

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 three implementation periods (2019 – 2028; 2029 – 2038; and 2039 – 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 2019 – 2045 period.

2019 – 2028

Three capacity modifying projects are recommended for implementation in the 2019 – 2028 period:

- South Taylor Drive from Racetrack Road to Southpointe Drive: New 2 Lane Facility (Including Addition of Horizon Drive and Southpointe Drive to meet County Highway OK/South Business Drive);
- South 18th Street from County Highway EE/Weeden Creek Road to County Highway V: New 2 Lane Facility; and
- State Highway 23: Western Boundary of the Sheboygan Metropolitan Planning Area to State Highway 32: Various Projects (from the State Highway 23 Corridor Preservation and Freeway Designation Study, including an interchange at State Highway 23 and County Highway TT).

2029 – 2038

Three capacity modifying projects are recommended for implementation in the 2029 – 2038 period:

- County Highway TT from County Highway PP to State Highway 28: New 2 Lane Facility;
- Interstate Highway 43 at County Highway FF: New Full Interchange; and
- Interstate Highway 43 at County Highway PP/Lower Falls Road/Indiana Avenue: New Half Interchange (to and from the south).

Table 7.1: Recommended Capacity Modifying Street and Highway Improvement Projects:
Sheboygan Metropolitan Planning Area: 2019 – 2045

SYSTEM EXPANSION PROJECTS				
Project Description/Termini	Project Number (From Map 7.1)	2019 - 2028	2029 - 2038	2039 - 2045
South Taylor Drive Racetrack Road to Southpointe Drive (Including Addition of Horizon Drive and Southpointe Drive to Meet County Highway OK/South Business Drive) New 2 Lane Facility (1.88 miles)	1	\$6,704,000	---	---
South 18th Street County Highway EE/Weeden Creek Road to County Highway V New 2 Lane Facility (2.03 miles)	2	\$7,809,000	---	---
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, Including an Interchange at State Highway 23 and County Highway TT) (2.73 miles)	3	\$26,606,000	---	---
County Highway TT County Highway PP to State Highway 28 New 2 Lane Facility (1.30 miles)	4	---	\$11,720,000	---
Interstate Highway 43 At County Highway FF New Full Interchange (0.31 lane miles added)	5	---	\$17,188,000	---
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)	6	---	\$13,518,000	---
Total System Expansion Costs		\$41,119,000	\$42,426,000	\$0
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	---	---	\$11,461,000
Total System Improvement Costs		\$0	\$0	\$11,461,000

Source: Wisconsin Department of Transportation, 2014, 2015 and 2018; Sheboygan County Transportation Department, 2015 and 2018; City of Sheboygan Department of Public Works, 2015 and 2018; and Bay-Lake Regional Planning Commission, 2018.

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2039 – 2045

One capacity modifying project is recommended for implementation in the 2039 – 2045 period:

- State Highway 42 from County Highway Y to County Highway A/Howards Grove: Reconstruction with an Increase from 2 to 4 Lanes.

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 demand 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 (2019 to 2028 – 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 (2019 to 2028 – 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 Update to the *Year 2045 SATP* based on modeling in the last plan update. 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.

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System Preservation and Right-of-Way/Corridor Preservation Projects

Table 7.2 identifies recommended *major* system preservation projects for arterial and collector streets and highways in the Sheboygan metropolitan planning area for the 2019 – 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.

2019 – 2028

Some 12 major system preservation projects are recommended for implementation in the 2019 – 2028 period, along with 18 smaller system preservation projects and various miscellaneous WisDOT grouped projects. In addition, two right-of-way/corridor preservation projects are recommended for implementation in the 2019 – 2028 period.

2029 – 2038

Two major system preservation projects are recommended for implementation in the 2029 – 2038 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 2029 – 2038 period.

2039 – 2045

No major or smaller system preservation or right-of-way/corridor preservation projects are recommended for implementation in the 2039 – 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 2039 – 2045 period.

No smaller system preservation or right-of-way projects are listed between 2029 and 2038. In addition, no major or smaller system preservation projects or right-of-way/corridor preservation projects are listed between 2039 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 original *Year 2045 SATP* (adopted in May 2015) that were high cost projects and remain to be implemented.

Table 7.2: Recommended Major System Preservation Street and Highway Improvement Projects, Sheboygan Metropolitan Planning Area, 2019 – 2045

Project Description/Termini	2019 - 2028	2029 - 2038	2039 - 2045
North Avenue State Highway 42/Calumet Drive to 300 feet east of North 15th Street Reconstruction - Urban - Same Capacity and Rail Work	\$3,077,000	---	---
Pennsylvania Avenue Sheboygan River Bridge Bridge Replacement	\$3,423,000	---	---
Fond du Lac Avenue State Highway 32/Main Street to Rangeline Road Reconstruction - Urban - Same Capacity	\$2,606,000	---	---
North 15th Street State Highway 42/Calumet Drive to Mayflower Avenue Reconstruction - Urban - Same Capacity	\$4,500,000	---	---
Interstate Highway 43 State Highway 42 to Manitowoc County Line Bridge Rehabilitation/Deck Overlays	\$2,164,000	---	---
State Highway 28 State Highway 57 to County Highway A Roadway Maintenance/Resurfacing	\$2,000,000	---	---
State Highway 28/South Business Drive Union Avenue to Washington Avenue Reconstruction - Urban - Same Capacity	\$3,355,000	---	---
Wilson Avenue Lakeshore Drive to State Highway 28/South Business Drive Roadway Maintenance/Resurfacing	\$2,500,000	---	---
South Business Drive Railroad Overpass South of Washington Avenue Bridge Replacement	\$2,341,000	---	---
North Avenue 300 feet east of North 15th Street to North 3rd Street Reconstruction - Urban - Same Capacity	\$5,469,000	---	---
County Highway EE/Weeden Creek Road South Business Drive to Lakeshore Drive Reconstruction - Urban - Same Capacity	\$5,311,000	---	---
Mill Road Najacht Road to State Highway 42 Reconstruction - Urban - Same Capacity	\$2,563,000	---	---
Miscellaneous Small System Preservation Projects	\$12,600,000	---	---
Miscellaneous WisDOT Grouped Projects	\$12,961,000	---	---
State Highway 32 County Highway D to State Highway 28 Roadway Preservation	---	\$2,200,000	---
County Highway Y County Highway O/Superior Avenue to State Highway 42 Reconstruction - Urban - Same Capacity	---	\$5,089,000	---
Miscellaneous WisDOT Grouped Projects	---	\$15,341,000	---
Miscellaneous WisDOT Grouped Projects	---	---	\$12,385,000
Total System Preservation Project Costs	\$64,870,000	\$22,630,000	\$12,385,000

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, 2018; City of Sheboygan Falls Department of Public Works, 2018; Town of Sheboygan, 2018; Sheboygan County Transportation Department, 2018; Wisconsin Department of Transportation, 2018; and Bay-Lake Regional Planning Commission, 2018.

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Improvement projects listed in Table 7.2 include: urban reconstruction at the same capacity (including rail work with one of these projects); bridge replacement; bridge rehabilitation; resurfacing; and roadway preservation. Other categories for lower cost system preservation projects include, but are not limited to: urban reconstruction at the same capacity; bridge replacement; bridge rehabilitation; resurfacing; 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 2019 – 2045 period.

Table 7.3: Recommended Right-of-Way/Corridor Preservation Projects, Sheboygan Metropolitan Planning Area, 2019 – 2045

Project Description/Termini	2019 - 2028	2029 - 2038	2039 - 2045
County Highway EE/Weeden Creek Road South Business Drive to Lakeshore Drive Right-of-Way/Corridor Preservation	\$328,000	---	---
County Highway JJ State Highway 42 to State Highway 32 Right-of-Way/Corridor Preservation	\$73,000	---	---
Total Right-of-Way/System Preservation Project Costs	\$401,000	---	---

Note: Right-of-way costs for recommended capacity modifying street and highway improvement projects have already been factored into total project costs in Table 7.1.

Source: Sheboygan County Transportation Department, 2018; and Bay-Lake Regional Planning Commission, 2018.

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 2019 – 2022*, as well as consultation with staff of Shoreline Metro. Capital items recommended for 2019 through 2023 will also be included in the *Shoreline Metro Transit Development Program (TDP): 2019 – 2023*, which should be completed in 2019.

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, 2019 – 2045

TRANSIT CAPITAL ITEMS			
Project Description/Termini	2019 - 2028	2029 - 2038	2039 - 2045
Shoreline Metro Regular Route Bus Replacements (19 Buses)	\$8,945,000	---	---
Shoreline Metro Regular Route Bus Replacements (13 Buses)	---	\$7,244,000	---
Shoreline Metro Regular Route Bus Replacements (14 Buses)	---	---	\$8,985,000
Shoreline Metro Replacement of Paratransit Vehicles (11 Vehicles)	\$791,000	---	---
Shoreline Metro Replacement of Paratransit Vehicles (11 Vehicles)	---	\$991,000	---
Shoreline Metro Replacement of Paratransit Vehicles (6 Vehicles)	---	---	\$636,000
Shoreline Metro Replacement of Support Vehicles (5 Vehicles)	\$205,000	---	---
Shoreline Metro Replacement of Support Vehicles (5 Vehicles)	---	\$243,000	---
Shoreline Metro Replacement of Support Vehicles (2 Vehicles)	---	---	\$111,000
Shoreline Metro Replacement of Bus Wash at Administrative/Maintenance Facility	\$216,000	---	---
Shoreline Metro - Roof Replacement at Administrative/Maintenance Facility	\$802,000	---	---
Shoreline Metro - Replacement of Forklift at Administrative/Maintenance Facility	\$43,000	---	---
Shoreline Metro - Construction of New Transit Administrative/Maintenance Facility	\$7,552,000	---	---
Total Transit Capital Costs	\$18,554,000	\$8,478,000	\$9,732,000

TRANSIT OPERATING EXPENSES			
Project Description/Termini	2019 - 2028	2029 - 2038	2039 - 2045
Shoreline Metro Operating Expenses	\$38,589,000	---	---
Shoreline Metro Operating Expenses	---	\$42,626,000	---
Shoreline Metro Operating Expenses	---	---	\$32,465,000
Total Transit Operating Costs	\$38,589,000	\$42,626,000	\$32,465,000

Source: Shoreline Metro, 2018; and Bay-Lake Regional Planning Commission, 2018.

Transit Strategies

The following are short- to medium-term strategies that are recommended to be implemented by Shoreline Metro over the 2019 – 2028 period:

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- (1) Purchase 19 fixed-route buses.
- (2) Purchase 11 paratransit vehicles.
- (3) Purchase five support vehicles.
- (4) Construct a new administrative/maintenance facility for Shoreline Metro later in the period.
- (5) Continue to acquire equipment and smaller capital items as needed. Specific identified needs have included: replacement of a bus wash, replacement of the roof, and replacement of a forklift, all at Shoreline Metro's administrative/maintenance facility. Additional capital needs could surface as detailed transit plans are updated and refined.
- (6) Periodically update Shoreline Metro's Transit Asset Management (TAM) Plan and TAM performance targets, and use this information as a tool in planning for and programming transit capital items.
- (7) Continue to coordinate bicycle and pedestrian travel with transit usage.
- (8) Continue to maintain all fixed transit facilities.
- (9) 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.
- (10) Monitor compliance with local sidewalk shoveling ordinances to provide safe and convenient access to bus stops during the winter months.
- (11) Complete the five-year Shoreline Metro Transit Development Program (TDP) in 2019, and implement its recommendations.
- (12) Attract and retain riders through consistent attention to routing, demographic changes, community needs, clear information sources, and customer information.
- (13) Monitor research being performed in alternate fuel applications.
- (14) Continue identification of short- and medium-term funding needs and creative funding options.
- (15) Update and implement a marketing plan that will provide Shoreline Metro with a strategy to successfully exploit niches in both existing and new markets.
- (16) Coordinate efforts between Shoreline Metro and other public agencies concerning maintenance facilities and equipment sharing.
- (17) 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.

- (18) 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.
- (19) Identify potential service expansions to Lakeshore Technical College/Cleveland, Lakeland College, Howards Grove, Plymouth, and to adjacent urbanized portions of towns.
- (20) Assure that vehicle replacements and rehabilitations continue to be consistent with vehicular emissions requirements of the 1990 Clean Air Act Amendments (CAAA).
- (21) 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 2029 – 2045 period:

- (1) Purchase 13 fixed-route bus replacements over the 2029 – 2038 period, and 14 fixed-route bus replacements over the 2039 – 2045 period, as these vehicles exceed their normal service life.
- (2) Purchase 11 paratransit vehicle replacements over the 2029 – 2038 period, and six paratransit vehicle replacements over the 2039 – 2045 period, as these vehicles exceed their normal service life.
- (3) Purchase five support vehicles over the 2029 – 2038 period, and two support vehicles over the 2039 – 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. Additional capital needs could surface as detailed transit plans are updated and refined.
- (5) Continue to periodically update Shoreline Metro’s TAM Plan and TAM performance targets, and use this information as a tool in planning for and programming transit capital items.
- (6) Continue to stay engaged in land use planning issues which affect transit, and implement urban design policies which support the use of transit.
- (7) 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*.
- (8) Continue to identify areas for potential service expansions.
- (9) Continue to implement ADA paratransit service, and continue to maintain the full accessibility of the entire fixed-route transit fleet.
- (10) Continue to improve service for the mobility disadvantaged.
- (11) Continue to determine and resolve transit safety and security issues and deficiencies.

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- (12) Continue to pursue funding for safety and security improvements for Shoreline Metro.
- (13) 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.
- (14) 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.
- (15) Continue identification of long-term funding needs and creative funding options.
- (16) 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: 2015 Update* was approved by the Sheboygan County Board in April 2015, and has a horizon year of 2045. This plan was developed as part of the Non-Motorized Transportation Pilot Program (NMTTP) in which Sheboygan County was authorized in SAFETEA-LU, and is an extension of the *Sheboygan County Pedestrian and Bicycle Comprehensive Plan: 2035* that was adopted in 2007. The plan adopted in 2007 involved extensive participation by many entities, committees and individuals in Sheboygan County, including: every city, village and town in the county; the NMTTP Citizens’ Advisory and Technical Committee (CATC, and its various subcommittees); the Planning, Resources, Agriculture and Extension (PRAE) and Transportation Committees of the Sheboygan County Board; and the public. The 2015 Update involved participation from the following entities: the PRAE 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: 2015 Update*.

This section contains the following items:

- Recommended bicycle transportation projects;
- Pedestrian transportation policy;
- Recommended pedestrian transportation projects;
- Remaining Non-Motorized Transportation Pilot Program (NMTTP) projects in the metropolitan planning area;
- Other bicycle and pedestrian transportation programs (non-construction); and
- Bicycle and pedestrian transportation strategies.

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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: 2015 Update* are recommended in this Update to the *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 Update to the *Year 2045 SATP* for the period covered by this plan. With the exception of the two remaining active NMTTP construction projects, these projects were taken from the *Sheboygan County Pedestrian and Bicycle Comprehensive Plan: 2015 Update*.

It should be noted that bicycle lanes, paved shoulders and shared roadway facilities recommended in the *Sheboygan County Pedestrian and Bicycle Comprehensive Plan: 2015 Update* 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: 2015 Update* and in Maps 7.2 and 7.3 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: 2015 Update*, and assumed in this Update to the *Year 2045 SATP*. These unit costs have been adjusted to 2019 dollars in order to keep these costs current. These figures will be increased by an annual inflation rate of 1.7 percent in order to maintain a fiscally constrained transportation plan.

Table 7.5: Unit Costs, Bicycle and Pedestrian Facilities, Sheboygan Metropolitan Planning Area (In 2019 Dollars)

Facility Type	Unit Cost (In 2019 Dollars)
Sidewalks	\$7.63 per square foot (or less)
Paved Shoulders	\$5.08 per square foot (or less)
Shared-Use Path/Facility	\$4.45 per square foot (or less)
Bicycle Lane Striping	\$0.64 per lineal foot
Shared Roadways	Minimal cost (signage, etc.)

Source: Bay-Lake Regional Planning Commission, 2018.

Table 7.6 shows estimated mileage and costs for bicycle facilities associated with implementation of the Update to the *Year 2045 SATP*. These are expressed in 2019 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 Update to the *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 2019 Dollars), Recommended Bicycle Facilities in the Update to the *Year 2045 SATP*²

Facility Type	Mileage		
	2019 - 2028	2029 - 2038	2039-2045
Bicycle Lanes	6.02	2.83	4.61
Shared-Use Paths	1.66	3.66	3.56
Paved Shoulders	1.84	3.83	0.00
Total	9.52	10.33	8.17

Facility Type	Costs		
	2019 - 2028	2029 - 2038	2039 - 2045
Bicycle Lanes	\$43,861	\$24,448	\$46,262
Shared-Use Paths ¹	\$5,788,001	\$2,617,039	\$1,367,289
Paved Shoulders	\$478,139	\$1,181,075	\$0
Total	\$6,310,001	\$3,822,562	\$1,413,551

Notes:

¹Three shared-use paths (two in the 2019 – 2028 implementation period, and one in the 2029 – 2038 implementation period) include small bridges as a part of the project.

²Not all projects in the *Sheboygan County Pedestrian and Bicycle Comprehensive Plan: 2015 Update* have been recommended in the Update to the *Year 2045 SATP*. Projects that cannot be recommended due to fiscal constraint are being identified as “illustrative” projects in the Update to the *Year 2045 SATP*.

Source: Sheboygan County Planning and Conservation Department, 2015; and Bay-Lake Regional Planning Commission, 2018.

Illustrative Projects

There are several bicycle transportation projects in the Sheboygan metropolitan planning area from the *Sheboygan County Pedestrian and Bicycle Comprehensive Plan: 2015 Update* that could not be included as recommended projects in this Update to the *Year 2045 SATP*. Such projects are considered **illustrative projects** in this Update to the *Year 2045 SATP*. **Again, for financial plan purposes, all “facility designations” listed except sidewalks are considered bicycle transportation projects.** A few of the more significant illustrative bicycle transportation projects are as follows (bicycle lanes not requiring paved shoulders and shared roadway involve minimal costs, and are not included among the significant illustrative projects listed below):

- Continued construction of a multiuse pathway in the Alliant Energy utility corridor on the south side of the City of Sheboygan: South Taylor Drive to County Highway OK/South

Business Drive, and County Highway KK/South 12th Street to Lakeshore Drive (expensive projects and need additional study and public outreach);

- Multiuse pathway from South Pier Drive to the boardwalk over the Sheboygan River in the City of Sheboygan (includes an expensive bridge structure);
- Multiuse pathway from Kiwanis Park to Niagara Avenue over the Sheboygan River in the City of Sheboygan (includes an expensive bridge structure);
- Multiuse pathway on the Union Pacific rail line from North Avenue to the Manitowoc County line (the length of this project made it rather expensive); and
- Paved Shoulders on State Highway 42 from County Highway Y to the Howards Grove Village Limits.

If additional revenues become reasonably available, this Update to the *Year 2045 SATP* can be amended to add one or more of these illustrative projects. It is also possible that the paved shoulder project on State Highway 42 can be completed in conjunction with other work on that facility over time. There may be funding from the Wisconsin Department of Natural Resources' trail program to finance the multiuse pathway 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 Update to the *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: 2015 Update*.

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, 2015; and Bay-Lake Regional Planning Commission, 2018.

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: 2015 Update* are recommended in this Update to the *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

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- Rural Countywide Connections (in the Sheboygan metropolitan planning area) – p. 56.

Map 7.3 illustrates recommended pedestrian transportation projects in the Sheboygan metropolitan planning area in this Update to the *Year 2045 SATP* for the period covered by the plan. With the exception of the two remaining NMTTP construction projects, these projects were taken from the *Sheboygan County Pedestrian and Bicycle Comprehensive Plan: 2015 Update*.

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 Update to the *Year 2045 SATP*. These are expressed in 2019 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 Update to the *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 2019 Dollars), Recommended Pedestrian Facilities in the Update to the *Year 2045 SATP*^{1, 2}

Facility Type			
	2019 - 2028	2029 - 2038	2039 - 2045
Sidewalks	2.15	2.49	2.94

Facility Type			
	2019 - 2028	2029 - 2038	2039 - 2045
Sidewalks	\$936,311	\$1,280,092	\$1,762,617

Notes:

¹Shared-use paths and facilities also benefit pedestrians; these were accounted for previously in Table 7.6.

²Not all projects in the *Sheboygan County Pedestrian and Bicycle Comprehensive Plan: 2015 Update* have been recommended in the Update to the *Year 2045 SATP*. Projects that cannot be recommended due to fiscal constraint are being identified as “illustrative” projects in the Update to the *Year 2045 SATP*.

Source: Sheboygan County Planning and Conservation Department, 2015; and Bay-Lake Regional Planning Commission, 2018.

Illustrative Projects

There are a few pedestrian transportation projects in the Sheboygan metropolitan planning area from the *Sheboygan County Pedestrian and Bicycle Comprehensive Plan: 2015 Update* that could not be included as recommended projects in this Update to the *Year 2045 SATP*. Such projects are considered **illustrative projects** in this Update to the *Year 2045 SATP*. **Again, for financial plan purposes, the only “facility designation” that is considered a pedestrian transportation project involves sidewalks.** A few of the more significant illustrative pedestrian transportation projects are as follows:

- Sidewalks on Mueller Road from State Highway 42 to North 50th Street in the Town of Sheboygan;

- Sidewalks on Kay Avenue from Pinehurst Court to Giddings Avenue/State Highway 42 in the City of Sheboygan Falls; and
- Sidewalks on State Highway 42 from County Highway J to Vanguard Road in the Town of Sheboygan.

If additional revenues become reasonably available, this Update to the *Year 2045 SATP* can be amended to add one or more of these illustrative projects. It is also possible that the sidewalk project on State Highway 42 can be completed in conjunction with other work on that facility over time.

Remaining Non-Motorized Transportation Pilot Program (NMTTP) Projects in the Metropolitan Planning Area

The following NMTTP projects in the metropolitan planning area are recommended in the Update to the *Year 2045 SATP*. All of these projects will be implemented early in the 2019 – 2028 implementation period.

- Sheboygan County NMTTP level of effort for program oversight, including education and outreach (\$15,000);
- Sheboygan County NMTTP marketing and branding (\$28,000);
- Construction of a multi-use pathway in the Alliant Energy utility corridor on the south side of the City of Sheboygan from County Highway OK/South Business Drive to South 18th Street (\$575,000); and
- County Highway PP from the Sheboygan River bridge to South 24th Street: Conversion into a linear parkway and trail facility (\$300,000 for design, and \$3,900,000 for construction).

Other Bicycle and Pedestrian Transportation Programs (Non-Construction)

The *Sheboygan County Pedestrian and Bicycle Comprehensive Plan: 2015 Update* 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 Update to the *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 the park and ride lots in the metropolitan planning area (It should be noted that the park and ride lot at Interstate Highway 43 and County Highway V already has bike racks that accommodate up to six bikes, while the park and ride lot at Interstate Highway 43 and State Highway 28 currently has no bike racks).

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 Update to the *Year 2045 SATP* include strategies applicable to the Sheboygan metropolitan planning area from the *Sheboygan County Pedestrian and Bicycle Comprehensive Plan: 2015 Update*. The following bicycle and pedestrian strategies should be implemented in the Sheboygan metropolitan planning area over the planning period.

Short-Term Strategies (2019 – 2028)

- (1) Improve bicycle railroad crossings so that they are at 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: 2015 Update* (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: 2015 Update* (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 (NMTTP), continue to fund NMTTP staff activity within the Sheboygan County Planning and Conservation Department in the first few years of this period to assure that bicycle and pedestrian transportation needs are met and to assure that bicycle and 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 (2029 – 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.

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- (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 provide safe, efficient and reliable freight transportation within and throughout 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 transportation 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, 2012), and in the “Fixing America’s Surface Transportation” Act (FAST Act, 2015).

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 (such as air and 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:

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- (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 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 and collector streets and highways in the Sheboygan metropolitan planning area for the 2019 – 2045 period.

Table 7.9: Recommended Safety Projects, Sheboygan Metropolitan Planning Area, 2019 – 2045

Project Description/Termini	2019 - 2028	2029 - 2038	2039 - 2045
State Highway 28 Intersection with County Highway EE Roundabout at Intersection	\$1,933,000	---	---
Interstate Highway 43 County Highway V to County Highway EE/ Weeden Creek Road Installation of Median Cable Guard	\$611,000	---	---
County Highway C Intersection with County Highway TT Roundabout at Intersection	\$1,385,000	---	---
South Taylor Drive Intersection with Union Avenue Signalization and Other Intersection Improvements	\$500,000	---	---
Miscellaneous WisDOT Grouped Projects	\$7,453,000	\$8,821,000	\$7,122,000
Total Safety Project Costs	\$11,882,000	\$8,821,000	\$7,122,000

Source: Wisconsin Department of Transportation, 2018; Sheboygan County Transportation Department, 2018; City of Sheboygan Department of Public Works, 2018; and Bay-Lake Regional Planning Commission, 2018.

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 *Year 2045 SATP* (approved in 2015) 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, 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 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.

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- (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 Sheboygan County Memorial Airport staff to ensure the airport’s security.

RECOMMENDED TRANSPORTATION SYSTEM RESILIENCY AND RELIABILITY POLICIES AND STRATEGIES

Transportation systems need to be planned, designed, operated and maintained to reduce and minimize the impact of more frequent and intense natural disasters and other emergencies. The USDOT defines resiliency as “an ability to anticipate, prepare for, and adapt to changing conditions and withstand, respond to, and recover rapidly from disruptions.” The American Association of State Highway and Transportation Officials (AASHTO) defines resiliency as “the ability of the transportation system to recover and regain functionality after a major disruption or disaster.”

Resiliency and Reliability Policy

The Sheboygan MPO will continue to partner with Sheboygan County Emergency Management staff, local transportation agencies, WisDOT, and with other MPOs to identify and conduct planning studies and collect data that will contribute toward improving transportation resiliency and reliability.

Resiliency and Reliability Strategies

- (1) Consider the impacts of natural disasters to the transportation system; existing infrastructure should be evaluated on a regular basis, and when it approaches the end of its service life, decisions should be made regarding replacement, rebuilding or abandonment in order to avoid future risks.
- (2) New infrastructure should be planned, designed and built in a manner that known future environmental and natural risks are minimized.
- (3) Where possible, and in partnership with WisDOT, other MPOs and partner agencies, conduct studies to determine the vulnerability of transportation infrastructure to climate change impacts and design projects to accommodate projected precipitation during the designed lifespan of said projects.
- (4) Where possible, and in partnership with WisDOT, other MPOs and partner agencies, conduct a regional climate vulnerability assessment of the transportation system to inform long-range transportation planning and programming.
- (5) Have WisDOT and county transportation and local public works departments review and update their design standards to ensure that underlying climate data being used are up to date.
- (6) Develop a regional pavement flooding reporting system to help plan for flood events.

- (7) Incorporate climate resilience and flooding criteria into transportation programming processes.
- (8) Identify adequate federal, state and local funding sources to meet identified maintenance needs.
- (9) Ensure redundant and reliable electricity and communications infrastructure, and build redundancy and flexibility into planning for major transportation corridors.
- (10) Expand Intelligent Transportation Systems (ITS) devices and traffic management capabilities to support weather responsive traffic management strategies.
- (11) Coordinate snow and ice removal across jurisdictions, when possible.
- (12) Conduct an analysis of road performance under severe weather conditions to develop planned responses.

RECOMMENDED POLICIES AND STRATEGIES REGARDING REDUCTION OR MITIGATION OF STORMWATER IMPACTS OF SURFACE TRANSPORTATION

Together with natural disaster and extreme weather events, the intensity of heavy rain can result in stormwater that can carry debris and pollutants into water bodies, damaging area water quality. In addition, deicing chemicals, salt and sand that are used during snow and ice events can contaminate groundwater and pollute surface water. Therefore, it is important for the Sheboygan MPO to consider the impacts of stormwater runoff when identifying, developing and prioritizing projects.

Policy Regarding Reduction or Mitigation of Stormwater Impacts of Surface Transportation

The Sheboygan MPO will continue to partner with local transportation agencies, WisDOT, other MPOs, and other agencies to work to reduce or mitigate stormwater impacts of surface transportation as projects are identified, developed and prioritized.

Strategies Regarding Reduction or Mitigation of Stormwater Impacts of Surface Transportation

- (1) Continue to support WisDOT's efforts to control stormwater runoff along local streets and highways, which will assist in mitigating stormwater effects for new roadway projects.
- (2) Support continued efforts to integrate stormwater management into land use and transportation planning projects.
- (3) In partnership with WisDOT, update statewide design standards to reflect green infrastructure techniques and precipitation trends, and design transportation infrastructure for the climate of its designed lifespan.
- (4) Have WisDOT and county transportation and local public works departments construct and maintain projects that can sufficiently manage current and future storm events.

- (5) Have WisDOT support local stormwater management planning efforts to reduce flooding vulnerability of the transportation system.
- (6) Update development ordinances and reconstruction practices to improve stormwater management and to promote green infrastructure techniques in new and reconstructed streets.

RECOMMENDED POLICIES AND STRATEGIES REGARDING ENHANCEMENT OF TRAVEL AND TOURISM

Travel and tourism is a major economic development activity in the Sheboygan metropolitan planning area. An efficient transportation system is an integral part of the tourism industry. Visitors need to have a convenient transportation network in order to reach their destinations. Therefore, the Sheboygan MPO is committed to promoting connections between the area's major destinations and improve travel choices to support tourism.

Policy Regarding Enhancement of Travel and Tourism

The Sheboygan MPO will partner with local tourism entities to utilize the metropolitan transportation planning process to enhance travel and tourism in the Sheboygan Metropolitan Planning Area.

Strategies Regarding Enhancement of Travel and Tourism

- (1) Consult with agencies and officials responsible for tourism promotion when developing the long-range transportation plan, the transportation improvement program (TIP), and other products of the metropolitan transportation planning process.
- (2) Consider the impact on tourism when making transportation investment decisions.
- (3) Continue to provide and maintain economical non-motorized facilities that may transform the Sheboygan Metropolitan Planning Area into a non-motorized travel destination.
- (4) Integrate new and unique features (such as water trails) into the transportation framework in order to promote travel and tourism in the region.
- (5) Include efforts to improve access to and make the traveling public aware of Spaceport Sheboygan and other unique area features in the metropolitan transportation planning process.

RECOMMENDED POLICIES AND STRATEGIES REGARDING CONNECTED AND AUTOMATED VEHICLES

Connected and automated vehicle (CAV) technologies have the potential to dramatically improve the safety and efficiency of the transportation system. These technologies are likely to be deployed within the timeframe of this Update to the *Year 2045 SATP*, so it is important to be aware of and consider the impacts of these technologies in the planning process. The full impact of CAV technologies on transportation infrastructure and services, travel patterns and community development trends are unknown. However, we must begin to acknowledge these impacts in planning products (such as this Update to the *Year 2045 SATP*) and in the travel demand forecast model. The greatest challenge that will face communities in the metropolitan

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planning area in the future will be to ensure that the benefits of CAV technologies help to achieve community goals in areas such as public safety, access and mobility, land use, economic development, employment, environmental protection, and transportation system efficiency and reliability.

Policy Regarding Connected and Automated Vehicles

The Sheboygan MPO will make an effort to ensure that CAV technologies contribute to achieving many of the goals established in Chapter 4 of this Update to the *Year 2045 SATP*, particularly those goals related to the ten planning factors in the Fixing America's Surface Transportation (FAST) Act.

Strategies Regarding Connected and Automated Vehicles

- (1) In coordination with communities in the metropolitan planning area that oversee land use planning and development review processes, consider how CAV technologies will influence future land use by supporting studies on the relationship between land use development trends/patterns and CAV technology.
- (2) Plan for CAV deployments in the Sheboygan metropolitan planning area.
- (3) Install CAV-supportive field instrumentation as a part of street/highway and bridge maintenance projects.
- (4) Deploy CAV-supportive technology in order to improve safety, efficiency and reliability for all modes of transportation.
- (5) Include CAV-supportive technologies and infrastructure elements in order to update "complete streets," "universal design," and "access management" policies (where they exist) in the Sheboygan metropolitan planning area.
- (6) In coordination with WisDOT and local units of government, consider what changes will be required to the function, design and placement of traffic signals, signage, striping, lighting and other roadway elements to make them applicable to CAVs.
- (7) Monitor developments in the CAV field and maintain situational awareness of advances in and potential applications of this technology to the metropolitan planning area's transportation system.
- (8) Identify CAV technologies as a potential means of realizing safety-related goals such as reducing or eliminating traffic fatalities and injuries across all modes and enhancing safety for victims, first responders and the traveling public at incident scenes.
- (9) Examine how CAV will influence evolving social and economic trends such as ridesharing and ride hailing services, and initiate planning efforts to better understand how these trends will impact land use and demand for transportation services.
- (10) Develop mobility-oriented recommendations for enhancing trip planning and navigation functions while traveling.

- (11) Examine how CAV technologies will impact navigation and wayfinding capabilities, and identify what public services are needed in order to support those capabilities.
- (12) Develop strategies and programs for ensuring the availability of ridesharing services to all segments of the population.
- (13) Assess the impacts of CAV technologies on transit services.
- (14) Examine how weather-related data CAV will need to function and how this data will be supplied.
- (15) Identify the ideal data sets and format that CAV data will take for transportation planning in the future, and examine how transportation planning will change in response to these technologies.
- (16) Study the use of data generated by CAV freight vehicles to better understand the ongoing evolution of goods movement patterns and the impacts of this evolution on transportation infrastructure use and demand.
- (17) Gradually update the travel demand forecast model to account for the impacts of CAV technologies on future travel patterns. In the future, as data generated by CAVs become available, the data should be used to calibrate and validate the travel demand forecast model.
- (18) Consider how implementation of CAV driven projects will be addressed in TIP project selection criteria, as well as what funding sources can be used to implement such projects.

RECOMMENDED TRANSPORTATION SYSTEM EFFICIENCY PROJECTS, POLICIES AND STRATEGIES

Transportation System Efficiency Projects

Table 7.10 identifies recommended transportation system efficiency projects for arterial and collector streets and highways in the Sheboygan metropolitan planning area for the 2019 – 2045 period. These are signal timing projects funded by the Congestion Mitigation and Air Quality (CMAQ) program.

Table 7.10: Recommended Transportation System Efficiency Projects, Sheboygan Metropolitan Planning Area, 2019 – 2045

Project Description/Termini	2019 - 2028	2029 - 2038	2039 - 2045
Taylor Drive Indiana Avenue to Superior Avenue (Including a Small Section of Erie Avenue) Addition of Radio Communication Infrastructure, Installation of Video Detection, Conducting Intersection Turning Movement Counts, and Retiming and Coordinating Traffic Signals	\$667,000	---	---
State Highway 23/Kohler Memorial Drive/Erie Avenue North Taylor Drive to North 9th Street Addition of Radio Communication Infrastructure, Installation of Video Detection, Conducting Intersection Turning Movement Counts, and Retiming and Coordinating Traffic Signals	\$519,000	---	---
State Highways 28 and 42/14th Street/Calumet Drive Indiana Avenue to North Avenue Addition of Radio Communication Infrastructure, Installation of Video Detection, Conducting Intersection Turning Movement Counts, and Retiming and Coordinating Traffic Signals	\$759,000	---	---
Total Safety Project Costs	\$1,945,000	\$0	\$0

Source: Wisconsin Department of Transportation, 2018; City of Sheboygan Department of Public Works, 2018; and Bay-Lake Regional Planning Commission, 2018.

Transportation System Efficiency Policy

The Commission will participate in programs and activities that promote the efficient management and operation of transportation infrastructure for the movement of people and goods.

Transportation System Efficiency Strategies

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

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- (2) Attempt to achieve a Level of Service (LOS) rating of “mid-E” or better for every local jurisdiction street or county highway that is functionally classified as an arterial or collector in the Sheboygan Metropolitan Planning Area.
- (3) Reduce total delay per vehicle mile of travel on the arterial and collector street and highway system of the Sheboygan Metropolitan Planning Area.
- (4) Coordinate and synchronize traffic control signals in order to improve the operation of the existing system.
- (5) Implement transportation improvements in congested corridors and intersections in the Sheboygan Metropolitan Planning Area, but consider improvements from alternate modes of transportation before assuming that a capacity expansion is the solution to the congestion problem.

RECOMMENDED FUTURE STUDIES

2019 – 2028 Studies

The following studies are recommended over the short-range (2019 – 2028) 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 this Update 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 2020 to 2024 period for Shoreline Metro, and completion of at least one other TDP Update before the end of 2028.
- (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 there remain projects in the program that remain to be implemented in the metropolitan planning area).
- (7) Complete a study to determine the feasibility of a full or half interchange at Interstate Highway 43 with County Highway FF/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

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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.

- (8) Continue to update targets regarding the various transportation performance measures as required, and track whether such targets have been met in cases where they have been set at the MPO level.
- (9) Better integrate resiliency and reliability, reduction or mitigation of stormwater impacts of surface transportation, and enhancement of travel and tourism into the metropolitan transportation planning process in the development of the next long-range transportation plan update and in all subsequent plan updates.
- (10) Study the effects that connected and automated vehicles (CAVs) will have on land use, the transportation network, and other attributes in the Sheboygan metropolitan planning area.
- (11) Make MPO transportation planning products more interactive (web mapping, graphics, etc.).

2029 – 2045 Studies

The following studies are recommended over the mid-range (2029 – 2038) and long-range (2039 – 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 one or more crash studies for the Sheboygan metropolitan planning area.
- (4) Development of access management plans for the Sheboygan metropolitan planning area.
- (5) Completion of one or more freight movement studies for the Sheboygan metropolitan planning area.
- (6) Continue to update targets regarding the various transportation performance measures as required, and track whether such targets have been met in cases where they have been set at the MPO level.
- (7) Fully integrate CAVs into the metropolitan transportation planning process (future development need calculations, travel forecast modeling assumptions, etc.).
- (8) Make MPO transportation planning products exclusively interactive, except where prohibited.

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 7.11 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 22.44 percent between 2010 and 2045 without plan implementation; this increase will be 22.89 percent if the plan is implemented;
- Vehicle hours traveled are expected to increase by 22.57 percent between 2010 and 2045 without plan implementation; this increase will be 22.48 percent if the plan is implemented;
- Nearly two 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 0.21 miles per hour with implementation of the plan in 2045. In fact, the overall average speed on the network increases in 2045 by 0.16 miles per hour compared to 2010 conditions when the plan is implemented;
- The street and highway network increases by 33.988 lane miles from 2010 to 2045 if the plan is implemented (this is an increase of about 2.13 percent). This increase involves 19.533 lane miles above and beyond the existing plus committed (E + C) network in 2045, or a 1.22 percent increase over 2045 baseline conditions;
- The proportion of the street and highway network that is not congested is projected to be 98.37 percent in 2045 if the plan is not implemented, and is projected to be 98.81 percent in 2045 with plan implementation;
- The proportion of the street and highway network that is moderately congested is projected to be 1.19 percent in 2045 if the plan is not implemented, and is projected to be 0.76 percent in 2045 with plan implementation;
- The proportion of the street and highway network that is severely congested is projected to be 0.19 percent in 2045 if the plan is not implemented, and is projected to be 0.18 percent in 2045 with plan implementation; and
- The proportion of the street and highway network that is experiencing “breakdown conditions” is projected to be 0.25 percent in 2045 if the plan is not implemented, and is projected to remain at 0.25 percent in 2045 with plan implementation.

Table 7.11: Current and Projected Transportation Statistics, Sheboygan County

Characteristic	2010	2045	2045
		Without Plan ¹	With Plan ¹
Vehicle Miles Traveled ²	2,402,741	2,941,806	2,952,800
Vehicle Hours Traveled ²	52,085	63,842	63,795
Overall Average Speed (MPH)	46.13	46.08	46.29
Total System (Lane Miles)	1,592.365	1,606.820	1,626.353
System Not Congested (Lane Miles) ³	1,572.727	1,580.693	1,606.967
Percent of System Not Congested ³	98.77%	98.37%	98.81%
System Moderately Congested (Lane Miles) ³	15.215	19.106	12.366
Percent of System Moderately Congested ³	0.96%	1.19%	0.76%
System Severely Congested (Lane Miles) ³	0.788	2.977	2.977
Percent of System Severely Congested ³	0.05%	0.19%	0.18%
System Experiencing Breakdown Conditions (Lane Miles) ³	3.634	4.044	4.044
Percent of System Experiencing Breakdown Conditions ³	0.23%	0.25%	0.25%

Notes:

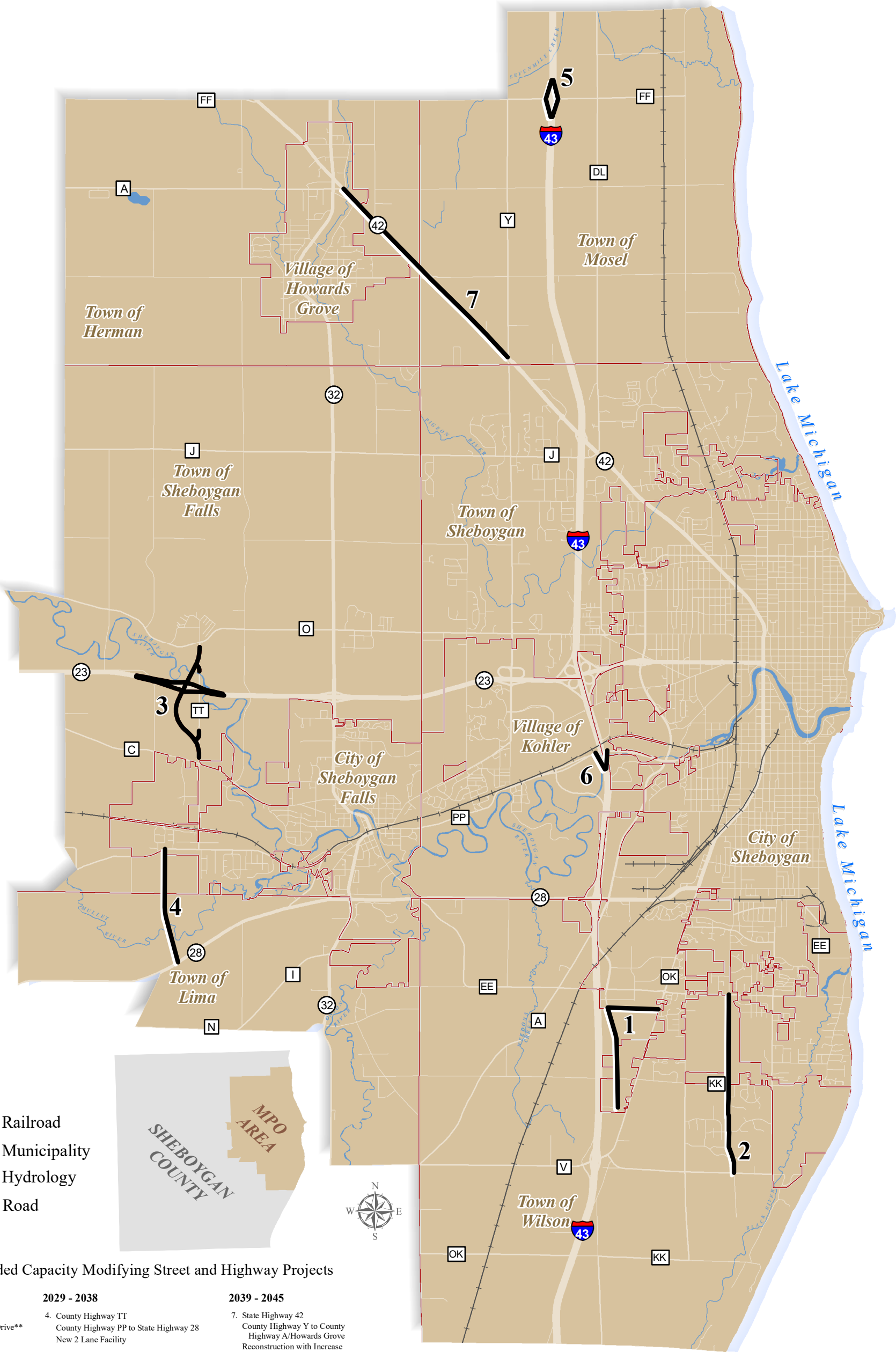
¹Baseline and plan implementation data for 2045 both assume implementation of a development pattern in the Sheboygan metropolitan planning area that adheres to continuation of existing trends by 2045. “2045 without plan” involves implementation of the “existing plus committed” (E + C) network, while “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 divided State Highway 23 from Plymouth to Fond du Lac.

²Vehicle 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.

³The 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, 2019; and Bay-Lake Regional Planning Commission, 2019.

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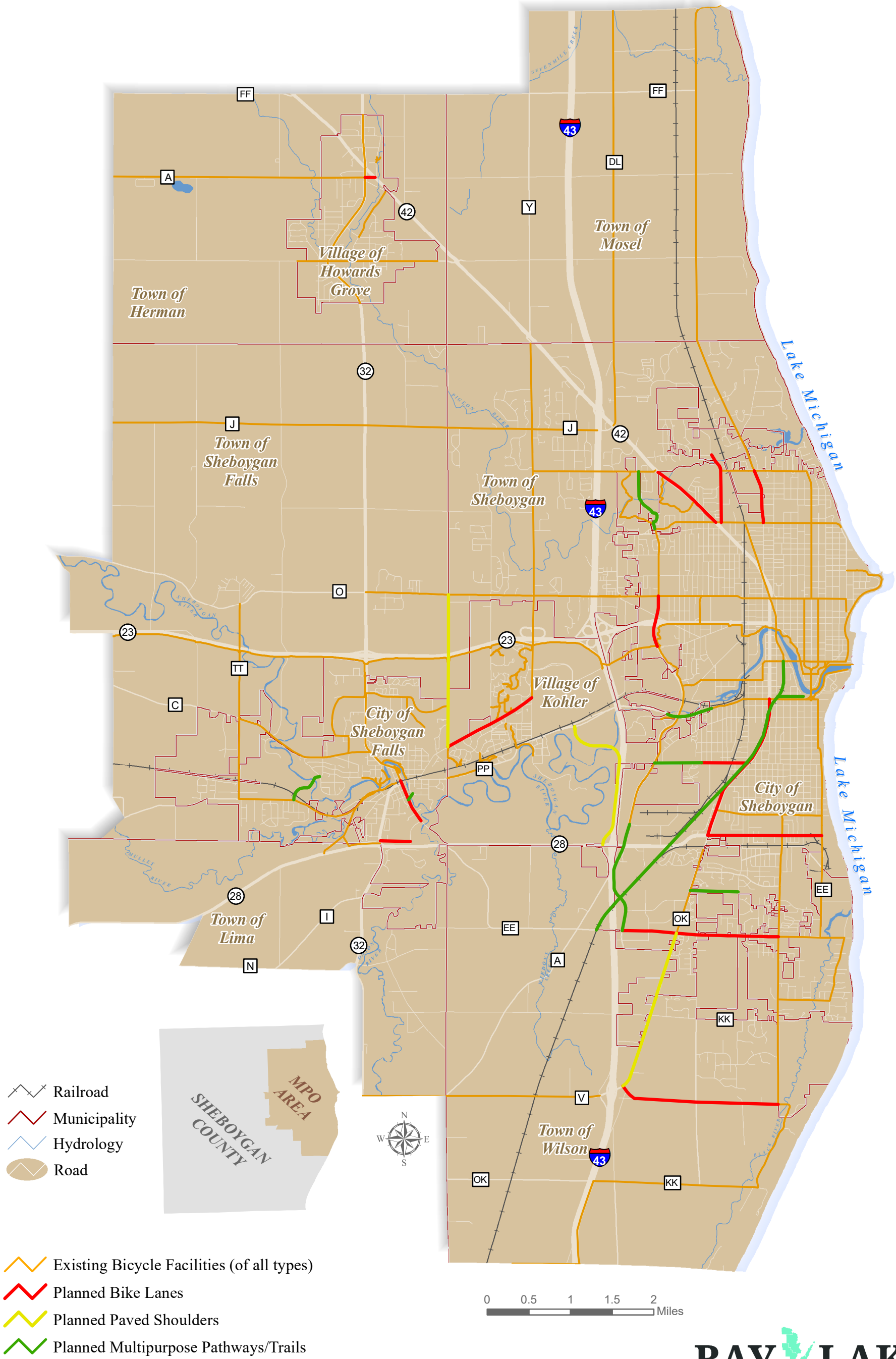


Recommended Capacity Modifying Street and Highway Projects

2019 - 2028	2029 - 2038	2039 - 2045
1. South Taylor Drive Racetrack Road to Southpointe Drive** New 2 Lane Facility	4. County Highway TT County Highway PP to State Highway 28 New 2 Lane Facility	7. State Highway 42 County Highway Y to County Highway A/Howards Grove Reconstruction with Increase from 2 to 4 Lanes
2. South 18th Street County Highway EE/Weeden Creek Road to County Highway V New 2 Lane Facility	5. Interstate Highway 43 At County Highway FF New Full Interchange	
3. State Highway 23 Western Boundary of the Sheboygan Metropolitan Area to State Highway 32 Various Projects	6. Interstate Highway 43 At County Highway PP/Lower Falls Road/Indiana Avenue New Half Interchange (to and from the south)	

*Complete project listing found on pages 7-1 through 7-3 of the text.
**Includes additional projects described in the narrative.

Recommended Bicycle Transportation Projects



Recommended Pedestrian Transportation Projects

