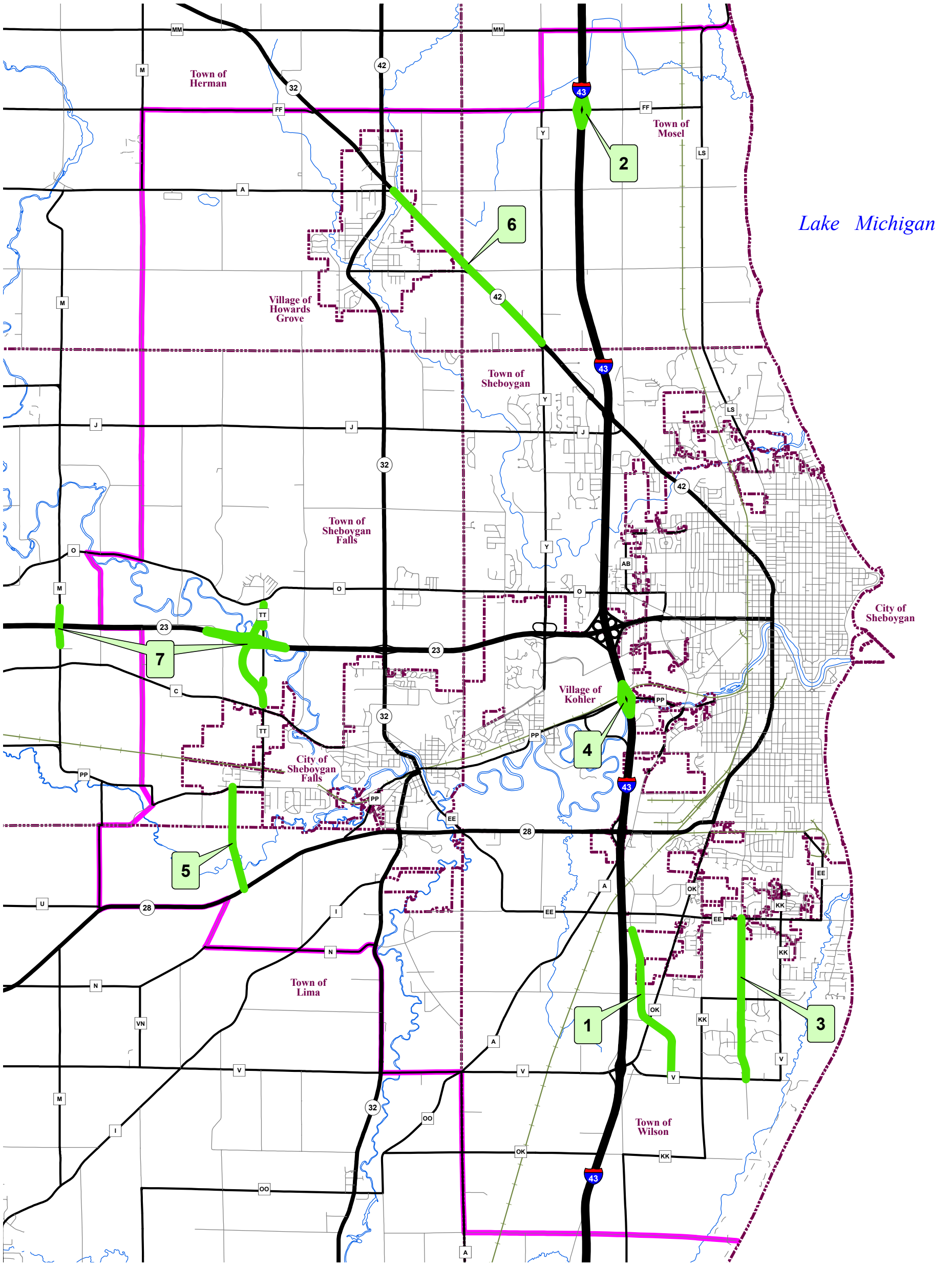
Source: WDNR, 2009; WDOT, 2013, 2014; Sheboygan County, 2015; Bay-Lake Regional Planning Commission, 2015.

Map 6.6

Projects Tested by the Travel Demand Forecast Model

Sheboygan Metropolitan Planning Area

Year 2045 Sheboygan Area Transportation Plan (SATP)



Sheboygan Metropolitan Planning Area Boundary

Projects Tested by the Travel Demand Forecast Model

N W E S

0 0.5 1 2

Miles

BAY-LAKE Regional Planning Commission

G:/Sheboygan/MPO/SATP/2045

Source: WDNR, 2009; WDOT, 2013, 2014; Sheboygan County, 2015; Bay-Lake Regional Planning Commission, 2015.

The numbers refer to a project list starting on page 6-15 of the text.

CHAPTER 7 : RECOMMENDED TRANSPORTATION PLAN

RECOMMENDED STREET AND HIGHWAY IMPROVEMENT PROJECTS

Recommended street and highway improvement projects include a limited number of capacity modifying projects, as well as system preservation projects and right-of-way/corridor preservation projects. **Capacity modifying projects** are defined as projects which add or delete travel lanes to an existing arterial or collector street or highway (system improvement projects) or involve the construction of an arterial or collector facility on a new alignment (system expansion projects). **System preservation projects** include a broad category of projects which involve the physical condition of an arterial or collector street or highway without modifying capacity to that facility. All of these projects have been classified into four implementation periods (2015; 2016 – 2025; 2026 – 2035; and 2036 – 2045) in order to be consistent with air quality conformity analyses required for the plan and its milestone years of analysis.

Capacity Modifying Projects

Table 7.1 and Map 7.1 identify recommended capacity modifying street and highway improvement projects in the Sheboygan metropolitan planning area for the 2015 – 2045 period.

2015

No capacity modifying projects are recommended for implementation in 2015:

2016 - 2025

Two capacity modifying projects are recommended for implementation in the 2016 – 2025 period:

- South Taylor Drive from County Highway EE/Weeden Creek Road to County Highway V: New 4 Lane Facility; and
- County Highway TT from County Highway PP to State Highway 28: New 2 Lane Facility.

2026 - 2035

Three capacity modifying projects are recommended for implementation in the 2026 – 2035 period:

- Interstate Highway 43 at County Highway FF: New Full Interchange;
- South 18th Street from County Highway EE/Weeden Creek Road to County Highway V: New 2 Lane Facility; and
- Interstate Highway 43 at County Highway PP/Lower Falls Road/Indiana Avenue: New Half Interchange (to and from the south).

2036 - 2045

Two capacity modifying projects are recommended for implementation in the 2036 – 2045 period:

- State Highway 42 from County Highway Y to County Highway A/Howards Grove: Reconstruction from 2 to 4 Lanes; and
- State Highway 23 from the western boundary of the Sheboygan metropolitan planning area to State Highway 32: Various Projects (from the Corridor Preservation and Freeway Designation Study).

Table 7.1: Recommended Capacity Modifying Street and Highway Improvement Projects, Sheboygan Metropolitan Planning Area, 2015 - 2045

SYSTEM EXPANSION PROJECTS					
Project Description/Termini	**Project Number (From Map 7.1)**	**2015**	**2016 - 2025**	**2026 - 2035**	**2036 - 2045**
South Taylor Drive County Highway EE/Weeden Creek Road to County Highway V New 4 Lane Facility (2.02 miles)	1	---	$14,856,000	---	---
County Highway TT County Highway PP to State Highway 28 New 2 Lane Facility (1.30 miles)	2	---	$9,944,000	---	---
Interstate Highway 43 At County Highway FF New Full Interchange (0.31 lane miles added)	3	---	---	$18,487,000	---
South 18th Street County Highway EE/Weeden Creek Road to County Highway V New 2 Lane Facility (2.03 miles)	4	---	---	$9,941,000	---
Interstate Highway 43 At County Highway PP/Lower Falls Road/Indiana Avenue New Half Interchange (to and from the south) (0.24 lane miles added)	5	---	---	$14,540,000	---
State Highway 23 Western Boundary of the Sheboygan Metropolitan Planning Area to State Highway 32 Various Projects (from Corridor Preservation and Freeway Designation Study) (2.73 miles)	6	---	---	---	$42,938,000
Total System Expansion Costs		$0	$24,800,000	$42,968,000	$42,938,000
SYSTEM IMPROVEMENT PROJECTS					
State Highway 42 County Highway Y to County Highway A/ Howards Grove Reconstruction with Increase from 2 to 4 Lanes (2.66 miles)	7	---	---	---	$14,859,000
Total System Improvement Costs		$0	$0	$0	$14,859,000

Source: Wisconsin Department of Transportation, 2014 and 2015; Sheboygan County Transportation Department, 2015; City of Sheboygan Department of Public Works, 2015; and Bay-Lake Regional Planning Commission, 2015.

The recommended interchanges along Interstate Highway 43 will need to involve further study. Certain conditions will need to be considered in such studies, including: (1) fulfillment of the requirements of an Interstate Access Justification Report (IAJR); and (2) determination that the proposed interchanges would not worsen traffic conditions on Interstate Highway 43. In the case of the half interchange on Interstate Highway 43 at County Highway PP/Lower Falls Road/Indiana Avenue, there would also need to be a determination that the proposed improvement will not adversely impact the natural environment at its proposed location (the Sheboygan River valley is located in the area proposed for this interchange).

Capacity Modifying Projects Outside the Metropolitan Planning Area but in the Sheboygan County Travel Demand Forecast Model (for Air Quality Conformity Analysis Purposes)

It should be noted that two capacity modifying projects outside the Sheboygan metropolitan planning area but in Sheboygan County were included in the travel forecast modeling in support of this plan update:

- State Highway 23 from Plymouth to the Fond du Lac County line: Reconstruction from 2 to 4 lanes (2016 to 2025 – The Fond du Lac County portion of this project is also included in the WisDOT Northeast Region travel demand forecast model for the same implementation period); and
- State Highway 23 immediately west of County Highway C in the Plymouth area and between State Highway 57 and the western boundary of the Sheboygan metropolitan planning area: Various improvements recommended in the State Highway 23 Corridor Preservation and Freeway Designation Study conducted by the Wisconsin Department of Transportation. (2036 to 2045 – Improvements between State Highways 67 and 57 in the Plymouth area are not being modeled at this time because WisDOT and the local affected communities have not come to agreement as to the preferred alignments in the area).

Capacity Modifying Projects Tested by the Travel Demand Forecast Model but not Recommended

A full interchange on Interstate Highway 43 with County Highway PP/Lower Falls Road/Indiana Avenue was not advanced to inclusion in the *Year 2045 SATP*. A potential development in the northeastern portion of this tested interchange precluded the ability to recommend a full interchange at this location. Instead, a half interchange (with an off ramp from the northbound lanes and an on ramp to the southbound lanes) has been advanced to inclusion in the plan.

Other projects were more generally suggested, but were not specific enough to be accounted for in the travel demand forecast modeling process.

System Preservation and Right-of-Way/Corridor Preservation Projects

Table 7.2 identified recommended *major* system preservation projects for arterial and collector streets and highways in the Sheboygan metropolitan planning area for the 2015 – 2045 period. "Major" projects are system preservation projects estimated to cost $2,000,000 or more. Other system preservation projects (costing less than $2,000,000) may be included in plans or programmed based on pavement condition and/or other documented needs.

Table 7.2: Recommended Major System Preservation Street and Highway Improvement Projects, Sheboygan Metropolitan Planning Area, 2015-2045

Project Description/Termini	2015	2016 - 2025	2026 - 2035	2036 - 2045
State Highway 28 Prange Road to South Taylor Drive Reconstruction - Urban - Same Capacity	$4,538,000	---	---	---
Miscellaneous Small System Preservation Projects	$4,235,000	---	---	---
Miscellaneous WisDOT Grouped Projects	$1,200,000	---	---	---
State Highway 42/Calumet Drive Main Avenue to North 26th Street Reconstruction - Urban - Same Capacity	---	$3,098,000	---	---
South Business Drive Railroad Overpass South of Washington Avenue Bridge Replacement	---	$2,098,000	---	---
Interstate Highway 43 State Highway 42 to Manitowoc County Line Roadway Maintenance	---	$12,100,000	---	---
North Avenue State Highway 42/Calumet Drive to North 15th Street Reconstruction - Urban - Same Capacity	---	$3,628,000	---	---
State Highway 32 State Highway 42 to State Highways 32/57 South Junction Resurfacing	---	$3,919,000	---	---
North 15th Street State Highway 42/Calumet Drive to North Avenue Reconstruction - Urban - Same Capacity	---	$3,771,000	---	---
North Avenue North 15th Street to North 3rd Street Reconstruction - Urban - Same Capacity	---	$5,211,000	---	---
County Highway EE/Weeden Creek Road South Taylor Drive to Lakeshore Drive Reconstruction - Urban - Same Capacity	---	$7,430,000	---	---
County Highway OK/South Business Drive County Highway EE/Weeden Creek Road to County Highway V Reconstruction - Rural - Same Capacity	---	$3,000,000	---	---
Mill Road Najacht Road to State Highway 42 Reconstruction - Urban - Same Capacity	---	$2,685,000	---	---
Miscellaneous Small System Preservation Projects	---	$3,961,000	---	---
Miscellaneous WisDOT Grouped Projects	---	$13,704,000	---	---
County Highway Y County Highway O/Superior Avenue to State Highway 42 Reconstruction - Urban - Same Capacity	---	---	$4,194,000	---
Miscellaneous WisDOT Grouped Projects	---	---	$17,372,000	---
Miscellaneous WisDOT Grouped Projects	---	---	---	$22,021,000
Total System Preservation Project Costs	$9,973,000	$64,605,000	$21,566,000	$22,021,000

Note: Specifically identified system preservation projects are those system preservation projects estimated to cost $2,000,000 or more.

Source: City of Sheboygan Department of Public Works, 2014; Sheboygan County Transportation Department, 2014; Wisconsin Department of Transportation, 2014; and Bay-Lake Regional Planning Commission, 2015.

2015

One major system preservation project is recommended for implementation in 2015, along with eleven smaller system preservation projects and various miscellaneous WisDOT grouped projects. In addition, one right-of-way/corridor preservation project is recommended for implementation in 2015.

2016 – 2025

Ten major system preservation projects are recommended for implementation in the 2016 – 2025 period, along with seven smaller system preservation projects and various miscellaneous WisDOT grouped projects. In addition, four right-of-way/corridor preservation projects are recommended for implementation in the 2016 – 2025 period.

2026 – 2035

One major system preservation project is recommended for implementation in the 2026 – 2035 period. No smaller system preservation projects have been identified for that period, but various WisDOT grouped projects are recommended for implementation in that period. No right-of-way/corridor preservation projects are recommended for the 2026 – 2035 period.

2036 – 2045

No major or smaller system preservation or right-of-way/corridor preservation projects are recommended for implementation in the 2036 – 2045 period at this time. Various WisDOT grouped projects are recommended for implementation in that period. No right-of-way/corridor preservation projects are recommended for the 2036 – 2045 period.

No smaller system preservation or right-of-way projects are listed between 2026 and 2035. In addition, no major or smaller system preservation projects or right-of-way/corridor preservation projects are listed between 2036 and 2045. However, needs in these areas certainly are likely to emerge over time, but cannot be reasonably identified at this time.

Sources in the identification of system preservation recommendations include: the Wisconsin Department of Transportation Northeast Region's Six Year Program; pavement management evaluations previously completed for the arterial and collector network; analysis of urban growth boundaries (to establish roadway urbanization needs); evaluation of projects included in recent Transportation Improvement Programs (TIPs) for the Sheboygan metropolitan planning area (including TIP amendments); evaluation of other WisDOT sponsored projects in the metropolitan planning area outside the realm of the Six Year Program; consultation with local officials concerning their system preservation projects; and review of system preservation projects in the Update to the *Year 2035 SATP* (adopted in 2011) that were high cost projects and remain to be implemented.

Improvement projects listed in Table 7.2 include reconstruction at the same capacity (including reconstruction to urban standards at the same capacity in many cases and reconstruction to rural standards in one case), bridge replacement, roadway maintenance and resurfacing. Other categories for lower cost system preservation projects include, but are not limited to: bridge deck replacements, bridge replacements, rehabilitation of bridges, installation of fencing, reconstruction at the same capacity, and roadway maintenance; these projects include costs that lead to their ultimate construction, such as design and minor right-of-way acquisition. While preservation, reconstruction and capacity modifying projects are eligible for federal funding, maintenance costs are a local responsibility, and are not eligible for federal assistance.

Table 7.3 identifies recommended right-of-way/corridor preservation projects for arterial and collector streets and highways in the Sheboygan metropolitan planning area for the 2015 – 2045 period.

Table 7.3: Recommended Right-of-Way/Corridor Preservation Projects, Sheboygan Metropolitan Planning Area, 2015-2045

Project Description/Termini	2015	2016 - 2025	2026 - 2035	2036 - 2045
County Highway A State Highway 28 to County Highway EE/ Weeden Creek Road Right-of-Way/Corridor Preservation	$63,000	---	---	---
County Highway OK/South Business Drive County Highway EE/Weeden Creek Road to County Highway V Right-of-Way/Corridor Preservation	---	$225,000	---	---
County Highway EE/Weeden Creek Road South Taylor Drive to Lakeshore Drive Right-of-Way/Corridor Preservation	---	$432,000	---	---
County Highway JJ State Highway 42 to State Highway 32 Right-of-Way/Corridor Preservation	---	$69,000	---	---
State Highway 28 Prange Road to South Taylor Drive Right-of-Way/Corridor Preservation	---	$412,000	---	---
Total Right-of-Way/System Preservation Project Costs	$63,000	$1,138,000	$0	$0

NOTE: Right-of-way costs for recommended capacity modifying street and highway improvement projects has already been factored into total project costs in Table 7.1.

Source: Wisconsin Department of Transportation, 2014; Sheboygan County Transportation Department, 2014; and Bay-Lake Regional Planning Commission, 2015.

Sources in the identification of right-of-way/corridor preservation project recommendations include: the Wisconsin Department of Transportation Northeast Region's Six Year Program; evaluation of projects included in recent TIPs for the Sheboygan metropolitan planning area (including TIP amendments); evaluation of other WisDOT sponsored projects in the metropolitan planning area outside the realm of the Six Year Program; consultation with local officials concerning their right-of-way/corridor preservation projects; and right-of-way and corridor preservation data prepared by the Bay-Lake Regional Planning Commission.

RECOMMENDED TRANSIT FUNDING, PROJECTS AND STRATEGIES

Transit Funding and Projects

Numerous large and small transit capital items are expected to be acquired, replaced or rehabilitated by Shoreline Metro over the planning period. Transit operating expenses are expected to continue throughout the duration of the planning period.

Sources for both transit capital and operating expenses include: an evaluation of projects being included in the *Sheboygan Metropolitan Planning Area TIP: Calendar Years 2015 – 2018*, as well as consultation with staff of Shoreline Metro. Capital items recommended for 2017 through 2021 will also be included in the *Shoreline Metro Transit Development Program: 2017 – 2021*, which should be completed in 2016.

Table 7.4 identifies recommended transit capital items and operating expenses over the planning period.

Table 7.4: Recommended Transit Capital Items and Operating Expenses, Sheboygan Metropolitan Planning Area, 2015-2045

TRANSIT CAPITAL ITEMS				
Project Description/Termini	**2015**	**2016 - 2025**	**2026 - 2035**	**2036 - 2045**
Shoreline Metro Regular Route Bus Replacements (23 Buses)	---	$10,164,000	---	---
Shoreline Metro Regular Route Bus Replacements (20 Buses)	---	---	$11,450,000	---
Shoreline Metro Regular Route Bus Replacements (18 Buses)	---	---	---	$13,070,000
Shoreline Metro Replacement of ADA Paratransit Vehicles (4 Vehicles)	$280,000	---	---	---
Shoreline Metro Replacement of ADA Paratransit Vehicles (7 Vehicles)	---	$581,000	---	---
Shoreline Metro Replacement of ADA Paratransit Vehicles (7 Vehicles)	---	---	$702,000	---
Shoreline Metro Replacement of ADA Paratransit Vehicles (14 Vehicles)	---	---	---	$1,835,000
Shoreline Metro Replacement of Support Vehicles (5 Vehicles)	---	$197,000	---	---
Shoreline Metro Replacement of Support Vehicles (5 Vehicles)	---	---	$250,000	---
Shoreline Metro Replacement of Support Vehicles (5 Vehicles)	---	---	---	$317,000
Shoreline Metro Purchase of New Passenger Shelters (5 Shelters)	---	$30,000	---	---
Shoreline Metro Completion of Transit Development Program (TDP)	---	$50,000	---	---
Shoreline Metro Replacement of Dispatch Radios	---	$200,000	---	---
Shoreline Metro Replacement of Forklift	---	$40,000	---	---
Shoreline Metro Installation of Air Conditioning in Shelter at Downtown Transfer Point	---	$10,000	---	---
Shoreline Metro GFI Farebox Replacement and Farebox System Upgrade	---	$150,000	---	---
Shoreline Metro GFI Farebox Acquisition for Paratransit Vehicles	---	$125,000	---	---
Shoreline Metro On-Board Surveillance System for Paratransit Vehicles	---	$60,000	---	---
Total Transit Capital Costs	$280,000	$11,607,000	$12,402,000	$15,222,000

TRANSIT OPERATING EXPENSES				
Project Description/Termini	**2015**	**2016 - 2025**	**2026 - 2035**	**2036 - 2045**
Shoreline Metro Operating Expenses	$3,785,000	---	---	---
Shoreline Metro Operating Expenses	---	$39,992,000	---	---
Shoreline Metro Operating Expenses	---	---	$44,176,000	---
Shoreline Metro Operating Expenses	---	---	---	$48,798,000
Total Transit Operating Costs	$3,785,000	$39,992,000	$44,176,000	$48,798,000

Source: Shoreline Metro, 2014; and Bay-Lake Regional Planning Commission, 2014.

Transit Strategies

The following are short- to medium-term strategies that are recommended to be implemented by Shoreline Metro over the 2015 – 2025 period:

(1) Purchase 23 fixed-route buses: none in 2015 and 23 in 2016 – 2025.

(2) Purchase 11 paratransit vehicles: four in 2015 and seven in 2016 – 2025.

(3) Purchase five support vehicles: none in 2015 and five in 2016 – 2025.

(4) Continue to acquire equipment and smaller capital items as needed. Specific identified needs have included: new passenger shelters; replacement of dispatch radios; replacement of a forklift; installation of air conditioning at the downtown transfer point; a farebox replacement and farebox system upgrade; farebox acquisition for paratransit vehicles; and acquisition of an on-board surveillance system for paratransit vehicles.

(5) Continue to coordinate bicycle and pedestrian travel with transit usage.

(6) Continue to maintain all fixed transit facilities.

(7) Continue to implement complementary paratransit for those who qualify in the designated paratransit service area, and continue to equip all buses so that they are accessible to the disabled as the fleet is replaced.

(8) Monitor compliance with local sidewalk shoveling ordinances to provide safe and convenient access to bus stops during the winter months.

(9) Complete the five-year *Shoreline Metro Transit Development Program (TDP)* in 2016, and implement its recommendations.

(10) Attract and retain riders through consistent attention to routing, demographic changes, community needs, clear information sources and customer information.

(11) Monitor research being performed in alternate fuel applications.

(12) Continue identification of long-term funding needs and creative funding options.

(13) Update and implement the marketing plan that will provide Shoreline Metro with a strategy to successfully exploit niches in both existing and new markets.

(14) Continue identification of short- and medium-term funding needs and creative funding options.

(15) Coordinate efforts between Shoreline Metro and other public agencies concerning maintenance facilities and equipment sharing.

(16) Identify practical technology advances for Shoreline Metro; examples of such advances may include advanced traveler information systems, smart card fare systems, automated vehicle location, and automated dispatching systems.

(17) Become more fully engaged in land use planning issues which affect transit in order to strengthen the link between land use and transit planning, and develop urban design policies which support the use of transit.

(18) Identify potential service expansions to Lakeshore Technical College/Cleveland, Lakeland College, Howards Grove, Plymouth, and to adjacent urbanized portions of towns.

(19) Assure that vehicle replacements and rehabilitations continue to be consistent with vehicular emissions requirements of the 1990 Clean Air Act Amendments (CAAA).

(20) Monitor performance of the transit operation in accordance with the monitoring procedures outlined in the "recommended plan" chapter of the *Shoreline Metro TDP*.

The following are long-term strategies that are recommended to be implemented by Shoreline Metro over the 2026 – 2045 period.

(1) Purchase 20 fixed-route bus replacements over the 2026 – 2035 period, and 18 fixed-route bus replacements over the 2036 – 2045 period, as these vehicles exceed their normal service life.

(2) Purchase seven paratransit vehicle replacements over the 2026 – 2035 period, and 14 paratransit vehicle replacements over the 2036 – 2045 period, as these vehicles exceed their normal service life.

(3) Purchase five support vehicles over the 2026 – 2035 period, and five support vehicles over the 2036 – 2045 period, as these vehicles exceed their normal service life.

(4) Continue to acquire equipment and smaller capital items as needed. These items could include bus maintenance equipment, office equipment and security equipment.

(5) Continue to stay engaged in land use planning issues which affect transit, and implement urban design policies which support the use of transit.

(6) Continue to monitor performance of the transit operation in accordance with the monitoring procedures that will be included in the "recommended plan" chapter of the *Shoreline Metro TDP*.

(7) Continue to identify areas for potential service expansions.

(8) Continue to implement ADA paratransit service, and continue to maintain the full accessibility of the entire fixed-route transit fleet.

(9) Continue to improve service for the mobility disadvantaged.

(10) Continue to determine and resolve transit safety and security issues and deficiencies.

(11) Continue to pursue funding for safety and security improvements for Shoreline Metro.

(12) Continuously update route standards and policies in order to assist Shoreline Metro in evaluating transit operations, and to enable Shoreline Metro to have the most effective and efficient service possible.

(13) Continue to refine marketing plans (including examination of segmentation techniques) that will provide Shoreline Metro with strategies to continue to successfully exploit niches in both existing and new markets.

(14) Continue identification of long-term funding needs and creative funding options.

(15) Assure "seamless transportation" between intercity mass transportation services and the services of Shoreline Metro in terms of location, timing and passenger amenities.

RECOMMENDED BICYCLE AND PEDESTRIAN PROJECTS, POLICIES AND STRATEGIES

The *Sheboygan County Pedestrian and Bicycle Comprehensive Plan: 2045* was adopted by the Sheboygan County Board in April 2015. This plan was developed as part of the Non-Motorized Transportation Pilot Program (NMTPP) in which Sheboygan County was authorized funding in SAFETEA-LU, and is an extension of the *Sheboygan County Pedestrian and Bicycle Comprehensive Plan: 2035* that was adopted in 2007. The 2035 plan involved extensive participation by many entities, committees and individuals in Sheboygan County, including: every city, village and town in the county; the NMTPP Citizens' Advisory and Technical Committee (CATC, and its various subcommittees); the Planning, Resources, Agriculture and Extension and Transportation Committees of the Sheboygan County Board; and the public. The 2045 plan involved participation from the following entities: the Planning, Resources, Agriculture and Extension Committee of the Sheboygan County Board; the Sheboygan County Recreational Facilities Management Advisory Committee; and representatives from the Cities of Sheboygan, Sheboygan Falls and Plymouth.

Unless specified in this section, it can be assumed that this narrative has been modified to be consistent with the *Sheboygan County Pedestrian and Bicycle Comprehensive Plan: 2045*.

This section contains the following items:

- Recommended bicycle transportation projects;
- Pedestrian transportation policy;
- Recommended pedestrian transportation projects;
- Remaining Non-Motorized Transportation Pilot Program (NMTPP) projects in the metropolitan planning area;
- Other bicycle and pedestrian transportation programs (non-construction); and
- Bicycle and pedestrian transportation strategies.

Recommended Bicycle Transportation Projects

Recommended Projects

Several bicycle transportation projects in the Sheboygan metropolitan planning area from the *Sheboygan County Pedestrian and Bicycle Comprehensive Plan: 2045* are recommended in this *Year 2045 SATP*. **For financial plan purposes, all "facility designations" listed except sidewalks are considered bicycle transportation projects.** The recommended projects are listed for the following portions of the metropolitan planning area on the following pages of that plan:

- City of Sheboygan and Surrounding Areas – pp. 40 – 43;
- City of Sheboygan Falls – pp. 44 – 45;
- Village of Howards Grove – p. 51;
- Village of Kohler – p. 52; and
- Rural Countywide Connections (in the Sheboygan metropolitan planning area) – p. 56.

Map 7.2 illustrates recommended bicycle transportation projects in the Sheboygan metropolitan planning area in this *Year 2045 SATP* for the period covered by this plan. With the exception of the six remaining NMTPP construction projects, these projects were taken from the *Sheboygan County Pedestrian and Bicycle Comprehensive Plan: 2045*.

Map 7.3 indicates off-road trails or paths that are recommended in the *Year 2045 SATP*.

It should be noted that bicycle lanes, paved shoulders and shared roadway facilities recommended in the *Sheboygan County Pedestrian and Bicycle Comprehensive Plan: 2045* and in Map 7.2 are intended for bicyclists, while shared-use paths and facilities noted in the *Sheboygan County Pedestrian and Bicycle Comprehensive Plan: 2045* and in Map 7.2 are intended for both bicyclists and pedestrians.

Table 7.5 shows unit costs for bicycle and pedestrian facilities used to develop the *Sheboygan County Pedestrian and Bicycle Comprehensive Plan: 2045*, and assumed in this *Year 2045 SATP*. These unit costs have been adjusted to 2015 dollars in order to keep these costs current. These figures will be increased by an annual inflation rate of 2.4 percent in order to maintain a fiscally constrained transportation plan.

Table 7.5: Unit Costs, Bicycle and Pedestrian Facilities, Sheboygan Metropolitan Planning Area

Facility Type	Unit Cost (In 2015 Dollars)
Sidewalks	$7.13 per square foot (or less)
Paved Shoulders	$4.75 per square foot (or less)
Shared-Use Path/Facility	$4.16 per square foot (or less)
Bicycle Lane Striping	$0.60 per lineal foot
Shared Roadways	Minimal cost (signage, etc.)

Source: Sheboygan County Planning and Conservation Department, 2007 and 2014; and Bay-Lake Regional Planning Commission, 2015.

Table 7.6 shows estimated mileage and costs for bicycle facilities associated with implementation of the *Year 2045 SATP*. These are expressed in 2015 dollars, and adjustments for inflation have been accounted for in Table 7.6, as well as in the financial plan, which can be found in Chapter 9 of this *Year 2045 SATP*. Paved shoulders were assumed to have an average width of 4.5 feet, while shared-use paths/facilities were assumed to have a width of 11 feet.

Table 7.6: Estimated Mileage and Costs (in 2015 Dollars), Recommended Bicycle Facilities in the *Year 2045 SATP*[3]

Facility Type	Mileage			
	2015	2016 - 2025	2026 - 2035	2036-2045
Bicycle Lanes	0.65	12.55	9.49	9.81
Shared-Use Paths	0.00	9.03	4.97	4.59
Paved Shoulders	1.84	2.00	1.83	0.76
Shared Roadway	0.00	0.00	1.04	0.00
Total	2.48	23.58	17.33	15.16

Facility Type	Costs			
	2015	2016 - 2025	2026 - 2035	2036 - 2045
Bicycle Lanes	$4,106	$91,444	$87,224	$113,991
Shared-Use Paths[1]	$0	$3,218,172	$2,198,667	$2,033,036
Paved Shoulders	$414,419	$516,141	$597,528	$315,019
Shared Roadway[2]	NA	NA	NA	NA
Total	$418,525	$3,825,758	$2,883,419	$2,462,046

Notes:

[1]Three shared-use paths (two in the 2016 – 2025 implementation period, and one in the 2026 – 2035 implementation period) include small bridges as a part of the project.

[2]Shared roadway costs are expected to be minimal for implementing jurisdictions, mainly involving the posting of signs.

[3]Not all projects in the *Sheboygan County Pedestrian and Bicycle Comprehensive Plan: 2045* have been recommended in the *Year 2045 SATP*. Projects that cannot be recommended due to fiscal constraint are being identified as "illustrative projects" in the *Year 2045 SATP*.

Source: Sheboygan County Planning and Conservation Department, 2015; and Bay-Lake Regional Planning Commission, 2015.

Illustrative Projects

There are a few bicycle transportation projects in the Sheboygan metropolitan planning area from the *Sheboygan County Pedestrian and Bicycle Comprehensive Plan: 2045* that could not be included as recommended projects in this *Year 2045 SATP*. Such projects are considered **illustrative projects** in this *Year 2045 SATP*. **Again, for financial plan purposes, all "facility designations" listed except sidewalks are considered bicycle transportation projects.** These illustrative projects are as follows:

- Shared-use path from South Pier Drive to the Boardwalk over the Sheboygan River in the City of Sheboygan (includes an expensive bridge structure that exceeded projected revenues over a ten-year period);
- Shared-use path from Kiwanis Park to Niagara Avenue over the Sheboygan River in the City of Sheboygan (includes an expensive bridge structure); and
- Shared-use path on the Union Pacific rail line from North Avenue to the Manitowoc County line (the length of this project made it rather expensive).

If additional revenues become reasonably available, the *Year 2045 SATP* can be amended to add one or more of these illustrative projects. There may be funding from the Wisconsin Department of Natural Resources' trail program to finance the shared-use path on the Union Pacific rail line extending north from Sheboygan if the project meets WDNR criteria and standards.

Recommended Pedestrian Transportation Policy

Table 7.7 is the pedestrian transportation policy for this *Year 2045 SATP*. The pedestrian transportation policy was updated to be more consistent with WisDOT's latest sidewalk placement policy as well as with the *Sheboygan County Pedestrian and Bicycle Comprehensive Plan: 2045*.

Table 7.7: WisDOT Guidelines for Sidewalk Placement

Land Use, Dwelling Density, or Functional Classification	New Urban and Suburban Streets	Existing Urban and Suburban Streets
Commercial and Industrial (all streets)	Both sides	Both sides. Every effort should be made to add sidewalks where they do not exist and complete missing links.
Residential (arterials)	Both sides	Both sides
Residential (collectors)	Both sides	Multifamily - both sides. Single family - prefer both sides; require at least one side.
Residential (local road) More than 4 units per acre	Both sides	Prefer both sides; at least one side required.
Residential (local road) 1 to 4 units per acre	Prefer both sides; at least one side required.	One side preferred at least 4 feet.
Residential (local road) Fewer than 1 unit per acre	One side preferred; shoulder on both sides.	At least 4 foot shoulder required on both sides.

Source: Wisconsin Department of Transportation, *Wisconsin Guide to Pedestrian Best Practices* (Chapter 4: Transportation Planning for Pedestrians, Table 4-1, p. 4-8), 2011; Sheboygan County Planning and Conservation Department, 2014; and Bay-Lake Regional Planning Commission, 2015.

Recommended Pedestrian Transportation Projects

Recommended Projects

Several pedestrian transportation projects in the Sheboygan metropolitan planning area from the *Sheboygan County Pedestrian and Bicycle Comprehensive Plan: 2045* are recommended in this *Year 2045 SATP*. **For financial plan purposes, only the sidewalk "facility designation" is considered a pedestrian transportation project.** These recommended projects are listed for the following portions of the metropolitan planning area on the following pages of that plan:

- City of Sheboygan and Surrounding Areas – pp. 40 - 43;
- City of Sheboygan Falls – pp. 44 – 45;
- Village of Howards Grove – p. 51;

- Village of Kohler – p. 52; and
- Rural Countywide Connections (in the Sheboygan metropolitan planning area) – p. 56.

Map 7.4 illustrates recommended pedestrian transportation projects in the Sheboygan metropolitan planning area in this *Year 2045 SATP* for the period covered by the plan. With the exception of the six remaining NMTPP construction projects, these projects were taken from the *Sheboygan County Pedestrian and Bicycle Comprehensive Plan: 2045*.

It should be noted that shared-use paths and facilities also benefit pedestrians; these were accounted for previously in the discussion on recommended bicycle transportation projects, and are illustrated in Maps 7.2 and 7.3.

Table 7.8 shows estimated mileage and costs for pedestrian facilities (sidewalks) associated with implementation of the *Year 2045 SATP*. These are expressed in 2015 dollars; and adjustments for inflation have been accounted for in Table 7.8, as well as in the financial plan, which can be found in Chapter 9 of this *Year 2045 SATP*. The costs assume a sidewalk width of five feet, as well as having sidewalks on both sides of a given street.

Table 7.8: Estimated Mileage and Costs, (in 2015 Dollars), Recommended Pedestrian Facilities in the *Year 2045 SATP*[1, 2]

Facility Type	Mileage			
	2015	2016 - 2025	2026 - 2035	2036 - 2045
Sidewalks	0.42	4.26	3.78	1.54

Facility Type	Costs			
	2015	2016 - 2025	2026 - 2035	2036 - 2045
Sidewalks	$159,712	$1,831,012	$2,060,078	$1,062,488

Notes:

[1]Shared-use paths and facilities also benefit pedestrians; these were accounted for previously in Table 7.6.

[2]Not all projects in the *Sheboygan County Pedestrian and Bicycle Comprehensive Plan: 2045* have been recommended in the *Year 2045 SATP*. Projects that cannot be recommended due to fiscal constraint are being identified as "illustrative projects" in the *Year 2045 SATP*.

Source: Sheboygan County Planning and Conservation Department, 2015; and Bay-Lake Regional Planning Commission, 2015.

Illustrative Projects

There are no illustrative pedestrian transportation projects in the *Year 2045 SATP*. All of the pedestrian transportation projects (sidewalks) in the *Sheboygan County Pedestrian and Bicycle Comprehensive Plan: 2045* that were recommended in the Sheboygan Metropolitan Planning Area were able to be included in the *Year 2045 SATP* based on assumed financial resources.

Remaining Non-Motorized Transportation Pilot Program (NMTPP) Projects in the Metropolitan Planning Area

The following NMTPP projects in the metropolitan planning area are recommended in the *Year 2045 SATP*. All of these projects will be implemented in either the 2015 implementation period or early in the 2016 – 2025 implementation period.

- Sheboygan County NMTPP level of effort for program oversight, including education and outreach ($127,000 in 2015, and $254,000 in 2016 – 2025);
- Sheboygan County NMTPP marketing and branding ($50,000 in 2015, and $100,000 in 2016 - 2025);

- Bicycle and pedestrian path on Taylor Drive in the City of Sheboygan ($6,246,000 for construction in 2015);
- Sidewalk gap filling in the City of Sheboygan ($956,000 for construction in 2015, with $932,000 being the NMTPP share and $24,000 being the local share);
- Planning study for a road diet/multi-use cycle track facility on Indiana Avenue from South Taylor Drive to South 17th Street in the City of Sheboygan ($500,000 for a study in 2015);
- Construction of a bridge for bicyclists and pedestrians over the Sheboygan River near the former Tecumseh Engines plant in the City of Sheboygan Falls ($64,000 for design in 2015, and $319,000 for construction in 2016 – 2025);
- Construction of a multi-use pathway in the Alliant Energy utility corridor on the south side of the City of Sheboygan ($69,000 for design in 2015, and $69,000 for design and $962,000 for construction in 2016 – 2025);
- Construction of multi-use pathways on North Taylor Drive between Kohler Memorial Drive and Superior Avenue and from the intersection of North Taylor Drive and North Avenue into Evergreen Park ($36,000 for design in 2015, and $144,000 for construction in 2016 – 2025); and
- Union Pacific rails-to-trails conversion extension in the City of Sheboygan from Pennsylvania Avenue to Indiana Avenue, including an eastern extension to South 9th Street paralleling Indiana Avenue ($63,000 for design in 2015, and $63,000 for design and $504,000 for construction in 2016 – 2025).

Other Bicycle and Pedestrian Transportation Programs (Non-Construction)

The *Sheboygan County Pedestrian and Bicycle Comprehensive Plan: 2045* also recommended other bicycle and pedestrian transportation programs of a non-construction nature in the county, including the Sheboygan metropolitan planning area. These have been added to the bicycle and pedestrian element of this *Year 2045 SATP* as policy recommendations as they apply to the Sheboygan metropolitan planning area. These recommendations are divided into two components: infrastructure and education/outreach.

The main non-construction infrastructure recommendation involves the continued purchase, installation and maintenance of bicycle racks at important locations in the metropolitan planning area. Recommended locations for the installation of bike racks include: commercial areas, parks, schools, places of worship, employment centers, significant bus/transit stops, and park and rides in the metropolitan planning area (Interstate Highway 43 interchanges with County Highway V and with State Highway 28).

Education and outreach recommendations include the following:

- Continue to assist other communities within the metropolitan planning area to apply for bicycle and pedestrian project funding or "Bicycle Friendly Community" designations;
- Purchase of promotional materials, such as:
    - Bike helmets, bike lights, water bottles, etc., to hand out at events such as bike corrals, walk to school days, etc., and

    - Other media types (radio spots, brochures, posters, etc.) to help promote pedestrian and bicycle transportation;
- Continued encouragement of law enforcement training and outreach campaigns;
- Continued encouragement of the countywide Safe Routes to School program;
- Continued encouragement of walk and bicycle to work programs; and
- Continued encouragement of walk and bicycle to school programs.

Bicycle and Pedestrian Transportation Strategies

Bicycle and pedestrian transportation strategies in this *Year 2045 SATP* include strategies applicable to the Sheboygan metropolitan planning area from the *Sheboygan County Pedestrian and Bicycle Comprehensive Plan: 2045*. The following bicycle and pedestrian strategies should be implemented in the Sheboygan metropolitan planning area over the planning period.

Short-Term Strategies (2015 – 2025):

(1) Improve bicycle railroad crossings so that they are a right angle to the rails and at the same levels as the rails, thus being safer for bicyclists.

(2) Provide proper maintenance of facilities, including sweeping, cleaning, snow removal and filling potholes. As existing bicycle facilities are resurfaced, repaired or reconstructed, such facilities should be brought into compliance with the latest American Association of State Highway and Transportation Officials (AASHTO) guidelines and the recommendations of the *Sheboygan County Pedestrian and Bicycle Comprehensive Plan: 2045* (as this plan considers projects in the Sheboygan metropolitan planning area).

(3) Work with local communities to adopt and implement pedestrian policies and recommended pedestrian projects as outlined in this document.

(4) Implement recommendations established in the *Sheboygan County Pedestrian and Bicycle Comprehensive Plan: 2045* (as this plan considers projects in the Sheboygan metropolitan planning area). Recommendations involving bicycle lanes, wide curb lanes or shoulder paving should be implemented with future roadway improvements.

(5) Reactivate the bicycle and pedestrian facilities implementation task force (from the early 1990s) to continuously work with local municipalities and their officials on bicycle and pedestrian transportation issues.

(6) Provide bicycle parking areas at transit hubs, and continue to provide exterior bicycle racks on Shoreline Metro buses.

(7) Consider bicyclists and pedestrians in the timing of traffic signal cycles and traffic detection devices.

(8) Develop bicycle parking facilities where they are likely to receive high usage in the Sheboygan metropolitan planning area. Specifically, institutions and businesses should be encouraged to develop such bicycle parking facilities.

(9) Develop a map of existing and recommended bicycle facilities to make bicycle travel easier.

(10) As a part of the countywide Non-Motorized Transportation Pilot Program (NMTPP), continue to fund NMTPP staff within the Sheboygan County Planning and Conservation Department in the first years of this period to assure that bicycle and pedestrian transportation needs are met and to assure that bicycle and pedestrian transportation plans are implemented.

(11) Make sure that drainage grates and utility covers are either kept out of a bicycle facility or are at the same level as the pavement. Furthermore, drainage grates which are installed should be safe for bicyclists.

Mid-Term and Long-Term Strategies (2026 – 2045):

(1) Connect gaps between existing bicycle facilities and major origin-destination points.

(2) Retrofit roadways for bicycle transportation improvements during times of construction and resurfacing.

(3) Coordinate the sweeping and cleaning of on-street shared roadways, bicycle lanes, wide curb lanes, paved shoulders and paths with the regularly scheduled cleaning of streets.

(4) Repair potholes and edges on designated bicycle facilities and in the outside lane of streets.

(5) Trim trees and shrubs to allow for good sight lines and prevent overgrowth along bicycle routes.

(6) Design all new arterial and collector streets and highways in the Sheboygan metropolitan planning area with the assumption that they will be used by bicyclists and pedestrians.

(7) Set beam guard rails, sign posts and utility posts back from the paved surface at least two feet.

(8) Pave shoulders on state and county trunk highways in the Sheboygan metropolitan planning area to a width of at least five feet.

(9) Consider the integration of bicycle and pedestrian facilities when developing parks, open spaces, shorelands and private subdivisions.

(10) Consider the needs of bicyclists and pedestrians when planning the construction of new roadway bridges.

(11) Encourage major employers to provide safe and convenient bicycle parking.

(12) Implement public information and education programs to publicize bicycle safety. Specifically, coordinate existing bicycle safety programs, and encourage local schools to include bicycle safety in their curriculum.

(13) Establish various mechanisms to enforce bicycle traffic laws.

(14) Monitor bicycle and pedestrian crash locations so that steps can be taken to alleviate problem areas.

(15) Make walkways and paths an integral part of the circulation pattern within any new development.

RECOMMENDED FREIGHT POLICIES AND STRATEGIES

Freight Policy

The Commission will establish partnerships with the freight community to promote safe, efficient and reliable freight transportation within and through the Sheboygan metropolitan planning area.

Freight Strategies

Freight planning has, until recent years, been overlooked by smaller metropolitan planning organizations (MPOs) in their transportation planning processes. The Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) first introduced freight as a factor for MPOs to consider in the metropolitan planning process. Later, the Transportation Equity Act for the 21st Century (TEA-21, 1998) and the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU, 2005) expanded the consideration of freight by integrating freight into three of the respective planning factors in each piece of legislation. This emphasis has continued in the "Moving Ahead for Progress in the 21st Century" Act (MAP-21).

Within the Sheboygan metropolitan planning area, freight movement occurs primarily via truck and rail, with miniscule amounts of freight movement having occurred via other modes (air and/or water) as well. In addition, intermodal exchanges (rail/truck) occur at a limited number of facilities in the metropolitan planning area. In response to anticipated needs for efficient freight movement, the Commission has incorporated freight into its transportation planning process for the Sheboygan metropolitan planning area.

Freight strategies recommended for implementation over the planning period include the following:

(1) Establish new partnerships and strengthen existing partnerships with freight shippers and receivers.

(2) Encourage and participate in carrier and shipper forums for regular discussion of industry issues.

(3) Encourage intra- and interagency cooperation on freight planning issues.

(4) Help coordinate intermodal discussions among freight modal shippers and receivers. Specifically, conduct focus groups with freight professionals to identify issues pertinent to freight movement and safety.

(5) Work with WisDOT and FHWA staff to advance the freight goals and policies of their respective plans.

(6) Identify heavy truck routes and major truck traffic generators.

(7) Conduct a truck travel survey (in cooperation with the Wisconsin Department of Transportation).

(8) Provide adequate intermodal connections within the transportation system.

(9) Provide industrial traffic routes and access to industrial sites which do not disrupt residential areas.

(10) Support efforts to maintain and expand rail and air facilities, where appropriate.

(11) Study opportunities for improved rail-highway intermodal connections in the

metropolitan planning area.

RECOMMENDED INTERCITY PASSENGER POLICIES AND STRATEGIES

Intercity Passenger Policy

The Commission will coordinate with intercity passenger services to ensure that residents of the Sheboygan metropolitan planning area can take full advantage of these services through efficient linkages to the metropolitan transportation network.

Intercity Passenger Strategies

(1) Work with Indian Trails Bus Lines, Jefferson Bus Lines and Lamers Bus Lines/Lamers Connect to ensure continued spatial coordination and to improve temporal coordination with the services of Shoreline Metro.

(2) Work with other passenger bus services (where they exist in the metropolitan planning area) to ensure that residents of the metropolitan planning area are aware of these services and have reasonable access to these services if they are desired.

(3) Work with the Sheboygan County Memorial Airport to coordinate recommendations in this plan with planned improvements at the airport, as well as to ensure reasonable access to the airport for residents of the metropolitan planning area.

(4) If the Midwest Regional Rail Initiative (MWRRI) is implemented in the Midwestern states (including Wisconsin), work to assure that residents of the metropolitan planning area have reasonable access to MWRRI loading points in Milwaukee and, possibly, in Fond du Lac; this would include assurance of reliable feeder bus service from the metropolitan planning area (via Manitowoc) to Milwaukee.

RECOMMENDED SAFETY PROJECTS, POLICIES AND STRATEGIES

Safety Projects

Table 7.9 identifies recommended safety projects for arterial streets and highways in the Sheboygan metropolitan planning area for the 2015 – 2045 period.

Table 7.9: Recommended Safety Projects, Sheboygan Metropolitan Planning Area, 2015-2045

Project Description/Termini	2015	2016 - 2025	2026 - 2035	2036 - 2045
County Highway A Intersection with County Highway EE Roundabout at Intersection	$890,000	---	---	---
State Highway 32 Intersection with Happy Lane (City of Sheboygan Falls) Roundabout at Intersection	---	$1,685,000	---	---
State Highway 28 Intersection with County Highway EE Roundabout at Intersection	---	$2,100,000	---	---
County Highway A Intersection with County Highway PP Roundabout at Intersection	---	$1,258,000	---	---
County Highway C Intersection with County Highway TT Roundabout at Intersection	---	$1,384,000	---	---
Miscellaneous WisDOT Grouped Projects	$690,000	$7,880,000	$9,989,000	$12,662,000
Total Safety Project Costs	$1,580,000	$14,307,000	$9,989,000	$12,662,000

Source: Wisconsin Department of Transportation, 2014; Sheboygan County Transportation Department, 2014; and Bay-Lake Regional Planning Commission, 2015.

Sources in the identification of safety project recommendations include: the Wisconsin Department of Transportation Northeast Region's Six Year Program; evaluation of projects included in recent TIPs for the Sheboygan metropolitan planning area (including TIP amendments); evaluation of other WisDOT sponsored projects in the metropolitan planning area outside the realm of the Six Year Program; consultation with local officials concerning their safety projects; and review of safety projects specifically recommended in the update to the *Year 2035 SATP* (adopted in 2011) that remain to be implemented.

Safety Policy

The Commission will initiate and participate in programs and activities that encourage the safe travel of users of all modes and the safe transfer between modes.

Safety Strategies

(1) Work with law enforcement agencies in the metropolitan planning area to identify roadway locations that have safety issues. Specifically, monitor major crash locations, evaluate potential problems and implement improvements.

(2) Work with law enforcement agencies in the metropolitan planning area regarding MPO data needs to improve safety analysis.

(3) Work to educate transportation system users in regard to roadway, rail crossing, bicycle and pedestrian laws.

(4) Work with shippers and freight providers on how best to improve safety at intermodal

connections, intersections, rail crossings, and along truck routes.

(5) Assist municipalities and school districts in the metropolitan planning area with safe routes to school initiatives (upon request).

(6) Work with Shoreline Metro on the planning and implementation of safety policies and strategies for the transit operation. This can be accomplished either through the Transit Development Program (TDP) process or through other planning efforts the Commission conducts for Shoreline Metro.

(7) Implement the bicycle and pedestrian safety policies and strategies identified previously in this chapter.

(8) Continue to provide input to the *WisDOT Strategic Highway Safety Plan* as it is updated, and incorporate updated goals and objectives of the *WisDOT Strategic Highway Safety Plan* in future updates to the *SATP*.

RECOMMENDED SECURITY POLICIES AND STRATEGIES

Security Policy

The Commission will continue to coordinate with the emergency management staff at the Sheboygan County Sheriff's Department, with other emergency management personnel in the Sheboygan metropolitan planning area, with Shoreline Metro staff, and with the Sheboygan County Memorial Airport staff, in an effort to ensure the security of the transportation system.

Security Strategies

(1) Continue to coordinate with emergency management staff at the Sheboygan County Sheriff's Department, which is the agency responsible for emergency management, disaster preparedness and homeland security in most of the Sheboygan metropolitan planning area.

(2) Continue to assist Sheboygan County with updating its hazard mitigation plan.

(3) Work with the Shoreline Metro on the planning and implementation of security policies and strategies for the transit operation. This can be accomplished either through the Transit Development Program (TDP) process or through other planning efforts the Commission conducts for Shoreline Metro.

(4) Continue to support Shoreline Metro's efforts to program projects that promote the security of the transit operation.

(5) Implement the bicycle and pedestrian security policies and strategies identified previously in this chapter.

(6) Work with the Sheboygan County Memorial Airport staff to ensure the airport's security.

RECOMMENDED FUTURE STUDIES

2015 – 2025 Studies

The following studies are recommended over the short-range (2015 – 2025) future:

(1) Examination of additional requests for capacity modifications to the street and highway network (if requested by local units of government or by WisDOT), which may require

testing and evaluation by the travel demand forecast model and possible amendments to the *Year 2045 SATP*.

(2) Planning assistance to local units of government or to WisDOT, if requested. This planning assistance will take place in cooperation with WisDOT staff.

(3) Completion and implementation of a Transit Development Program (TDP) for the 2017 to 2021 period for Shoreline Metro.

(4) Completion of passenger opinion surveys, boarding and alighting surveys, and possible community opinion surveys for Shoreline Metro (as needed).

(5) Completion of special transit studies, as requested by Shoreline Metro.

(6) Provide assistance to Sheboygan County with implementation of its non-motorized transportation pilot grant program (as long as it is authorized by federal legislation).

(7) Complete a study to determine the feasibility of a full or half interchange at Interstate Highway 43 with County Highway PP/Lower Falls Road/Indiana Avenue. Several considerations will need to be considered in such a study, including: (1) fulfillment of the requirements of an Interstate Access Justification Report (IAJR); (2) determination that the proposed full or half interchange would not worsen traffic conditions on Interstate Highway 43; and (3) determination that the proposed full or half interchange will not adversely impact the natural environment at its proposed location (the Sheboygan River valley is located in the area proposed for this interchange). No cost estimates have been assigned to this project at this time, and a consultant would need to lead this study (with some support from MPO staff). In addition, costs for such a study would not be reimbursable Federal or state expenses under the traditional MPO program funding.

2026 – 2045 Studies

The following studies are recommended over the mid-range (2026 – 2035) and long-range (2036 – 2045) future:

(1) Completion of TDP updates for Shoreline Metro every five years.

(2) Continuation of various transit planning activities other than the TDP update.

(3) Preparation of an intersection crash study for the Sheboygan metropolitan planning area.

(4) Development of access management plans.

(5) Completion of a freight movement study.

COMPARISON OF TRAVEL DEMAND PROJECTIONS UNDER 2010 AND 2045 BASELINE CONDITIONS AND UNDER 2045 CONDITIONS WITH THE RECOMMENDED TRANSPORTATION PLAN

The following observations can be made from Table 7.10 concerning various travel statistics between 2010 and 2045 for the street and highway network in Sheboygan County:

- Vehicle miles traveled are expected to increase by 24.35 percent between 2010 and 2045 without plan implementation; this increase will be 23.88 percent if the plan is implemented;
- Vehicle hours traveled are expected to increase by 24.18 percent between 2010 and 2045 without plan implementation; this increase will be 23.06 percent if the plan is implemented;
- Over 27 days of vehicle hours traveled can be saved over a typical day in 2045 if this plan is implemented;
- The overall average speed on the network increases by 0.25 miles per hour with implementation of the plan in 2045. In fact, the overall average speed on the network increases in 2045 by 0.31 miles per hour even compared to 2010 conditions when the plan is implemented;
- The street and highway network increases by 95.47 lane miles from 2010 to 2045 if the plan is implemented (this is an increase of about 6.35 percent). However, this increase involves only 21.97 lane miles above and beyond the existing plus committed (E + C) network in 2045, or a 1.39 percent increase over 2045 baseline conditions;
- The proportion of the street and highway network that is not congested is projected to be 97.26 percent in 2045 if the plan is not implemented, and is projected to be 97.19 percent in 2045 with plan implementation;
- The proportion of the street and highway network that is moderately congested is projected to be 2.25 percent in 2045 if the plan is not implemented, and is projected to be 2.38 percent in 2045 with plan implementation;
- The proportion of the street and highway network that is severely congested is projected to be 0.23 percent in 2045 if the plan is not implemented, and is projected to be 0.19 percent in 2045 with plan implementation; and
- The proportion of the street and highway network that is experiencing "breakdown conditions" is also projected to be 0.26 percent in 2045 if the plan is not implemented, and is projected to be 0.24 percent in 2045 with plan implementation.

Table 7.10: Current and Projected Transportation Statistics, Sheboygan County

Characteristic	2010	2045 Without Plan[1]	2045 With Plan[1]
Vehicle Miles Traveled[2]	2,727,490	3,391,599	3,378,898
Vehicle Hours Traveled[2]	58,618	72,792	72,137
Overall Average Speed (MPH)	46.53	46.59	46.84
Total System (Lane Miles)	1,502.710	1,576.210	1,598.180
System Not Congested (Lane Miles)[3]	1,480.944	1,533.010	1,553.210
Percent of System Not Congested[3]	98.55%	97.26%	97.19%
System Moderately Congested (Lane Miles)[3]	17.926	35.540	38.030
Percent of System Moderately Congested[3]	1.19%	2.25%	2.38%
System Severely Congested (Lane Miles)[3]	0.205	3.620	3.090
Percent of System Severely Congested[3]	0.01%	0.23%	0.19%
System Experiencing Breakdown Conditions (Lane Miles)[3]	3.634	4.044	3.840
Percent of System Experiencing Breakdown Conditions[3]	0.24%	0.26%	0.24%

[1]Baseline and plan implementation data for 2045 both assume implementation of a development pattern in the Sheboygan metropolitan planning area that adheres to continuation of existing trends by 2045. "2045 without plan" involves implementation of the "existing plus committed" (E + C) network, while "2045 with plan" involves implementation of the E + C network plus seven recommended capacity modifying projects (see Table 7.1). One of the committed projects involves implementation of a four lane State Highway 23 from Plymouth to Fond du Lac.

[2]Vehicle miles traveled (VMT) and vehicle hours traveled (VHT) are average daily figures. The VMT were adjusted to hot summer weekday VMT prior to conducting the air quality conformity analysis for Sheboygan County.

[3]The congestion status of lane miles on the street and highway network was determined through a "level of service" (LOS) analysis. Facilities at LOS A, B or C are considered "not congested." Facilities at LOS D are considered "moderately congested." Facilities at LOS E are considered "severely congested." Facilities at LOS F are considered to experience "breakdown conditions." "Primary LOS" only measures LOS at locations on the network that have WisDOT traffic counts. "Secondary LOS" includes primary LOS, and also forecasts traffic levels at locations on the network where there have been no WisDOT traffic counts. This analysis uses secondary LOS to determine the congestion status of facilities. Table 5.28 can assist in determining whether a congested facility has intolerable congestion or if spot improvements are appropriate at such a facility. The percentage of the system at the various levels of service was calculated based on lane miles on the street and highway network in Sheboygan County.

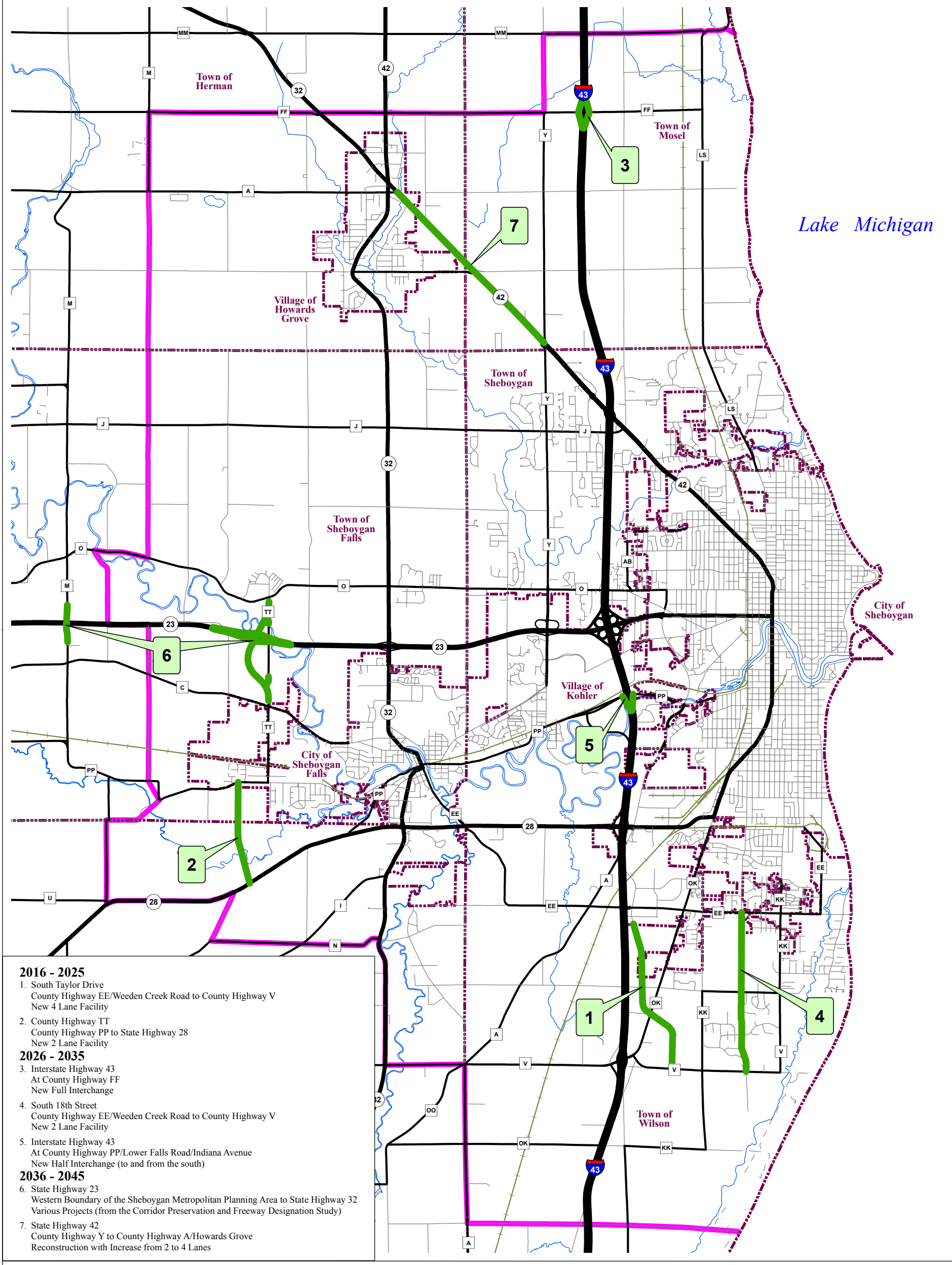
Source: Wisconsin Department of Transportation, 2014 and 2015; and Bay-Lake Regional Planning Commission, 2015.

Map 7.1

Recommended Capacity Modifying Street and Highway Improvement Projects

Sheboygan Metropolitan Planning Area

Year 2045 Sheboygan Area Transportation Plan (SATP)



2016 - 2025

1. South Taylor Drive
   County Highway EE/Weeden Creek Road to County Highway V
   New 4 Lane Facility
2. County Highway TT
   County Highway PP to State Highway 28
   New 2 Lane Facility

2026 - 2035

3. Interstate Highway 43
   At County Highway FF
   New Full Interchange
4. South 18th Street
   County Highway EE/Weeden Creek Road to County Highway V
   New 2 Lane Facility
5. Interstate Highway 43
   At County Highway PP/Lower Falls Road/Indiana Avenue
   New Half Interchange (to and from the south)

2036 - 2045

6. State Highway 23
   Western Boundary of the Sheboygan Metropolitan Planning Area to State Highway 32
   Various Projects (from the Corridor Preservation and Freeway Designation Study)
7. State Highway 42
   County Highway Y to County Highway A/Howards Grove
   Reconstruction with Increase from 2 to 4 Lanes

Sheboygan Metropolitan Planning Area Boundary

Recommended Capacity Modifying Street and Highway Projects

N W E S

0 0.5 1 2

Miles

BAY-LAKE Regional Planning Commission

G:/Sheboygan/MPO/SATP/2045

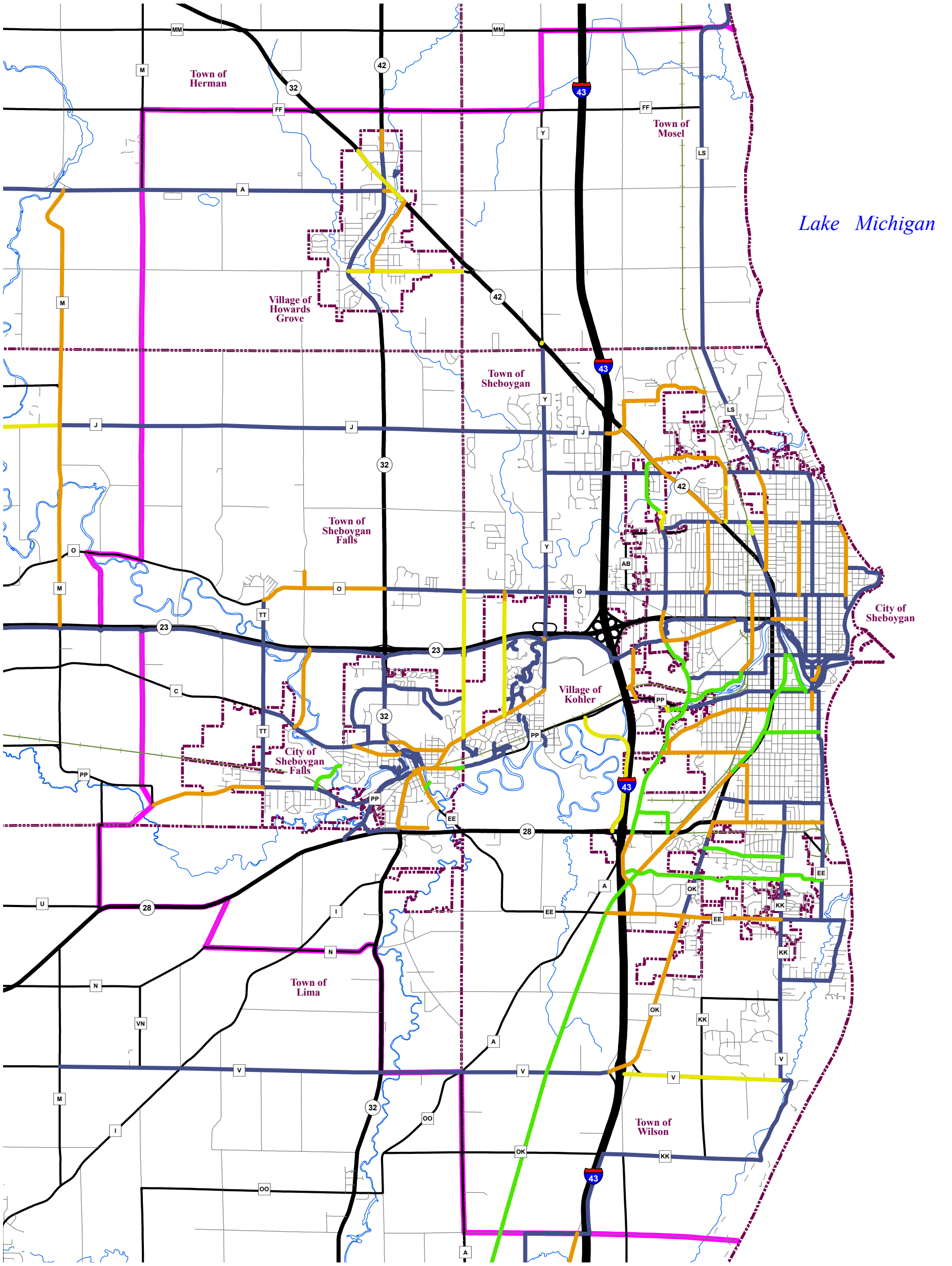
Source: WDNR, 2009; WDOT, 2013, 2014; Sheboygan County, 2015; Bay-Lake Regional Planning Commission, 2015.

Map 7.2

Recommended Bicycle Transportation Projects

Sheboygan Metropolitan Planning Area: 2015-2045

Year 2045 Sheboygan Area Transportation Plan (SATP)



BAY-LAKE Regional Planning Commission

G:/Sheboygan/MPO/SATP/2045

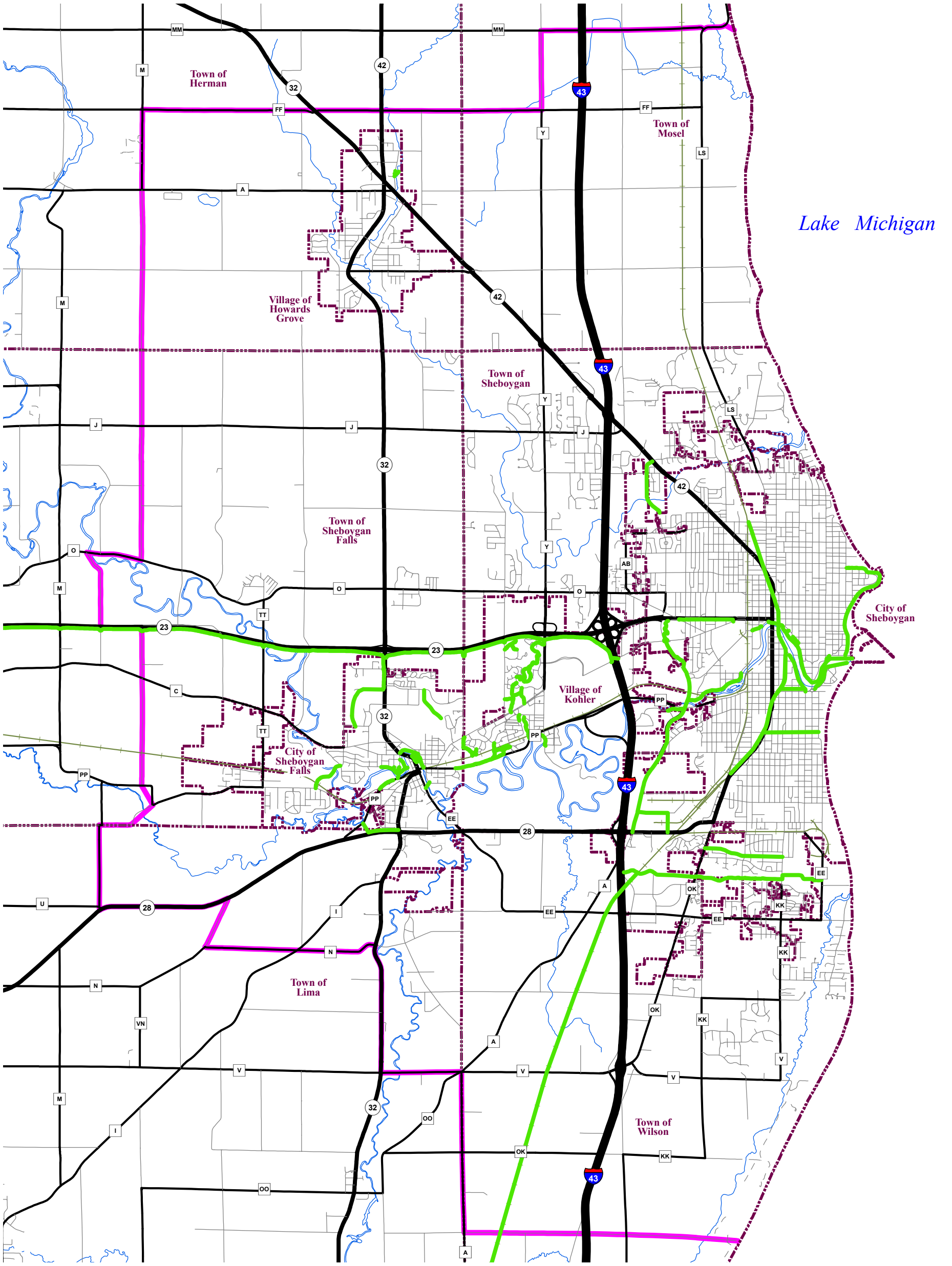
Source: WDNR, 2009; WDOT, 2013; Sheboygan County, 2014, 2015; Bay-Lake Regional Planning Commission, 2015.

Map 7.3

Recommended Off-Road Trails or Paths

Sheboygan Metropolitan Planning Area: 2015-2045

Year 2045 Sheboygan Area Transportation Plan (SATP)



Sheboygan Metropolitan Planning Area Boundary

Existing/Planned Off-Road Trails or Paths

N W E S

0 0.5 1 2

Miles

BAY-LAKE Regional Planning Commission

G:/Sheboygan/MPO/SATP/2045

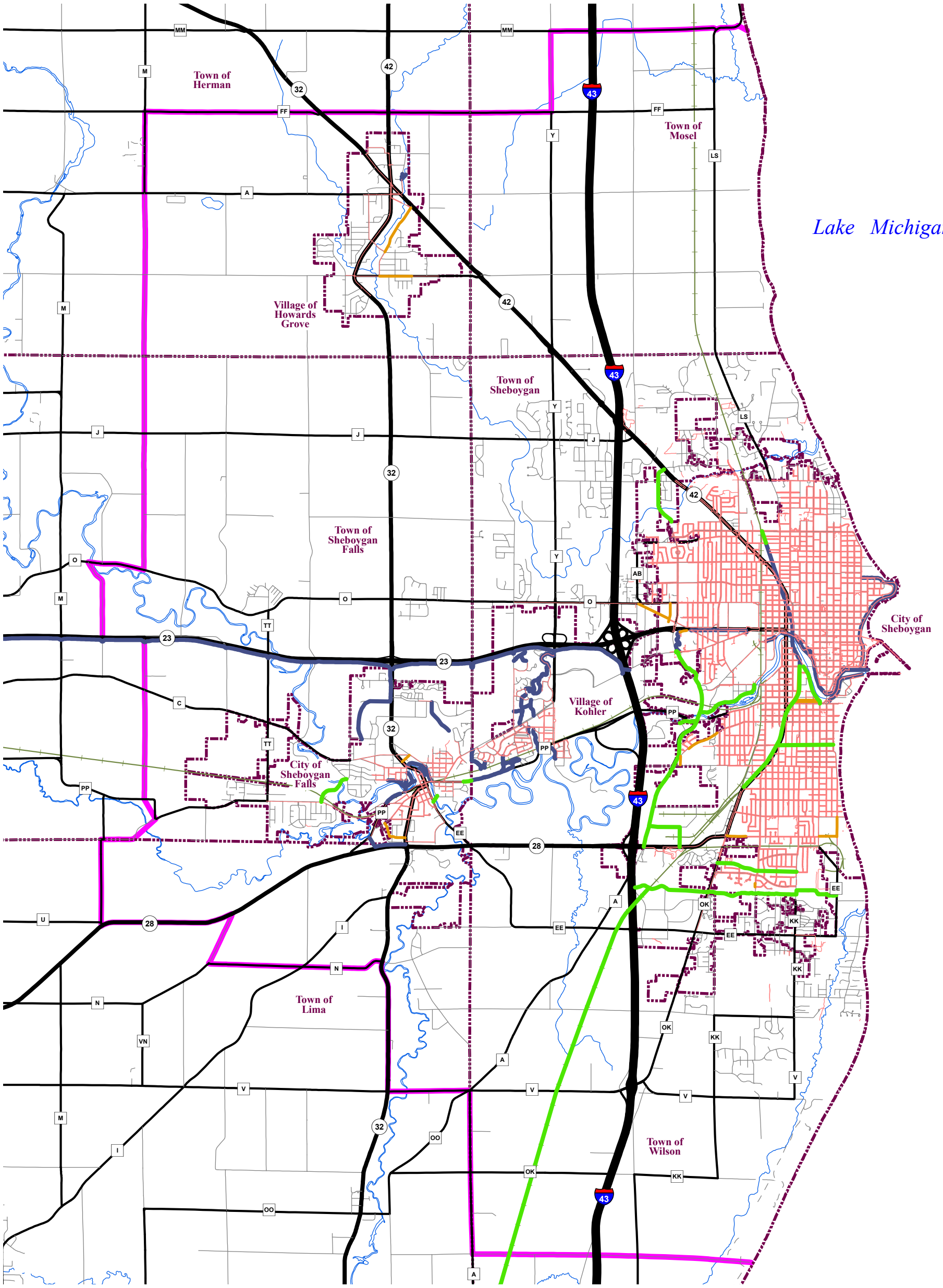
Source: WDNR, 2009; WDOT, 2013; Sheboygan County, 2014, 2015; Bay-Lake Regional Planning Commission, 2015.

Map 7.4

Recommended Pedestrian Transportation Projects

Sheboygan Metropolitan Planning Area: 2015-2045

Year 2045 Sheboygan Area Transportation Plan (SATP)



Sheboygan Metropolitan Planning Area Boundary

Existing Multipurpose Pathways/Trails

Existing Sidewalks

Planned Multipurpose Pathways/Trails

Planned Sidewalks

N W E S

0 0.5 1 2

Miles

BAY-LAKE REGIONAL PLANNING COMMISSION

G:/Sheboygan/MPO/SATP/2045

Source: WDNR, 2009; WDOT, 2013; Sheboygan County, 2014, 2015; Bay-Lake Regional Planning Commission, 2015.

CHAPTER 8 : MITIGATION OF ENVIRONMENTAL IMPACTS OF MAJOR TRANSPORTATION PROJECTS

SUMMARY OF MAJOR TRANSPORTATION PROJECTS

Map 8.1 shows the recommended capacity modifying street and highway improvement projects in the *Year 2045 SATP* for the Sheboygan metropolitan planning area.

The recommended capacity modifying major transportation projects are as follows:

1. South Taylor Drive
   County Highway EE/Weeden Creek Road to County Highway V
   New 4 Lane Facility
   Recommended implementation period: 2016 - 2025

2. County Highway TT
   County Highway PP to State Highway 28
   New 2 Lane Facility
   Recommended implementation period: 2016 - 2025

3. Interstate Highway 43
   At County Highway FF
   New Full Interchange
   Recommended implementation period: 2026 - 2035

4. South 18th Street
   County Highway EE/Weeden Creek Road to County Highway V
   New 2 Lane Facility
   Recommended implementation period: 2026 - 2035

5. Interstate Highway 43
   At County Highway PP/Lower Falls Road/Indiana Avenue
   New Half Interchange (to and from the south)
   Recommended implementation period: 2026 - 2035

6. State Highway 23
   Western Boundary of the Sheboygan Metropolitan Planning Area to State Highway 32
   Various Projects (from the Corridor Preservation and Freeway Designation Study)
   Recommended implementation period: 2036 - 2045

7. State Highway 42
   County Highway Y to County Highway A/Howards Grove
   Reconstruction with Increase from 2 to 4 Lanes
   Recommended implementation period: 2036 - 2045

The *Year 2045 SATP* also recommends several system preservation, right-of-way/corridor preservation and safety projects, as well as transit capital items and operating expenses and

bicycle and pedestrian facilities. However, the focus of this environmental mitigation section is on the capacity modifying street and highway improvement projects in the *Year 2045 SATP*, since these projects will likely have the greatest impacts on environmental features in the metropolitan planning area.

INVENTORY OF MAPPING COMPLETED WITH OVERLAY OF MAJOR TRANSPORTATION PROJECTS

Several maps were prepared as part of the environmental consultation and mitigation process for the *Year 2045 SATP*. The seven capacity modifying street and highway improvement projects have been overlaid on each of the maps and are identified by a number corresponding to the project listed on Map 8.1. The maps developed include land use, watersheds, environmental corridors, prime agricultural soils, woodlands, historical sites, and parks and recreation.

Land Use

The Sheboygan metropolitan planning area land use data was collected and integrated into GIS in 2009 in order to develop the travel demand forecast model for the *Year 2045 SATP*. This travel demand forecast model covers all of Sheboygan County, and is part of the multicounty WisDOT Northeast Region travel demand forecast model. The land use inventory was particularly useful in allocating population, housing units, and employment-based land use allocations across the three development scenarios evaluated in the plan.

Map 8.2 shows 2009 land use in the Sheboygan metropolitan planning area with the overlay of the major transportation projects. The source of this inventory is the Bay-Lake Regional Planning Commission.

Watersheds

Map 8.3 shows watershed boundaries in the Sheboygan metropolitan planning area with the overlay of the major transportation projects. The six watersheds in the metropolitan planning area include: the Sheboygan River, Pigeon River, Black River, Onion River, Mullet River, and Sevenmile Creek/Silver Creek watersheds. The source for this inventory is the Wisconsin Department of Natural Resources (DNR).

Environmental Corridors

Environmental corridors as they apply to the Sheboygan metropolitan planning area are shown on Map 8.4 with the overlay of the major transportation projects. Environmental corridors have been defined by the Bay-Lake Regional Planning Commission natural resources planning staff working with a technical advisory committee.

Environmental corridor features that are shown on this map include the following:

- Wetlands with a 50 foot buffer;
- Surface waters with a 75 foot setback;
- Floodplains; and
- Areas of steep slope (12 percent or greater).

Wetlands

Wetlands larger than two acres are depicted within the Sheboygan metropolitan planning area using Wisconsin DNR wetland inventory data from 2008. The 50-foot wetland buffer layer was created by the Bay-Lake Regional Planning Commission.

Surface Waters

Surface water features in the Sheboygan metropolitan planning area includes navigable water bodies and waterways; shorelines; and intermittent and perennial waterways. The source for this inventory is the Wisconsin DNR 24K Open Water Hydrology data (Version 6) from 2009. The 75-foot setback layer was created by the Bay-Lake Regional Planning Commission.

Floodplains

Floodplains include the mapped zone of the 100-year flood or base flood on the flood insurance rate maps (FIRMs) developed by the Federal Emergency Management Agency in 2009.

Steep Slopes

Steeps slopes include soils characterized as having a slope of 12 percent or greater using the Soil Survey data from the Natural Resources Conservation Service (NRCS) of the U.S. Department of Agriculture from 2004.

Prime Agricultural Soils

The prime agricultural soils map is divided into three categories to depict the following soil types: all areas of prime farmland; farmland of statewide importance; and prime farmland if drained.

Map 8.5 shows prime agricultural soils in the Sheboygan metropolitan planning area with the overlay of the major transportation projects. The source of this inventory is the U.S. Department of Agriculture's NRCS from 2004.

Woodlands

Map 8.6 shows woodlands in the Sheboygan metropolitan planning area with the overlay of the major transportation projects. Types of woodlands portrayed include deciduous forest, evergreen forest, mixed forest, palustrine forested wetland, and palustrine scrub/shrub wetland. The source for this inventory is the 2009 land use inventory completed by the Bay-Lake Regional Planning Commission.

Historical Sites

Map 8.7 shows historical sites in the Sheboygan metropolitan planning area with the overlay of the major transportation projects. The information was obtained from the Wisconsin Historic Preservation Database of the Wisconsin State Historical Society. The Bay-Lake Regional Planning Commission signed an agreement with the Wisconsin State Historical Society to obtain this file in 2014.

Parks and Recreation

Map 8.8 shows parks and recreation lands in the Sheboygan metropolitan planning area with the overlay of the major transportation projects, which includes all state, county, and local public parks, along with some private recreation lands (such as golf courses, camps and conservation/ hunting clubs). Sources of this inventory include the Sheboygan County Planning and Conservation Department, the City of Sheboygan, and the Bay-Lake Regional Planning Commission (from the 2009 land use inventory).

OTHER INVENTORIES AND PLANS CONSULTED BUT NOT MAPPED

Wisconsin DNR Natural Heritage Inventory (NHI)

The Wisconsin DNR Bureau of Endangered Resources prepared the Wisconsin Natural Heritage Inventory (NHI), which maps the locations of aquatic and terrestrial occurrences of rare animals, plants and natural communities. The NHI data is provided through the Wisconsin DNR website down to the township/range scale through the NHI "Township Tool." However, more detailed data on specific locations is confidential due to the sensitive nature of the information. The NHI database, updated in October 2014, is the most comprehensive source of rare species data for Wisconsin.

Six of the seven recommended capacity modifying projects in the *Year 2045 SATP* pass through areas where *township-level* occurrences of rare species or natural features have been reported. One of the seven recommended capacity modifying projects (the new full interchange on Interstate Highway 43 at County Highway FF) is not directly impacted by township-level occurrences of a threatened, endangered, or special concern species or natural feature. *Section-level* occurrences of rare species or natural features are not as available for analysis directly from the WDNR NHI webpage as they have been in the past, so analysis was not conducted at this level of detail.

Wisconsin DNR Land Legacy Report

The Land Legacy Report was produced by the Wisconsin Department of Natural Resources in 2006. All of the Sheboygan metropolitan planning area is within the *Central Lake Michigan Coastal* ecological landscape. There are two "legacy places" noted within this ecological landscape in the metropolitan planning area: the Onion River Grasslands along the Onion River in the Town of Lima, as well as the Kohler-Andrae Dunes in Kohler-Andrae State Park in the Town of Wilson.

Neither of these legacy places is directly affected by the seven capacity modifying projects recommended in the *Year 2045 SATP*. However, the South 18th Street extension could have impacts on future "efforts to buffer and/or expand the (Kohler-Andrae State) park." It should be noted that the Land Legacy Report recommended park expansion more in terms of expanding recreational opportunities and human demand for the park as opposed to protection of plant or animal species.

Wisconsin Wildlife Action Plan (WWAP)

The Wisconsin Wildlife Action Plan (WWAP), prepared in 2005 by the Wisconsin DNR discusses species of greatest conservation need, as well as natural community and general management opportunities. Species of greatest conservation need within the *Central Lake Michigan Coastal* ecological landscape, which encompasses the Sheboygan metropolitan planning area include:

- Some 61 species of birds (30 of these species have "significant association" with the landscape, 27 have "moderate association" with the landscape, and four have "minimal association" with the landscape);
- Some eleven species of fish (one of these species has "significant association" with the landscape, six have "moderate association" with the landscape, and four have "minimal association" with the landscape);

- Some nine species of reptiles and amphibians (three of these species have "significant association" with the landscape, four have "moderate association" with the landscape, and two have "minimal association" with the landscape); and
- Some nine species of mammals (none of these species have "significant association" with the landscape, but four have "moderate association" with the landscape, and five have "minimal association" with the landscape).

In addition, the WWAP indicates that there are 37 natural community opportunities listed for the *Central Lake Michigan Coastal* ecological landscape. This includes eight natural communities where there are "major" opportunities (alvar; dry cliff; Great Lakes beach; Great Lakes dune; Great Lakes ridge and swale; Lake Michigan; warm water rivers; and warm water streams). There are an additional 20 natural communities where there are "important" opportunities, along with nine natural communities where such opportunities are "present."

The WWAP lists five general management opportunities for the *Central Lake Michigan Coastal* ecological landscape, four of which apply to the Sheboygan metropolitan planning area:

1. Protect unique Great Lakes coastal features such as beach and dune systems, forested ridge and swale complexes, Great Lakes marshes, and alvar (a rare community characterized by thin soil over limestone);
2. Protect sensitive stretches of the Niagara Escarpment, a globally significant geologic feature that supports many rare and specialized organisms (the only part of the metropolitan planning area known to have this feature is North Point along Lake Michigan in the City of Sheboygan);
3. Expand protection for Lake Michigan shoreline habitats, especially those areas receiving heavy use by migratory birds, fish, and colonial birds; and
4. Connect habitat remnants where possible, especially along shorelines and stream corridors.

The first two general management opportunities are not affected by the recommended improvements. However, the last two general management opportunities should be considered in the design of the recommended transportation improvements. The WWAP is too general to specify individual wildlife impacts from any of the seven capacity modifying projects recommended in the *Year 2045 SATP*.

State Comprehensive Outdoor Recreation Plan (SCORP)

The *2011-2016 Wisconsin Statewide Comprehensive Outdoor Recreation Plan (SCORP)*, prepared by the Wisconsin DNR, examines the following topics:

- Wisconsin Outdoor Recreation Uses and Trends;
- Outdoor Recreation and Public Health;
- Access to Outdoor Recreation in Urban Wisconsin;
- Open Space Conservation: Connecting People to Outdoor Recreation Opportunities; and
- Wisconsin SCORP Outdoor Recreation Goals and Actions.

No inconsistencies were found between the seven capacity modifying projects in the *Year 2045 SATP* and the SCORP. The SCORP is written in a general manner without site-specific recommendations.

Archaeological Sites

Information was obtained on archaeological sites from the Wisconsin Historic Preservation Database of the Wisconsin State Historical Society. The Bay-Lake Regional Planning Commission signed an agreement with the Wisconsin State Historical Society and paid a fee to obtain this file in 2014. The agreement does not allow for mapping or direct disclosure of archaeological sites to the public; however, the information was reviewed for potential impacts from the seven capacity modifying projects identified in the *Year 2045 SATP*.

Two capacity modifying projects may have an impact on known archaeological sites. The first project involves the construction of a new half interchange on Interstate Highway 43 to serve traffic coming to and from the south at County Highway PP/Lower Falls Road/Indiana Avenue, and the second project involves the reconstruction and expansion of State Highway 42 from two to four lanes between County Highway Y and County Highway A in Howards Grove.

Sheboygan County Natural Areas and Critical Resources Plan

The *Sheboygan County Natural Areas and Critical Resources Plan* was prepared by the Sheboygan County Planning and Conservation Department (with assistance provided by the Bay-Lake Regional Planning Commission) in 2004. The plan was reviewed by the Sheboygan County Smart Growth – Stewardship Technical and Advisory Committees. Other critical resources committees which reviewed plan elements included the Sheboygan County Agricultural Planning Committee, the Sheboygan County Cultural Resources Planning Committee, and the Sheboygan River Basin Partners (Natural Resources Committee).

The *Sheboygan County Natural Areas and Critical Resources Plan* details a natural resources strategy that includes the following elements:

- Preservation of agricultural lands;
- Large farm expansions and the potential impacts they may cause to the natural environment;
- Preserve rural character;
- Preserve natural resources and public lands through good management for multiple uses;
- Protect groundwater resources;
- Improve air quality;
- Protect the quality of groundwater;
- Preserve, restore and improve surface water quality (wetlands, lakes, rivers and streams) through education, erosion control, buffer strips, easements, land use controls, flood controls and nutrient/sediment reductions;
- Preservation of parks and open space/Encourage access and preservation of access to lakes and rivers;
- Encourage the preservation of environmental corridors and other sensitive areas, such as waterfronts, streams and wetlands;
- Continue to promote sustainable forestry;

- Maintain beaches and determine sources of beach closings and degraded water quality;
- Maintain and enhance coastal wetlands;
- Improve access to Lake Michigan and other coastal features; and
- Support cultural activities.

The *Sheboygan County Natural Areas and Critical Resources Plan* includes a vision, and several goals and objectives for each of the following plan elements: natural resources; agricultural resources; agricultural and open space development/preservation; parks and recreational lands; metallic and non-metallic resources; and historic and cultural resources.

Much of the data collected for the *Sheboygan County Natural Areas and Critical Resources Plan* was also used to map features in which the capacity modifying projects in the *Year 2045 SATP* have been assessed to determine the impacts of these projects on the natural and human environments.

Sheboygan County Farmland Preservation Plan

The *Sheboygan County Farmland Preservation Plan* was completed by the Sheboygan County Planning and Conservation Department and the Bay-Lake Regional Planning Commission, was certified by the Wisconsin Department of Agriculture, Trade and Consumer Protection (DATCP) in November 2013, and was approved by the Sheboygan County Board in January 2014. An amendment to the plan affecting a town outside the metropolitan planning area was adopted in October 2014. The plan was overseen by the Sheboygan County Agriculture Planning Committee, with input from Sheboygan County UW-Extension, town board members, and plan commission members.

The *Sheboygan County Farmland Preservation Plan* details an agricultural resources strategy that includes the following goals (most of these can also be found in the *Common Visions: Sheboygan County Comprehensive Land Use Plan, 2010-2030*):

- Preserve agricultural lands by encouraging towns to follow through on their "Smart Growth" plans.
- Promote agribusiness near production areas.
- Consider important agricultural areas when planning for development.
- Preserve rural character by encouraging towns to adhere to their "Smart Growth" plans.
- Preserve natural resources and public lands through good management for multiple uses.
- Protect groundwater resources through continued well testing.
- Improve nuisance complaints through the adoption of a livestock siting ordinance.
- Preserve, restore, and improve surface water quality (wetlands, lakes, rivers, and streams) through education, erosion control, buffer strips, easements, land use controls, flood controls, and nutrient/sediment reductions.
- Encourage the preservation of environmental corridors and other sensitive areas, such as waterfronts, streams, and wetlands.
- Continue to promote sustainable forestry.

The plan delineates two categories of lands for the county; *Farmland Preservation Areas* and *Non-Farmland Preservation Areas*.

- ***Farmland Preservation Areas*** included agricultural uses and agriculture-related uses. In addition, a minimal amount of non-farm land uses (such as transportation, utilities, communication and nonmetallic mineral extraction) that support the agriculture industry, do not substantially impair or limit current or future agricultural uses, and comply with Section 91.46 of the *Wisconsin Statutes*. Significant environmental features were also classified as "Farmland Preservation Areas" to be preserved for their natural aesthetics and scenic values as well as their environmental attributes; these include floodways, wetlands and woodlands.
- ***Non-Farmland Preservation Areas*** are those remaining areas not categorized as "Farmland Preservation Areas." These areas are considered incompatible with agriculture. These areas include concentrations of residential, business and industrial development primarily found in incorporated municipalities, subdivisions, and areas presently receiving or planned for sanitary sewer service. Other land uses located in rural Sheboygan County (such as wind energy systems, wireless communication facilities, golf courses, mineral extraction, etc.) were not included in "Farmland Preservation Areas" unless they were predominantly used for agricultural purposes. Various natural areas and recreational lands owned by the State of Wisconsin or by Sheboygan County were also excluded from "Farmland Preservation Areas."

Four of the towns in the metropolitan planning area (Herman, Lima, Mosel and Sheboygan Falls) have been included in the *Sheboygan County Farmland Preservation Plan*. The Towns of Sheboygan and Wilson elected not to participate in this plan due to their status as urban or rapidly urbanizing towns.

Based on the farmland preservation maps provided in the *Sheboygan County Farmland Preservation Plan*, the recommended capacity modifying street and highway improvement projects in the *Year 2045 SATP* may have the following impacts on recommended farmland preservation areas:

1. South Taylor Drive from County Highway EE/Weeden Creek Road to County Highway V: New 4 Lane Facility

This project is located in the City of Sheboygan and the Town of Wilson. This project is located in jurisdictions that did not participate in the Farmland Preservation Plan process. Therefore, the project is not considered to have an impact on farmland preservation areas.

2. County Highway TT from County Highway PP to State Highway 28: New 2 Lane Facility

The northern edge of this project touches the corporate limits of the City of Sheboygan Falls, but is mostly located in the Towns of Sheboygan Falls (Section 34) and Lima (Section 3). The project would have significant impacts on farmland preservation areas, as the vast majority of the corridor is located within such areas.

3. Interstate Highway 43 at County Highway FF: New Full Interchange

This project is located in Sections 17 and 20 in the Town of Mosel. The project would impact farmland preservation areas.

4. South 18th Street from County Highway EE/Weeden Creek Road to County Highway V: New 2 Lane Facility

The northern edge of this project is located in the City of Sheboygan, but is mostly located in the Town of Wilson. This project is located in jurisdictions that did not participate in the Farmland Preservation Plan process. Therefore, the project is not considered to have an impact on farmland preservation areas.

5. Interstate Highway 43 at County Highway PP/Lower Falls Road/Indiana Avenue: New Half Interchange (to and from the south)

This project is located where the Village of Kohler and the Town of Sheboygan meet. The northbound off ramp could also be configured in such a manner that the City of Sheboygan could be impacted by the project (if UW Sheboygan land is needed for the project). This project is located in jurisdictions that did not participate in the Farmland Preservation Plan process. Therefore, the project is not considered to have an impact on farmland preservation areas.

6. State Highway 23 from the Western Boundary of the Sheboygan Metropolitan Planning Area to State Highway 32: Various Projects (from the Corridor Preservation and Freeway Designation Study)

This project is located in portions of Sections 20 through 23 of the Town of Sheboygan Falls. The project would have significant impacts on farmland preservation areas, as the vast majority of the corridor is located within such areas. The project will include an interchange at County Highway TT (most likely affecting Section 22 and possibly affecting a portion of Section 27). Removal of at-grade access will also occur at various locations along the corridor.

This project will also affect Section 19 of the Town of Sheboygan Falls and Section 24 of the Town of Plymouth, and much of the State Highway 23 corridor in these sections also includes farmland preservation areas. However, these sections are located outside the Sheboygan metropolitan planning area.

7. State Highway 42 from County Highway Y to County Highway A/Howards Grove: Reconstruction with an Increase from 2 to 4 Lanes

This project is located in portions of the Towns of Mosel and Herman. In the Town of Mosel, a few portions of Sections 30 and 31 involve farmland preservation areas. In the Town of Herman, portions of Section 25 (just east of Howards Grove) no longer involve farmland preservation areas (these were farmland preservation areas in the past, but have become urbanized over time).

Sheboygan County Outdoor Recreation and Open Space Plan

The *Sheboygan County Outdoor Recreation and Open Space Plan*, adopted in 2007 (but in the process of being updated), serves as a guide to local communities and to Sheboygan County in the maintenance and development of outdoor recreation facilities. The *Sheboygan County Outdoor Recreation and Open Space Plan* was examined in comparison to the seven capacity modifying street and highway projects recommended in the *Year 2045 SATP*.

Based on the existing and proposed outdoor recreation facility maps in the *Sheboygan County Outdoor Recreation and Open Space Plan*, the recommended capacity modifying street and

highway improvement projects in the *Year 2045 SATP* may have the following impacts on outdoor recreation resources (public or private):

1. **South Taylor Drive from County Highway EE/Weeden Creek Road to County Highway V: New 4 Lane Facility**

   This project may potentially impact Kaufmann Park in the Town of Wilson. This park is adjacent to the Wilson Town Hall.

2. **County Highway TT from County Highway PP to State Highway 28: New 2 Lane Facility**

   This project is not expected to have any adverse impacts on outdoor recreation resources.

3. **Interstate Highway 43 at County Highway FF: New Full Interchange**

   This project is not expected to have any adverse impacts on outdoor recreation resources. This project would improve customer access to Whistling Straits Golf Course.

4. **South 18th Street from County Highway EE/Weeden Creek Road to County Highway V: New 2 Lane Facility**

   This project may potentially impact a portion of the Riverdale Country Club in the Town of Wilson.

5. **Interstate Highway 43 at County Highway PP/Lower Falls Road/Indiana Avenue: New Half Interchange (to and from the south)**

   This project is not expected to have any adverse impacts on outdoor recreation resources. This project would improve customer access to Blackwolf Run Golf Course and River Wildlife.

6. **State Highway 23 from the Western Boundary of the Sheboygan Metropolitan Planning Area to State Highway 32: Various Projects (from the Corridor Preservation and Freeway Designation Study)**

   This project may potentially impact several outdoor recreation resources, including: the Meadowlark Trailhead to the Old Plank Road Trail; an access point to the Sheboygan River near the current intersection of State Highway 23 and County Highway TT; Camp Y-Koda; and Sunset Hills Golf Course. Removal of at-grade access to State Highway 23 in certain locations may also change travel patterns of area residents and visitors to other outdoor recreation resources in the town.

7. **State Highway 42 from County Highway Y to County Highway A/Howards Grove: Reconstruction with Increase from 2 to 4 Lanes**

   This project may potentially impact recreational facilities at Howards Grove High School, and may also impact Community Park on the southeast side of the Village of Howards Grove and Memorial Park near the intersection of State Highway 42 and County Highway A. All of these outdoor recreation resources are located in the Village of Howards Grove.

Local Comprehensive ("Smart Growth") Plans

The "Agricultural, Natural and Cultural Resources" and "Transportation" elements of the local comprehensive plans for the communities within the Sheboygan metropolitan planning area were

reviewed for consistency with the *Year 2045 SATP*. Environmental, historical, recreational, or agricultural impacts that have been identified in previous sections of the *Year 2045 SATP* were not repeated in this section when found in the local comprehensive plans that utilized the same source for the information.

City of Sheboygan

The City of Sheboygan adopted its most recent "smart growth compliant" comprehensive plan update in December of 2011 (i.e. compliant with Section 66.1001 of the *Wisconsin Statutes*).

The "Culture and Education," "Natural Resources," "Agricultural Resources" and "Transportation" elements of the *City of Sheboygan Comprehensive Plan* were reviewed for consistency with the *Year 2045 SATP*; no inconsistencies were identified in most plan elements, but a few inconsistencies were noted in the area of transportation.

The *City of Sheboygan Comprehensive Plan* recommended that South Taylor Drive be extended to the south (although the comprehensive plan recommended this extension to County Highway OK, while the *Year 2045 SATP* recommends this extension to County Highway V). The *City of Sheboygan Comprehensive Plan* also recommended placement of an interchange at Interstate Highway 43 and County Highway PP/Lower Falls Road/Indiana Avenue, although the plan did not specify the configuration of such a full or partial interchange. The *City of Sheboygan Comprehensive Plan* did not recommend the extension of South 18th Street; the comprehensive plan will need to be amended to include this project in order to be fully consistent with the *Year 2045 SATP*.

City of Sheboygan Falls

The *City of Sheboygan Falls Comprehensive Plan* was adopted in September of 2009. The "Agricultural, Natural and Cultural Resources" and "Transportation" elements of the *City of Sheboygan Falls Comprehensive Plan* were reviewed for consistency with the *Year 2045 SATP*; no inconsistencies were identified in most plan elements, but some minor inconsistencies were noted in the area of transportation.

It should be noted that two of the seven capacity modifying projects recommended in the *Year 2045 SATP* are located within the City of Sheboygan Falls' planning area. The County Highway TT extension from County Highway PP to State Highway 28 appears as a recommendation in the *City of Sheboygan Falls Comprehensive Plan*, although the proposed alignment may be slightly different from what appears in the *Year 2045 SATP*. In addition, an interchange at State Highway 23 and County Highway TT is recommended in the *City of Sheboygan Falls Comprehensive Plan*; this appears as a major recommendation from the State Highway 23 Corridor Preservation and Freeway Designation Study that is being included in the *Year 2045 SATP*; in this case, the project has been identified with a circle, with no specified location or alignment.

Village of Howards Grove

The *Village of Howards Grove Comprehensive Plan* was adopted in July of 2007. The "Agricultural, Natural and Cultural Resources" and "Transportation" elements of the *Village of Howards Grove Comprehensive Plan* were reviewed for consistency with the *Year 2045 SATP* and no inconsistencies were identified.

It should be noted that one of the seven capacity modifying projects recommended in the *Year 2045 SATP* is in the planning area for this comprehensive plan. This project is the reconstruction with an increase from two to four lanes of State Highway 42 from County Highway Y to County

Highway A, which is discussed in the *Village of Howards Grove Comprehensive Plan*. In addition, even though it is distant from the village, the proposed Interstate Highway 43 interchange at County Highway FF is discussed in the *Village of Howards Grove Comprehensive Plan*.

Village of Kohler

The *Village of Kohler Comprehensive Plan* was adopted in November of 2007. The "Agricultural, Natural and Cultural Resources" and "Transportation" elements of the *Village of Kohler Comprehensive Plan* were reviewed for consistency with the *Year 2045 SATP*; no inconsistencies were identified in most plan elements, but one inconsistency was noted in the area of transportation.

The *Village of Kohler Comprehensive Plan* did not recommend placement of a half interchange at Interstate Highway 43 and County Highway PP/Lower Falls Road/Indiana Avenue. The *Village of Kohler Comprehensive Plan* will need to be amended to include this project in order to be fully consistent with the *Year 2045 SATP*. Crossing of the Sheboygan River with the southbound on ramp of this half interchange may also be complex in terms of natural resource impacts.

Town of Herman

The *Town of Herman Comprehensive Plan* was adopted in October of 2007. The "Agricultural, Natural and Cultural Resources" and "Transportation" elements of the *Town of Herman Comprehensive Plan* were reviewed for consistency with the *Year 2045 SATP* and no inconsistencies were identified.

It should be noted that one of the seven capacity modifying projects recommended in the *Year 2045 SATP* is in the planning area for this comprehensive plan. This project is the reconstruction with an increase from two to four lanes of State Highway 42 from County Highway Y to County Highway A, which is discussed in the *Town of Herman Comprehensive Plan*. It is notable that the Agricultural Impact Statement program discussed in the "Agricultural, Natural and Cultural Resources" chapter may impact the State Highway 42 expansion project.

Town of Lima

The *Town of Lima Comprehensive Plan* was adopted in December of 2009. The "Agricultural, Natural and Cultural Resources" and "Transportation" elements of the *Town of Lima Comprehensive Plan* were reviewed for consistency with the *Year 2045 SATP* and no inconsistencies were identified in most plan elements, but some minor inconsistencies were noted in the area of transportation.

It should be noted that one of the seven capacity modifying projects recommended in the *Year 2045 SATP* is in the planning area for this comprehensive plan. This project is the extension of County Highway TT from County Highway PP to State Highway 28 as a two lane facility. This project appears on the future land use map of the *Town of Lima Comprehensive Plan*, although the proposed alignment may be slightly different from what appears in the *Year 2045 SATP*. Crossing of the Mullet River with the portion of this roadway extension in the Town of Lima may also be complex in terms of natural resource impacts.

Town of Mosel

The *Town of Mosel Comprehensive Plan* was adopted in June of 2009. The "Agricultural, Natural and Cultural Resources" and "Transportation" elements of the *Town of Mosel*

Comprehensive Plan were reviewed for consistency with the *Year 2045 SATP* and no inconsistencies were identified.

It should be noted that two of the seven capacity modifying projects recommended in the *Year 2045 SATP* are in the planning area for this comprehensive plan. These projects include a new full interchange on Interstate Highway 43 at County Highway FF, as well as the reconstruction with an increase from two to four lanes of State Highway 42 from County Highway Y to County Highway A. Both projects are discussed in the transportation chapter of the *Town of Mosel Comprehensive Plan*. It is notable that the Agricultural Impact Statement program discussed in the "Agricultural, Natural and Cultural Resources" chapter may impact the State Highway 42 expansion project and the proposed Interstate Highway 43 interchange at County Highway FF.

Town of Sheboygan

The *Town of Sheboygan Comprehensive Plan* was adopted in December of 2009. The "Agricultural, Natural and Cultural Resources" and "Transportation" elements of the *Town of Sheboygan Comprehensive Plan* were reviewed for consistency with the *Year 2045 SATP*; no inconsistencies were identified in most plan elements, but one inconsistency was noted in the area of transportation.

The *Town of Sheboygan Comprehensive Plan* did not recommend placement of a half interchange at Interstate Highway 43 and County Highway PP/Lower Falls Road/Indiana Avenue. The *Town of Sheboygan Comprehensive Plan* will need to be amended to include this project in order to be fully consistent with the *Year 2045 SATP*. Crossing of the Sheboygan River with the northbound off ramp of this half interchange may also be complex in terms of natural resource impacts.

Town of Sheboygan Falls

The *Town of Sheboygan Falls Comprehensive Plan* was adopted in November of 2009. The "Agricultural, Natural and Cultural Resources" and "Transportation" elements of the *Town of Sheboygan Falls Comprehensive Plan* were reviewed for consistency with the *Year 2045 SATP;* no inconsistencies were identified in most plan elements, but some minor inconsistencies were noted in the area of transportation.

Two of the seven capacity modifying projects recommended in the *Year 2045 SATP* are in the planning area for this comprehensive plan. These include the extension of County Highway TT from County Highway PP to State Highway 28 as a two lane facility, as well as various projects associated with the State Highway 23 Corridor Preservation and Freeway Designation Study (including a proposed interchange at County Highway TT). The County Highway TT extension appears on the future land use map of the *Town of Sheboygan Falls Comprehensive Plan*, although the proposed alignment is slightly different from what appears in the *Year 2045 SATP*, as existing residential development means that County Highway TT would need to be extended a short distance west of where it intersects with County Highway PP in order to meet State Highway 28. In addition, some of the recommendations from the State Highway 23 Corridor Preservation and Freeway Designation Study are inconsistent with some of the access recommendations for State Highway 23 that appear on the 20 Year Potential Land Use map in the *Town of Sheboygan Falls Comprehensive Plan*. A change in alignment to County Highway TT with an interchange with State Highway 23 would involve a new crossing of the Sheboygan River, which could be complex in terms of natural resource impacts.

Town of Wilson

The *Town of Wilson Comprehensive Plan* was adopted in June of 2007. The "Agricultural, Natural and Cultural Resources" and "Transportation" elements of the *Town of Wilson Comprehensive Plan* were reviewed for consistency with the *Year 2045 SATP*; no inconsistencies were identified in most plan elements, but one minor inconsistency was noted in the area of transportation.

The *Town of Wilson Comprehensive Plan* mentions the South Taylor Drive extension as a four lane facility from County Highway EE/Weeden Creek Road to County Highway OK, which is slightly inconsistent with the *Year 2045 SATP* in that the updated recommendation calls for South Taylor Drive to be extended all the way to County Highway V (crossing over County Highway OK). The *Town of Wilson Comprehensive Plan* also mentions the South 18th Street extension as a two lane facility from County Highway EE/Weeden Creek Road to County Highway V. It is recommended that the *Town of Wilson Comprehensive Plan* be amended to include this slight change to the South Taylor Drive extension project, and to map these projects as recommendations in the comprehensive plan document.

SUMMARY OF ENVIRONMENTAL CONSULTATION MEETING CONDUCTED

Multi-Agency Environmental Consultation Meeting

Commission staff met with representatives from several agencies on April 21, 2015, to discuss environmental consultation and the *Year 2045 SATP*. The meeting was held at the Wisconsin DNR Northeast Region office in Green Bay, with a teleconference line available. In addition to two staff from the Bay-Lake Regional Planning Commission present at the meeting, representatives from the following agencies were in attendance at the meeting:

- Wisconsin Department of Natural Resources Bureau of Air Management, Madison (via teleconference);
- Wisconsin Department of Transportation Bureau of Planning and Economic Development, Madison (via teleconference);
- WisDOT Northeast Region, Green Bay (two staff, in person);
- Wisconsin Department of Agriculture, Trade and Consumer Protection, Madison (two staff, via teleconference);
- Federal Highway Administration, Wisconsin Division (via teleconference);
- Wisconsin DNR Northeast Region, Green Bay (in person); and
- Sheboygan County Planning and Conservation Department (via teleconference).

The meeting started with introductions, background information, and discussion regarding the purpose and expectations of the meeting. This was followed by an overview of the MPO transportation plan and planning process. Commission staff reviewed the draft outline for the *Year 2045 SATP* with meeting participants. The updated *Year 2045 SATP* will include nine chapters (the environmental consultation process is Chapter 8), as well as eight appendices, including an air quality conformity analysis.

The next portion of the meeting dealt with new or updated environmental resource inventories and plans. Commission staff reviewed draft Chapter 8 of the *Year 2045 SATP* that was prepared

in early 2015; this chapter is titled "Mitigation of Environmental Impacts of Major Transportation Projects," and was prepared based on input received in the last environmental consultation process conducted in March 2010. Commission staff reviewed various environmental resource inventory maps that were being included in the environmental mitigation chapter of the *Year 2045 SATP*. Meeting participants had no comments on the environmental resource inventory maps. Commission staff also reviewed other inventories and plans consulted but not mapped that were being included in the environmental mitigation chapter of the *Year 2045 SATP*. Staff from the Wisconsin Department of Agriculture, Trade and Consumer Protection indicated that they were not aware of any missing inventories or a need to include updated inventories from an agricultural standpoint. Staff from the Wisconsin DNR Northeast Region commented that the DNR would be conducting additional surveys for the NHI pertinent to the northern long-eared bat later in 2015, but noted that this work would likely primarily affect portions of southern and southwestern Wisconsin, and would likely not include the Sheboygan metropolitan planning area.

Commission staff then reviewed local comprehensive ("smart growth") plans consulted but not mapped that were being included in the environmental mitigation chapter of the *Year 2045 SATP*. It was noted that the comprehensive plan for the City of Sheboygan was updated since the last environmental consultation process in 2010, and was being consulted along with the plans that have been adopted for several years.

The next portion of the meeting dealt with review of major planned transportation improvements and their potential impacts. The summary of major transportation projects being recommended in the *Year 2045 SATP* was reviewed with meeting participants. The impacts of the major transportation projects on the natural and human environments from the environmental mitigation effort conducted for the *Year 2045 SATP* were also reviewed. As far as comments from meeting participants were concerned, staff from the WDNR Northeast Region had questions regarding the jurisdiction (state, county or local municipality) of the seven major planned transportation improvements which Bay-Lake Regional Planning Commission staff answered. Staff from the WisDOT Northeast Region suggested including the implementation period for each listed project in Table 8.1 (as well as possibly adding the implementation period with the individual project headings). Staff from the Wisconsin Department of Agriculture, Trade and Consumer Protection suggested determining whether there were any drainage districts in the Sheboygan metropolitan planning area, and if they exist, possibly identifying their role in the environmental mitigation process in Chapter 8. (However, shortly after the meeting, this same meeting participant sent an e-mail to Bay-Lake Regional Planning Commission staff indicating that "there are no drainage districts in the Sheboygan metropolitan planning area," but adding that there was "one drainage district on the Sheboygan/Ozaukee County boundary."). Staff from the WisDOT Northeast Region commented that adding an interchange (half or full) at Interstate Highway 43 and County Highway PP/Lower Falls Road/Indiana Avenue could be problematic from a traffic operations standpoint due to the proximity of the State Highway 23 interchange a short distance to the north.

The final significant agenda item involved discussion of transportation plan level environmental mitigation policies. Commission staff reviewed the environmental mitigation policies from the previous environmental mitigation effort with meeting participants. As far as comments from meeting participants were concerned, staff from the WDNR Northeast Region and the WisDOT Northeast Region recommended that the third full paragraph under "Environmental Mitigation

Policies/Strategies" specifically refer to wetlands. Staff from the WDNR Northeast Region added that the U.S. Army Corps of Engineers tends to prefer use of established wetland mitigation banks (as opposed to improving small wetlands near a transportation project) when completing mitigation associated with such transportation projects. Finally, staff from the WDNR Northeast Region suggested that the language in the narrative for Strategy 1 mention wetlands.

As far as other discussion was concerned, Bay-Lake Regional Planning Commission staff briefly discussed the air quality conformity analysis (Appendix C) and the environmental justice analysis (Appendix E) that were being included in the draft *Year 2045 SATP*. Bay-Lake Regional Planning Commission staff acknowledged the cooperation of the WisDOT travel forecasting staff and of the WDNR Bureau of Air Management in the completion of Appendix C. Meeting participants raised no other issues at the meeting.

Minutes from the April 21, 2015, multi-agency environmental consultation meeting can be found in Appendix G.

SUMMARY IMPACT ANALYSIS FOR THE MAJOR TRANSPORTATION PROJECTS

The Bay-Lake Regional Planning Commission staff has analyzed the impacts of the seven major transportation projects recommended in the *Year 2045 SATP* on the natural and human environments. The following is a summary of the impacts within the rights-of-way previously noted for each project.

Relocations were estimated based on the land use associated with the structure being taken; structures were assumed to be taken if even a portion of a structure was touching the assumed right-of-way for an expansion project.

Table 8.1 discusses the estimated right-of-way impacts associated with implementation of capacity expansion projects in the *Year 2045 SATP*. The information provided in Table 8.1 and in the following narrative is included in the *Year 2045 SATP* for planning purposes only, and will need to be verified during environmental reviews. In the case of environmental corridor attributes, acreage for each individual attribute will often exceed the total environmental corridor acreage in Table 8.1 for a project, since the same land can often exhibit multiple environmental corridor features. For this reason, acreage for each environmental corridor attribute is not reported in the narrative which follows.

The following impacts were noted for each project:

1. **South Taylor Drive from County Highway EE/Weeden Creek Road: New 4 Lane Facility (Recommended implementation period: 2016 – 2025)**
    - This project is estimated to require the relocation of one residential property, but would not involve the relocation of any commercial/industrial or governmental/institutional properties.
    - No historic buildings or sites would be impacted by this project.
    - No park or recreation lands would be impacted by this project.
    - Approximately 1.90 acres of environmental corridors would be impacted by this project, all of which would involve surface water with a 75-foot setback.
    - No archaeological areas would be impacted by this project.

- Approximately 24.33 acres of prime agricultural lands would be impacted by this project.

2. County Highway TT from County Highway PP to State Highway 28: New 2 Lane Facility (Recommended implementation period: 2016 – 2025)

- This project would require no relocations of residential, commercial/industrial, or governmental/institutional properties.
- No historic buildings or sites would be impacted by this project.
- No park or recreational lands would be impacted by this project.
- Approximately 1.80 acres of environmental corridors would be impacted by this project, mostly involving the 100-year floodplain, but also including surface water with a 75-foot setback.
- No archaeological areas would be impacted by this project.
- Approximately 10.93 acres of prime agricultural lands would be impacted by this project.

3. Interstate Highway 43: New Interchange at County Highway FF (Recommended implementation period: 2026 – 2035)

- This project is estimated to require the relocation of two residential properties, but would not involve the relocation of any commercial/industrial or governmental/institutional properties.
- No historic buildings or sites would be impacted by this project.
- No park or recreation lands would be impacted by this project.
- Approximately 0.11 acres of environmental corridors would be impacted by this project, all of which would involve areas of steep slope.
- No archaeological areas would be impacted by this project.
- Approximately 19.87 acres of prime agricultural lands would be impacted by this project.

4. South 18th Street from County Highway EE/Weeden Creek Road to County Highway V: New 2 Lane Facility (Recommended implementation period: 2026 – 2035)

- This project is estimated to require the relocation of two residential properties, but would not involve the relocation of any commercial/industrial or governmental/institutional properties. Relocation of one of the residential properties could be avoided if the southern terminus of the project is modified during the design process.
- No historic buildings or sites would be impacted by this project.
- Approximately 1.38 acres of private recreational lands (in this case, a golf course) would be impacted by this project. Some or all of this could be avoided with a slight relocation of the project to the west during the design process.
- Approximately 3.51 acres of environmental corridors would be impacted by this project, including wetlands with a 50-foot setback, 100-year floodplain, and surface water with a 75-foot setback.

- No archaeological areas would be impacted by this project.
- Approximately 18.78 acres of prime agricultural lands would be impacted by this project.

5. **Interstate Highway 43: New Half Interchange at County Highway PP/Lower Falls Road/Indiana Avenue (to and from the south)(Recommended implementation period: 2026 – 2035)**
    - This project would require no relocations of residential, commercial/industrial, or governmental/institutional properties.
    - No historic buildings or sites would be impacted by this project.
    - No park or recreation lands would be impacted by this project.
    - Approximately 8.27 acres of environmental corridors would be impacted by this project, including areas of steep slope, 100-year floodplain, and surface water with a 75-foot setback.
    - Up to two archaeological areas could be impacted by this project.
    - Approximately 3.10 acres of prime agricultural lands would be impacted by this project.

6. **State Highway 23 from the Western Boundary of the Sheboygan Metropolitan Planning Area to State Highway 32: Various Projects (from the Corridor Preservation and Freeway Designation Study)(Recommended implementation period: 2036 – 2045)**
    - This project would require no relocations of residential, commercial/industrial, or governmental/institutional properties.
    - No historic buildings or sites would be impacted by this project.
    - No park or recreation lands would be impacted by this project.
    - Approximately 3.41 acres of environmental corridors would be impacted by this project, including wetlands with a 50-foot setback, 100-year floodplain, and surface water with a 75-foot setback.
    - No archaeological areas would be impacted by this project.
    - Approximately 34.20 acres of prime agricultural lands would be impacted by this project.

7. **State Highway 42 from County Highway Y to County Highway A/Howards Grove: Reconstruction with an Increase from 2 to 4 Lanes (Recommended implementation period: 2036 – 2045)**

   - This project is estimated to require the relocation of 23 properties including 16 residential properties, five commercial/industrial properties, and two governmental/institutional properties.
   - No historic buildings or sites would be impacted by this project.
   - Approximately 2.15 acres of public parkland would be impacted by this project.
   - Approximately 2.85 acres of environmental corridors would be impacted by this project, including wetlands with a 50-foot setback, 100-year floodplain, and surface water with a 75-foot setback.
   - An archaeological area could be impacted by this project.
   - Approximately 62.73 acres of prime agricultural lands would be impacted by this project.

Summary of Total Impacts from all Major Transportation Projects

The following compiles the summarized listing of the total impacts from all seven major transportation projects from the *Year 2045 SATP*.

- These projects are estimated to require the relocation of up to 28 properties, including up to 21 residential properties, five commercial/industrial properties, and two governmental/ institutional properties.
- No historic buildings or sites would be impacted by the projects.
- Approximately 2.15 acres of public parkland and 1.38 acres of private recreational lands (golf courses, etc.) would be impacted by these projects.
- Approximately 21.85 acres of environmental corridors would be impacted by these projects, including wetlands with a 50-foot setback, areas of steep slope, 100-year floodplain, and surface water with a 75-foot setback.
- Up to three potential archaeological areas could be impacted by these projects.
- Approximately 173.94 acres of prime agricultural lands would be impacted by these projects.

ENVIRONMENTAL MITIGATION POLICIES/STRATEGIES

Arterial and collector street and highway capacity expansion has been developed through the metropolitan transportation planning process to avoid, if at all possible, impacts to environmentally sensitive resources. The metropolitan transportation planning process first considers land use and transportation alternatives other than arterial and collector street and highway improvements. Arterial and collector street and highway capacity expansion is then considered only to address the residual traffic volume and congestion which would not be addressed by these other land use and transportation measures (such as expanded public transit). In addition, the Bay-Lake Regional Planning Commission has developed and maintains extensive databases of environmentally sensitive resources in the Sheboygan metropolitan

planning area. During the plan development process, efforts are made by the Bay-Lake Regional Planning Commission to consider arterial and collector improvements and conceptual alignments which avoid, to the extent possible, impacts on environmentally sensitive resources.

During preliminary engineering and environmental studies of arterial and collector street and highway projects with possible unavoidable impacts on environmentally sensitive resources, it is expected that efforts to minimize or eliminate any adverse impacts through consideration of design alternatives will be exhausted. The scope of the necessary preliminary engineering and environmental studies would include the consideration of alternative alignments and cross-sections designed specifically to minimize the attendant impacts on environmentally sensitive resources. To further minimize impacts, consideration should be given to the use of alternative design features (such as construction of a bridge over wetlands rather than a roadway on fill), even if they significantly increase project costs. Another technique that should be considered to minimize impacts is to seek exceptions to design standards that reduce the roadway cross-section through the impacted area.

Where wetlands will be unavoidably impacted, and for which mitigation is compensatory, efforts should focus on the preferred means of mitigation as identified by the regulatory agencies. Types of mitigation typically considered include: (1) enhancement of the remaining adjacent wetlands that will not be impacted as part of the arterial or collector street or highway project; (2) re-creation of the impacted wetlands; (3) creation of new wetlands; or (4) the acquisition and utilization of mitigation bank credits. Potential mitigation sites could include areas within or adjacent to wetlands and isolated wetlands, mitigation bank sites, and areas identified in the *Sheboygan County Natural Areas and Critical Resources Plan*.

Established federal and/or state policy and guidelines exist with respect to compensatory mitigation of certain environmentally sensitive resources. With respect to wetlands, all wetland compensatory mitigation efforts must meet the requirements of Section 404 of the Federal Clean Water Act of 1972, Section 10 of the Federal Rivers and Harbors Appropriation Act of 1899, Section 281.37 of the *Wisconsin Statutes*, Chapters NR 103 and NR 350 of the *Wisconsin Administrative Code*, and for Wisconsin Department of Transportation projects, compensatory mitigation efforts must meet the requirements of the cooperative agreement between the Wisconsin DNR and Wisconsin DOT that was updated in July 2012. The Wisconsin DNR, U.S. Army Corps of Engineers, U.S. Environmental Protection Agency, and U.S. Fish and Wildlife Service have jointly developed specific guidelines for required compensatory mitigation for permitted wetland loss in Wisconsin; this document (updated in August 2013) is entitled *Guidelines for Wetland Compensatory Mitigation in Wisconsin*.

The following environmental impact minimization policies can be applied to all capacity modifying transportation projects throughout the Sheboygan metropolitan planning area. An impact minimization approach that should be followed when planning major transportation projects is described below.

Strategy 1: Avoid Environmentally Significant Features (Including Wetlands)

When planning new or improved transportation facilities, measures should be taken to completely avoid environmentally significant features, including wetlands. However, situations may arise where avoiding these features is either not physically possible or not financially feasible. In these situations, the wetlands and other environmentally significant features should

be avoided as much as possible and local mitigation measures should be used to restore what is lost or harmed.

Strategy 2: Employ Local Mitigation Measures

When transportation facilities must pass through or near environmentally significant features, the impacts to the features should be minimized at or near the site through the use of various mitigation measures. Some of these measures could include the following:

Replace or Supplement an Affected Wetland with a New Wetland

When wetlands are harmed by transportation projects, new wetlands should be created as close as possible to the original wetlands to help manage runoff, re-establish wildlife habitats, and provide environmental benefits associated with these features.

Stabilize and Establish Vegetative Buffers along Shorelines

A method of minimizing the impacts of transportation facilities near waterways is to stabilize and create vegetative buffers along the shorelines. The addition of native plantings will help to minimize erosion, maximize pollutant filtration, provide wildlife habitat, minimize the spread of invasive vegetation, and improve the appearance of transportation corridors.

Replace Lost Trees with New Trees

When forests or woodlands are disrupted to enable the construction or improvement of transportation facilities, the communities and/or agencies responsible for the project should plant new trees to replace the trees that were removed. The new trees could be added to the original forest or woodland or along the transportation facility. Although these measures are already taken by one community in the Sheboygan metropolitan planning area (the City of Sheboygan) through the Tree City USA program, efforts should be made throughout the entire metropolitan planning area to replace trees that are removed.

Strategy 3: Utilize Wetland Banks When Local Mitigation Measures Are Not Feasible

When environmentally significant features (such as wetlands) cannot be avoided and mitigation measures at or near the sites of transportation projects are not feasible, an attempt to minimize the impacts of these projects should be made by buying space in area or state wetland mitigation banks. Although buying into these banks will not necessarily mitigate the impacts to specific wetlands within the Sheboygan metropolitan planning area, it will help to prevent overall losses to wetlands in the area or elsewhere in Wisconsin.

The Northland Wetland Mitigation Bank, located in the Town of Sherry in Wood County (8 miles north of Wisconsin Rapids), has a statewide service area with acreage available, making it the only wetland mitigation bank that can be utilized for the Sheboygan metropolitan planning area at this time. There may be other wetland mitigation banks developed and available outside the area but elsewhere in Wisconsin in the future (for example, the developers of the Northland Wetland Mitigation Bank have applied to the U.S. Army Corps of Engineers for permits to develop a wetland mitigation bank near the Village of Fremont in Waupaca County).

Sheboygan County along with its partner, the Glacial Lakes Conservancy (GLC), purchased the Amsterdam Dunes property in September of 2014. This purchase (333 acres) "establishes a wetland mitigation bank and preservation area." Amsterdam Dunes is located along Lake Michigan in the Town of Holland, just south of the Sheboygan metropolitan planning area. "The property contains a total of seven contiguous parcels, and is comprised of rare sand dunes, forest

and wetlands of various types, bluffs, farmland, streams and diverse plants and wildlife." The property also contains "1,920 feet of frontage along Lake Michigan." "Sheboygan County intends to preserve the property, open it up to the public, and create a wetland mitigation bank." Among next steps in this process are working with the Wisconsin DNR and the U.S. Army Corps of Engineers to finalize the wetland mitigation bank. Grants will be pursued to help offset the costs associated with this project. Sheboygan County is working with an advisory committee that was established for this project, and public input is being gathered. It will take some time to establish this wetland mitigation bank, and it is not yet known if the wetland mitigation bank will be available to entities outside Sheboygan County. When established, the wetland mitigation bank component of this project will play a large role in minimizing the impacts of transportation projects on local wetlands. In addition to providing a means for the expansion of existing wetland complexes, establishment of this local wetland bank could generate revenue to be used for other local environmental improvements.

AIR QUALITY CONFORMITY ANALYSIS

The air quality conformity analysis (which discusses the conformity of the *Year 2045 SATP* and its implementing *2015 - 2018 Sheboygan Metropolitan Planning Area Transportation Improvement Program (TIP)* with respect to the Wisconsin Air Quality Implementation Plan) can be found in Appendix C of the *Year 2045 SATP*. This appendix is entitled "Conformity of the *Year 2045 Sheboygan Area Transportation Plan* (SATP) and the *2015 - 2018 Sheboygan Metropolitan Planning Area Transportation Improvement Program (TIP)* with Respect to the State of Wisconsin Air Quality Implementation Plan."

ENVIRONMENTAL JUSTICE ANALYSIS

The environmental justice analysis (which discusses environmental mitigation for the human environment) can be found in Appendix E of the *Year 2045 SATP*. This appendix is entitled "Statement of Impacts of Projects in the *Year 2045 SATP* on Environmental Justice."

Table 8.1: Impacts Associated with Implementation of the Major Transportation Projects

Category	Capacity Expansion Projects in the *Year 2045 SATP*: South Taylor Dr. CTH EE to CTH V	CTH TT CTH PP to STH 28	IH 43 Interchange at CTH FF	South 18th St. CTH EE to CTH V*	IH 43 Interchange at CTH PP/Indiana Ave.	STH 23 Western MPA Boundary to STH 32	STH 42 CTH Y to CTH A	Totals
Implementation Period	2016 - 2025	2016 - 2025	2026 - 2035	2026 - 2035	2026 - 2035	2036 - 2045	2036 - 2045	
Relocations								
Residential (Number)	1	0	2	2	0	0	16	21
Commercial and Industrial (Number)	0	0	0	0	0	0	5	5
Government and Institutional (Number)	0	0	0	0	0	0	2	2
Historical Buildings and Sites	0	0	0	0	0	0	0	0
Parks and Recreational Lands (Acres)								
Public Parks	0.00	0.00	0.00	0.00	0.00	0.00	2.15	2.15
Private Rec. Lands (Golf Courses, etc.)	0.00	0.00	0.00	1.38	0.00	0.00	0.00	1.38
Environmental Corridors (Acres)	1.90	1.80	0.11	3.51	8.27	3.41	2.85	21.85
Wetlands								
Greater than 2 Acres in total size (Acres)	0.00	0.00	0.00	1.15	0.00	0.26	0.61	2.02
With 50' Wetland Buffer (Acres)	0.00	0.00	0.00	2.82	0.00	0.74	1.68	5.24
Less than 2 Acres in total size (Number)	0	0	0	0	0	0	0	0
Areas of Steep Slope (Acres)	0.00	0.00	0.11	0.00	3.86	0.00	0.00	3.97
100-Year Floodplain (Acres)	0.00	1.74	0.00	0.48	4.61	1.44	2.77	11.04
Surface Water with 75' Buffer (Acres)	1.90	0.28	0.00	1.89	3.88	2.37	1.04	11.36
Other Sensitive Lands								
Potential Archaeological Areas (Number)	0	0	0	0	2	0	1	3
Prime Agricultural Lands (Acres)	24.33	10.93	19.87	18.78	3.10	34.20	62.73	173.94

*One residential relocation could be avoided with a modification to the southern terminus of this project.

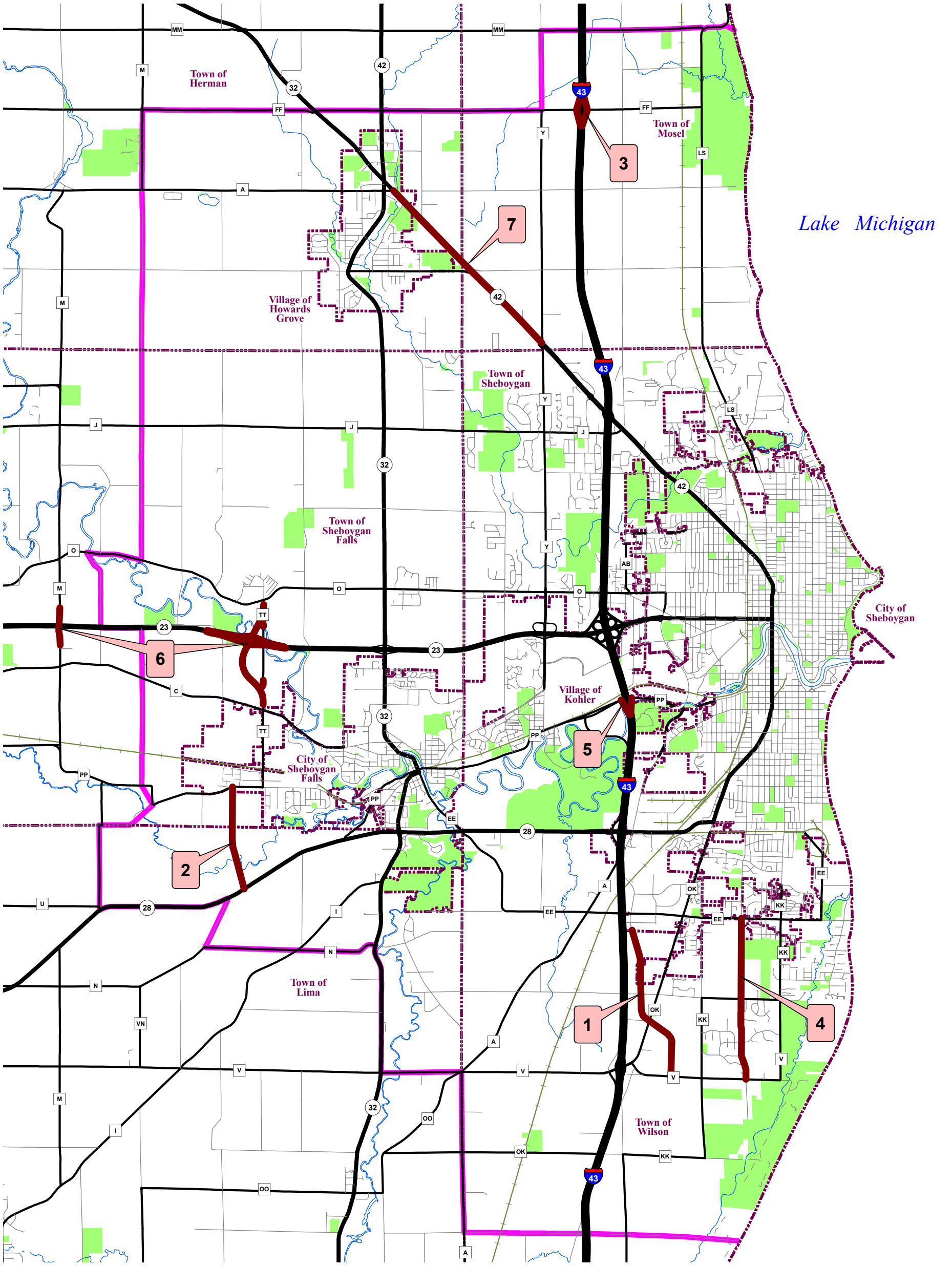
Source: Bay-Lake Regional Planning Commission, 2015.

Map 8.1

Recommended Capacity Modifying Major Transportation Projects

Sheboygan Metropolitan Planning Area

Year 2045 Sheboygan Area Transportation Plan (SATP)



Sheboygan Metropolitan Planning Area Boundary

Recommended Capacity Modifying Street and Highway Projects

N W E S

0 0.5 1 2

Miles

Note: Numbers refer to the project list on page 8-1.

BAY-LAKE Regional Planning Commission

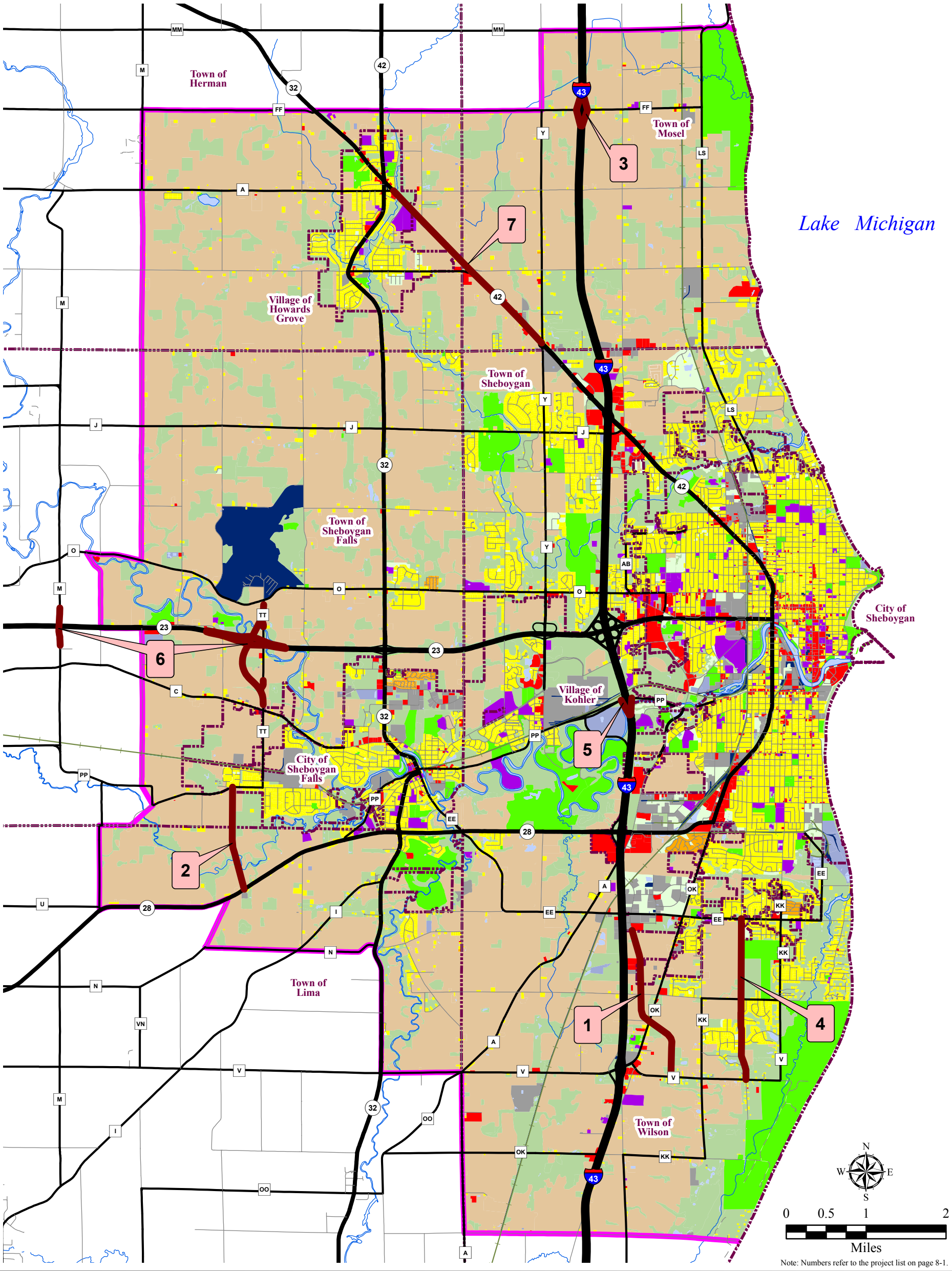
G:/Sheboygan/MPO/SATP/2045
Source: WDNR, 2009; WDOT, 2013; Sheboygan County, 2015; Bay-Lake Regional Planning Commission, 2015.

Map 8.2

Land Use with Overlay of Major Transportation Projects

Sheboygan Metropolitan Planning Area

Year 2045 Sheboygan Area Transportation Plan (SATP)



Sheboygan Metropolitan Planning Area Boundary

Recommended Capacity Modifying Street and Highway Projects

Residential
Mobile Homes
Commercial
Industrial

Transportation
Communications/Utilities
Governmental/Institutional
Parks and Recreation

Open Space/Fallow Fields
Agricultural
Water Features
Woodlands/Natural Areas

BAY-LAKE REGIONAL PLANNING COMMISSION

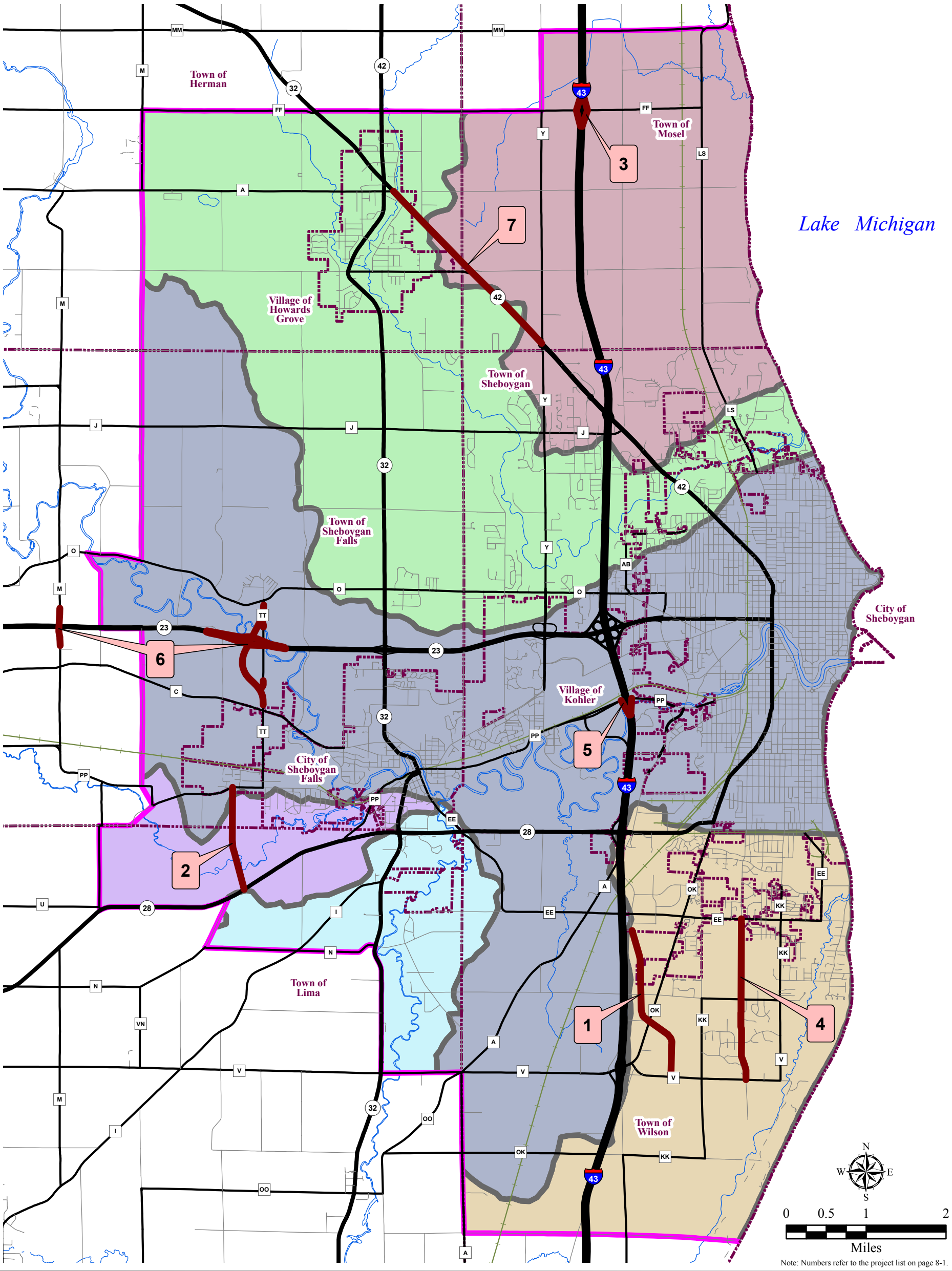
G:/Sheboygan/MPO/SATP/2045
Source: WDNR, 2009; WDOT, 2013; Sheboygan County, 2015; Bay-Lake Regional Planning Commission, 2009, 2015.

Map 8.3

Watersheds with Overlay of Major Transportation Projects

Sheboygan Metropolitan Planning Area

Year 2045 Sheboygan Area Transportation Plan (SATP)



Note: Numbers refer to the project list on page 8-1.

Sheboygan Metropolitan Planning Area Boundary

Recommended Capacity Modifying Street and Highway Projects

Black River

Mullet River

Onion River

Pigeon River

Sevenmile and Silver Creeks

Sheboygan River

BAY-LAKE REGIONAL PLANNING COMMISSION

G:/Sheboygan/MPO/SATP/2045

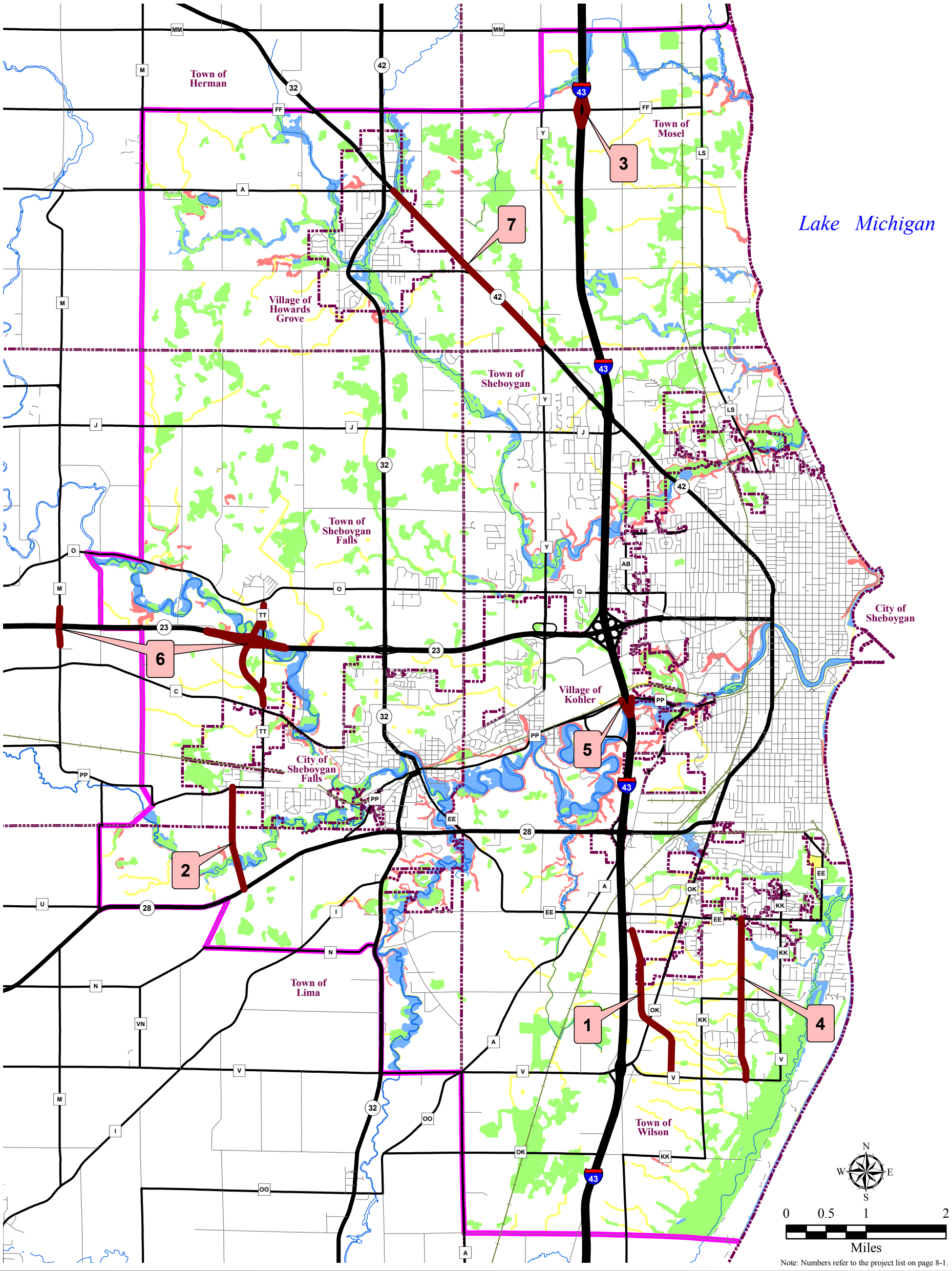
Source: WDNR, 2009, 2012; WDOT, 2013; Sheboygan County, 2015; Bay-Lake Regional Planning Commission, 2015.

Map 8.4

Environmental Corridors with Overlay of Major Transportation Projects

Sheboygan Metropolitan Planning Area

Year 2045 Sheboygan Area Transportation Plan (SATP)



Note: Numbers refer to the project list on page 8-1.

- Sheboygan Metropolitan Planning Area Boundary
- Recommended Capacity Modifying Street and Highway Projects
- Wetlands (Greater than 2 Acres) with 50-Foot Setback
- 100-Year Floodplain
- Steep Slope (12% or Greater)
- Surface Water with 75-Foot Setback

BAY-LAKE Regional Planning Commission

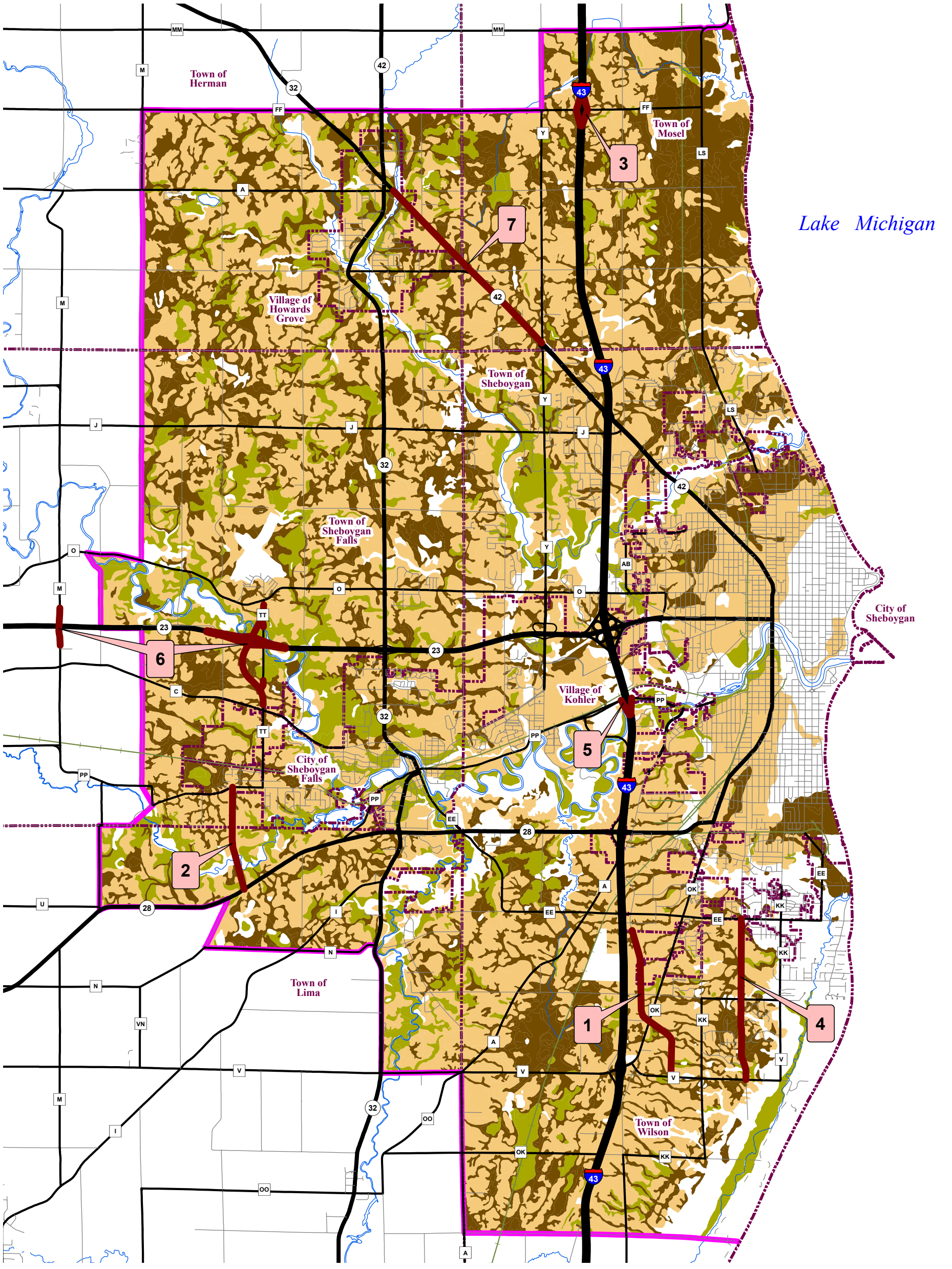
G:/Sheboygan/MPO/SATP/2045
Source: WDNR, 2008, 2009; FEMA, 2009; NRCS, 2004; WDOT, 2013; Sheboygan County, 2015; Bay-Lake Regional Planning Commission, 2015.

Map 8.5

Prime Agricultural Soils with Overlay of Major Transportation Projects

Sheboygan Metropolitan Planning Area

Year 2045 Sheboygan Area Transportation Plan (SATP)



Sheboygan Metropolitan Planning Area Boundary

Recommended Capacity Modifying Street and Highway Projects

Prime Farmland

Prime Farmland if Drained

Farmland of Statewide Importance

N W E S

0 0.5 1 2

Miles

Note: Numbers refer to the project list on page 8-1.

BAY-LAKE Regional Planning Commission

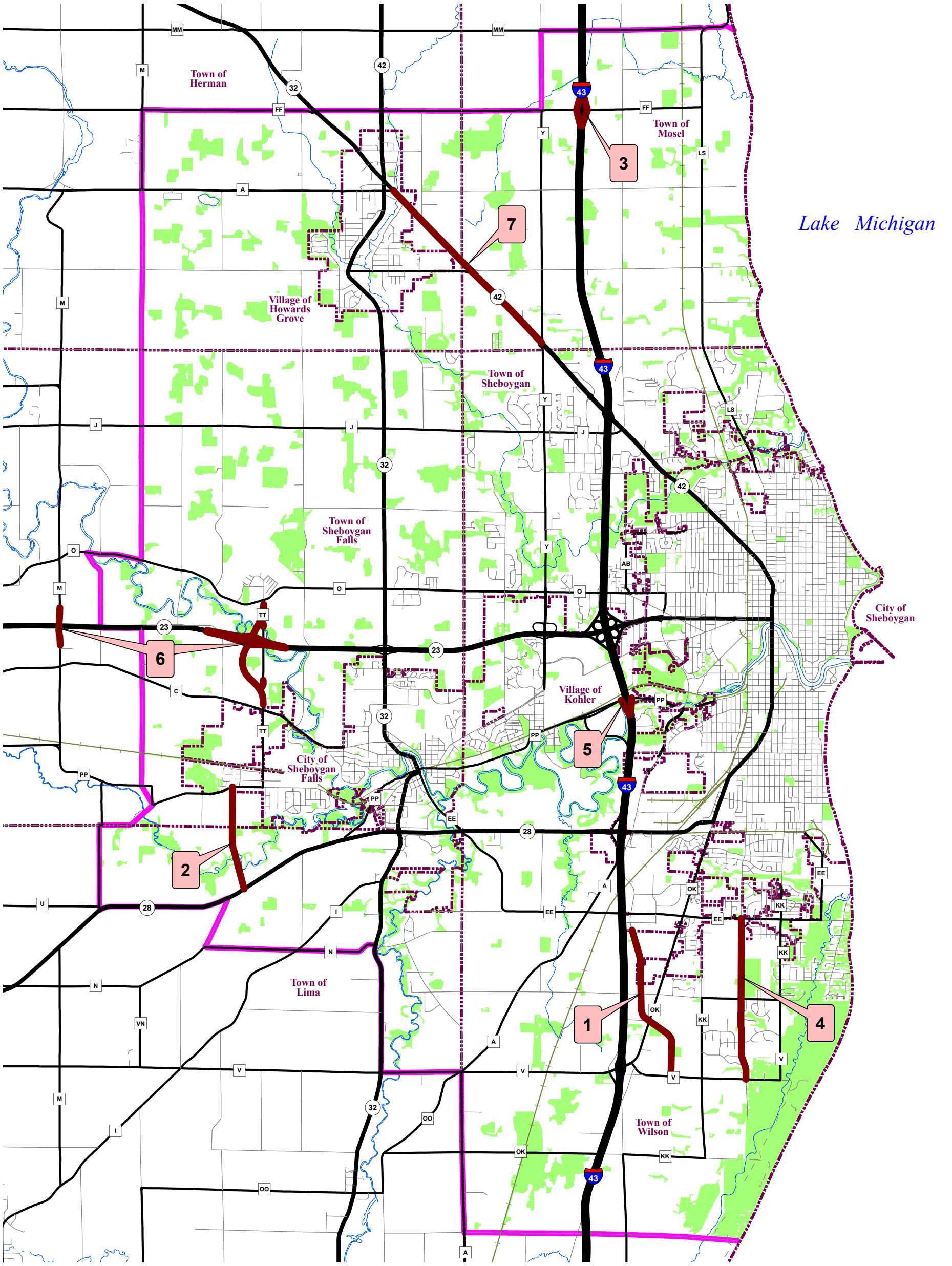
G:/Sheboygan/MPO/SATP/2045
Source: NRCS, 2004; WDNR, 2009; WDOT, 2013;
Sheboygan County, 2015; Bay-Lake Regional Planning Commission, 2015.

Map 8.6

Woodlands with Overlay of Major Transportation Projects

Sheboygan Metropolitan Planning Area

Year 2045 Sheboygan Area Transportation Plan (SATP)



Sheboygan Metropolitan Planning Area Boundary

Recommended Capacity Modifying Street and Highway Projects

Woodlands

BAY-LAKE REGIONAL PLANNING COMMISSION

G:/Sheboygan/MPO/SATP/2045

Source: WDNR, 2009; WDOT, 2013; Sheboygan County, 2015; Bay-Lake Regional Planning Commission, 2009, 2015.

N W E S

0 0.5 1 2

Miles

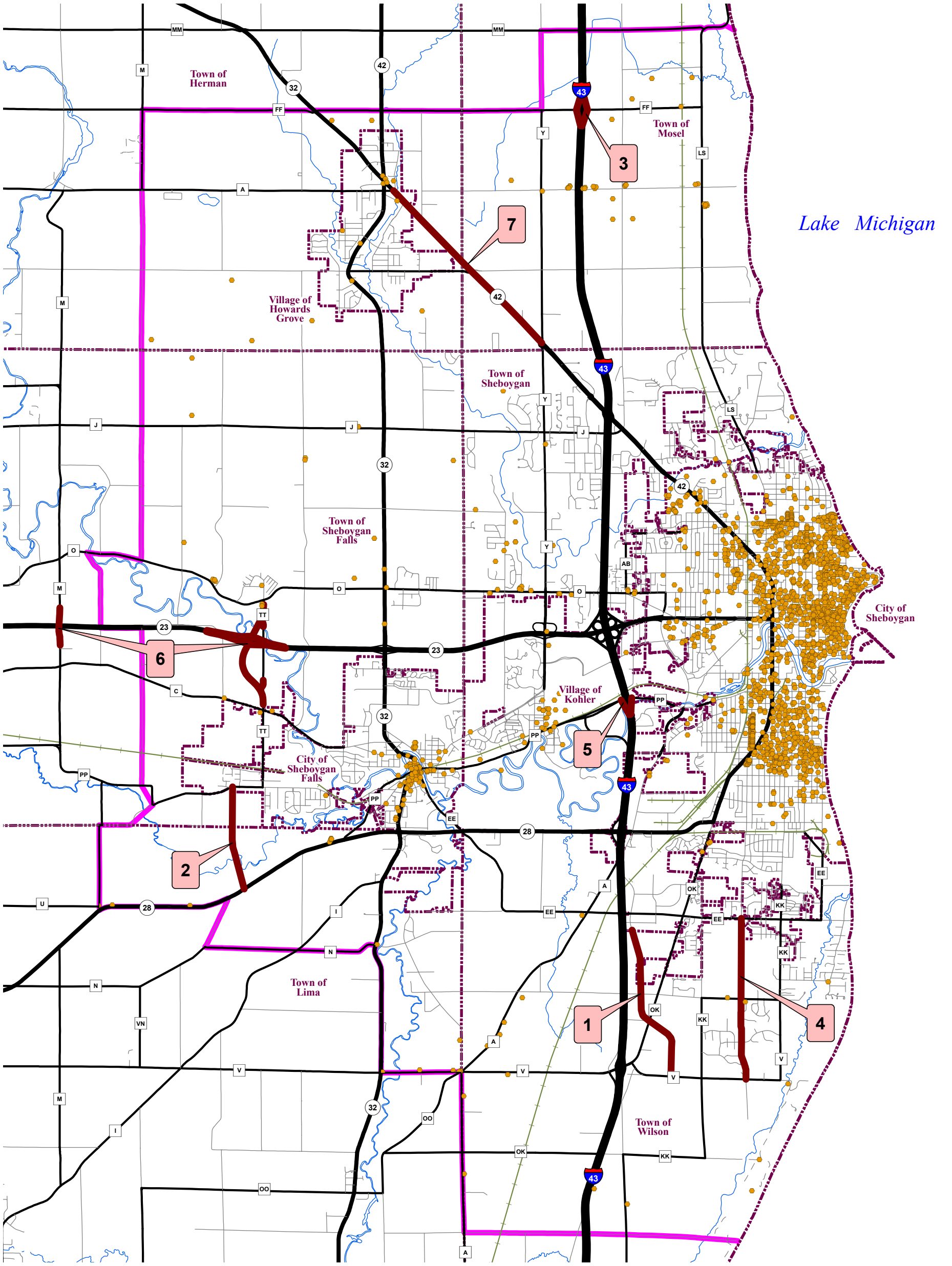
Note: Numbers refer to the project list on page 8-1.

Map 8.7

Historical Sites with Overlay of Major Transportation Projects

Sheboygan Metropolitan Planning Area

Year 2045 Sheboygan Area Transportation Plan (SATP)



Sheboygan Metropolitan Planning Area Boundary

Recommended Capacity Modifying Street and Highway Projects

Historical Site

N W E S

0 0.5 1 2

Miles

Note: Numbers refer to the project list on page 8-1.

BAY-LAKE Regional Planning Commission

G:/Sheboygan/MPO/SATP/2045

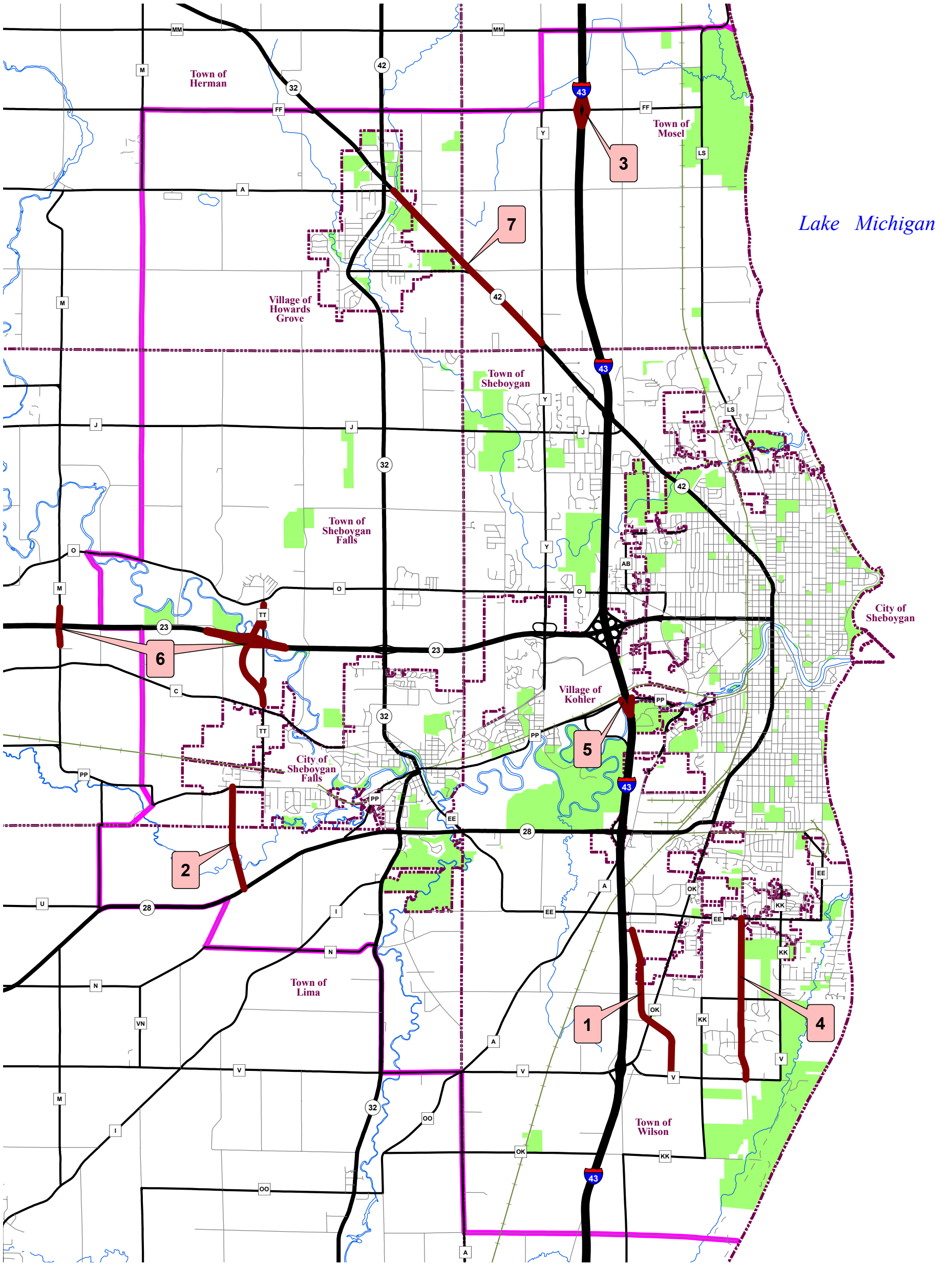
Source: WHS, 2014; WDNR, 2009; WDOT, 2013; Sheboygan County, 2015; Bay-Lake Regional Planning Commission, 2015.

Map 8.8

Parks and Recreation with Overlay of Major Transportation Projects

Sheboygan Metropolitan Planning Area

Year 2045 Sheboygan Area Transportation Plan (SATP)



Sheboygan Metropolitan Planning Area Boundary

Recommended Capacity Modifying Street and Highway Projects

Park and Recreation Sites

N W E S

0 0.5 1 2

Miles

Note: Numbers refer to the project list on page 8-1.

BAY-LAKE Regional Planning Commission

G:/Sheboygan/MPO/SATP/2045

Source: WDNR, 2009; WDOT, 2013; Sheboygan County, 2014, 2015; Bay-Lake Regional Planning Commission, 2015.

CHAPTER 9 : FINANCIAL PLAN

INTRODUCTION

Federal statutes require that all projects listed in the long-range transportation plan be fiscally constrained. This means that the plan must indicate that resources from public and private sources can be reasonably expected to be available to carry out the planned projects along with the operations and maintenance of the existing system. The financial plan was developed with the goal of providing an accounting of the expected roadway related expenditures and revenues over the next 31 years (2015 to 2045).

This financial plan is based on analyzing past funding efforts by local, state and federal entities and projecting funding into the future. This financial plan is a guide for local communities, the MPO and the Wisconsin Department of Transportation (WisDOT) to ensure that past funding efforts will continue. This will provide for the continuity necessary to preserve the sound transportation system for the Sheboygan metropolitan planning area as well as to program necessary improvements.

As required by the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU), and continued in the "Moving Ahead for Progress in the 21st Century" Act (MAP-21), revenue and cost estimates must use an inflation rate (or rates) to reflect "year of expenditure dollars," based on reasonable financial principles and information, and developed cooperatively by the State (WisDOT), MPOs and public transportation operators.

After consulting with staff from the WisDOT Bureau of Planning and Economic Development in August of 2014, it was decided that an inflation rate of 2.4 percent should be applied to the total annual program cost for the second, third and fourth years in the TIP financial plan as well as the second and subsequent years in the long-range transportation plan as the basis for comparison with estimated revenues in a demonstration of fiscal constraint. The inflation rate is Consumer Price Index (CPI) driven, and is not driven by the construction index, in keeping with limited funds available in state and local budgets. Exceptions to this rule are noted where they occur in the discussion which follows.

This financial plan is intended to show that funding is reasonably available to implement the recommendations in the plan. The financial plan includes a compilation of state and federal transportation funds which are currently available to local jurisdictions in the Sheboygan metropolitan planning area. Local funding level projections are based on historic spending levels. Anticipated needs are estimated based on WisDOT's Urban Corridors study, pavement inventories and output from the Wisconsin Information System for Local Roads (WISLR), and proposed project needs from previous studies.

For each of the recommended projects identified in Chapter 7 of this *Year 2045 SATP* (regardless of mode), funding sources were identified. Over the life of the plan (2015 to 2045), inflation-adjusted needs are projected at nearly $1.310 billion, while anticipated funding (adjusted for inflation in programs where inflationary increases could be assumed) is estimated at over $1.453 billion. While this is not enough to complete additional major projects, the difference allows for some flexibility to add smaller projects or studies as part of future updates and the overall long-range transportation planning process and still have a fiscally constrained plan.

STREET AND HIGHWAY FUNDING

The types of highway funding resources that can be used to implement the recommendations in this *Year 2045 SATP* come from a variety of programs at the federal, state and local levels. Table 9.6 summarizes the financial requirements (adjusted for inflation) for all high cost preservation projects and all capacity expansion projects identified in Chapter 7 of this *Year 2045 SATP*, as well as the resources that could be used to fund these projects.

The programs that the MPO has identified as funding sources for the committed and recommended highway projects are briefly described below. All estimated revenues and expenditures have been adjusted to 2014 dollars. WisDOT provided the funding levels estimated to be available over the next 31 years.

At the time a project moves into the committed years of the Transportation Improvement Program (TIP), the project's cost will be reevaluated and the funding method to be used will be revisited. The actual funding source will depend on the current allocation levels. The MPO will pursue alternative funding mechanisms (if appropriate) as the design and construction phases of projects in the mid-range (2026 to 2035) and long-range (2036 to 2045) components of the planning horizon approach.

Available Street and Highway Funding Sources

Surface Transportation Urban Program (STP – Urban)

This is a federally funded program administered by the state. Up to an 80 percent federal share (with a 20 percent local match) is allowed, but the federal share can be lower under this program. STP Urban funding provides for a wide range of transportation-related activities and local safety improvements. To qualify for this program, projects must be on roadways functionally classified as collector or higher, and the projects cannot be on roadways that are part of the State Trunk Highway system. Transit and bicycle projects are also eligible for STP Urban funding in the Sheboygan Metropolitan Planning Area.

Existing Major Projects Enumerated for Construction (MAJ)

"Major Project" is a state designation that can use federal or state funding for implementation. Major Projects must meet a specific definition and follow a specific process for approval. The Transportation Projects Commission (TPC) and the Legislature must enumerate these projects. Projects designated as Major Projects do not need a local match. The Majors Highway Development Program is for expansion projects greater than five miles or for new state highway segments greater than 2.5 miles.

There are no Major Projects in the metropolitan planning area. However, there is one Major Project outside the metropolitan planning area but within Sheboygan County which impacts the metropolitan planning area; this project is the expansion of State Highway 23 from two to four lanes from Plymouth to Fond du Lac. This project is not included in the financial plan since it is located outside the metropolitan planning area boundary.

State Trunk Highway (STH) Preservation

This is a state and federally funded program administered by WisDOT, with a variable local match. The majority of projects in this program require no local match. However, some activities within a project may require a local match resulting in a funding split that is project specific.

STH Preservation funds include "Backbone" and "Non-Backbone 3R" funds. Backbone funds can be used on the backbone routes identified in the *Corridors 2030* component of the *Connections 2030* state long-range transportation plan. Non-Backbone 3R funds can be used on the remainder of the state highway system. Backbone and Non-Backbone 3R funds can be used for preservation, reconstruction, resurfacing and reconditioning projects. In this *Year 2045 SATP*, STH Preservation funds cover projects that had a funding source of National Highway Performance Program (NHPP) or Highway Safety Improvement Program (HSIP) in the TIP. STH Preservation funds can be used for reconstruction, resurfacing and reconditioning projects along State Trunk Highways, including low cost bridge projects.

State Trunk Highway (STH) Operations and Maintenance (STH O & M)

This is a state program. Funds can be used for operations and maintenance activities associated with State Trunk Highways, including bridge projects.

Surface Transportation Program (STP) - Local Bridge Component

This is a state and federally funded program administered by WisDOT with an 80 percent federal/state share and a 20 percent local match. Counties, cities, villages and towns are eligible for rehabilitation funding on bridges with sufficiency ratings of 80 or less, and are eligible for replacement funding on bridges with sufficiency ratings of 50 or less. Local jurisdictions submit information to WisDOT in order to calculate the sufficiency rating of the bridge being considered for funding. Bridges are rated based on a federal bridge rating methodology, which is designed to measure the relative adequacy of a bridge in terms of structural and safety aspects, serviceability and functional obsolescence, and suitability for public use.

The majority of bridge work recommended in the metropolitan planning area is classified as preservation; the bridges will be rehabilitated as needed using bridge funds. Should a bridge need major rehabilitation or replacement, the appropriate steps will be taken to provide for this. The work done during an unforeseen bridge replacement will fall under the category of preservation maintenance, unless the capacity of the structure is significantly increased, which will classify it as an expansion project.

Local Road Improvement Program (LRIP)

This is a state program with a 50 percent local match. This program assists local governments with improvements on seriously deteriorating county highways, town roads, and city and village streets. LRIP funds can be split between multiple projects; however, only 50 percent of each project's total cost will be funded by LRIP, assuming that their combined federal portions do not exceed the federal allocation. One project substitution is allowed per allocation cycle. From the time the LRIP funding is awarded, local jurisdictions have six years to complete the project and seek reimbursement.

In most cases, the jurisdictions within the metropolitan planning area use LRIP funding for preservation projects. As need warrants and local funds become available, LRIP funds will be used to meet the preservation needs of the Sheboygan metropolitan planning area.

Connecting Highway Aids (CHA)

This is a state program with no local match. This program is designed to assist municipalities with the costs associated with the increased traffic and maintenance of roads that connect segments of the State Trunk Highway system. CHA funds are distributed as annual lump sum allocations. Within the metropolitan planning area, connecting highways exist in the City of

Sheboygan (portions of Erie Avenue, Kohler Memorial Drive, 14th Street, Calumet Drive and South Business Drive) and in the City of Sheboygan Falls (portions of Main Street, Broadway Street, Pine Street and Giddings Avenue).

Surface Transportation Rural Program (STP - Rural)

This is a federally funded program administered by WisDOT that involves an 80 percent federal share and requires a 20 percent local match. STP Rural funds can be used to complete a variety of improvements to rural highways; this program is primarily used on county trunk highways. The objective of the STP Rural program is to improve federal aid eligible highways outside of urban areas. Projects must meet federal and state requirements. Communities are eligible for funding on roads classified higher than rural minor collectors.

WisDOT did not provide future projections for STP Rural funds because there is uncertainty as to where the urbanized and metropolitan planning area boundaries will be in 2045, so it is difficult to determine if a project currently identified as being eligible for STP Rural funds will still be eligible in the future.

Highway Safety Improvement Program (HSIP)

This program funds "projects that reduce the number and severity of crashes and decrease the potential for crashes on all public roads." Typically, HSIP projects involve 90 percent federal funding, with the 10 percent non-federal share provided by the state (if the project is on a state trunk highway) or by a local government (if on a non-state trunk highway). Funds distributed under these programs are for hazard elimination projects, such as railroad crossing improvements, intersection safety improvements (including roundabouts), and even pedestrian "countdown" signals.

General Transportation Aids (GTA)

There is no local match under the GTA program. This is a state program intended to return a portion of state-collected transportation revenues (fuel taxes and vehicle registration fees) to local governments. General transportation aids are allocated to local units of government quarterly, and can be used on any roadway project. General transportation aids help to offset traffic-related costs, including road construction, maintenance and traffic-related law enforcement.

Local Funds

For projects locally funded or with a local match, local funds are the responsibility of the funding jurisdiction. Local funds can be raised in several different ways. A few of the options in which local funds can be raised include the following:

General Fund

Local funds for street construction and maintenance are obtained primarily through the general property tax levy.

General Obligation Bonds

General obligation bonds are issued on a per project basis, and are supported through the general tax levy.

Special Assessments

Special assessments are charged to property owners for sidewalk installation and street improvements when residential and commercial lands develop. Property owners may also pay a share of the cost for traffic signal or street improvements on streets adjoining their properties.

Tax Increment Financing (TIF) Districts

A TIF district allows a municipality to retain property taxes on an industrial development to pay for land acquisition, transportation and utility expenses within that district. The municipality diverts increased revenues from rising property values to pay for the improvements that helped to increase the property's value. The municipality retains the incremental increase in tax revenues from the district until all of the infrastructure costs are paid, at which time the tax revenues from the district may be collected by all applicable taxing jurisdictions.

Historical Street and Highway Funding

Tables 9.1 and 9.2 illustrate historical street and highway expenses at the local, state and federal levels.

Local Funding

Table 9.1 includes local costs for operations and maintenance and total costs (including operations and maintenance, construction, and the local share of projects funded with state and/or federal funding). State General Transportation Aids allocated for municipal use are also included in Table 9.1.

Estimates for local transportation funding are derived from the reports entitled *County and Municipal Revenues and Expenditures* (2010 – 2013), published by the Wisconsin Department of Revenue. Operations and maintenance figures are reported in the categories "Highway Maintenance and Administration" and "Road-Related Facilities." Total costs also include "Highway Construction" and "Other Transportation." The Sheboygan County operations and maintenance figure includes the state allocation for routine maintenance of state highways (non-connecting).

Table 9.1: Historical Local Street and Highway Expenses, Sheboygan Metropolitan Planning Area

Jurisdiction	2010		2011		2012		2013	
	O & M*	Total	O & M	Total	O & M	Total	O & M	Total
Sheboygan County**	$1,339,947	$2,984,457	$1,036,812	$3,060,414	$1,083,726	$2,830,863	$975,114	$2,860,137
City of Sheboygan	$5,581,600	$6,517,800	$6,419,100	$9,459,300	$4,701,400	$6,384,800	$5,338,000	$9,583,000
City of Sheboygan Falls	$940,800	$1,115,700	$936,900	$1,255,100	$894,000	$1,396,600	$1,202,400	$1,754,300
Village of Howards Grove	$352,300	$438,600	$518,600	$958,700	$311,400	$583,000	$295,500	$649,800
Village of Kohler	$537,400	$666,400	$702,900	$723,000	$493,400	$504,900	$468,200	$554,700
Town of Herman	$194,000	$194,000	$311,000	$311,000	$163,700	$180,900	$290,400	$290,400
Town of Lima	$93,800	$127,500	$98,700	$137,600	$73,800	$223,100	$129,300	$345,700
Town of Mosel	$67,200	$106,600	$78,600	$78,600	$60,200	$60,200	$81,800	$81,800
Town of Sheboygan	$432,100	$463,000	$423,600	$598,500	$436,300	$839,700	$635,400	$635,400
Town of Sheboygan Falls	$124,700	$220,300	$158,800	$282,500	$125,100	$321,100	$158,800	$336,700
Town of Wilson	$173,700	$350,900	$214,100	$466,800	$208,000	$208,000	$221,500	$490,900
Planning Area Total	**$9,837,547**	**$13,185,257**	**$10,899,112**	**$17,331,514**	**$8,551,026**	**$13,533,163**	**$9,796,414**	**$17,582,837**

[1]Operations and Maintenance Costs.

[2]Estimated at 21 percent of total costs for the portion of Sheboygan County in the Sheboygan metropolitan planning area.

Source: Wisconsin Department of Revenue (for all years listed); and Bay-Lake Regional Planning Commission, 2015.

State and Federal Funding

Table 9.2 illustrates state and federal funding of street and highway projects programmed in the *Sheboygan Metropolitan Planning Area Transportation Improvement Program (TIP)* from 2011 through 2014 (as amended).

Table 9.2: Historical Federal and State Street and Highway Expenses, Sheboygan Metropolitan Planning Area

Funding Source	2011	2012	2013	2014
Federal	$13,473,000	$2,767,000	$6,018,000	$1,512,000
State	$3,120,000	$1,206,000	$1,124,000	$278,000
Local Match	$693,000	$2,536,000	$2,678,000	$100,000
Planning Area Total	$17,286,000	$6,509,000	$9,820,000	$1,890,000

Source: Bay-Lake Regional Planning Commission, 2011, 2012, 2013 and 2014.

Long-Range Street and Highway Funding

The following analysis is based in part on the reports entitled *County and Municipal Revenues and Expenditures* (2010 – 2013), published by the Wisconsin Department of Revenue (WDOR). Each local jurisdiction in Wisconsin is required to file a report on revenues and expenditures, and is provided a financial report form by the WDOR. Transportation expenditures are reported to the WDOR on a line item basis that includes four categories: highway maintenance and administration, highway construction, road-related facilities and other transportation costs.

The WDOR reports also identify state highway aids as a line item, but exclude costs incurred by the state or county for the principal arterials, connecting highways and county trunk highways within the metropolitan planning area boundary. State highway aids are separated from the total transportation costs reported in order to isolate local expenditures. The historic local expenditure is then adjusted to current (2014) dollars. However, in arriving at projected local revenue, the adjusted historic total local expenditure needed to be inflated by 2.4 percent per year (per WisDOT guidance issued in 2014).

Table 9.3 indicates that on average, jurisdictions in the Sheboygan metropolitan planning area spend over $11.8 million annually (in adjusted 2014 dollars) on the street and highway system. The largest portion (nearly $6.2 million and over 52 percent) was spent by the City of Sheboygan. Other jurisdictions spending significant amounts on their streets and highways include Sheboygan County, the City of Sheboygan Falls, the Village of Howards Grove, the Town of Sheboygan, the Village of Kohler, and the Town of Wilson. The total anticipated locally generated revenue over the life of the plan based on historic revenues amounts to nearly $549 million; while most of this funding involves operations and maintenance expenditures, nearly $59 million of this amount involves local matching funds for street and highway projects.

Table 9.3: Average Local Transportation Expenditures and Projected Revenue, 2015-2045, Sheboygan Metropolitan Planning Area

Jurisdiction	Average Annual Transportation Expenditure	Percent of Total Expenditure
Sheboygan County	$2,283,075	19.3%
City of Sheboygan	$6,198,820	52.3%
City of Sheboygan Falls	$1,039,193	8.8%
Village of Howards Grove	$596,111	5.0%
Village of Kohler	$420,009	3.5%
Town of Herman	$163,154	1.4%
Town of Lima	$139,820	1.2%
Town of Mosel	$20,744	0.2%
Town of Sheboygan	$469,293	4.0%
Town of Sheboygan Falls	$205,636	1.7%
Town of Wilson	$306,636	2.6%
Total Local Expenditure	$11,842,491	100.0%
Projected Local Revenue	$11,842,491 (Over 31 Years)[1]	$548,695,686

[1]The $11,842,491 in average local transportation expenditures was inflated at an annual rate of 2.4 percent (per WisDOT guidance) to arrive at projected local revenue of $548,695,686 over the life of the plan.

Source: Wisconsin Department of Revenue, 2010, 2011, 2012 and 2013; Wisconsin Department of Transportation, 2014; and Bay-Lake Regional Planning Commission, 2015.

Table 9.4 indicates projected state and federal funding for the Sheboygan metropolitan planning area (as provided by WisDOT in March of 2015), and shows specific annual programs based on funding levels provided by WisDOT. The dollar amounts shown in Table 9.4 were adjusted for inflation by 2.4 percent for the period covered by this *Year 2045 SATP* for all programs except the local bridge program, which was not adjusted to reflect inflation per previous WisDOT guidance. No major projects are assumed to occur in the metropolitan planning area over the life of the plan. The "STH Preservation, Maintenance and Operations" section of Table 9.4 refers to maintenance and operations on state highways; all other rows in this section of Table 9.4 involve expansion and preservation activities for local roads.

Table 9.4: WisDOT Funding Projections for Street and Highway Activities, Sheboygan Metropolitan Planning Area, 2015-2045 (Adjusted for Inflation)

Funding Type	2014 Allocation	2015 - 2045 Allocation*	Funding Cycle
State Trunk Highway (STH) Preservation, Maintenance and Operations			
Combined Backbone and Non-Backbone	$10,277,375	$476,179,490	Annual
SHR Bridges	$966,488	$44,780,089	Annual
STH Maintenance and Operations	$2,611,000	$120,974,923	Annual
Subtotal	**$13,854,863**	**$641,934,502**	
Local Road Expansion and Preservation			
STP Urban	$600,714	$27,832,758	Biennial
General Transportation Aids	$2,683,342	$124,326,730	Annual
Connecting Highway Aids	$227,733	$10,551,506	Biennial
LRIP	$97,437	$4,514,528	Biennial
Federal Safety Programs	$144,873	$6,712,371	Biennial
Local Bridges	$220,000	$6,600,000	Biennial
Subtotal	**$3,974,099**	**$180,537,892**	
Total	**$17,828,962**	**$822,472,394**	

*With the exception of local bridges, all funding projections were adjusted to reflect an annual inflation factor of 2.4 percent. Local bridge funds were not adjusted to reflect inflation. These adjustments were made per WisDOT guidance issued in August of 2014.

Source: Wisconsin Department of Transportation, 2014 and 2015; and Bay-Lake Regional Planning Commission, 2015.

Table 9.5 projects the inflation adjusted funding amounts for the planning period (2015 – 2045). Based on annual expenditures, and with adjustments for inflation, it is estimated that state and federal funding for the local road system is expected to amount to over $577 million, while WisDOT General Transportation Aids (provided to all local jurisdictions) is expected to total over $124 million. Locally-funded operations and maintenance of local roads will involve nearly $366 million. State Trunk Highway (STH) operations and maintenance will involve nearly $121 million over the planning period. The local match of federal and state funded street and highway projects in the metropolitan planning area will amount to nearly $59 million.

When local, state and federal funding projections are increased by an annual inflation rate of 2.4 percent, anticipated funding over the life of the plan is forecast to be nearly $1.247 billion for street and highway activities, as shown below in Table 9.5. This amounts to an annual average of over $40 million.

Table 9.5: Long-Range Funding Summary, Street and Highway Activities, Sheboygan Metropolitan Planning Area, 2015-2045 (Adjusted for Inflation)[3]

Revenue Source	Plan Total
Federal and State Funding (project specific)[1]	$577,170,742
General Transportation Aids (GTA - State Funds)	$124,326,730
Local Operations and Maintenance (Not paid for by GTA)	$365,822,267
State Trunk Highway Operations and Maintenance[2]	$120,974,923
Local Match (excludes local preservation projects)	$58,546,689
Grand Total Funding	$1,246,841,351
Yearly Average	$40,220,689

Notes:

[1]Includes the following funding sources: STH Preservation (for backbone and non-backbone facilities as well as SHR bridges); STP Urban; CHA; LRIP; Federal Safety Programs; and Local Bridges. Excludes GTA and STH O & M because they are accounted for in operations and maintenance. There are no Major STH projects planned within the metropolitan planning area over the planning horizon at this time.

[2]Includes STH long-range preservation.

[3]With the exception of local bridges, all funding projections were adjusted to reflect an annual inflation factor of 2.4 percent. Local bridge funds were not adjusted to reflect inflation. These adjustments were made per WisDOT guidance issued in August of 2014.

Source: Wisconsin Department of Revenue, 2010, 2011, 2012 and 2013; Wisconsin Department of Transportation, 2014 and 2015; and Bay-Lake Regional Planning Commission, 2015.

Long-Range Street and Highway Operations and Maintenance, Preservation and Reconstruction Needs

As required by MAP-21 and by previous federal surface transportation legislation, MPOs must "emphasize the preservation of the existing transportation system" during the metropolitan transportation planning process. In many cases, transportation agencies use life-cycle cost analysis to study new construction projects and to evaluate preservation strategies for existing transportation assets.

To date, the Bay-Lake Regional Planning Commission has not taken an active role in assisting with or documenting state and local operations, maintenance and preservation programs. However, the Wisconsin Department of Transportation (WisDOT) has programs and has identified funding sources for operations, maintenance and preservation activities. WisDOT provided the MPO staff with a listing and schedule of principal arterial improvement projects, and estimated the various costs associated with these projects over the life of the plan. These costs have been adjusted for inflation per guidance provided by WisDOT staff.

Recommended Street and Highway Projects

Table 9.6 shows a listing of major projects that originated from the *Sheboygan Metropolitan Planning Area TIP: Calendar Years 2015 – 2018* (as amended), the WisDOT Six Year Program, from local capital improvement programs, and from the long-range transportation planning process. **Generally, the projects involve high-cost construction or reconstruction activities, and are beyond normal preservation and maintenance efforts.** Other system preservation

projects (usually involving lower costs than the projects shown in Table 9.6) may be included in plans or programmed based on pavement condition and/or other documented need or analysis.

Table 9.6 indicates that the high cost planned projects amount to over $192 million in needs, and include state trunk and connecting highways as well as several county trunk highways and local streets in the metropolitan planning area. Of this amount, nearly $126 million involves system improvement and expansion projects, while over $66 million involves system preservation projects. "Connecting highways" are those streets owned by the local jurisdiction, but are signed and designated as state trunk highways, and are paid for by WisDOT through local maintenance agreements. Other streets in the urbanized area belong to local jurisdictions, are classified as principal arterials, minor arterials and collectors based primarily on traffic volumes, and are eligible for funding through the STP Urban program. Arterials can be county trunk highways, and are subject to maintenance agreements with the various jurisdictions along the route.

Table 9.6: High Cost Planned Projects, Sheboygan Metropolitan Planning Area, 2015-2045[1]

Facility	Termini	Implementation Period	Cost
SYSTEM IMPROVEMENT AND EXPANSION PROJECTS (See Table 7.1 for Details)			
S. Taylor Dr.	CTH EE/Weeden Creek Rd. to CTH V	2016 - 2025	$14,856,000
CTH TT	CTH PP to STH 28	2016 - 2025	$9,944,000
IH 43	At CTH FF	2026 - 2035	$18,487,000
S. 18th St.	CTH EE/Weeden Creek Rd. to CTH V	2026 - 2035	$9,941,000
IH 43	At CTH PP/Lower Falls Rd./Indiana Ave.	2026 - 2035	$14,540,000
STH 23	Western Boundary of Sheboygan MPA to STH 32	2036 - 2045	$42,938,000
STH 42	CTH Y to CTH A/Howards Grove	2036 - 2045	$14,859,000
Subtotal			**$125,565,000**
SYSTEM PRESERVATION PROJECTS (See Tables 7.2 and 7.9 for Details)			
STH 28	Prange Rd. to S. Taylor Dr.	2015	$4,538,000
STH 28/N. 14th St.	Sheboygan River Bridge	2015	$1,525,000
CTH A	Intersection with CTH EE	2015	$890,000
STH 42/Calumet Dr.	Main Ave. to N. 26th St.	2016 - 2025	$3,098,000
S. Business Dr.	Railroad Overpass South of Washington Ave.	2016 - 2025	$2,098,000
IH 43	STH 42 to Manitowoc County Line	2016 - 2025	$12,100,000
North Ave.	STH 42/Calumet Dr. to North 15th St.	2016 - 2025	$3,628,000
STH 32	STH 42 to South Junction of STH 32 and STH 57	2016 - 2025	$3,919,000
N. 15th St.	STH 42/Calumet Dr. to North Ave.	2016 - 2025	$3,771,000
North Ave.	N. 15th St. to N. 3rd St.	2016 - 2025	$5,211,000
CTH EE/Weeden Creek Rd.	S. Taylor Dr. to Lakeshore Dr.	2016 - 2025	$7,430,000
CTH OK/S. Business Dr.	CTH EE/Weeden Creek Rd. to CTH V	2016 - 2025	$3,000,000
Mill Rd.	Najacht Rd. to STH 42	2016 - 2025	$2,685,000
STH 32	Intersection with Happy Ln.	2016 - 2025	$1,685,000
STH 28	Intersection with CTH EE	2016 - 2025	$2,100,000
CTH A	Intersection with CTH PP	2016 - 2025	$1,258,000
CTH C	Intersection with CTH TT	2016 - 2025	$1,384,000
Superior Ave.	N. Taylor Dr. to N. 29th St.	2016 - 2025	$995,000
IH 43	Ozaukee County Line to STH 42	2016 - 2025	$950,000
CTH Y	CTH O/Superior Ave. to STH 42	2026 - 2035	$4,194,000
Subtotal			**$66,459,000**
Total			**$192,024,000**

Note:

[1]All cost projections were adjusted to reflect an annual inflation factor of 2.4 percent. These adjustments were made per WisDOT guidance issued in August of 2014. The inflated dollar figures assume either implementation of projects in a given implementation period at the midpoint of that implementation period when not specifically known, or implementation of projects in the actual year of implementation when known.

Source: City of Sheboygan Department of Public Works, 2014 and 2015; Sheboygan County Transportation Department, 2014 and 2015; Wisconsin Department of Transportation, 2014 and 2015; and Bay-Lake Regional Planning Commission, 2015.

Street and Highway Operations, Maintenance and Preservation

Operations, maintenance and preservation needs are estimated on a dollar per mile basis using information provided by the WisDOT Northeast Region staff. The data show that local streets and highways are less expensive to provide and maintain than the classified arterial and collector system. Expenditures for the street and highway network vary widely based on facility type and jurisdictional responsibility, which in turn reflects levels of urban development and traffic volumes. For purposes of this analysis, WisDOT has the greatest per mile expenditures, associated with high cost interstate and freeway, bridge structure and interchange projects. Cities have the second highest expenditures, followed by villages, counties and towns. Cities have the largest portion of four-lane facilities, higher traffic capacity requirements, and typically more sidewalks, with most streets requiring accommodations for sewer, water, utilities and other infrastructure associated with the transportation corridor. County trunk highways fall in between city and town facilities, built to a higher standard than town roads, but typically lacking curb and gutter or other amenities.

WisDOT maintenance and preservation data reflects black top, gravel, tar, concrete and the physical patching and paving or roadway surfaces; this is only a portion of the total cost to provide the transportation system. The reported expenditures relate to more than just the estimated road surface preservation cost per mile, and may include the cost for snow plowing, salt, right-of-way maintenance (including ditch cleaning and clearing brush), traffic signs and signals, etc. The reported expenditures likely also include facilities like highway garages, graders, and trucks in the operations and maintenance budgets. A formula was established to better reflect the total cost of operating and maintaining the transportation system; this formula reflects the higher cost for principal and minor arterials compared to collectors and the local road system.

Table 9.7 shows estimated local operations, maintenance and preservation needs in the metropolitan planning area over the life of the plan. The street and highway mileage within the metropolitan planning area is projected to be nearly 626 miles near the end of the 31 year planning period. The principal arterial operations, maintenance and preservation estimate of $40,000 per mile annually (in adjusted 2015 dollars), applied to 48.60 miles over the 31 year planning period, and adjusted for inflation annually, amounts to over $90 million over the life of the plan. The minor arterial and collector operations, maintenance and preservation estimate of $33,000 per mile annually (in adjusted 2015 dollars), applied to 175.26 miles of minor arterials and collectors over the 31 year planning period, and adjusted for inflation annually, amounts to nearly $268 million over the life of the plan.

Local streets typically have less traffic and fewer trucks than do arterials and collectors, are not as wide, and thus, are slightly less expensive to maintain. Table 9.7 indicates that the local road operations, maintenance and preservation estimate of $29,600 per mile annually (in adjusted 2014 dollars), applied to 401.75 miles of local streets and roads over the 31 year planning period, and adjusted for inflation annually, amounts to nearly $551 million over the life of the plan. The grand total for the identified operations, maintenance and preservation needs, when adjusted for inflation, amounts to over $909 million.

Table 9.7: Estimated Street and Highway Operations, Maintenance and Preservation Needs, Sheboygan Metropolitan Planning Area, 2015-2045 (Adjusted for Inflation)

Facility Type	Total Miles Year 2045	Annual Cost per Mile (2015 Dollars)[1]	Anticipated Need ($)[2]
Principal Arterials	48.60	$40,000	$90,070,950
Minor Arterials and Collectors	175.26	$33,000	$267,969,416
Local Roads	401.75	$29,600	$550,980,310
Total	625.61		$909,020,675

[1]The annual cost per mile for all facilities was adjusted to reflect inflation between 2010 and 2015. According to the Consumer Price Index (CPI), that inflation rate was 7.1775 percent between 2010 and 2015.

[2]The anticipated needs were adjusted to reflect an annual inflation factor of 2.4 percent. These adjustments were made per WisDOT guidance issued in August 2014.

Source: Wisconsin Department of Transportation, 2014 and 2015; Bureau of Labor Statistics, *CPI Inflation Calculator*, 2010 - 2015; and Bay-Lake Regional Planning Commission, 2015.

Street and Highway Operations and Maintenance

Operations and maintenance costs for the entire metropolitan planning area for 2010 through 2013 (from Table 9.1) were added then were divided by four to arrive at an average operations and maintenance cost figure for the four year period. This figure ($9,771,025) was then increased by 4.636 percent (the average of the change in the consumer price index between 2010 and 2014, 2011 and 2014, 2012 and 2014, and 2013 and 2014) to arrive at an annual operations and maintenance cost of $10,224,010 for local (non-State Trunk Highway) roads in the metropolitan planning area in 2014. This adjusted operations and maintenance cost for local facilities was then inflated at an annual rate of 2.4 percent for the period from 2015 through 2045; the summation of these inflation-adjusted operations and maintenance costs for local facilities indicates that nearly $473,707,000 would be needed for local road operations and maintenance. When added to the nearly $120,975,000 in state trunk highway operations and maintenance (Table 9.5), local and state trunk highway operations and maintenance costs amount to nearly $594,682,000.

Street and Highway Low Cost Preservation Projects

This *Year 2045 SATP* includes preservation costs other than the projects presented in Table 9.6. Table 9.7 indicates that about $909,020,675 is estimated to be spent on operations, maintenance and preservation needs in the Sheboygan metropolitan planning area between 2015 and 2045. When the $594,682,000 projected to be needed in operations and maintenance costs is subtracted from the $909,020,675, about $314,338,675 is projected to be needed for preservation projects over the life of the plan (or an average of about $10,139,957 per year).

In addition, MPO staff reviewed lower cost preservation projects that appeared in the *Sheboygan Metropolitan Planning Area TIP: Calendar Years 2015 – 2018*, the WisDOT Six Year Program, local capital improvement programs, and the long-range transportation planning process. Staff found 12 lower cost preservation projects not included in Table 9.6; when adjusted for inflation, these projects had a total cost of around $2,989,000. These costs were added to the $314,338,675 to arrive at a revised preservation project cost estimate of approximately $317,327,675.

Summary of Long-Range Financial Needs for Street and Highway Activities

Table 9.8 shows that nearly $1.104 billion will be needed to maintain and improve the street and highway network over the 31 year planning period. This amounts to an annual average of nearly $35,614,000.

Table 9.8: Long-Range Financial Need Summary, Street and Highway Activities, Sheboygan Metropolitan Planning Area, 2015-2045[2]

Anticipated Need	Plan Total
Operations and Maintenance (Local and State Trunk Highway)	$594,682,000
Anticipated Preservation Projects (Other than Recommended)	$317,327,675
Recommended High Cost Preservation Projects[1]	$66,459,000
Recommended Expansion Projects[1]	$125,565,000
Grand Total Need	$1,104,033,675
Yearly Average	$35,613,990

Notes:

[1]These projects and their costs have been documented in Table 9.6.

[2]All cost projections were adjusted to reflect an annual inflation rate of 2.4 percent. These adjustments were made per WisDOT guidance issued in August of 2014. The inflated dollar figures assume either implementation of projects in a given implementation period at the midpoint of that implementation period when not specifically known, or implementation of projects in the actual year of implementation when known.

Source: Wisconsin Department of Transportation, 2014 and 2015; and Bay-Lake Regional Planning Commission, 2015.

A comparison of funding and need (Table 9.5 versus Table 9.8) shows that funding will be available to implement the proposed actions over the life of the plan after adjustments for inflation. In examining the 31 year plan horizon, estimated expenditures are fairly balanced, with some flexibility to consider several projects that are not critical in the short-range future. The roughly $142.8 million difference between funding and need allows the area to more flexibly utilize the metropolitan transportation planning process. A summary table of funding and need for street and highway activities can be found at the end of this chapter.

TRANSIT FUNDING

Shoreline Metro's projected expenditures and revenues are compared in Table 9.9.

Transit Capital Projects

Federal Section 5339 funding is assumed to be available throughout the planning period, but will not be at nearly the level that was seen with Federal transit capital funding in the past, leaving large local shares to fund these projects if other options are not found.

Other options that may be available to provide Federal funding for transit capital projects include the STP Urban program and the Congestion Mitigation and Air Quality (CMAQ) program. The STP Urban program is a very real possibility in that the amount of excess street and highway funding identified in the previous section is greater than the approximately $27.8 million in STP Urban funds anticipated to be available over the planning period. Shoreline Metro is definitely eligible for STP Urban funding when it comes to capital items; this is noted in the *STP Urban System Project Prioritization Policy* that is included in each Transportation Improvement Program (TIP). Transit operations in other Wisconsin metropolitan planning areas (including Green Bay, LaCrosse and Madison) have started using STP Urban funds for transit capital items;

Table 9.9: 2015-2045 Financial Plan, Shoreline Metro[1]

	2015	2016 - 2025	2026 - 2035	2036 - 2045
Capital Funding and Expenditures				
Projected Capital Expenditures	**$280,000**	**$11,607,000**	**$12,402,000**	**$15,222,000**
Annualized Capital Expenditures	$280,000	$1,160,700	$1,240,200	$1,522,200
Capital Funding Resources				
Capital Assistance (Federal Section 5339)	**$173,269**	**$1,978,690**	**$2,508,288**	**$3,179,632**
Annualized Federal Capital Assistance	$173,269	$197,869	$250,829	$317,963
Capital Assistance (Local)	**$106,731**	**$9,628,310**	**$9,893,712**	**$12,042,368**
Annualized Local Capital Assistance	$106,731	$962,831	$989,371	$1,204,237
Operating Funding and Expenditures				
Projected Operating Expenses	**$3,785,000**	**$39,992,000**	**$44,176,000**	**$48,798,000**
Annualized Operating Expenses	$3,785,000	$3,999,200	$4,417,600	$4,879,800
Operating Funding Resources				
Projected Farebox and Miscellaneous Operating Revenue	**$874,335**	**$9,238,152**	**$10,204,656**	**$11,272,338**
Annualized Farebox and Miscellaneous Operating Revenue	$874,335	$923,815	$1,020,466	$1,127,234
FTA Operating Assistance (Federal Section 5339)	**$1,293,177**	**$13,663,602**	**$15,093,101**	**$16,672,246**
Annualized FTA Operating Assistance	$1,293,177	$1,366,360	$1,509,310	$1,667,225
HUD CDBG Entitlement Funds	**$42,493**	**$424,930**	**$424,930**	**$424,930**
Annualized HUD CDBG Entitlement Funds for Operating Assistance	$42,493	$42,493	$42,493	$42,493
State Operating Assistance (State Sections 85.20 and 85.205)	**$974,876**	**$10,300,460**	**$11,378,104**	**$12,568,560**
Annualized State Operating Assistance	$974,876	$1,030,046	$1,137,810	$1,256,856
Total Operating Funding	**$3,184,881**	**$33,627,144**	**$37,100,791**	**$40,938,074**
Annualized Total Operating Funding	$3,184,881	$3,362,714	$3,710,079	$4,093,807
Projected Local Operating Assistance Needed to Fund Operating Shortfall	**$600,119**	**$6,364,856**	**$7,075,209**	**$7,859,926**
Annualized Local Operating Assistance Needed to Fund Operating Shortfall	$600,119	$636,486	$707,521	$785,993

[1]Adjusted for Inflation

Source: Shoreline Metro, 2014; Wisconsin Department of Transportation, 2015; and Bay-Lake Regional Planning Commission, 2015.

when this happens, these funds get transferred to the Federal Transit Administration (FTA) and become Section 5307 funds. The CMAQ program is also a possibility for transit capital items, as Sheboygan County is eligible for this program. However, priority tends to be given to alternative fuel vehicles (such as compressed natural gas) when it comes to funding vehicle replacements through the CMAQ program. Section 5307 operating funds can also be used to finance transit capital items, but they are needed for transit operations at this time.

Capital projects will be prioritized by Shoreline Metro, and implementation will be dependent upon local assistance and bonding as well as upon Federal and State capital assistance levels. Capital expenditures were inflated by 2.4 percent each year.

Transit Operating Expenses

The operating shortfall (the difference between operating revenue and federal and state assistance) must be funded by fare increases, local assistance or potential increases in miscellaneous revenues such as advertising and investments. It is projected that inflation-adjusted local operating assistance will increase from $600,119 in 2015 to an average of $636,486 in the 2016 – 2025 implementation period, an average of $707,521 in the 2026 – 2035 implementation period, and an average of $785,993 in the 2036 – 2045 implementation period, assuming that local assistance is maintained at 15.8 to 16.1 percent of total operating expenses. Transit operating expenses were inflated by 2.4 percent each year.

In order to meet potential operating shortfalls in the future, Shoreline Metro has the option of increasing fares, increasing local assistance or reducing service. Adjustments to local assistance levels and fare increases are local decisions, and will occur in the future as Shoreline Metro has a more certain vision of federal and state assistance levels. The level of Federal and State operating aid provided to the Sheboygan urbanized area will be a primary factor in determining the level of service provided in the transit service area in the future.

A summary table of funding and need for transit activities can be found at the end of this chapter.

BICYCLE AND PEDESTRIAN TRANSPORTATION FUNDING

Past history provides strong evidence that improvements enabling bicyclists and pedestrians to coexist safely and effectively in the world of the motor vehicle often have not received high priority. As a result, many street and highway facilities continue to pose significant challenges to bicyclists and pedestrians.

Retrofitting existing roadways to make them more user friendly for bicyclists and pedestrians involves several potential actions, and has a correspondingly broad range of cost implications. Although many potential improvements would be highly beneficial to the bicyclist and/or pedestrian, such improvements often require significant costs, and cannot be economically justified as "stand alone" projects. For these types of improvements, their timing by necessity should correspond to major improvement actions slated for the roadway. However, some major projects designed to accommodate the bicyclist and/or pedestrian are independent actions which do not entail modification of the roadway, and should be constructed as funding permits; examples of these types of projects include off-road paths, sidewalks and pedestrian overpasses.

In addition, there are several improvements that can be successfully implemented at relatively little cost and by effecting only minor roadway design changes; this is particularly true at site-specific locations. These types of projects would include improvements such as safety islands, sidewalk curb cuts, paved shoulders, striped bike lanes, bicycle-friendly drainage grates and strategically located bike racks. In order to demonstrate a commitment to creating a more user friendly environment for bicyclists and pedestrians in the metropolitan planning area, a relatively consistent level of funding should be applied so that selected improvements can be completed on an annual basis until all such improvements are completed.

In order to be cost effective, bicycle and pedestrian related improvements should be built into the design of new projects. Only the cost of design modifications needed to satisfactorily accommodate bicyclists and pedestrians beyond that of standard design motor vehicle roadway construction is justifiably a cost of implementing the bicycle and pedestrian transportation component of this *Year 2045 SATP*. The additional cost to accommodate bike lanes and/or wide

curb lanes (including the costs associated with additional pavement width in compliance with AASHTO standards for safe bicycle accommodations) is logically allocated to the bicycle and pedestrian transportation component of *Year 2045 SATP*, and can be relatively easily quantified. Similarly, the cost of providing extra width paved shoulders, sidewalks and pedestrian overpasses associated with new construction or reconstruction activities can be estimated for budgeting purposes once they are inventoried and prioritized.

Bicycle and pedestrian transportation funding typically includes Federal transportation alternatives funding (administered by the Wisconsin Department of Transportation), along with a typical local match of 20 percent. The transportation alternatives program (TAP) is competitive at the state level (only MPOs over 200,000 receive a direct allotment, and those MPOs decide the projects that get awarded funding within their jurisdiction). The WisDOT Bureau of Planning and Economic Development provided all Wisconsin MPOs with an annualized dollar amount of TAP funds that were assumed to be available based on past trends in this program. Federal Congestion Mitigation and Air Quality (CMAQ) funding is also assumed to be available to fund bicycle and pedestrian improvements in the metropolitan planning area, along with a typical local match of 20 percent. While the CMAQ program is also competitive, a smaller number of counties in Wisconsin is eligible for the program, giving metropolitan planning area communities a higher probability of getting funding awarded for their projects. The WisDOT Bureau of Planning and Economic Development provided the metropolitan planning areas in southeastern Wisconsin and the Sheboygan metropolitan planning area with annualized dollar amounts of CMAQ funds that were assumed to be available based on past trends in this program. In addition, the early years of the planning period (2015 – 2017) involve a few remaining projects from the Sheboygan County Non-Motorized Transportation Pilot Program (NMTPP) for implementation of bicycle and pedestrian transportation projects in the metropolitan planning area.

Table 9.10 indicates the amount of funding available from the Sheboygan County NMTPP, as well as the amount of TAP and CMAQ funding (and local match for TAP and CMAQ projects) available by implementation periods identified in the *Sheboygan County Pedestrian and Bicycle Comprehensive Plan: 2045* over the 31 year planning horizon. Table 9.10 also indicates total inflation-adjusted bicycle and pedestrian transportation project recommended expenditures by implementation period over the planning horizon. In addition, Table 9.10 indicates operations and maintenance costs for off-road bicycle and pedestrian facilities (both existing off-road facilities as well as off-road facilities recommended in the *Sheboygan County Pedestrian and Bicycle Comprehensive Plan: 2045* and this *Year 2045 SATP*). Operations and maintenance of on-road bicycle and pedestrian facilities is included in street and highway operations and maintenance presented earlier in this chapter.

Table 9.10: 2015-2045 Financial Plan, Recommended Bicycle and Pedestrian Transportation Projects and Operations and Maintenance Costs for Bicycle and Pedestrian Facilities, Sheboygan Metropolitan Planning Area[1, 3]

	2015	2016 - 2025	2026 - 2035	2036 - 2045
Projected Expenditures				
Recommended Bicycle Facility Projects	$6,896,525	$5,886,758	$2,883,419	$2,462,046
Recommended Pedestrian Facility Projects	$1,115,712	$1,831,012	$2,060,078	$1,062,488
Bicycle and Pedestrian Facility Operations and Maintenance[2]	$90,999	$1,039,178	$1,751,933	$2,524,060
Total Expenditures	**$8,103,236**	**$8,756,948**	**$6,695,430**	**$6,048,594**
Estimated Funding Resources				
Carryover from Previous Implementation Period	$0	$332	$64	$314
Sheboygan County Non-Motorized Transportation Pilot Program (NMTPP)	$7,410,000	$2,061,000	$0	$0
Sheboygan County NMTPP Local Match (where applicable)	$24,000	$0	$0	$0
Transportation Alternatives Program (TAP)	$146,051	$1,460,510	$1,460,510	$1,460,510
Required Local Match for TAP Funding	$36,513	$365,130	$365,130	$365,130
Congestion Mitigation and Air Quality (CMAQ) Program	$389,603	$3,896,030	$3,896,030	$3,896,030
Required Local Match for CMAQ Funding	$97,401	$974,010	$974,010	$974,010
Total Funding Resources	**$8,103,568**	**$8,757,012**	**$6,695,744**	**$6,695,994**
Funding Surplus (Shortfall)	**$332**	**$64**	**$314**	**$647,400**

Notes:

[1]Adjusted for Inflation.

[2]Operations and maintenance costs only pertain to off-road facilities. On-road facility operations and maintenance costs have already been included in the operations and maintenance costs for streets and highways.

[3]Not all projects in the *Sheboygan County Pedestrian and Bicycle Comprehensive Plan: 2045* have been recommended in the *Year 2045 SATP*. Projects that cannot be recommended due to fiscal constraint are being identified as "illustrative projects" in the *Year 2045 SATP*.

Source: Wisconsin Department of Transportation, 2015; Sheboygan County Planning and Conservation Department, 2015; and Bay-Lake Regional Planning Commission, 2015.

Based on WisDOT projections, some $146,051 in TAP funding is anticipated to be available each year, along with a 20 percent local match ($36,513); these amounts have **not** been adjusted for inflation per guidance received from the WisDOT Bureau of Transit, Local Roads, Railroads and Harbors. In addition, based on WisDOT projections, some $389,603 in CMAQ funding is anticipated to be available each year, along with a 20 percent local match ($97,401); once again, these amounts have **not** been adjusted for inflation per guidance received from the WisDOT Bureau of Transit, Local Roads, Railroads and Harbors.

Table 9.10 indicates that there is a small (less than $1,000) funding surplus in 2015 and a small funding surplus in the 2016 – 2025 implementation period. Table 9.10 also indicates that there is a small funding surplus in the 2026 – 2035 implementation period as well as a funding surplus of over $647,000 in the 2036 – 2045 implementation period once operations and maintenance for existing bicycle and pedestrian facilities has been accounted for. That is not to say that there is not greater need for bicycle and pedestrian transportation improvements in the metropolitan planning area. Over $18.1 million in bicycle facility projects and nearly $6.1 million in pedestrian facility projects (when adjusted for inflation) have been identified as needed in the metropolitan planning area from 2015 through 2045.

The over $647,000 in surplus funding identified in Table 9.10 can be allocated to bicycle and pedestrian transportation projects recommended in the *Sheboygan County Pedestrian and Bicycle Comprehensive Plan: 2045*, possibly to start one of the three "illustrative projects" identified in Chapter 7, or for other small projects that may be unforeseen at this time. However, if additional shared use paths were to be completed with this funding, some of this surplus would need to be reserved for operations and maintenance over the planning period.

It should be noted that some long-range bicycle and pedestrian transportation projects did not have refined cost estimates, but are merely conceptual dollar amounts for planning purposes. As these projects become more defined, more accurate cost estimates will become available.

A summary table of funding and need for bicycle and pedestrian activities can be found at the end of this chapter.

SUMMARY

Street and Highway Revenue and Cost Summary

The funding expected to be available for street and highway activities, along with street and highway needs of the metropolitan planning area, adjusted for inflation, are summarized in Table 9.11. Currently, the MPO forecasts an average annual surplus of over $4.6 million, or over $142.8 million over the 31 year planning period.

Table 9.11: Revenue and Cost Summary for Streets and Highways, Sheboygan Metropolitan Planning Area, 2015-2045[1]

Anticipated Funding (Over 31 Years)	
Federal and State Funding (project specific)[2]	$577,170,742
General Transportation Aids (GTA - State Funds)	$124,326,730
Local Operations and Maintenance (Paid with GTA first)	$490,148,997
Local Operations and Maintenance (Not paid for by GTA)	$365,822,267
State Trunk Highway (STH) Operations and Maintenance[3]	$120,974,923
Local Match (excludes local preservation projects)	$58,546,689
Total Funding	$1,246,841,351
Yearly Average	$40,220,689

Anticipated Needs (Over 31 Years)	
Operations and Maintenance (Local and State Trunk Highway)	$594,682,000
Anticipated Preservation Projects (Other than Recommended)	$317,327,675
Recommended High Cost Preservation Projects[4]	$66,459,000
Recommended Expansion Projects[4]	$125,565,000
Total Needs	$1,104,033,675
Yearly Average	$35,613,990

Notes:

[1]Adjusted for Inflation

[2]Includes the following funding sources: STP Preservation (for backbone and non-backbone facilities as well as SHR bridges); STP Urban; CHA; LRIP; Federal Safety Programs; and Local Bridges. Excludes GTA and STH Operations and Maintenance (O & M) because they are accounted for in operations and maintenance. There are no Major STH projects planned within the metropolitan planning area over the planning horizon at this time.

[3]Includes STH long-range preservation.

[4]These projects and their costs have been documented in Table 9.6.

Source: Wisconsin Department of Revenue, 2010, 2011, 2012 and 2013; Wisconsin Department of Transportation, 2014 and 2015; and Bay-Lake Regional Planning Commission, 2015.

Transit Revenue and Cost Summary

The funding expected to be available for transit activities, along with transit needs of the metropolitan planning area, are summarized in Table 9.12. Currently, the MPO forecasts that transit revenues (from all sources) will match transit costs over the 31 year planning period.

Federal Section 5339 funding is assumed to be available throughout the planning period, but will not be at nearly the level that was seen with Federal transit capital funding in the past, leaving large local shares to fund these projects if other options are not found. Other options to obtain Federal revenues to lessen the local share of transit capital funding were discussed earlier in this chapter; these options include the STP Urban program, the Congestion Mitigation and Air Quality (CMAQ) program, and Section 5307 operating funds.

Table 9.12: Revenue and Cost Summary for Transit, Sheboygan Metropolitan Planning Area, 2015-2045[1]

Anticipated Funding (Over 31 Years)	
FTA Capital Assistance	$7,839,879
Local Governmental Capital Assistance	$31,671,121
FTA Operating Assistance	$46,722,126
HUD CDBG Entitlement Funds	$1,317,283
State Operating Assistance	$35,222,000
Local Governmental Operating Assistance	$21,900,110
Farebox and Miscellaneous Operating Revenue	$31,589,481
Total Funding	$176,262,000
Yearly Average	$5,685,871

Anticipated Needs (Over 31 Years)	
Projected Capital Expenditures	$39,511,000
Projected Operating and Maintenance Expenditures	$136,751,000
Total Needs	$176,262,000
Yearly Average	$5,685,871

[1]Adjusted for Inflation

Source: Shoreline Metro, 2014; Wisconsin Department of Transportation, 2015; and Bay-Lake Regional Planning Commission, 2015.

Bicycle and Pedestrian Transportation Revenue and Cost Summary

The funding expected to be available for bicycle and pedestrian transportation activities, as well as a summary of the bicycle and pedestrian transportation needs, are summarized in Table 9.13. Currently, the MPO forecasts an average annual surplus of nearly $21,000, or over $647,000 over the 31 year planning period. Illustrative projects which could be financed by the surplus are identified in Chapter 7 of this *Year 2045 SATP*.

Table 9.13: Revenue and Cost Summary for Bicycle and Pedestrian Facilities, Sheboygan Metropolitan Planning Area, 2015-2045[1]

Anticipated Funding (Over 31 Years)	
Sheboygan County Non-Motorized Transportation Pilot Program (NMTPP)	$9,471,000
Sheboygan County NMTPP Local Match (where applicable)	$24,000
Transportation Alternatives Program (TAP)	$4,527,581
Required Local Match for TAP Funding	$1,131,903
Congestion Mitigation and Air Quality (CMAQ) Program	$12,077,693
Required Local Match for CMAQ Funding	$3,019,431
Total Funding	$30,251,608
Yearly Average	$975,858

Anticipated Needs (Over 31 Years)	
Recommended Bicycle Facility Project Expenditures[2]	$18,128,748
Recommended Pedestrian Facility Project Expenditures[2]	$6,069,290
Projects Bicycle and Pedestrian Facility Operations and Maintenance Expenditures[3]	$5,406,170
Total Needs	$29,604,208
Yearly Average	$954,974

Notes:

[1]Adjusted for Inflation.

[2]Not all projects in the *Sheboygan County Pedestrian and Bicycle Comprehensive Plan: 2045* have been recommended in the *Year 2045 SATP*. Projects that cannot be recommended due to fiscal constraint are being identified as "illustrative projects" in the *Year 2045 SATP*.

[3]Operations and maintenance costs only pertain to off-road facilities. On-road facility operations and maintenance costs have already been included in the operations and maintenance costs for streets and highways.

Source: Wisconsin Department of Transportation, 2015; Sheboygan County Planning and Conservation Department, 2015; and Bay-Lake Regional Planning Commission, 2015.

CONCLUSION

Federal surface transportation in recent years (including MAP-21) has not provided large amounts of federal funding to finance expanded transportation networks or programs. As a result, the Sheboygan MPO has made an effort to more strongly connect the long-range transportation plan and the TIP in order to invest limited resources in the most efficient manner. A stronger connection between this *Year 2045 SATP* and the TIP gives the Sheboygan MPO the ability to influence investment decisions. The Sheboygan MPO can then program limited funds for the projects determined to be the most important.

Project evaluation measures developed by the Sheboygan MPO are designed to incorporate strategies for the long-range transportation plan into the programming process. It should be noted that these evaluation tools are not an end to themselves, but rather are a guide to assess a project's contribution to meeting overall goals and objectives established for the Sheboygan metropolitan planning area in the *Year 2045 SATP* and in previous long-range transportation planning efforts. These TIP evaluation criteria appear as Appendix G in most recent TIPs (*Surface Transportation Program Urban System Project Prioritization Policy*). The Sheboygan MPO revised the TIP evaluation criteria in 2008 to include safety considerations for street and highway, transit capital, and bicycle and pedestrian projects. The Sheboygan MPO also revised the TIP evaluation criteria in 2014 to remove positive "entitlement balances" for local jurisdiction sponsors as a prerequisite to being eligible for STP Urban funding for a project, increasing the probability that projects will be selected for their merit based on the established criteria.

Within the constraints of this financial plan, the projects listed in Chapter 7 of this *Year 2045 SATP* are an investment strategy for the Sheboygan metropolitan planning area. The TIP process is the funding tool used to carry out the strategies established in this plan update.

Estimating costs and revenues over 31 years is an imprecise process, and the financial plan will be revisited in each plan update. When funding shortfalls arise in any of the modal components of this *Year 2045 SATP*, the MPO will seek to secure additional federal and state funds and examine the possibility of applying additional fees and taxes.

APPENDIX A: GLOSSARY OF TERMS

ACRONYMS

3-C	Continuing, Cooperative and Comprehensive Planning Process
AADT	Annual Average Daily Traffic
AASHTO	American Association of State Highway and Transportation Officials
ADA	Americans with Disabilities Act of 1990
ADT	Average Daily Traffic
AUB	Adjusted Urbanized (Area) Boundary
BLRPC	Bay-Lake Regional Planning Commission
BLS	Bureau of Labor Statistics
CAA	Clean Air Act
CAAA	Clean Air Act Amendments of 1990
CBD	Central Business District
CFR	Code of Federal Regulations
CFS	Commodity Flow Survey
CMAQ	Congestion Mitigation and Air Quality Improvement Program
CMP	Congestion Management Program
CN	Canadian National Railroad
CPI	Consumer Price Index
CTH	County Trunk Highway
CTPP	Census Transportation Planning Package
DMV	Division of Motor Vehicles (within the Wisconsin DOT)
EJ	Environmental Justice
EPA	U.S. Environmental Protection Agency
FAA	Federal Aviation Administration
FDM	WisDOT Facilities Development Manual
FHWA	Federal Highway Administration
FMCSA	Federal Motor Carrier Safety Administration
FRA	Federal Railroad Administration
FTA	Federal Transit Administration
GIS	Geographic Information System
HHS	Health and Human Services

HSIP	Highway Safety Improvement Program
ISTEA	Intermodal Surface Transportation Efficiency Act of 1991
ITE	Institute of Transportation Engineers
ITS	Intelligent Transportation Systems
LEP	Limited English Proficient
LOS	Level of Service
LTC	Lakeshore Technical College
LTL	Less than Truckload
MAP-21	Moving Ahead for Progress in the 21st Century Act
MCD	Minor Civil Division
MPA	Metropolitan Planning Area
MPO	Metropolitan Planning Organization
MUTCD	Manual on Uniform Traffic Control Devices
MWRRI	Midwest Regional Rail Initiative
NHI	National Highway Institute
NHPP	National Highway Performance Program (Includes the former National Highway System, Interstate Maintenance, and Bridge Replacement and Rehabilitation programs (on the enhanced National Highway System) in SAFETEA-LU)
NHS	National Highway System (Enhanced in MAP-21)
NTSB	National Transportation Safety Board
NMTPP	Non-Motorized Transportation Pilot Program (a special earmark to Sheboygan County in SAFETEA-LU that has funded several bicycle and pedestrian transportation projects)
PAC	Policy Advisory Committee
RHGC	Rail-Highway Grade Crossing Program
ROW	Right of Way
RTA	Regional Transit/Transportation Authority
RU	Surface Transportation Program – Rural
SAFETEA-LU	Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users
SATP	Sheboygan Area Transportation Plan
SF	Summary File
SMIP	Statewide Multimodal Improvement Program

STB	Surface Transportation Board
STF	Summary Tape File
STH	State Trunk Highway
STIP	State Transportation Improvement Program
STP	Surface Transportation Program (Includes the Surface Transportation Program in SAFETEA-LU, plus the former Bridge Replacement and Rehabilitation program (off the enhanced National Highway System) in SAFETEA-LU)
STRAHNET	Strategic Highway Network
TAC	Technical Advisory Committee
TAP	Transportation Alternatives Program (includes the former Transportation Enhancements, Safe Routes to School, and Recreational Trails Programs in SAFETEA-LU, with some exceptions)
TAZ	Traffic Analysis Zone
TCRP	Transit Cooperative Research Program
TDM	Transportation Demand Management
TDP	Transit Development Program
TEA-21	Transportation Equity Act for the 21st Century
TIP	Transportation Improvement Program
TL	Truckload
TOD	Transit-Oriented Development
TSM	Transportation System Management
UP	Union Pacific Railroad
UPWP	Unified Planning Work Program
URB	Surface Transportation Program – Urban
USC	United States Code
UZA	Urbanized Area
USDOT	United States Department of Transportation
UWS	University of Wisconsin Sheboygan
VHT	Vehicle Hours Traveled
VMT	Vehicle Miles Traveled
VRH	Vehicle Revenue Hour
VRM	Vehicle Revenue Mile
WDOA	Wisconsin Department of Administration

WDNR	Wisconsin Department of Natural Resources
WDWD	Wisconsin Department of Workforce Development
WisDOT	Wisconsin Department of Transportation
WISLR	Wisconsin Information System for Local Roads
WSOR	Wisconsin and Southern Railroad Company

APPENDIX B: TRANSPORTATION SYSTEM PERFORMANCE INDICATORS

INTRODUCTION

This narrative presents a set of system performance indicators and the base data relevant to the indicators. The purpose of the performance indicators is to provide some quantitative evaluation of the ability of the Sheboygan metropolitan planning area to move toward the goals stated in the *Year 2045 Sheboygan Area Transportation Plan (SATP)*; these goals can be found in Chapter 4 of the plan update (Mission Statement, Goals and Objectives). At this time, the indicators are not tied to any specific performance goals, and are only intended as a planning tool. Over time, it will become possible and/or desirable to compile realistic performance goals; however, some experience and trend data would be necessary to develop such quantitative goals.

PERFORMANCE INDICATORS

Safety

Streets and Highways

Indicators: Total Crashes, Total Fatal Crashes, Total Severe Injury Crashes

Data Source: WisDOT, crash reports and summaries (MV 400)

Base Data:

Table B.1: Crashes in Sheboygan Metropolitan Planning Area Municipalities – 2013

Total Reportable Crashes	1,365
Total Fatal Crashes	5
Total Severe Injury (Incapacitating) Crashes	29

Transit

Indicator: Transit crashes per 100,000 miles of service

Data source: Shoreline Metro, 2013, and National Transit Database (NTD), 2013

Base Data:

With three preventable crashes and 585,749 vehicle revenue miles, there were **0.51** preventable transit crashes per 100,000 miles of service for the fixed-route component of Shoreline Metro in 2013.

Security

No measures at this time

Accessibility and Mobility of People and Freight

Streets and Highways

Indicator: Level of Service

Data Source: WisDOT – Traffic Counts – Wisconsin Highway Traffic Volume Data Publication (Last collected for Sheboygan County in 2014).

Traffic counts can be found at the following website:

https://trust.dot.state.wi.us/roadrunner/ (Note: This is a statewide interactive map; zoom in to the

Sheboygan metropolitan planning area is required)

Indicator: System Mileage/Lane Miles

Data Source: WisDOT, Lane Miles in Model Base Year of 2010

Base Data: There were a total of **1,502.71** lane miles in Sheboygan County according to the WisDOT Northeast Region travel demand forecast model in the base year of 2010.

Transit

Indicator: Percentage of Urbanized Area Served by Transit

Data Source: Shoreline Metro, Bay-Lake Regional Planning Commission, and Wisconsin Department of Transportation (GIS, 0.25 mile buffer around Shoreline Metro fixed routes)

Base Data: The "transit service area" (0.25 mile buffer around Shoreline Metro fixed routes) is currently 18.74 square miles. The Sheboygan urbanized area is 49.35 square miles. About **38.0** percent of the urbanized area is covered by fixed-route transit service.

There is no shared-ride taxi service in the Sheboygan Urbanized Area.

Indicator: Revenue Hours of Service

Data Source: National Transit Database (NTD) or Transit Operator

Base Data: There were **43,568** revenue hours of service for Shoreline Metro fixed-route transit in 2013.

Indicator: Revenue Miles of Service

Data Source: National Transit Database (NTD) or Transit Operator

Base Data: There were **585,749** revenue miles of service for Shoreline Metro fixed-route transit in 2013.

Bicycle Facilities

Indicator: Bicycle Facilities (Miles)

Data Source: Sheboygan County Planning and Conservation Department, *Sheboygan County Pedestrian and Bicycle Comprehensive Plan: 2045* (draft), and Bay-Lake Regional Planning Commission (GIS calculations)

Base Data: Within the Sheboygan metropolitan planning area, there are approximately:

- **10.32** miles of "sharrows" (marked roadways where bicyclists use the road with motorists, with no separation of use for bicyclists;
- **19.56** miles of on-road delineated bike lanes;
- **30.80** miles of paved shoulders; and
- **28.88** miles of off-road bike paths (shared-use trails).

This involves a total of approximately **89.56** miles of bicycle facilities in the Sheboygan metropolitan planning area. Many facilities have been built since 2007 through the Sheboygan County Non-Motorized Transportation Pilot Program (NMTPP), with more to be built over the next year or two.

Freight

Indicators: Level of Service for Designated Truck Routes and for NHS Routes

Data Source: WisDOT – Traffic Counts – Wisconsin Highway Traffic Volume Data Publication (Last collected for Sheboygan County in 2014), and Maps 5.12 (Freight Routes and Terminals) and 5.16 (Enhanced National Highway Base System) of the *Year 2045 SATP*.

Traffic counts can be found at the following website:

https://trust.dot.state.wi.us/roadrunner/ (Note: This is a statewide interactive map; zoom in to the Sheboygan metropolitan planning area is required)

Indicator: Truck Counts

Data Source: WisDOT – Vehicle Classification Data. Traffic Count Data – Wisconsin Vehicle Classification Data Publication

Environment

Air Quality

Indicator: Monitored levels of criteria pollutants: ozone, PM 2.5, etc.

Data Sources: USEPA:

http://www.epa.gov/ozonedesignations/2008standards/final/region5f.htm and http://www.epa.gov/airquality/ozonepollution/designations/1997standards/regions/region5desig.htm

The only pollutant for which data were available in Sheboygan County was ground-level ozone. At 0.088 parts per million, Sheboygan County was below the 0.12 parts per million threshold for the original "one hour" ozone standard in 2008. However, Sheboygan County exceeded the 0.075 parts per million threshold for the 2008 "eight hour" standard based on 2012 through 2014 readings. In addition, Sheboygan County continues to exceed the threshold for the 1997 "eight hour" standard based on 2012 through 2014 readings. Sheboygan County has been designated a marginal nonattainment area for the 2008 "eight hour" ozone standard, and has also been designated a moderate nonattainment area for the 1997 "eight hour" ozone standard. The Wisconsin Department of Natural Resources is constantly monitoring ozone concentrations, but violations of the "eight hour" standard persist.

Recognizing that ozone concentrations are a problem that primarily impacts the Lake Michigan shoreline, the Wisconsin Department of Natural Resources has been working with local officials and with the USEPA to attempt to decrease the size of the nonattainment area from the entire county to eastern Sheboygan County.

Integration and Connectivity of the Transportation System, Across and Between Modes, For People and Freight

Streets and Highways

Indicator: Designated park-and-ride capacity and use

Data Source: WisDOT Northeast Region office – Park-and-ride capacity and use statistics (total spaces available per average weekday, spaces occupied per average weekday, and percent in use per average weekday)

Base Data:

There are two park-and-ride lots within the Sheboygan metropolitan planning area:

- The most used lot is in the southwest quadrant of the interchange of Interstate Highway 43 and State Highway 28, and is situated east of County Highway A across from Deer Trace Shopping Center. This lot has a capacity of 45. In 2013, this lot's average volume was 20, giving this lot an average volume-to-capacity ratio of 0.44. This lot appeared to be below capacity every month in 2013, with the peak months in 2013 being February and April. This lot's average volume in 2014 was also 20, giving this lot an average volume-to-capacity ratio of 0.44. This lot appeared to be below capacity every month in 2014, with the peak months in 2014 being March and July.
- A second lot is located in the northwest quadrant of the interchange of Interstate Highway 43 and County Highway V, and is situated along the Interstate's west frontage road. This lot has a capacity of 30 motor vehicles, and also includes bike racks for six bicycles. In 2013, this lot's average volume was 5, giving this lot an average volume-to-capacity ratio of 0.17. This lot appeared to be well below capacity every month in 2013, with the peak months in 2013 being June and July. This lot's average volume in 2014 was also 5, giving this lot an average volume-to-capacity ratio of 0.17. This lot appeared to be well below capacity every month in 2014, with the peak months in 2014 being May and August.

A third park-and-ride lot is located in Sheboygan County but outside the metropolitan planning area at the Interstate Highway 43/County Highway AA interchange around the Village of Oostburg. This lot has a capacity of 30. In 2013, this lot's average volume was 16, giving this lot an average volume-to-capacity ratio of 0.53. This lot was above capacity in January, but was below capacity all other months. Obviously, the peak month in 2013 was January, but other significant lot usage months were May, July, August and October. This lot's average volume in 2014 was 12, giving this lot an average volume-to-capacity ratio of 0.40. This lot appeared to be below capacity every month in 2014, with the peak months in 2014 being July, August and November.

Intercity Bus

Indicator: Frequency of Service/Number of Departures per Day

Data Source: Bus Operators (Indian Trails Bus Lines, Jefferson Bus Lines and Lamers Connect)

Base Data: Indian Trails Bus Lines provides one northbound departure (10:45 p.m.) and one southbound departure (8:00 a.m.) each day. Jefferson Bus Lines also provides one northbound departure (9:50 a.m.) and one southbound departure (6:15 p.m.) each day. Lamers Connect provides weekend bus service (generally Friday and Sunday departures, with a few other days added on holiday weekends) to Green Bay and Milwaukee; departures for Milwaukee are at 10:45 a.m., while departures for Green Bay are at 4:20 p.m. Each bus line's trips to Milwaukee serve a variety of destinations in that area, including the Amtrak depot and the General Mitchell International Airport.

Intercity Rail

Not applicable (although Indian Trails Bus Lines, Jefferson Bus Lines and Lamers Connect all connect Sheboygan to the intermodal station in Milwaukee served by Amtrak).

Air

Indicator: Airport volume – total operations

Data Source: Sheboygan County Memorial Airport and Federal Aviation Administration (FAA)

Base Data: The Sheboygan County Memorial Airport does not offer commercial air carrier service. However, there were approximately **64,500** annual civilian operations (takeoffs and landings) in the 12 month period that ended on July 8, 2014. Of these, about 59,500 operations involved general aviation (31,000 were local operations and 28,500 were itinerant operations), while about 5,000 operations involved air taxi services. An additional 500 military air operations took place at the Sheboygan County Memorial Airport during that period.

Freight

Indicator: Tonnage by Mode, Sheboygan County

Data: Commodity Flow Survey, WisDOT (IHS TRANSEARCH, 2012)

Base Data:

For total inbound and outbound tonnage in 2012:

- 2,386,030 tons of freight (16.86 percent) were transported by rail;
- 11,769,519 tons of freight (83.14 percent) were transported by truck; and
- 94 tons of freight (negligible percentage) were transported by other modes.

For inbound tonnage in 2012:

- 2,333,510 tons of freight (27.41 percent) were transported by rail;
- 6,180,861 tons of freight (72.59 percent) were transported by truck; and
- 11 tons of freight (negligible percentage) were transported by other modes.

For outbound tonnage in 2012:

- 52,520 tons of freight (0.93 percent) were transported by rail;
- 5,588,658 tons of freight (99.07 percent) were transported by truck; and
- 83 tons of freight (negligible percentage) were transported by other modes.

Efficient Management and Operations (System Operations and Usage)

Streets and Highways

Indicator: Traffic Volume

Data Source: WisDOT – Traffic Counts – Wisconsin Highway Traffic Volume Data Publication (Last collected for Sheboygan County in 2014).

Traffic counts can be found at the following website:

https://trust.dot.state.wi.us/roadrunner/ (Note: This is a statewide interactive map; zoom in to the Sheboygan metropolitan planning area is required)

Indicator: Travel Speed

Data Source: WisDOT, Travel Speed in Model Base Year of 2010

Base Data: Overall average travel speed was **46.28** miles per hour in the model base year of 2010.

Indicator: Deficiency Status of Lane Miles

Data Source: WisDOT, Deficiency Status of Lane Miles in Model Base Year of 2010

Base Data: In the model base year of 2010, there were **1,502.71** lane miles. Of these:

- 1,480.944 lane miles (98.55 percent) were at levels of service (LOS) A, B or C;
- 17.926 lane miles (1.19 percent) were at LOS D;
- 0.205 lane miles (0.01 percent) were at LOS E; and
- 3.634 lane miles (0.24 percent) were at LOS F.

(*Note: LOS statistics are subject to revision as the travel demand forecast model is further refined*).

Transit

Indicator: Passengers per revenue hour of operation

Data Source: National Transit Database (NTD), 2013, and Shoreline Metro, 2013

Base Data: There were **11.96** passengers per revenue hour of operation for the fixed-route transit component of Shoreline Metro in 2013.

Indicator: Passengers per revenue mile of operation

Data Source: National Transit Database (NTD), 2013, and Shoreline Metro, 2013

Base Data: There were **0.89** passengers per revenue mile of operation for the fixed-route transit component of Shoreline Metro in 2013.

Indicator: Passenger miles traveled

Data Source: National Transit Database (NTD), 2013, and Shoreline Metro, 2013

Base Data: There were **1,385,488** annual passenger miles traveled for the fixed-route transit component of Shoreline Metro in 2013.

Indicator: Number of passenger trips

Data Source: National Transit Database (NTD), 2013, and Shoreline Metro, 2013

Base Data: There were **520,860** unlinked passenger trips for the fixed-route transit component of Shoreline Metro in 2013.

System Preservation

Streets and Highways

Indicator: Pavement condition – number of miles and percentage of total miles in each category

Data Source: WISLR for local system (PASER ratings) and WisDOT for the state system (PCI ratings)

Base Data:

PASER data were compiled for the two cities, two villages and six towns in the Sheboygan

metropolitan planning area. 2014 data were provided for the Town of Sheboygan Falls and the Village of Howards Grove, while 2013 data were provided for all other jurisdictions.

There was only one small segment (53 feet) of unimproved earthen road in the communities of the Sheboygan metropolitan planning area. On a scale from 1 to 4 (with 1 being poor and 4 being very good), this segment was rated a "2" (fair condition).

There were only a few small segments (total of 1,478 feet) of brick or block road in the communities of the Sheboygan metropolitan planning area. On a scale from 1 to 4 (with 1 being poor and 4 being very good), these segments were rated a "2" (fair condition).

There were approximately 3.17 miles of unpaved (gravel) and sealcoat roads in the communities of the Sheboygan metropolitan planning area. Of these, 2.37 miles were rated. These roads are rated on a scale from 1 to 5 (with 1 being failed and 5 being excellent). The distribution of ratings for unpaved and sealcoat roads in the communities of the Sheboygan metropolitan planning area was as follows:

- Rating of 1 (Failed) = 423 feet, or 0.08 miles (3.4 percent);
- Rating of 2 (Poor) = 3,325 feet, or 0.63 miles (26.6 percent);
- Rating of 3 (Fair) = 4,646 feet, or 0.88 miles (37.1 percent);
- Rating of 4 (Good) = 687 feet, or 0.13 miles (5.5 percent); and
- Rating of 5 (Excellent) = 3,432 feet, or 0.65 miles (27.4 percent).
- Average Rating = 3.27

There were approximately 490.78 miles of paved (typically asphalt and concrete) roads in the communities of the Sheboygan metropolitan planning area. Of these, 487.55 miles were rated. These roads are rated on a scale from 1 to 10 (with 1 being failed and 10 being excellent). The distribution of ratings for paved roads in the communities of the Sheboygan metropolitan planning area was as follows:

- Rating of 1 (Failed) = 14,203 feet, or 2.69 miles (0.5 percent);
- Rating of 2 (Very Poor) = 68,307 feet, or 12.94 miles (2.7 percent);
- Rating of 3 (Poor) = 105,149 feet, or 19.91 miles (4.1 percent);
- Rating of 4 (Fair) = 246,434 feet, or 46.67 miles (9.6 percent);
- Rating of 5 (Fair) = 454,211 feet, or 86.02 miles (17.6 percent);
- Rating of 6 (Good) = 458,991 feet, or 86.93 miles (17.8 percent);
- Rating of 7 (Good) = 490,313 feet, or 92.86 miles (19.0 percent);
- Rating of 8 (Very Good) = 350,085 feet, or 66.30 miles (13.6 percent);
- Rating of 9 (Excellent) = 202,270 feet, or 38.31 miles (7.9 percent); and
- Rating of 10 (Excellent) = 184,308 feet, or 34.91 miles (7.2 percent).
- Average Rating = 6.36

There were approximately 0.32 miles of facilities with an unknown pavement type in the

communities of the Sheboygan metropolitan planning area. These roads were rated on a similar scale to paved roads (1 to 10). Of these, 651 feet (0.12 miles) had no rating, 422 feet (0.08 miles) had a rating of "6," and 642 feet (0.12 miles) had a rating of "10." The average rating for facilities with an unknown pavement type was 8.41.

Analysis for individual communities in the Sheboygan metropolitan planning area is also available upon request.

WisDOT has also supplied the MPO with Pavement Condition Index (PCI) data for the state trunk highway system. MPO staff has tabulated a summary of the condition of state trunk highways that pass through the two cities, two villages and six towns in the Sheboygan metropolitan planning area. "A PCI is calculated based on the results of a detailed pavement distress survey that identifies pavement distress type, distress severity, and distress quantity. The PCI is a numerical rating that ranges from 0 for a totally failed pavement to 100 for a pavement in perfect condition."

There are approximately 107.54 miles of state trunk highway in the communities of the Sheboygan metropolitan planning area. Of these:

- No facilities were rated as "failed" (0 to 9.99 points) or as "serious" (10 to 24.99 points);
- 7,133 feet, or 1.35 miles (1.3 percent) were rated as "very poor" (25 to 39.99 points);
- 12,718 feet, or 2.41 miles (2.2 percent) were rated as "poor" (40 to 54.99 points);
- 61,206 feet, or 11.59 miles (10.8 percent) were rated as "fair" (55 to 69.99 points);
- 227,254 feet, or 43.04 miles (40.0 percent) were rated as "good" (70 to 84.99 points); and
- 259,503 feet, or 49.15 miles (45.7 percent) were rated as "very good to excellent" (85 to 100 points).

Indicator: Structural condition of bridges

Data Source: WisDOT, Sufficiency Ratings

Base Data:

Bridges typically are assessed using a 0 to 100 point scale known as their "sufficiency rating." WisDOT considers bridges with a sufficiency rating of 0 to 49 as being "deficient," while bridges with a sufficiency rating of 49.01 to 79 are considered to be in "fair" condition, and bridges with a sufficiency rating of 79.01 and higher are "sufficient," or in good condition.

There are 54 bridges identified within the communities of the Sheboygan metropolitan planning area. Of these, 51 bridges (94.4 percent) are "sufficient," or in good condition. Two bridges (3.7 percent) are in "fair" condition; these bridges are located on State Highway 23/Erie Avenue over a railroad crossing west of North 17th Street, and on Interstate Highway 43 over a tributary to the Sheboygan River located just south of the Old Plank Road trailhead. One bridge (1.9 percent) is "deficient;" this bridge is located on State Highway 28/North 14th Street over the Sheboygan River, and replacement of the bridge deck is expected to take place at this location in 2015.

Culverts are rated on a scale of 0 to 9, with "0" meaning that the culvert has failed, with "1" or "2" meaning that the culvert is in critical condition, with "3" or "4" meaning that the culvert is in poor condition, with "5" or "6" meaning that the culvert is in fair condition, with "7" or "8" meaning that the culvert is in good condition, and with "9" mainly involving new culverts.

There are four culverts identified within the communities of the Sheboygan metropolitan planning area. All four culverts received a rating of "8," which signifies "good" condition.

Transit

Indicator: Average age of bus fleet

Data Source: National Transit Database (NTD), 2013, and Shoreline Metro, 2013

Base Data: The average age of the fixed-route fleet in 2013 was **8.3** years. This decreased significantly from the average fixed-route fleet age in 2009 (according to the NTD), which was 11.0 years.

Indicator: Number of road calls divided by miles of service

Data Source: Shoreline Metro, 2013

Base Data: There were **17** "major mechanical failures" (road calls) in 2013. There were **585,749** revenue miles in 2013. This translates to an average of **34,456** miles between road calls in 2013.

Regional Trends

Population

Indicator: Population

Data Source: Wisconsin Department of Administration, Demographic Services Center, 2014

Base Data:

Table B.2: Sheboygan Metropolitan Planning Area Municipalities Population Estimates (January 1, 2014)

Jurisdiction	Estimated Population
Sheboygan County	115,362
City of Sheboygan	48,897
City of Sheboygan Falls	7,861
Village of Howards Grove	3,216
Village of Kohler	2,117
Town of Herman	2,183
Town of Lima	2,985
Town of Mosel	781
Town of Sheboygan	7,407
Town of Sheboygan Falls	1,719
Town of Wilson	3,357

Households

Indicator: Households

Data Source: U.S. Bureau of the Census, 2010; and Wisconsin Department of Administration, Demographic Services Center, 2014.

Base Data:

The Wisconsin Department of Administration's Demographic Services Center estimated that there were **51,082** housing units in Sheboygan County on April 1, 2014. Estimates were not available below the county level.

The U.S. Bureau of the Census reported the following total, occupied and vacant housing units in

the communities of the Sheboygan metropolitan planning area in 2010:

Table B.3: Sheboygan Metropolitan Planning Area Municipalities: Total, Occupied and Vacant Housing Units in 2010

Jurisdiction	Total Housing Units	Occupied Housing Units	Vacant Housing Units
City of Sheboygan	22,339	20,308	2,031
City of Sheboygan Falls	3,681	3,480	201
Village of Howards Grove	1,276	1,245	31
Village of Kohler	871	784	87
Town of Lima	1,153	1,089	64
Town of Herman	646	611	35
Town of Mosel	328	308	20
Town of Sheboygan	3,175	2,999	176
Town of Sheboygan Falls	736	706	30
Town of Wilson	1,445	1,314	131
Total	**35,650**	**32,844**	**2,806**
Percent	**100.00%**	**92.13%**	**7.87%**

Note: These statistics include whole towns which may be wholly or partially within the Sheboygan metropolitan planning area. The housing vacancy rate for the smaller metropolitan planning area is somewhat higher.

Employment

Indicator: Employment

Data Source: Wisconsin Department of Workforce Development, *Local Area Unemployment Statistics* (Labor force and employment estimates by county/Metropolitan Statistical Area, or MSA)

Base Data:

Sheboygan County (the Sheboygan MSA) had an average annual labor force of 62,084 in 2013. Of these, 58,352 were employed, while 3,732 (6.0 percent) were unemployed. These figures were not seasonally adjusted.

Economic Development

Indicator: Housing additions and deletions in 2013

Data Source: Wisconsin Department of Administration, Demographic Services Center, *Housing Unit Additions and Deletions for Wisconsin Minor Civil Divisions*

Base Data:

Table B.4: Sheboygan Metropolitan Planning Area Municipalities: Housing Additions and Deletions: 2013

Jurisdiction	Added Housing Units	Deleted Housing Units	Net Change in Housing Units
City of Sheboygan	3	21	(18)
City of Sheboygan Falls	14	0	14
Village of Howards Grove	4	0	4
Village of Kohler	0	0	0
Town of Herman	3	0	3
Town of Lima	3	1	2
Town of Mosel	0	0	0
Town of Sheboygan	21	1	20
Town of Sheboygan Falls	1	1	0
Town of Wilson	6	0	6
Total	**55**	**24**	**31**

APPENDIX C: ASSESSMENT OF CONFORMITY OF THE *YEAR 2045 SHEBOYGAN AREA TRANSPORTATION PLAN (SATP)* AND THE *2015 – 2018 SHEBOYGAN METROPOLITAN PLANNING AREA TRANSPORTATION IMPROVEMENT PROGRAM (TIP)* WITH RESPECT TO THE STATE OF WISCONSIN AIR QUALITY IMPLEMENTATION PLAN

INTRODUCTION

This report demonstrates the conformity of this *Year 2045 Sheboygan Area Transportation Plan (SATP)* and the *2015 – 2018 Sheboygan Metropolitan Planning Area Transportation Improvement Program (TIP)* with respect to each of the five criteria established by the U.S. Environmental Protection Agency for such conformity assessment.

On May 21, 2012, USEPA designated Sheboygan County a marginal nonattainment area for ground-level ozone under the 2008 eight-hour standard for that pollutant. The effective date for that designation was July 20, 2012. Sheboygan County also remains a moderate nonattainment area for the 1997 eight-hour ozone standard. The intent of this conformity assessment is to demonstrate conformity of the *Year 2045 SATP* and the *2015 – 2018 TIP* under the 2008 eight-hour standard.

In September 2009, the Wisconsin Department of Natural Resources prepared an "8-Hour Ozone Redesignation Request and Maintenance Plan for the Sheboygan County Subpart-2 Moderate Nonattainment Area," which was submitted to USEPA. Several other Wisconsin counties were included in this redesignation request, including Manitowoc and Door counties, as well as six counties in southeastern Wisconsin. On April 26, 2010, USEPA published in the *Federal Register* that it had determined that the motor vehicle emissions budgets in this State Implementation Plan (SIP) element were adequate for transportation conformity determinations; this finding took effect on May 21, 2010.

The "8-Hour Ozone Redesignation Request and Maintenance Plan" was approved for all counties except Sheboygan County (in addition, the eastern portion of Kenosha County was included in the Chicago multistate nonattainment area). Unfortunately, Sheboygan County continued to have high ozone readings at its monitor near Lake Michigan, which kept the county in nonattainment.

In 2014, the Wisconsin Department of Natural Resources prepared the latest SIP element applicable to Sheboygan County. This document was titled *The State of Wisconsin's 2015 Transportation Conformity Budgets for the Kenosha and Sheboygan County 2008 8-Hour Ozone Nonattainment Areas: A CAA-required State Implementation Plan addressing the 2008 8-Hour Ozone National Ambient Air Quality Standard*. A public hearing on this SIP element was held in December 2014, and the public comment period on this SIP element ran through mid January of 2015. This SIP element was submitted to USEPA for adequacy review in early 2015, and the USEPA determined the emissions budgets to be adequate in April 2015.

Recognizing that ozone concentrations are a problem that primarily impacts the Lake Michigan shoreline, the Wisconsin Department of Natural Resources has been working with local officials and with the USEPA to attempt to decrease the size of the nonattainment area from the entire

county to eastern Sheboygan County. On June 27, 2013, the Wisconsin Department of Natural Resources asked USEPA Region 5 to adjust the Sheboygan County nonattainment boundary to a narrow strip of land adjacent to Lake Michigan. The Wisconsin Department of Natural Resources supplemented this boundary refinement request with technical information on January 22, 2014. *The State of Wisconsin's 2015 Transportation Conformity Budgets for the Kenosha and Sheboygan County 2008 8-Hour Ozone Nonattainment Areas* includes smaller emission budgets for a proposed smaller nonattainment area in eastern Sheboygan County in the event that such a redesignation were to take place. The Wisconsin Department of Natural Resources also has placed a temporary air monitor between Sheboygan and Howards Grove to attempt to measure the effect that proximity to Lake Michigan has on ozone levels in warm weather. It is unclear if or when USEPA will act on this proposal.

This conformity assessment involves a comparison of forecast mobile sector emissions from the *Year 2045 SATP* and its implementing *2015 – 2018 TIP* to emissions budgets in the *State of Wisconsin's 2015 Transportation Conformity Budgets for the Kenosha and Sheboygan County 2008 8-Hour Ozone Nonattainment Areas*. MOVES 2014 was used to compute forecasted emissions for this conformity analysis.

The five criteria established in the July 1, 2004, *Federal Register* (40 CFR Part 93, Subpart A), as applicable to the Sheboygan County ozone nonattainment area under the eight-hour standard, are (1) use of the most recent planning assumptions; (2) use of the latest emissions estimating model; (3) interagency and public consultation; (4) timely implementation of transportation control measures (TCMs); and (5) consistency with the motor vehicle emissions budgets for volatile organic compounds and for nitrogen oxides established in the *State of Wisconsin's 2015 Transportation Conformity Budgets for the Kenosha and Sheboygan County 2008 8-Hour Ozone Nonattainment Areas*. Amendments made to the conformity rule that were published in the *Federal Register* on March 24, 2010, and on March 14, 2012, did not impact the five basic criteria used to demonstrate conformity.

USE OF THE MOST RECENT PLANNING ASSUMPTIONS

This criterion (40 CFR 93.110) specifies that the conformity assessment must be based upon the official and most current planning assumptions, including current and future population levels, households, employment levels, travel demand, traffic volumes and transit ridership.

The Bay-Lake Regional Planning Commission is the gubernatorially designated metropolitan planning organization (MPO) for the Sheboygan Urbanized Area in Wisconsin, and also prepares sewer service area plans for eastern Sheboygan County. The Bay-Lake Regional Planning Commission has also developed comprehensive plans for communities in Sheboygan County. As the MPO for the Sheboygan Urbanized Area, the Bay-Lake Regional Planning Commission is responsible for the preparation of current population, household, employment, and travel and traffic forecasts. The Bay-Lake Regional Planning Commission and the Wisconsin Department of Transportation jointly maintain the travel and traffic simulation models which are used in Sheboygan County for transportation planning and for air quality conformity analysis; these models were expanded to include all of Sheboygan County in recent years for a more transparent air quality conformity analysis and so that capacity modifying projects in rural Sheboygan County could be modeled and analyzed. The estimates, forecasts and models used in this conformity analysis are the same as those used by the Bay-Lake Regional Planning Commission in its other planning efforts in Sheboygan County, and are consistent with planning assumptions made by other state agencies for Sheboygan County and for the Sheboygan metropolitan

planning area.

The determination of conformity of the *Year 2045 SATP* and the *2015 – 2018 TIP* requires specific travel and emission forecasts for the years 2015, 2025, 2035 and 2045. The population, household and employment data for the years 2015, 2025 and 2035 have been projected by interpolation at the traffic analysis zone (TAZ) level between the existing 2010 level and the year 2045 forecasts for Sheboygan County based upon the adopted growth scenario for the Sheboygan metropolitan planning area. The 2010 existing level and 2045 forecasts for population, households and employment are identified in Table C.1, along with the interpolated 2015, 2025 and 2035 population, household and employment levels.

During the preparation of the *Year 2045 SATP*, the implications of a range of different future development scenarios for the Sheboygan metropolitan planning area were explored, including the effects of the scenarios on growth in vehicle miles of travel (VMT). The growth scenarios which were considered in plan development included (1) continuation of existing trends (the selected growth scenario on which the *Year 2045 SATP* is based); (2) compact/infill development; and (3) corridor development. VMT was minimized under the compact/infill development scenario, but members of the Sheboygan MPO Technical and Policy Advisory Committees believed that continuation of existing trends would more realistically occur in the metropolitan planning area in the long-range future. Further analysis indicates that transportation improvements are expected to have little impact on VMT, accounting for VMT changes of small fractions of a percent for all milestone years of analysis when compared to the baseline scenario.

Table C.1: Current and Forecast Population, Household and Employment Levels for Sheboygan County: *Year 2045 SATP* and the *2015 – 2018 TIP*

CHARACTERISTIC	EXISTING 2010	ESTIMATE 2015	2025	2035	2045
POPULATION	115,507	115,915	123,400	126,830	125,897
HOUSEHOLDS	46,390	47,633	52,016	54,838	55,048
EMPLOYMENT	59,824	62,144	67,058	72,360	78,081

Source: U.S. Bureau of the Census, 2010; Wisconsin Department of Administration, Demographic Services Center, 2013 and 2014; SRF Consulting Group, 2012, 2013 and 2014; and Bay-Lake Regional Planning Commission, 2014.

The determination of conformity utilizes the travel demand forecast model developed cooperatively by the Wisconsin Department of Transportation, its consultant (SRF Consulting Group) and the affected MPOs (East Central Wisconsin Regional Planning Commission as the MPO for the Appleton/Fox Cities, Oshkosh and Fond du Lac urbanized areas, Brown County Planning Commission as the MPO for the Green Bay urbanized area, and Bay-Lake Regional Planning Commission as the MPO for the Sheboygan urbanized area) during the period between June 2011 and December 2013, and utilized in the preparation of the *Year 2045 SATP*. This model was handed over to WisDOT in December of 2013, and WisDOT and the affected MPOs have continued to refine the model since then. The travel demand forecast model was calibrated to simulate year 2010 conditions using data from the National Household Travel Survey (NHTS) applicable to northeastern Wisconsin, as well as using data from the WisDOT traffic count program in Sheboygan County in 2008 and in 2011. The models were validated for the year 2010 by applying the models with 2010 Census data and 2010 transportation network data, and comparing model travel demand estimates to estimates derived from actual traffic counts. Travel demand estimates for 2010 were well within acceptable root mean square error (RMSE) figures

for all traffic count ranges. Modeling was updated using the socioeconomic data indicated in Table C.1 (with a new base year of 2010) in the fall of 2014.

The WisDOT Northeast Region travel demand forecast model links the urban models for the Green Bay, Appleton, Oshkosh, Fond du Lac and Sheboygan metropolitan planning areas, and includes many of the East Central Wisconsin and Bay-Lake Regional Planning Commission counties (in the case of the Bay-Lake Regional Planning Commission, the portion of the region from southern Oconto County to the south is covered). While there are few direct benefits to Sheboygan County through this regional modeling approach (the entire county was already covered by a model), one conformity-related benefit is that Manitowoc, Kewaunee and Door counties are included in this modeling domain, making future conformity analyses easier to accomplish in those counties.

Specific Changes to Modeling Assumptions Since Adoption of the Original *Year 2035 SATP*

Several revisions to the travel demand forecast model have been made since the original *Year 2035 SATP* was adopted in October of 2006. These revisions are incorporated into the updated travel demand forecast model for Sheboygan County.

Changes to Existing Infrastructure

- North 7th Street from Pennsylvania Avenue to Erie Avenue was converted from a one-way street to a two-way street.
- North 9th Street from Erie Avenue to Pennsylvania Avenue was converted from a one-way street to a two-way street.
- Various capacity improvements at and near the Interstate Highway 43/State Highway 28 interchange.
- County Highway O/Superior Avenue from North Taylor Drive to Woodland Road was reconstructed to two lanes plus a center turning lane.
- County Highway OK from County Highway EE/Weeden Creek Road to Camelot Boulevard was reconstructed to two lanes plus a center turning lane.
- A new "event only" half interchange at Interstate Highway 43 and Rowe Road was constructed.

Capacity Modifying Projects and Their Implementation Period in the *Year 2045 SATP*

These are noted in Chapter 7 of the *Year 2045 SATP* (pages 7-1 through 7-3), including Table 7.1.

Although outside the Sheboygan metropolitan planning area, reconstruction of State Highway 23 from Plymouth to Fond du Lac from two to four lanes continues to be incorporated into the travel demand forecast model for implementation by **2025**.

Roundabouts

Several new roundabouts have been implemented or are planned for implementation in the near future. While these cannot be incorporated into the existing travel demand forecast model, the roundabouts are important from an air quality conformity standpoint. Roundabouts have been or will be implemented at the following locations in the Sheboygan metropolitan planning area:

- Intersection of State Highways 28 and 32 (completed);

- Interstate Highway 43/State Highway 42 Interchange (2 roundabouts - completed);
- Intersection of State Highway 42 and Vanguard Drive (completed);
- Intersection of State Highway 42 and County Highway Y (completed);
- Intersection of State Highway 42 and County Highway JJ (completed);
- Intersection of County Highway O/Superior Avenue, North 40th Street and Wilgus Avenue (completed);
- Intersection of County Highway OK/South Business Drive and County Highway EE/Weeden Creek Road (completed);
- Intersection of County Highways A and EE/Weeden Creek Road (construction scheduled for 2015);
- Intersection of State Highway 32 and Happy Lane (construction scheduled for 2016);
- Intersection of State Highway 28 and County Highway EE (construction scheduled for 2018);
- Intersection of County Highways A and PP (planned project for 2016 – 2025); and
- Intersection of County Highways C and TT (planned project for 2016 – 2025).

Transit Network Changes

Changes to service levels at Shoreline Metro are incorporated into this analysis, as recommended in the *Sheboygan Transit Development Program (TDP): 2012 – 2016*. Overall general service changes included discontinuation of the final hour of transit service on weekday evenings, as well as reinstatement of the North and South Shuttles throughout the service day on Saturdays. Revisions to all routes were also made in the *Sheboygan TDP: 2012 – 2016*; highlights of route-specific service changes included elimination of Route 1 North and its combination with Route 5 North, as well as division of transit service on the west side of Sheboygan into two routes (Routes 10 North and South). Since adoption of the *Sheboygan TDP: 2012 – 2016*, Shoreline Metro has added a seasonal (summer) route (Route 40) that circulates around attractions in Sheboygan's Harbor Centre district, and has also modified Route 20 (the Kohler/Sheboygan Falls Route) to better serve residents of those two communities. One new fare policy in 2011 involved institution of a $3 day pass. No additional service, route or fare changes are anticipated at this time. Ridership has increased significantly in recent years, possibly due to some of these policies. A new TDP for Shoreline Metro is expected to be completed in 2016.

Congestion Mitigation and Air Quality Improvement Program (CMAQ) Projects

One CMAQ project was included in the emissions analysis. This project involves the rails to trails conversion of the Union Pacific (UP) rail corridor in the central portion of the City of Sheboygan. This is known as the Shoreline 400 Rail-Trail Project, and it was completed in 2013. Sheboygan County was the project sponsor of this project.

Sheboygan County Non-Motorized Transportation Pilot Program (NMTPP) Projects

Several bicycle and pedestrian transportation projects have been completed through the Sheboygan County NMTPP in recent years; these are discussed in Chapter 5 of the *Year 2045 SATP*, and their implementation is assumed in this conformity analysis. Upcoming NMTPP

funded bicycle and pedestrian transportation projects are also identified in Chapters 5 and 7 of the *Year 2045 SATP* as well as in the *2015 – 2018 TIP*, and implementation of these projects is also assumed in this conformity analysis. The Sheboygan County NMTPP program was a special earmark awarded to the county in SAFETEA-LU for the construction of nonmotorized transportation facilities; three other jurisdictions in the United States received a similar earmark in SAFETEA-LU.

USE OF THE LATEST EMISSIONS ESTIMATION MODEL

A second criterion for the plan and program conformity determination as set forth in the July 1, 2004, *Federal Register* (40 CFR 93.111) requires use of the latest air pollutant emissions estimation model. Accordingly, this determination of conformity utilizes the latest emissions estimation model available, the USEPA MOVES 2014 air pollutant emissions estimation model. This emissions estimation model is the latest version of the model used by the Wisconsin Department of Natural Resources Bureau of Air Management in its development of the transportation conformity budgets for volatile organic compounds (VOCs) and nitrogen oxides (NOx) included in the latest SIP revision for Sheboygan County, the *State of Wisconsin's 2015 Transportation Conformity Budgets for the Kenosha and Sheboygan County 2008 8-Hour Ozone Nonattainment Areas*.

The assumptions in the emissions estimation model for the years 2015, 2025, 2035 and 2045 are available from the Wisconsin Department of Natural Resources Bureau of Air Management; contact information and some of the assumptions can be found at the end of this report. The vehicle type mix assumptions are based on the Wisconsin Department of Transportation traffic monitoring program, which also is the basis for Highway Performance Monitoring System (HPMS) traffic count data. This emissions estimation model is the same model used by the State of Wisconsin Department of Natural Resources in the preparation of the State Implementation Plan for Air Quality to assure complete consistency between this conformity determination and the State Implementation Plan. Unlike previous conformity analyses, MOVES 2014 was able to directly compute projected emissions for each analysis year, meaning that the traditional multiplication of emission factors and vehicle miles of travel (VMT) by facility type and speed range was no longer a necessary step in the conformity analysis process.

INTERAGENCY AND PUBLIC CONSULTATION

A third criterion for plan and program conformity determination established in the July 1, 2014, *Federal Register* (40 CFR Part 93.112) relates to interagency and public consultation. The development of this *Year 2045 SATP* involved extensive interagency and public consultation, including, specifically, such consultations with respect to air quality impacts and the implications for conformity of the plan. In particular, the State of Wisconsin Department of Transportation, the State of Wisconsin Department of Natural Resources, the Federal Highway Administration, the Federal Transit Administration, the U.S. Environmental Protection Agency, Sheboygan County, and local units of government in the Sheboygan metropolitan planning area were all extensively involved in the development of the recommended plan, the consideration of the financial resources necessary to implement the recommended plan, and the evaluation of the potential air quality impacts of the recommended plan, in particular with respect to conformity to the State Implementation Plan. These Federal, State, county and local units and agencies of government also have been consulted, and have, as members of the Sheboygan MPO Technical and Policy Advisory Committees guiding the preparation of the *Year 2045 SATP*, reviewed and approved the travel simulation models utilized in the preparation of the *Year 2045 SATP* and

conformity analysis and as well the level of detail of the *Year 2045 SATP*.

The *Year 2045 SATP* incorporates the entire functionally classified arterial and collector street and highway network of the Sheboygan metropolitan planning area, including both urban and rural facilities. As noted earlier, the travel demand forecast modeling analysis used to develop the *Year 2045 SATP* was expanded to include all of Sheboygan County in recent years for a more transparent air quality conformity analysis and so that capacity modifying projects in rural Sheboygan County could be modeled and analyzed.

For the conformity analysis for the *Year 2045 SATP* and its implementing *2015 – 2018 TIP*, the State of Wisconsin Department of Natural Resources provided Bay-Lake Regional Planning Commission staff with MOVES 2014 output based on vehicle miles of travel and average speed data provided by the Bay-Lake Regional Planning Commission on March 12 and 13, 2015. (These data are presented in Tables C.3 and C.4). The other MOVES 2014 modeling assumptions are the same as those used in the *State of Wisconsin's 2015 Transportation Conformity Budgets for the Kenosha and Sheboygan County 2008 8-Hour Ozone Nonattainment Areas* (as it applies to Sheboygan County), which includes an updated vehicle age distribution and benefits of the vehicle inspection and maintenance program. The Bay-Lake Regional Planning Commission then performed the conformity analysis based on the MOVES 2014 output in April of 2015. The Transportation Conformity Work Group (TCWG) reviewed this draft conformity analysis in April and May of 2015.

In addition, there was public consultation with respect to the *Year 2045 SATP*, including consultation on land use, transportation deficiencies, potential transportation improvements, the recommended plan and its financial impacts, and on the potential air quality impacts of the recommended plan. This consultation is documented in Appendix F (Public Participation Process) of the *Year 2045 SATP*. Public consultation efforts included an extensive focus on transit in the *Sheboygan Transit Development Program (TDP): 2012 – 2016* (including numerous review committee meetings, extensive transit survey research and public information meetings), as well as responding to corridor test ideas with the travel demand forecast model.

The *Year 2045 SATP* and the *2015 – 2018 TIP* were each subjected to 30 day public comment periods. A public hearing on the *Year 2045 SATP* was held in May of 2015. A public hearing on the *2015 – 2018 TIP* was held in early December of 2014. Comments received on the *Year 2045 SATP* and on this air quality conformity statement were primarily editorial in nature, and have been incorporated into the respective documents. One comment received on the *Year 2045 SATP* suggested adding one system preservation project to the plan; this project may be added as an amendment to the plan in the future. Comments received on the *2015 – 2018 TIP* largely focused on how transit serves low income individuals and families (and how non-profit organizations can help); in addition, one individual offered opinions regarding the need for improvements to various modes of transportation in the area.

All meetings of the Sheboygan MPO Technical and Policy Advisory Committees, of any special project specific committees, and of the Bay-Lake Regional Planning Commission and its committees have been open to the public during the planning process, and notice of these meetings has been provided to area news media on a timely basis. Periodic electronic newsletters and annual reports of the Bay-Lake Regional Planning Commission have also kept the public informed of this and other MPO planning efforts.

TIMELY IMPLEMENTATION OF TRANSPORTATION CONTROL MEASURES (TCM)

A fourth criterion for plan and program conformity determination in the July 1, 2004, *Federal Register* (40 CFR Part 93.113[b] and [c]) is that the transportation plan and the transportation improvement program must provide for timely implementation of all transportation control measures (TCMs) listed in the State Implementation Plan for Air Quality. More specifically, the transportation plan and the transportation improvement program must provide for timely completion of any TCMs listed in the State Implementation Plan, and nothing in the transportation plan or transportation improvement program may interfere with the implementation of any TCM listed in the State Implementation Plan. The staff of the Wisconsin Department of Natural Resources Bureau of Air Management has indicated to Bay-Lake Regional Planning Commission staff that there are no TCMs specified for Sheboygan County in the State Implementation Plan, including the Sheboygan metropolitan planning area. Therefore, this criterion for plan and program conformity determination is not applicable to this planning effort at this time.

CONSISTENCY WITH THE MOTOR VEHICLE EMISSIONS BUDGETS IN *THE STATE OF WISCONSIN'S 2015 TRANSPORTATION CONFORMITY BUDGETS FOR THE KENOSHA AND SHEBOYGAN COUNTY 2008 8-HOUR OZONE NONATTAINMENT AREAS*

The fifth and final criterion for plan and program conformity determination, established in the July 1, 2004, *Federal Register* (40 CFR Part 93.118), requires that the transportation system emissions forecasts under the transportation plan and the transportation improvement program be consistent with, that is equal to or less than, the transportation system emission forecasts, or "motor vehicle emissions budgets," in the State Implementation Plan component for Sheboygan County. The State Implementation Plan for this conformity analysis is the "*State of Wisconsin's 2015 Transportation Conformity Budgets for the Kenosha and Sheboygan County 2008 8-Hour Ozone Nonattainment Areas: A CAA-required State Implementation Plan addressing the 2008 8-Hour Ozone National Ambient Air Quality Standard*" submitted to the U.S. Environmental Protection Agency (USEPA) by the Wisconsin Department of Natural Resources in January 2015. The motor vehicle emissions budgets from this plan were found adequate for transportation conformity purposes in April of 2015. The plan presents motor vehicle emissions budgets for 2015 as part of the required "*State of Wisconsin's 2015 Transportation Conformity Budgets for the Kenosha and Sheboygan County 2008 8-Hour Ozone Nonattainment Areas*." This requirement for consistency of the transportation emissions forecasts incorporated in the long-range transportation plan and the transportation improvement program with those incorporated in the "*State of Wisconsin's 2015 Transportation Conformity Budgets for the Kenosha and Sheboygan County 2008 8-Hour Ozone Nonattainment Areas*" applies to volatile organic compounds and nitrogen oxide emissions as precursors to ozone.

Table C.2 indicates the established budgets in the "*State of Wisconsin's 2015 Transportation Conformity Budgets for the Kenosha and Sheboygan County 2008 8-Hour Ozone Nonattainment Areas*" for two ozone precursor pollutants, volatile organic compounds and nitrogen oxides, in 2015. This document also established budgets for a smaller nonattainment area in eastern Sheboygan County in the event that USEPA would grant WDNR's such redesignation request. It should be noted that this conformity analysis only addresses emission forecasts in comparison to 2015 emissions budgets (for 2015, 2025, 2035 and 2045), since the conformity analysis is being

conducted in 2015.

Table C.2: Motor Vehicle Emission Budgets for Sheboygan County: State of Wisconsin's 2015 Transportation Conformity Budgets for the Kenosha and Sheboygan County 2008 8-Hour Ozone Nonattainment Areas (On a Hot Summer Day)

	Pollutant (Tons)	
Year	Volatile Organic Compounds (VOCs)	Nitrogen Oxides (NOx)
2015	1.9720	4.4350

Source: Bureau of Air Management, Wisconsin Department of Natural Resources, 2015; and Bay-Lake Regional Planning Commission, 2015.

The transportation system emissions attendant to the transportation systems plan and transportation improvement program were forecast through the application of the MPO travel and traffic simulation models to the transportation system plan and transportation improvement program under forecast population, household and employment growth assuming the adopted growth scenario involving continuation of existing trends. The Sheboygan MPO Technical and Policy Advisory Committees selected the "continuation of existing trends" growth scenario as the preferred development vision for the Sheboygan metropolitan planning area in November of 2014. This decision came after several months of debate over the merits of each growth scenario. As stated earlier, VMT was minimized under the compact/infill development scenario, but members of the Sheboygan MPO Technical and Policy Advisory Committees believed that continuation of existing trends would more realistically occur in the metropolitan planning area and elsewhere in Sheboygan County in the long-range future. The "continuation of existing trends" scenario was also most consistent with adopted comprehensive plans in the metropolitan planning area and elsewhere in Sheboygan County.

Table C.3 presents the forecast vehicle miles of travel attendant to the transportation system plan and transportation improvement program by functional classification/facility type and speed range for the forecast years of 2015, 2025, 2035 and 2045, by vehicle type (auto and truck). The transportation plan projects which are not exempt from regional emissions analysis are identified at the beginning of Chapter 7 of the *Year 2045 SATP*. The transportation improvement program projects which are not exempt from regional emissions analysis (where they exist) are marked as "Non-Exempt" in Table 6 of the *2015 – 2018 TIP*.

It should be noted that one capacity modifying project outside the Sheboygan metropolitan planning area but within Sheboygan County was incorporated into the travel demand forecast modeling for the *Year 2045 SATP*, and therefore, is incorporated into this air quality conformity analysis. This project involves an increase from two to four lanes on State Highway 23 from Plymouth to Fond du Lac. This project was assumed to be completed in the 2016 – 2025 implementation period.

Table C.3 indicates that average annual rates of VMT increase were as follows for all of the modeled area (Sheboygan County): 0.51 percent from 2015 to 2025, 0.68 percent from 2025 to 2035, and 0.81 percent from 2035 to 2045. Growth in VMT is expected to average about 0.67 percent per year within the countywide modeling domain through 2045 under the continuation of existing trends recommended scenario.

Table C.3: *Year 2045 Sheboygan Area Transportation Plan (SATP)*: Summer Weekday Vehicle Miles of Travel Within Sheboygan County: Forecast 2015, 2025, 2035 and 2045

		2015 MODEL		2025 MODEL		2035 MODEL		2045 MODEL	
FACILITY TYPE	**SPEED RANGE**	**Auto**	**Truck**	**Auto**	**Truck**	**Auto**	**Truck**	**Auto**	**Truck**
INTERSTATES	0-5	0	0	0	0	0	0	0	0
	5-10	0	0	0	0	0	0	0	0
	10-15	0	0	0	0	0	0	0	0
	15-20	0	0	0	0	0	0	0	0
	20-25	0	0	0	0	0	0	0	0
	25-30	0	0	0	0	0	0	0	0
	30-35	0	0	0	0	0	0	0	0
	35-40	0	0	0	0	0	0	0	0
	40-45	0	0	0	0	0	0	0	0
	45-50	0	0	0	0	0	0	0	0
	50-55	0	0	0	0	0	0	0	0
	55-60	0	0	0	0	0	0	0	0
	60-65	0	0	0	0	0	0	0	0
	65+	721,077	87,538	761,751	93,777	826,919	104,655	890,707	117,690
	Subtotal	721,077	87,538	761,751	93,777	826,919	104,655	890,707	117,690
OTHER FREEWAYS	0-5	0	0	0	0	0	0	0	0
	5-10	0	0	0	0	0	0	0	0
	10-15	0	0	0	0	0	0	0	0
	15-20	0	0	0	0	0	0	0	0
	20-25	0	0	0	0	0	0	0	0
	25-30	0	0	0	0	0	0	0	0
	30-35	0	0	0	0	0	0	0	0
	35-40	0	0	0	0	0	0	0	0
	40-45	0	0	0	0	0	0	0	0
	45-50	0	0	0	0	0	0	0	0
	50-55	0	0	0	0	0	0	0	0
	55-60	0	0	0	0	0	0	0	0
	60-65	0	0	0	0	0	0	0	0
	65+	0	0	0	0	0	0	0	0
	Subtotal	0	0	0	0	0	0	0	0
RAMPS	0-5	0	0	0	0	0	0	0	0
	5-10	0	0	0	0	0	0	0	0
	10-15	0	0	0	0	0	0	0	0
	15-20	0	0	0	0	0	0	0	0
	20-25	0	0	0	0	810	110	0	0
	25-30	0	0	0	0	55	8	0	0
	30-35	41,648	5,779	44,921	6,244	47,773	6,632	55,085	7,885
	35-40	690	89	194	39	214	42	81	13
	40-45	0	0	0	0	0	0	0	0
	45-50	0	0	0	0	0	0	0	0
	50-55	0	0	0	0	0	0	0	0
	55-60	0	0	0	0	0	0	0	0
	60-65	0	0	0	0	0	0	0	0
	65+	0	0	0	0	0	0	0	0
	Subtotal	42,338	5,868	45,116	6,283	48,852	6,792	55,166	7,898

Table C.3: *Year 2045 Sheboygan Area Transportation Plan (SATP)*: Summer Weekday Vehicle Miles of Travel Within Sheboygan County: Forecast 2015, 2025, 2035 and 2045

		2015 MODEL		2025 MODEL		2035 MODEL		2045 MODEL	
FACILITY TYPE	**SPEED RANGE**	**Auto**	**Truck**	**Auto**	**Truck**	**Auto**	**Truck**	**Auto**	**Truck**
EXPRESSWAYS	0-5	0	0	0	0	0	0	0	0
	5-10	0	0	0	0	0	0	0	0
	10-15	0	0	0	0	0	0	0	0
	15-20	0	0	0	0	0	0	0	0
	20-25	0	0	0	0	0	0	0	0
	25-30	0	0	0	0	0	0	0	0
	30-35	0	0	0	0	0	0	0	0
	35-40	0	0	0	0	0	0	0	0
	40-45	0	0	0	0	0	0	0	0
	45-50	181,281	20,566	290,130	32,461	212,634	26,479	229,505	31,367
	50-55	239,222	22,460	259,079	24,751	386,855	41,012	424,077	50,230
	55-60	0	0	0	0	0	0	0	0
	60-65	0	0	0	0	0	0	0	0
	65+	0	0	0	0	0	0	0	0
	Subtotal	420,503	43,026	549,209	57,212	599,489	67,491	653,582	81,596
URBAN PRINCIPAL ARTERIALS	0-5	0	0	0	0	0	0	0	0
	5-10	0	0	0	0	0	0	0	0
	10-15	0	0	0	0	0	0	0	0
	15-20	0	0	0	0	0	0	0	0
	20-25	0	0	0	0	0	0	0	0
	25-30	13,971	784	14,240	795	14,768	835	15,690	915
	30-35	0	0	0	0	0	0	0	0
	35-40	127,768	9,517	130,268	9,750	132,393	9,714	138,186	10,279
	40-45	30,870	3,187	31,500	3,224	32,723	3,298	34,956	3,477
	45-50	0	0	0	0	0	0	0	0
	50-55	0	0	0	0	0	0	0	0
	55-60	0	0	0	0	0	0	0	0
	60-65	0	0	0	0	0	0	0	0
	65+	0	0	0	0	0	0	0	0
	Subtotal	172,608	13,487	176,008	13,769	179,884	13,847	188,832	14,671
URBAN MINOR ARTERIALS	0-5	0	0	0	0	0	0	0	0
	5-10	0	0	0	0	0	0	0	0
	10-15	0	0	0	0	0	0	0	0
	15-20	0	0	0	0	0	0	0	0
	20-25	0	0	0	0	0	0	0	0
	25-30	25,187	1,524	25,339	1,541	25,782	1,606	27,041	1,786
	30-35	0	0	0	0	0	0	0	0
	35-40	128,087	6,666	130,833	6,896	137,329	7,663	147,355	8,694
	40-45	0	0	0	0	0	0	0	0
	45-50	41,283	2,933	43,227	3,116	51,327	4,214	60,007	5,271
	50-55	0	0	0	0	0	0	0	0
	55-60	0	0	0	0	0	0	0	0
	60-65	0	0	0	0	0	0	0	0
	65+	0	0	0	0	0	0	0	0
	Subtotal	194,557	11,123	199,400	11,553	214,437	13,484	234,403	15,751

Table C.3: *Year 2045 Sheboygan Area Transportation Plan (SATP)*: Summer Weekday Vehicle Miles of Travel Within Sheboygan County: Forecast 2015, 2025, 2035 and 2045

		2015 MODEL		2025 MODEL		2035 MODEL		2045 MODEL	
FACILITY TYPE	**SPEED RANGE**	**Auto**	**Truck**	**Auto**	**Truck**	**Auto**	**Truck**	**Auto**	**Truck**
URBAN COLLECTORS	0-5	0	0	0	0	0	0	0	0
	5-10	0	0	0	0	0	0	0	0
	10-15	0	0	0	0	0	0	0	0
	15-20	0	0	0	0	0	0	0	0
	20-25	5,468	263	5,535	269	5,828	296	6,293	338
	25-30	0	0	0	0	1,337	26	0	0
	30-35	92,034	4,727	94,478	4,929	100,007	5,440	107,657	6,179
	35-40	19,845	796	20,894	849	22,954	986	28,090	1,213
	40-45	4,584	165	4,750	170	3,923	160	4,012	174
	45-50	0	0	0	0	0	0	0	0
	50-55	0	0	0	0	0	0	0	0
	55-60	0	0	0	0	0	0	0	0
	60-65	0	0	0	0	0	0	0	0
	65+	0	0	0	0	0	0	0	0
	Subtotal	121,931	5,951	125,656	6,217	134,049	6,908	146,052	7,905
URBAN LOCALS	0-5	0	0	0	0	0	0	0	0
	5-10	0	0	0	0	0	0	0	0
	10-15	0	0	0	0	0	0	0	0
	15-20	1,886	129	1,859	129	1,811	130	1,760	131
	20-25	14,829	600	14,860	603	15,009	618	15,169	638
	25-30	0	0	0	0	0	0	5	0
	30-35	0	0	0	0	0	0	0	0
	35-40	0	0	0	0	0	0	0	0
	40-45	0	0	0	0	0	0	0	0
	45-50	0	0	0	0	0	0	0	0
	50-55	0	0	0	0	0	0	0	0
	55-60	0	0	0	0	0	0	0	0
	60-65	0	0	0	0	0	0	0	0
	65+	0	0	0	0	0	0	0	0
	Subtotal	16,715	729	16,719	732	16,820	748	16,934	769
RURAL PRINCIPAL ARTERIALS	0-5	0	0	0	0	0	0	0	0
	5-10	0	0	0	0	0	0	0	0
	10-15	0	0	0	0	0	0	0	0
	15-20	0	0	0	0	0	0	0	0
	20-25	0	0	0	0	0	0	0	0
	25-30	0	0	0	0	0	0	0	0
	30-35	0	0	0	0	0	0	4,353	282
	35-40	6,988	590	7,299	622	8,838	777	5,315	603
	40-45	122,305	10,930	103,763	9,244	114,099	10,087	90,153	7,931
	45-50	115,881	9,425	68,412	5,294	64,372	5,224	105,879	9,509
	50-55	14,200	1,281	14,680	1,340	15,342	1,483	16,024	1,701
	55-60	0	0	0	0	0	0	0	0
	60-65	0	0	0	0	0	0	0	0
	65+	0	0	0	0	0	0	0	0
	Subtotal	259,375	22,226	194,154	16,499	202,650	17,571	221,725	20,026

Table C.3: *Year 2045 Sheboygan Area Transportation Plan (SATP)*: Summer Weekday Vehicle Miles of Travel Within Sheboygan County: Forecast 2015, 2025, 2035 and 2045

		2015 MODEL		2025 MODEL		2035 MODEL		2045 MODEL	
FACILITY TYPE	**SPEED RANGE**	**Auto**	**Truck**	**Auto**	**Truck**	**Auto**	**Truck**	**Auto**	**Truck**
RURAL MINOR ARTERIALS	0-5	0	0	0	0	0	0	0	0
	5-10	0	0	0	0	0	0	0	0
	10-15	0	0	0	0	0	0	0	0
	15-20	0	0	0	0	0	0	0	0
	20-25	0	0	0	0	0	0	0	0
	25-30	5,994	332	6,063	317	6,248	327	15,994	1,146
	30-35	39,254	2,301	41,311	2,442	45,274	2,799	55,054	3,676
	35-40	82,354	6,277	86,210	6,587	90,387	7,018	85,386	6,922
	40-45	39,503	2,341	39,319	2,244	41,879	2,406	56,450	3,765
	45-50	253,010	18,184	258,266	18,688	265,553	19,809	266,423	21,011
	50-55	0	0	0	0	0	0	0	0
	55-60	0	0	0	0	0	0	0	0
	60-65	0	0	0	0	0	0	0	0
	65+	0	0	0	0	0	0	0	0
	Subtotal	420,116	29,437	431,169	30,278	449,340	32,360	479,308	36,520
RURAL MAJOR COLLECTORS	0-5	0	0	0	0	0	0	0	0
	5-10	0	0	0	0	0	0	0	0
	10-15	0	0	0	0	0	0	0	0
	15-20	0	0	1,307	94	0	0	0	0
	20-25	0	0	0	0	0	0	0	0
	25-30	0	0	0	0	0	0	0	0
	30-35	8,752	638	10,375	761	13,264	963	17,081	1,168
	35-40	104,045	6,698	107,185	6,922	112,546	7,314	116,374	7,902
	40-45	197,143	14,952	200,056	15,174	206,912	16,176	222,501	18,484
	45-50	0	0	0	0	0	0	0	0
	50-55	0	0	0	0	0	0	0	0
	55-60	0	0	0	0	0	0	0	0
	60-65	0	0	0	0	0	0	0	0
	65+	0	0	0	0	0	0	0	0
	Subtotal	309,941	22,288	318,923	22,950	332,723	24,453	355,955	27,554
RURAL MINOR COLLECTORS	0-5	0	0	0	0	0	0	0	0
	5-10	0	0	0	0	0	0	0	0
	10-15	0	0	0	0	0	0	0	0
	15-20	0	0	0	0	0	0	0	0
	20-25	0	0	0	0	0	0	0	0
	25-30	11,666	456	11,955	475	12,527	524	13,056	568
	30-35	10,558	505	11,271	561	12,409	655	14,457	822
	35-40	172,362	6,337	176,798	6,608	188,294	7,665	201,435	8,737
	40-45	0	0	0	0	0	0	0	0
	45-50	0	0	0	0	0	0	0	0
	50-55	0	0	0	0	0	0	0	0
	55-60	0	0	0	0	0	0	0	0
	60-65	0	0	0	0	0	0	0	0
	65+	0	0	0	0	0	0	0	0
	Subtotal	194,586	7,298	200,024	7,644	213,230	8,844	228,948	10,127

Table C.3: *Year 2045 Sheboygan Area Transportation Plan (SATP)*: Summer Weekday Vehicle Miles of Travel Within Sheboygan County: Forecast 2015, 2025, 2035 and 2045

		2015 MODEL		2025 MODEL		2035 MODEL		2045 MODEL	
FACILITY TYPE	**SPEED RANGE**	**Auto**	**Truck**	**Auto**	**Truck**	**Auto**	**Truck**	**Auto**	**Truck**
RURAL LOCALS	0-5	0	0	0	0	0	0	0	0
	5-10	0	0	0	0	0	0	0	0
	10-15	0	0	0	0	0	0	0	0
	15-20	0	0	0	0	0	0	0	0
	20-25	39,651	1,780	40,779	1,850	42,747	2,003	46,350	2,261
	25-30	0	0	1	0	0	0	0	0
	30-35	0	0	0	0	0	0	0	0
	35-40	0	0	0	0	0	0	0	0
	40-45	0	0	0	0	0	0	0	0
	45-50	0	0	0	0	0	0	0	0
	50-55	0	0	0	0	0	0	0	0
	55-60	0	0	0	0	0	0	0	0
	60-65	0	0	0	0	0	0	0	0
	65+	0	0	0	0	0	0	0	0
	Subtotal	39,651	1,780	40,781	1,850	42,747	2,003	46,350	2,261
ALL TYPES	0-5	0	0	0	0	0	0	0	0
	5-10	0	0	0	0	0	0	0	0
	10-15	0	0	0	0	0	0	0	0
	15-20	1,886	129	3,166	223	1,811	130	1,760	131
	20-25	59,948	2,643	61,174	2,722	64,395	3,027	67,812	3,237
	25-30	56,818	3,096	57,598	3,128	60,717	3,327	71,787	4,415
	30-35	192,246	13,950	202,356	14,937	218,728	16,489	253,687	20,011
	35-40	642,139	36,970	659,681	38,271	692,954	41,179	722,223	44,364
	40-45	394,405	31,575	379,388	30,056	399,535	32,126	408,072	33,830
	45-50	591,457	51,108	660,035	59,559	593,886	55,726	661,814	67,157
	50-55	253,422	23,741	273,759	26,091	402,196	42,496	440,101	51,931
	55-60	0	0	0	0	0	0	0	0
	60-65	0	0	0	0	0	0	0	0
	65+	721,077	87,538	761,751	93,777	826,919	104,655	890,707	117,690
	TOTAL	2,913,397	250,750	3,058,908	268,765	3,261,140	299,156	3,517,962	342,767

Source: Wisconsin Department of Transportation, 2015; Wisconsin Department of Natural Resources, 2014; and Bay-Lake Regional Planning Commission, 2015.

Table C.4 presents the summer weekday average speeds (by speed range and facility type) within Sheboygan County that were projected by the travel demand forecast model for the analysis years of 2015, 2025, 2035 and 2045. Entries only appear in Table C.4 where there was VMT activity.

Table C.4: *Year 2045 Sheboygan Area Transportation Plan (SATP)*: Summer Weekday Average Speeds (by Speed Range and Facility Type) Within Sheboygan County: Forecast 2015, 2025, 2035 and 2045

		2015 MODEL		2025 MODEL		2035 MODEL		2045 MODEL	
		Auto	Truck	Auto	Truck	Auto	Truck	Auto	Truck
FACILITY TYPE	SPEED RANGE	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH
INTERSTATES	0-5	NA	NA	NA	NA	NA	NA	NA	NA
	5-10	NA	NA	NA	NA	NA	NA	NA	NA
	10-15	NA	NA	NA	NA	NA	NA	NA	NA
	15-20	NA	NA	NA	NA	NA	NA	NA	NA
	20-25	NA	NA	NA	NA	NA	NA	NA	NA
	25-30	NA	NA	NA	NA	NA	NA	NA	NA
	30-35	NA	NA	NA	NA	NA	NA	NA	NA
	35-40	NA	NA	NA	NA	NA	NA	NA	NA
	40-45	NA	NA	NA	NA	NA	NA	NA	NA
	45-50	NA	NA	NA	NA	NA	NA	NA	NA
	50-55	NA	NA	NA	NA	NA	NA	NA	NA
	55-60	NA	NA	NA	NA	NA	NA	NA	NA
	60-65	NA	NA	NA	NA	NA	NA	NA	NA
	65+	72.92	73.18	72.71	73.01	72.28	72.63	71.84	72.25
OTHER FREEWAYS	0-5	NA	NA	NA	NA	NA	NA	NA	NA
	5-10	NA	NA	NA	NA	NA	NA	NA	NA
	10-15	NA	NA	NA	NA	NA	NA	NA	NA
	15-20	NA	NA	NA	NA	NA	NA	NA	NA
	20-25	NA	NA	NA	NA	NA	NA	NA	NA
	25-30	NA	NA	NA	NA	NA	NA	NA	NA
	30-35	NA	NA	NA	NA	NA	NA	NA	NA
	35-40	NA	NA	NA	NA	NA	NA	NA	NA
	40-45	NA	NA	NA	NA	NA	NA	NA	NA
	45-50	NA	NA	NA	NA	NA	NA	NA	NA
	50-55	NA	NA	NA	NA	NA	NA	NA	NA
	55-60	NA	NA	NA	NA	NA	NA	NA	NA
	60-65	NA	NA	NA	NA	NA	NA	NA	NA
	65+	NA	NA	NA	NA	NA	NA	NA	NA
RAMPS	0-5	NA	NA	NA	NA	NA	NA	NA	NA
	5-10	NA	NA	NA	NA	NA	NA	NA	NA
	10-15	NA	NA	NA	NA	NA	NA	NA	NA
	15-20	NA	NA	NA	NA	NA	NA	NA	NA
	20-25	NA	NA	NA	NA	24.97	24.99	NA	NA
	25-30	NA	NA	NA	NA	29.96	29.99	NA	NA
	30-35	34.94	34.95	34.91	34.93	34.82	34.85	34.69	34.74
	35-40	35.00	35.00	35.00	35.00	35.00	35.00	35.00	35.00
	40-45	NA	NA	NA	NA	NA	NA	NA	NA
	45-50	NA	NA	NA	NA	NA	NA	NA	NA
	50-55	NA	NA	NA	NA	NA	NA	NA	NA
	55-60	NA	NA	NA	NA	NA	NA	NA	NA
	60-65	NA	NA	NA	NA	NA	NA	NA	NA
	65+	NA	NA	NA	NA	NA	NA	NA	NA

Table C.4: *Year 2045 Sheboygan Area Transportation Plan (SATP)*: Summer Weekday Average Speeds (by Speed Range and Facility Type) Within Sheboygan County: Forecast 2015, 2025, 2035 and 2045

		2015 MODEL		2025 MODEL		2035 MODEL		2045 MODEL	
		Auto	Truck	Auto	Truck	Auto	Truck	Auto	Truck
FACILITY TYPE	SPEED RANGE	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH
EXPRESSWAYS	0-5	NA	NA	NA	NA	NA	NA	NA	NA
	5-10	NA	NA	NA	NA	NA	NA	NA	NA
	10-15	NA	NA	NA	NA	NA	NA	NA	NA
	15-20	NA	NA	NA	NA	NA	NA	NA	NA
	20-25	NA	NA	NA	NA	NA	NA	NA	NA
	25-30	NA	NA	NA	NA	NA	NA	NA	NA
	30-35	NA	NA	NA	NA	NA	NA	NA	NA
	35-40	NA	NA	NA	NA	NA	NA	NA	NA
	40-45	NA	NA	NA	NA	NA	NA	NA	NA
	45-50	49.99	49.99	49.59	49.78	49.97	49.98	49.96	49.97
	50-55	54.99	54.99	54.99	54.99	54.04	54.01	54.99	54.98
	55-60	NA	NA	NA	NA	NA	NA	NA	NA
	60-65	NA	NA	NA	NA	NA	NA	NA	NA
	65+	NA	NA	NA	NA	NA	NA	NA	NA
URBAN PRINCIPAL ARTERIALS	0-5	NA	NA	NA	NA	NA	NA	NA	NA
	5-10	NA	NA	NA	NA	NA	NA	NA	NA
	10-15	NA	NA	NA	NA	NA	NA	NA	NA
	15-20	NA	NA	NA	NA	NA	NA	NA	NA
	20-25	NA	NA	NA	NA	NA	NA	NA	NA
	25-30	27.18	27.25	27.13	27.21	27.04	27.11	26.87	26.94
	30-35	NA	NA	NA	NA	NA	NA	NA	NA
	35-40	39.13	39.30	39.08	39.26	38.99	39.16	38.84	39.00
	40-45	44.38	44.49	44.36	44.46	44.26	44.38	44.05	44.21
	45-50	NA	NA	NA	NA	NA	NA	NA	NA
	50-55	NA	NA	NA	NA	NA	NA	NA	NA
	55-60	NA	NA	NA	NA	NA	NA	NA	NA
	60-65	NA	NA	NA	NA	NA	NA	NA	NA
	65+	NA	NA	NA	NA	NA	NA	NA	NA
URBAN MINOR ARTERIALS	0-5	NA	NA	NA	NA	NA	NA	NA	NA
	5-10	NA	NA	NA	NA	NA	NA	NA	NA
	10-15	NA	NA	NA	NA	NA	NA	NA	NA
	15-20	NA	NA	NA	NA	NA	NA	NA	NA
	20-25	NA	NA	NA	NA	NA	NA	NA	NA
	25-30	27.86	27.89	27.85	27.89	27.84	27.88	27.83	27.87
	30-35	NA	NA	NA	NA	NA	NA	NA	NA
	35-40	37.95	37.96	37.94	37.96	37.93	37.94	37.89	37.91
	40-45	NA	NA	NA	NA	NA	NA	NA	NA
	45-50	46.99	46.99	46.98	46.99	46.97	46.97	46.93	46.93
	50-55	NA	NA	NA	NA	NA	NA	NA	NA
	55-60	NA	NA	NA	NA	NA	NA	NA	NA
	60-65	NA	NA	NA	NA	NA	NA	NA	NA
	65+	NA	NA	NA	NA	NA	NA	NA	NA

Table C.4: *Year 2045 Sheboygan Area Transportation Plan (SATP)*: Summer Weekday Average Speeds (by Speed Range and Facility Type) Within Sheboygan County: Forecast 2015, 2025, 2035 and 2045

		2015 MODEL		2025 MODEL		2035 MODEL		2045 MODEL	
		Auto	Truck	Auto	Truck	Auto	Truck	Auto	Truck
FACILITY TYPE	SPEED RANGE	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH
URBAN COLLECTORS	0-5	NA	NA	NA	NA	NA	NA	NA	NA
	5-10	NA	NA	NA	NA	NA	NA	NA	NA
	10-15	NA	NA	NA	NA	NA	NA	NA	NA
	15-20	NA	NA	NA	NA	NA	NA	NA	NA
	20-25	24.88	24.89	24.88	24.89	24.87	24.88	24.85	24.87
	25-30	25.00	25.00	25.00	25.00	25.00	25.00	25.00	25.00
	30-35	34.69	34.67	34.68	34.66	34.66	34.64	34.64	34.61
	35-40	39.91	39.89	39.90	39.89	39.89	39.87	39.87	39.85
	40-45	44.94	44.89	44.94	44.88	44.91	44.84	44.88	44.79
	45-50	NA	NA	NA	NA	NA	NA	NA	NA
	50-55	NA	NA	NA	NA	NA	NA	NA	NA
	55-60	NA	NA	NA	NA	NA	NA	NA	NA
	60-65	NA	NA	NA	NA	NA	NA	NA	NA
	65+	NA	NA	NA	NA	NA	NA	NA	NA
URBAN LOCALS	0-5	NA	NA	NA	NA	NA	NA	NA	NA
	5-10	NA	NA	NA	NA	NA	NA	NA	NA
	10-15	NA	NA	NA	NA	NA	NA	NA	NA
	15-20	19.98	19.98	19.98	19.99	19.98	19.99	19.99	19.99
	20-25	24.94	24.95	24.94	24.95	24.94	24.95	24.94	24.95
	25-30	NA	NA	NA	NA	NA	NA	25.00	25.00
	30-35	NA	NA	NA	NA	NA	NA	NA	NA
	35-40	NA	NA	NA	NA	NA	NA	NA	NA
	40-45	NA	NA	NA	NA	NA	NA	NA	NA
	45-50	NA	NA	NA	NA	NA	NA	NA	NA
	50-55	NA	NA	NA	NA	NA	NA	NA	NA
	55-60	NA	NA	NA	NA	NA	NA	NA	NA
	60-65	NA	NA	NA	NA	NA	NA	NA	NA
	65+	NA	NA	NA	NA	NA	NA	NA	NA
RURAL PRINCIPAL ARTERIALS	0-5	NA	NA	NA	NA	NA	NA	NA	NA
	5-10	NA	NA	NA	NA	NA	NA	NA	NA
	10-15	NA	NA	NA	NA	NA	NA	NA	NA
	15-20	NA	NA	NA	NA	NA	NA	NA	NA
	20-25	NA	NA	NA	NA	NA	NA	NA	NA
	25-30	NA	NA	NA	NA	NA	NA	NA	NA
	30-35	NA	NA	NA	NA	NA	NA	34.51	34.99
	35-40	37.91	38.81	37.34	38.24	37.02	38.08	36.96	37.82
	40-45	42.92	43.56	42.22	42.81	42.02	42.58	41.29	41.84
	45-50	46.26	46.77	46.95	47.29	46.83	47.15	46.46	46.87
	50-55	51.23	51.49	51.12	51.37	50.94	51.19	50.73	50.99
	55-60	NA	NA	NA	NA	NA	NA	NA	NA
	60-65	NA	NA	NA	NA	NA	NA	NA	NA
	65+	NA	NA	NA	NA	NA	NA	NA	NA

Table C.4: *Year 2045 Sheboygan Area Transportation Plan (SATP)*: Summer Weekday Average Speeds (by Speed Range and Facility Type) Within Sheboygan County: Forecast 2015, 2025, 2035 and 2045

		2015 MODEL		2025 MODEL		2035 MODEL		2045 MODEL	
		Auto	Truck	Auto	Truck	Auto	Truck	Auto	Truck
FACILITY TYPE	SPEED RANGE	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH
RURAL MINOR ARTERIALS	0-5	NA	NA	NA	NA	NA	NA	NA	NA
	5-10	NA	NA	NA	NA	NA	NA	NA	NA
	10-15	NA	NA	NA	NA	NA	NA	NA	NA
	15-20	NA	NA	NA	NA	NA	NA	NA	NA
	20-25	NA	NA	NA	NA	NA	NA	NA	NA
	25-30	28.78	29.92	28.82	29.85	28.63	29.62	28.22	28.76
	30-35	32.86	33.29	32.62	32.98	32.16	32.44	32.81	33.30
	35-40	36.89	37.13	36.76	37.00	36.54	36.80	36.43	36.65
	40-45	43.07	44.04	43.12	43.98	42.90	43.69	43.10	43.88
	45-50	46.75	47.00	46.71	46.94	46.59	46.82	46.46	46.64
	50-55	NA	NA	NA	NA	NA	NA	NA	NA
	55-60	NA	NA	NA	NA	NA	NA	NA	NA
	60-65	NA	NA	NA	NA	NA	NA	NA	NA
	65+	NA	NA	NA	NA	NA	NA	NA	NA
RURAL MAJOR COLLECTORS	0-5	NA	NA	NA	NA	NA	NA	NA	NA
	5-10	NA	NA	NA	NA	NA	NA	NA	NA
	10-15	NA	NA	NA	NA	NA	NA	NA	NA
	15-20	NA	NA	19.97	19.99	NA	NA	NA	NA
	20-25	NA	NA	NA	NA	NA	NA	NA	NA
	25-30	NA	NA	NA	NA	NA	NA	NA	NA
	30-35	33.85	34.25	33.78	34.18	33.53	33.91	33.29	33.65
	35-40	38.00	38.31	37.89	38.19	37.75	38.06	37.60	37.86
	40-45	43.09	43.38	43.06	43.35	42.94	43.24	42.75	43.06
	45-50	NA	NA	NA	NA	NA	NA	NA	NA
	50-55	NA	NA	NA	NA	NA	NA	NA	NA
	55-60	NA	NA	NA	NA	NA	NA	NA	NA
	60-65	NA	NA	NA	NA	NA	NA	NA	NA
	65+	NA	NA	NA	NA	NA	NA	NA	NA
RURAL MINOR COLLECTORS	0-5	NA	NA	NA	NA	NA	NA	NA	NA
	5-10	NA	NA	NA	NA	NA	NA	NA	NA
	10-15	NA	NA	NA	NA	NA	NA	NA	NA
	15-20	NA	NA	NA	NA	NA	NA	NA	NA
	20-25	NA	NA	NA	NA	NA	NA	NA	NA
	25-30	29.56	29.60	29.55	29.57	29.53	29.54	29.51	29.52
	30-35	34.35	34.39	34.29	34.33	34.18	34.23	34.00	34.06
	35-40	39.03	39.17	38.99	39.11	38.93	39.04	38.86	38.98
	40-45	NA	NA	NA	NA	NA	NA	NA	NA
	45-50	NA	NA	NA	NA	NA	NA	NA	NA
	50-55	NA	NA	NA	NA	NA	NA	NA	NA
	55-60	NA	NA	NA	NA	NA	NA	NA	NA
	60-65	NA	NA	NA	NA	NA	NA	NA	NA
	65+	NA	NA	NA	NA	NA	NA	NA	NA

Table C.4: *Year 2045 Sheboygan Area Transportation Plan (SATP)*: Summer Weekday Average Speeds (by Speed Range and Facility Type) Within Sheboygan County: Forecast 2015, 2025, 2035 and 2045

		2015 MODEL		2025 MODEL		2035 MODEL		2045 MODEL	
		Auto	Truck	Auto	Truck	Auto	Truck	Auto	Truck
FACILITY TYPE	SPEED RANGE	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH
RURAL LOCALS	0-5	NA	NA	NA	NA	NA	NA	NA	NA
	5-10	NA	NA	NA	NA	NA	NA	NA	NA
	10-15	NA	NA	NA	NA	NA	NA	NA	NA
	15-20	NA	NA	NA	NA	NA	NA	NA	NA
	20-25	24.90	24.90	24.90	24.90	24.88	24.88	24.86	24.85
	25-30	25.00	25.00	25.00	25.00	25.00	25.00	25.00	25.00
	30-35	NA	NA	NA	NA	NA	NA	NA	NA
	35-40	NA	NA	NA	NA	NA	NA	NA	NA
	40-45	NA	NA	NA	NA	NA	NA	NA	NA
	45-50	NA	NA	NA	NA	NA	NA	NA	NA
	50-55	NA	NA	NA	NA	NA	NA	NA	NA
	55-60	NA	NA	NA	NA	NA	NA	NA	NA
	60-65	NA	NA	NA	NA	NA	NA	NA	NA
	65+	NA	NA	NA	NA	NA	NA	NA	NA

Source: Wisconsin Department of Transportation, 2015; Wisconsin Department of Natural Resources, 2015; and Bay-Lake Regional Planning Commission, 2015.

Table C.5 presents the attendant volatile organic compound emissions. The forecasts are presented for the years 2015, 2025, 2035 and 2045 for all of Sheboygan County. In addition, Table C.5 presents the 2015 motor vehicle emissions budget for volatile organic compounds incorporated in the "*State of Wisconsin's 2015 Transportation Conformity Budgets for the Kenosha and Sheboygan County 2008 8-Hour Ozone Nonattainment Areas*." The transportation system volatile organic compound emissions under the transportation system plan and transportation improvement program, when analyzed for all of Sheboygan County, are less than the motor vehicle emissions budget for volatile organic compounds in the "*State of Wisconsin's 2015 Transportation Conformity Budgets for the Kenosha and Sheboygan County 2008 8-Hour Ozone Nonattainment Areas*," thus meeting this criterion for consistency.

Table C.5: Forecast Volatile Organic Compound Emissions from the Transportation System in Sheboygan County Under the *Year 2045 SATP/2015 – 2018 TIP* and the State Implementation Plan for Air Quality: 2015, 2025, 2035 and 2045 (On a Hot Summer Weekday) Using MOVES 2014

	Sheboygan County	
Year	State Implementation Plan (tons)*	Year 2045 SATP (tons)
2015	1.9720	1.6770
2025	1.9720	0.7423
2035	1.9720	0.4501
2045	1.9720	0.4337

*The State Implementation Plan budget for volatile organic compounds is 1.9720 tons for 2015.
Source: Wisconsin Department of Natural Resources, 2015; and Bay-Lake Regional Planning Commission, 2015.

Table C.6 presents the forecast nitrogen oxide emissions. The forecasts are presented for the years 2015, 2025, 2035 and 2045 for all of Sheboygan County. In addition, Table C.6 presents

the 2015 motor vehicle emissions budget for nitrogen oxides incorporated in the "*State of Wisconsin's 2015 Transportation Conformity Budgets for the Kenosha and Sheboygan County 2008 8-Hour Ozone Nonattainment Areas*." The transportation system nitrogen oxide emissions under the transportation system plan and transportation improvement program, when analyzed for all of Sheboygan County, are less than the motor vehicle emissions budget for nitrogen oxides included in the "*State of Wisconsin's 2015 Transportation Conformity Budgets for the Kenosha and Sheboygan County 2008 8-Hour Ozone Nonattainment Areas,*" thus meeting this criterion for consistency. This analysis assumes the same VMT and socioeconomic growth rates over the planning period as those which were assumed in the test for volatile organic compounds.

Table C.6: Forecast Nitrogen Oxide Emissions from the Transportation System in Sheboygan County Under the *Year 2045 SATP/2015 – 2018 TIP* and the State Implementation Plan for Air Quality: 2015, 2025, 2035 and 2045 (On a Hot Summer Weekday) Using MOVES 2014

	Sheboygan County	
Year	State Implementation Plan (tons)*	Year 2045 SATP (tons)
2015	4.4350	3.6967
2025	4.4350	1.3222
2035	4.4350	0.8568
2045	4.4350	0.9038

*The State Implementation Plan budget for nitrogen oxides is 4.4350 tons for 2015.
Source: Wisconsin Department of Natural Resources, 2015; and Bay-Lake Regional Planning Commission, 2015.

The transportation plan, the transportation improvement program and the travel simulation modeling analysis of attendant emissions fully meet the requirements for transportation plans and programs established in the July 1, 2004, *Federal Register* (40 CFR 93.122). The transportation plan includes all additions to the transportation system. All additions of arterial and collector street and highway system capacity, including widening of arterial and collector streets to provide additional traffic lanes and construction of new facilities, are incorporated in the plan.

The travel simulation modeling conducted under this conformity analysis is fully consistent with the travel simulation modeling conducted for the preparation of the *Year 2045 Sheboygan Area Transportation Plan (SATP)*. The travel simulation modeling for the conformity determination is sensitive to the added capacity and service provided by each arterial and collector expansion or improvement, accurately reflecting its potential effect through changes in travel time and attendant route choice, mode choice, travel patterns and trip generation. The *Year 2045 SATP* and its treatment in the travel simulation modeling analysis goes beyond the federally required consideration of federally defined regionally significant projects (principal arterial routes and transit fixed guideways) in that it includes all arterial and collector facilities within Sheboygan County (including the Sheboygan metropolitan planning area). In addition, the *Year 2045 SATP* is consistent with the approved growth plans and boundaries for the metropolitan planning area, which in turn are consistent with adopted local land use plans. The *Year 2045 SATP* was designed to serve and promote implementation of current and emerging land use plans for communities within the Sheboygan metropolitan planning area.

The *Year 2045 SATP* and the *2015 – 2018 TIP* are fiscally constrained pursuant to U.S. Department of Transportation metropolitan planning regulations (23 CFR 450). The total costs of the *Year 2045 SATP* and of the *2015 – 2018 TIP*, including both capital and operating costs, were estimated and compared to existing available Federal, State and local funding levels; no

funding shortfalls were identified. In addition, per updated metropolitan planning regulations revised in response to the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU), and maintained in the Moving Ahead for Progress in the 21st Century Act (MAP-21), "year of expenditure" (inflation adjusted) costs and revenues (where applicable) were used in preparing the financial plan components of the *Year 2045 SATP* and the *2015 – 2018 TIP*. This financial analysis of the *Year 2045 SATP* and of the *2015 – 2018 TIP* was coordinated with, and is consistent with, the statewide transportation system plan (*Connections 2030*), as well as with other modal state transportation plans are they have been developed.

The procedures for estimating the regional transportation plan and transportation improvement program emissions also fully meet the requirements established in the July 1, 2004, *Federal Register* (40 CFR 93.122). Specifically, the travel simulation modeling analysis for this conformity determination incorporates in the analysis all planned street and highway capacity improvements and expansion for all arterial and collector facilities. The travel simulation modeling analysis does not assume emission reductions for any transportation control measures or control programs external to the transportation system, such as changes to motor fuel volatility or vehicle inspection and maintenance programs, except with respect to such programs incorporated in the State Implementation Plan.

In addition, Federal requirements for determination of conformity after January 1, 1997, have been met under this conformity determination. The travel and traffic simulation models used to estimate the transportation plan air pollutant emissions are network-based models. The models represent current professional practice, and were approved by the Sheboygan MPO Technical and Policy Advisory Committees, which include representatives from Federal, State and local governments. The model estimation of trip generation is dependent on population, number of households, employment (including employment in the trade and service sectors, as well as all other employment), and school enrollment. Projections for these independent variables were developed as part of this planning effort, and are consistent with similar projections developed by State agencies in their planning processes, where such State-level projections exist.

This conformity analysis indicates that the *Year 2045 SATP* and the *2015 – 2018 TIP* are consistent with the mobile sector goals of the "*State of Wisconsin's 2015 Transportation Conformity Budgets for the Kenosha and Sheboygan County 2008 8-Hour Ozone Nonattainment Areas*" prepared by the Wisconsin Department of Natural Resources and found adequate by the U.S. Environmental Protection Agency.

Off-Model Emission Reduction Benefits Incorporated in this Analysis

This conformity assessment incorporates emission reduction benefits from averted vehicle miles of travel (VMT) that occurred through implementation of the Sheboygan County Non-Motorized Transportation Pilot Program (NMTPP) from 2011 to 2015. One of the projects completed under the Sheboygan County NMTPP also utilized Congestion Mitigation and Air Quality (CMAQ) program funding awarded in 2010; that project involved the "rails to trails" conversion of the Union Pacific rail corridor to a non-motorized trail through the heart of the City of Sheboygan (otherwise known as the Shoreline 400 Rail Trail). Sheboygan County (and its Planning and Conservation Department), as well as some local governments, were the sponsors of these projects. These projects are assumed to continue to operate over the planning period covered by the *Year 2045 SATP*.

Table C.7 indicates the projected emission reduction benefits (in pounds and U.S. tons) from

averted VMT that occurred through implementation of the Sheboygan County NMTPP from 2011 to 2015. Detailed information on how these estimates were derived is available from the Bay-Lake Regional Planning Commission, and is consistent with information supplied by the Wisconsin Department of Natural Resources, the Sheboygan County Planning and Conservation Department, and the Volpe National Transportation Systems Center (which prepared reports measuring the impacts of the NMTPP in the four jurisdictions that received NMTPP funding). Table C.7 indicates that the averted VMT that occurred through implementation of the Sheboygan County NMTPP from 2011 to 2015 produce small volatile organic compound (VOC) and nitrogen oxide (NOx) emission reduction benefits.

It should be noted that even without these off-model emission reduction benefits, implementation of all other plan and TIP elements remains in conformity with the "*State of Wisconsin's 2015 Transportation Conformity Budgets for the Kenosha and Sheboygan County 2008 8-Hour Ozone Nonattainment Areas*" for all years of analysis.

This conformity update indicates that the *Year 2045 SATP* and its implementing *2015 – 2018 TIP*, and in particular their capacity adding street and highway projects and averted VMT that occurred through implementation of the Sheboygan County NMTPP from 2011 to 2015, are consistent with the mobile sector goals of the State of Wisconsin Implementation Plan for Air Quality as they apply to Sheboygan County.

Table C.7: Off-Model Transportation Improvement Projects with Attendant Pollution Emission Reductions: 2015, 2025, 2035 and 2045 (On a Hot Summer Weekday)

SPONSOR	TITLE OF PROJECT	REDUCTION IN VOC EMISSIONS (POUNDS PER DAY)				REDUCTION in NOx EMISSIONS (POUNDS PER DAY)			
		2015	2025	2035	2045	2015	2025	2035	2045
Sheboygan County Planning and Conservation Department (and Other Various Local Sponsors)	Averted Vehicle Miles of Travel (VMT) Through Implementation of the Sheboygan County Non-Motorized Transportation Pilot Program (NMTPP) from 2011 to 2015	0.3970	0.1233	0.0678	0.0662	1.0879	0.2083	0.0655	0.0541
TOTAL OFF-MODEL EMISSION REDUCTIONS (TONS)		0.000198	0.000062	0.000034	0.000033	0.000544	0.000104	0.000033	0.000027

Note: Assumptions made in developing these emissions reductions estimates are on file at the Bay-Lake Regional Planning Commission.

Source: Wisconsin Department of Natural Resources, 2015; and Bay-Lake Regional Planning Commission, 2015.

CONSISTENCY OF THE *2015 – 2018 TIP* WITH THE *YEAR 2045 SATP*

The same non-exempt projects appear in the *2015 – 2018 TIP* as those which appear in the *Year 2045 SATP* for the 2015 implementation period and for the early portion of the 2016 – 2025 implementation period. Non-exempt projects recommended in the *2015 – 2018 TIP* are identical in project scope to those in the *Year 2045 SATP*. In addition, the schedule of project implementation for the *2015 – 2018 TIP* is identical to that of the *Year 2045 SATP*.

The transportation plan projects which are not exempt from regional emissions analysis are identified in the implementation timetable for those projects found in Table 7.1 of the *Year 2045 SATP*. The transportation improvement program projects which are not exempt from regional emissions analysis are marked as "Non-Exempt" in Table 6 of the *2015 – 2018 TIP*.

The *2015 – 2018 TIP* is consistent with the *Year 2045 SATP*. The *2015 – 2018 TIP* is therefore an accurate subset of the *Year 2045 SATP* (i.e.: includes the identical projects being implemented

on the identical implementation schedule of the *Year 2045 SATP*), and consequently, the regional emissions analysis for the *Year 2045 SATP* has also been utilized to demonstrate conformity of the *2015 – 2018 TIP* to the Wisconsin State Implementation Plan for Air Quality.

STATUS REPORT ON AIR QUALITY CLASSIFICATION STATUS

On May 21, 2012, USEPA designated Sheboygan County a marginal nonattainment area for ground-level ozone under the 2008 eight-hour standard for that pollutant. The effective date for that designation was July 20, 2012. Sheboygan County also remains a moderate nonattainment area for the 1997 eight-hour ozone standard.

In September 2009, the Wisconsin Department of Natural Resources prepared an "8-Hour Ozone Redesignation Request and Maintenance Plan for the Sheboygan County Subpart-2 Moderate Nonattainment Area," which was submitted to USEPA. Several other Wisconsin counties were included in this redesignation request, including Manitowoc and Door counties, as well as six counties in southeastern Wisconsin. On April 26, 2010, USEPA published in the *Federal Register* that it had determined that the motor vehicle emissions budgets in this State Implementation Plan (SIP) element were adequate for transportation conformity determinations; this finding took effect on May 21, 2010.

The "8-Hour Ozone Redesignation Request and Maintenance Plan" was approved for all counties except Sheboygan County (in addition, the eastern portion of Kenosha County was included in the Chicago multistate nonattainment area). Unfortunately, Sheboygan County continued to have high ozone readings at its monitor near Lake Michigan, which kept the county in nonattainment.

In 2014, the Wisconsin Department of Natural Resources prepared the latest SIP element applicable to Sheboygan County. This document was titled *The State of Wisconsin's 2015 Transportation Conformity Budgets for the Kenosha and Sheboygan County 2008 8-Hour Ozone Nonattainment Areas: A CAA-required State Implementation Plan addressing the 2008 8-Hour Ozone National Ambient Air Quality Standard*. A public hearing on this SIP element was held in December 2014, and the public comment period on this SIP element ran through mid January of 2015. This SIP element was submitted to USEPA for adequacy review in early 2015, and the conformity budgets in the SIP element were determined to be adequate in April of 2015.

Recognizing that ozone concentrations are a problem that primarily impacts the Lake Michigan shoreline, the Wisconsin Department of Natural Resources has been working with local officials and with the USEPA to attempt to decrease the size of the nonattainment area from the entire county to eastern Sheboygan County. On June 27, 2013, the Wisconsin Department of Natural Resources asked USEPA Region 5 to adjust the Sheboygan County nonattainment boundary to a narrow strip of land adjacent to Lake Michigan. The Wisconsin Department of Natural Resources supplemented this boundary refinement request with technical information on January 22, 2014. *The State of Wisconsin's 2015 Transportation Conformity Budgets for the Kenosha and Sheboygan County 2008 8-Hour Ozone Nonattainment Areas* includes smaller emission budgets for a proposed smaller nonattainment area in eastern Sheboygan County in the event that such a redesignation were to take place. The Wisconsin Department of Natural Resources also has placed a temporary air monitor between Sheboygan and Howards Grove to attempt to measure the effect that proximity to Lake Michigan has on ozone levels in warm weather. It is unclear if or when USEPA will act on this proposal.

In late 2014, USEPA proposed a revision to the National Ambient Air Quality Standard

(NAAQS) for ozone. This proposal was published in the December 17, 2014, *Federal Register*. The Wisconsin Department of Natural Resources submitted comments on the proposal to USEPA in a letter dated March 17, 2015. It is fairly obvious that Sheboygan County (or a proposed smaller nonattainment area within the county) will remain nonattainment under the proposal, regardless of where the standard is set. If one of the smaller nonattainment thresholds were to end up as the standard (60 or 65 parts per billion), a significant number of Wisconsin counties could go into nonattainment status. The WDNR also commented that substantial public and private resources would be expended on attempting to return to attainment status if too low a standard is established. The WDNR also commented on how it would be impractical in Wisconsin to start the ozone monitoring season as early as March 1, and how there is a need to improve Federal policy to address regional transport of ozone and its precursors, which impact Wisconsin a great deal. The WDNR also submitted several other comments to USEPA in this letter, many of which are too technical to be discussed in brevity in this report.

Jeff Agee-Aguayo

From: Bovee, Christopher P - DNR [Christopher.Bovee@wisconsin.gov]
Sent: Thursday, April 09, 2015 9:44 AM
To: Jeff Agee-Aguayo
Cc: Friedlander, Michael - DNR
Subject: MOVES modeling results for Sheboygan Conformity
Attachments: MOVES Modeling Results.docx

Hi Jeff,

The attached MS Word document provides the MOVES2014 modeling results for the Sheboygan County conformity analysis. These modeling runs utilize the vehicle-miles of travel and average speed data you provided to me on March 12 and 13, 2015.

The total emissions are shown at the end of each of the first four tables (Tables 1-a through 1-d). These results are:

OXIDES OF NITROGEN (NOX)
- 2015: 3.6972 tons per summer weekday
- 2025: 1.3223 tons per summer weekday
- 2035: 0.8568 tons per summer weekday
- 2045: 0.9038 tons per summer weekday

VOLATILE ORGANIC COMPOUNDS (VOC)
- 2015: 1.6772 tons per summer weekday
- 2025: 0.7424 tons per summer weekday
- 2035: 0.4501 tons per summer weekday
- 2045: 0.4337 tons per summer weekday

The format of the modeling results are quite different from those I provided to you in the past. The previous results were from the U.S. EPA's MOBILE series of models, whereas these current results are from the U.S. EPA's updated MOVES model. Providing grams per mile emission factors for the average speeds you provided, as was done for the MOBILE models, would not be feasible for MOVES. MOVES uses speed distributions rather than a single speed and MOVES computes separate emission factors for running exhaust emissions, start emissions and various types of evaporative emissions.

Later today or tomorrow morning, I'll provide you emission factors that could be used for the bike/ped project. These factors will be derived from emission and vehicle-miles of travel values in the attached document.

If you have any questions or need additional information, please let me know.

Chris

We are committed to service excellence.
Visit our survey at http://dnr.wi.gov/customersurvey to evaluate how I did.

Christopher P. Bovée
Mobile Source Emissions Modeler – Bureau of Air Management
Wisconsin Department of Natural Resources
Phone: (608) 266-5542
Fax: (608) 267-0560
christopher.bovee@wisconsin.gov

MOVES2014 MODELING RESULTS

ONROAD MOBILE SOURCE
HOT SUMMER WEEKDAY EMISSIONS
OF THE POLLUTANTS:
OXIDES OF NITROGEN (NOX)
AND VOLATILE ORGANIC COMPOUNDS (VOC);
AND VEHICLE-MILES OF TRAVEL (VMT) AND VEHICLE POPULATION OUTPUTS
FROM THE USEPA'S MOVES2014 MODEL
FOR SHEBOYGAN COUNTY
FOR THE YEARS 2015, 2025, 2035 and 2045

Wisconsin Department of Natural Resources
April 9, 2015

NOTE: The complete set of inputs to and outputs from the MOVES2014 modeling runs are too lengthy to include in this document. However, electronic copies of the complete set of modeling files can be obtained from the Wisconsin Department of Natural Resources by email at christopher.bovee@wisconsin.gov or by phone at (608) 266-5542.

The files will include:

- MOVES2014 Run Specifications
- MOVES2014 Input Files
- MOVES2014 Summary Reports (of emissions and vehicle-miles of travel)
- The MySQL Input and Output Databases for the MOVES2014 modeling runs

Table 1-a: 2015 NOX and VOC Emissions: tons per summer weekday (tpswd)

Source Type	Fuel Type	Road Type	Sheboygan Whole County Nonattainment Area – Year 2015			
			NOx Emissions (tpswd)	VOC Emissions (tpswd)		
			Total	Exhaust	Evaporative	Total
Motorcycle	Gasoline	Off-Network	0.0001	0.0006	0.0371	0.0377
Motorcycle	Gasoline	Rural Restricted	0.0028	0.0025	0.0012	0.0036
Motorcycle	Gasoline	Rural Unrestricted	0.0067	0.0074	0.0051	0.0124
Motorcycle	Gasoline	Urban Restricted	0.0026	0.0023	0.0012	0.0036
Motorcycle	Gasoline	Urban Unrestricted	0.0021	0.0027	0.0019	0.0046
Passenger Car	Gasoline	Off-Network	0.2086	0.2299	0.2950	0.5249
Passenger Car	Gasoline	Rural Restricted	0.1122	0.0212	0.0066	0.0278
Passenger Car	Gasoline	Rural Unrestricted	0.1759	0.0377	0.0211	0.0589
Passenger Car	Gasoline	Urban Restricted	0.1094	0.0214	0.0083	0.0297
Passenger Car	Gasoline	Urban Unrestricted	0.0794	0.0181	0.0108	0.0289
Passenger Car	Diesel	Off-Network	0.0010	0.0016	0.0000	0.0016
Passenger Car	Diesel	Rural Restricted	0.0006	0.0002	0.0000	0.0002
Passenger Car	Diesel	Rural Unrestricted	0.0010	0.0004	0.0000	0.0004
Passenger Car	Diesel	Urban Restricted	0.0006	0.0002	0.0000	0.0002
Passenger Car	Diesel	Urban Unrestricted	0.0004	0.0002	0.0000	0.0002
Passenger Car	Ethanol (E-85)	Off-Network	0.0001	0.0001	0.0000	0.0001
Passenger Car	Ethanol (E-85)	Rural Restricted	0.0000	0.0000	0.0000	0.0000
Passenger Car	Ethanol (E-85)	Rural Unrestricted	0.0000	0.0000	0.0000	0.0000
Passenger Car	Ethanol (E-85)	Urban Restricted	0.0000	0.0000	0.0000	0.0000
Passenger Car	Ethanol (E-85)	Urban Unrestricted	0.0000	0.0000	0.0000	0.0000
Passenger Truck	Gasoline	Off-Network	0.1976	0.2213	0.1320	0.3532
Passenger Truck	Gasoline	Rural Restricted	0.1466	0.0258	0.0033	0.0290
Passenger Truck	Gasoline	Rural Unrestricted	0.2331	0.0465	0.0122	0.0587
Passenger Truck	Gasoline	Urban Restricted	0.1237	0.0222	0.0037	0.0259
Passenger Truck	Gasoline	Urban Unrestricted	0.0843	0.0182	0.0050	0.0232
Passenger Truck	Diesel	Off-Network	0.0041	0.0020	0.0000	0.0020
Passenger Truck	Diesel	Rural Restricted	0.0066	0.0009	0.0000	0.0009
Passenger Truck	Diesel	Rural Unrestricted	0.0151	0.0026	0.0000	0.0026
Passenger Truck	Diesel	Urban Restricted	0.0062	0.0010	0.0000	0.0010
Passenger Truck	Diesel	Urban Unrestricted	0.0058	0.0010	0.0000	0.0010
Passenger Truck	Ethanol (E-85)	Off-Network	0.0001	0.0001	0.0000	0.0001
Passenger Truck	Ethanol (E-85)	Rural Restricted	0.0001	0.0000	0.0000	0.0000
Passenger Truck	Ethanol (E-85)	Rural Unrestricted	0.0002	0.0000	0.0000	0.0000
Passenger Truck	Ethanol (E-85)	Urban Restricted	0.0001	0.0000	0.0000	0.0000
Passenger Truck	Ethanol (E-85)	Urban Unrestricted	0.0001	0.0000	0.0000	0.0000
Light Commercial Truck	Gasoline	Off-Network	0.0826	0.1005	0.0534	0.1540
Light Commercial Truck	Gasoline	Rural Restricted	0.0522	0.0106	0.0015	0.0121
Light Commercial Truck	Gasoline	Rural Unrestricted	0.0925	0.0236	0.0055	0.0292
Light Commercial Truck	Gasoline	Urban Restricted	0.0451	0.0096	0.0017	0.0113
Light Commercial Truck	Gasoline	Urban Unrestricted	0.0333	0.0094	0.0023	0.0117
Light Commercial Truck	Diesel	Off-Network	0.0037	0.0027	0.0000	0.0027
Light Commercial Truck	Diesel	Rural Restricted	0.0060	0.0011	0.0000	0.0011
Light Commercial Truck	Diesel	Rural Unrestricted	0.0140	0.0030	0.0000	0.0030
Light Commercial Truck	Diesel	Urban Restricted	0.0056	0.0011	0.0000	0.0011
Light Commercial Truck	Diesel	Urban Unrestricted	0.0053	0.0012	0.0000	0.0012
Light Commercial Truck	Ethanol (E-85)	Off-Network	0.0000	0.0000	0.0000	0.0000
Light Commercial Truck	Ethanol (E-85)	Rural Restricted	0.0000	0.0000	0.0000	0.0000
Light Commercial Truck	Ethanol (E-85)	Rural Unrestricted	0.0000	0.0000	0.0000	0.0000
Light Commercial Truck	Ethanol (E-85)	Urban Restricted	0.0000	0.0000	0.0000	0.0000
Light Commercial Truck	Ethanol (E-85)	Urban Unrestricted	0.0000	0.0000	0.0000	0.0000
Intercity Bus	Diesel	Off-Network	0.0000	0.0000	0.0000	0.0000
Intercity Bus	Diesel	Rural Restricted	0.0029	0.0001	0.0000	0.0001
Intercity Bus	Diesel	Rural Unrestricted	0.0046	0.0003	0.0000	0.0003
Intercity Bus	Diesel	Urban Restricted	0.0034	0.0002	0.0000	0.0002
Intercity Bus	Diesel	Urban Unrestricted	0.0024	0.0002	0.0000	0.0002

Source Type	Fuel Type	Road Type	Sheboygan Whole County Nonattainment Area – Year 2015			
			NOx Emissions (tpswd)	VOC Emissions (tpswd)		
			Total	Exhaust	Evaporative	Total
Transit Bus	Gasoline	Off-Network	0.0000	0.0000	0.0000	0.0000
Transit Bus	Gasoline	Rural Restricted	0.0000	0.0000	0.0000	0.0000
Transit Bus	Gasoline	Rural Unrestricted	0.0000	0.0000	0.0000	0.0000
Transit Bus	Gasoline	Urban Restricted	0.0000	0.0000	0.0000	0.0000
Transit Bus	Gasoline	Urban Unrestricted	0.0000	0.0000	0.0000	0.0000
Transit Bus	Diesel	Off-Network	0.0000	0.0000	0.0000	0.0000
Transit Bus	Diesel	Rural Restricted	0.0047	0.0003	0.0000	0.0003
Transit Bus	Diesel	Rural Unrestricted	0.0058	0.0004	0.0000	0.0004
Transit Bus	Diesel	Urban Restricted	0.0055	0.0004	0.0000	0.0004
Transit Bus	Diesel	Urban Unrestricted	0.0029	0.0002	0.0000	0.0002
Transit Bus	CNG	Off-Network	0.0000	0.0000	0.0000	0.0000
Transit Bus	CNG	Rural Restricted	0.0004	0.0000	0.0000	0.0000
Transit Bus	CNG	Rural Unrestricted	0.0005	0.0001	0.0000	0.0001
Transit Bus	CNG	Urban Restricted	0.0005	0.0001	0.0000	0.0001
Transit Bus	CNG	Urban Unrestricted	0.0002	0.0001	0.0000	0.0001
School Bus	Gasoline	Off-Network	0.0000	0.0000	0.0000	0.0001
School Bus	Gasoline	Rural Restricted	0.0000	0.0000	0.0000	0.0000
School Bus	Gasoline	Rural Unrestricted	0.0000	0.0000	0.0000	0.0000
School Bus	Gasoline	Urban Restricted	0.0001	0.0000	0.0000	0.0000
School Bus	Gasoline	Urban Unrestricted	0.0000	0.0000	0.0000	0.0000
School Bus	Diesel	Off-Network	0.0000	0.0000	0.0000	0.0000
School Bus	Diesel	Rural Restricted	0.0059	0.0006	0.0000	0.0006
School Bus	Diesel	Rural Unrestricted	0.0073	0.0012	0.0000	0.0012
School Bus	Diesel	Urban Restricted	0.0068	0.0009	0.0000	0.0009
School Bus	Diesel	Urban Unrestricted	0.0038	0.0007	0.0000	0.0007
Refuse Truck	Gasoline	Off-Network	0.0001	0.0001	0.0000	0.0001
Refuse Truck	Gasoline	Rural Restricted	0.0002	0.0000	0.0000	0.0000
Refuse Truck	Gasoline	Rural Unrestricted	0.0002	0.0000	0.0000	0.0001
Refuse Truck	Gasoline	Urban Restricted	0.0001	0.0000	0.0000	0.0000
Refuse Truck	Gasoline	Urban Unrestricted	0.0001	0.0000	0.0000	0.0000
Refuse Truck	Diesel	Off-Network	0.0000	0.0000	0.0000	0.0000
Refuse Truck	Diesel	Rural Restricted	0.0090	0.0004	0.0000	0.0004
Refuse Truck	Diesel	Rural Unrestricted	0.0084	0.0005	0.0000	0.0005
Refuse Truck	Diesel	Urban Restricted	0.0070	0.0003	0.0000	0.0003
Refuse Truck	Diesel	Urban Unrestricted	0.0030	0.0002	0.0000	0.0002
Single Unit Short-haul Truck	Gasoline	Off-Network	0.0124	0.0119	0.0106	0.0225
Single Unit Short-haul Truck	Gasoline	Rural Restricted	0.0114	0.0018	0.0002	0.0020
Single Unit Short-haul Truck	Gasoline	Rural Unrestricted	0.0172	0.0040	0.0005	0.0045
Single Unit Short-haul Truck	Gasoline	Urban Restricted	0.0137	0.0024	0.0002	0.0026
Single Unit Short-haul Truck	Gasoline	Urban Unrestricted	0.0073	0.0020	0.0002	0.0023
Single Unit Short-haul Truck	Diesel	Off-Network	0.0046	0.0003	0.0000	0.0003
Single Unit Short-haul Truck	Diesel	Rural Restricted	0.0411	0.0042	0.0000	0.0042
Single Unit Short-haul Truck	Diesel	Rural Unrestricted	0.0662	0.0098	0.0000	0.0098
Single Unit Short-haul Truck	Diesel	Urban Restricted	0.0470	0.0056	0.0000	0.0056
Single Unit Short-haul Truck	Diesel	Urban Unrestricted	0.0306	0.0046	0.0000	0.0046
Single Unit Long-haul Truck	Gasoline	Off-Network	0.0003	0.0004	0.0004	0.0007
Single Unit Long-haul Truck	Gasoline	Rural Restricted	0.0003	0.0001	0.0000	0.0001
Single Unit Long-haul Truck	Gasoline	Rural Unrestricted	0.0005	0.0001	0.0000	0.0002
Single Unit Long-haul Truck	Gasoline	Urban Restricted	0.0004	0.0001	0.0000	0.0001
Single Unit Long-haul Truck	Gasoline	Urban Unrestricted	0.0002	0.0001	0.0000	0.0001
Single Unit Long-haul Truck	Diesel	Off-Network	0.0001	0.0000	0.0000	0.0000
Single Unit Long-haul Truck	Diesel	Rural Restricted	0.0024	0.0003	0.0000	0.0003
Single Unit Long-haul Truck	Diesel	Rural Unrestricted	0.0041	0.0007	0.0000	0.0007
Single Unit Long-haul Truck	Diesel	Urban Restricted	0.0028	0.0004	0.0000	0.0004
Single Unit Long-haul Truck	Diesel	Urban Unrestricted	0.0019	0.0003	0.0000	0.0003
Motor Home	Gasoline	Off-Network	0.0007	0.0009	0.0029	0.0038
Motor Home	Gasoline	Rural Restricted	0.0012	0.0003	0.0000	0.0003
Motor Home	Gasoline	Rural Unrestricted	0.0021	0.0006	0.0001	0.0007
Motor Home	Gasoline	Urban Restricted	0.0017	0.0004	0.0000	0.0004
Motor Home	Gasoline	Urban Unrestricted	0.0010	0.0004	0.0000	0.0004
Motor Home	Diesel	Off-Network	0.0001	0.0000	0.0000	0.0000
Motor Home	Diesel	Rural Restricted	0.0010	0.0001	0.0000	0.0001
Motor Home	Diesel	Rural Unrestricted	0.0018	0.0003	0.0000	0.0003
Motor Home	Diesel	Urban Restricted	0.0014	0.0002	0.0000	0.0002

Source Type	Fuel Type	Road Type	Sheboygan Whole County Nonattainment Area – Year 2015			
			NOx Emissions (tpswd)	VOC Emissions (tpswd)		
			Total	Exhaust	Evaporative	Total
Motor Home	Diesel	Urban Unrestricted	0.0010	0.0002	0.0000	0.0002
Combination Short-haul Truck	Gasoline	Off-Network	0.0000	0.0000	0.0000	0.0000
Combination Short-haul Truck	Gasoline	Rural Restricted	0.0000	0.0000	0.0000	0.0000
Combination Short-haul Truck	Gasoline	Rural Unrestricted	0.0000	0.0000	0.0000	0.0000
Combination Short-haul Truck	Gasoline	Urban Restricted	0.0000	0.0000	0.0000	0.0000
Combination Short-haul Truck	Gasoline	Urban Unrestricted	0.0000	0.0000	0.0000	0.0000
Combination Short-haul Truck	Diesel	Off-Network	0.0000	0.0001	0.0000	0.0001
Combination Short-haul Truck	Diesel	Rural Restricted	0.0790	0.0031	0.0000	0.0031
Combination Short-haul Truck	Diesel	Rural Unrestricted	0.0738	0.0043	0.0000	0.0043
Combination Short-haul Truck	Diesel	Urban Restricted	0.0616	0.0029	0.0000	0.0029
Combination Short-haul Truck	Diesel	Urban Unrestricted	0.0258	0.0016	0.0000	0.0016
Combination Long-haul Truck	Diesel	Off-Network	0.3920	0.0887	0.0000	0.0887
Combination Long-haul Truck	Diesel	Rural Restricted	0.2778	0.0112	0.0000	0.0112
Combination Long-haul Truck	Diesel	Rural Unrestricted	0.2559	0.0147	0.0000	0.0147
Combination Long-haul Truck	Diesel	Urban Restricted	0.2142	0.0101	0.0000	0.0101
Combination Long-haul Truck	Diesel	Urban Unrestricted	0.0868	0.0052	0.0000	0.0052
ALL	ALL	ALL	3.6972	1.0528	0.6243	1.6772
Motorcycle	ALL	ALL	0.0143	0.0155	0.0465	0.0620
Passenger Car	ALL	ALL	0.6894	0.3311	0.3418	0.6729
Passenger Truck	ALL	ALL	0.8236	0.3416	0.1562	0.4978
Light Commercial Truck	ALL	ALL	0.3405	0.1629	0.0645	0.2274
Intercity Bus	ALL	ALL	0.0132	0.0008	0.0000	0.0008
Transit Bus	ALL	ALL	0.0208	0.0016	0.0000	0.0016
School Bus	ALL	ALL	0.0240	0.0035	0.0000	0.0035
Refuse Truck	ALL	ALL	0.0279	0.0016	0.0001	0.0017
Single Unit Short-haul Truck	ALL	ALL	0.2515	0.0466	0.0117	0.0583
Single Unit Long-haul Truck	ALL	ALL	0.0132	0.0024	0.0004	0.0028
Motor Home	ALL	ALL	0.0119	0.0033	0.0031	0.0064
Combination Short-haul Truck	ALL	ALL	0.2402	0.0120	0.0000	0.0120
Combination Long-haul Truck	ALL	ALL	1.2267	0.1300	0.0000	0.1300
ALL	ALL	ALL	3.6972	1.0528	0.6243	1.6772
ALL	Gasoline	ALL	1.8622	0.8573	0.6243	1.4816
ALL	Diesel	ALL	1.8324	0.1950	0.0000	0.1950
ALL	CNG	ALL	0.0017	0.0003	0.0000	0.0003
ALL	Ethanol (E-85)	ALL	0.0009	0.0003	0.0000	0.0003
ALL	ALL	ALL	3.6972	1.0528	0.6243	1.6772
ALL	ALL	Off-Network	0.9084	0.6612	0.5315	1.1927
ALL	ALL	Rural Restricted	0.7647	0.0847	0.0127	0.0975
ALL	ALL	Rural Unrestricted	0.9868	0.1586	0.0445	0.2032
ALL	ALL	Urban Restricted	0.6596	0.0818	0.0153	0.0971
ALL	ALL	Urban Unrestricted	0.3777	0.0664	0.0203	0.0867
ALL	ALL	ALL	3.6972	1.0528	0.6243	1.6772

Table 1-b: 2025 NOX and VOC Emissions: tons per summer weekday (tpswd)

Source Type	Fuel Type	Road Type	Sheboygan Whole County Nonattainment Area – Year 2025			
			NOx Emissions (tpswd)	VOC Emissions (tpswd)		
			Total	Exhaust	Evaporative	Total
Motorcycle	Gasoline	Off-Network	0.0002	0.0008	0.0364	0.0373
Motorcycle	Gasoline	Rural Restricted	0.0030	0.0022	0.0012	0.0035
Motorcycle	Gasoline	Rural Unrestricted	0.0063	0.0060	0.0049	0.0109
Motorcycle	Gasoline	Urban Restricted	0.0031	0.0024	0.0015	0.0039
Motorcycle	Gasoline	Urban Unrestricted	0.0021	0.0023	0.0019	0.0042
Passenger Car	Gasoline	Off-Network	0.0731	0.0970	0.1561	0.2530
Passenger Car	Gasoline	Rural Restricted	0.0274	0.0055	0.0035	0.0089
Passenger Car	Gasoline	Rural Unrestricted	0.0317	0.0070	0.0101	0.0171
Passenger Car	Gasoline	Urban Restricted	0.0274	0.0057	0.0050	0.0107
Passenger Car	Gasoline	Urban Unrestricted	0.0147	0.0034	0.0054	0.0088
Passenger Car	Diesel	Off-Network	0.0006	0.0007	0.0000	0.0007
Passenger Car	Diesel	Rural Restricted	0.0003	0.0001	0.0000	0.0001
Passenger Car	Diesel	Rural Unrestricted	0.0003	0.0001	0.0000	0.0001
Passenger Car	Diesel	Urban Restricted	0.0003	0.0001	0.0000	0.0001
Passenger Car	Diesel	Urban Unrestricted	0.0002	0.0000	0.0000	0.0000
Passenger Car	Ethanol (E-85)	Off-Network	0.0007	0.0009	0.0000	0.0009
Passenger Car	Ethanol (E-85)	Rural Restricted	0.0002	0.0000	0.0000	0.0000
Passenger Car	Ethanol (E-85)	Rural Unrestricted	0.0002	0.0000	0.0000	0.0000
Passenger Car	Ethanol (E-85)	Urban Restricted	0.0002	0.0000	0.0000	0.0000
Passenger Car	Ethanol (E-85)	Urban Unrestricted	0.0001	0.0000	0.0000	0.0000
Passenger Truck	Gasoline	Off-Network	0.0662	0.0754	0.0854	0.1608
Passenger Truck	Gasoline	Rural Restricted	0.0355	0.0067	0.0023	0.0091
Passenger Truck	Gasoline	Rural Unrestricted	0.0409	0.0081	0.0078	0.0159
Passenger Truck	Gasoline	Urban Restricted	0.0309	0.0060	0.0031	0.0090
Passenger Truck	Gasoline	Urban Unrestricted	0.0155	0.0032	0.0034	0.0066
Passenger Truck	Diesel	Off-Network	0.0034	0.0007	0.0000	0.0007
Passenger Truck	Diesel	Rural Restricted	0.0024	0.0002	0.0000	0.0002
Passenger Truck	Diesel	Rural Unrestricted	0.0051	0.0006	0.0000	0.0006
Passenger Truck	Diesel	Urban Restricted	0.0025	0.0003	0.0000	0.0003
Passenger Truck	Diesel	Urban Unrestricted	0.0021	0.0002	0.0000	0.0002
Passenger Truck	Ethanol (E-85)	Off-Network	0.0019	0.0022	0.0000	0.0022
Passenger Truck	Ethanol (E-85)	Rural Restricted	0.0012	0.0002	0.0000	0.0002
Passenger Truck	Ethanol (E-85)	Rural Unrestricted	0.0012	0.0002	0.0000	0.0002
Passenger Truck	Ethanol (E-85)	Urban Restricted	0.0010	0.0002	0.0000	0.0002
Passenger Truck	Ethanol (E-85)	Urban Unrestricted	0.0005	0.0001	0.0000	0.0001
Light Commercial Truck	Gasoline	Off-Network	0.0249	0.0320	0.0251	0.0571
Light Commercial Truck	Gasoline	Rural Restricted	0.0117	0.0022	0.0007	0.0029
Light Commercial Truck	Gasoline	Rural Unrestricted	0.0156	0.0036	0.0024	0.0060
Light Commercial Truck	Gasoline	Urban Restricted	0.0105	0.0021	0.0009	0.0030
Light Commercial Truck	Gasoline	Urban Unrestricted	0.0059	0.0015	0.0010	0.0025
Light Commercial Truck	Diesel	Off-Network	0.0025	0.0010	0.0000	0.0010
Light Commercial Truck	Diesel	Rural Restricted	0.0018	0.0002	0.0000	0.0002
Light Commercial Truck	Diesel	Rural Unrestricted	0.0038	0.0006	0.0000	0.0006
Light Commercial Truck	Diesel	Urban Restricted	0.0019	0.0003	0.0000	0.0003
Light Commercial Truck	Diesel	Urban Unrestricted	0.0015	0.0002	0.0000	0.0002
Light Commercial Truck	Ethanol (E-85)	Off-Network	0.0005	0.0005	0.0000	0.0005
Light Commercial Truck	Ethanol (E-85)	Rural Restricted	0.0003	0.0000	0.0000	0.0000
Light Commercial Truck	Ethanol (E-85)	Rural Unrestricted	0.0003	0.0000	0.0000	0.0000
Light Commercial Truck	Ethanol (E-85)	Urban Restricted	0.0002	0.0000	0.0000	0.0000
Light Commercial Truck	Ethanol (E-85)	Urban Unrestricted	0.0001	0.0000	0.0000	0.0000
Intercity Bus	Diesel	Off-Network	0.0000	0.0000	0.0000	0.0000
Intercity Bus	Diesel	Rural Restricted	0.0014	0.0001	0.0000	0.0001
Intercity Bus	Diesel	Rural Unrestricted	0.0020	0.0001	0.0000	0.0001
Intercity Bus	Diesel	Urban Restricted	0.0018	0.0001	0.0000	0.0001
Intercity Bus	Diesel	Urban Unrestricted	0.0011	0.0001	0.0000	0.0001

Source Type	Fuel Type	Road Type	Sheboygan Whole County Nonattainment Area – Year 2025			
			NOx Emissions (tpswd)	VOC Emissions (tpswd)		
			Total	Exhaust	Evaporative	Total
Transit Bus	Gasoline	Off-Network	0.0000	0.0000	0.0000	0.0000
Transit Bus	Gasoline	Rural Restricted	0.0000	0.0000	0.0000	0.0000
Transit Bus	Gasoline	Rural Unrestricted	0.0000	0.0000	0.0000	0.0000
Transit Bus	Gasoline	Urban Restricted	0.0000	0.0000	0.0000	0.0000
Transit Bus	Gasoline	Urban Unrestricted	0.0000	0.0000	0.0000	0.0000
Transit Bus	Diesel	Off-Network	0.0000	0.0000	0.0000	0.0000
Transit Bus	Diesel	Rural Restricted	0.0016	0.0001	0.0000	0.0001
Transit Bus	Diesel	Rural Unrestricted	0.0018	0.0001	0.0000	0.0001
Transit Bus	Diesel	Urban Restricted	0.0022	0.0001	0.0000	0.0001
Transit Bus	Diesel	Urban Unrestricted	0.0010	0.0001	0.0000	0.0001
Transit Bus	CNG	Off-Network	0.0000	0.0000	0.0000	0.0000
Transit Bus	CNG	Rural Restricted	0.0003	0.0000	0.0000	0.0000
Transit Bus	CNG	Rural Unrestricted	0.0003	0.0000	0.0000	0.0000
Transit Bus	CNG	Urban Restricted	0.0004	0.0000	0.0000	0.0000
Transit Bus	CNG	Urban Unrestricted	0.0001	0.0000	0.0000	0.0000
School Bus	Gasoline	Off-Network	0.0000	0.0000	0.0000	0.0000
School Bus	Gasoline	Rural Restricted	0.0000	0.0000	0.0000	0.0000
School Bus	Gasoline	Rural Unrestricted	0.0000	0.0000	0.0000	0.0000
School Bus	Gasoline	Urban Restricted	0.0000	0.0000	0.0000	0.0000
School Bus	Gasoline	Urban Unrestricted	0.0000	0.0000	0.0000	0.0000
School Bus	Diesel	Off-Network	0.0000	0.0000	0.0000	0.0000
School Bus	Diesel	Rural Restricted	0.0034	0.0003	0.0000	0.0003
School Bus	Diesel	Rural Unrestricted	0.0038	0.0005	0.0000	0.0005
School Bus	Diesel	Urban Restricted	0.0045	0.0005	0.0000	0.0005
School Bus	Diesel	Urban Unrestricted	0.0021	0.0003	0.0000	0.0003
Refuse Truck	Gasoline	Off-Network	0.0000	0.0000	0.0000	0.0000
Refuse Truck	Gasoline	Rural Restricted	0.0000	0.0000	0.0000	0.0000
Refuse Truck	Gasoline	Rural Unrestricted	0.0000	0.0000	0.0000	0.0000
Refuse Truck	Gasoline	Urban Restricted	0.0000	0.0000	0.0000	0.0000
Refuse Truck	Gasoline	Urban Unrestricted	0.0000	0.0000	0.0000	0.0000
Refuse Truck	Diesel	Off-Network	0.0000	0.0000	0.0000	0.0000
Refuse Truck	Diesel	Rural Restricted	0.0024	0.0001	0.0000	0.0001
Refuse Truck	Diesel	Rural Unrestricted	0.0021	0.0001	0.0000	0.0001
Refuse Truck	Diesel	Urban Restricted	0.0022	0.0001	0.0000	0.0001
Refuse Truck	Diesel	Urban Unrestricted	0.0008	0.0000	0.0000	0.0000
Single Unit Short-haul Truck	Gasoline	Off-Network	0.0044	0.0046	0.0039	0.0086
Single Unit Short-haul Truck	Gasoline	Rural Restricted	0.0025	0.0004	0.0001	0.0005
Single Unit Short-haul Truck	Gasoline	Rural Unrestricted	0.0034	0.0009	0.0002	0.0011
Single Unit Short-haul Truck	Gasoline	Urban Restricted	0.0035	0.0007	0.0001	0.0008
Single Unit Short-haul Truck	Gasoline	Urban Unrestricted	0.0015	0.0005	0.0001	0.0006
Single Unit Short-haul Truck	Diesel	Off-Network	0.0054	0.0003	0.0000	0.0003
Single Unit Short-haul Truck	Diesel	Rural Restricted	0.0118	0.0009	0.0000	0.0009
Single Unit Short-haul Truck	Diesel	Rural Unrestricted	0.0176	0.0019	0.0000	0.0019
Single Unit Short-haul Truck	Diesel	Urban Restricted	0.0156	0.0014	0.0000	0.0014
Single Unit Short-haul Truck	Diesel	Urban Unrestricted	0.0087	0.0009	0.0000	0.0009
Single Unit Long-haul Truck	Gasoline	Off-Network	0.0001	0.0001	0.0001	0.0002
Single Unit Long-haul Truck	Gasoline	Rural Restricted	0.0000	0.0000	0.0000	0.0000
Single Unit Long-haul Truck	Gasoline	Rural Unrestricted	0.0001	0.0000	0.0000	0.0000
Single Unit Long-haul Truck	Gasoline	Urban Restricted	0.0001	0.0000	0.0000	0.0000
Single Unit Long-haul Truck	Gasoline	Urban Unrestricted	0.0000	0.0000	0.0000	0.0000
Single Unit Long-haul Truck	Diesel	Off-Network	0.0002	0.0000	0.0000	0.0000
Single Unit Long-haul Truck	Diesel	Rural Restricted	0.0009	0.0001	0.0000	0.0001
Single Unit Long-haul Truck	Diesel	Rural Unrestricted	0.0013	0.0001	0.0000	0.0001
Single Unit Long-haul Truck	Diesel	Urban Restricted	0.0012	0.0001	0.0000	0.0001
Single Unit Long-haul Truck	Diesel	Urban Unrestricted	0.0007	0.0001	0.0000	0.0001
Motor Home	Gasoline	Off-Network	0.0002	0.0003	0.0010	0.0013
Motor Home	Gasoline	Rural Restricted	0.0002	0.0000	0.0000	0.0001
Motor Home	Gasoline	Rural Unrestricted	0.0004	0.0001	0.0000	0.0001
Motor Home	Gasoline	Urban Restricted	0.0004	0.0001	0.0000	0.0001
Motor Home	Gasoline	Urban Unrestricted	0.0002	0.0001	0.0000	0.0001
Motor Home	Diesel	Off-Network	0.0001	0.0000	0.0000	0.0000
Motor Home	Diesel	Rural Restricted	0.0004	0.0000	0.0000	0.0000
Motor Home	Diesel	Rural Unrestricted	0.0007	0.0001	0.0000	0.0001
Motor Home	Diesel	Urban Restricted	0.0007	0.0001	0.0000	0.0001

Source Type	Fuel Type	Road Type	Sheboygan Whole County Nonattainment Area – Year 2025			
			NOx Emissions (tpswd)	VOC Emissions (tpswd)		
			Total	Exhaust	Evaporative	Total
Motor Home	Diesel	Urban Unrestricted	0.0004	0.0001	0.0000	0.0001
Combination Short-haul Truck	Gasoline	Off-Network	0.0000	0.0000	0.0000	0.0000
Combination Short-haul Truck	Gasoline	Rural Restricted	0.0000	0.0000	0.0000	0.0000
Combination Short-haul Truck	Gasoline	Rural Unrestricted	0.0000	0.0000	0.0000	0.0000
Combination Short-haul Truck	Gasoline	Urban Restricted	0.0000	0.0000	0.0000	0.0000
Combination Short-haul Truck	Gasoline	Urban Unrestricted	0.0000	0.0000	0.0000	0.0000
Combination Short-haul Truck	Diesel	Off-Network	0.0000	0.0001	0.0000	0.0001
Combination Short-haul Truck	Diesel	Rural Restricted	0.0246	0.0008	0.0000	0.0008
Combination Short-haul Truck	Diesel	Rural Unrestricted	0.0212	0.0011	0.0000	0.0011
Combination Short-haul Truck	Diesel	Urban Restricted	0.0218	0.0009	0.0000	0.0009
Combination Short-haul Truck	Diesel	Urban Unrestricted	0.0081	0.0004	0.0000	0.0004
Combination Long-haul Truck	Diesel	Off-Network	0.3385	0.0618	0.0000	0.0618
Combination Long-haul Truck	Diesel	Rural Restricted	0.1015	0.0036	0.0000	0.0036
Combination Long-haul Truck	Diesel	Rural Unrestricted	0.0849	0.0044	0.0000	0.0044
Combination Long-haul Truck	Diesel	Urban Restricted	0.0885	0.0038	0.0000	0.0038
Combination Long-haul Truck	Diesel	Urban Unrestricted	0.0313	0.0017	0.0000	0.0017
ALL	ALL	ALL	1.3223	0.3786	0.3637	0.7424
Motorcycle	ALL	ALL	0.0146	0.0137	0.0460	0.0597
Passenger Car	ALL	ALL	0.1776	0.1206	0.1800	0.3006
Passenger Truck	ALL	ALL	0.2104	0.1043	0.1021	0.2064
Light Commercial Truck	ALL	ALL	0.0814	0.0444	0.0301	0.0746
Intercity Bus	ALL	ALL	0.0063	0.0004	0.0000	0.0004
Transit Bus	ALL	ALL	0.0077	0.0006	0.0000	0.0006
School Bus	ALL	ALL	0.0139	0.0017	0.0000	0.0017
Refuse Truck	ALL	ALL	0.0075	0.0003	0.0000	0.0004
Single Unit Short-haul Truck	ALL	ALL	0.0744	0.0125	0.0044	0.0169
Single Unit Long-haul Truck	ALL	ALL	0.0045	0.0006	0.0001	0.0006
Motor Home	ALL	ALL	0.0037	0.0009	0.0010	0.0020
Combination Short-haul Truck	ALL	ALL	0.0757	0.0033	0.0000	0.0033
Combination Long-haul Truck	ALL	ALL	0.6446	0.0753	0.0000	0.0753
ALL	ALL	ALL	1.3223	0.3786	0.3637	0.7424
ALL	Gasoline	ALL	0.4636	0.2811	0.3637	0.6448
ALL	Diesel	ALL	0.8490	0.0928	0.0000	0.0928
ALL	CNG	ALL	0.0011	0.0001	0.0000	0.0001
ALL	Ethanol (E-85)	ALL	0.0086	0.0046	0.0000	0.0046
ALL	ALL	ALL	1.3223	0.3786	0.3637	0.7424
ALL	ALL	Off-Network	0.5228	0.2785	0.3080	0.5865
ALL	ALL	Rural Restricted	0.2350	0.0240	0.0079	0.0318
ALL	ALL	Rural Unrestricted	0.2451	0.0359	0.0254	0.0613
ALL	ALL	Urban Restricted	0.2207	0.0249	0.0107	0.0355
ALL	ALL	Urban Unrestricted	0.0987	0.0153	0.0118	0.0272
ALL	ALL	ALL	1.3223	0.3786	0.3637	0.7424

Table 1-c: 2035 NOX and VOC Emissions: tons per summer weekday (tpswd)

Source Type	Fuel Type	Road Type	Sheboygan Whole County Nonattainment Area – Year 2035			
			NOx Emissions (tpswd)	VOC Emissions (tpswd)		
			Total	Exhaust	Evaporative	Total
Motorcycle	Gasoline	Off-Network	0.0002	0.0010	0.0368	0.0378
Motorcycle	Gasoline	Rural Restricted	0.0032	0.0023	0.0013	0.0036
Motorcycle	Gasoline	Rural Unrestricted	0.0065	0.0059	0.0051	0.0110
Motorcycle	Gasoline	Urban Restricted	0.0033	0.0024	0.0016	0.0041
Motorcycle	Gasoline	Urban Unrestricted	0.0022	0.0022	0.0020	0.0042
Passenger Car	Gasoline	Off-Network	0.0338	0.0403	0.0929	0.1332
Passenger Car	Gasoline	Rural Restricted	0.0136	0.0024	0.0025	0.0048
Passenger Car	Gasoline	Rural Unrestricted	0.0103	0.0024	0.0069	0.0093
Passenger Car	Gasoline	Urban Restricted	0.0120	0.0023	0.0035	0.0058
Passenger Car	Gasoline	Urban Unrestricted	0.0045	0.0011	0.0037	0.0048
Passenger Car	Diesel	Off-Network	0.0004	0.0004	0.0000	0.0004
Passenger Car	Diesel	Rural Restricted	0.0002	0.0000	0.0000	0.0000
Passenger Car	Diesel	Rural Unrestricted	0.0001	0.0000	0.0000	0.0000
Passenger Car	Diesel	Urban Restricted	0.0002	0.0000	0.0000	0.0000
Passenger Car	Diesel	Urban Unrestricted	0.0001	0.0000	0.0000	0.0000
Passenger Car	Ethanol (E-85)	Off-Network	0.0005	0.0006	0.0000	0.0006
Passenger Car	Ethanol (E-85)	Rural Restricted	0.0002	0.0000	0.0000	0.0000
Passenger Car	Ethanol (E-85)	Rural Unrestricted	0.0001	0.0000	0.0000	0.0000
Passenger Car	Ethanol (E-85)	Urban Restricted	0.0002	0.0000	0.0000	0.0000
Passenger Car	Ethanol (E-85)	Urban Unrestricted	0.0001	0.0000	0.0000	0.0000
Passenger Truck	Gasoline	Off-Network	0.0270	0.0310	0.0620	0.0930
Passenger Truck	Gasoline	Rural Restricted	0.0160	0.0028	0.0021	0.0049
Passenger Truck	Gasoline	Rural Unrestricted	0.0136	0.0028	0.0067	0.0095
Passenger Truck	Gasoline	Urban Restricted	0.0130	0.0024	0.0027	0.0051
Passenger Truck	Gasoline	Urban Unrestricted	0.0051	0.0011	0.0029	0.0040
Passenger Truck	Diesel	Off-Network	0.0030	0.0003	0.0000	0.0003
Passenger Truck	Diesel	Rural Restricted	0.0012	0.0001	0.0000	0.0001
Passenger Truck	Diesel	Rural Unrestricted	0.0025	0.0003	0.0000	0.0003
Passenger Truck	Diesel	Urban Restricted	0.0013	0.0001	0.0000	0.0001
Passenger Truck	Diesel	Urban Unrestricted	0.0010	0.0001	0.0000	0.0001
Passenger Truck	Ethanol (E-85)	Off-Network	0.0014	0.0016	0.0000	0.0016
Passenger Truck	Ethanol (E-85)	Rural Restricted	0.0008	0.0002	0.0000	0.0002
Passenger Truck	Ethanol (E-85)	Rural Unrestricted	0.0007	0.0001	0.0000	0.0001
Passenger Truck	Ethanol (E-85)	Urban Restricted	0.0007	0.0001	0.0000	0.0001
Passenger Truck	Ethanol (E-85)	Urban Unrestricted	0.0003	0.0001	0.0000	0.0001
Light Commercial Truck	Gasoline	Off-Network	0.0084	0.0094	0.0157	0.0251
Light Commercial Truck	Gasoline	Rural Restricted	0.0043	0.0007	0.0005	0.0012
Light Commercial Truck	Gasoline	Rural Unrestricted	0.0040	0.0008	0.0017	0.0025
Light Commercial Truck	Gasoline	Urban Restricted	0.0035	0.0006	0.0007	0.0013
Light Commercial Truck	Gasoline	Urban Unrestricted	0.0015	0.0003	0.0007	0.0010
Light Commercial Truck	Diesel	Off-Network	0.0019	0.0003	0.0000	0.0003
Light Commercial Truck	Diesel	Rural Restricted	0.0007	0.0001	0.0000	0.0001
Light Commercial Truck	Diesel	Rural Unrestricted	0.0015	0.0002	0.0000	0.0002
Light Commercial Truck	Diesel	Urban Restricted	0.0008	0.0001	0.0000	0.0001
Light Commercial Truck	Diesel	Urban Unrestricted	0.0006	0.0001	0.0000	0.0001
Light Commercial Truck	Ethanol (E-85)	Off-Network	0.0004	0.0004	0.0000	0.0004
Light Commercial Truck	Ethanol (E-85)	Rural Restricted	0.0002	0.0000	0.0000	0.0000
Light Commercial Truck	Ethanol (E-85)	Rural Unrestricted	0.0002	0.0000	0.0000	0.0000
Light Commercial Truck	Ethanol (E-85)	Urban Restricted	0.0001	0.0000	0.0000	0.0000
Light Commercial Truck	Ethanol (E-85)	Urban Unrestricted	0.0001	0.0000	0.0000	0.0000
Intercity Bus	Diesel	Off-Network	0.0000	0.0000	0.0000	0.0000
Intercity Bus	Diesel	Rural Restricted	0.0005	0.0000	0.0000	0.0000
Intercity Bus	Diesel	Rural Unrestricted	0.0007	0.0000	0.0000	0.0000
Intercity Bus	Diesel	Urban Restricted	0.0006	0.0000	0.0000	0.0000
Intercity Bus	Diesel	Urban Unrestricted	0.0004	0.0000	0.0000	0.0000

Source Type	Fuel Type	Road Type	Sheboygan Whole County Nonattainment Area – Year 2035			
			NOx Emissions (tpswd)	VOC Emissions (tpswd)		
			Total	Exhaust	Evaporative	Total
Transit Bus	Gasoline	Off-Network	0.0000	0.0000	0.0000	0.0000
Transit Bus	Gasoline	Rural Restricted	0.0000	0.0000	0.0000	0.0000
Transit Bus	Gasoline	Rural Unrestricted	0.0000	0.0000	0.0000	0.0000
Transit Bus	Gasoline	Urban Restricted	0.0000	0.0000	0.0000	0.0000
Transit Bus	Gasoline	Urban Unrestricted	0.0000	0.0000	0.0000	0.0000
Transit Bus	Diesel	Off-Network	0.0000	0.0000	0.0000	0.0000
Transit Bus	Diesel	Rural Restricted	0.0007	0.0000	0.0000	0.0000
Transit Bus	Diesel	Rural Unrestricted	0.0008	0.0000	0.0000	0.0000
Transit Bus	Diesel	Urban Restricted	0.0010	0.0000	0.0000	0.0000
Transit Bus	Diesel	Urban Unrestricted	0.0004	0.0000	0.0000	0.0000
Transit Bus	CNG	Off-Network	0.0000	0.0000	0.0000	0.0000
Transit Bus	CNG	Rural Restricted	0.0002	0.0000	0.0000	0.0000
Transit Bus	CNG	Rural Unrestricted	0.0002	0.0000	0.0000	0.0000
Transit Bus	CNG	Urban Restricted	0.0003	0.0000	0.0000	0.0000
Transit Bus	CNG	Urban Unrestricted	0.0001	0.0000	0.0000	0.0000
School Bus	Gasoline	Off-Network	0.0000	0.0000	0.0000	0.0000
School Bus	Gasoline	Rural Restricted	0.0000	0.0000	0.0000	0.0000
School Bus	Gasoline	Rural Unrestricted	0.0000	0.0000	0.0000	0.0000
School Bus	Gasoline	Urban Restricted	0.0000	0.0000	0.0000	0.0000
School Bus	Gasoline	Urban Unrestricted	0.0000	0.0000	0.0000	0.0000
School Bus	Diesel	Off-Network	0.0000	0.0000	0.0000	0.0000
School Bus	Diesel	Rural Restricted	0.0017	0.0001	0.0000	0.0001
School Bus	Diesel	Rural Unrestricted	0.0019	0.0001	0.0000	0.0001
School Bus	Diesel	Urban Restricted	0.0024	0.0001	0.0000	0.0001
School Bus	Diesel	Urban Unrestricted	0.0011	0.0001	0.0000	0.0001
Refuse Truck	Gasoline	Off-Network	0.0000	0.0000	0.0000	0.0000
Refuse Truck	Gasoline	Rural Restricted	0.0000	0.0000	0.0000	0.0000
Refuse Truck	Gasoline	Rural Unrestricted	0.0000	0.0000	0.0000	0.0000
Refuse Truck	Gasoline	Urban Restricted	0.0000	0.0000	0.0000	0.0000
Refuse Truck	Gasoline	Urban Unrestricted	0.0000	0.0000	0.0000	0.0000
Refuse Truck	Diesel	Off-Network	0.0000	0.0000	0.0000	0.0000
Refuse Truck	Diesel	Rural Restricted	0.0017	0.0000	0.0000	0.0000
Refuse Truck	Diesel	Rural Unrestricted	0.0015	0.0001	0.0000	0.0001
Refuse Truck	Diesel	Urban Restricted	0.0016	0.0001	0.0000	0.0001
Refuse Truck	Diesel	Urban Unrestricted	0.0006	0.0000	0.0000	0.0000
Single Unit Short-haul Truck	Gasoline	Off-Network	0.0014	0.0020	0.0024	0.0044
Single Unit Short-haul Truck	Gasoline	Rural Restricted	0.0019	0.0003	0.0001	0.0004
Single Unit Short-haul Truck	Gasoline	Rural Unrestricted	0.0024	0.0006	0.0002	0.0008
Single Unit Short-haul Truck	Gasoline	Urban Restricted	0.0027	0.0005	0.0001	0.0006
Single Unit Short-haul Truck	Gasoline	Urban Unrestricted	0.0011	0.0004	0.0001	0.0004
Single Unit Short-haul Truck	Diesel	Off-Network	0.0057	0.0002	0.0000	0.0002
Single Unit Short-haul Truck	Diesel	Rural Restricted	0.0080	0.0005	0.0000	0.0005
Single Unit Short-haul Truck	Diesel	Rural Unrestricted	0.0118	0.0010	0.0000	0.0010
Single Unit Short-haul Truck	Diesel	Urban Restricted	0.0110	0.0008	0.0000	0.0008
Single Unit Short-haul Truck	Diesel	Urban Unrestricted	0.0059	0.0005	0.0000	0.0005
Single Unit Long-haul Truck	Gasoline	Off-Network	0.0000	0.0000	0.0000	0.0000
Single Unit Long-haul Truck	Gasoline	Rural Restricted	0.0000	0.0000	0.0000	0.0000
Single Unit Long-haul Truck	Gasoline	Rural Unrestricted	0.0000	0.0000	0.0000	0.0000
Single Unit Long-haul Truck	Gasoline	Urban Restricted	0.0000	0.0000	0.0000	0.0000
Single Unit Long-haul Truck	Gasoline	Urban Unrestricted	0.0000	0.0000	0.0000	0.0000
Single Unit Long-haul Truck	Diesel	Off-Network	0.0002	0.0000	0.0000	0.0000
Single Unit Long-haul Truck	Diesel	Rural Restricted	0.0006	0.0000	0.0000	0.0000
Single Unit Long-haul Truck	Diesel	Rural Unrestricted	0.0010	0.0001	0.0000	0.0001
Single Unit Long-haul Truck	Diesel	Urban Restricted	0.0009	0.0001	0.0000	0.0001
Single Unit Long-haul Truck	Diesel	Urban Unrestricted	0.0005	0.0000	0.0000	0.0000
Motor Home	Gasoline	Off-Network	0.0001	0.0001	0.0005	0.0006
Motor Home	Gasoline	Rural Restricted	0.0001	0.0000	0.0000	0.0000
Motor Home	Gasoline	Rural Unrestricted	0.0002	0.0000	0.0000	0.0001
Motor Home	Gasoline	Urban Restricted	0.0002	0.0000	0.0000	0.0000
Motor Home	Gasoline	Urban Unrestricted	0.0001	0.0000	0.0000	0.0000
Motor Home	Diesel	Off-Network	0.0001	0.0000	0.0000	0.0000
Motor Home	Diesel	Rural Restricted	0.0002	0.0000	0.0000	0.0000
Motor Home	Diesel	Rural Unrestricted	0.0003	0.0000	0.0000	0.0000
Motor Home	Diesel	Urban Restricted	0.0003	0.0000	0.0000	0.0000

Source Type	Fuel Type	Road Type	Sheboygan Whole County Nonattainment Area – Year 2035			
			NOx Emissions (tpswd)	VOC Emissions (tpswd)		
			Total	Exhaust	Evaporative	Total
Motor Home	Diesel	Urban Unrestricted	0.0002	0.0000	0.0000	0.0000
Combination Short-haul Truck	Gasoline	Off-Network	0.0000	0.0000	0.0000	0.0000
Combination Short-haul Truck	Gasoline	Rural Restricted	0.0000	0.0000	0.0000	0.0000
Combination Short-haul Truck	Gasoline	Rural Unrestricted	0.0000	0.0000	0.0000	0.0000
Combination Short-haul Truck	Gasoline	Urban Restricted	0.0000	0.0000	0.0000	0.0000
Combination Short-haul Truck	Gasoline	Urban Unrestricted	0.0000	0.0000	0.0000	0.0000
Combination Short-haul Truck	Diesel	Off-Network	0.0000	0.0001	0.0000	0.0001
Combination Short-haul Truck	Diesel	Rural Restricted	0.0169	0.0004	0.0000	0.0004
Combination Short-haul Truck	Diesel	Rural Unrestricted	0.0146	0.0006	0.0000	0.0006
Combination Short-haul Truck	Diesel	Urban Restricted	0.0157	0.0005	0.0000	0.0005
Combination Short-haul Truck	Diesel	Urban Unrestricted	0.0056	0.0002	0.0000	0.0002
Combination Long-haul Truck	Diesel	Off-Network	0.3591	0.0594	0.0000	0.0594
Combination Long-haul Truck	Diesel	Rural Restricted	0.0531	0.0014	0.0000	0.0014
Combination Long-haul Truck	Diesel	Rural Unrestricted	0.0444	0.0018	0.0000	0.0018
Combination Long-haul Truck	Diesel	Urban Restricted	0.0480	0.0016	0.0000	0.0016
Combination Long-haul Truck	Diesel	Urban Unrestricted	0.0167	0.0007	0.0000	0.0007
ALL	ALL	ALL	0.8568	0.1947	0.2555	0.4501
Motorcycle	ALL	ALL	0.0155	0.0138	0.0469	0.0606
Passenger Car	ALL	ALL	0.0763	0.0496	0.1095	0.1592
Passenger Truck	ALL	ALL	0.0876	0.0433	0.0763	0.1196
Light Commercial Truck	ALL	ALL	0.0282	0.0130	0.0194	0.0324
Intercity Bus	ALL	ALL	0.0022	0.0001	0.0000	0.0001
Transit Bus	ALL	ALL	0.0038	0.0002	0.0000	0.0002
School Bus	ALL	ALL	0.0070	0.0004	0.0000	0.0004
Refuse Truck	ALL	ALL	0.0054	0.0002	0.0000	0.0002
Single Unit Short-haul Truck	ALL	ALL	0.0519	0.0067	0.0029	0.0096
Single Unit Long-haul Truck	ALL	ALL	0.0032	0.0002	0.0000	0.0002
Motor Home	ALL	ALL	0.0018	0.0003	0.0005	0.0009
Combination Short-haul Truck	ALL	ALL	0.0528	0.0019	0.0000	0.0019
Combination Long-haul Truck	ALL	ALL	0.5212	0.0649	0.0000	0.0649
ALL	ALL	ALL	0.8568	0.1947	0.2555	0.4501
ALL	Gasoline	ALL	0.1964	0.1183	0.2555	0.3737
ALL	Diesel	ALL	0.6539	0.0730	0.0000	0.0730
ALL	CNG	ALL	0.0008	0.0001	0.0000	0.0001
ALL	Ethanol (E-85)	ALL	0.0057	0.0033	0.0000	0.0033
ALL	ALL	ALL	0.8568	0.1947	0.2555	0.4501
ALL	ALL	Off-Network	0.4436	0.1472	0.2104	0.3576
ALL	ALL	Rural Restricted	0.1260	0.0114	0.0065	0.0179
ALL	ALL	Rural Unrestricted	0.1195	0.0170	0.0205	0.0376
ALL	ALL	Urban Restricted	0.1197	0.0119	0.0087	0.0206
ALL	ALL	Urban Unrestricted	0.0481	0.0071	0.0094	0.0165
ALL	ALL	ALL	0.8568	0.1947	0.2555	0.4501

Table 1-d: 2045 NOX and VOC Emissions: tons per summer weekday (tpswd)

Source Type	Fuel Type	Road Type	Sheboygan Whole County Nonattainment Area – Year 2045			
			NOx Emissions (tpswd)	VOC Emissions (tpswd)		
			Total	Exhaust	Evaporative	Total
Motorcycle	Gasoline	Off-Network	0.0002	0.0011	0.0381	0.0392
Motorcycle	Gasoline	Rural Restricted	0.0035	0.0024	0.0014	0.0039
Motorcycle	Gasoline	Rural Unrestricted	0.0070	0.0063	0.0054	0.0117
Motorcycle	Gasoline	Urban Restricted	0.0036	0.0026	0.0017	0.0044
Motorcycle	Gasoline	Urban Unrestricted	0.0024	0.0024	0.0021	0.0045
Passenger Car	Gasoline	Off-Network	0.0305	0.0336	0.0894	0.1230
Passenger Car	Gasoline	Rural Restricted	0.0126	0.0020	0.0025	0.0045
Passenger Car	Gasoline	Rural Unrestricted	0.0086	0.0020	0.0070	0.0090
Passenger Car	Gasoline	Urban Restricted	0.0110	0.0020	0.0036	0.0056
Passenger Car	Gasoline	Urban Unrestricted	0.0037	0.0010	0.0037	0.0047
Passenger Car	Diesel	Off-Network	0.0004	0.0004	0.0000	0.0004
Passenger Car	Diesel	Rural Restricted	0.0002	0.0000	0.0000	0.0000
Passenger Car	Diesel	Rural Unrestricted	0.0001	0.0000	0.0000	0.0000
Passenger Car	Diesel	Urban Restricted	0.0002	0.0000	0.0000	0.0000
Passenger Car	Diesel	Urban Unrestricted	0.0001	0.0000	0.0000	0.0000
Passenger Car	Ethanol (E-85)	Off-Network	0.0003	0.0004	0.0000	0.0004
Passenger Car	Ethanol (E-85)	Rural Restricted	0.0001	0.0000	0.0000	0.0000
Passenger Car	Ethanol (E-85)	Rural Unrestricted	0.0001	0.0000	0.0000	0.0000
Passenger Car	Ethanol (E-85)	Urban Restricted	0.0001	0.0000	0.0000	0.0000
Passenger Car	Ethanol (E-85)	Urban Unrestricted	0.0000	0.0000	0.0000	0.0000
Passenger Truck	Gasoline	Off-Network	0.0223	0.0236	0.0585	0.0821
Passenger Truck	Gasoline	Rural Restricted	0.0125	0.0019	0.0021	0.0041
Passenger Truck	Gasoline	Rural Unrestricted	0.0095	0.0021	0.0068	0.0088
Passenger Truck	Gasoline	Urban Restricted	0.0101	0.0017	0.0027	0.0045
Passenger Truck	Gasoline	Urban Unrestricted	0.0036	0.0008	0.0029	0.0037
Passenger Truck	Diesel	Off-Network	0.0031	0.0003	0.0000	0.0003
Passenger Truck	Diesel	Rural Restricted	0.0010	0.0001	0.0000	0.0001
Passenger Truck	Diesel	Rural Unrestricted	0.0023	0.0003	0.0000	0.0003
Passenger Truck	Diesel	Urban Restricted	0.0011	0.0001	0.0000	0.0001
Passenger Truck	Diesel	Urban Unrestricted	0.0009	0.0001	0.0000	0.0001
Passenger Truck	Ethanol (E-85)	Off-Network	0.0009	0.0009	0.0000	0.0009
Passenger Truck	Ethanol (E-85)	Rural Restricted	0.0005	0.0001	0.0000	0.0001
Passenger Truck	Ethanol (E-85)	Rural Unrestricted	0.0004	0.0001	0.0000	0.0001
Passenger Truck	Ethanol (E-85)	Urban Restricted	0.0004	0.0001	0.0000	0.0001
Passenger Truck	Ethanol (E-85)	Urban Unrestricted	0.0001	0.0000	0.0000	0.0000
Light Commercial Truck	Gasoline	Off-Network	0.0068	0.0075	0.0154	0.0229
Light Commercial Truck	Gasoline	Rural Restricted	0.0034	0.0005	0.0006	0.0011
Light Commercial Truck	Gasoline	Rural Unrestricted	0.0028	0.0006	0.0018	0.0024
Light Commercial Truck	Gasoline	Urban Restricted	0.0027	0.0005	0.0007	0.0012
Light Commercial Truck	Gasoline	Urban Unrestricted	0.0010	0.0002	0.0008	0.0010
Light Commercial Truck	Diesel	Off-Network	0.0020	0.0002	0.0000	0.0002
Light Commercial Truck	Diesel	Rural Restricted	0.0006	0.0001	0.0000	0.0001
Light Commercial Truck	Diesel	Rural Unrestricted	0.0013	0.0002	0.0000	0.0002
Light Commercial Truck	Diesel	Urban Restricted	0.0006	0.0001	0.0000	0.0001
Light Commercial Truck	Diesel	Urban Unrestricted	0.0005	0.0001	0.0000	0.0001
Light Commercial Truck	Ethanol (E-85)	Off-Network	0.0002	0.0003	0.0000	0.0003
Light Commercial Truck	Ethanol (E-85)	Rural Restricted	0.0001	0.0000	0.0000	0.0000
Light Commercial Truck	Ethanol (E-85)	Rural Unrestricted	0.0001	0.0000	0.0000	0.0000
Light Commercial Truck	Ethanol (E-85)	Urban Restricted	0.0001	0.0000	0.0000	0.0000
Light Commercial Truck	Ethanol (E-85)	Urban Unrestricted	0.0000	0.0000	0.0000	0.0000
Intercity Bus	Diesel	Off-Network	0.0000	0.0000	0.0000	0.0000
Intercity Bus	Diesel	Rural Restricted	0.0004	0.0000	0.0000	0.0000
Intercity Bus	Diesel	Rural Unrestricted	0.0006	0.0000	0.0000	0.0000
Intercity Bus	Diesel	Urban Restricted	0.0006	0.0000	0.0000	0.0000
Intercity Bus	Diesel	Urban Unrestricted	0.0003	0.0000	0.0000	0.0000

Source Type	Fuel Type	Road Type	Sheboygan Whole County Nonattainment Area – Year 2045			
			NOx Emissions (tpswd)	VOC Emissions (tpswd)		
			Total	Exhaust	Evaporative	Total
Transit Bus	Gasoline	Off-Network	0.0000	0.0000	0.0000	0.0000
Transit Bus	Gasoline	Rural Restricted	0.0000	0.0000	0.0000	0.0000
Transit Bus	Gasoline	Rural Unrestricted	0.0000	0.0000	0.0000	0.0000
Transit Bus	Gasoline	Urban Restricted	0.0000	0.0000	0.0000	0.0000
Transit Bus	Gasoline	Urban Unrestricted	0.0000	0.0000	0.0000	0.0000
Transit Bus	Diesel	Off-Network	0.0000	0.0000	0.0000	0.0000
Transit Bus	Diesel	Rural Restricted	0.0007	0.0000	0.0000	0.0000
Transit Bus	Diesel	Rural Unrestricted	0.0008	0.0000	0.0000	0.0000
Transit Bus	Diesel	Urban Restricted	0.0011	0.0000	0.0000	0.0000
Transit Bus	Diesel	Urban Unrestricted	0.0005	0.0000	0.0000	0.0000
Transit Bus	CNG	Off-Network	0.0000	0.0000	0.0000	0.0000
Transit Bus	CNG	Rural Restricted	0.0002	0.0000	0.0000	0.0000
Transit Bus	CNG	Rural Unrestricted	0.0002	0.0000	0.0000	0.0000
Transit Bus	CNG	Urban Restricted	0.0003	0.0000	0.0000	0.0000
Transit Bus	CNG	Urban Unrestricted	0.0001	0.0000	0.0000	0.0000
School Bus	Gasoline	Off-Network	0.0000	0.0000	0.0000	0.0000
School Bus	Gasoline	Rural Restricted	0.0000	0.0000	0.0000	0.0000
School Bus	Gasoline	Rural Unrestricted	0.0000	0.0000	0.0000	0.0000
School Bus	Gasoline	Urban Restricted	0.0000	0.0000	0.0000	0.0000
School Bus	Gasoline	Urban Unrestricted	0.0000	0.0000	0.0000	0.0000
School Bus	Diesel	Off-Network	0.0000	0.0000	0.0000	0.0000
School Bus	Diesel	Rural Restricted	0.0017	0.0001	0.0000	0.0001
School Bus	Diesel	Rural Unrestricted	0.0019	0.0001	0.0000	0.0001
School Bus	Diesel	Urban Restricted	0.0024	0.0001	0.0000	0.0001
School Bus	Diesel	Urban Unrestricted	0.0011	0.0001	0.0000	0.0001
Refuse Truck	Gasoline	Off-Network	0.0000	0.0000	0.0000	0.0000
Refuse Truck	Gasoline	Rural Restricted	0.0000	0.0000	0.0000	0.0000
Refuse Truck	Gasoline	Rural Unrestricted	0.0000	0.0000	0.0000	0.0000
Refuse Truck	Gasoline	Urban Restricted	0.0000	0.0000	0.0000	0.0000
Refuse Truck	Gasoline	Urban Unrestricted	0.0000	0.0000	0.0000	0.0000
Refuse Truck	Diesel	Off-Network	0.0000	0.0000	0.0000	0.0000
Refuse Truck	Diesel	Rural Restricted	0.0019	0.0000	0.0000	0.0000
Refuse Truck	Diesel	Rural Unrestricted	0.0016	0.0001	0.0000	0.0001
Refuse Truck	Diesel	Urban Restricted	0.0018	0.0001	0.0000	0.0001
Refuse Truck	Diesel	Urban Unrestricted	0.0006	0.0000	0.0000	0.0000
Single Unit Short-haul Truck	Gasoline	Off-Network	0.0013	0.0021	0.0024	0.0045
Single Unit Short-haul Truck	Gasoline	Rural Restricted	0.0020	0.0003	0.0001	0.0004
Single Unit Short-haul Truck	Gasoline	Rural Unrestricted	0.0026	0.0007	0.0002	0.0009
Single Unit Short-haul Truck	Gasoline	Urban Restricted	0.0030	0.0005	0.0001	0.0007
Single Unit Short-haul Truck	Gasoline	Urban Unrestricted	0.0012	0.0004	0.0001	0.0005
Single Unit Short-haul Truck	Diesel	Off-Network	0.0062	0.0003	0.0000	0.0003
Single Unit Short-haul Truck	Diesel	Rural Restricted	0.0085	0.0005	0.0000	0.0005
Single Unit Short-haul Truck	Diesel	Rural Unrestricted	0.0127	0.0011	0.0000	0.0011
Single Unit Short-haul Truck	Diesel	Urban Restricted	0.0123	0.0008	0.0000	0.0008
Single Unit Short-haul Truck	Diesel	Urban Unrestricted	0.0062	0.0005	0.0000	0.0005
Single Unit Long-haul Truck	Gasoline	Off-Network	0.0000	0.0000	0.0000	0.0000
Single Unit Long-haul Truck	Gasoline	Rural Restricted	0.0000	0.0000	0.0000	0.0000
Single Unit Long-haul Truck	Gasoline	Rural Unrestricted	0.0000	0.0000	0.0000	0.0000
Single Unit Long-haul Truck	Gasoline	Urban Restricted	0.0000	0.0000	0.0000	0.0000
Single Unit Long-haul Truck	Gasoline	Urban Unrestricted	0.0000	0.0000	0.0000	0.0000
Single Unit Long-haul Truck	Diesel	Off-Network	0.0002	0.0000	0.0000	0.0000
Single Unit Long-haul Truck	Diesel	Rural Restricted	0.0007	0.0000	0.0000	0.0000
Single Unit Long-haul Truck	Diesel	Rural Unrestricted	0.0011	0.0001	0.0000	0.0001
Single Unit Long-haul Truck	Diesel	Urban Restricted	0.0010	0.0001	0.0000	0.0001
Single Unit Long-haul Truck	Diesel	Urban Unrestricted	0.0005	0.0000	0.0000	0.0000
Motor Home	Gasoline	Off-Network	0.0001	0.0001	0.0005	0.0006
Motor Home	Gasoline	Rural Restricted	0.0001	0.0000	0.0000	0.0000
Motor Home	Gasoline	Rural Unrestricted	0.0002	0.0000	0.0000	0.0001
Motor Home	Gasoline	Urban Restricted	0.0002	0.0000	0.0000	0.0000
Motor Home	Gasoline	Urban Unrestricted	0.0001	0.0000	0.0000	0.0000
Motor Home	Diesel	Off-Network	0.0002	0.0000	0.0000	0.0000
Motor Home	Diesel	Rural Restricted	0.0002	0.0000	0.0000	0.0000
Motor Home	Diesel	Rural Unrestricted	0.0003	0.0000	0.0000	0.0000
Motor Home	Diesel	Urban Restricted	0.0003	0.0000	0.0000	0.0000

Source Type	Fuel Type	Road Type	Sheboygan Whole County Nonattainment Area – Year 2045			
			NOx Emissions (tpswd)	VOC Emissions (tpswd)		
			Total	Exhaust	Evaporative	Total
Motor Home	Diesel	Urban Unrestricted	0.0002	0.0000	0.0000	0.0000
Combination Short-haul Truck	Gasoline	Off-Network	0.0000	0.0000	0.0000	0.0000
Combination Short-haul Truck	Gasoline	Rural Restricted	0.0000	0.0000	0.0000	0.0000
Combination Short-haul Truck	Gasoline	Rural Unrestricted	0.0000	0.0000	0.0000	0.0000
Combination Short-haul Truck	Gasoline	Urban Restricted	0.0000	0.0000	0.0000	0.0000
Combination Short-haul Truck	Gasoline	Urban Unrestricted	0.0000	0.0000	0.0000	0.0000
Combination Short-haul Truck	Diesel	Off-Network	0.0000	0.0001	0.0000	0.0001
Combination Short-haul Truck	Diesel	Rural Restricted	0.0190	0.0005	0.0000	0.0005
Combination Short-haul Truck	Diesel	Rural Unrestricted	0.0167	0.0007	0.0000	0.0007
Combination Short-haul Truck	Diesel	Urban Restricted	0.0185	0.0006	0.0000	0.0006
Combination Short-haul Truck	Diesel	Urban Unrestricted	0.0063	0.0003	0.0000	0.0003
Combination Long-haul Truck	Diesel	Off-Network	0.4103	0.0676	0.0000	0.0676
Combination Long-haul Truck	Diesel	Rural Restricted	0.0571	0.0015	0.0000	0.0015
Combination Long-haul Truck	Diesel	Rural Unrestricted	0.0482	0.0019	0.0000	0.0019
Combination Long-haul Truck	Diesel	Urban Restricted	0.0537	0.0017	0.0000	0.0017
Combination Long-haul Truck	Diesel	Urban Unrestricted	0.0178	0.0007	0.0000	0.0007
ALL	ALL	ALL	0.9038	0.1831	0.2506	0.4337
Motorcycle	ALL	ALL	0.0167	0.0148	0.0488	0.0636
Passenger Car	ALL	ALL	0.0682	0.0415	0.1062	0.1477
Passenger Truck	ALL	ALL	0.0688	0.0322	0.0730	0.1052
Light Commercial Truck	ALL	ALL	0.0223	0.0102	0.0193	0.0295
Intercity Bus	ALL	ALL	0.0019	0.0001	0.0000	0.0001
Transit Bus	ALL	ALL	0.0041	0.0002	0.0000	0.0002
School Bus	ALL	ALL	0.0071	0.0004	0.0000	0.0004
Refuse Truck	ALL	ALL	0.0058	0.0002	0.0000	0.0002
Single Unit Short-haul Truck	ALL	ALL	0.0560	0.0072	0.0029	0.0101
Single Unit Long-haul Truck	ALL	ALL	0.0035	0.0003	0.0000	0.0003
Motor Home	ALL	ALL	0.0018	0.0003	0.0005	0.0009
Combination Short-haul Truck	ALL	ALL	0.0605	0.0021	0.0000	0.0021
Combination Long-haul Truck	ALL	ALL	0.5872	0.0735	0.0000	0.0735
ALL	ALL	ALL	0.9038	0.1831	0.2506	0.4337
ALL	Gasoline	ALL	0.1688	0.0991	0.2506	0.3498
ALL	Diesel	ALL	0.7306	0.0819	0.0000	0.0819
ALL	CNG	ALL	0.0009	0.0001	0.0000	0.0001
ALL	Ethanol (E-85)	ALL	0.0036	0.0020	0.0000	0.0020
ALL	ALL	ALL	0.9038	0.1831	0.2506	0.4337
ALL	ALL	Off-Network	0.4850	0.1385	0.2042	0.3427
ALL	ALL	Rural Restricted	0.1271	0.0103	0.0067	0.0170
ALL	ALL	Rural Unrestricted	0.1191	0.0163	0.0212	0.0375
ALL	ALL	Urban Restricted	0.1252	0.0113	0.0089	0.0202
ALL	ALL	Urban Unrestricted	0.0474	0.0068	0.0096	0.0164
ALL	ALL	ALL	0.9038	0.1831	0.2506	0.4337

Table 2-a: Vehicle-Miles of Travel Output from the MOVES2014 Model;
Years 2015, 2025, 2035 and 2045

Source Type	Fuel Type	Road Type	Sheboygan Whole County Nonattainment Area			
			Vehicle-Miles of Travel Summer Weekday			
			2015	2025	2035	2045
Motorcycle	Gasoline	Off-Network				
Motorcycle	Gasoline	Rural Restricted	3,861	4,199	4,571	4,941
Motorcycle	Gasoline	Rural Unrestricted	10,124	9,920	10,415	11,192
Motorcycle	Gasoline	Urban Restricted	3,511	4,307	4,702	5,116
Motorcycle	Gasoline	Urban Unrestricted	3,484	3,606	3,804	4,093
Passenger Car	Gasoline	Off-Network				
Passenger Car	Gasoline	Rural Restricted	293,800	313,159	340,774	369,896
Passenger Car	Gasoline	Rural Unrestricted	568,128	545,604	572,684	617,783
Passenger Car	Gasoline	Urban Restricted	314,808	378,595	413,185	451,250
Passenger Car	Gasoline	Urban Unrestricted	261,902	265,627	280,187	302,618
Passenger Car	Diesel	Off-Network				
Passenger Car	Diesel	Rural Restricted	2,024	3,556	4,085	4,445
Passenger Car	Diesel	Rural Unrestricted	3,914	6,196	6,864	7,423
Passenger Car	Diesel	Urban Restricted	2,169	4,299	4,952	5,422
Passenger Car	Diesel	Urban Unrestricted	1,804	3,017	3,358	3,636
Passenger Car	Ethanol (E-85)	Off-Network				
Passenger Car	Ethanol (E-85)	Rural Restricted	169	3,775	4,858	4,054
Passenger Car	Ethanol (E-85)	Rural Unrestricted	326	6,577	8,165	6,770
Passenger Car	Ethanol (E-85)	Urban Restricted	181	4,564	5,891	4,945
Passenger Car	Ethanol (E-85)	Urban Unrestricted	151	3,202	3,995	3,316
Passenger Truck	Gasoline	Off-Network				
Passenger Truck	Gasoline	Rural Restricted	227,386	228,557	244,397	267,171
Passenger Truck	Gasoline	Rural Unrestricted	509,181	461,130	475,619	516,724
Passenger Truck	Gasoline	Urban Restricted	220,408	249,963	268,067	294,846
Passenger Truck	Gasoline	Urban Unrestricted	189,708	181,442	188,067	204,568
Passenger Truck	Diesel	Off-Network				
Passenger Truck	Diesel	Rural Restricted	4,320	4,830	5,269	5,690
Passenger Truck	Diesel	Rural Unrestricted	9,674	9,745	10,254	11,004
Passenger Truck	Diesel	Urban Restricted	4,188	5,283	5,780	6,279
Passenger Truck	Diesel	Urban Unrestricted	3,604	3,835	4,055	4,356
Passenger Truck	Ethanol (E-85)	Off-Network				
Passenger Truck	Ethanol (E-85)	Rural Restricted	436	10,308	13,637	11,351
Passenger Truck	Ethanol (E-85)	Rural Unrestricted	977	20,796	26,538	21,953
Passenger Truck	Ethanol (E-85)	Urban Restricted	423	11,273	14,958	12,526
Passenger Truck	Ethanol (E-85)	Urban Unrestricted	364	8,183	10,494	8,691
Light Commercial Truck	Gasoline	Off-Network				
Light Commercial Truck	Gasoline	Rural Restricted	51,363	56,533	60,464	65,951
Light Commercial Truck	Gasoline	Rural Unrestricted	114,145	113,194	116,774	126,586
Light Commercial Truck	Gasoline	Urban Restricted	49,419	61,370	65,828	72,245
Light Commercial Truck	Gasoline	Urban Unrestricted	42,382	44,387	46,017	49,944
Light Commercial Truck	Diesel	Off-Network				
Light Commercial Truck	Diesel	Rural Restricted	2,925	3,317	3,569	3,848
Light Commercial Truck	Diesel	Rural Unrestricted	6,501	6,641	6,894	7,386
Light Commercial Truck	Diesel	Urban Restricted	2,815	3,600	3,886	4,215
Light Commercial Truck	Diesel	Urban Unrestricted	2,414	2,604	2,717	2,914
Light Commercial Truck	Ethanol (E-85)	Off-Network				
Light Commercial Truck	Ethanol (E-85)	Rural Restricted	81	2,405	3,215	2,686
Light Commercial Truck	Ethanol (E-85)	Rural Unrestricted	181	4,815	6,208	5,155
Light Commercial Truck	Ethanol (E-85)	Urban Restricted	78	2,610	3,500	2,942
Light Commercial Truck	Ethanol (E-85)	Urban Unrestricted	67	1,888	2,447	2,034
Intercity Bus	Diesel	Off-Network				
Intercity Bus	Diesel	Rural Restricted	274	301	336	380
Intercity Bus	Diesel	Rural Unrestricted	484	466	502	571
Intercity Bus	Diesel	Urban Restricted	339	419	482	573
Intercity Bus	Diesel	Urban Unrestricted	240	250	272	307

Source Type	Fuel Type	Road Type	Sheboygan Whole County Nonattainment Area Vehicle-Miles of Travel Summer Weekday			
			2015	2025	2035	2045
Transit Bus	Gasoline	Off-Network				
Transit Bus	Gasoline	Rural Restricted	9	13	17	19
Transit Bus	Gasoline	Rural Unrestricted	15	21	26	30
Transit Bus	Gasoline	Urban Restricted	11	19	25	30
Transit Bus	Gasoline	Urban Unrestricted	8	11	14	16
Transit Bus	Diesel	Off-Network				
Transit Bus	Diesel	Rural Restricted	459	493	563	644
Transit Bus	Diesel	Rural Unrestricted	824	778	857	984
Transit Bus	Diesel	Urban Restricted	577	698	826	986
Transit Bus	Diesel	Urban Unrestricted	412	421	468	532
Transit Bus	CNG	Off-Network				
Transit Bus	CNG	Rural Restricted	70	91	109	124
Transit Bus	CNG	Rural Unrestricted	125	144	165	190
Transit Bus	CNG	Urban Restricted	88	129	159	191
Transit Bus	CNG	Urban Unrestricted	63	78	90	103
School Bus	Gasoline	Off-Network				
School Bus	Gasoline	Rural Restricted	17	17	18	21
School Bus	Gasoline	Rural Unrestricted	31	26	28	32
School Bus	Gasoline	Urban Restricted	22	23	27	32
School Bus	Gasoline	Urban Unrestricted	16	14	15	17
School Bus	Diesel	Off-Network				
School Bus	Diesel	Rural Restricted	1,475	1,614	1,798	2,038
School Bus	Diesel	Rural Unrestricted	2,651	2,545	2,737	3,115
School Bus	Diesel	Urban Restricted	1,856	2,283	2,634	3,121
School Bus	Diesel	Urban Unrestricted	1,326	1,377	1,495	1,685
Refuse Truck	Gasoline	Off-Network				
Refuse Truck	Gasoline	Rural Restricted	31	6	5	5
Refuse Truck	Gasoline	Rural Unrestricted	31	6	4	4
Refuse Truck	Gasoline	Urban Restricted	26	6	4	5
Refuse Truck	Gasoline	Urban Unrestricted	10	2	1	2
Refuse Truck	Diesel	Off-Network				
Refuse Truck	Diesel	Rural Restricted	1,273	1,361	1,494	1,631
Refuse Truck	Diesel	Rural Unrestricted	1,277	1,198	1,269	1,390
Refuse Truck	Diesel	Urban Restricted	1,063	1,280	1,454	1,658
Refuse Truck	Diesel	Urban Unrestricted	433	439	470	510
Single Unit Short-haul Truck	Gasoline	Off-Network				
Single Unit Short-haul Truck	Gasoline	Rural Restricted	5,776	6,468	7,132	7,793
Single Unit Short-haul Truck	Gasoline	Rural Unrestricted	8,964	8,808	9,371	10,280
Single Unit Short-haul Truck	Gasoline	Urban Restricted	6,571	8,276	9,446	10,791
Single Unit Short-haul Truck	Gasoline	Urban Unrestricted	3,839	4,080	4,384	4,761
Single Unit Short-haul Truck	Diesel	Off-Network				
Single Unit Short-haul Truck	Diesel	Rural Restricted	12,847	13,731	14,992	16,370
Single Unit Short-haul Truck	Diesel	Rural Unrestricted	19,936	18,699	19,700	21,594
Single Unit Short-haul Truck	Diesel	Urban Restricted	14,615	17,569	19,859	22,668
Single Unit Short-haul Truck	Diesel	Urban Unrestricted	8,538	8,661	9,216	10,001
Single Unit Long-haul Truck	Gasoline	Off-Network				
Single Unit Long-haul Truck	Gasoline	Rural Restricted	90	12	0	0
Single Unit Long-haul Truck	Gasoline	Rural Unrestricted	140	17	0	0
Single Unit Long-haul Truck	Gasoline	Urban Restricted	102	16	0	0
Single Unit Long-haul Truck	Gasoline	Urban Unrestricted	60	8	0	0
Single Unit Long-haul Truck	Diesel	Off-Network				
Single Unit Long-haul Truck	Diesel	Rural Restricted	936	1,170	1,280	1,399
Single Unit Long-haul Truck	Diesel	Rural Unrestricted	1,451	1,591	1,679	1,842
Single Unit Long-haul Truck	Diesel	Urban Restricted	1,063	1,495	1,692	1,933
Single Unit Long-haul Truck	Diesel	Urban Unrestricted	620	736	784	852
Motor Home	Gasoline	Off-Network				
Motor Home	Gasoline	Rural Restricted	326	267	269	291
Motor Home	Gasoline	Rural Unrestricted	672	483	470	510
Motor Home	Gasoline	Urban Restricted	472	435	454	514
Motor Home	Gasoline	Urban Unrestricted	331	258	253	272
Motor Home	Diesel	Off-Network				
Motor Home	Diesel	Rural Restricted	208	245	268	291
Motor Home	Diesel	Rural Unrestricted	429	443	469	510
Motor Home	Diesel	Urban Restricted	301	399	453	514
Motor Home	Diesel	Urban Unrestricted	211	236	253	272

Source Type	Fuel Type	Road Type	Sheboygan Whole County Nonattainment Area Vehicle-Miles of Travel Summer Weekday			
			2015	2025	2035	2045
Combination Short-haul Truck	Gasoline	Off-Network				
Combination Short-haul Truck	Gasoline	Rural Restricted	2	0	0	0
Combination Short-haul Truck	Gasoline	Rural Unrestricted	2	0	0	0
Combination Short-haul Truck	Gasoline	Urban Restricted	1	0	0	0
Combination Short-haul Truck	Gasoline	Urban Unrestricted	1	0	0	0
Combination Short-haul Truck	Diesel	Off-Network				
Combination Short-haul Truck	Diesel	Rural Restricted	10,516	13,130	14,524	16,810
Combination Short-haul Truck	Diesel	Rural Unrestricted	10,783	11,815	12,610	14,653
Combination Short-haul Truck	Diesel	Urban Restricted	8,866	12,452	14,259	17,252
Combination Short-haul Truck	Diesel	Urban Unrestricted	3,637	4,310	4,646	5,343
Combination Long-haul Truck	Diesel	Off-Network				
Combination Long-haul Truck	Diesel	Rural Restricted	36,449	37,988	43,250	49,711
Combination Long-haul Truck	Diesel	Rural Unrestricted	35,221	32,213	35,387	40,832
Combination Long-haul Truck	Diesel	Urban Restricted	29,683	34,797	41,010	49,280
Combination Long-haul Truck	Diesel	Urban Unrestricted	11,556	11,431	12,681	14,487
ALL	ALL	ALL	3,164,149	3,327,674	3,560,297	3,860,731
Motorcycle	ALL	ALL	20,980	22,031	23,491	25,342
Passenger Car	ALL	ALL	1,449,376	1,538,170	1,648,998	1,781,559
Passenger Truck	ALL	ALL	1,170,670	1,195,344	1,267,134	1,365,159
Light Commercial Truck	ALL	ALL	272,372	303,363	321,517	345,904
Intercity Bus	ALL	ALL	1,338	1,436	1,592	1,831
Transit Bus	ALL	ALL	2,659	2,896	3,319	3,848
School Bus	ALL	ALL	7,394	7,899	8,752	10,060
Refuse Truck	ALL	ALL	4,145	4,298	4,701	5,204
Single Unit Short-haul Truck	ALL	ALL	81,087	86,292	94,098	104,256
Single Unit Long-haul Truck	ALL	ALL	4,462	5,044	5,435	6,025
Motor Home	ALL	ALL	2,950	2,765	2,890	3,175
Combination Short-haul Truck	ALL	ALL	33,807	41,706	46,039	54,058
Combination Long-haul Truck	ALL	ALL	112,908	116,428	132,328	154,309
ALL	ALL	ALL	3,164,149	3,327,674	3,560,297	3,860,731
ALL	Gasoline	ALL	2,891,186	2,950,885	3,127,515	3,400,346
ALL	Diesel	ALL	269,183	295,953	328,353	373,355
ALL	CNG	ALL	345	442	524	608
ALL	Ethanol (E-85)	ALL	3,435	80,394	103,904	86,422
ALL	ALL	ALL	3,164,149	3,327,674	3,560,297	3,860,731
ALL	ALL	Off-Network				
ALL	ALL	Rural Restricted	657,124	707,544	770,894	837,558
ALL	ALL	Rural Unrestricted	1,306,187	1,263,869	1,325,687	1,428,511
ALL	ALL	Urban Restricted	663,657	806,159	883,533	969,335
ALL	ALL	Urban Unrestricted	537,182	550,102	580,182	625,328
ALL	ALL	ALL	3,164,149	3,327,674	3,560,297	3,860,731

Table 2-b: Vehicle Population Output from the MOVES2014 Model;
Years 2015, 2025, 2035 and 2045

Source Type	Fuel Type	Road Type	Sheboygan Whole County Nonattainment Area Vehicle Population			
			2015	2025	2035	2045
Motorcycle	Gasoline	Off-Network	2,979	3,129	3,336	3,599
Motorcycle	Gasoline	Rural Restricted				
Motorcycle	Gasoline	Rural Unrestricted				
Motorcycle	Gasoline	Urban Restricted				
Motorcycle	Gasoline	Urban Unrestricted				
Passenger Car	Gasoline	Off-Network	41,826	43,242	45,958	49,730
Passenger Car	Gasoline	Rural Restricted				
Passenger Car	Gasoline	Rural Unrestricted				
Passenger Car	Gasoline	Urban Restricted				
Passenger Car	Gasoline	Urban Unrestricted				
Passenger Car	Diesel	Off-Network	270	473	547	598
Passenger Car	Diesel	Rural Restricted				
Passenger Car	Diesel	Rural Unrestricted				
Passenger Car	Diesel	Urban Restricted				
Passenger Car	Diesel	Urban Unrestricted				
Passenger Car	Ethanol (E-85)	Off-Network	22	513	653	546
Passenger Car	Ethanol (E-85)	Rural Restricted				
Passenger Car	Ethanol (E-85)	Rural Unrestricted				
Passenger Car	Ethanol (E-85)	Urban Restricted				
Passenger Car	Ethanol (E-85)	Urban Unrestricted				
Passenger Truck	Gasoline	Off-Network	28,953	29,073	30,644	33,473
Passenger Truck	Gasoline	Rural Restricted				
Passenger Truck	Gasoline	Rural Unrestricted				
Passenger Truck	Gasoline	Urban Restricted				
Passenger Truck	Gasoline	Urban Unrestricted				
Passenger Truck	Diesel	Off-Network	536	609	660	713
Passenger Truck	Diesel	Rural Restricted				
Passenger Truck	Diesel	Rural Unrestricted				
Passenger Truck	Diesel	Urban Restricted				
Passenger Truck	Diesel	Urban Unrestricted				
Passenger Truck	Ethanol (E-85)	Off-Network	50	1,271	1,706	1,426
Passenger Truck	Ethanol (E-85)	Rural Restricted				
Passenger Truck	Ethanol (E-85)	Rural Unrestricted				
Passenger Truck	Ethanol (E-85)	Urban Restricted				
Passenger Truck	Ethanol (E-85)	Urban Unrestricted				
Light Commercial Truck	Gasoline	Off-Network	7,010	7,174	7,560	8,248
Light Commercial Truck	Gasoline	Rural Restricted				
Light Commercial Truck	Gasoline	Rural Unrestricted				
Light Commercial Truck	Gasoline	Urban Restricted				
Light Commercial Truck	Gasoline	Urban Unrestricted				
Light Commercial Truck	Diesel	Off-Network	399	422	446	481
Light Commercial Truck	Diesel	Rural Restricted				
Light Commercial Truck	Diesel	Rural Unrestricted				
Light Commercial Truck	Diesel	Urban Restricted				
Light Commercial Truck	Diesel	Urban Unrestricted				
Light Commercial Truck	Ethanol (E-85)	Off-Network	9	292	399	337
Light Commercial Truck	Ethanol (E-85)	Rural Restricted				
Light Commercial Truck	Ethanol (E-85)	Rural Unrestricted				
Light Commercial Truck	Ethanol (E-85)	Urban Restricted				
Light Commercial Truck	Ethanol (E-85)	Urban Unrestricted				
Intercity Bus	Diesel	Off-Network	5	5	6	7
Intercity Bus	Diesel	Rural Restricted				
Intercity Bus	Diesel	Rural Unrestricted				
Intercity Bus	Diesel	Urban Restricted				
Intercity Bus	Diesel	Urban Unrestricted				

Source Type	Fuel Type	Road Type	Sheboygan Whole County Nonattainment Area Vehicle Population			
			2015	2025	2035	2045
Transit Bus	Gasoline	Off-Network	0	0	1	1
Transit Bus	Gasoline	Rural Restricted				
Transit Bus	Gasoline	Rural Unrestricted				
Transit Bus	Gasoline	Urban Restricted				
Transit Bus	Gasoline	Urban Unrestricted				
Transit Bus	Diesel	Off-Network	16	16	18	21
Transit Bus	Diesel	Rural Restricted				
Transit Bus	Diesel	Rural Unrestricted				
Transit Bus	Diesel	Urban Restricted				
Transit Bus	Diesel	Urban Unrestricted				
Transit Bus	CNG	Off-Network	2	3	3	4
Transit Bus	CNG	Rural Restricted				
Transit Bus	CNG	Rural Unrestricted				
Transit Bus	CNG	Urban Restricted				
Transit Bus	CNG	Urban Unrestricted				
School Bus	Gasoline	Off-Network	2	2	2	2
School Bus	Gasoline	Rural Restricted				
School Bus	Gasoline	Rural Unrestricted				
School Bus	Gasoline	Urban Restricted				
School Bus	Gasoline	Urban Unrestricted				
School Bus	Diesel	Off-Network	161	174	194	223
School Bus	Diesel	Rural Restricted				
School Bus	Diesel	Rural Unrestricted				
School Bus	Diesel	Urban Restricted				
School Bus	Diesel	Urban Unrestricted				
Refuse Truck	Gasoline	Off-Network	2	1	0	0
Refuse Truck	Gasoline	Rural Restricted				
Refuse Truck	Gasoline	Rural Unrestricted				
Refuse Truck	Gasoline	Urban Restricted				
Refuse Truck	Gasoline	Urban Unrestricted				
Refuse Truck	Diesel	Off-Network	53	59	65	72
Refuse Truck	Diesel	Rural Restricted				
Refuse Truck	Diesel	Rural Unrestricted				
Refuse Truck	Diesel	Urban Restricted				
Refuse Truck	Diesel	Urban Unrestricted				
Single Unit Short-haul Truck	Gasoline	Off-Network	566	580	641	717
Single Unit Short-haul Truck	Gasoline	Rural Restricted				
Single Unit Short-haul Truck	Gasoline	Rural Unrestricted				
Single Unit Short-haul Truck	Gasoline	Urban Restricted				
Single Unit Short-haul Truck	Gasoline	Urban Unrestricted				
Single Unit Short-haul Truck	Diesel	Off-Network	1,159	1,248	1,356	1,507
Single Unit Short-haul Truck	Diesel	Rural Restricted				
Single Unit Short-haul Truck	Diesel	Rural Unrestricted				
Single Unit Short-haul Truck	Diesel	Urban Restricted				
Single Unit Short-haul Truck	Diesel	Urban Unrestricted				
Single Unit Long-haul Truck	Gasoline	Off-Network	14	4	0	0
Single Unit Long-haul Truck	Gasoline	Rural Restricted				
Single Unit Long-haul Truck	Gasoline	Rural Unrestricted				
Single Unit Long-haul Truck	Gasoline	Urban Restricted				
Single Unit Long-haul Truck	Gasoline	Urban Unrestricted				
Single Unit Long-haul Truck	Diesel	Off-Network	59	72	82	92
Single Unit Long-haul Truck	Diesel	Rural Restricted				
Single Unit Long-haul Truck	Diesel	Rural Unrestricted				
Single Unit Long-haul Truck	Diesel	Urban Restricted				
Single Unit Long-haul Truck	Diesel	Urban Unrestricted				
Motor Home	Gasoline	Off-Network	254	233	245	273
Motor Home	Gasoline	Rural Restricted				
Motor Home	Gasoline	Rural Unrestricted				
Motor Home	Gasoline	Urban Restricted				
Motor Home	Gasoline	Urban Unrestricted				
Motor Home	Diesel	Off-Network	162	214	245	273
Motor Home	Diesel	Rural Restricted				
Motor Home	Diesel	Rural Unrestricted				
Motor Home	Diesel	Urban Restricted				
Motor Home	Diesel	Urban Unrestricted				

Source Type	Fuel Type	Road Type	Sheboygan Whole County Nonattainment Area Vehicle Population			
			2015	2025	2035	2045
Combination Short-haul Truck	Gasoline	Off-Network	0	0	0	0
Combination Short-haul Truck	Gasoline	Rural Restricted				
Combination Short-haul Truck	Gasoline	Rural Unrestricted				
Combination Short-haul Truck	Gasoline	Urban Restricted				
Combination Short-haul Truck	Gasoline	Urban Unrestricted				
Combination Short-haul Truck	Diesel	Off-Network	339	335	371	439
Combination Short-haul Truck	Diesel	Rural Restricted				
Combination Short-haul Truck	Diesel	Rural Unrestricted				
Combination Short-haul Truck	Diesel	Urban Restricted				
Combination Short-haul Truck	Diesel	Urban Unrestricted				
Combination Long-haul Truck	Diesel	Off-Network	376	437	500	577
Combination Long-haul Truck	Diesel	Rural Restricted				
Combination Long-haul Truck	Diesel	Rural Unrestricted				
Combination Long-haul Truck	Diesel	Urban Restricted				
Combination Long-haul Truck	Diesel	Urban Unrestricted				
ALL	ALL	ALL	85,227	89,579	95,638	103,359
Motorcycle	ALL	ALL	2,979	3,129	3,336	3,599
Passenger Car	ALL	ALL	42,118	44,228	47,159	50,873
Passenger Truck	ALL	ALL	29,539	30,953	33,011	35,612
Light Commercial Truck	ALL	ALL	7,419	7,887	8,405	9,066
Intercity Bus	ALL	ALL	5	5	6	7
Transit Bus	ALL	ALL	18	20	22	25
School Bus	ALL	ALL	163	175	196	226
Refuse Truck	ALL	ALL	55	60	65	72
Single Unit Short-haul Truck	ALL	ALL	1,725	1,828	1,997	2,224
Single Unit Long-haul Truck	ALL	ALL	73	75	82	92
Motor Home	ALL	ALL	417	447	490	546
Combination Short-haul Truck	ALL	ALL	339	335	371	439
Combination Long-haul Truck	ALL	ALL	376	437	500	577
ALL	ALL	ALL	85,227	89,579	95,638	103,359
ALL	Gasoline	ALL	81,608	83,437	88,387	96,043
ALL	Diesel	ALL	3,535	4,063	4,490	5,003
ALL	CNG	ALL	2	3	3	4
ALL	Ethanol (E-85)	ALL	81	2,076	2,758	2,309
ALL	ALL	ALL	85,227	89,579	95,638	103,359
ALL	ALL	Off-Network	85,227	89,579	95,638	103,359
ALL	ALL	Rural Restricted				
ALL	ALL	Rural Unrestricted				
ALL	ALL	Urban Restricted				
ALL	ALL	Urban Unrestricted				
ALL	ALL	ALL	85,227	89,579	95,638	103,359

Jeff Agee-Aguayo

From: Bovee, Christopher P - DNR [Christopher.Bovee@wisconsin.gov]
Sent: Thursday, April 09, 2015 5:25 PM
To: Jeff Agee-Aguayo
Cc: Friedlander, Michael - DNR
Subject: Emission Factors for Sheboygan NTPP Benefits
Attachments: Sheboygan NTPP EFs.xlsx

Hi Jeff,

From the MOVES2014 modeling I did for the Sheboygan conformity analysis, I calculated emission factors that could be used to determine the benefits from the Sheboygan County Non-motorized Transportation Pilot Program.

I limited the emissions to passenger cars traveling on urban unrestricted access roads. The emission factors are a VMT-weighted average of emission factors for the three fuel types: gasoline, diesel and 85% ethanol (E-85).

The resulting emission factors are:

OXIDES OF NITROGEN (NOX)

2015: 0.2746 grams per vehicle-mile
2025: 0.0500 grams per vehicle-mile
2035: 0.0147 grams per vehicle-mile
2045: 0.0112 grams per vehicle-mile

VOLATILE ORGANIC COMPOUNDS (VOC)

2015: 0.1002 grams per vehicle-mile
2025: 0.0296 grams per vehicle-mile
2035: 0.0152 grams per vehicle-mile
2045: 0.0137 grams per vehicle-mile

More details of the calculations are provided in the attached Excel file.

If you have any questions, please let me know.

Thanks,
Chris

We are committed to service excellence.
Visit our survey at http://dnr.wi.gov/customersurvey to evaluate how I did.

Christopher P. Bovée
Mobile Source Emissions Modeler – Bureau of Air Management
Wisconsin Department of Natural Resources
Phone: (608) 266-5542
Fax: (608) 267-0560
christopher.bovee@wisconsin.gov

Recommended Emission Factors to Determine Benefits of
Sheboygan County Nonmotorized Transportation Pilot Program

Calendar Year	Source Type	Fuel Type	Road Type	Summer Weekday VMT	Hot Summer Wkdy Emissions NOx (tons)	Hot Summer Wkdy Emissions VOC (tons)	Hot Summer Wkdy Emis. Factors NOx (gms/mile)	Hot Summer Wkdy Emis. Factors VOC (gms/mile)
2015	Passenger Cars	Gasoline	Urban Unrestricted Access	261,902	0.079393	0.028940	0.2750	0.1002
2015	Passenger Cars	Diesel	Urban Unrestricted Access	1,804	0.000443	0.000191	0.2227	0.0960
2015	Passenger Cars	85% Ethanol	Urban Unrestricted Access	151	0.000019	0.000002	0.1131	0.0091
2015	**Passenger Cars**	**ALL**	**Urban Unrestricted Access**	**263,857**	**0.079855**	**0.029132**	**0.2746**	**0.1002**
2025	Passenger Cars	Gasoline	Urban Unrestricted Access	265,627	0.014721	0.008808	0.0503	0.0301
2025	Passenger Cars	Diesel	Urban Unrestricted Access	3,017	0.000159	0.000029	0.0477	0.0087
2025	Passenger Cars	85% Ethanol	Urban Unrestricted Access	3,202	0.000107	0.000022	0.0304	0.0063
2025	**Passenger Cars**	**ALL**	**Urban Unrestricted Access**	**271,846**	**0.014987**	**0.008860**	**0.0500**	**0.0296**
2035	Passenger Cars	Gasoline	Urban Unrestricted Access	280,187	0.004538	0.004792	0.0147	0.0155
2035	Passenger Cars	Diesel	Urban Unrestricted Access	3,358	0.000066	0.000014	0.0178	0.0037
2035	Passenger Cars	85% Ethanol	Urban Unrestricted Access	3,995	0.000063	0.000016	0.0143	0.0035
2035	**Passenger Cars**	**ALL**	**Urban Unrestricted Access**	**287,540**	**0.004667**	**0.004821**	**0.0147**	**0.0152**
2045	Passenger Cars	Gasoline	Urban Unrestricted Access	302,618	0.003740	0.004664	0.0112	0.0140
2045	Passenger Cars	Diesel	Urban Unrestricted Access	3,636	0.000053	0.000012	0.0133	0.0029
2045	Passenger Cars	85% Ethanol	Urban Unrestricted Access	3,316	0.000041	0.000011	0.0111	0.0029
2045	**Passenger Cars**	**ALL**	**Urban Unrestricted Access**	**309,570**	**0.003834**	**0.004686**	**0.0112**	**0.0137**

Wisconsin Department of Natural Resources
April 9, 2015

APPENDIX D: FINANCIAL PLAN SUPPORTING DOCUMENTATION

From: Kuehn, James - DOT [mailto:james.kuehn@dot.wi.gov]
Sent: Wednesday, April 01, 2015 1:45 PM
To: Jeff Agee-Aguayo
Cc: Gritzmacher, Philip - DOT; Iverson, Tanya - DOT; Coleman, June P - DOT; Reed, Robert - DOT
Subject: RE: Alternative way to calculate TAP funding for the Sheboygan metropolitan planning area

Jeff

Attached is the revised spreadsheet. Only one TAP value should be included in the total revenue figures for each MPO. The total revenues at the bottom still include the original TAP figures.

Please contact me, if you have any questions or concerns.

Jim Kuehn
Statewide MPO-RPC Coordinator
Bureau of Planning and Economic Development
Division of Transportation Investment Management
Wisconsin Department of Transportation
Hill Farms State Office Building Rm 901
Madison WI 53707
608-266-3662

From: Jeff Agee-Aguayo [mailto:JAgee@baylakerpc.org]
Sent: Wednesday, April 01, 2015 1:30 PM
To: Kuehn, James - DOT
Cc: Gritzmacher, Philip - DOT; Iverson, Tanya - DOT; Coleman, June P - DOT
Subject: RE: Alternative way to calculate TAP funding for the Sheboygan metropolitan planning area

Hi Jim,

We can certainly add a sentence to our Financial Plan chapter that discusses the competitive nature of the TAP program.

Should I go ahead and assume the amount listed below, or should I wait for Tanya's revisions? If I wait, how long will it take to obtain the new numbers? I am somewhat anxious to get these numbers, as I need to work with Sheboygan County staff to determine what parts of their plan we can implement, and what parts will need to be listed as illustrative projects. I want to have our draft plan done by the end of the month.

Thanks to everyone for their work on this - sorry I'm asking so many questions, but I want to get things right.

Jeff

From: Kuehn, James - DOT [mailto:james.kuehn@dot.wi.gov]
Sent: Wednesday, April 01, 2015 1:14 PM
To: Jeff Agee-Aguayo
Cc: Gritzmacher, Philip - DOT; Iverson, Tanya - DOT; Coleman, June P - DOT
Subject: RE: Alternative way to calculate TAP funding for the Sheboygan metropolitan planning area

Hi Jeff

I did meet with Tanya and June yesterday. Tanya and June stressed that Transportation Alternative Program is awarded through a competitive process and there **is never any guarantee of receiving future funding**. Tanya will be adding an additional line to the revenue estimates to show annual averages for TAP without earmark projects.

With this in mind, I understand your methodology explained below. I would suggest you include a note explaining funds for the TAP are awarded based on a **competitive selection process** and there is **no guarantee** of receiving these estimated future funds.

Jim Kuehn
Statewide MPO-RPC Coordinator
Bureau of Planning and Economic Development
Division of Transportation Investment Management
Wisconsin Department of Transportation
Hill Farms State Office Building Rm 901
Madison WI 53707
608-266-3662

From: Jeff Agee-Aguayo [mailto:JAgee@baylakerpc.org]
Sent: Monday, March 23, 2015 9:34 AM
To: Gritzmacher, Philip - DOT; Kuehn, James - DOT; Iverson, Tanya - DOT
Subject: Alternative way to calculate TAP funding for the Sheboygan metropolitan planning area

Hi Philip, Jim and Tanya,

As you know, since receiving the revenue estimates early last week to develop the fiscal constraint component of the Sheboygan area long-range transportation plan, I have been looking into our revenue estimate for TAP and whether it was reasonable going forward. Tanya supplied me with the sources of the funding that went into developing our estimate; in looking at that funding, it was discovered that nearly all of the funding came from the Sheboygan County Non-Motorized Transportation Pilot Program (NMTPP), a special Federal earmark in SAFETEA-LU

that is still being spent on a few projects that have had implementation delays. However, the NMTPP will not involve additional funding beyond the next two years or so. If the NMTPP is removed from the equation, our MPO area would have no TAP resources in the future once the NMTPP funding is exhausted if we accept what is indicated in the spreadsheet.

On Friday, I developed an alternative methodology for determining a reasonable TAP assumed annualized revenue amount for our MPO area. Essentially, I took the allocations for the other MPO areas on the spreadsheet, added them, and then took the Sheboygan MPO's population proportion (2.2 to 2.3 percent) of that total of all other MPO allocations. For population for the time being, I used the proportions considered in one of the scenarios used to discuss MPO funding levels for planning in early 2013 (if I receive metropolitan planning area population figures for all of the MPO areas, I can recalibrate this proportion). Using this methodology, I came up with a figure of $174,965 in TAP funding that could reasonably be available in the Sheboygan MPO area on an annual basis.

I have tried to explain this methodology over the phone, but it is difficult to explain, so I hope that explaining it via e-mail might help. Please let me know how it might be best to adjust this methodology or if I am on the right track.

Thanks.

Jeff

From: Kuehn, James - DOT [mailto:james.kuehn@dot.wi.gov]
Sent: Tuesday, March 17, 2015 11:17 AM
To: 'Ann Schell (Ann Schell)'; Brandon Robinson; 'Chandra Ravada (Chandra Ravada)'; Hiebert, Christopher; 'Chuck Lamine (Chuck Lamine)'; 'Cole Runge (Runge_CM [Runge_CM@co.brown.wi.us])'; 'Darryl Landeau (dlandeau@ncwrpc.org)'; 'Dave Mack (Dave Mack)'; Dave Moesch; Lawrence, Dennis; 'duane cherek (cherekd@ci.janesville.wi.us)'; 'Eric Fowle (Eric Fowle)'; 'Gregory Flogstad (Gregory Flogstad)'; Hal Wortman; 'Hoel, Ryan W.'; 'Jackie Eastwood (eastwood.jackie@co.la-crosse.wi.us)'; Jason Dupuis (dupuisj@beloitwi.gov); jduba@wcwrpc.org; Jeff Agee-Aguayo; 'Kamran Mesbah (KamranM@CapitalAreaRPC.org)'; 'Kelley Deutmeyer (Kelley Deutmeyer)'; Yunker, Ken; 'Larry Ward (l.ward@swwrpc.org)'; 'Libby Larsen SEWRPC'; 'Lisa Conard Brown County'; 'mcechvala@cityofmadison.com'; 'Mike Flesch (Mike Flesch)'; 'Myron Schuster (Myron Schuster)'; 'Nolan, Terry'; Pat Henderson; 'Peter Fletcher (peter@mrrpc.com)'; Rebecca Frisch; Richard Heath; 'Ron Chicka (Ron Chicka)'; 'Sheldon Johnson (Sheldon Johnson)'; Thomas Nee (neet@beloitwi.gov); 'Tom Faella (Tom Faella)'; 'Troy Maggied'; 'Walt Raith (wraith@eastcentralrpc.org)'; William Schaefer; Abboud, Jeffry - DOT; Barta, Larry - DOT; Barth, Tony - DOT; Beekman, Thomas - DOT; Brock, Brian - DOT; Daniels, Marilyn - DOT; DuPont, Crystal - DOT; Elkin, Robert - DOT; Emerson, Jeffrey - DOT; Erickson, Michael - DOT; Furdek, Frank - DOT; Gaber, Brian - DOT; Gust, Jeffrey - DOT; Halada, Matthew - DOT; Hemp, Kyle L - DOT; Higdon, Hans - DOT; Hoelker, Michael - DOT; Hughes, James - DOT; Koprowski, Thomas - DOT; Marcos, Franklin - DOT; Meurett, David - DOT; Michaelson, Jill - DOT; Oestreich, Dale - DOT; Ploederer, Mark - DOT; Richardson, Linda - DOT; Sarnecki, Jennifer B - DOT; Schelfhout, Francis - DOT; Schmit, Sheri - DOT; Somerville, Tracy - DOT; Sommerfield, Arthur - DOT; 'Weigandt, Paul - DOT'; Weyer,

Derek J - DOT; Young, Dena E - DOT; Zimmer, William - DOT; Alley, John - DOT; Atkinson, Ron - DOT; Bristow, Amy - DOT; Brown-Martin, Donna - DOT; Chritton, Chris - DOT; Coleman, June P - DOT; Dang, Vu - DOT; Dercks, Kory - DOT; Dickerson, Christopher J - DOT; Dixon, Neil - DOT; Donlin, James - DOT; Forlenza, Mary - DOT; Gritzmacher, Philip - DOT; Gutkowski, Donald - DOT; Kuehn, James - DOT; Mrotek Glenzinski, Jill - DOT; Murray, Jennifer - DOT; Nordbo, John - DOT; Paoni, Diane - DOT; Patchak, Jesse M - DOT; Rahman, Asadur - DOT; Reed, Robert - DOT; Ritz, Ian - DOT; Schreiber, Matthew W - DOT; Stavn, Russell V - DOT; Tran, Kim - DOT; Sommers, Kristen - DOT; Shell, Justin R - DOT; Deiss, Kasey M - DOT
Cc: 'Christopher.Bertch@dot.gov'; McComb, Dwight; 'William Wheeler (William.Wheeler@dot.gov)'
Subject: Revenue Estimates by MPO – 2014

Hello All

Attached are updated program Revenue Estimates by MPO. For the most part, these estimates were developed similar to the last time with the 2009 Revenue Estimates.

If you have any questions or concerns, please contact me.

Thank you

Jim Kuehn
Statewide MPO-RPC Coordinator
Bureau of Planning and Economic Development
Division of Transportation Investment Management
Wisconsin Department of Transportation
Hill Farms State Office Building Rm 901
Madison WI 53707
608-266-3662

From: Kuehn, James - DOT [mailto:james.kuehn@dot.wi.gov]
Sent: Thursday, August 14, 2014 7:13 AM
To: 'Ann Schell (Ann Schell)'; Brandon Robinson; 'Chandra Ravada (Chandra Ravada)'; Hiebert, Christopher; 'Chuck Lamine (Chuck Lamine)'; 'Cole Runge (Runge_CM [Runge_CM@co.brown.wi.us])'; 'Darryl Landeau (dlandeau@ncwrpc.org)'; 'Dave Mack (Dave Mack)'; Dave Moesch; Lawrence, Dennis; 'duane cherek (cherekd@ci.janesville.wi.us)'; 'Eric Fowle (Eric Fowle)'; 'Gregory Flogstad (Gregory Flogstad)'; Hal Wortman; 'Hoel, Ryan W.'; 'Jackie Eastwood (eastwood.jackie@co.la-crosse.wi.us)'; Jason Dupuis (dupuisj@beloitwi.gov); jduba@wcwrpc.org; Jeff Agee-Aguayo; 'Kamran Mesbah (KamranM@CapitalAreaRPC.org)'; 'Kelley Deutmeyer (Kelley Deutmeyer)'; Yunker, Ken; 'Larry Ward (l.ward@swwrpc.org)'; 'Libby Larsen SEWRPC'; 'Lisa Conard Brown County'; 'mcechvala@cityofmadison.com'; 'Mike Flesch (Mike Flesch)'; 'Myron Schuster (Myron Schuster)'; 'Nolan, Terry'; Pat Henderson; 'Peter Fletcher (peter@mrrpc.com)'; Rebecca Frisch; Richard Heath; 'Ron Chicka (Ron Chicka)'; 'Sheldon Johnson (Sheldon Johnson)'; Thomas Nee (neet@beloitwi.gov); 'Tom Faella (Tom Faella)'; 'Troy Maggied'; 'Walt Raith (wraith@eastcentralrpc.org)'; William Schaefer; Abboud,

Jeffry - DOT; Barta, Larry - DOT; Barth, Tony - DOT; Beekman, Thomas - DOT; Brock, Brian - DOT; Daniels, Marilyn - DOT; Drake, Ray - DOT; DuPont, Crystal - DOT; Elkin, Robert - DOT; Emerson, Jeffrey - DOT; Erickson, Michael - DOT; Furdek, Frank - DOT; Gaber, Brian - DOT; Gust, Jeffrey - DOT; Halada, Matthew - DOT; Hemp, Kyle L - DOT; Hoelker, Michael - DOT; Hughes, James - DOT; Koprowski, Thomas - DOT; Marcos, Franklin - DOT; Meurett, David - DOT; Michaelson, Jill - DOT; Oestreich, Dale - DOT; Ploederer, Mark - DOT; Richardson, Linda - DOT; Sarnecki, Jennifer B - DOT; Schelfhout, Francis - DOT; Schmit, Sheri - DOT; Sommerfield, Arthur - DOT; Weigandt, Paul - DOT; Weyer, Derek J - DOT; Wydeven, Paul - DOT; Zimmer, William - DOT; Alley, John - DOT; Atkinson, Ron - DOT; Bristow, Amy - DOT; Chritton, Chris - DOT; Coleman, June P - DOT; Dickerson, Christopher J - DOT; Dixon, Neil - DOT; Forlenza, Mary - DOT; Gritzmacher, Philip - DOT; Haskell, Vicki S - DOT; Kline, William - DOT; Kuehn, James - DOT; Martin, Urvashi - DOT; Mrotek Glenzinski, Jill - DOT; Murray, Jennifer - DOT; Nordbo, John - DOT; Paoni, Diane - DOT; Schreiber, Matthew W - DOT; Sillence, Mike - DOT; Torres-Cacho, Hector R - DOT; Tran, Kim - DOT; Donlin, James - DOT; Christopher Bertch; McComb, Dwight
Subject: New Inflation Rate for TIPs and STIP

Hello Everyone

Here is the updated inflation rate to be used for 2015 TIPs and long-range transportation plans updates. Using the same formula developed previously, the INFLATION RATE has been updated to be 2.4%.

This inflation rate is based on the average change in the Consumer Price Index over the previous 10 years. This inflation factor is not intended to capture increases in individual cost items. Those increases should be reflected in the individual project cost estimates as they are updated annually.

This rate should be used to inflate costs in the out years in the 2015 TIPs and long-range transportation plans.

Thank you in advance for your attention to this matter.

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Revenue Estimates by MPO
2014

	Appleton	Beloit	Eau Claire	Fond du Lac	Green Bay	Janesville	La Crosse	Madison	Oshkosh	Sheboygan	Superior	Wausau	SEWRPC	
NOTE: These are annual amounts with the exception of the Major Program and Mega Projects.														
NOTE: Numbers do not include local funds with the exception of the Major Program and Mega Projects. See Major's note.														
STH Expansion - Majors Program														
Majors Enumerated for Construction - FY 2014 Expenditures	$39,371,000	$1,474,000	$0	$0	$227,032,000	$478,000	$0	$48,892,000	$1,759,000	$0	$0	$0	$0	
(Routes)	US 41 & US 10/441	IH 39			US 41	IH 39		US 18, IH 39	US 41					
Majors Enumerated for Construction - FY 2015-2020 Expenditures	$499,697,000	$165,384,000	$0	$80,642,000	$124,725,000	$365,335,000	$1,763,000	$267,902,000	$0	$0	$0	$0	$29,276,000	Enumerated Majors projects only. Programmed expenditures as of 2/27/2015.
(Routes)	US 41 & US 10/441	IH 39		STH 23	US 41	IH 39	US 53	US 18, IH 39					STH 50	Transportation Projects Commission (TPC) requires Majors reporting to include all costs, including delivery and local costs.
STH Expansion - SE Mega Projects														
IH 94 N-S - FY 2014 Expenditures	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	
IH 94 N-S - FY 2015-2020 Expenditures													$316,368,000	
Zoo Interchange - FY 2014 Expenditures	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$206,730,000	
Zoo Interchange - FY 2015-2020 Expenditures													$839,608,000	
STH Preservation, Maintenance and Operations														
Combined Backbone and Non-Backbone	$ 27,600,907	$ 7,097,128	$ 23,396,804	$ 9,548,559	$ 30,132,743	$ 13,738,607	$ 14,571,454	$ 37,629,435	$ 9,797,974	$ 10,277,375	$ 8,633,298	$ 18,783,421	$ 95,495,252	Backbone - Based on each MPO's % of total non-SEWRPC MPO BB Miles x 6 year average BB expenditures (09-14) for non-SEWRPC MPOs.
														Non-Backbone - Where 6-yr average is less than dollars based on % of MPO non-BB miles x statewide non-BB expenditures (not including SEWRPC) - used that figure; on all others used 75% of MPO 6-yr average.
														SEWRPC based on 6-year average (09-14).
SHR Bridges	$ 966,488	$ 966,488	$ 966,488	$ 966,488	$ 966,488	$ 966,488	$ 966,488	$ 966,488	$ 966,488	$ 966,488	$ 966,488	$ 966,488	$ 423,257	Based on the total average expenditures (09-14) for all non-SEWRPC MPOs divided by 12 (the number of non-SEWRPC MPOs)
														Average SEWRPC State Low Cost Bridge expenditures (09-14)
SHR Large Bridges	See Notes	See Notes	See Notes	See Notes	See Notes	See Notes	See Notes	See Notes	See Notes	See Notes	See Notes	See Notes	See Notes	If the project is identified now and funding is committed, include cost and funding. If new project, just list it as "Recommended for Further Study."
STH Maintenance and Operations	$ 6,788,600	$ 2,088,800	$ 4,699,800	$ 3,133,200	$ 5,744,200	$ 3,655,400	$ 5,222,000	$ 7,310,800	$ 2,088,800	$ 2,611,000	$ 2,611,000	$ 4,177,600	$ 1,219,811	Based on % of STN miles in MPO planning areas applied to OPB estimate of $ 261m statewide X 2 to better account for lane miles in MPO area.
Local Road Expansion and Preservation														
STP-Urban	$ 3,693,359	$ 380,099	$ 866,387	$ 462,466	$ 3,528,746	$ 586,773	$ 804,541	$ 6,863,061	$ 627,518	$ 600,714	$ 227,817	$ 628,672	$ 26,789,459	Based on MAP-21 specification for UZAs over 200,000 population and calculated share of Chapter 20 for SFY 2014-15 for UZAs 50,000-200,000
	These estimates are not adjusted for currently approved projects. Any currently approved projects scheduled in future fiscal years would reduce those projected amounts.													SEWRPC figure includes Milwaukee, Racine, Kenosha, Round Lake Beach, and West Bend UZAs.
General Transportation Aids	$ 9,550,789	$ 2,243,714	$ 4,284,176	$ 2,391,424	$ 8,749,569	$ 2,808,499	$ 3,596,254	$ 17,776,701	$ 2,965,154	$ 2,683,342	$ 1,260,911	$ 4,833,548	$ 83,968,555	Calculated by taking the 5-year average GTA received by local governments in each urbanized area and then creating an adjusted annual total by applying the percentage of each local government's mileage that is within the urbanized area based on WISLR data.
Connecting Highway Aids	$ 440,062	$ 258,772	$ 54,038	$ 211,026	$ 741,819	$ 351,429	$ 491,328	$ 654,894	$ 278,700	$ 227,733	$ 306,703	$ 261,446	$ 3,860,605	Calculated by taking the 5-year average CHA received by local governments in each urbanized area and then creating an adjusted annual total by applying the percentage of each local government's mileage that is within the urbanized area based on WISLR data.
LRIP	$ 308,994	$ 86,771	$ 98,397	$ 126,937	$ 325,227	$ 117,133	$ 122,282	$ 602,750	$ 96,249	$ 97,437	$ 42,468	$ 263,859	$ 4,377,663	Calculated by taking the 6-year average LRIP funding (all components) received by local governments in each urbanized area and then creating an adjusted annual total by applying the percentage of each local government's mileage that is within the urbanized area based on WISLR data.
Federal Safety Programs	$ 1,100,782	$ 144,873	$ 948,825	$ 144,873	$ 1,967,666	$ 511,054	$ 231,907	$ 1,350,528	$ 331,973	$ 144,873	$ 164,962	$ 201,330	$ 1,125,000	6-year average expenditures per MPO divided by total of all MPO 6-year average expenditures (09-14) = %. Adjustments were made so each MPO received a minimum of 2% - the three MPOs with the largest average 6-yr expenditures were adjusted to absorb the difference.
														Average SEWRPC Federal Safety expenditures
Local Bridges	$ 660,872	$ 220,000	$ 220,000	$ 1,371,343	$ 224,118	$ 305,201	$ 220,000	$ 907,225	$ 220,000	$ 220,000	$ 220,000	$ 350,227	$ 8,497,276	Retained minimum of $220,000 from last projection to account for the cyclical nature of the bridge program. Total is annual average projects completed in SFYs 2010-2014 within each urbanized area.
Bike and Ped														
In-street Accommodations	See Notes	See Notes	See Notes	See Notes	See Notes	See Notes	See Notes	See Notes	See Notes	See Notes	See Notes	See Notes	See Notes	Include as basic component of street project cost and funding.
Transportation Alternative Program	$ 805,045	$ 187,031	$ 45,357	$ 15,374	$ 250,171	$ 108,868	$ 543,150	$ 1,582,491	$ 900	$ 1,843,122	$ 425,280	$ 466,768	$ 3,359,822	Average TAP (and BP, TE, and SRTS) costs (Fed/State w/Delivery) for SFYs 2010-14. Includes special earmarks, such as NMTPP funding.
TAP (without Earmarks or NMTPP Funds)	$ 798,645	$ 187,031	$ 45,357	$ 15,374	$ 250,171	$ 108,868	$ 543,150	$ 749,608	$ 900	$ -	$ 249,735	$ 224,811	$ 3,329,216	Average TAP (and BP, TE, and SRTS) costs (Fed/State w/Delivery) for SFYs 2010-14. Excludes special earmarks, such as NMTPP funding.
Transit														
FTA 5307 Program	$ 2,622,845	$ 614,048	$ 1,883,038	$ 613,487	$ 2,174,586	$ 1,173,426	$ 2,043,056	$ 7,516,424	$ 1,458,143	$ 1,293,177	$ 443,604	$ 1,145,794	$ 25,476,035	Based on 2014 funding distribution final actual figures. SEWRPC includes Milwaukee, Ozaukee, Washington and Waukesha Counties; Cities of Racine, Kenosha, West Bend and Hartford. La Crosse include Onalaska. Eau Claire includes Chippewa Falls.
FTA 5339 Program (Capital)	$ 362,377	$ 75,148	$ 200,942	$ 90,848	$ 293,844	$ 125,255	$ 204,342	$ 980,921	$ 206,155	$ 169,208	$ 68,944	$ 114,707	$ 3,344,226	Based on 2014 apportionment of 5339 program. Statewide allocation of funds are applied proportionately (5307) to all urban areas. SEWRPC includes Milwaukee, Ozaukee, Washington and Waukesha Counties; Cities of Racine, Kenosha, West Bend and Hartford.
State Operating Assistance	$ 2,142,421	$ 462,907	$ 1,419,549	$ 462,484	$ 2,141,291	$ 884,600	$ 1,540,180	$ 17,072,643	$ 1,099,237	$ 974,876	$ 334,415	$ 863,770	$ 72,090,630	Based on 2014 funding distribution final actual figures. Madison includes Monona, Sun Prairie, Stoughton and Verona. La Crosse include Onalaska. Eau Claire includes Chippewa Falls. SEWRPC includes Milwaukee, Ozaukee, Washington and Waukesha Counties; Cities of Racine, Kenosha, West Bend and Hartford.
Other														
CMAQ	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 389,603	$ -	$ -	$ 3,037,544	Average CMAQ costs (Fed/State w/Delivery) for SFYs 2010-14.
Total of all listed revenues (except Majors) per MPO	$ 57,043,542	$ 14,825,779	$ 39,083,801	$19,538,509	$ 57,240,469	$ 25,332,733	$ 30,556,982	$ 101,214,361	$ 20,137,291	$ 22,498,947	$15,705,890	$ 33,057,631	$ 333,065,135	

Revenue Estimates by MPO
2014

	NOTE: These are annual amounts except for STH expansion - these amounts are for the planning period with the exception of the Major Program.													
	NOTE: Numbers do not include local funds with the exception of the Major Program. See Major's note.													
		Appleton	**Beloit**	**Eau Claire**	**Fond du Lac**	**Green Bay**	**Janesville**	**La Crosse**	**Madison**	**Oshkosh**	**Sheboygan**	**Superior**	**Wausau**	**NOTES:**
	STH Preservation, Maintenance and Operations													
Final figures based on total of 6-yr. average multiplied by % of non-SEWRPC BB miles	**Backbone Rehab**	**$ 15,782,352**	**$ 4,040,950**	**$ 17,093,574**	**$ 4,684,641**	**$ 18,428,637**	**$ 7,509,729**	**$ 4,672,720**	**$ 19,012,727**	**$ 5,387,933**	**$ 5,387,933**	**$ 4,350,875**	**$ 12,849,981**	Based on each MPO's % of total non-SEWRPC MPO BB Miles x 6 year average of non-SEWRPC MPO BB expenditures.
% of non-SEWRPC MPO Backbone miles in MPO planning areas		13.2%	3.4%	14.3%	3.9%	15.5%	6.3%	3.9%	16.0%	4.5%	4.5%	3.7%	10.8%	
Total of 6-yr. average for non-SEWRPC MPO Backbone expenditures	$ 119,202,051	$ 5,305,973	$ 1,742,104	$ 11,273,772	$ 1,668,751	$ 11,701,930	$ 4,721,939	$ 15,743,411	$ 34,492,269	$ 291,616	$ 4,871,823	$ 2,440,114	$ 24,948,349	
Total of final figures	$ 119,202,051													
Minimum of figure based on % of MPO NON-BB STH miles or 0.75 of 6 yr avg.	**Non-Backbone 3R**	**11,818,556**	**3,056,179**	**6,303,230**	**4,863,918**	**11,704,106**	**6,228,878**	**9,898,734**	**18,616,708**	**4,410,041**	**4,889,442**	**4,282,423**	**5,933,440**	Where 6-yr. average is less than dollars based on % of MPO non-BB miles x statewide non-BB expenditures (non-SEWRPC) - used that figure; on all others, used 75% of MPO 6-yr. average.
Figure based on % of MPO non-Backbone STH miles		$ 11,818,556	$ 3,056,179	$ 6,303,230	$ 4,863,918	$ 7,661,531	$ 6,228,878	$ 9,898,734	$ 13,328,889	$ 4,410,041	$ 4,889,442	$ 4,282,423	$ 2,946,316	
% of non-Backbone STH miles in MPO planning areas	Totals	14.8%	3.8%	7.9%	6.1%	9.6%	7.8%	12.4%	16.7%	5.5%	6.1%	5.4%	3.7%	
MPO 6-yr. average	$ 79,688,136	$ 9,828,793	$ 1,596,686	$ 2,647,005	$ 2,966,127	$ 15,605,475	$ 2,979,395	$ 6,048,550	$ 24,822,278	$ 573,583	$ 2,343,632	$ 2,365,360	$ 7,911,254	
Average of MPO 6-yr. average and figure based on % of MPO non-BB STH miles	$ 61,567,599	$ 10,823,674	$ 460,308	$ 4,475,117	$ 805,540	$ 1,179,540	$ 4,604,136	$ 7,973,642	$ 19,075,583	$ 2,491,812	$ 3,616,537	$ 632,924	$ 5,428,785	
Total of final figures	$ 92,005,655													
	STH "Low Cost" Bridges	**$ 130,000**	**$ 130,000**	**$ 130,000**	**$ 130,000**	**$ 130,000**	**$ 130,000**	**$ 130,000**	**$ 130,000**	**$ 130,000**	**$ 130,000**	**$ 130,000**	**$ 130,000**	Based on the total average expenditures for all non-SEWRPC MPOs divided by 12 (the number of non-SEWRPC MPOs)
		Total SHR Large Bridges												
	SHR Large Bridges	**$ 5,986,182**	**See Notes**	**See Notes**	**See Notes**	**See Notes**	**See Notes**	**See Notes**	**See Notes**	**See Notes**	**See Notes**	**See Notes**	**See Notes**	If the project is identified now and funding is committed, include cost and funding. If new project, just list it as "Recommended for Further Study."
	STH Maintenance and Operations	**$ 6,788,600**	**$ 2,088,800**	**$ 4,699,800**	**$ 3,133,200**	**$ 5,744,200**	**$ 3,655,400**	**$ 5,222,000**	**$ 7,310,800**	**$ 2,088,800**	**$ 2,611,000**	**$ 2,611,000**	**$ 4,177,600**	Based on % of STN miles in MPO planning areas applied to OPB estimate of $ 261m statewide X 2 to better account for lane miles in MPO area.
	% of STH miles in MPO planning areas	1.3%	0.4%	0.9%	0.6%	1.1%	0.7%	1.0%	1.4%	0.4%	0.5%	0.5%	0.8%	
Total of MPO STH Maintenance & Operations	$ 50,131,200													

APPENDIX E: STATEMENT OF IMPACTS OF PROJECTS IN THE *YEAR 2045 SHEBOYGAN AREA TRANSPORTATION PLAN (SATP)* ON ENVIRONMENTAL JUSTICE

INTRODUCTION

Environmental justice is the fair treatment of all groups within the metropolitan planning area. More specifically, it is the assurance that no one group, regardless of race or income level, will have an unfair number of negative impacts imposed upon them. There are three main principles associated with environmental justice:

(1) To avoid, minimize, or mitigate disproportionately high and adverse human health and environmental effects (including social and economic effects) on minority populations and on low income populations;

(2) To ensure the full and fair participation by all potentially affected communities in the transportation decision making process; and

(3) To prevent the denial of, reduction in or significant delay in the receipt of benefits by minority and low income populations.

In order to certify compliance with Title VI and address environmental justice, FHWA states that MPOs need to do the following:

(1) Enhance MPO analytic capabilities to ensure that the long-range transportation plan and the transportation improvement program (TIP) comply with Title VI;

(2) Identify residential, employment and transportation patterns of low income and minority populations so that their needs can be identified and addressed, and the benefits and burdens of transportation investments can be fairly distributed; and

(3) Evaluate and, where necessary, improve MPO public involvement processes to eliminate participation barriers and engage minority and low income populations in transportation decision making.

The public is an important element of environmental justice compliance. Transportation agencies cannot fully meet community needs without the active participation of well-informed, empowered individuals. The public is responsible for the following:

(1) Participation in public involvement activities (meetings, hearings, advisory committees/groups, and task forces) in order to help responsible State and local agencies understand community needs, perceptions and goals; and

(2) Getting involved with State and local agencies to link MAP-21 authorized programs with other Federal, State and local resources to fund projects that support community goals.

In addressing environmental justice, the MPO has identified census block groups within the metropolitan planning area boundary with a significant low income or minority population, and has analyzed and addressed (when appropriate) the impacts of the recommended projects on the target groups. In the future, as conditions change, technology improves, and more data become available, the analysis itself will also evolve and will become more comprehensive. In addition,

the MPO will develop the ability to reflect back on changes over time, and to evaluate and monitor trends within the metropolitan planning area. This appendix evaluates the potential environmental justice impacts of recommendations contained in the long-range transportation plan. The assessment of potential environmental effects is addressed through evaluating the impacts to economic, social and natural resources.

METHOD OF ANALYSIS

Definition of Terms

The definitions used within this appendix were adopted from the U.S. Environmental Protection Agency's *Toolkit for Assessing Potential Allegations of Environmental Injustice* and the Council on Environmental Quality's *Environmental Justice Guidance under the National Environmental Policy Act*.

- **Affected area or community of concern** – The affected area or community of concern is the geographic area of analysis that the proposed project or action will affect. (In this analysis, the affected areas are those block groups that the project in question abuts).
- **Adverse effect or impact** – Adverse effect or impact is a term used to describe the entire compendium of "significant" (as defined under the National Environmental Policy Act) individual or cumulative human health or environmental effects or impacts which may result from a proposed project or action. Examples of adverse effects or impacts considered in this plan are: (1) access and mobility; (2) economic and social impacts; (3) land use impacts; (4) community and neighborhood impacts; and (5) impacts on natural resources.
- **Disproportionately high and adverse effects or impacts** – An adverse effect or impact that (1) is predominantly borne by an environmental justice target population; or (2) will be suffered by a minority population and/or low income population and is appreciably more severe or greater in magnitude than the adverse effects or impacts that will be suffered by a non-minority population and/or a non-low income population.
- **Low Income** – A person whose household income is at or below the U.S. Department of Health and Human Services' poverty guidelines. For the purposes of this analysis, data on poverty level within the metropolitan planning area from the *2009 – 2013 American Community Survey 5-Year Estimates* was utilized.
- **Minority** – A person (as defined by the U.S. Bureau of the Census) who is: (1) Black or African American (a person having origins in any of the black racial groups of Africa); (2) Hispanic or Latino (a person of Cuban, Mexican, Puerto Rican, South or Central American, or other Spanish culture or origin, regardless of race; (3) Asian (a person having origins in any of the original peoples of the Far East, Southeast Asia or the Indian subcontinent); (4) Native Hawaiian or Other Pacific Islander (a person having origins in any of the original peoples of Hawaii, Guam, Samoa, or other Pacific Islands); or (5) American Indian or Alaska Native (a person having origins in any of the original peoples of North and South America (including Central America), and who maintains tribal affiliation or community attachment. For the purposes of this analysis, 2010 Decennial Census data on race and ethnicity within the

metropolitan planning area was utilized. The U.S. Office of Management and Budget changed these definitions slightly in 1997.

- **Environmental justice communities or target populations** – Areas where any readily identifiable group of minority or low income persons resides at percentages that are statistically significantly higher than the percentages of minority and low income persons in the entire metropolitan planning area. An alternate definition is an area where the percentage of the minority or low income population is meaningfully greater than the minority or low income population percentage in the general population of the metropolitan planning area.

Methodology – Identifying Environmental Justice Populations

All analysis was done at the block group level. Minority population data were collected from the 2010 Decennial Census, while low income population data were collected from the *2009 – 2013 American Community Survey 5-Year Estimates*.

The first step in the analysis examined the metropolitan planning area as a whole to evaluate whether the minority and low income populations were greater than the State of Wisconsin. A minority or low income population higher than the state would mean that the target populations in general would carry a greater portion of the recommended projects' collective impacts than the rest of the population. In the communities of the metropolitan planning area, the minority population is about 16.2 percent of the total population, while 16.7 percent of the population of the State of Wisconsin involves minority populations. The U.S. Bureau of the Census considers 10.6 percent of the population within the communities of the metropolitan planning area to be below the poverty level, compared to 13.0 percent of Wisconsin's total population. The initial analysis indicates that the Sheboygan metropolitan planning area does not have a disproportionate number of minority or low income persons.

Realizing that the Sheboygan metropolitan planning area contains a unique set of communities, local benchmarks were used to analyze the data. The percentage of the population within each census block group identified as low income or minority was compared to the average for the metropolitan planning area utilizing the following methodology.

Two variables were used to calculate the potential impacts of projects recommended in this *Year 2045 SATP* on disadvantaged populations by census block group:

- Table DP-1 (Profile of General Population and Housing Characteristics: 2010), 2010 Census Summary File 1 (in this case, the universe is the total population); and
- Table B17021 (Poverty Status of Individuals in the Past 12 Months by Living Arrangement), 2009 – 2013 American Community Survey 5-Year Estimates (in this case, the universe is the population for whom poverty status is determined).

A portion of Table DP-1 of 2010 Census Summary File 1 details the population of a given geographic area first by ethnicity (Hispanic or non-Hispanic), then by race within both ethnicities. Table DP-1 was useful in determining minority status of the population of the metropolitan planning area and its various Census block groups.

The scope of interest within the variables included minority population and population whose ratio of income to poverty level was less than 1.00 (represents "at poverty").

The first step to determine areas of potential impact involved creating thresholds equal to the

percentages of each variable for the whole of the planning area. (This process is exactly the same as for transit propensity). For purposes of this analysis, the "planning area" is equal to the sum of the populations of the ten local jurisdictions (cities, villages and towns) located within the approved Sheboygan metropolitan planning area. The **thresholds** then would equal the total number exhibiting the characteristic of concern divided by the total:

- Population within the planning area that is of a race other than "white alone" or that is white and of the Hispanic/Latino ethnic group (13,080) divided by the total population of the planning area (80,613) equals **16.2 percent**.
- Population within the planning area living below the poverty level (8,385) divided by the total population within the planning area for whom poverty status is determined (78,753) equals **10.6 percent**.

The next and final steps involved creating categories for very high impact, high impact, and very low to moderate impact for both minority and low income populations. This process included:

1. Calculating the standard deviation for each variable to create a "moderate" category equal to one standard deviation around the mean (one-half standard deviation below and one-half standard deviation above the mean). The deviations from the means for minority and low income populations are:
    - **Minority**: One standard deviation around the mean: **10.55 percent** to **21.85 percent**; 1.5 standard deviations below the mean: **-0.75 percent**; and 1.5 standard deviations above the mean: **33.15 percent** (The standard deviation for minority populations is **11.3 percent**).
    - **Low Income**: One standard deviation around the mean: **5.45 percent** to **15.75 percent**; 1.5 standard deviations below the mean: **-4.85 percent**; and 1.5 standard deviations above the mean: **26.05 percent**. (The standard deviation for low income populations is **10.3 percent**).
2. Querying for census block groups that experienced percentages less than or equal to the upper bound of the "moderate" range for minority populations (21.85 percent) and categorizing them as "very low to moderate minority impact."
3. Querying for census block groups that experienced percentages less than or equal to the upper bound of the "moderate" range for low income populations (15.75 percent) and categorizing them as "very low to moderate poverty impact."
4. Querying for census block groups that experienced minority population percentages greater than 21.85 percent but less than or equal to 33.15 percent and categorizing them as "high minority impact."
5. Querying for census block groups that experienced low income population percentages greater than 15.75 percent but less than or equal to 26.05 percent and categorizing them as "high poverty impact."
6. Querying for census block groups that experienced minority population percentages greater than 33.15 percent and categorizing them as "very high minority impact."
7. Querying for census block groups that experienced low income population percentages greater than 26.05 percent and categorizing them as "very high poverty impact."

Table E.1 helps to illustrate the aforementioned process. In order to save space in the table, "P" represents populations in poverty (low income populations), and "M" represents minority populations.

Table E.1: Impact Potential of Projects Recommended in the *Year 2045 SATP* on Minority and Low Income Populations

Variable	Very Low to Moderate	High	Very High
Minority	Minority populations make up less than or equal to 21.85%	M > 21.85% & M ≤ 33.15%	M > 33.15%
Poverty	Low income populations make up less than or equal to 15.75%	P > 15.75% & P ≤ 26.05%	P > 26.05%

Source: Bay-Lake Regional Planning Commission, 2015.

Factors Evaluated

The locations of concentrations of minority and low income persons were examined in conjunction with the distribution of significant community services and the projects within the *Year 2045 SATP*. The community services evaluated are as follows:

- Health Care (hospitals and major clinics);
- Major Schools (middle schools, high schools and colleges/universities);
- Major Retail Centers;
- Government (including libraries);
- Entertainment/Recreation;
- Special Need Population Centers (Sheboygan Senior Activity Center, RCS);
- Major Employment Centers;
- Transportation Hubs; and
- Parks and Open Space.

The planned projects were added to the analysis to evaluate the impact of the *Year 2045 SATP* on the community services listed above.

In order to provide a simplified picture of the projects examined, the second step of the analysis compared the target areas to the planned projects. The planned projects were grouped by mode. The target areas were examined in conjunction with each group of planned projects to better show the location of each project relative to the target areas.

FINDINGS

The analysis showed that twelve block groups had a significant minority population and twelve block groups had a significant low income population. Of these, nine block groups had both a high minority and low income population (see Map E.1). The highest concentrations of both low income and minority populations occurred in block groups immediately northwest, west and south of Sheboygan's central business district, as well as in one block group on the south side of the City of Sheboygan.

Block groups with concentrations of both environmental justice target populations are considered to be focus areas by the MPO. The block groups that qualify as focus areas are: Census Tract (CT) 2.01, Block Group (BG) 1; CT 2.01, BG 2; CT 5, BG 1; CT 5, BG 2; CT 5, BG 3, CT 8,

BG 1; CT 8, BG 2; CT 8, BG 3; and CT 10, BG 4. With the exception of CT 10, BG 4 (which is located on the south side of the City of Sheboygan), all of these block groups are located to the immediate northwest, west, or south of the central business district of the City of Sheboygan.

The following three block groups in the City of Sheboygan have high minority populations but do not have large low income populations: CT 9, BG 1; CT 9, BG 2; and CT 10, BG 2. CT 9, BG 1 and CT 9, BG 2 are located on the southwest side of the City of Sheboygan, while CT 10, BG 2 is located in south central Sheboygan.

The following three block groups in the City of Sheboygan have significant low income populations but not high minority populations: CT 1, BG 1; CT 4, BG 1; and CT 114, BG 1. CT 1, BG 1 is located on the northeast side of the City of Sheboygan. CT 4, BG 1 is located in the west central portion of the City of Sheboygan. CT 114, BG 1 primarily includes the central business district of the City of Sheboygan.

The projects recommended in the *Year 2045 SATP* are distributed throughout the metropolitan planning area. The recommended projects are intended to preserve the existing transportation system, support a multimodal network, and provide the connectivity necessary to maintain current levels of service (as discussed in Chapters 5 and 6 of the plan). A small number of the planned preservation projects are in close proximity to environmental justice target areas. None of the planned expansion projects (new facilities or additional capacity to existing facilities) are located in environmental justice target areas. The majority of new roadways or facilities where capacity is being added are located in southeastern, southwestern, western and northern portions of the metropolitan planning area, where the greatest demand for development has been occurring. As better access is provided to the target areas and they further develop and experience the economic benefits derived from capital investments, the populations are expected to increase or change, decreasing the concentrations.

The projects recommended in the *Year 2045 SATP* are intended to work together to benefit the entire metropolitan planning area, particularly the environmental justice target areas. As projects move into the Transportation Improvement Program (TIP) and receive committed funding, there will be an opportunity to reexamine those projects and to mitigate any unforeseen impacts on the environmental justice target populations.

Evaluation

In order to better analyze the impacts of all projects identified in the *Year 2045 SATP*, the proposed projects were mapped in relation to the minority and low income environmental justice target areas; this is shown in Maps E.2 and E.3 for transit and in Maps E.4 and E.5 for streets and highways. In the case of the transit maps, a quarter mile buffer around each target area was mapped to provide a visual boundary corresponding to a five minute walk. The proposed projects should not adversely affect the connectivity of the target populations to major destinations, such as health care, education, retail businesses, government services, entertainment, recreation and employment.

Map E.2 depicts the location of census block groups having a poverty level that is considered significant, or greater than 15.75 percent of the population for that block group. Map E.3 illustrates the location of census block groups with significant minority populations, or greater than 21.85 percent of the block group's population. The locations of the target areas are: to the immediate northwest, west, southwest and south of the City of Sheboygan's central business district (CBD); and on the south end of the City of Sheboygan. Maps E.2 and E.3 illustrate that

each target area is within a quarter mile of transit services, providing access to health care, education, retail businesses, government services, entertainment, recreation and employment. Maps E.4 and E.5 clearly illustrate that the proposed street and highway projects do not adversely affect the mobility of those living in the environmental justice target areas.

Access within Targeted Block Groups

Low income and minority persons should have equal access to health care, education, retail businesses, government services, entertainment, recreation and employment. The target populations are likely to have a higher propensity for travel by public transit, so travel to the major centers of concern by bus should not be time prohibitive. Shoreline Metro will stop at regularly scheduled stops, as well as at any requested stops along the route, facilitating easy access to all locations along the route. In most cases, recreational facilities within one quarter mile and employment opportunities within one half mile can be traveled to on foot. Maps E.2 and E.3 illustrate the current access to significant points of interest within the metropolitan planning area via Shoreline Metro. The significant points of interest shown on the maps do not illustrate all such opportunities that exist within the metropolitan planning area; they merely denote the major activity centers.

An inventory of existing conditions within each of the target areas follows.

Census Tract 1, Block Group 1

Census Tract 1, Block Group 1 has a high minority population. Shoreline Metro's Route 5 North connects residents of this block group to many important trip generators, including: Aurora Sheboygan Memorial Medical Center; employment and shopping opportunities in the central business district; government services (including Sheboygan City Hall, the U.S. Post Office, and the Sheboygan County Courthouse); and recreational opportunities (including the Sheboygan Senior Activity Center, the Sheboygan YMCA, and city parks and beaches along Lake Michigan fronting Broughton Drive). Grocery shopping is available at the Save A Lot supermarket on North 8th Street, and residents of the block group can also take Route 5 North to shop at the north side Piggly Wiggly supermarket. Grant Elementary School is located within the block group. Older students can utilize Route 5 North to reach North High School and Urban Middle School. Residents of this block group (and all block groups analyzed here) can transfer to other Shoreline Metro routes to reach other destinations in the transit service area.

Census Tract 2.01, Block Group 1

Census Tract 2.01, Block Group 1 has a very high minority population as well as a very high population in poverty. While this block group has substantial residential development, there are also several small businesses, especially near State Highway 42/Calumet Drive and Superior Avenue. Due to the size of this block group, there are few employment or shopping opportunities, and there are no public schools within the block group. Route 3 North serves this block group, and provides residents with good access to trip generators in the central business district as well as trip generators along that route (including the north side Piggly Wiggly supermarket and two elementary schools).

Census Tract 2.01, Block Group 2

Census Tract 2.01, Block Group 2 has a very high minority population as well as a high population in poverty. This block group has primarily residential development, along with a few small businesses. Again, due to the size of this block group, there are few employment or

shopping opportunities (although the Save A Lot supermarket exists across North 8th Street from the block group), and there are no public schools within the block group. Route 5 North serves the eastern edge of the block group, and connects residents to all of the trip generators previously mentioned for that route.

Census Tract 4, Block Group 1

Census Tract 4, Block Group 1 has a high population in poverty. This block group, while mostly residential, has a wide variety of uses due to its size, including commercial, some governmental/institutional, and even some industrial uses. Shopping opportunities are concentrated in the southwestern portion of this block group (although they are also available elsewhere), and employment opportunities are scattered across the block group. Route 7 North serves much of this block group; in addition to downtown trip generators, this route connects residents of the block group to trip generators such as the west side Pick and Save supermarket, the Aurora Sheboygan Clinic, St. Nicholas Hospital, and the Field of Dreams recreational facility. In addition, Route 10 North serves the south edge of this block group, and connects residents of the block group to trip generators such as Memorial Plaza/Marcus Sheboygan Cinema, the Sheboygan County Job Center (Lakeshore Technical College also holds classes at that location); the Memorial Mall, Shopko, Taylor Heights Shopping Center/Festival Foods, and the Tamarack Apartments.

Census Tract 5, Block Group 1

Census Tract 5, Block Group 1 has a very high minority population as well as a high population in poverty. This block group has primarily residential development (including considerable multifamily residential development), although there is some commercial development at the eastern edge of the block group, along with some industrial development scattered around the block group. Jefferson Elementary School is located in this block group. Outside of some dining, shopping opportunities are limited within the block group. Outside of some scattered industry, employment opportunities are limited within the block group. Several Shoreline Metro routes serve this block group, including Route 3 North (which serves the eastern edge of the block group), Route 7 North (which serves the northern half of the block group), and Route 10 North (which serves the southern edge of the block group). Trip generators served by these routes were previously discussed under Census Tract 2.01, Block Group 1 and Census Tract 4, Block Group 1.

Census Tract 5, Block Group 2

Census Tract 5, Block Group 2 has a high minority population as well as a very high population in poverty. This block group has a mixture of residential development (including considerable multifamily residential development) and park and recreational lands, with a scattering of commercial and industrial development and governmental/institutional uses. Shopping and employment opportunities are limited within the block group. Route 10 North is the main Shoreline Metro route that serves this block group (serving the eastern half of the block group), although Route 3 North and Route 7 North also serve the eastern edge of the block group. Trip generators served by these routes were previously discussed under Census Tract 2.01, Block Group 1 and Census Tract 4, Block Group 1.

Census Tract 5, Block Group 3

Census Tract 5, Block Group 3 has a very high minority population as well as a very high population in poverty. This block group has commercial development focused on Michigan

Avenue, with residential development (including considerable residential development) elsewhere in the block group. Other land uses in the block group are minimal. Shopping and employment opportunities in this block group are generally limited to the Michigan Avenue corridor. Route 3 North passes through the center of this block group, while Route 7 North travels along the eastern (North 9th Street) and northern (Superior Avenue) edges of the block group. In addition, Route 10 North passes along a portion of the southern (Erie Avenue) edge of the block group. Trip generators served by these routes were previously discussed under Census Tract 2.01, Block Group 1 and Census Tract 4, Block Group 1.

Census Tract 8, Block Group 1

Census Tract 8, Block Group 1 has a very high minority population as well as a very high population in poverty. This block group has a mixture of residential and industrial development, with a limited amount of commercial development and other uses. Sheridan Elementary School is located within the block group. Shopping opportunities in the block group are limited, and employment opportunities are mostly confined to industrial and a few commercial areas. Route 3 South passes through this block group, and serves trip generators such as Sheridan Elementary School, Horace Mann Middle School, Labor Ready Employment Agency, the south side Pick and Save supermarket, the Washington Square Shopping Center (including the south side Piggly Wiggly supermarket), and various industries along Union Avenue west of South Business Drive. Route 10 South also passes through this block group, and serves trip generators such as the Aldi supermarket, the UW Sheboygan campus, the south side Walmart Supercenter, the Washington Square Shopping Center, and the south side Pick and Save Supermarket. In addition, Route 30 passes through this block group, and serves trip generators such as James Madison Elementary School, Horace Mann Middle School, Acuity Insurance, Deer Trace Shopping Center, the south side Walmart Supercenter, both of Sheboygan's industrial parks, the County Village Apartments, Indian Meadows Mobile Home Park, the Southtown Mall, and Washington Square Shopping Center. All Shoreline Metro routes that serve this block group connect with trip generators in Sheboygan's central business district.

Census Tract 8, Block Group 2

Census Tract 8, Block Group 2 has a very high minority population as well as a high population in poverty. This block group is fairly evenly split between residential, commercial and industrial development, along with a few parks. Longfellow Elementary School is located within the block group. Shopping opportunities are available along Indiana Avenue as well as in the South Pier district, which is part of this block group. Employment opportunities are available at commercial and industrial venues located within the block group. Route 5 South passes through much of this block group, and serves trip generators such as Farnsworth Middle School, the Sheboygan Area School District's Early Learning Center, Wilson Elementary School, and Indian Meadows Mobile Home Park. Route 7 South also passes through much of this block group, and serves trip generators such as the South Pier district (including Blue Harbor Resort), Longfellow Elementary School, the Boys' and Girls' Club, Farnsworth Middle School, South High School, and the Sunnyside Mall. Routes 3 South, 10 South, and 30 also pass through the extreme northern portion of this block group along Pennsylvania Avenue. All Shoreline Metro routes that serve this block group connect with trip generators in Sheboygan's central business district.

Census Tract 8, Block Group 3

Census Tract 8, Block Group 3 has a high minority population as well as a high population in poverty. This block group is primarily residential in nature, along with some commercial

development and parks. Shopping opportunities are limited within the block group, and mainly occur in the vicinity of Heritage Square Shopping Center. There are few employment opportunities within the block group. Routes 5 South and 7 South pass through much of this block group. Trip generators served by these routes were previously discussed under Census Tract 8, Block Group 2.

Census Tract 9, Block Group 1

Census Tract 9, Block Group 1 has a high minority population. This block group is largely residential in nature, along with some industry. In addition, commercial development exists along portions of Indiana Avenue and South Business Drive. Shopping opportunities in the block group mainly occur along Indiana Avenue as well as around the intersection of South Business Drive and Union Avenue. Employment opportunities mainly occur at commercial and industrial uses located within the block group. Route 3 South is the main route that serves this block group. Route 10 South also serves the eastern edge of this block group (South Business Drive and South 14th Street), and Route 30 serves the northern portion of this block group. Trip generators served by these routes were previously discussed under Census Tract 8, Block Group 1.

Census Tract 9, Block Group 2

Census Tract 9, Block Group 2 has a high minority population. This block group is mostly residential in nature, along with governmental/institutional and park and recreation uses. Commercial uses are very limited, and occur primarily along portions of Indiana and Georgia Avenues. James Madison Elementary School is located in the block group. Shopping opportunities in the block group mainly occur where there are commercial uses, and employment opportunities are limited. Route 3 South serves the southern portion of this block group, and Route 30 serves a portion of this block group adjacent to Georgia Avenue. Trip generators served by Routes 3 South and 30 were previously discussed under Census Tract 8, Block Group 1.

Census Tract 10, Block Group 2

Census Tract 10, Block Group 2 has a high minority population. This block group is predominantly residential in nature. Commercial uses are located mostly adjacent to South Business Drive, and there are some industrial uses along Washington Avenue. Governmental/ institutional and park and recreation lands are also common in this block group. South High School, Wilson Elementary School and the Sheboygan Area School District's Early Learning Center are all located within this block group. Shopping opportunities in the block group mainly occur along South Business Drive, and employment opportunities occur where there are commercial and industrial uses. Route 3 South serves the western edge of this block group along South Business Drive. Route 5 South also passes through much of the block group. Route 7 South serves the eastern edge of this block group along South 12th Street. Route 30 serves the southwest corner of the block group (Southtown Mall). Trip generators served by these routes were previously discussed under Census Tract 8, Block Group 1 and Census Tract 8, Block Group 2.

Census Tract 10, Block Group 4

Census Tract 10, Block Group 4 has a very high minority population as well as a high population in poverty. Most of the developed land in this block group is residential in nature (including apartment complexes), with some parkland. Jackson Elementary School is located in this block group. Undeveloped land in this block group includes open space and agricultural lands. Shopping and employment opportunities are limited within this block group. Route 5 South

serves the northern portion of this block group, but Route 30 serves many multifamily residential portions of the block group, including Country Village Apartments, Indian Meadows Mobile Home Park, and apartment complexes along Carmen Avenue and Camelot Boulevard. Trip generators served by these routes were previously discussed under Census Tract 8, Block Group 1 and Census Tract 8, Block Group 2.

Census Tract 114, Block Group 1

Census Tract 114, Block Group 1 has a high population in poverty. Much of the land in this block group is commercial in nature, along with some governmental/institutional uses and some parks. Sheboygan's central business district is located in this block group, along with the riverfront and marina. There is some residential development in the block group, and it is primarily located east of the central business district. There are many shopping and employment opportunities in this block group, which are mainly tied to the large amount of commercial development. All Shoreline Metro routes converge at the downtown transfer point, which is located in this block group; this makes Census Tract 114, Block Group 1 the best served block group in the transit service area. Route 5 North best serves the residential portions of this block group. Trip generators served by the various routes that serve this block group were previously discussed.

Other Comments

Route 20 connects the City of Sheboygan to the Village of Kohler and the City of Sheboygan Falls. There are several trip generators along this route, including: Memorial Plaza/Marcus Sheboygan Cinema, Memorial Mall, Shopko, and Taylor Heights Shopping Center/Festival Foods in the City of Sheboygan; the Kohler Company plant, Woodlake Market, and Kohler Schools in the Village of Kohler; and Sheboygan Falls Middle School, Sheboygan Falls High School, the Sheboygan Falls Municipal Building, the Sheboygan Falls Piggly Wiggly supermarket, the Forest Avenue and Acacia Falls Mobile Home Parks, and the Sheboygan County Aging and Disability Resource Center (ADRC) in the City of Sheboygan Falls. All Shoreline Metro customers can access Route 20 from the downtown transfer point. Areas having high or very high minority populations and/or populations in poverty along Route 20 include: Census Tract 4, Block Group 1; Census Tract 5, All Block Groups (1, 2 and 3); and Census Tract 114, Block Group 1.

Route 40 is the seasonal "Harbor Centre Express," which runs approximately from Memorial Day weekend to Labor Day weekend. Many destinations in the central business district, riverfront, lakefront and South Pier district are served by this seasonal route. All Shoreline Metro customers can access Route 40 from the downtown transfer point. Areas having high or very high minority populations and/or populations in poverty along Route 40 include: Census Tract 8, Block Group 2; and Census Tract 114, Block Group 1.

Travel Times from Environmental Justice Target Areas to Major Potential Trip Generators in the Sheboygan Metropolitan Planning Area

As part of this analysis, Commission staff examined travel times by automobile and by transit usage from three traffic analysis zones (TAZs) representing environmental justice target areas to the TAZs of several major potential trip generators in the metropolitan planning area. The TAZs representative of environmental justice target areas that were selected for this analysis included:

- TAZ 1557 (located in the southwestern and south central portions of Census Tract 5, Block Group 3);

- TAZ 1630 (located in the northwestern portion of Census Tract 8, Block Group 1); and
- TAZ 1680 (located in the western portion of Census Tract 2.01, Block Group 1).

Map E.6 shows the relationship between the three selected TAZs and the environmental justice target areas.

Automobile Travel Times

Table E.2 shows travel times (in minutes) from the three TAZs representing environmental justice target areas to the TAZs of major potential trip generators in the metropolitan planning area through use of an automobile. The travel demand forecast model was used by staff of the WisDOT travel forecasting section to assist the Commission staff in calculating the travel times listed in Table E.2.

Travel times from environmental justice target areas to major potential trip generators are considered reasonable if a trip by automobile can be accomplished in 20 minutes or less. Table E.2 indicates that residents from TAZs representing the environmental justice target areas can reach most major trip generators of the metropolitan planning area in less than ten minutes by automobile. Residents in TAZ 1557 can reach trip generators in the City of Sheboygan Falls in 10 to 11 minutes, while residents in TAZ 1680 can reach these same trip generators in 11 to 13 minutes. These are congested times in the plan horizon year of 2045.

It should be noted that the times listed in Table E.2 do not account for travel time within the TAZ where the attraction is located, nor do they account for time getting into or out of the vehicle or walking between the origin and the automobile or between the parked automobile and the entrance to the destination.

It is clear that the TAZs representing the environmental justice target areas are within the 20 minute threshold established for reasonable automobile travel time to major potential trip generators in the metropolitan planning area.

Table E.2: Travel Times from Environmental Justice Target TAZs to Attraction TAZs by Automobile – Sheboygan Metropolitan Planning Area

Attraction TAZ	Attraction Name	Travel Time to Attraction TAZ (in minutes)*		
		TAZ 1557	TAZ 1630	TAZ 1680
1531	Sheboygan County Health and Human Services	1.07	2.03	2.52
1532	Harbor Centre/Central Business District	1.62	1.80	3.12
1533	Sheboygan City Hall	1.62	1.80	3.12
1533	Mead Public Library	1.30	1.47	2.79
1534	Shoreline Metro Transfer Point/Intercity Bus Depot	1.70	1.06	3.19
1537	U.S. Post Office - Sheboygan	1.57	0.94	3.09
1539	John Michael Kohler Art Center	1.82	1.66	3.28
1541	Harbor Centre/Riverfront	3.04	2.26	4.52
1542	Sheboygan YMCA	2.75	1.96	3.88
1542	Sheboygan County Courthouse	2.75	1.96	3.88
1542	Sheboygan Senior Activity Center	2.75	1.96	3.88
1549	Aurora Sheboygan Memorial Medical Center	3.19	4.34	2.41
1567	Boys' and Girls' Club	3.89	3.01	5.39
1585	Farnsworth Middle School	4.47	3.31	5.91
1588	Lakeshore Lanes	4.69	3.53	6.13
1589	Maple Lanes	5.66	4.50	7.10
1591	Sheboygan South High School	5.81	4.65	7.25
1600	Sheboygan County Christian High School	6.91	6.03	8.41
1605	Sunnyside Mall	7.09	5.92	8.53
1611	Washington Square Shopping Center/Piggly Wiggly	5.00	3.84	6.44
1613	Sheboygan Industrial Park	6.57	5.40	8.01
1614	Acuity Insurance Company	5.77	4.35	7.21
1615	Sheboygan Lutheran High School	4.91	3.49	6.35
1615	University of Wisconsin Sheboygan	4.91	3.49	6.35
1617	Horace Mann Middle School	4.80	3.34	6.24
1618	Piggly Wiggly Midwest (Corporate Headquarters)	4.59	3.44	6.03
1633	Skateland Roller Rink	1.92	2.36	3.36
1638	Blue Line Ice Skating Rink	3.07	1.76	4.51
1638	Wildwood Softball Facilities	3.07	1.76	4.51
1642	Taylor Heights Shopping Center/Festival Foods	2.84	3.28	4.25
1644	Memorial Mall	3.14	3.28	4.37
1645	Shopko Store	3.21	2.96	4.62
1654	Aurora Sheboygan Clinic	2.20	2.64	2.99
1664	St. Nicholas Hospital	3.27	3.82	3.52
1672	Sheboygan County Job Center	3.61	4.05	3.92
1673	Memorial Plaza	3.45	3.90	4.54
1673	Marcus Cinema	3.45	3.90	4.54
1681	Rehabilitation Center of Sheboygan (RCS)	1.93	2.63	1.61
1686	Sheboygan North High School	3.42	4.12	2.78
1686	Urban Middle School	3.42	4.12	2.78
1687	Northgate Shopping Center/Piggly Wiggly	3.00	3.70	2.36
1688	North Bowl	3.38	4.09	3.00
1721	Kohler Company Main Plant	7.75	7.28	9.07
1722	Woodlake Shops - Kohler	6.47	6.92	7.80
1724	Kohler Public Schools	7.23	6.55	8.55
1736	Sheboygan Falls Main Street (Downtown)	10.04	8.61	11.47
1739	Sheboygan Falls Middle School	10.77	9.34	12.21
1739	Sheboygan Falls High School	10.77	9.34	12.21
1742	Bemis Manufacturing	10.62	9.20	12.06
1854	Deer Trace Shopping Center - Kohler	7.83	6.40	9.27
1855	Walmart Supercenter - South	7.30	5.87	8.73
1856	Sheboygan Business Center	7.58	6.42	9.02

*Congested future time (in 2045). The times listed do not account for travel time within the TAZ where the attraction is located, nor do they account for time getting into or out of the vehicle or walking between the origin and the automobile or between the parked automobile and the entrance to the destination.

Source: Wisconsin Department of Transportation, 2015; and Bay-Lake Regional Planning Commission, 2015.

Transit Travel Times

Table E.3 shows travel times (in minutes) from the three TAZs representing environmental justice target areas to the TAZs of major potential trip generators in the metropolitan planning area through use of Shoreline Metro. The travel times listed in Table E.3 were calculated through approximations of travel times reading Shoreline Metro timetables.

Travel times from environmental justice target areas to major potential trip generators are considered reasonable if a trip using transit can be accomplished in 40 minutes or less. Table E.3 indicates that residents from TAZs representing the environmental justice target areas can reach the majority of major trip generators of the metropolitan planning area in 30 minutes or less. The main portions of the service area that have longer travel times include attractions in the City of Sheboygan east of downtown, as well as portions of the Village of Kohler and the City of Sheboygan Falls.

Attractions east of downtown Sheboygan (the John Michael Kohler Art Center, the Riverfront, the Sheboygan YMCA, the Sheboygan County Courthouse, and the Sheboygan Senior Activity Center) can involve total trip times of 31 to 43 minutes from the environmental justice target TAZs, although the longest times originate in TAZ 1680. Riders have other options besides taking fixed-route transit directly to the attraction to access attractions east of downtown Sheboygan; these options include walking from downtown Sheboygan (from the transfer point or via the beginning parts of Route 5 or Route 20) to the attractions, or, if disabled, utilizing ADA paratransit to reach these attractions.

Attractions in the Village of Kohler (the Kohler Company Main Plant, the Woodlake Shops, and the Kohler Public Schools) can involve total trip times of 32 to 46 minutes from TAZs 1630 and 1680, with the longest times originating in TAZ 1680. Trips to these attractions from TAZ 1557 can be less than 30 minutes, because Route 20 (the Kohler/Sheboygan Falls Route) passes along this TAZ. Trip times to the Kohler Company Main Plant can vary depending upon the trip involved, and service on Route 20 does not involve the same level of service frequency as most Shoreline Metro routes.

Attractions in the City of Sheboygan Falls (downtown Sheboygan Falls, Sheboygan Falls Middle School, Sheboygan Falls High School, and Bemis Manufacturing) can involve total trip times of 35 to 57 minutes. Trips to Bemis Manufacturing exceed 40 minutes from all three environmental justice TAZs, while trips to the other attractions in the City of Sheboygan Falls exceed 40 minutes from TAZs 1630 and 1680. Again, Route 20 does not involve the same level of service frequency as most Shoreline Metro routes.

A few other attractions in the service area have trip times exceeding 30 minutes. The following attractions have trip times exceeding 30 minutes from TAZ 1680: Aurora Sheboygan Memorial Medical Center; Taylor Heights Shopping Center/Festival Foods; Shopko; North High School; North Bowl; and Deer Trace Shopping Center. The south side Walmart Supercenter has trip times exceeding 30 minutes from TAZs 1557 and 1680. The Sheboygan Business Center has trip times exceeding 40 minutes from TAZs 1557 and 1680. These are congested times in the plan horizon year of 2045.

Table E.3: Travel Times from Environmental Justice Target TAZs to Attraction TAZs Using Shoreline Metro – Sheboygan Metropolitan Planning Area

Attraction TAZ	Attraction Name	Travel Time to Attraction TAZ (in minutes)*		
		TAZ 1557	TAZ 1630	TAZ 1680
1531	Sheboygan County Health and Human Services	12	9	17
1532	Harbor Centre/Central Business District	11	8	16
1533	Sheboygan City Hall	5	2	10
1533	Mead Public Library	5	2	10
1534	Shoreline Metro Transfer Point/Intercity Bus Depot	5	2	10
1537	U.S. Post Office - Sheboygan	4	1	9
1539	John Michael Kohler Art Center	35	32	40
1541	Harbor Centre/Riverfront	30	27	35
1542	Sheboygan YMCA	37	34	42
1542	Sheboygan County Courthouse	34	31	39
1542	Sheboygan Senior Activity Center	38	35	43
1549	Aurora Sheboygan Memorial Medical Center	28	25	33
1567	Boys' and Girls' Club**	16	13	21
1585	Farnsworth Middle School**	18	15	23
1588	Lakeshore Lanes	24	12	29
1589	Maple Lanes	23	11	28
1591	Sheboygan South High School**	20	17	25
1600	Sheboygan County Christian High School**	21	18	26
1605	Sunnyside Mall	25	22	30
1611	Washington Square Shopping Center/Piggly Wiggly	21	18	26
1613	Sheboygan Industrial Park	24	12	29
1614	Acuity Insurance Company	23	11	28
1615	Sheboygan Lutheran High School**	20	8	25
1615	University of Wisconsin Sheboygan	21	9	26
1617	Horace Mann Middle School**	19	7	24
1618	Piggly Wiggly Midwest (Corporate Headquarters)	19	7	24
1633	Skateland Roller Rink	1	11	19
1638	Blue Line Ice Skating Rink***	17	5	22
1638	Wildwood Softball Facilities***	17	5	22
1642	Taylor Heights Shopping Center/Festival Foods	15	27	35
1644	Memorial Mall	10	22	30
1645	Shopko Store	12	24	32
1654	Aurora Sheboygan Clinic	2	12	20
1664	St. Nicholas Hospital	22	19	27
1672	Sheboygan County Job Center	4	14	22
1673	Memorial Plaza	6	16	24
1673	Marcus Cinema	6	16	24
1681	Rehabilitation Center of Sheboygan (RCS)	19	16	24
1686	Sheboygan North High School**	27	24	32
1686	Urban Middle School**	21	18	26
1687	Northgate Shopping Center/Piggly Wiggly	22	19	27
1688	North Bowl	27	24	32
1721	Kohler Company Main Plant	15	32	35
1722	Woodlake Shops - Kohler	25	37	45
1724	Kohler Public Schools	26	38	46
1736	Sheboygan Falls Main Street (Downtown)	35	42	50
1739	Sheboygan Falls Middle School	37	44	52
1739	Sheboygan Falls High School	37	44	52
1742	Bemis Manufacturing	42	49	57
1854	Deer Trace Shopping Center - Kohler	27	15	32
1855	Walmart Supercenter - South	31	19	36
1856	Sheboygan Business Center	40	28	45

*Congested future time (in 2045). The times listed do not account for time getting onto or off of the bus between the origin and the bus stop where the passenger catches the bus or between the bus stop nearest the passenger's destination and the entrance to the destination. A transfer time of 5 minutes is assumed in cases where a transfer is necessary.

**Special school routes may shorten these trip times.

***Travel to these destinations will involve a considerable walk from the drop off across New Jersey Avenue from Aldi's supermarket.

Source: Shoreline Metro, 2015; and Bay-Lake Regional Planning Commission, 2015.

It should be noted that the times listed in Table E.3 do not account for time getting onto or off of the bus between the origin and the bus stop where the passenger catches the bus or between the bus stop nearest the passenger's destination and the entrance to the destination. A transfer time of five minutes is assumed in cases where a transfer is necessary. This analysis assumes weekday daytime travel, that conditions are ideal (no weather-related delays, mechanical breakdowns, etc.), and also assumes that passengers have planned their travel in a manner in which they can make connections between the transit routes with minimal delay.

It should be noted that special school routes operated by Shoreline Metro may shorten the trip times indicated for schools and for the Boys' and Girls' Club in the City of Sheboygan in Table E.3. In addition, travel to the Blue Line Ice Skating Rink and to the Wildwood Softball Facilities will involve a considerable walk from the drop off across New Jersey Avenue from the Aldi's supermarket using Route 10 South.

In most cases, passengers in the environmental justice target TAZs were assumed to board the bus at the following locations:

- TAZ 1557: Erie Avenue at North 14th Street (a five minute inbound trip to the transfer point was assumed using either Route 10 North or Route 20);
- TAZ 1630: Pennsylvania Avenue at 14th Street (a two minute inbound trip to the transfer point was assumed using Route 3 South, Route 10 North, Route 10 South, or Route 30 (with Route 10 South serving a larger portion of the TAZ); and
- TAZ 1680: Lincoln Avenue at North 13th Street (a ten minute inbound trip to the transfer point was assumed using Route 3 North).

The TAZs representing the environmental justice target areas are generally within the 40 minute threshold established for reasonable travel time via transit to most major potential trip generators in the metropolitan planning area. Exceptions to this rule were previously noted.

Impacts of Recommended Street and Highway Projects on Environmental Justice Target Areas

Maps E.4 and E.5 illustrate the location of recommended street and highway projects in the *Year 2045 SATP* in relation to the environmental justice target areas. The travel demand forecast model results, discussed in Chapter 6 of the *Year 2045 SATP*, indicate that the recommended projects have the ability to minimize future congestion throughout the Sheboygan metropolitan planning area, benefiting the entire population.

The street and highway projects planned for environmental justice target areas are primarily preservation projects intended to remove potholes and other poor roadway conditions, therefore improving safety and economic conditions.

In addition, seven capacity modifying street and highway projects recommended for implementation in the *Year 2045 SATP* have been overlaid on Maps E.4 and E.5 in order to examine the potential impact of these projects on minority and low income/poverty populations in the Sheboygan metropolitan planning area. The recommended projects and their impacts are as follows:

1. **South Taylor Drive from County Highway EE/Weeden Creek Road to County Highway V: New 4 Lane Facility**

   This project is located in a block group with low to moderate minority and low income populations.

2. **County Highway TT from County Highway PP to State Highway 28: New 2 Lane Facility**

   This project is located in a block group with low to moderate minority and low income populations.

3. **Interstate Highway 43 at County Highway FF: New Full Interchange**

   This project is located in a block group with low to moderate minority and low income populations.

4. **South 18th Street from County Highway EE/Weeden Creek Road to County Highway V: New 2 Lane Facility**

   This project is generally located in a block group with low to moderate minority and low income populations. The northern terminus of this project is located at the southern border of a census block group (10.4) with a high minority population as well as a high population below the poverty level. However, the residential portions of this block group (where minority populations and persons below the poverty level are most likely to live) are a considerable distance from the northern terminus of this project.

5. **Interstate Highway 43 at County Highway PP/Lower Falls Road/Indiana Avenue: New Half Interchange (to and from the south)**

   This project is located in block groups with low to moderate minority and low income populations.

6. **State Highway 23 from the Western Boundary of the Sheboygan Metropolitan Planning Area to State Highway 32: Various Projects (from the Corridor Preservation and Freeway Designation Study)**

   This project is located in block groups with low to moderate minority and low income populations.

7. **State Highway 42 from County Highway Y to County Highway A/Howards Grove: Reconstruction with Increase from 2 to 4 Lanes**

   This project is located in block groups with low to moderate minority and low income populations.

Economic, Social, Community and Neighborhood Impacts

The *Year 2045 SATP* has the potential to affect the economic well being of all who live and work in the Sheboygan metropolitan planning area. Levels of service on roadways, multimodal travel opportunities, and accessibility to businesses are all issues worthy of consideration. If levels of service decline during the planning period, trip times are likely to increase. Businesses would incur higher transportation costs, and individuals would face similar costs in the form of time lost. As congestion and trip times increase, the distance from home that people are willing to travel to work decreases, shrinking their job opportunities. For example, if a person were willing

to travel 30 minutes to work every day, they would probably have the ability to search for and work at jobs within 15 to 20 miles of their home. If congestion increased, and the time it took to make the same trip doubled, they would only be able to look for and maintain jobs within seven to ten miles of their home while still having a 30 minute trip. Their other option would be to increase their trip time to one hour and keep their current trip length (or their job option range) in miles. Increasing trip times detract from the time available for other activities, negatively impacting upon quality of life. Congestion can also influence quality of life by affecting life expectancy. In addition, areas with high levels of congestion also tend to have higher than average crash rates.

The *Year 2045 SATP* also strives to make the Sheboygan metropolitan planning area attractive to residents as well as businesses. The transportation investments recommended in Chapter 7 of the plan will directly impact the ability of residents to travel to and from work, school, health care, retail shopping, government services, entertainment, recreation, and other important destinations within and around the metropolitan planning area. Extensive multimodal planning is intended to provide alternatives to automobile travel; the aim of this planning is to give those without a personal vehicle greater independence of movement throughout the metropolitan planning area, in addition to providing alternatives to those with automobiles. Chapter 5 of the *Year 2045 SATP* illustrates the location of existing sidewalks and bicycle facilities, while Chapter 7 contains recommended bicycle and pedestrian projects, policies and strategies, providing further mobility options to those lacking a personal vehicle. The metropolitan planning area has an abundance of natural resources and recreational lands, including the Sheboygan, Pigeon, Black, Mullet and Onion Rivers, Lake Michigan, parklands and trails. The *Year 2045 SATP* includes recommendations and policies for modest expansions of the trail system, implementing a network of on-road bike lanes and signed bike routes, and encouraging the full utilization of the recreational and multimodal transportation opportunities within the metropolitan planning area.

In order to be successful, businesses require a functioning road network and a strong work force. Preservation is the most cost effective method of maintaining the existing infrastructure of the metropolitan planning area so that goods and services can travel quickly and efficiently between their origins and destinations. Expanding the multimodal network and providing greater connectivity is intended to increase the mobility of residents and the economic vitality of the metropolitan planning area.

The *Year 2045 SATP* supports the development of a transportation system that is compatible with existing and future development patterns and encourages the development of areawide bicycle and pedestrian transportation networks. Integration of pedestrian and bicycle facility development into future system preservation and roadway reconstruction plans is strongly recommended when moving projects forward, especially in environmental justice target areas. When developing the projects recommended in the plan, existing and future land uses were considered, ensuring that the recommended projects do not inadvertently cut off a neighborhood's access to a specific type of service. The plan has a long-term vision of developing an efficient transportation system that provides for the long-term connectivity needs of the metropolitan planning area and the region.

Noise Impacts

It is the policy of the MPO that transportation facilities not expose residential areas, schools and other areas with high concentrations of people to harmful levels of noise. Currently, there are few residential areas and schools (outside of UW Sheboygan) adjacent to noisy freeways such as

Interstate Highway 43 or State Highway 23, and no such areas coincide with high environmental justice target areas. If this changes in the future, noise barriers should be erected as a mitigation measure.

Visual Impacts

In an effort to create attractive communities, the MPO supports development of aesthetically pleasing transportation facilities that preserve the existing natural features of the metropolitan planning area. This is documented in Goal 10 and some of its supporting objectives, which can be found in Chapter 4 of the *Year 2045 SATP*.

Air Quality

Sheboygan County (including the Sheboygan metropolitan planning area) has been designated a marginal nonattainment area for the 2008 eight-hour ozone standard, and has also been designated a moderate nonattainment area for the 1997 eight-hour ozone standard. The *Year 2045 SATP* has been found to conform to the latest State Implementation Plan (SIP) for air quality submitted to the USEPA by the Wisconsin Department of Natural Resources; more information on this can be found in the conformity assessment (Appendix C). In an attempt to reduce motor vehicle produced ozone precursor emissions, the plan supports efficient traffic control measures and the encouragement of transit, bicycle and pedestrian travel. In addition, air quality should continue to be monitored in Sheboygan County.

SUMMARY

As stated previously, there are three main principles associated with environmental justice. The success of the Sheboygan metropolitan planning area in meeting the principles is the basis for evaluating the overall impact of the recommended projects on the target groups. The discussion involves a response to each principle; the principles are as follows:

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

Principles 1 and 3

- To avoid, minimize or mitigate disproportionately high and adverse human health and environmental effects, including social and economic effects, on minority populations and low income populations.
- To prevent the denial of, reduction in or significant delay in the receipt of benefits by minority and low income populations.

The recommended projects are dispersed in an even fashion across the metropolitan planning area. While none of the expansion projects pass through any of the targeted block groups, the seven expansion projects recommended for the metropolitan planning area serve as local and regional connections, increasing opportunities for travel into, out of and within the metropolitan planning area. In addition, the recommended preservation projects will increase the quality of the street and highway network within the metropolitan planning area, including targeted block

groups. Generally, the projects will improve access to major employment centers, entertainment and recreation venues, government services, health care, schools and shopping centers for residents of the targeted block groups. Minimal noise impacts are expected from the recommended projects in the targeted block groups.

All of the residential portions of the targeted block groups are currently served by transit. In addition, planned bicycle and pedestrian facilities have been recommended to run through the targeted block groups or provide connections to them, supplying the residents of those block groups with greater mobility and recreational opportunities. The transit service provided allows residents of the targeted block groups to reach a majority of major destinations (such as major employment centers, entertainment and recreation venues, government services, health care, schools and shopping centers) in 40 minutes or less. When using transit, most residents need to walk no more than three to five blocks to reach their bus stop or destination.

Principle 2

- To ensure the full and fair participation by all potentially affected communities in the transportation decision making process.

The Sheboygan MPO realizes the importance of involving all segments of the community in the decision making process, and a special effort was made to alert the public of the status of the *Year 2045 SATP* and the various opportunities for involvement. The public had the opportunity to comment at each of the joint meetings of the Sheboygan MPO Technical and Policy Advisory Committees when the planned projects were being discussed among members of both committees. In addition, the public comment period and public hearing were advertised in the *Sheboygan Press*, and public comment period/public hearing announcements were sent to entities and individuals listed on the MPO public participation mailing list. The public hearing on the *Year 2045 SATP* was held at the Sheboygan County Administration Building, a location served by public transit. Staff was available to answer any questions presented in person, over the phone, or by e-mail.

In addition, special outreach was made in the areas of transit, bicycle and pedestrian planning. Staff prepared a Transit Development Program (TDP) for Shoreline Metro that covered the period from 2012 through 2016 early in the period in which this long-range transportation plan was prepared; this included convening a TDP review committee and its own public involvement process. Staff also participated in the final meetings of the Sheboygan County Non-Motorized Transportation Pilot Program (NMTPP) Citizens' Advisory and Technical Committee (CATC) early in the period in which this long-range transportation plan was prepared; the NMTPP CATC assisted with the planning and programming of bicycle and pedestrian accommodations throughout Sheboygan County, including the metropolitan planning area.

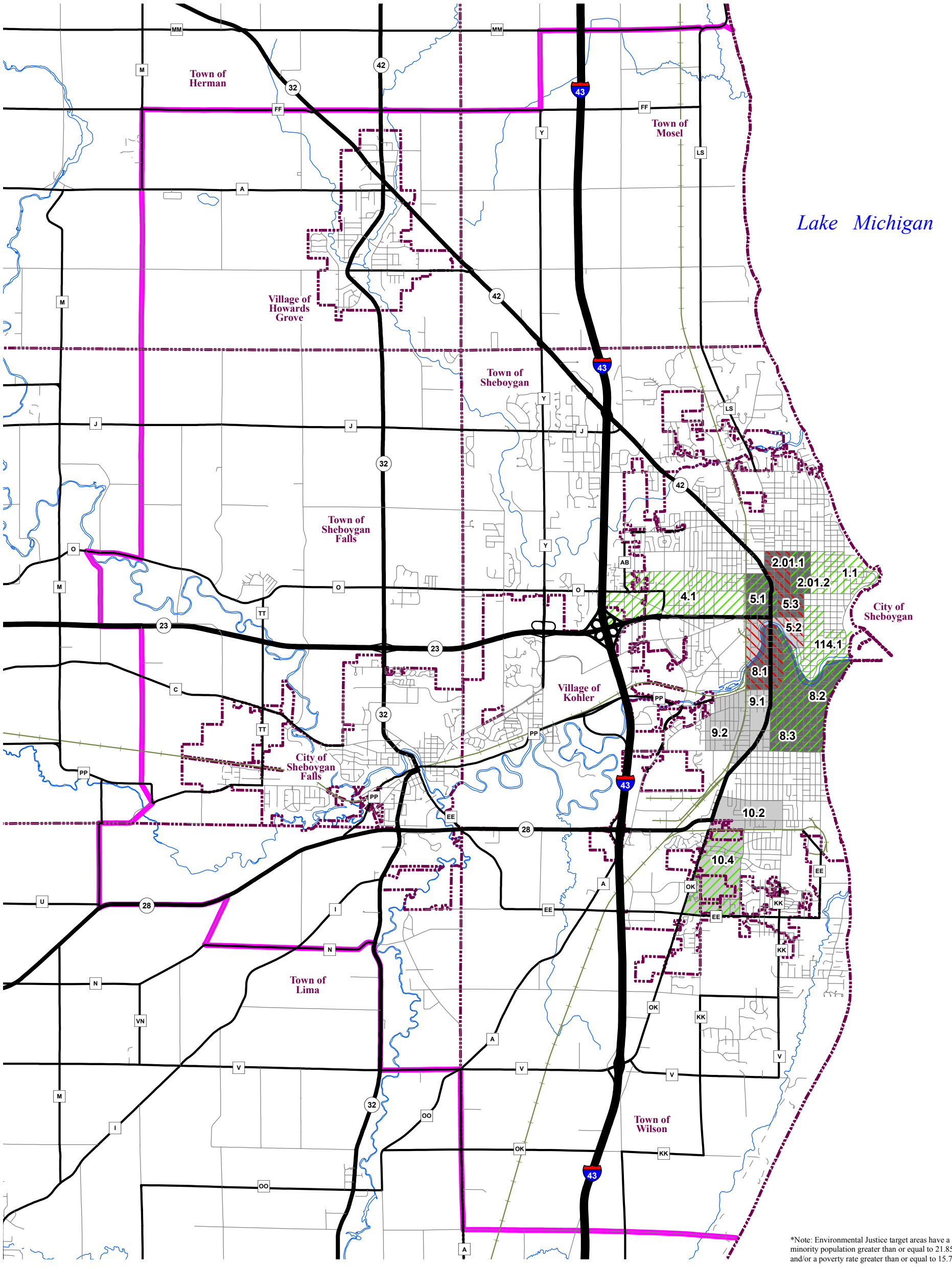
Additional environmental justice analysis will be completed as projects move forward.

Map E.1

Distribution of Environmental Justice Target Populations

Sheboygan Metropolitan Planning Area

Year 2045 Sheboygan Area Transportation Plan (SATP)



Sheboygan Metropolitan Planning Area Boundary

% Below Poverty Level

- 15.75% - 26.05%
- >26.05%

% Minority

- 21.85% - 33.15%
- >33.15%

N W E S

0 0.5 1 2

Miles

BAY-LAKE Regional Planning Commission

G:/Sheboygan/MPO/SATP/2045

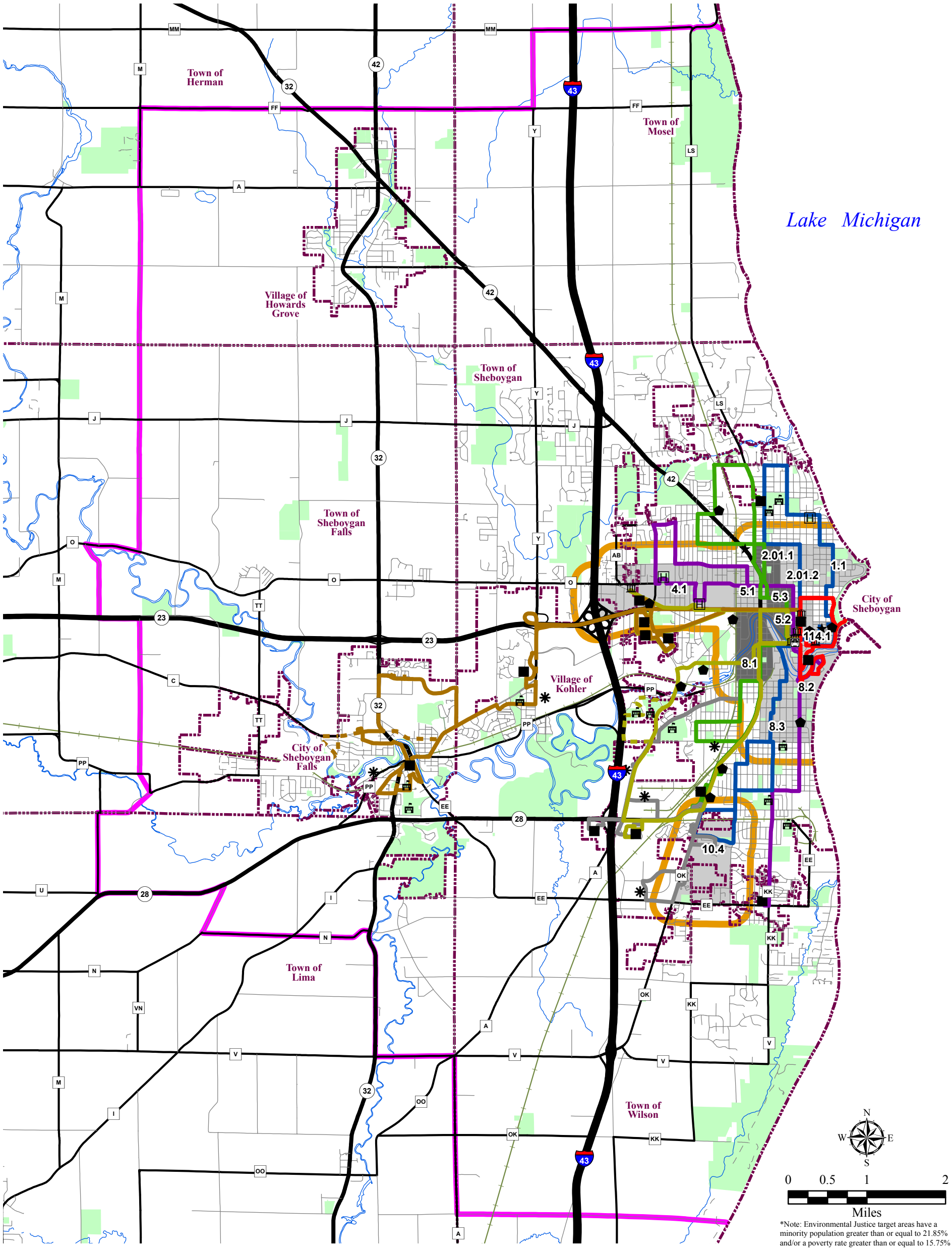
Source: USCB, 2010; WDNR, 2009; WDOT, 2013; Sheboygan County, 2015; Bay-Lake Regional Planning Commission, 2015.

Map E.2

Poverty Populations, Transit Routes and Destinations

Sheboygan Metropolitan Planning Area

Year 2045 Sheboygan Area Transportation Plan (SATP)



Sheboygan Metropolitan Planning Area Boundary

- Employment Center
- Entertainment/Recreation
- Government
- Health Care
- Major School
- Retail
- Special Need Population Center
- Transportation Hub

- Route 3
- Route 5
- Route 7
- Route 10
- Route 20
- Route 30
- Route 40
- Route Deviation

- Park and Recreation Lands
- 1/4 Mile Poverty Level Buffer

% Below Poverty Level

- 0% - 15.74%
- 15.75% - 26.05%
- >26.05%

BAY-LAKE Regional Planning Commission

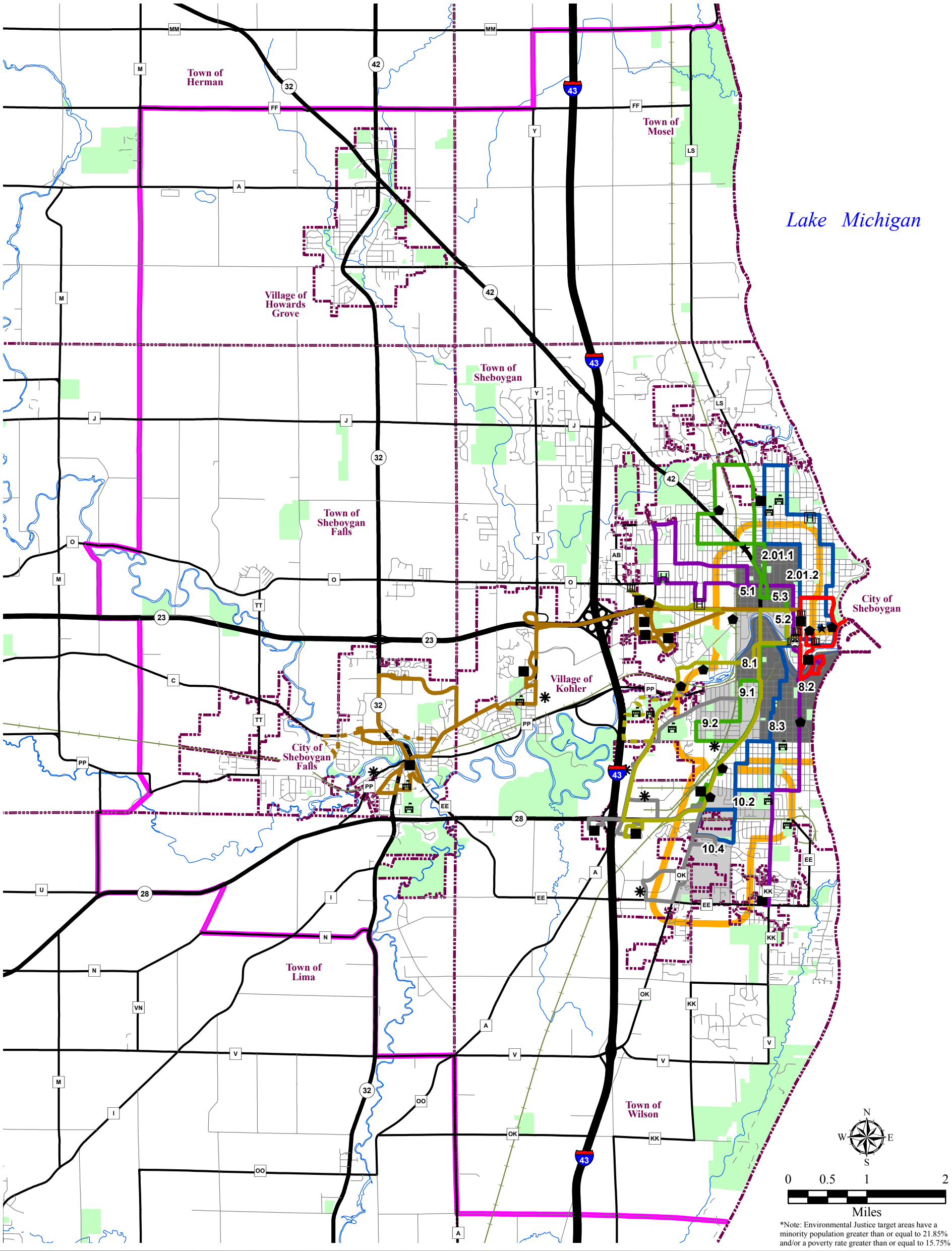
G:/Sheboygan/MPO/SATP/2045
Source: USCB, 2010; WDNR, 2009; WDOT, 2013; Sheboygan Parking and Transit Utility, 2014 Sheboygan County, 2015; Bay-Lake Regional Planning Commission, 2015.

Map E.3

Minority Populations, Transit Routes and Destinations

Sheboygan Metropolitan Planning Area

Year 2045 Sheboygan Area Transportation Plan (SATP)



BAY-LAKE REGIONAL PLANNING COMMISSION

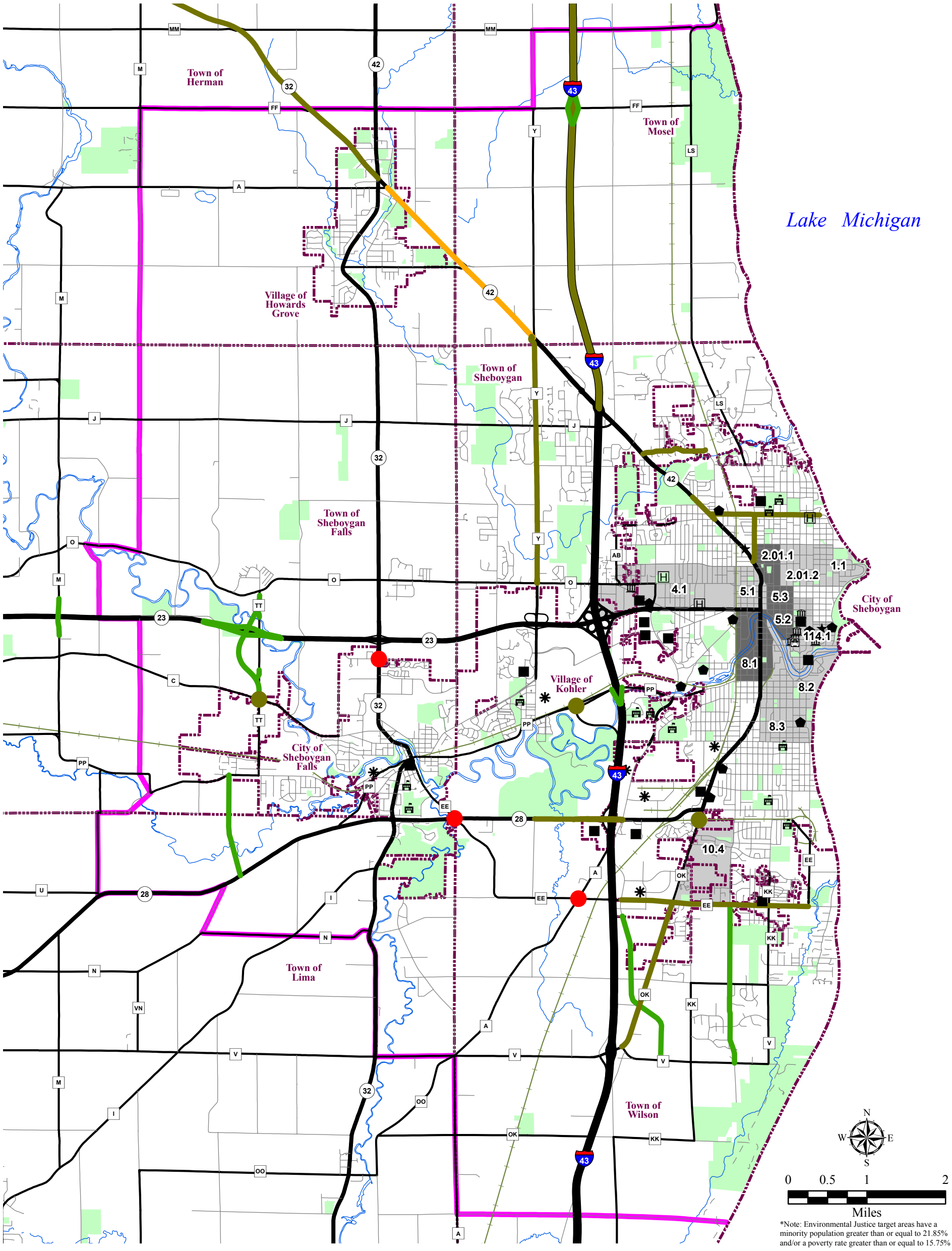
G:/Sheboygan/MPO/SATP/2045
Source: USCB, 2010; WDNR, 2009; WDOT, 2013; Sheboygan Parking and Transit Utility, 2014 Sheboygan County, 2015; Bay-Lake Regional Planning Commission, 2015.

Map E.4

Poverty Populations, Proposed Projects and Destinations

Sheboygan Metropolitan Planning Area

Year 2045 Sheboygan Area Transportation Plan (SATP)



Sheboygan Metropolitan Planning Area Boundary

- Employment Center
- Entertainment/Recreation
- Government
- Health Care
- Major School
- Retail
- Special Need Population Center
- Transportation Hub

- Committed
- Planned System Preservation
- Planned Expansion-New Road
- Planned Expansion-Additional Capacity
- Park and Recreation Lands

% Below Poverty Level

- 0% - 15.74%
- 15.75% - 26.05%
- >26.05%

BAY-LAKE Regional Planning Commission

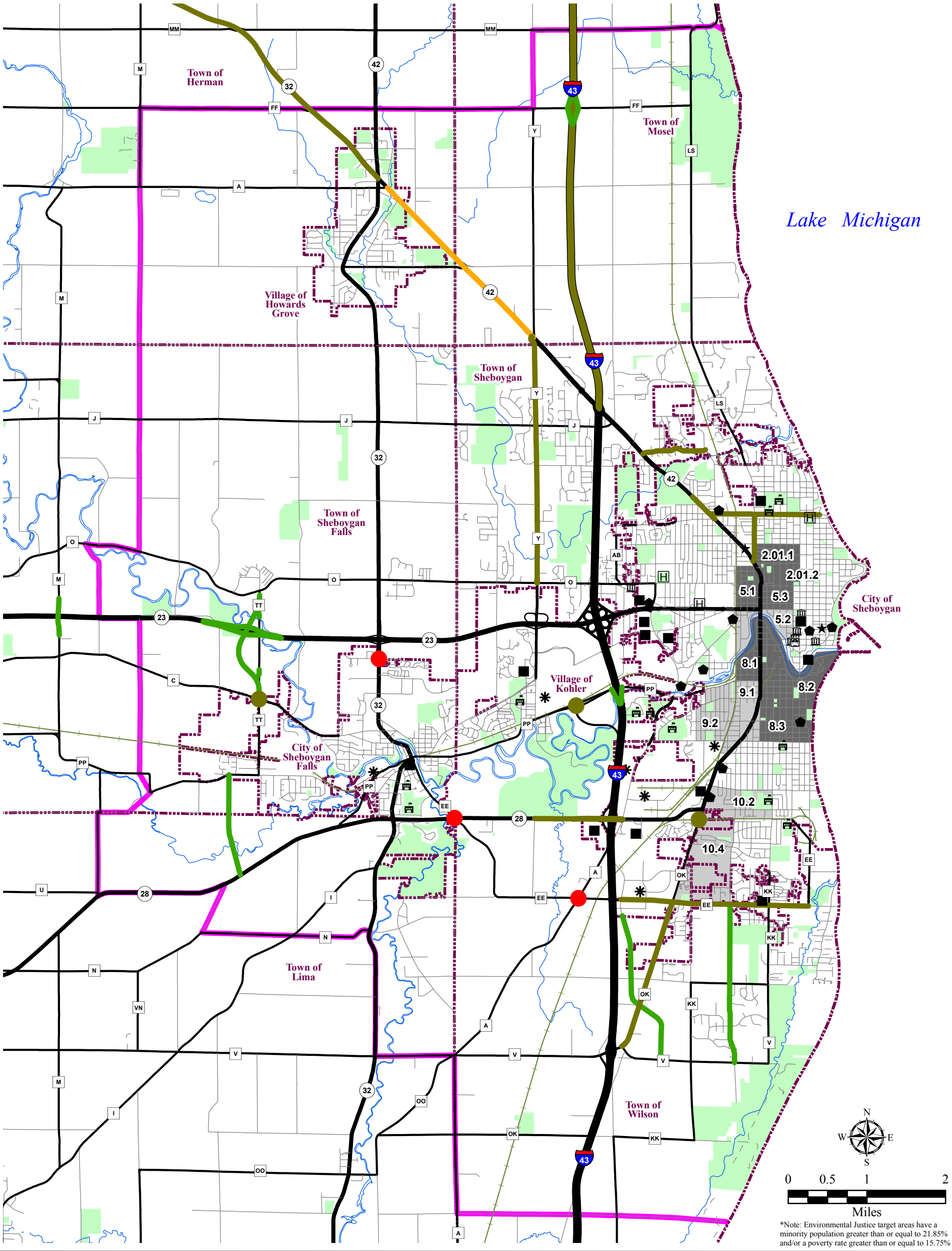
G:/Sheboygan/MPO/SATP/2045
Source: USCB, 2010; WDNR, 2009; WDOT, 2013; Sheboygan County, 2015; Bay-Lake Regional Planning Commission, 2015.

Map E.5

Minority Populations, Proposed Projects and Destinations

Sheboygan Metropolitan Planning Area

Year 2045 Sheboygan Area Transportation Plan (SATP)



Sheboygan Metropolitan Planning Area Boundary

- Employment Center
- Entertainment/Recreation
- Government
- Health Care
- Major School
- Retail
- Special Need Population Center
- Transportation Hub

- Committed
- Planned System Preservation
- Planned Expansion-New Road
- Planned Expansion-Additional Capacity
- Park and Recreation Lands

% Minority Population

- 0% - 21.84%
- 21.85% - 33.15%
- >33.15%

BAY-LAKE REGIONAL PLANNING COMMISSION

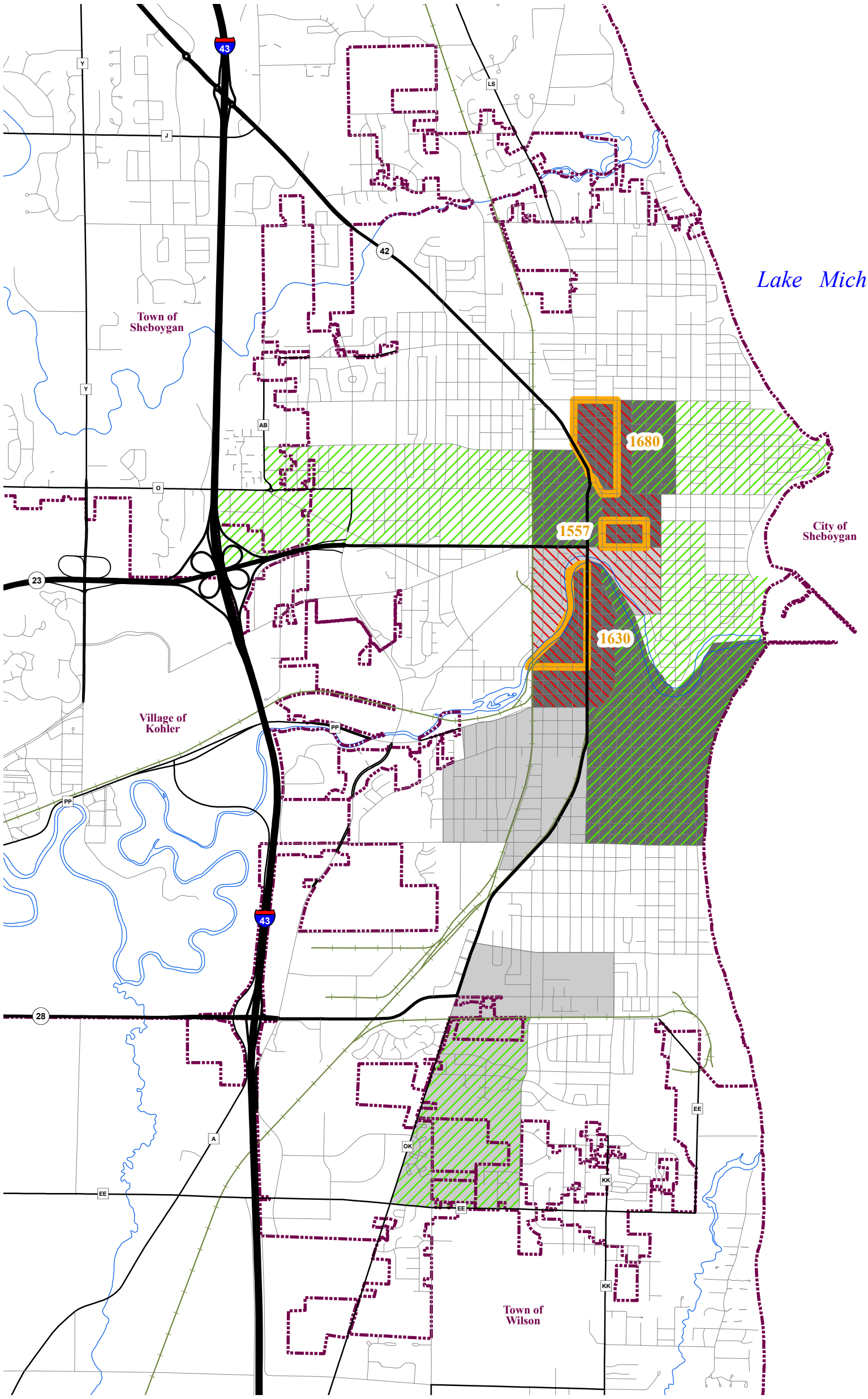
G:/Sheboygan/MPO/SATP/2045
Source: USCB, 2010; WDNR, 2009; WDOT, 2013; Sheboygan County, 2015; Bay-Lake Regional Planning Commission, 2015.

Map E.6

Traffic Analysis Zones (TAZs) Selected for Travel Time Analysis and Environmental Justice Target Areas

Sheboygan Metropolitan Planning Area

Year 2045 Sheboygan Area Transportation Plan (SATP)



*Note: Environmental Justice target areas have a minority population greater than or equal to 21.85% and/or a poverty rate greater than or equal to 15.75%

Sheboygan Metropolitan Planning Area Boundary

Selected Traffic Analysis Zone

% Below Poverty Level
- 15.75% - 26.05%
- >26.05%

% Minority
- 21.85% - 33.15%
- >33.15%

N W E S

0 0.5 1 Miles

BAY-LAKE Regional Planning Commission

G:/Sheboygan/MPO/SATP/2045
Source: USCB, 2010; WDNR, 2009; WDOT, 2012, 2013; Sheboygan County, 2015; Bay-Lake Regional Planning Commission, 2015.

APPENDIX F: PUBLIC PARTICIPATION PROCESS FOR THE *YEAR 2045 SHEBOYGAN AREA TRANSPORTATION PLAN*

INTRODUCTION

The public participation process in developing the *Year 2045 Sheboygan Area Transportation Plan (SATP)* included: responding to corridor test ideas with the travel demand forecast model; a public comment period; a public hearing; and having all meetings of the Sheboygan MPO Technical and Policy Advisory Committees and of the Bay-Lake Regional Planning Commission pertinent to development of the *Year 2045 SATP* open to the public. Additional public participation occurred with one more focused planning effort in the Sheboygan area which influenced the *Year 2045 SATP*, the *Sheboygan Transit Development Program (TDP): 2012 – 2016*. The MPO staff also participated in the final meetings of the Sheboygan County Non-Motorized Transportation Pilot Program (NMTPP) Citizens' Advisory and Technical Committee (CATC) early in the period in which this long-range transportation plan was prepared; input from that committee as well as from Sheboygan County Planning and Conservation Department staff was instrumental in the preparation of the bicycle and pedestrian transportation recommendations found in Chapter 7 of this plan. Finally, a multiagency environmental consultation meeting was held in April of 2015, which contributed to the development of Chapter 8 of this plan.

The following narrative provides highlights of the public participation process for the *Year 2045 SATP*. Documentation concerning this process is available from the Bay-Lake Regional Planning Commission office; this involves notices to news media, paid advertisements announcing public comment opportunities, lists of participants at the public hearing and at all meetings where the plan was being developed, any correspondence from the public specific to individual plan components, and the public participation plan for the MPO program.

PUBLIC MEETINGS

All meetings of the Sheboygan MPO Technical and Policy Advisory Committees and of the Bay-Lake Regional Planning Commission are open to the public. Notice of these meetings is provided on a timely basis to area news media.

- The November 10, 2011, and December 8, 2011, joint meetings of the Sheboygan MPO Technical and Policy Advisory Committees involved review of the draft schedule for the *Year 2045 SATP*.
- The January 26, 2012, joint meeting of the Sheboygan MPO Technical and Policy Advisory Committees involved discussion of tasks pertinent to completion of the *Year 2045 SATP* that were scheduled for early 2012.
- The February 23, 2012, joint meeting of the Sheboygan MPO Technical and Policy Advisory Committees involved: review of the draft *2012 Public Participation Plan Update* for the Sheboygan MPO; and an update on other tasks pertinent to completion of the *Year 2045 SATP* that were scheduled for early 2012.
- The April 19, 2012, joint meeting of the Sheboygan MPO Technical and Policy Advisory Committees involved: discussion regarding the draft *2012 Public Participation Plan Update* for the Sheboygan MPO (including release of the document for a 45 day public

comment period); and an update on other tasks pertinent to completion of the *Year 2045 SATP* that were scheduled for early 2012.

- The May 24, 2012, joint meeting of the Sheboygan MPO Technical and Policy Advisory Committees involved: an update on the public comment period for the draft *2012 Public Participation Plan Update* for the Sheboygan MPO; and an update on other tasks pertinent to completion of the *Year 2045 SATP* that were scheduled for 2012.
- The June 28, 2012, joint meeting of the Sheboygan MPO Technical and Policy Advisory Committees involved: distribution, final review and recommendation of approval of the *2012 Public Participation Plan Update* for the Sheboygan MPO to the Bay-Lake Regional Planning Commission; and establishment of a post-2010 Census adjusted urbanized area boundary for the MPO.
- The August 16, 2012, joint meeting of the Sheboygan MPO Technical and Policy Advisory Committees involved: review of the proposed post-2010 Census adjusted urbanized area boundary for the MPO; and establishment of a post-2010 Census metropolitan planning area boundary for the MPO.
- The October 11, 2012, and December 13, 2012, joint meetings of the Sheboygan MPO Technical and Policy Advisory Committees involved updates on long-range transportation planning activities, including updates on post-2010 Census adjusted urbanized area and metropolitan planning area boundaries.
- The January 24, 2013, joint meeting of the Sheboygan MPO Technical and Policy Advisory Committees involved: review and formulation of an MPO response to Wisconsin Department of Transportation comments on the post-2010 Census adjusted urbanized area boundary for the MPO; and an update on long-range transportation planning activities.
- The February 21, 2013, joint meeting of the Sheboygan MPO Technical and Policy Advisory Committees involved: review and recommendation of approval of proposed boundaries for the Sheboygan Adjusted Urbanized Area; and an update on long-range transportation planning activities.
- The March 21, 2013, joint meeting of the Sheboygan MPO Technical and Policy Advisory Committees involved development and/or modification of land use scenarios which should be examined in the completion of the *Year 2045 SATP*.
- The April 18, 2013, joint meeting of the Sheboygan MPO Technical and Policy Advisory Committees involved continued review of the extent of urban development in the three land use scenarios for 2045 to be examined in the process leading to completion of the *Year 2045 SATP*.
- The May 30, 2013, joint meeting of the Sheboygan MPO Technical and Policy Advisory Committees involved review of the allocation of population and housing growth by 2045 to traffic analysis zones (TAZs) in Sheboygan County under Scenario #1 (Continuation of Existing Trends).
- The June 27, 2013, joint meeting of the Sheboygan MPO Technical and Policy Advisory Committees involved: continued review of the allocation of population and housing

growth by 2045 to TAZs in Sheboygan County under Scenario #1; and preliminary review of the allocation of employment growth by 2045 to TAZs in Sheboygan County under Scenario #1.

- The August 22, 2013, joint meeting of the Sheboygan MPO Technical and Policy Advisory Committees involved review of the allocation of population, housing and employment growth by 2045 to TAZs in Sheboygan County under Scenario #1 and under Scenario #2 (Compact/Infill Development).
- The October 10, 2013, joint meeting of the Sheboygan MPO Technical and Policy Advisory Committees involved: review of potential modifications to the functional classification of streets and highways in the Sheboygan Urbanized Area; and continued review of the allocation of population, housing and employment growth by 2045 to TAZs in Sheboygan County under Scenario #2.
- The November 14, 2013, joint meeting of the Sheboygan MPO Technical and Policy Advisory Committees involved: continued review of potential modifications to the functional classification of streets and highways in the Sheboygan Urbanized Area; and an update on the allocation of population, housing and employment growth to TAZs in Sheboygan County under Scenario #2 and under Scenario #3 (Corridor Development).
- The December 19, 2013, joint meeting of the Sheboygan MPO Technical and Policy Advisory Committees involved: a report on transportation system performance indicators for the Sheboygan Metropolitan Planning Area for 2013; and an update on the allocation of population, housing and employment growth by 2045 to TAZs in Sheboygan County under Scenario #3.
- The January 23, 2014, joint meeting of the Sheboygan MPO Technical and Policy Advisory Committees involved an update on changes to the allocation of population, housing and employment growth by 2045 to TAZs in Sheboygan County under all three land use scenarios (based on discussion at the December 19, 2013, meeting).
- The February 27, 2014, joint meeting of the Sheboygan MPO Technical and Policy Advisory Committees involved an update on changes to the allocation of population and housing by 2045 to TAZs in Sheboygan County under Scenario #3 (Corridor Development, based on discussion at the January 23, 2014, meeting). The MPO advisory committees also reviewed draft Chapter 3 (Profile of the Metropolitan Planning Area) of the *Year 2045 SATP*.
- The April 24, 2014, joint meeting of the Sheboygan MPO Technical and Policy Advisory Committees involved review of draft Chapter 2 (Metropolitan Transportation Planning Process) and review of revisions to draft Chapter 3 of the *Year 2045 SATP*. Updates were also provided on the status of Chapters 4 (Mission Statement, Goals and Objectives) and 5 (Existing Condition of the Transportation Network) at this meeting.
- The May 22, 2014, joint meeting of the Sheboygan MPO Technical and Policy Advisory Committees involved a nominal group exercise to establish goals and objectives for the *Year 2045 SATP*. An update was also provided on Chapter 5 at this meeting.
- The June 26, 2014, joint meeting of the Sheboygan MPO Technical and Policy Advisory Committees involved distribution and review of draft Chapter 5 of the *Year 2045 SATP*.

- The July 17, 2014, joint meeting of the Sheboygan MPO Technical and Policy Advisory Committees involved continued review of draft Chapter 5 of the *Year 2045 SATP*.
- The August 28, 2014, joint meeting of the Sheboygan MPO Technical and Policy Advisory Committees involved review of draft Chapter 4 and continued review of draft Chapter 5 of the *Year 2045 SATP*.
- The October 23, 2014, joint meeting of the Sheboygan MPO Technical and Policy Advisory Committees involved an update on the *Year 2045 SATP*.
- The November 20, 2014, joint meeting of the Sheboygan MPO Technical and Policy Advisory Committees involved: review of the performance of the street and highway network in 2045 under the three land use scenarios developed for the *Year 2045 SATP* (including: review of the land use scenarios in terms of their extent of development and content; review of overall performance of the network under each scenario; and review of projected network deficiencies under each scenario); selection of a land use scenario to carry forward in the long-range transportation plan development process; and suggestion of capacity modifying projects to test with the travel demand forecast model.
- The December 11, 2014, joint meeting of the Sheboygan MPO Technical and Policy Advisory Committees involved review of portions of draft Chapter 6 (Transportation and Land Use) of the *Year 2045 SATP* prepared to date. Members of the MPO advisory committees continued their suggestion of capacity modifying projects to be tested with the travel demand forecast model, and also suggested system preservation and safety projects to include in Chapter 7 (Recommended Transportation Plan) at this meeting.
- The January 22, 2015, joint meeting of the Sheboygan MPO Technical and Policy Advisory Committees involved: review of changes to draft Chapter 6; distribution and review of draft Appendix B (Transportation System Performance Indicators); and discussion of work on other portions of the *Year 2045 SATP*.
- The February 26, 2015, joint meeting of the Sheboygan MPO Technical and Policy Advisory Committees involved: review of results of suggested capacity modifying projects in 2045 with the travel demand forecast model; selection of tested capacity modifying projects for inclusion in the plan (including the implementation period for selected projects); and an update on the various chapters and appendices being prepared for the plan.
- The April 23, 2015 joint meeting of the Sheboygan MPO Technical and Policy Advisory Committees involved: review of changes made to previously prepared chapters of the *Year 2045 SATP* (Chapters 4, 5 and 6); review of recently completed chapters of the *Year 2045 SATP* (including: Chapter 1 – Introduction; Chapter 7 – Recommended Transportation Plan; Chapter 8 – Mitigation of Environmental Impacts of Major Transportation Projects; and Chapter 9 – Financial Plan); review of newly prepared significant appendices in the *Year 2045 SATP* (including: Appendix C – Air Quality Conformity Assessment; Appendix E – Environmental Justice Analysis; and discussion of other smaller appendices being included in the draft plan); and release of the draft *Year 2045 SATP* for a 30 day public review period (including a public hearing).
- The April 24, 2015, meeting of the Bay-Lake Regional Planning Commission Executive

Committee (held in Sheboygan) included an update on the draft *Year 2045 SATP* that was under preparation.

- The May 28, 2015, joint meeting of the Sheboygan MPO Technical and Policy Advisory Committees involved review and recommendation of approval of the *Year 2045 SATP* to the Bay-Lake Regional Planning Commission, including final document review and review of comments received on the plan.
- The May 29, 2015, meeting of the Bay-Lake Regional Planning Commission Executive Committee involved approval of the *Year 2045 SATP*.

RESPONDING TO CORRIDOR TEST IDEAS WITH THE TRAVEL DEMAND FORECAST MODEL

Bay-Lake Regional Planning Commission staff responded to several suggestions for street and highway extension possibilities from the public in the use of the travel demand forecast model. These suggestions included:

(1) South Taylor Drive from County Highway EE/Weeden Creek Road to County Highway V: New 4 Lane Facility;

(2) Interstate Highway 43 at County Highway FF: New Full Interchange;

(3) South 18th Street from County Highway EE/Weeden Creek Road to County Highway V: New 2 Lane Facility;

(4) Interstate Highway 43 at County Highway PP/Lower Falls Road/Indiana Avenue: New Full or Half Interchange (to serve traffic coming to and from the south in the case of a half interchange – both concepts were tested);

(5) County Highway TT from County Highway PP to State Highway 28: New 2 Lane Facility;

(6) State Highway 42 from County Highway Y to County Highway A/Howards Grove: Reconstruction from 2 to 4 Lanes; and

(7) State Highway 23 from State Highway 67 to State Highway 32: Various Projects (from WisDOT's State Highway 23 Corridor Preservation and Freeway Designation Study).

Projects 1 through 7 were added to the plan as capacity modifying projects. Project 4 was added as a half interchange. A full interchange on Interstate Highway 43 with County Highway PP/Lower Falls Road/Indiana Avenue was not advanced to inclusion in the *Year 2045 SATP*. A potential development in the northeastern portion of this tested interchange precluded the ability to recommend a full interchange at this location. Instead, a half interchange (with an off ramp from the northbound lanes and an on ramp to the southbound lanes) has been advanced to inclusion in the plan. In addition, work associated with Project 7 has only been recommended within the Sheboygan metropolitan planning area.

The recommended interchanges along Interstate Highway 43 (Projects 2 and 4) will need to involve further study. Certain conditions will need to be considered in such studies, including: (1) fulfillment of the requirements of an Interstate Access Justification Report (IAJR); and (2) determination that the proposed interchanges would not worsen traffic conditions on Interstate Highway 43. In the case of Project 4, there would also need to be a determination that the proposed improvement will not adversely impact the natural environment at its proposed location

(the Sheboygan River valley is located in the area proposed for this interchange).

Other projects were more generally suggested, but were not specific enough to be accounted for in the travel demand forecast modeling process.

Chapter 6 provides additional details on testing suggested projects with the travel demand forecast model.

PUBLIC COMMENT PERIOD

A public comment period concerning the *Year 2045 SATP* occurred from April 30, 2015, through May 29, 2015. The draft *Year 2045 SATP* was made available at five locations in the Sheboygan area during the public comment period. A legal notice concerning the public comment period was published in the April 30, 2015, edition of the *Sheboygan Press*. Other area news media were also notified of this public comment period, including three newspapers (the *Sheboygan Press*, the *Sheboygan Falls News*, and the *Plymouth Review*), and one multiple frequency radio station (WXER). In addition, the draft plan was posted on the Bay-Lake Regional Planning Commission website. Some 184 individuals and entities on the Sheboygan MPO Public Participation Plan mailing list were notified of the public comment period. The public was also notified of the comment period via Facebook and Twitter. The public comment period notice also included notice of the May 19, 2015, public hearing.

There was one comment received during the public comment period. This comment came in a telephone conversation, and was from an engineer with the firm that provides engineering consulting services to the City of Sheboygan Falls (AECOM). This individual suggested including the reconstruction of Fond du Lac Avenue from Range Line Road to State Highway 32 as a system preservation project in the 2016 to 2025 implementation period in the *Year 2045 SATP*; this project may be included as an amendment to the *Year 2045 SATP* in the future. Comments received during the public comment period are available at the Bay-Lake Regional Planning Commission office.

PUBLIC HEARING

A public hearing concerning the draft *Year 2045 SATP* was held on Tuesday, May 19, 2015, from 4:00 p.m. to 5:00 p.m., at the Sheboygan County Administration Building (Room 302), 508 New York Avenue, Sheboygan. In spite of paid legal notice of the public hearing in the *Sheboygan Press*, notification to 184 individuals and entities on the Sheboygan MPO Public Participation Plan mailing list (including all local news media and members of the MPO advisory committees), posting of the draft plan on the Bay-Lake Regional Planning Commission website, and notification via Facebook and Twitter, no one attended the public hearing. Jeffrey Agee-Aguayo and Josh Schedler represented the Bay-Lake Regional Planning Commission at the public hearing.

All of the maps in the draft plan were available electronically (projected on a screen in the meeting room) at the public hearing. Maps of greatest emphasis discussed: deficient roadway segments in 2045 with the recommended "continuation of existing trends" land use scenario and implementation of the existing plus committed network; projects tested with the travel demand forecast model; recommended capacity modifying street and highway improvement projects; recommended bicycle transportation projects; and recommended pedestrian transportation projects.

PUBLIC PARTICIPATION PLAN FOR MPO TRANSPORTATION PLANNING

The public participation plan for transportation planning activities under the Sheboygan MPO transportation planning program is on file at the Bay-Lake Regional Planning Commission office. This plan was adopted by the Commission in July 2012.

OTHER PUBLIC INVOLVEMENT PROCESSES WHICH INFLUENCED THE PLAN

Sheboygan Transit Development Program (TDP): 2012 – 2016

The Bay-Lake Regional Planning Commission prepared a Transit Development Program (TDP) for Shoreline Metro between early 2010 and mid 2012. The TDP covers the five-year period from 2012 through 2016. The TDP evaluated several alternate configurations for the future of the transit operation. The primary purpose of the TDP process was to determine short-term future needs for public transportation services, and the best transit system configuration that should be provided to meet those needs. Throughout the TDP planning process, the Bay-Lake Regional Planning Commission worked closely with Shoreline Metro staff and with the TDP Review Committee.

The Sheboygan TDP was guided by a 32 member review committee with all of the key stakeholder groups interested in the issues raised in the study represented on the committee. The review committee met on 13 occasions between May 2010 and June 2012. All meetings of the review committee were open to the public. In addition, occasional updates concerning the TDP were provided to the Sheboygan Transit Commission, and all members of the Sheboygan Transit Commission were asked to participate on the TDP Review Committee.

The TDP was adopted by the Sheboygan Transit Commission in July 2012, after a public comment period, public informational/input meeting, and recommendation of approval by the TDP Review Committee at its final meeting for this TDP in June 2012. The process took about a year longer than expected because of a provision in the state biennial budget for 2011 to 2013 that reduced state support for transit operations by 10 percent, which led to spending a considerable amount of time reconfiguring the alternatives analysis and recommended plan chapters with the assistance of Shoreline Metro staff (including drivers), the TDP Review Committee and the public. A new TDP is expected to be prepared in 2016.

Sheboygan County Non-Motorized Transportation Pilot Program (NMTPP)

Sheboygan County was one of four jurisdictions in the United States designated for a "non-motorized transportation pilot program" (NMTPP) in SAFETEA-LU in 2005. This designation authorized up to $25 million (less with obligation limits, administrative expenses, etc.) to implement non-motorized facilities (bicycle, pedestrian, etc.) and programs in the designated jurisdictions in Federal fiscal years 2006 through 2009. Extensions in SAFETEA-LU led to some additional funding for the Sheboygan County NMTPP until MAP-21 was signed into law in mid-2012. A few projects that were funded remain to be implemented.

Sheboygan County established a planning process to implement this program countywide. Criteria were established to evaluate project proposals. MPO staff served on the Citizens' Advisory and Technical Committee (CATC) for the program, and also served on the Technical Subcommittee for the program. In addition, MPO staff provided information from MPO and regional bicycle transportation plans for consideration in the planning process for this pilot program.

The bicycle and pedestrian transportation recommendations in Chapter 7 of this *Year 2045 SATP*

(Recommended Transportation Plan) were prepared to be consistent with the planning efforts of Sheboygan County's Non-Motorized Transportation Pilot Program, and in particular with the latest version of the *Sheboygan County Pedestrian and Bicycle Comprehensive Plan*. The original *Sheboygan County Pedestrian and Bicycle Comprehensive Plan* had a horizon year of 2035, was recommended for approval by the NMTPP CATC, and was approved by the Sheboygan County Board in September 2007. The updated *Sheboygan County Pedestrian and Bicycle Comprehensive Plan* has a horizon year of 2045, was prepared in 2014 and 2015, and was approved by the Sheboygan County Board in April 2015; recommendations from that plan had to be fiscally constrained before being included as recommendations in the *Year 2045 SATP*, with a small number of recommendations from the updated *Sheboygan County Pedestrian and Bicycle Comprehensive Plan* being listed as "illustrative projects."

Environmental Consultation

Commission staff met with representatives from several Federal and state agencies on April 21, 2015, to discuss environmental consultation and the *Year 2045 SATP*. The meeting was held at the Wisconsin Department of Natural Resources (WDNR) Northeast Region office in Green Bay. In addition to staff from the Bay-Lake Regional Planning Commission, representatives from the following agencies were in attendance at the meeting:

- Wisconsin Department of Natural Resources Bureau of Air Management, Madison (via teleconference);
- Wisconsin Department of Transportation, Bureau of Planning and Economic Development, Madison (via teleconference);
- WisDOT Northeast Region, Green Bay (two staff, in person);
- Wisconsin Department of Agriculture, Trade and Consumer Protection, Madison (two staff, via teleconference);
- Federal Highway Administration, Wisconsin Division (via teleconference);
- Wisconsin DNR Northeast Region, Green Bay (in person); and
- Sheboygan County Planning and Conservation Department (via teleconference).

Chapter 8 of the *Year 2045 SATP* (Mitigation of Environmental Impacts of Major Transportation Projects) was prepared based in part on input received at the environmental consultation meeting. More detailed documentation of the environmental consultation meeting can be found in Chapter 8 of the plan. In addition, minutes of the April 21, 2015, multi-agency environmental consultation meeting can be found in Appendix G of the plan.

APPENDIX G: MINUTES OF THE MULTI-AGENCY ENVIRONMENTAL CONSULTATION MEETING

MINUTES
SHEBOYGAN METROPOLITAN PLANNING ORGANIZATION (MPO)
ENVIRONMENTAL CONSULTATION MEETING FOR THE *YEAR 2045 SHEBOYGAN AREA TRANSPORTATION PLAN (SATP)*
Tuesday, April 21, 2015
Wisconsin Department of Natural Resources – Northeast Region Office
2984 Shawano Avenue
Green Bay, Wisconsin

MEETING PARTICIPANTS:
Jeffrey Agee-Aguayo (Sheboygan MPO Planner, Bay-Lake Regional Planning Commission)
Michael Friedlander (Wisconsin Department of Natural Resources Bureau of Air Management, Madison, via teleconference)
Philip Gritzmacher, Jr. (Wisconsin Department of Transportation Bureau of Planning and Economic Development, Madison, via teleconference)
Matt Halada (Wisconsin Department of Transportation Northeast Region Office, Green Bay)
Alice Halpin (Wisconsin Department of Agriculture, Trade and Consumer Protection, Madison, via teleconference)
Dwight McComb (Federal Highway Administration Wisconsin Division, Madison, via teleconference)
Josh Schedler (GIS Coordinator, Bay-Lake Regional Planning Commission)
Jay Schiefelbein (Wisconsin Department of Natural Resources Northeast Region Office, Green Bay)
Jill Schwab (Wisconsin Department of Transportation Northeast Region Office, Green Bay)
Lindsay Tekler (Wisconsin Department of Agriculture, Trade and Consumer Protection, Madison, via teleconference)
Emily Vetting (Sheboygan County Planning and Conservation Department, via teleconference)

1. Introductions, Purpose and Expectations

The meeting started at 10:00 a.m. Jeffrey Agee-Aguayo and Jay Schiefelbein welcomed everyone to the environmental consultation meeting for the *Year 2045 Sheboygan Area Transportation Plan (SATP)*. Meeting participants introduced themselves for the benefit of everyone in attendance. Jeffrey Agee-Aguayo discussed the purpose and expectations of this meeting with all meeting participants, indicating that the group would go through agenda items 2 through 5 (and agenda item 6 if needed). Jeffrey Agee-Aguayo asked

meeting participants to please identify themselves and speak up, particularly if they were participating via teleconference.

2. Overview of the MPO Transportation Plan and Planning Process

Jeffrey Agee-Aguayo distributed and reviewed the outline for the *Year 2045 SATP* with meeting participants. The *Year 2045 SATP* will contain the following chapters:

- Chapter 1: Introduction;
- Chapter 2: Metropolitan Transportation Planning Process;
- Chapter 3: Profile of the Metropolitan Planning Area;
- Chapter 4: Mission Statement, Goals and Objectives
- Chapter 5: Existing Condition of the Transportation Network;
- Chapter 6: Transportation and Land Use;
- Chapter 7: Recommended Transportation Plan;
- Chapter 8: Mitigation of Environmental Impacts of Major Transportation Projects (the focus of this environmental consultation meeting); and
- Chapter 9: Financial Plan.

In addition, the *Year 2045 SATP* will contain the following appendices:

- Appendix A: Glossary of Terms;
- Appendix B: Transportation System Performance Indicators;
- Appendix C: Assessment of Conformity of the *Year 2045 SATP* and the *2015 – 2018 Sheboygan Metropolitan Planning Area Transportation Improvement Program (TIP)* with Respect to the State of Wisconsin Air Quality Implementation Plan;
- Appendix D: Financial Plan Supporting Documentation;
- Appendix E: Statement of Impacts of Projects in the *Year 2045 SATP* on Environmental Justice;
- Appendix F: Public Participation Process for the *Year 2045 SATP*;
- Appendix G: Minutes of the Multi-Agency Environmental Consultation Meeting (these minutes); and
- Appendix H: Sheboygan MPO Technical and Policy Advisory Committee Membership.

Jeffrey Agee-Aguayo also distributed and reviewed the webpage that has been established for the draft *Year 2045 SATP* with meeting participants. All draft chapters and most draft appendices (with the exception of Appendices F and G, which are still in progress) were posted to this webpage as of this meeting. The *Year 2045 SATP* webpage can be found at:

http://www.baylakerpc.org/sheboygan-mpo/year-2045-sheboygan-area-transportation-plan-satp

3. Discussion of New or Updated Environmental Resource Inventories and Plans

Jeffrey Agee-Aguayo distributed and reviewed draft Chapter 8 of the *Year 2045 SATP* (Mitigation of Environmental Impacts of Major Transportation Projects) with meeting participants (narrative and maps). Those participating via teleconference were able to review the draft chapter either via a link that was provided prior to the meeting or by accessing the draft chapter from the *Year 2045 SATP* webpage noted above.

Jeffrey Agee-Aguayo reviewed the following environmental resource inventory maps that were being included in Chapter 8 of the draft *Year 2045 SATP* together with an overlay of the major transportation projects being recommended in that draft plan:

- Land Use (this was last updated in 2009);
- Watersheds;
- Environmental Corridors (including: wetlands greater than two acres with a 50-foot setback; 100-year floodplain; areas of steep slope (12 percent or greater); and surface water with a 75-foot setback);
- Prime Agricultural Soils (including: prime farmland; prime farmland if drained; and farmland of statewide importance);
- Woodlands;
- Historical Sites; and
- Park and Recreation Sites.

Jeffrey Agee-Aguayo noted that information that went into developing these maps was described on pages 8-2 and 8-3 of Chapter 8 of the draft *Year 2045 SATP*.

Jeffrey Agee-Aguayo also reviewed other inventories and plans consulted but not mapped that have been included in Chapter 8 of the draft *Year 2045 SATP*. These other inventories and plans included the following:

- Wisconsin DNR Natural Heritage Inventory (NHI);
- Wisconsin DNR Land Legacy Report;
- Wisconsin Wildlife Action Plan (WWAP);
- State Comprehensive Outdoor Recreation Plan (SCORP);
- Archaeological Sites (provided by the Wisconsin State Historical Society);
- Sheboygan County Natural Areas and Critical Resources Plan;
- Sheboygan County Farmland Preservation Plan; and
- Sheboygan County Outdoor Recreation and Open Space Plan.

In addition, Jeffrey Agee-Aguayo reviewed local comprehensive ("smart growth") plans consulted but not mapped. Discussion regarding consistency of these plans with the *Year 2045 SATP* (and in particular, with the major transportation project recommendations in the *Year 2045 SATP*) has been included in Chapter 8 of the draft plan. The following local comprehensive plans were reviewed:

- City of Sheboygan – plan update adopted in December 2011 (plan updated since the previous environmental mitigation effort);
- City of Sheboygan Falls – plan adopted in September 2009 (not changed since the previous environmental mitigation effort);
- Village of Howards Grove – plan adopted in July 2007 (not changed since the previous environmental mitigation effort);
- Village of Kohler – plan adopted in November 2007 (not changed since the previous environmental mitigation effort);
- Town of Herman – plan adopted in October 2007 (not changed since the previous environmental mitigation effort);
- Town of Lima – plan adopted in December 2009 (not changed since the previous environmental mitigation effort);
- Town of Mosel – plan adopted in June 2009 (not changed since the previous environmental mitigation effort);
- Town of Sheboygan – plan adopted in December 2009 (not changed since the previous environmental mitigation effort);
- Town of Sheboygan Falls – plan adopted in November 2009 (not changed since the previous environmental mitigation effort); and
- Town of Wilson – plan adopted in June 2007 (not changed since the previous environmental mitigation effort).

Jeffrey Agee-Aguayo asked all meeting participants if there were any other inventories that should be included in the environmental mitigation effort or if any such inventories have been updated in comparison to the inventories that the Bay-Lake Regional Planning Commission staff utilized in preparing Chapter 8 of the draft *Year 2045 SATP*. Alice Halpin stated that she was not aware of any missing inventories or a need to include updated inventories from an agricultural standpoint. Jay Schiefelbein indicated that the WDNR would be conducting additional surveys for the Natural Heritage Inventory (NHI) pertinent to the northern long-eared bat later in 2015, but indicated that this work would likely primarily affect portions of southern and southwestern Wisconsin, and would likely not include the Sheboygan metropolitan planning area.

4. Review of Major Planned Transportation Improvements and Potential Impacts

Jeffrey Agee-Aguayo reviewed the "Summary of Major Transportation Projects" (pages 8-1 and 8-2 of Chapter 8 of the draft *Year 2045 SATP*), and also reviewed Map 8.1 in that chapter. Meeting participants were also encouraged to review how the major transportation projects interact with the mapped attributes in Maps 8.2 through 8.8.

The recommended capacity modifying major transportation projects in the draft *Year 2045 SATP* were as follows:

1. South Taylor Drive
   County Highway EE/Weeden Creek Road to County Highway V
   New 4 Lane Facility
   Recommended implementation period: 2016 - 2025

2. County Highway TT
   County Highway PP to State Highway 28
   New 2 Lane Facility
   Recommended implementation Period: 2016 - 2025

3. Interstate Highway 43
   At County Highway FF
   New Full Interchange
   Recommended implementation period: 2026 – 2035

4. South 18th Street
   County Highway EE/Weeden Creek Road to County Highway Y
   New 2 Lane Facility
   Recommended implementation period: 2026 – 2035

5. Interstate Highway 43
   At County Highway PP/Lower Falls Road/Indiana Avenue
   New Half Interchange (to and from the south)
   Recommended implementation period: 2026 - 2035

6. State Highway 23
   Western Boundary of the Sheboygan Metropolitan Planning Area to State Highway 32
   Various Projects (from the Corridor Preservation and Freeway Designation Study)
   Recommended implementation period: 2036 - 2045

7. State Highway 42
   County Highway Y to County Highway A/Howards Grove
   Reconstruction with Increase from 2 to 4 Lanes
   Recommended implementation period: 2036 - 2045

Jeffrey Agee-Aguayo also reviewed the "Summary Impact Analysis for the Major Transportation Projects" (pages 8-16 through 8-19 of Chapter 8 of the draft *Year 2045 SATP*) with meeting participants. Alternatively, meeting participants could review these impacts in Table 8.1 (found on page 8-23 of Chapter 8 of the draft *Year 2045 SATP*).

As far as comments from meeting participants were concerned, Jay Schiefelbein had questions regarding the jurisdiction (state, county or local municipality) of the seven recommended major projects which Jeffrey Agee-Aguayo answered. Matt Halada suggested including the implementation period for each listed project in Table 8.1 (as well as possibly adding the implementation period with the individual project headings on pages 8-16 through 8-19). Alice Halpin suggested determining whether there are any drainage districts in the Sheboygan Metropolitan Planning Area, and if they exist, possibly identifying their role in the environmental mitigation process in Chapter 8. (*Note: Alice Halpin sent an e-mail to Jeffrey Agee-Aguayo shortly after the meeting*

indicating that "there are no drainage districts in the Sheboygan Metropolitan Planning Area," but adding that there was "one drainage district on the Sheboygan/Ozaukee County boundary."). Matt Halada commented that the proximity of an interchange (half or full) at Interstate Highway 43 and County Highway PP/Lower Falls Road/Indiana Avenue could be problematic from a traffic operations standpoint due to the proximity of the State Highway 23 interchange a short distance to the north.

5. Discussion of Environmental Mitigation Policies and Strategies

Jeffrey Agee-Aguayo reviewed the "Environmental Mitigation Policies/Strategies" section of Chapter 8 of the draft *Year 2045 SATP* (pages 8-18 through 8-21) with meeting participants. This section included the following strategies:

- Strategy 1: Avoid Environmentally Significant Features;
- Strategy 2: Employ Local Mitigation Measures; and
- Strategy 3: Utilize Wetland Banks When Local Mitigation Measures Are Not Feasible.

Jeffrey Agee-Aguayo noted that Strategy 2 included the following practices:

- Replace or Supplement an Affected Wetland with a New Wetland;
- Stabilize and Establish Vegetative Buffers along Shorelines; and
- Replace Lost Trees with New Trees.

Under Strategy 3, Jeffrey Agee-Aguayo noted that Sheboygan County is in the process of working with the WDNR and the U.S. Army Corps of Engineers to develop a wetland mitigation bank at the Amsterdam Dunes property in the Town of Holland just south of the Sheboygan Metropolitan Planning Area.

As far as comments from meeting participants were concerned, Jay Schiefelbein and Matt Halada recommended that the second full paragraph on page 8-20 specifically refer to wetlands. Jay Schiefelbein added that the U.S. Army Corps of Engineers tends to prefer use of established wetland mitigation banks (as opposed to improving small wetlands near a transportation project) when completing mitigation associated with such transportation projects. Finally, Jay Schiefelbein suggested that the language in the narrative for Strategy 1 mention wetlands.

6. Other Issues

Jeffrey Agee-Aguayo briefly discussed the air quality conformity analysis (Appendix C) and the environmental justice analysis (Appendix E) that were being included in the draft *Year 2045 SATP*. Jeffrey Agee-Aguayo acknowledged the cooperation of the WisDOT travel forecasting staff and of the WDNR Bureau of Air Management in the completion of Appendix C.

Meeting participants raised no other issues at the meeting.

7. Adjournment

The meeting adjourned at 11:23 a.m.

Recording secretary,

Jeffrey C. Agee-Aguayo

APPENDIX H: SHEBOYGAN MPO TECHNICAL AND POLICY ADVISORY COMMITTEE MEMBERSHIP

TECHNICAL ADVISORY COMMITTEE

Marisol Simon, Regional Adm.
FTA Region 5
Chicago

Kevin Struck
Growth Management Educator
Sheboygan County UW Extension
Sheboygan

Steve Sokolowski
City of Sheboygan Dept. of Planning and Development
Sheboygan

Aaron Brault
Sheboygan County Planning and Conservation Department
Sheboygan

Philip Gritzmacher, Jr., Urban Planning Section
WisDOT Bureau of Planning & Economic Development
Madison

Greg Schnell**, Commissioner
Sheboygan County Highway Dept.
Sheboygan

Dwight McComb (Ex-Officio Member)
Federal Highway Administration, Wisconsin Division
Madison

Ryan Sazama
City of Sheboygan DPW Engineering Division
Sheboygan

Jerry Benzschawel, Director
City of Sheboygan Falls Public Works Department
Sheboygan Falls

Derek Muench, Director
Shoreline Metro
Sheboygan

John Alley
WisDOT Bureau of Transit, Local Roads, Railroads & Harbors
Madison

Matt Halada
WisDOT Northeast Region
Green Bay

Ryan Welsing
Village of Howards Grove

Charles Sweet
Sheboygan Co. Memorial Airport
Sheboygan Falls

Peter McMullen
Wisconsin DNR Southeast Region
Milwaukee

Mark Winkel
Eastern WI Counties Railroad Consortium
Sheboygan

David Smith
Bicycling Advocate
Sheboygan

David Biebel*, Director
Department of Public Works
City of Sheboygan

Christopher Bovee
Bureau of Air Management
Wisconsin DNR
Madison

Jeremiah Schiefelbein
Wisconsin DNR Northeast Region
Green Bay

Cory Roeseler
Sheboygan Co. Traffic Safety Commission
Sheboygan

Bruce Neerhof
Village of Kohler

*Indicates Committee Chair

**Indicates Committee Vice-Chair

POLICY ADVISORY COMMITTEE

Tom Wegner, Vice Chairperson
Sheboygan County Board

Steven Bauer*, Chairperson
Town of Sheboygan Falls

John Ehmann, Chairperson
Town of Wilson

William Blashka (for Daniel Hein, Chairperson)
Town of Sheboygan

Tom Schnettler, President
Village of Kohler

Randy Meyer, Mayor
City of Sheboygan Falls

Michael Vandersteen, Mayor
City of Sheboygan

Dirk Zylman, Chairperson
Town of Mosel

Charles Born**, Chairperson
Town of Lima

James Scheiber, President
Village of Howards Grove

Ald. Darryl Carlson, Chairman
Sheboygan Transit Commission
Sheboygan

Jeffrey Sixel, Chairperson
Town of Herman

Will Dorsey, Director
WisDOT Northeast Region
Green Bay

*Indicates Committee Chair

**Indicates Committee Vice-Chair

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