

**APPENDIX C: ASSESSMENT OF CONFORMITY OF THE
UPDATE TO THE *YEAR 2045 SHEBOYGAN AREA
TRANSPORTATION PLAN (SATP)* AND THE *2019 – 2022
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 Update to the *Year 2045 Sheboygan Area Transportation Plan (SATP)* and the *2019 – 2022 Sheboygan Metropolitan Planning Area Transportation Improvement Program (TIP)* with respect to each of the six 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. On April 6, 2017, USEPA redesignated Sheboygan County as a moderate nonattainment area for ground-level ozone under the 2008 eight-hour standard, and it is likely that Sheboygan County could be redesignated as a serious nonattainment area in the near future.

In September of 2017, the Wisconsin Department of Natural Resources (WDNR) Bureau of Air Management submitted the *Attainment Plan for the Sheboygan County, Wisconsin, 8-Hour Ozone Nonattainment Area* to the USEPA, and the USEPA found the motor vehicle emission budgets (MVEBs) in that document to be adequate for transportation conformity purposes in January 2018. USEPA still needs to formally approve this updated SIP element.

Recognizing that ozone concentrations are a problem that primarily impacts the Lake Michigan shoreline, the WDNR worked with local officials and with the USEPA to attempt to decrease the size of the nonattainment area from the entirety of Sheboygan County to the eastern portion of the county. These efforts took place in 2013 and 2014. The WDNR also placed an air monitor between Sheboygan and Howards Grove to measure the effect that proximity to Lake Michigan has on ozone levels in warm weather.

USEPA designated nonattainment areas for ground-level ozone under the more stringent 2015 eight-hour standard for that pollutant in a letter dated December 20, 2017. In that letter, a portion of Sheboygan County (the eastern portion nearest Lake Michigan) was designated a marginal nonattainment area under this new standard. Eventually, WDNR will develop a SIP for this smaller nonattainment area. However, for the time being, USEPA guidance recommends demonstration of conformity against the most recent SIP element in which MVEBs were found adequate for transportation conformity purposes. It is also unknown whether USEPA will revoke the 2008 8-hour standard once the 2015 standard is fully in effect.

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This conformity assessment involves a comparison of forecast mobile sector emissions from the Update to the *Year 2045 SATP* and its implementing *2019 – 2022 TIP* to emission budgets in the *Attainment Plan for the Sheboygan County, Wisconsin, 8-Hour Ozone Nonattainment Area*. MOVES 2014b was used to compute forecasted emissions for this conformity analysis.

The procedures to determine conformity set forth in the *Federal Register* (40 CFR Parts 51 and 93) are: (1) use of the most recent planning assumptions; (2) use of the latest emissions estimation model; (3) interagency and public consultation; (4) timely implementation of transportation control measures (TCMs); (5) transportation plan content; and (6) procedures for determining long-range transportation plan related emissions.

USE OF THE MOST RECENT PLANNING ASSUMPTIONS

This conformity determination procedural requirement (40 CFR Part 93.110) specifies that the conformity assessment must be based upon the official and most current planning assumptions, including current and future population levels, 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 is also the statutory official areawide planning agency for the eight-county Bay-Lake Region, which contains this urbanized area. As the MPO for the Sheboygan Urbanized Area, the Bay-Lake Regional Planning Commission is responsible for the preparation of current population, household, employment, travel and traffic estimates and also for the preparation of future population, household, employment, 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 include all of Sheboygan County for a more transparent air quality conformity analysis and so that capacity modifying projects in rural Sheboygan County can 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 Update to the *Year 2045 SATP* and the *2019 – 2022 TIP* requires specific travel and emission forecasts for the years 2018, 2028, 2038 and 2045. The population, household and employment data for the years 2018, 2028 and 2038 have been projected by interpolation at the traffic analysis zone (TAZ) level between the base year (2010) level and the year 2045 forecasts for Sheboygan County based upon the approved growth scenario for the Sheboygan metropolitan planning area. The 2010 base year level and 2045 forecasts for population, households and employment are identified in Table C.1, along with the interpolated 2018, 2028 and 2038 population, household and employment levels.

During the preparation of the original *Year 2045 SATP* (early 2013 through May 2015), the implications of a range of different future development scenarios for the Sheboygan metropolitan Update to the *Year 2045 Sheboygan Area Transportation Plan*

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* and its updates 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: Update to the *Year 2045 SATP* and the *2019 – 2022 TIP*

CHARACTERISTIC	EXISTING	FORECAST			
	2010	2018	2028	2038	2045
POPULATION	115,507	117,804	120,739	123,747	125,897
HOUSEHOLDS	46,390	48,240	50,658	53,196	55,048
EMPLOYMENT	59,824	63,579	68,606	74,031	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 and 2019.

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 original and update to 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 by 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 for 2010 and 2045 (with intermediate analysis years of 2015, 2025 and 2035) in the fall of 2014, and was updated again (with intermediate analysis years of 2018, 2028 and 2038) in early 2019.

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

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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 Approval of the Original Year 2045 SATP

Several revisions to the travel demand forecast model have been made since the original *Year 2045 SATP* was approved in May of 2015. These revisions are incorporated into the updated travel demand forecast model for Sheboygan County.

Changes to Existing Infrastructure

No changes to existing infrastructure have taken place since the original *Year 2045 SATP* was approved. Changes to infrastructure that took place between approval of the original *Year 2035 SATP* (October 2006) and approval of the original *Year 2045 SATP* (May 2015) are documented in the previous conformity analysis.

Capacity Modifying Projects and Their Implementation Periods in the Update to the Year 2045 SATP

These are noted in Chapter 7 of the Update to the *Year 2045 SATP* (pages 7-1 through 7-3, including Table 7.1, as well as Map 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 **2028**.

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 County Highways A and EE/Weeden Creek Road (completed in 2015);
- Intersection with State Highway 32 and Happy Lane (completed in 2016);
- Intersection of County Highways A and PP (completed in 2018);
- Intersection of State Highway 28 and County Highway EE (planned project for 2019 – 2028, currently programmed for 2020 in the *2019 – 2022 TIP*); and
- Intersection of County Highways C and TT (planned project for 2019 – 2028).

Signalization

Signalization and other improvements are planned for the intersection of South Taylor Drive and Union Avenue in the 2019 – 2028 implementation period. These improvements are planned to occur due to the move of a major hospital to an area near this intersection.

Transit Network Changes

Changes to service levels at Shoreline Metro are incorporated into this analysis; many of these changes were recommended in the *Sheboygan Transit Development Program (TDP): 2012 – 2016*. Shoreline Metro discontinued the final hour of transit service on weekday evenings and reinstated the North and South Shuttles throughout the service day on Saturdays in late 2011. Shoreline Metro also consolidated Routes 1 North and 5 North into a single revised Route 5 North in late 2011. In addition, Shoreline Metro divided Route 10 into separate North and South routes in early 2012. Revisions were made to all other Shoreline Metro routes (with the exception of the North and South Shuttles) in late 2011 and early 2012. Revisions were also made to several routes (particularly changes to Route 20 and all south side routes, with discontinuation of Route 30 and having other south side routes serve areas previously served by Route 30) in 2016. Minor adjustments to routes (particularly Route 20) took place in 2017. A day pass of \$3 was instituted in 2011.

No additional service, route or fare changes are anticipated at this time. Ridership had increased significantly in recent years, most recently because Shoreline Metro and the Sheboygan Area School District signed a contract in 2018 to provide fare free service to students and staff with the school district, paying Shoreline Metro to provide this fare free service. A new TDP for Shoreline Metro is expected to be completed by the end of 2019.

Congestion Mitigation and Air Quality Improvement Program (CMAQ) Projects

The following CMAQ projects have been included in the emissions analysis:

- Replacement of four (4) 35-foot fixed-route buses at Shoreline Metro (two buses were expected to arrive in 2018, and two additional buses are programmed for 2019 in the *2019 – 2022 TIP*);
- Use of Wisconsin Employment Transportation Assistance Program (WETAP) funds by Forward Service Corporation to help low income workers with rides via carpool (completed in 2018, with a similar program anticipated in 2019);
- Addition of radio communication infrastructure, installation of video detection, conducting intersection turning movement counts, and retiming and coordinating traffic signals at the following locations in the City of Sheboygan (design in 2019 and implementation in 2021):
 - Taylor Drive from Indiana Avenue to Superior Avenue (including a small segment of Erie Avenue west of Taylor Drive);

- State Highway 23/Kohler Memorial Drive/Erie Avenue from North Taylor Drive to North 9th Street; and
- State Highways 28 and 42/14th Street/Calumet Drive from Indiana Avenue to North Avenue; and
- Use of WETAP funds by Lakeland University to purchase three (3) vehicles through the “Commute to Careers” (C2C) program jointly administered by the Wisconsin Departments of Transportation and Workforce Development, including one non-ADA minivan, one medium bus with one wheelchair position, and one non-ADA transit van.

Sheboygan County Non-Motorized Transportation Pilot Program (NMTTP) Projects

Several bicycle and pedestrian transportation projects have been completed through the Sheboygan County NMTTP in recent years; these are discussed in Chapter 5 of the Update to the *Year 2045 SATP*, and their implementation is assumed in this conformity analysis. Upcoming NMTTP funded bicycle and pedestrian transportation projects are also identified in Chapters 5 and 7 of the Update to the *Year 2045 SATP* as well as in the *2019 – 2022 TIP*, and implementation of these projects is also assumed in this conformity analysis. The Sheboygan County NMTTP 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 procedural requirement for plan and program conformity determination (40 CFR Part 93.111) requires use of the latest air pollutant emissions estimating model. Accordingly, this determination of conformity utilizes the latest emissions estimation model available, the USEPA MOVES 2014b air pollutant emissions estimation model. This emissions estimation model is the latest version of the model used by the WDNR Bureau of Air Management in its development of the transportation conformity budgets for volatile organic compounds (VOCs) and nitrogen oxides (NO_x) included in the latest SIP revision for Sheboygan County, the *Attainment Plan for the Sheboygan County, Wisconsin, 8-Hour Ozone Nonattainment Area*.

The assumptions in the emissions estimation model for the years 2018, 2028, 2038 and 2045 are available from the WDNR 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 WisDOT 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 WDNR in the preparation of the State Implementation Plan for Air Quality to assure complete consistency between this conformity determination and the State Implementation Plan. MOVES 2014b was able to directly compute projected emissions for each analysis year, meaning that the traditional multiplication of emission factors and VMT by facility type and speed range was no longer a necessary step in the conformity analysis process.

INTERAGENCY AND PUBLIC CONSULTATION

A third procedural requirement for plan and program conformity determination (40 CFR Part 93.112) relates to interagency and public consultation. The development of this Update to the *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, WisDOT, WDNR, the Federal Highway Administration (FHWA), the Federal Transit Administration (FTA), USEPA, 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 Update to the *Year 2045 SATP*, reviewed and approved the travel simulation models utilized in the preparation of the Update to the *Year 2045 SATP* and conformity analysis and as well the level of detail of the Update to the *Year 2045 SATP*.

The Update to 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 Update to the *Year 2045 SATP* was expanded to include all of Sheboygan County 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 Update to the *Year 2045 SATP* and its implementing 2019 – 2022 *TIP*, the WDNR Bureau of Air Management provided Bay-Lake Regional Planning Commission staff with MOVES 2014b output based on VMT and average speed data provided by the WisDOT Traffic Forecasting Section in February of 2019. (These data are presented in Tables C.3 and C.4). The other MOVES 2014b modeling assumptions are the same as those used in the *Attainment Plan for the Sheboygan County, Wisconsin, 8-Hour Ozone Nonattainment Area*, 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 2014b output in March of 2019. The Transportation Conformity Work Group (TCWG) reviewed this draft conformity analysis in late March and in April of 2019.

In addition, there was public consultation with respect to the Update 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 Update to the *Year 2045 SATP*. Public consultation efforts included some focus on transit as the *Shoreline Metro Transit Development Program (TDP) Update* was

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initiated before the Update to the *Year 2045 SATP* was completed (this included meetings of the TDP review committee), as well as responding to corridor test ideas with the travel demand forecast model.

The Update to the *Year 2045 SATP* and the *2019 – 2022 TIP* were each subjected to 30 day public comment periods. A public hearing on the Update to the *Year 2045 SATP* was held in **X** of 2019. A public hearing on the *2019 – 2022 TIP* was held in late October of 2018. (**Discuss comments received on the draft Update to the Year 2045 SATP and on this conformity analysis**). Comments on the *2019 – 2022 TIP* covered a variety of topics, including the needs for employment transportation and more affordable housing, the need to better serve new housing complex locations with transit, recent increases in student ridership at Shoreline Metro, signal timing projects in the TIP, and the need to expand elderly and disabled transportation service and other transit services throughout Sheboygan County. Additional comments on the *2019 – 2022 TIP* focused on new bike lanes on County Highway PP in the Village of Kohler, a possible trail extension in the City of Sheboygan, discussion of median cable guard on freeways, whether more TIP amendments can be handled administratively by MPO staff, and the need to increase fixed-route bus acquisitions for existing service and for transit expansion.

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

A fourth procedural requirement for plan and program conformity determination (40 CFR Part 93.113) is that the transportation plan and the transportation improvement program must provide for timely implementation and may not interfere with the implementation of any transportation control measures (TCMs) included in an applicable implementation plan (State Implementation Plan, Maintenance Plan, or Early Progress Plan). The staff of the WDNR 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.

TRANSPORTATION PLAN CONTENT

A fifth procedural requirement for plan and program conformity determination is the content, or level of detail, of the transportation plan. The Update to the *Year 2045 SATP* and the travel simulation modeling analysis of attendant plan emissions fully meet the requirements of transportation plan content (40 CFR Part 93.106). The Update to the *Year 2045 SATP* includes all additions to the transportation system with respect to both highways and public transit which can be expected to be completed by the year 2045 based on existing and reasonably expected revenues.

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All additions of arterial and collector system capacity which can be expected to be completed by the year 2045, based on existing and reasonably expected revenues, including widening of arterial and collector streets and highways to provide additional traffic lanes and construction of new arterial and collector facilities, are included in the Update to the *Year 2045 SATP*. This arterial and collector system includes nearly 227 miles of streets and highways within the Sheboygan metropolitan planning area, or over 36 percent of the total street system, and includes all state, county and municipal arterials and collectors. The plan also includes the total existing transit system, which is operated by Shoreline Metro.

PROCEDURES FOR DETERMINING LONG-RANGE TRANSPORTATION PLAN RELATED EMISSIONS

The procedures for estimating the regional transportation plan and transportation improvement program emissions also fully meet the emission and travel modeling requirements (40 CFR Part 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, and for all transit improvements and expansion (where applicable) included in the long-range transportation plan. 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 in motor fuel volatility or vehicle inspection and maintenance programs), except with respect to such programs incorporated in the State Implementation Plan.

The travel simulation modeling conducted under this conformity analysis is fully consistent with the travel simulation modeling conducted for the preparation of the Update to the *Year 2045 SATP*. The travel simulation modeling for the conformity determination is sensitive to the added capacity and service provided by each highway and transit 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 Update to the *Year 2045 SATP* and its treatment in the travel simulation modeling analysis goes beyond the federally required consideration of federally recognized regionally significant projects (principal arterial routes and transit fixed guideways) in that it includes all arterial and collector facilities and public transit facilities within Sheboygan County (including the Sheboygan metropolitan planning area). In addition, the Update to 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 Update to 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 Update to the *Year 2045 SATP* and the *2019 – 2022 TIP* are fiscally constrained pursuant to U.S. Department of Transportation metropolitan planning regulations (23 CFR 450). The total costs of the Update to the *Year 2045 SATP* and the *2019 – 2022 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 current metropolitan planning regulations, “year of expenditure” (inflation adjusted) costs and revenues (where Update to the *Year 2045 Sheboygan Area Transportation Plan*

applicable) were used in preparing the financial plan components of the Update to the *Year 2045 SATP* and the *2019 – 2022 TIP*. The financial analysis of the Update to the *Year 2045 SATP* and of the *2019 – 2022 TIP* was coordinated with, and is consistent with, the statewide transportation system plan (*Connections 2030*), as well as with other modal state transportation plans as they have been developed.

In addition, the Federal requirements for determination of conformity after January 1, 1997 (40 CFR Part 93.122(d)), have been met under this conformity determination. The travel and traffic simulation models used to estimate the air pollutant emissions are network-based models which forecast travel demand and traffic volume based upon economic and demographic forecasts, planned land use allocation patterns, and the characteristics of the transportation system. 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.

**CONSISTENCY WITH THE MOTOR VEHICLE EMISSIONS BUDGETS IN THE
*ATTAINMENT PLAN FOR THE SHEBOYGAN COUNTY, WISCONSIN, 8-HOUR OZONE
NONATTAINMENT AREA***

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 *Attainment Plan for the Sheboygan County, Wisconsin, 8-Hour Ozone Nonattainment Area* submitted to the USEPA by the WDNR in September 2017. The motor vehicle emissions budgets from this plan were found adequate for transportation conformity purposes in January of 2018. The attainment plan presents motor vehicle emissions budgets for 2017 and 2018. 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 *Attainment Plan for the Sheboygan County, Wisconsin, 8-Hour Ozone Nonattainment Area* applies to volatile organic compound and nitrogen oxide emissions as precursors to ozone.

Table C.2 indicates the established budgets in the *Attainment Plan for the Sheboygan County, Wisconsin, 8-Hour Ozone Nonattainment Area* for two ozone precursor pollutants, volatile organic compounds and nitrogen oxides, in 2017 and 2018. It should be noted that this conformity analysis only addresses emission forecasts in comparison to 2018 emission budgets (for 2018, 2028, 2038 and 2045), since the conformity analysis is being conducted in 2019.

Table C.2: Motor Vehicle Emission Budgets for Sheboygan County: *Attainment Plan for the Sheboygan County, Wisconsin, 8-Hour Ozone Nonattainment Area: 2017 and 2018 (On a Hot Summer Day)*

Year	Pollutant (Tons)	
	Volatile Organic Compounds (VOCs)	Nitrogen Oxides (NO _x)
2017	1.620	3.290
2018	1.490	2.960

Source: Bureau of Air Management, Wisconsin Department of Natural Resources, 2017; and Bay-Lake Regional Planning Commission, 2019.

The transportation system emissions attendant to the long-range transportation plan and transportation improvement program were forecast through the application of the MPO travel and traffic simulation models to the long-range transportation 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, and this scenario has carried forward in the completion of this Update to the *Year 2045 SATP*. The growth scenario decision came after several months of debate over the merits of each scenario. As was 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 approved comprehensive plans in the metropolitan planning area and elsewhere in Sheboygan County.

Table C.3 presents the forecast VMT attendant to the long-range transportation plan and transportation improvement program by functional classification/facility type and speed range for the forecast years of 2018, 2028, 2038 and 2045, by vehicle type (auto and truck). The long-range transportation plan projects which are not exempt from regional emissions analysis are identified at the beginning of Chapter 7 of the Update to 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 the various tables of the main body of the *2019 – 2022 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 Update to 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 2019 – 2028 implementation period.

Table C.3: Update to the *Year 2045 Sheboygan Area Transportation Plan (SATP)*: Summer Weekday Vehicle Miles of Travel Within Sheboygan County: Forecast 2018, 2028, 2038 and 2045

FACILITY TYPE	SPEED RANGE	2018 FORECAST		2028 FORECAST		2038 FORECAST		2045 FORECAST	
		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+	657,562	102,383	695,802	111,378	734,094	120,322	760,922	126,558
	Subtotal	657,562	102,383	695,802	111,378	734,094	120,322	760,922	126,558
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	0	0	0	0
	25-30	0	0	0	0	0	0	0	0
	30-35	68,445	9,994	72,506	10,770	76,577	11,538	79,432	12,072
	35-40	322	66	377	74	430	81	467	86
	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	68,767	10,060	72,883	10,844	77,007	11,619	79,899	12,158

Update to the *Year 2045 Sheboygan Area Transportation Plan*

Table C.3: Update to the *Year 2045 Sheboygan Area Transportation Plan (SATP)*: Summer Weekday Vehicle Miles of Travel Within Sheboygan County: Forecast 2018, 2028, 2038 and 2045

FACILITY TYPE	SPEED RANGE	2018 FORECAST		2028 FORECAST		2038 FORECAST		2045 FORECAST	
		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	82,920	11,675	82,316	12,551	82,274	13,412	82,493	14,008
	50-55	113,566	14,406	124,055	17,480	134,209	20,341	141,169	22,250
	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	196,486	26,081	206,371	30,031	216,483	33,753	223,662	36,258
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	19,814	1,114	21,167	1,200	22,527	1,286	23,481	1,347
	30-35	0	0	0	0	0	0	0	0
	35-40	180,187	13,415	190,531	14,178	200,836	14,939	208,028	15,470
	40-45	43,587	4,463	47,110	4,713	50,670	4,963	53,182	5,137
	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	243,588	18,992	258,808	20,091	274,033	21,188	284,691	21,954
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	49,708	3,053	50,781	3,137	51,822	3,219	52,533	3,276
	30-35	0	0	0	0	0	0	0	0
	35-40	261,968	13,788	274,704	14,746	287,382	15,707	296,227	16,380
	40-45	0	0	0	0	0	0	0	0
	45-50	88,242	6,613	98,602	7,717	109,040	8,833	116,388	9,620
	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	399,918	23,454	424,087	25,600	448,244	27,759	465,148	29,276

Update to the *Year 2045 Sheboygan Area Transportation Plan*

Table C.3: Update to the *Year 2045 Sheboygan Area Transportation Plan (SATP)*: Summer Weekday Vehicle Miles of Travel Within Sheboygan County: Forecast 2018, 2028, 2038 and 2045

FACILITY TYPE	SPEED RANGE	2018 FORECAST		2028 FORECAST		2038 FORECAST		2045 FORECAST	
		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	9,692	474	10,202	516	10,712	557	11,068	586
	25-30	0	0	0	0	0	0	0	0
	30-35	160,744	8,564	169,167	9,265	177,589	9,966	183,485	10,457
	35-40	38,705	1,529	43,060	1,722	47,415	1,916	50,465	2,051
	40-45	7,844	290	7,772	299	7,701	309	7,650	316
	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	216,985	10,857	230,201	11,802	243,417	12,748	252,668	13,410
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	15,043	1,048	15,843	1,130	16,624	1,215	17,159	1,276
	20-25	119,967	4,767	127,624	4,979	135,308	5,180	140,703	5,314
	25-30	45	0	50	0	55	1	59	1
	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	135,055	5,815	143,517	6,109	151,987	6,396	157,921	6,591
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	1,643	108	4,049	266	6,883	452	9,144	600
	35-40	13,743	1,335	18,282	1,968	23,506	2,703	27,606	3,284
	40-45	143,663	13,549	153,201	14,085	162,852	14,564	169,681	14,862
	45-50	183,775	17,521	190,598	18,423	196,568	19,289	200,193	19,874
	50-55	29,355	3,395	29,052	3,527	28,355	3,645	27,611	3,718
	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	372,179	35,908	395,182	38,269	418,164	40,653	434,235	42,338

Update to the *Year 2045 Sheboygan Area Transportation Plan*

Table C.3: Update to the *Year 2045 Sheboygan Area Transportation Plan (SATP)*: Summer Weekday Vehicle Miles of Travel Within Sheboygan County: Forecast 2018, 2028, 2038 and 2045

FACILITY TYPE	SPEED RANGE	2018 FORECAST		2028 FORECAST		2038 FORECAST		2045 FORECAST	
		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	5,060	426	7,112	597	9,195	771	10,671	893
	30-35	19,610	1,203	23,358	1,504	27,152	1,810	29,833	2,026
	35-40	46,033	3,848	46,747	3,993	47,421	4,136	47,871	4,235
	40-45	14,028	1,014	15,274	1,083	16,527	1,152	17,408	1,201
	45-50	127,874	11,640	133,031	12,379	138,137	13,119	141,683	13,636
	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	212,605	18,131	225,522	19,556	238,432	20,988	247,466	21,991
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	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	12,714	950	15,206	1,123	17,729	1,298	19,511	1,422
	35-40	72,356	4,936	79,545	5,664	86,784	6,400	91,877	6,919
	40-45	265,775	22,840	277,309	24,316	288,752	25,794	296,714	26,829
	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	350,845	28,726	372,060	31,103	393,265	33,492	408,102	35,170
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	9,626	386	9,874	412	10,126	438	10,303	456
	30-35	8,864	469	9,681	537	10,496	605	11,066	652
	35-40	98,022	5,876	103,948	6,450	109,875	7,023	114,026	7,422
	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	116,512	6,731	123,503	7,399	130,497	8,066	135,395	8,530

Update to the *Year 2045 Sheboygan Area Transportation Plan*

Table C.3: Update to the *Year 2045 Sheboygan Area Transportation Plan (SATP)*: Summer Weekday Vehicle Miles of Travel Within Sheboygan County: Forecast 2018, 2028, 2038 and 2045

FACILITY TYPE	SPEED RANGE	2018 FORECAST		2028 FORECAST		2038 FORECAST		2045 FORECAST	
		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	144,818	6,875	153,602	7,520	162,383	8,168	168,528	8,623
	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	144,818	6,875	153,602	7,520	162,383	8,168	168,528	8,623
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	15,043	1,048	15,843	1,130	16,624	1,215	17,159	1,276
	20-25	274,477	12,116	291,428	13,015	308,403	13,905	320,299	14,523
	25-30	84,253	4,979	88,984	5,346	93,725	5,715	97,047	5,973
	30-35	272,020	21,288	293,967	23,465	316,426	25,669	332,471	27,229
	35-40	711,336	44,793	757,194	48,795	803,649	52,905	836,567	55,847
	40-45	474,897	42,156	500,666	44,496	526,502	46,782	544,635	48,345
	45-50	482,811	47,449	504,547	51,070	526,019	54,653	540,757	57,138
	50-55	142,921	17,801	153,107	21,007	162,564	23,986	168,780	25,968
	55-60	0	0	0	0	0	0	0	0
	60-65	0	0	0	0	0	0	0	0
	65+	657,562	102,383	695,802	111,378	734,094	120,322	760,922	126,558
	TOTAL	3,115,320	294,013	3,301,538	319,702	3,488,006	345,152	3,618,637	362,857

Source: Wisconsin Department of Transportation, 2019; Wisconsin Department of Natural Resources, 2019; and Bay-Lake Regional Planning Commission, 2019.

Table C.3 indicates that average annual rates of VMT increase were as follows for all of the modeled area (Sheboygan County): 0.60 percent from 2018 to 2028, 0.57 percent from 2028 to 2038, and 0.54 percent from 2038 to 2045. Growth in VMT is expected to average around 0.58 percent per year within the countywide modeling domain through 2045 under the continuation of existing trends recommended scenario.

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 2018, 2028, 2038 and 2045. Entries only appear in Table C.4 where there was VMT activity.

Update to the *Year 2045 Sheboygan Area Transportation Plan*

Table C.4: Update to the *Year 2045 Sheboygan Area Transportation Plan (SATP)*: Summer Weekday Average Speeds (by Speed Range and Facility Type) Within Sheboygan County: Forecast 2018, 2028, 2038 and 2045

FACILITY TYPE	SPEED RANGE	2018 MODEL		2028 MODEL		2038 MODEL		2045 MODEL	
		Auto MPH	Truck MPH	Auto MPH	Truck MPH	Auto MPH	Truck MPH	Auto MPH	Truck 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+	73.28	73.38	73.11	73.24	72.94	73.09	72.82	72.99
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	NA	NA	NA	NA
	25-30	NA	NA	NA	NA	NA	NA	NA	NA
	30-35	34.88	34.91	34.80	34.84	34.72	34.77	34.66	34.72
	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: Update to the *Year 2045 Sheboygan Area Transportation Plan (SATP)*: Summer Weekday Average Speeds (by Speed Range and Facility Type) Within Sheboygan County: Forecast 2018, 2028, 2038 and 2045

FACILITY TYPE	SPEED RANGE	2018 MODEL		2028 MODEL		2038 MODEL		2045 MODEL	
		Auto MPH	Truck MPH	Auto MPH	Truck MPH	Auto MPH	Truck MPH	Auto MPH	Truck 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	49.98	49.98	49.98	49.98	49.98	49.98
	50-55	54.99	54.99	54.99	54.99	54.99	54.99	54.99	54.99
	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
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	27.11	27.18	27.02	27.10	26.93	27.02	26.87	26.96
	30-35	NA	NA	NA	NA	NA	NA	NA	NA
	35-40	39.07	39.24	38.98	39.15	38.88	39.05	38.82	38.99
	40-45	44.33	44.43	44.21	44.34	44.09	44.24	44.01	44.17
	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	27.87	27.90	27.86	27.91	27.86	27.91	27.86	27.91
	30-35	NA	NA	NA	NA	NA	NA	NA	NA
	35-40	37.94	37.95	37.92	37.93	37.91	37.92	37.90	37.91
	40-45	NA	NA	NA	NA	NA	NA	NA	NA
	45-50	46.97	46.98	46.95	46.96	46.93	46.94	46.92	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: Update to the *Year 2045 Sheboygan Area Transportation Plan (SATP)*: Summer Weekday Average Speeds (by Speed Range and Facility Type) Within Sheboygan County: Forecast 2018, 2028, 2038 and 2045

FACILITY TYPE	SPEED RANGE	2018 MODEL		2028 MODEL		2038 MODEL		2045 MODEL	
		Auto	Truck	Auto	Truck	Auto	Truck	Auto	Truck
		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	24.87	24.88	24.86	24.87	24.85	24.87	24.84	24.86
	25-30	NA	NA	NA	NA	NA	NA	NA	NA
	30-35	34.72	34.69	34.70	34.67	34.68	34.65	34.67	34.64
	35-40	39.90	39.88	39.89	39.87	39.89	39.87	39.88	39.86
	40-45	44.94	44.87	44.92	44.85	44.91	44.83	44.90	44.81
	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	19.99	19.99	19.99	19.99	19.99	19.99
	20-25	24.94	24.95	24.95	24.96	24.95	24.96	24.95	24.96
	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
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	34.43	34.99
	35-40	37.97	38.82	37.97	38.78	37.97	38.75	37.97	38.72
	40-45	42.57	43.21	42.21	42.81	41.84	42.41	41.59	42.13
	45-50	46.87	47.43	46.93	47.45	46.99	47.47	47.03	47.49
	50-55	51.22	51.62	51.25	51.62	51.29	51.62	51.31	51.62
	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: Update to the *Year 2045 Sheboygan Area Transportation Plan (SATP)*: Summer Weekday Average Speeds (by Speed Range and Facility Type) Within Sheboygan County: Forecast 2018, 2028, 2038 and 2045

FACILITY TYPE	SPEED RANGE	2018 MODEL		2028 MODEL		2038 MODEL		2045 MODEL	
		Auto	Truck	Auto	Truck	Auto	Truck	Auto	Truck
		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	28.64	29.20	28.40	28.93	28.15	28.66	27.98	28.47
	30-35	32.48	32.91	32.65	33.13	32.82	33.35	32.94	33.50
	35-40	36.92	37.21	36.87	37.15	36.83	37.10	36.80	37.06
	40-45	43.35	44.39	43.32	44.35	43.29	44.32	43.27	44.29
	45-50	47.11	47.40	47.02	47.29	46.92	47.18	46.86	47.10
	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
RURAL MAJOR COLLECTORS	65+	NA	NA	NA	NA	NA	NA	NA	NA
	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	33.47	33.88	33.23	33.65	32.99	33.41	32.82	33.25
	35-40	37.73	37.95	37.71	37.98	37.69	38.02	37.68	38.04
	40-45	42.81	43.03	42.72	42.96	42.63	42.89	42.57	42.84
	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
RURAL MINOR COLLECTORS	65+	NA	NA	NA	NA	NA	NA	NA	NA
	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	29.60	29.64	29.59	29.62	29.58	29.61	29.58	29.60
	30-35	34.35	34.37	34.24	34.28	34.13	34.19	34.06	34.12
	35-40	39.55	39.56	39.50	39.51	39.45	39.45	39.42	39.41
	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: Update to the *Year 2045 Sheboygan Area Transportation Plan (SATP)*: Summer Weekday Average Speeds (by Speed Range and Facility Type) Within Sheboygan County: Forecast 2018, 2028, 2038 and 2045

FACILITY TYPE	SPEED RANGE	2018 MODEL		2028 MODEL		2038 MODEL		2045 MODEL	
		Auto	Truck	Auto	Truck	Auto	Truck	Auto	Truck
		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	24.89	24.89	24.87	24.87	24.86	24.86	24.85	24.85
	25-30	25.00	NA	25.00	NA	25.00	NA	25.00	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

Source: Wisconsin Department of Transportation, 2019; Wisconsin Department of Natural Resources, 2019; and Bay-Lake Regional Planning Commission, 2019.

Table C.5 presents the attendant volatile organic compound emissions. The forecasts are presented for the years 2018, 2028, 2038 and 2045 for all of Sheboygan County. In addition, Table C.5 presents the 2018 motor vehicle emissions budget for volatile organic compounds incorporated in the *Attainment Plan for the Sheboygan County, Wisconsin, 8-Hour Ozone Nonattainment Area*. The transportation system volatile organic compound emissions under the long-range transportation 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 *Attainment Plan for the Sheboygan County, Wisconsin, 8-Hour Ozone Nonattainment Area*, thus meeting this criterion for consistency.

Table C.5: Forecast Volatile Organic Compound Emissions from the Transportation System in Sheboygan County Under the Update to the *Year 2045 SATP/2019 – 2022 TIP* and the State Implementation Plan for Air Quality: 2018, 2028, 2038 and 2045 (On a Hot Summer Weekday) Using MOVES 2014b Emission Factors

Year	Sheboygan County	
	State Implementation Plan (tons) ¹	Update to the Year 2045 SATP (tons)
2018	1.4900	1.3794
2028	1.4900	0.6903
2038	1.4900	0.4953
2045	1.4900	0.4845

¹The State Implementation Plan budget for volatile organic compounds is 1.4900 tons for 2018.

Source: Wisconsin Department of Natural Resources, 2017 and 2019; and Bay-Lake Regional Planning Commission, 2019.

Table C.6 presents the forecast nitrogen oxide emissions. The forecasts are presented for the years 2018, 2028, 2038 and 2045 for all of Sheboygan County. In addition, Table C.6 presents the 2018 motor vehicle emissions budget for nitrogen oxides incorporated in the *Attainment Plan for the Sheboygan County, Wisconsin, 8-Hour Ozone Nonattainment Area*. The transportation system nitrogen oxide emissions under the long-range transportation plan and transportation improvement program, when analyzed for all of Sheboygan County, are less than the motor vehicle emissions budget for nitrogen oxides in the *Attainment Plan for the Sheboygan County, Wisconsin, 8-Hour Ozone Nonattainment Area*, 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 Update to the *Year 2045 SATP/2019 – 2022 TIP* and the State Implementation Plan for Air Quality: 2018, 2028, 2038 and 2045 (On a Hot Summer Weekday) Using MOVES 2014b Emission Factors

Year	Sheboygan County	
	State Implementation Plan (tons) ¹	Update to the Year 2045 SATP (tons)
2018	2.9600	2.7267
2028	2.9600	1.1970
2038	2.9600	0.8905
2045	2.9600	0.9108

¹The State Implementation Plan budget for nitrogen oxides is 2.9600 tons for 2018.

Source: Wisconsin Department of Natural Resources, 2017 and 2019; and Bay-Lake Regional Planning Commission, 2019.

This conformity analysis indicates that the Update to the *Year 2045 SATP* and the *2019 – 2022 TIP* are consistent with the mobile sector goals of the *Attainment Plan for the Sheboygan County, Wisconsin, 8-Hour Ozone Nonattainment Area* prepared by the WDNR and found adequate for transportation conformity purposes by the USEPA.

Update to the *Year 2045 Sheboygan Area Transportation Plan*

Off-Model Emission Reduction Benefits Incorporated in this Analysis

This conformity assessment incorporates emission reduction benefits from six projects being included in the long-range transportation plan and transportation improvement program that are outside the scope of the travel demand forecast model. The first project involves replacement of four (4) 35-foot fixed-route buses at Shoreline Metro. The second project involves the use of Wisconsin Employment Transportation Assistance Program (WETAP) funds by Forward Service Corporation to help low income workers with rides via carpool. A third project involves the use of WETAP funds by Lakeland University to purchase three (3) vehicles through the “Commute to Careers” (C2C) program jointly administered by the Wisconsin Departments of Transportation and Workforce Development. The remaining three projects involve the addition of radio communication infrastructure, installation of video detection, conducting intersection turning movement counts, and retiming and coordinating traffic signals at the following locations in the City of Sheboygan: (1) Taylor Drive from Indiana Avenue to Superior Avenue (including a small segment of Erie Avenue west of Taylor Drive); (2) State Highway 23/Kohler Memorial Drive/ Erie Avenue from North Taylor Drive to North 9th Street; and (3) State Highways 28 and 42/14th Street/Calumet Drive from Indiana Avenue to North Avenue. All of these projects will be completed with Congestion Mitigation and Air Quality (CMAQ) program funding. All projects are assumed to continue to operate over the planning period covered by the Update to the *Year 2045 SATP*.

Table C.7 indicates the projected emission reduction benefits (in pounds and U.S. tons) from the above noted projects that were awarded CMAQ funding. 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 and the project applicants. Table C.7 indicates that the various CMAQ projects noted above produce noticeable volatile organic compound (VOC) and nitrogen oxide (NOx) emission reduction benefits.

It should be noted that even with these off-model emission reduction benefits, implementation of all other plan and TIP elements remains in conformity with the *Attainment Plan for the Sheboygan County, Wisconsin, 8-Hour Ozone Nonattainment Area* for all years of analysis.

This conformity analysis indicates that the Update to the *Year 2045 SATP* and its implementing *2019 – 2022 TIP*, and in particular their capacity adding street and highway projects and the above noted CMAQ projects, are consistent with the mobile sector goals of the *Attainment Plan for the Sheboygan County, Wisconsin, 8-Hour Ozone Nonattainment Area*.

Table C.7: Off-Model Transportation Improvement Projects with Attendant Pollution Emission Reductions: 2018, 2028, 2038 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)			
		2018	2028	2038	2045	2018	2028	2038	2045
Shoreline Metro	Replacement of Four (4) Fixed-Route Buses	0.0000	1.0432	0.7485	0.7321	0.0000	6.5959	4.9071	5.0190
Forward Service Corporation	Use of WETAP Funds to Help Low Income Workers with Rides via Carpool	0.0080	0.0040	0.0029	0.0028	0.0160	0.0071	0.0052	0.0054
City of Sheboygan Department of Public Works	Addition of Radio Communication Infrastructure, Installation of Video Detection, Conducting Intersection Turning Movement Counts, and Retiming and Coordinating Traffic Signals at the Following Locations in the City of Sheboygan: Taylor Drive from Indiana Avenue to Superior Avenue (Including a Small Segment of Erie Avenue west of Taylor Drive); State Highway 23/ Kohler Memorial Drive/Erie Avenue from North Taylor Drive to North 9th Street; and State Highways 28 and 42/14th Street/ Calumet Drive from Indiana Avenue to North Avenue	0.0000	1.8396	1.3200	1.2910	0.0000	3.7225	2.7694	2.8326
Lakeland University	Use of WETAP Funds to Purchase Three (3) Vehicles through the "Commute to Careers" (C2C) Program Jointly Administered by WisDOT and the Wisconsin Department of Workforce Development	0.0000	0.0652	0.0468	0.0458	0.0000	0.1129	0.0840	0.0859
TOTAL OFF-MODEL EMISSION REDUCTIONS (US TONS)		0.000004	0.001476	0.001059	0.001036	0.000008	0.005219	0.003883	0.003971

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

CONSISTENCY OF THE 2019 – 2022 TIP WITH THE UPDATE TO THE YEAR 2045 SATP

The same non-exempt projects appear in the 2019 – 2022 TIP as those which appear in the Update to the Year 2045 SATP for the early portion of the 2019 – 2028 implementation period. Non-exempt projects recommended in the 2019 – 2022 TIP are identical in project scope to those in the Update to the Year 2045 SATP. In addition, the schedule of project implementation for the 2019 – 2022 TIP is identical to that of the Update to the Year 2045 SATP.

The long-range 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 Update to the Year 2045 SATP. The transportation improvement program projects which are

Update to the Year 2045 Sheboygan Area Transportation Plan

not exempt from regional emissions analysis are marked as “Non-Exempt” in the various tables of the main body of the *2019 – 2022 TIP*.

The *2019 – 2022 TIP* is consistent with the Update to the *Year 2045 SATP*. The *2019 – 2022 TIP* is therefore an accurate subset of the Update to the *Year 2045 SATP* (i.e.: includes the identical projects being implemented on the identical implementation schedule of the Update to the *Year 2045 SATP*), and consequently, the regional emissions analysis for the Update to the *Year 2045 SATP* has also been used to demonstrate conformity of the *2019 – 2022 TIP* to the *Attainment Plan for the Sheboygan County, Wisconsin, 8-Hour Ozone Nonattainment Area*.

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. On April 6, 2017, USEPA redesignated Sheboygan County as a moderate nonattainment area for ground-level ozone under the 2008 eight-hour standard, and it is likely that Sheboygan County could be redesignated as a serious nonattainment area in the near future.

In September of 2017, the WDNR Bureau of Air Management submitted the *Attainment Plan for the Sheboygan County, Wisconsin, 8-Hour Ozone Nonattainment Area* to the USEPA, and the USEPA found the motor vehicle emission budgets (MVEBs) in that document to be adequate for transportation conformity purposes in January 2018. USEPA still needs to formally approve this updated SIP element.

Recognizing that ozone concentrations are a problem that primarily impacts the Lake Michigan shoreline, the WDNR worked with local officials and with the USEPA to attempt to decrease the size of the nonattainment area from the entirety of Sheboygan County to the eastern portion of the county. These efforts took place in 2013 and 2014. The WDNR also placed an air monitor between Sheboygan and Howards Grove to measure the effect that proximity to Lake Michigan has on ozone levels in warm weather.

USEPA designated nonattainment areas for ground-level ozone under the more stringent 2015 eight-hour standard for that pollutant in a letter dated December 20, 2017. In that letter, a portion of Sheboygan County (the eastern portion nearest Lake Michigan) was designated a marginal nonattainment area under this new standard. Eventually, WDNR will develop a SIP for this smaller nonattainment area. However, for the time being, USEPA guidance recommends demonstration of conformity against the most recent SIP element in which MVEBs were found adequate for transportation conformity purposes. It is also unknown whether USEPA will revoke the 2008 8-hour standard once the 2015 standard is fully in effect.

Jeff Agee-Aguayo

From: Bovee, Christopher P - DNR <Christopher.Bovee@wisconsin.gov>
Sent: Wednesday, March 20, 2019 11:22 AM
To: Jeff Agee-Aguayo
Cc: Chritton, Chris - DOT; Friedlander, Michael - DNR
Subject: Conformity Modeling Results for Sheboygan County
Attachments: MOVES Modeling Results.docx

Hi Jeff,

The attached MS Word document provides the MOVES2014b modeling results for the Sheboygan County conformity analysis. These modeling runs utilize the vehicle-miles of travel (VMT) and average speed data from the Northeast Region Travel Demand Model (NERTDM) which Chris Chritton of the Wisconsin Department of Transportation provided to us on February 1, 2019. They also utilize the interpolated NERTDM results you provided on February 15 and 18, 2019.

I adjusted the NERTDM VMT data to summer weekday using temporal adjustment factors for 2017 which Chris Chritton provided to me on February 4, 2019. I also applied adjustment factors to the NERTDM VMT data so that the interpolated 2017 NERTDM VMT (when adjusted to annual average day) would equal the 2017 annual average day VMT for Sheboygan County posted on the Wisconsin Department of Transportation webpage at:

<https://wisconsin.dot.gov/Pages/projects/data-plan/veh-miles/default.aspx>

This posted VMT value is 2,945,270. The Wisconsin Department of Natural Resources uses these same VMT adjustment procedures in developing state implementation plan (SIP) inventories.

The total emissions are shown at the end of each of the first four tables in the attached document (Tables 1-a through 1-d). These values are:

OXIDES OF NITROGEN (NOX)

2018: 2.7267 tons per summer weekday

2028: 1.2022 tons per summer weekday

2038: 0.8944 tons per summer weekday

2045: 0.9148 tons per summer weekday

VOLATILE ORGANIC COMPOUNDS (VOC)

2018: 1.3794 tons per summer weekday

2028: 0.6918 tons per summer weekday

2038: 0.4964 tons per summer weekday

2045: 0.4855 tons per summer weekday

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, Air Quality Planning and Standards Section

Bureau of Air Management

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MOVES2014b 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 MOVES2014b MODEL
FOR SHEBOYGAN COUNTY
FOR THE YEARS 2018, 2028, 2038 and 2045

Wisconsin Department of Natural Resources
March 20, 2019

NOTE: The complete set of inputs to and outputs from the MOVES2014b 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: 2018 NOX and VOC Emissions: tons per summer weekday (tpswd)

Source Type	Fuel Type	Road Type	Sheboygan Whole County Nonattainment Area – Year 2018			
			NOx Emissions (tpswd)	VOC Emissions (tpswd)		
			Total	Exhaust	Evaporative	Total
Motorcycle	Gasoline	Off-Network	0.0002	0.0007	0.0499	0.0506
Motorcycle	Gasoline	Rural Restricted	0.0032	0.0029	0.0013	0.0041
Motorcycle	Gasoline	Rural Unrestricted	0.0093	0.0113	0.0077	0.0189
Motorcycle	Gasoline	Urban Restricted	0.0028	0.0026	0.0012	0.0038
Motorcycle	Gasoline	Urban Unrestricted	0.0057	0.0083	0.0061	0.0144
Passenger Car	Gasoline	Off-Network	0.1702	0.1944	0.2704	0.4649
Passenger Car	Gasoline	Rural Restricted	0.0489	0.0102	0.0039	0.0141
Passenger Car	Gasoline	Rural Unrestricted	0.0881	0.0208	0.0172	0.0380
Passenger Car	Gasoline	Urban Restricted	0.0477	0.0101	0.0044	0.0146
Passenger Car	Gasoline	Urban Unrestricted	0.0805	0.0206	0.0183	0.0388
Passenger Car	Diesel	Off-Network	0.0007	0.0009	0.0000	0.0009
Passenger Car	Diesel	Rural Restricted	0.0003	0.0001	0.0000	0.0001
Passenger Car	Diesel	Rural Unrestricted	0.0005	0.0001	0.0000	0.0001
Passenger Car	Diesel	Urban Restricted	0.0003	0.0001	0.0000	0.0001
Passenger Car	Diesel	Urban Unrestricted	0.0004	0.0001	0.0000	0.0001
Passenger Car	Ethanol (E-85)	Off-Network	0.0004	0.0005	0.0005	0.0010
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	0.0001
Passenger Car	Ethanol (E-85)	Urban Restricted	0.0001	0.0000	0.0000	0.0000
Passenger Car	Ethanol (E-85)	Urban Unrestricted	0.0001	0.0000	0.0000	0.0001
Passenger Truck	Gasoline	Off-Network	0.1380	0.1475	0.1151	0.2626
Passenger Truck	Gasoline	Rural Restricted	0.0522	0.0100	0.0018	0.0119
Passenger Truck	Gasoline	Rural Unrestricted	0.0921	0.0195	0.0095	0.0290
Passenger Truck	Gasoline	Urban Restricted	0.0451	0.0087	0.0019	0.0107
Passenger Truck	Gasoline	Urban Unrestricted	0.0668	0.0155	0.0081	0.0236
Passenger Truck	Diesel	Off-Network	0.0042	0.0013	0.0000	0.0013
Passenger Truck	Diesel	Rural Restricted	0.0036	0.0004	0.0000	0.0004
Passenger Truck	Diesel	Rural Unrestricted	0.0107	0.0015	0.0000	0.0015
Passenger Truck	Diesel	Urban Restricted	0.0033	0.0004	0.0000	0.0004
Passenger Truck	Diesel	Urban Unrestricted	0.0085	0.0012	0.0000	0.0012
Passenger Truck	Ethanol (E-85)	Off-Network	0.0008	0.0011	0.0010	0.0020
Passenger Truck	Ethanol (E-85)	Rural Restricted	0.0004	0.0001	0.0000	0.0001
Passenger Truck	Ethanol (E-85)	Rural Unrestricted	0.0005	0.0001	0.0001	0.0002
Passenger Truck	Ethanol (E-85)	Urban Restricted	0.0003	0.0001	0.0000	0.0001
Passenger Truck	Ethanol (E-85)	Urban Unrestricted	0.0004	0.0001	0.0001	0.0001
Light Commercial Truck	Gasoline	Off-Network	0.0691	0.0779	0.0492	0.1271
Light Commercial Truck	Gasoline	Rural Restricted	0.0245	0.0052	0.0009	0.0062
Light Commercial Truck	Gasoline	Rural Unrestricted	0.0508	0.0137	0.0048	0.0185
Light Commercial Truck	Gasoline	Urban Restricted	0.0215	0.0047	0.0010	0.0057
Light Commercial Truck	Gasoline	Urban Unrestricted	0.0369	0.0112	0.0041	0.0153
Light Commercial Truck	Diesel	Off-Network	0.0038	0.0023	0.0000	0.0023
Light Commercial Truck	Diesel	Rural Restricted	0.0036	0.0006	0.0000	0.0006
Light Commercial Truck	Diesel	Rural Unrestricted	0.0105	0.0021	0.0000	0.0021
Light Commercial Truck	Diesel	Urban Restricted	0.0033	0.0006	0.0000	0.0006
Light Commercial Truck	Diesel	Urban Unrestricted	0.0083	0.0017	0.0000	0.0017
Light Commercial Truck	Ethanol (E-85)	Off-Network	0.0002	0.0003	0.0002	0.0005
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	0.0001	0.0000	0.0000	0.0000
Intercity Bus	Diesel	Off-Network	0.0000	0.0000	0.0000	0.0000
Intercity Bus	Diesel	Rural Restricted	0.0025	0.0001	0.0000	0.0001
Intercity Bus	Diesel	Rural Unrestricted	0.0046	0.0003	0.0000	0.0003
Intercity Bus	Diesel	Urban Restricted	0.0031	0.0001	0.0000	0.0001
Intercity Bus	Diesel	Urban Unrestricted	0.0039	0.0003	0.0000	0.0003

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Source Type	Fuel Type	Road Type	Sheboygan Whole County Nonattainment Area – Year 2018			
			NOx Emissions (tpswd)	VOC Emissions (tpswd)		
				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	0.0039	0.0002	0.0000	0.0002
Transit Bus	Diesel	Rural Unrestricted	0.0055	0.0004	0.0000	0.0004
Transit Bus	Diesel	Urban Restricted	0.0049	0.0003	0.0000	0.0003
Transit Bus	Diesel	Urban Unrestricted	0.0046	0.0004	0.0000	0.0004
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	0.0000	0.0000	0.0000
Transit Bus	CNG	Urban Unrestricted	0.0004	0.0001	0.0000	0.0001
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	0.0043	0.0004	0.0000	0.0004
School Bus	Diesel	Rural Unrestricted	0.0062	0.0010	0.0000	0.0010
School Bus	Diesel	Urban Restricted	0.0054	0.0005	0.0000	0.0005
School Bus	Diesel	Urban Unrestricted	0.0053	0.0008	0.0000	0.0008
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	0.0080	0.0003	0.0000	0.0003
Refuse Truck	Diesel	Rural Unrestricted	0.0093	0.0006	0.0000	0.0006
Refuse Truck	Diesel	Urban Restricted	0.0067	0.0003	0.0000	0.0003
Refuse Truck	Diesel	Urban Unrestricted	0.0056	0.0004	0.0000	0.0004
Single Unit Short-haul Truck	Gasoline	Off-Network	0.0116	0.0114	0.0091	0.0205
Single Unit Short-haul Truck	Gasoline	Rural Restricted	0.0049	0.0009	0.0001	0.0010
Single Unit Short-haul Truck	Gasoline	Rural Unrestricted	0.0084	0.0025	0.0004	0.0029
Single Unit Short-haul Truck	Gasoline	Urban Restricted	0.0058	0.0011	0.0001	0.0013
Single Unit Short-haul Truck	Gasoline	Urban Unrestricted	0.0059	0.0023	0.0003	0.0025
Single Unit Short-haul Truck	Diesel	Off-Network	0.0063	0.0004	0.0000	0.0004
Single Unit Short-haul Truck	Diesel	Rural Restricted	0.0286	0.0026	0.0000	0.0026
Single Unit Short-haul Truck	Diesel	Rural Unrestricted	0.0540	0.0075	0.0000	0.0075
Single Unit Short-haul Truck	Diesel	Urban Restricted	0.0335	0.0033	0.0000	0.0033
Single Unit Short-haul Truck	Diesel	Urban Unrestricted	0.0419	0.0058	0.0000	0.0058
Single Unit Long-haul Truck	Gasoline	Off-Network	0.0003	0.0004	0.0003	0.0007
Single Unit Long-haul Truck	Gasoline	Rural Restricted	0.0002	0.0000	0.0000	0.0000
Single Unit Long-haul Truck	Gasoline	Rural Unrestricted	0.0003	0.0001	0.0000	0.0001
Single Unit Long-haul Truck	Gasoline	Urban Restricted	0.0002	0.0000	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	0.0002	0.0000	0.0000	0.0000
Single Unit Long-haul Truck	Diesel	Rural Restricted	0.0017	0.0002	0.0000	0.0002
Single Unit Long-haul Truck	Diesel	Rural Unrestricted	0.0033	0.0005	0.0000	0.0005
Single Unit Long-haul Truck	Diesel	Urban Restricted	0.0020	0.0002	0.0000	0.0002
Single Unit Long-haul Truck	Diesel	Urban Unrestricted	0.0026	0.0004	0.0000	0.0004
Motor Home	Gasoline	Off-Network	0.0010	0.0014	0.0051	0.0065
Motor Home	Gasoline	Rural Restricted	0.0011	0.0003	0.0000	0.0003
Motor Home	Gasoline	Rural Unrestricted	0.0023	0.0008	0.0001	0.0009
Motor Home	Gasoline	Urban Restricted	0.0017	0.0004	0.0001	0.0005
Motor Home	Gasoline	Urban Unrestricted	0.0018	0.0008	0.0001	0.0009
Motor Home	Diesel	Off-Network	0.0001	0.0000	0.0000	0.0000
Motor Home	Diesel	Rural Restricted	0.0011	0.0001	0.0000	0.0001
Motor Home	Diesel	Rural Unrestricted	0.0021	0.0004	0.0000	0.0004
Motor Home	Diesel	Urban Restricted	0.0016	0.0001	0.0000	0.0001

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Source Type	Fuel Type	Road Type	Sheboygan Whole County Nonattainment Area – Year 2018			
			NOx Emissions (tpswd)	VOC Emissions (tpswd)		
			Total	Exhaust	Evaporative	Total
Motor Home	Diesel	Urban Unrestricted	0.0019	0.0003	0.0000	0.0003
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	0.0581	0.0022	0.0000	0.0022
Combination Short-haul Truck	Diesel	Rural Unrestricted	0.0634	0.0038	0.0000	0.0038
Combination Short-haul Truck	Diesel	Urban Restricted	0.0484	0.0020	0.0000	0.0020
Combination Short-haul Truck	Diesel	Urban Unrestricted	0.0369	0.0023	0.0000	0.0023
Combination Long-haul Truck	Diesel	Off-Network	0.3618	0.0767	0.0000	0.0767
Combination Long-haul Truck	Diesel	Rural Restricted	0.2087	0.0078	0.0000	0.0078
Combination Long-haul Truck	Diesel	Rural Unrestricted	0.2226	0.0126	0.0000	0.0126
Combination Long-haul Truck	Diesel	Urban Restricted	0.1695	0.0069	0.0000	0.0069
Combination Long-haul Truck	Diesel	Urban Unrestricted	0.1258	0.0075	0.0000	0.0075
ALL	ALL	ALL	2.7267	0.7846	0.5948	1.3794
Motorcycle	ALL	ALL	0.0211	0.0257	0.0661	0.0918
Passenger Car	ALL	ALL	0.4384	0.2579	0.3148	0.5728
Passenger Truck	ALL	ALL	0.4270	0.2075	0.1377	0.3452
Light Commercial Truck	ALL	ALL	0.2330	0.1203	0.0602	0.1806
Intercity Bus	ALL	ALL	0.0141	0.0009	0.0000	0.0009
Transit Bus	ALL	ALL	0.0206	0.0016	0.0000	0.0016
School Bus	ALL	ALL	0.0212	0.0027	0.0000	0.0028
Refuse Truck	ALL	ALL	0.0296	0.0017	0.0000	0.0017
Single Unit Short-haul Truck	ALL	ALL	0.2007	0.0377	0.0100	0.0478
Single Unit Long-haul Truck	ALL	ALL	0.0110	0.0019	0.0004	0.0022
Motor Home	ALL	ALL	0.0147	0.0046	0.0055	0.0101
Combination Short-haul Truck	ALL	ALL	0.2069	0.0105	0.0000	0.0105
Combination Long-haul Truck	ALL	ALL	1.0884	0.1115	0.0000	0.1115
ALL	ALL	ALL	2.7267	0.7846	0.5948	1.3794
ALL	Gasoline	ALL	1.0996	0.6185	0.5927	1.2112
ALL	Diesel	ALL	1.6218	0.1635	0.0000	0.1635
ALL	CNG	ALL	0.0017	0.0003	0.0000	0.0003
ALL	Ethanol (E-85)	ALL	0.0037	0.0023	0.0021	0.0044
ALL	ALL	ALL	2.7267	0.7846	0.5948	1.3794
ALL	ALL	Off-Network	0.7689	0.5173	0.5009	1.0182
ALL	ALL	Rural Restricted	0.4603	0.0446	0.0081	0.0527
ALL	ALL	Rural Unrestricted	0.6453	0.0998	0.0398	0.1396
ALL	ALL	Urban Restricted	0.4077	0.0427	0.0088	0.0516
ALL	ALL	Urban Unrestricted	0.4445	0.0802	0.0372	0.1173
ALL	ALL	ALL	2.7267	0.7846	0.5948	1.3794

Table 1-b: 2028 NOx and VOC Emissions: tons per summer weekday (tpswd)

Source Type	Fuel Type	Road Type	Sheboygan Whole County Nonattainment Area – Year 2028			
			NOx Emissions (tpswd)	VOC Emissions (tpswd)		
			Total	Exhaust	Evaporative	Total
Motorcycle	Gasoline	Off-Network	0.0002	0.0009	0.0433	0.0442
Motorcycle	Gasoline	Rural Restricted	0.0032	0.0024	0.0013	0.0037
Motorcycle	Gasoline	Rural Unrestricted	0.0095	0.0096	0.0078	0.0174
Motorcycle	Gasoline	Urban Restricted	0.0028	0.0022	0.0012	0.0034
Motorcycle	Gasoline	Urban Unrestricted	0.0058	0.0070	0.0062	0.0132
Passenger Car	Gasoline	Off-Network	0.0659	0.0852	0.1358	0.2210
Passenger Car	Gasoline	Rural Restricted	0.0186	0.0036	0.0020	0.0057
Passenger Car	Gasoline	Rural Unrestricted	0.0238	0.0053	0.0091	0.0144
Passenger Car	Gasoline	Urban Restricted	0.0173	0.0035	0.0023	0.0058
Passenger Car	Gasoline	Urban Unrestricted	0.0209	0.0050	0.0096	0.0146
Passenger Car	Diesel	Off-Network	0.0006	0.0007	0.0000	0.0007
Passenger Car	Diesel	Rural Restricted	0.0003	0.0000	0.0000	0.0000
Passenger Car	Diesel	Rural Unrestricted	0.0003	0.0001	0.0000	0.0001
Passenger Car	Diesel	Urban Restricted	0.0002	0.0000	0.0000	0.0000
Passenger Car	Diesel	Urban Unrestricted	0.0003	0.0001	0.0000	0.0001
Passenger Car	Ethanol (E-85)	Off-Network	0.0008	0.0012	0.0019	0.0031
Passenger Car	Ethanol (E-85)	Rural Restricted	0.0002	0.0000	0.0000	0.0001
Passenger Car	Ethanol (E-85)	Rural Unrestricted	0.0002	0.0001	0.0002	0.0002
Passenger Car	Ethanol (E-85)	Urban Restricted	0.0002	0.0000	0.0000	0.0001
Passenger Car	Ethanol (E-85)	Urban Unrestricted	0.0002	0.0001	0.0002	0.0002
Passenger Truck	Gasoline	Off-Network	0.0523	0.0603	0.0813	0.1416
Passenger Truck	Gasoline	Rural Restricted	0.0228	0.0044	0.0015	0.0060
Passenger Truck	Gasoline	Rural Unrestricted	0.0298	0.0060	0.0079	0.0139
Passenger Truck	Gasoline	Urban Restricted	0.0190	0.0037	0.0016	0.0053
Passenger Truck	Gasoline	Urban Unrestricted	0.0211	0.0045	0.0068	0.0113
Passenger Truck	Diesel	Off-Network	0.0036	0.0006	0.0000	0.0006
Passenger Truck	Diesel	Rural Restricted	0.0014	0.0001	0.0000	0.0001
Passenger Truck	Diesel	Rural Unrestricted	0.0042	0.0005	0.0000	0.0005
Passenger Truck	Diesel	Urban Restricted	0.0013	0.0001	0.0000	0.0001
Passenger Truck	Diesel	Urban Unrestricted	0.0034	0.0004	0.0000	0.0004
Passenger Truck	Ethanol (E-85)	Off-Network	0.0022	0.0031	0.0043	0.0074
Passenger Truck	Ethanol (E-85)	Rural Restricted	0.0010	0.0002	0.0001	0.0003
Passenger Truck	Ethanol (E-85)	Rural Unrestricted	0.0012	0.0002	0.0005	0.0007
Passenger Truck	Ethanol (E-85)	Urban Restricted	0.0008	0.0002	0.0001	0.0003
Passenger Truck	Ethanol (E-85)	Urban Unrestricted	0.0008	0.0002	0.0004	0.0006
Light Commercial Truck	Gasoline	Off-Network	0.0197	0.0226	0.0219	0.0445
Light Commercial Truck	Gasoline	Rural Restricted	0.0068	0.0013	0.0004	0.0017
Light Commercial Truck	Gasoline	Rural Unrestricted	0.0104	0.0021	0.0022	0.0043
Light Commercial Truck	Gasoline	Urban Restricted	0.0057	0.0011	0.0004	0.0015
Light Commercial Truck	Gasoline	Urban Unrestricted	0.0074	0.0016	0.0018	0.0035
Light Commercial Truck	Diesel	Off-Network	0.0025	0.0008	0.0000	0.0008
Light Commercial Truck	Diesel	Rural Restricted	0.0010	0.0001	0.0000	0.0001
Light Commercial Truck	Diesel	Rural Unrestricted	0.0029	0.0004	0.0000	0.0004
Light Commercial Truck	Diesel	Urban Restricted	0.0009	0.0001	0.0000	0.0001
Light Commercial Truck	Diesel	Urban Unrestricted	0.0023	0.0003	0.0000	0.0003
Light Commercial Truck	Ethanol (E-85)	Off-Network	0.0006	0.0008	0.0010	0.0018
Light Commercial Truck	Ethanol (E-85)	Rural Restricted	0.0002	0.0000	0.0000	0.0001
Light Commercial Truck	Ethanol (E-85)	Rural Unrestricted	0.0003	0.0001	0.0001	0.0002
Light Commercial Truck	Ethanol (E-85)	Urban Restricted	0.0002	0.0000	0.0000	0.0001
Light Commercial Truck	Ethanol (E-85)	Urban Unrestricted	0.0002	0.0000	0.0001	0.0001
Intercity Bus	Diesel	Off-Network	0.0000	0.0000	0.0000	0.0000
Intercity Bus	Diesel	Rural Restricted	0.0011	0.0000	0.0000	0.0000
Intercity Bus	Diesel	Rural Unrestricted	0.0020	0.0001	0.0000	0.0001
Intercity Bus	Diesel	Urban Restricted	0.0014	0.0001	0.0000	0.0001
Intercity Bus	Diesel	Urban Unrestricted	0.0017	0.0001	0.0000	0.0001

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Source Type	Fuel Type	Road Type	Sheboygan Whole County Nonattainment Area – Year 2028			
			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	0.0013	0.0001	0.0000	0.0001
Transit Bus	Diesel	Rural Unrestricted	0.0018	0.0001	0.0000	0.0001
Transit Bus	Diesel	Urban Restricted	0.0016	0.0001	0.0000	0.0001
Transit Bus	Diesel	Urban Unrestricted	0.0015	0.0001	0.0000	0.0001
Transit Bus	CNG	Off-Network	0.0000	0.0000	0.0000	0.0000
Transit Bus	CNG	Rural Restricted	0.0002	0.0000	0.0000	0.0000
Transit Bus	CNG	Rural Unrestricted	0.0003	0.0000	0.0000	0.0000
Transit Bus	CNG	Urban Restricted	0.0003	0.0000	0.0000	0.0000
Transit Bus	CNG	Urban Unrestricted	0.0002	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	0.0024	0.0002	0.0000	0.0002
School Bus	Diesel	Rural Unrestricted	0.0036	0.0004	0.0000	0.0004
School Bus	Diesel	Urban Restricted	0.0031	0.0002	0.0000	0.0002
School Bus	Diesel	Urban Unrestricted	0.0030	0.0004	0.0000	0.0004
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	0.0025	0.0001	0.0000	0.0001
Refuse Truck	Diesel	Rural Unrestricted	0.0028	0.0001	0.0000	0.0001
Refuse Truck	Diesel	Urban Restricted	0.0021	0.0001	0.0000	0.0001
Refuse Truck	Diesel	Urban Unrestricted	0.0017	0.0001	0.0000	0.0001
Single Unit Short-haul Truck	Gasoline	Off-Network	0.0043	0.0048	0.0041	0.0088
Single Unit Short-haul Truck	Gasoline	Rural Restricted	0.0021	0.0003	0.0001	0.0004
Single Unit Short-haul Truck	Gasoline	Rural Unrestricted	0.0036	0.0010	0.0002	0.0012
Single Unit Short-haul Truck	Gasoline	Urban Restricted	0.0026	0.0004	0.0001	0.0005
Single Unit Short-haul Truck	Gasoline	Urban Unrestricted	0.0025	0.0009	0.0002	0.0011
Single Unit Short-haul Truck	Diesel	Off-Network	0.0067	0.0003	0.0000	0.0003
Single Unit Short-haul Truck	Diesel	Rural Restricted	0.0099	0.0006	0.0000	0.0006
Single Unit Short-haul Truck	Diesel	Rural Unrestricted	0.0193	0.0019	0.0000	0.0019
Single Unit Short-haul Truck	Diesel	Urban Restricted	0.0119	0.0008	0.0000	0.0008
Single Unit Short-haul Truck	Diesel	Urban Unrestricted	0.0148	0.0015	0.0000	0.0015
Single Unit Long-haul Truck	Gasoline	Off-Network	0.0001	0.0001	0.0000	0.0001
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	0.0001	0.0000	0.0001
Single Unit Long-haul Truck	Diesel	Rural Unrestricted	0.0015	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	0.0011	0.0001	0.0000	0.0001
Motor Home	Gasoline	Off-Network	0.0004	0.0006	0.0015	0.0020
Motor Home	Gasoline	Rural Restricted	0.0003	0.0000	0.0000	0.0000
Motor Home	Gasoline	Rural Unrestricted	0.0006	0.0002	0.0000	0.0002
Motor Home	Gasoline	Urban Restricted	0.0004	0.0001	0.0000	0.0001
Motor Home	Gasoline	Urban Unrestricted	0.0005	0.0002	0.0000	0.0002
Motor Home	Diesel	Off-Network	0.0002	0.0000	0.0000	0.0000
Motor Home	Diesel	Rural Restricted	0.0005	0.0000	0.0000	0.0000
Motor Home	Diesel	Rural Unrestricted	0.0011	0.0002	0.0000	0.0002
Motor Home	Diesel	Urban Restricted	0.0008	0.0001	0.0000	0.0001

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Source Type	Fuel Type	Road Type	Sheboygan Whole County Nonattainment Area – Year 2028			
			NOx Emissions (tpswd)	VOC Emissions (tpswd)		
				Exhaust	Evaporative	Total
Motor Home	Diesel	Urban Unrestricted	0.0009	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	0.0210	0.0006	0.0000	0.0006
Combination Short-haul Truck	Diesel	Rural Unrestricted	0.0239	0.0012	0.0000	0.0012
Combination Short-haul Truck	Diesel	Urban Restricted	0.0179	0.0006	0.0000	0.0006
Combination Short-haul Truck	Diesel	Urban Unrestricted	0.0140	0.0007	0.0000	0.0007
Combination Long-haul Truck	Diesel	Off-Network	0.3340	0.0578	0.0000	0.0578
Combination Long-haul Truck	Diesel	Rural Restricted	0.0764	0.0023	0.0000	0.0023
Combination Long-haul Truck	Diesel	Rural Unrestricted	0.0841	0.0041	0.0000	0.0041
Combination Long-haul Truck	Diesel	Urban Restricted	0.0632	0.0021	0.0000	0.0021
Combination Long-haul Truck	Diesel	Urban Unrestricted	0.0480	0.0025	0.0000	0.0025
ALL	ALL	ALL	1.2022	0.3322	0.3596	0.6918
Motorcycle	ALL	ALL	0.0215	0.0220	0.0599	0.0819
Passenger Car	ALL	ALL	0.1497	0.1050	0.1610	0.2660
Passenger Truck	ALL	ALL	0.1649	0.0845	0.1045	0.1889
Light Commercial Truck	ALL	ALL	0.0608	0.0316	0.0280	0.0595
Intercity Bus	ALL	ALL	0.0062	0.0004	0.0000	0.0004
Transit Bus	ALL	ALL	0.0073	0.0005	0.0000	0.0005
School Bus	ALL	ALL	0.0122	0.0012	0.0000	0.0012
Refuse Truck	ALL	ALL	0.0091	0.0004	0.0000	0.0004
Single Unit Short-haul Truck	ALL	ALL	0.0778	0.0126	0.0046	0.0172
Single Unit Long-haul Truck	ALL	ALL	0.0046	0.0005	0.0000	0.0005
Motor Home	ALL	ALL	0.0056	0.0014	0.0015	0.0030
Combination Short-haul Truck	ALL	ALL	0.0768	0.0032	0.0000	0.0032
Combination Long-haul Truck	ALL	ALL	0.6058	0.0689	0.0000	0.0689
ALL	ALL	ALL	1.2022	0.3322	0.3596	0.6918
ALL	Gasoline	ALL	0.3803	0.2411	0.3507	0.5918
ALL	Diesel	ALL	0.8117	0.0847	0.0000	0.0847
ALL	CNG	ALL	0.0011	0.0001	0.0000	0.0001
ALL	Ethanol (E-85)	ALL	0.0091	0.0063	0.0088	0.0151
ALL	ALL	ALL	1.2022	0.3322	0.3596	0.6918
ALL	ALL	Off-Network	0.4940	0.2398	0.2950	0.5349
ALL	ALL	Rural Restricted	0.1739	0.0168	0.0055	0.0223
ALL	ALL	Rural Unrestricted	0.2272	0.0339	0.0280	0.0618
ALL	ALL	Urban Restricted	0.1545	0.0157	0.0058	0.0216
ALL	ALL	Urban Unrestricted	0.1525	0.0260	0.0252	0.0512
ALL	ALL	ALL	1.2022	0.3322	0.3596	0.6918

Table 1-c: 2038 NOx and VOC Emissions: tons per summer weekday (tpswd)

Source Type	Fuel Type	Road Type	Sheboygan Whole County Nonattainment Area – Year 2038			
			NOx Emissions (tpswd)	VOC Emissions (tpswd)		
			Total	Exhaust	Evaporative	Total
Motorcycle	Gasoline	Off-Network	0.0002	0.0011	0.0412	0.0423
Motorcycle	Gasoline	Rural Restricted	0.0034	0.0023	0.0013	0.0036
Motorcycle	Gasoline	Rural Unrestricted	0.0099	0.0091	0.0081	0.0172
Motorcycle	Gasoline	Urban Restricted	0.0029	0.0021	0.0013	0.0033
Motorcycle	Gasoline	Urban Unrestricted	0.0061	0.0067	0.0063	0.0130
Passenger Car	Gasoline	Off-Network	0.0348	0.0405	0.0998	0.1403
Passenger Car	Gasoline	Rural Restricted	0.0117	0.0019	0.0017	0.0036
Passenger Car	Gasoline	Rural Unrestricted	0.0099	0.0024	0.0078	0.0102
Passenger Car	Gasoline	Urban Restricted	0.0104	0.0018	0.0020	0.0038
Passenger Car	Gasoline	Urban Unrestricted	0.0081	0.0022	0.0082	0.0104
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	0.0001	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	0.0004	0.0006	0.0013	0.0019
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	0.0001	0.0001
Passenger Car	Ethanol (E-85)	Urban Restricted	0.0001	0.0000	0.0000	0.0001
Passenger Car	Ethanol (E-85)	Urban Unrestricted	0.0001	0.0000	0.0001	0.0002
Passenger Truck	Gasoline	Off-Network	0.0272	0.0308	0.0670	0.0978
Passenger Truck	Gasoline	Rural Restricted	0.0123	0.0021	0.0014	0.0035
Passenger Truck	Gasoline	Rural Unrestricted	0.0123	0.0027	0.0076	0.0102
Passenger Truck	Gasoline	Urban Restricted	0.0100	0.0017	0.0015	0.0032
Passenger Truck	Gasoline	Urban Unrestricted	0.0085	0.0020	0.0064	0.0084
Passenger Truck	Diesel	Off-Network	0.0033	0.0003	0.0000	0.0003
Passenger Truck	Diesel	Rural Restricted	0.0008	0.0001	0.0000	0.0001
Passenger Truck	Diesel	Rural Unrestricted	0.0025	0.0003	0.0000	0.0003
Passenger Truck	Diesel	Urban Restricted	0.0007	0.0001	0.0000	0.0001
Passenger Truck	Diesel	Urban Unrestricted	0.0020	0.0002	0.0000	0.0002
Passenger Truck	Ethanol (E-85)	Off-Network	0.0012	0.0015	0.0037	0.0052
Passenger Truck	Ethanol (E-85)	Rural Restricted	0.0005	0.0001	0.0001	0.0002
Passenger Truck	Ethanol (E-85)	Rural Unrestricted	0.0005	0.0001	0.0005	0.0006
Passenger Truck	Ethanol (E-85)	Urban Restricted	0.0004	0.0001	0.0001	0.0002
Passenger Truck	Ethanol (E-85)	Urban Unrestricted	0.0003	0.0001	0.0004	0.0005
Light Commercial Truck	Gasoline	Off-Network	0.0082	0.0093	0.0172	0.0265
Light Commercial Truck	Gasoline	Rural Restricted	0.0033	0.0005	0.0004	0.0009
Light Commercial Truck	Gasoline	Rural Unrestricted	0.0036	0.0007	0.0020	0.0027
Light Commercial Truck	Gasoline	Urban Restricted	0.0027	0.0004	0.0004	0.0008
Light Commercial Truck	Gasoline	Urban Unrestricted	0.0025	0.0005	0.0017	0.0022
Light Commercial Truck	Diesel	Off-Network	0.0021	0.0003	0.0000	0.0003
Light Commercial Truck	Diesel	Rural Restricted	0.0005	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	0.0005	0.0000	0.0000	0.0000
Light Commercial Truck	Diesel	Urban Unrestricted	0.0012	0.0001	0.0000	0.0001
Light Commercial Truck	Ethanol (E-85)	Off-Network	0.0003	0.0004	0.0009	0.0013
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	0.0001	0.0001
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	0.0001	0.0001
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	0.0008	0.0000	0.0000	0.0000
Intercity Bus	Diesel	Urban Restricted	0.0005	0.0000	0.0000	0.0000
Intercity Bus	Diesel	Urban Unrestricted	0.0007	0.0000	0.0000	0.0000

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Source Type	Fuel Type	Road Type	Sheboygan Whole County Nonattainment Area – Year 2038			
			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	0.0010	0.0000	0.0000	0.0000
Transit Bus	Diesel	Urban Restricted	0.0009	0.0000	0.0000	0.0000
Transit Bus	Diesel	Urban Unrestricted	0.0008	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	0.0003	0.0000	0.0000	0.0000
Transit Bus	CNG	Urban Restricted	0.0002	0.0000	0.0000	0.0000
Transit Bus	CNG	Urban Unrestricted	0.0002	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	0.0015	0.0001	0.0000	0.0001
School Bus	Diesel	Rural Unrestricted	0.0022	0.0001	0.0000	0.0001
School Bus	Diesel	Urban Restricted	0.0019	0.0001	0.0000	0.0001
School Bus	Diesel	Urban Unrestricted	0.0019	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	0.0019	0.0001	0.0000	0.0001
Refuse Truck	Diesel	Urban Restricted	0.0015	0.0000	0.0000	0.0000
Refuse Truck	Diesel	Urban Unrestricted	0.0011	0.0000	0.0000	0.0000
Single Unit Short-haul Truck	Gasoline	Off-Network	0.0016	0.0024	0.0030	0.0054
Single Unit Short-haul Truck	Gasoline	Rural Restricted	0.0018	0.0003	0.0001	0.0003
Single Unit Short-haul Truck	Gasoline	Rural Unrestricted	0.0031	0.0008	0.0002	0.0010
Single Unit Short-haul Truck	Gasoline	Urban Restricted	0.0023	0.0004	0.0001	0.0005
Single Unit Short-haul Truck	Gasoline	Urban Unrestricted	0.0022	0.0007	0.0002	0.0009
Single Unit Short-haul Truck	Diesel	Off-Network	0.0070	0.0003	0.0000	0.0003
Single Unit Short-haul Truck	Diesel	Rural Restricted	0.0077	0.0004	0.0000	0.0004
Single Unit Short-haul Truck	Diesel	Rural Unrestricted	0.0152	0.0013	0.0000	0.0013
Single Unit Short-haul Truck	Diesel	Urban Restricted	0.0094	0.0006	0.0000	0.0006
Single Unit Short-haul Truck	Diesel	Urban Unrestricted	0.0116	0.0010	0.0000	0.0010
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	0.0013	0.0001	0.0000	0.0001
Single Unit Long-haul Truck	Diesel	Urban Restricted	0.0008	0.0000	0.0000	0.0000
Single Unit Long-haul Truck	Diesel	Urban Unrestricted	0.0010	0.0001	0.0000	0.0001
Motor Home	Gasoline	Off-Network	0.0001	0.0002	0.0008	0.0009
Motor Home	Gasoline	Rural Restricted	0.0001	0.0000	0.0000	0.0000
Motor Home	Gasoline	Rural Unrestricted	0.0002	0.0001	0.0000	0.0001
Motor Home	Gasoline	Urban Restricted	0.0001	0.0000	0.0000	0.0000
Motor Home	Gasoline	Urban Unrestricted	0.0002	0.0001	0.0000	0.0001
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	0.0005	0.0000	0.0000	0.0000
Motor Home	Diesel	Urban Restricted	0.0004	0.0000	0.0000	0.0000

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Source Type	Fuel Type	Road Type	Sheboygan Whole County Nonattainment Area – Year 2038			
			NOx Emissions (tpswd)	VOC Emissions (tpswd)		
			Total	Exhaust	Evaporative	Total
Motor Home	Diesel	Urban Unrestricted	0.0005	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	0.0167	0.0004	0.0000	0.0004
Combination Short-haul Truck	Diesel	Rural Unrestricted	0.0193	0.0008	0.0000	0.0008
Combination Short-haul Truck	Diesel	Urban Restricted	0.0144	0.0004	0.0000	0.0004
Combination Short-haul Truck	Diesel	Urban Unrestricted	0.0114	0.0005	0.0000	0.0005
Combination Long-haul Truck	Diesel	Off-Network	0.3539	0.0574	0.0000	0.0574
Combination Long-haul Truck	Diesel	Rural Restricted	0.0506	0.0012	0.0000	0.0012
Combination Long-haul Truck	Diesel	Rural Unrestricted	0.0564	0.0023	0.0000	0.0023
Combination Long-haul Truck	Diesel	Urban Restricted	0.0424	0.0011	0.0000	0.0011
Combination Long-haul Truck	Diesel	Urban Unrestricted	0.0325	0.0014	0.0000	0.0014
ALL	ALL	ALL	0.8944	0.2013	0.2951	0.4964
Motorcycle	ALL	ALL	0.0225	0.0213	0.0582	0.0795
Passenger Car	ALL	ALL	0.0766	0.0498	0.1212	0.1710
Passenger Truck	ALL	ALL	0.0826	0.0422	0.0887	0.1309
Light Commercial Truck	ALL	ALL	0.0266	0.0127	0.0227	0.0355
Intercity Bus	ALL	ALL	0.0023	0.0001	0.0000	0.0001
Transit Bus	ALL	ALL	0.0043	0.0002	0.0000	0.0002
School Bus	ALL	ALL	0.0076	0.0004	0.0000	0.0004
Refuse Truck	ALL	ALL	0.0062	0.0002	0.0000	0.0002
Single Unit Short-haul Truck	ALL	ALL	0.0619	0.0081	0.0036	0.0117
Single Unit Long-haul Truck	ALL	ALL	0.0038	0.0003	0.0000	0.0003
Motor Home	ALL	ALL	0.0024	0.0004	0.0008	0.0012
Combination Short-haul Truck	ALL	ALL	0.0618	0.0021	0.0000	0.0021
Combination Long-haul Truck	ALL	ALL	0.5357	0.0633	0.0000	0.0633
ALL	ALL	ALL	0.8944	0.2013	0.2951	0.4964
ALL	Gasoline	ALL	0.1994	0.1259	0.2876	0.4135
ALL	Diesel	ALL	0.6896	0.0724	0.0000	0.0724
ALL	CNG	ALL	0.0009	0.0001	0.0000	0.0001
ALL	Ethanol (E-85)	ALL	0.0045	0.0030	0.0075	0.0105
ALL	ALL	ALL	0.8944	0.2013	0.2951	0.4964
ALL	ALL	Off-Network	0.4410	0.1456	0.2349	0.3804
ALL	ALL	Rural Restricted	0.1150	0.0096	0.0051	0.0146
ALL	ALL	Rural Unrestricted	0.1428	0.0212	0.0264	0.0476
ALL	ALL	Urban Restricted	0.1027	0.0090	0.0054	0.0144
ALL	ALL	Urban Unrestricted	0.0929	0.0159	0.0235	0.0394
ALL	ALL	ALL	0.8944	0.2013	0.2951	0.4964

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	0.0012	0.0428	0.0439
Motorcycle	Gasoline	Rural Restricted	0.0035	0.0024	0.0014	0.0037
Motorcycle	Gasoline	Rural Unrestricted	0.0103	0.0095	0.0084	0.0179
Motorcycle	Gasoline	Urban Restricted	0.0031	0.0021	0.0013	0.0035
Motorcycle	Gasoline	Urban Unrestricted	0.0063	0.0069	0.0066	0.0135
Passenger Car	Gasoline	Off-Network	0.0334	0.0375	0.0989	0.1364
Passenger Car	Gasoline	Rural Restricted	0.0115	0.0018	0.0017	0.0035
Passenger Car	Gasoline	Rural Unrestricted	0.0092	0.0022	0.0079	0.0101
Passenger Car	Gasoline	Urban Restricted	0.0102	0.0017	0.0020	0.0037
Passenger Car	Gasoline	Urban Unrestricted	0.0074	0.0020	0.0083	0.0103
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	0.0001	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	0.0004	0.0005	0.0012	0.0017
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	0.0001	0.0001
Passenger Car	Ethanol (E-85)	Urban Restricted	0.0001	0.0000	0.0000	0.0000
Passenger Car	Ethanol (E-85)	Urban Unrestricted	0.0001	0.0000	0.0001	0.0001
Passenger Truck	Gasoline	Off-Network	0.0242	0.0258	0.0631	0.0889
Passenger Truck	Gasoline	Rural Restricted	0.0108	0.0017	0.0014	0.0031
Passenger Truck	Gasoline	Rural Unrestricted	0.0100	0.0022	0.0074	0.0096
Passenger Truck	Gasoline	Urban Restricted	0.0087	0.0014	0.0015	0.0029
Passenger Truck	Gasoline	Urban Unrestricted	0.0069	0.0017	0.0063	0.0079
Passenger Truck	Diesel	Off-Network	0.0033	0.0003	0.0000	0.0003
Passenger Truck	Diesel	Rural Restricted	0.0008	0.0001	0.0000	0.0001
Passenger Truck	Diesel	Rural Unrestricted	0.0024	0.0003	0.0000	0.0003
Passenger Truck	Diesel	Urban Restricted	0.0007	0.0001	0.0000	0.0001
Passenger Truck	Diesel	Urban Unrestricted	0.0020	0.0002	0.0000	0.0002
Passenger Truck	Ethanol (E-85)	Off-Network	0.0010	0.0012	0.0032	0.0044
Passenger Truck	Ethanol (E-85)	Rural Restricted	0.0004	0.0001	0.0001	0.0001
Passenger Truck	Ethanol (E-85)	Rural Unrestricted	0.0004	0.0001	0.0004	0.0005
Passenger Truck	Ethanol (E-85)	Urban Restricted	0.0003	0.0001	0.0001	0.0001
Passenger Truck	Ethanol (E-85)	Urban Unrestricted	0.0002	0.0001	0.0004	0.0004
Light Commercial Truck	Gasoline	Off-Network	0.0074	0.0082	0.0167	0.0250
Light Commercial Truck	Gasoline	Rural Restricted	0.0030	0.0005	0.0004	0.0008
Light Commercial Truck	Gasoline	Rural Unrestricted	0.0030	0.0006	0.0020	0.0026
Light Commercial Truck	Gasoline	Urban Restricted	0.0024	0.0004	0.0004	0.0008
Light Commercial Truck	Gasoline	Urban Unrestricted	0.0020	0.0005	0.0017	0.0021
Light Commercial Truck	Diesel	Off-Network	0.0021	0.0002	0.0000	0.0002
Light Commercial Truck	Diesel	Rural Restricted	0.0005	0.0000	0.0000	0.0000
Light Commercial Truck	Diesel	Rural Unrestricted	0.0014	0.0002	0.0000	0.0002
Light Commercial Truck	Diesel	Urban Restricted	0.0004	0.0000	0.0000	0.0000
Light Commercial Truck	Diesel	Urban Unrestricted	0.0011	0.0001	0.0000	0.0001
Light Commercial Truck	Ethanol (E-85)	Off-Network	0.0003	0.0003	0.0008	0.0012
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	0.0001	0.0001
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	0.0001	0.0001
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	0.0007	0.0000	0.0000	0.0000
Intercity Bus	Diesel	Urban Restricted	0.0005	0.0000	0.0000	0.0000
Intercity Bus	Diesel	Urban Unrestricted	0.0006	0.0000	0.0000	0.0000

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Source Type	Fuel Type	Road Type	Sheboygan Whole County Nonattainment Area – Year 2045			
			NOx Emissions (tpswd)	VOC Emissions (tpswd)		
				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	0.0010	0.0000	0.0000	0.0000
Transit Bus	Diesel	Urban Restricted	0.0009	0.0000	0.0000	0.0000
Transit Bus	Diesel	Urban Unrestricted	0.0008	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	0.0003	0.0000	0.0000	0.0000
Transit Bus	CNG	Urban Restricted	0.0003	0.0000	0.0000	0.0000
Transit Bus	CNG	Urban Unrestricted	0.0002	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	0.0015	0.0001	0.0000	0.0001
School Bus	Diesel	Rural Unrestricted	0.0023	0.0001	0.0000	0.0001
School Bus	Diesel	Urban Restricted	0.0020	0.0001	0.0000	0.0001
School Bus	Diesel	Urban Unrestricted	0.0019	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	0.0020	0.0001	0.0000	0.0001
Refuse Truck	Diesel	Urban Restricted	0.0015	0.0000	0.0000	0.0000
Refuse Truck	Diesel	Urban Unrestricted	0.0012	0.0001	0.0000	0.0001
Single Unit Short-haul Truck	Gasoline	Off-Network	0.0015	0.0024	0.0030	0.0054
Single Unit Short-haul Truck	Gasoline	Rural Restricted	0.0019	0.0003	0.0001	0.0003
Single Unit Short-haul Truck	Gasoline	Rural Unrestricted	0.0031	0.0009	0.0002	0.0011
Single Unit Short-haul Truck	Gasoline	Urban Restricted	0.0023	0.0004	0.0001	0.0005
Single Unit Short-haul Truck	Gasoline	Urban Unrestricted	0.0022	0.0008	0.0002	0.0009
Single Unit Short-haul Truck	Diesel	Off-Network	0.0071	0.0003	0.0000	0.0003
Single Unit Short-haul Truck	Diesel	Rural Restricted	0.0078	0.0004	0.0000	0.0004
Single Unit Short-haul Truck	Diesel	Rural Unrestricted	0.0154	0.0013	0.0000	0.0013
Single Unit Short-haul Truck	Diesel	Urban Restricted	0.0096	0.0006	0.0000	0.0006
Single Unit Short-haul Truck	Diesel	Urban Unrestricted	0.0118	0.0010	0.0000	0.0010
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	0.0013	0.0001	0.0000	0.0001
Single Unit Long-haul Truck	Diesel	Urban Restricted	0.0008	0.0000	0.0000	0.0000
Single Unit Long-haul Truck	Diesel	Urban Unrestricted	0.0010	0.0001	0.0000	0.0001
Motor Home	Gasoline	Off-Network	0.0001	0.0002	0.0008	0.0009
Motor Home	Gasoline	Rural Restricted	0.0001	0.0000	0.0000	0.0000
Motor Home	Gasoline	Rural Unrestricted	0.0002	0.0001	0.0000	0.0001
Motor Home	Gasoline	Urban Restricted	0.0001	0.0000	0.0000	0.0000
Motor Home	Gasoline	Urban Unrestricted	0.0002	0.0001	0.0000	0.0001
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	0.0004	0.0000	0.0000	0.0000
Motor Home	Diesel	Urban Restricted	0.0003	0.0000	0.0000	0.0000

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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	0.0004	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	0.0177	0.0004	0.0000	0.0004
Combination Short-haul Truck	Diesel	Rural Unrestricted	0.0204	0.0009	0.0000	0.0009
Combination Short-haul Truck	Diesel	Urban Restricted	0.0154	0.0004	0.0000	0.0004
Combination Short-haul Truck	Diesel	Urban Unrestricted	0.0120	0.0005	0.0000	0.0005
Combination Long-haul Truck	Diesel	Off-Network	0.3755	0.0609	0.0000	0.0609
Combination Long-haul Truck	Diesel	Rural Restricted	0.0532	0.0013	0.0000	0.0013
Combination Long-haul Truck	Diesel	Rural Unrestricted	0.0593	0.0024	0.0000	0.0024
Combination Long-haul Truck	Diesel	Urban Restricted	0.0449	0.0012	0.0000	0.0012
Combination Long-haul Truck	Diesel	Urban Unrestricted	0.0341	0.0014	0.0000	0.0014
ALL	ALL	ALL	0.9148	0.1942	0.2913	0.4855
Motorcycle	ALL	ALL	0.0233	0.0221	0.0604	0.0826
Passenger Car	ALL	ALL	0.0735	0.0463	0.1203	0.1666
Passenger Truck	ALL	ALL	0.0723	0.0352	0.0838	0.1190
Light Commercial Truck	ALL	ALL	0.0237	0.0112	0.0223	0.0335
Intercity Bus	ALL	ALL	0.0022	0.0001	0.0000	0.0001
Transit Bus	ALL	ALL	0.0044	0.0002	0.0000	0.0002
School Bus	ALL	ALL	0.0078	0.0004	0.0000	0.0005
Refuse Truck	ALL	ALL	0.0064	0.0002	0.0000	0.0002
Single Unit Short-haul Truck	ALL	ALL	0.0627	0.0083	0.0035	0.0119
Single Unit Long-haul Truck	ALL	ALL	0.0039	0.0003	0.0000	0.0003
Motor Home	ALL	ALL	0.0021	0.0004	0.0008	0.0013
Combination Short-haul Truck	ALL	ALL	0.0656	0.0023	0.0000	0.0023
Combination Long-haul Truck	ALL	ALL	0.5669	0.0672	0.0000	0.0672
ALL	ALL	ALL	0.9148	0.1942	0.2913	0.4855
ALL	Gasoline	ALL	0.1853	0.1153	0.2845	0.3998
ALL	Diesel	ALL	0.7249	0.0765	0.0000	0.0765
ALL	CNG	ALL	0.0010	0.0001	0.0000	0.0001
ALL	Ethanol (E-85)	ALL	0.0037	0.0024	0.0067	0.0091
ALL	ALL	ALL	0.9148	0.1942	0.2913	0.4855
ALL	ALL	Off-Network	0.4573	0.1395	0.2306	0.3701
ALL	ALL	Rural Restricted	0.1168	0.0091	0.0051	0.0142
ALL	ALL	Rural Unrestricted	0.1434	0.0211	0.0266	0.0477
ALL	ALL	Urban Restricted	0.1047	0.0087	0.0054	0.0141
ALL	ALL	Urban Unrestricted	0.0925	0.0158	0.0236	0.0394
ALL	ALL	ALL	0.9148	0.1942	0.2913	0.4855

Table 2-a: Vehicle-Miles of Travel Output from the MOVES2014b Model;
Years 2018, 2028, 2038 and 2045

Source Type	Fuel Type	Road Type	Sheboygan Whole County Nonattainment Area			
			Vehicle-Miles of Travel Summer Weekday			
			2018	2028	2038	2045
Motorcycle	Gasoline	Off-Network				
Motorcycle	Gasoline	Rural Restricted	4,385	4,637	4,890	5,067
Motorcycle	Gasoline	Rural Unrestricted	14,165	15,041	15,911	16,515
Motorcycle	Gasoline	Urban Restricted	3,842	4,053	4,267	4,418
Motorcycle	Gasoline	Urban Unrestricted	9,809	10,408	11,008	11,429
Passenger Car	Gasoline	Off-Network				
Passenger Car	Gasoline	Rural Restricted	231,773	244,337	259,468	269,188
Passenger Car	Gasoline	Rural Unrestricted	552,178	584,469	622,581	646,982
Passenger Car	Gasoline	Urban Restricted	239,341	251,710	266,849	276,613
Passenger Car	Gasoline	Urban Unrestricted	512,157	541,704	576,943	599,692
Passenger Car	Diesel	Off-Network				
Passenger Car	Diesel	Rural Restricted	1,933	2,869	3,090	3,235
Passenger Car	Diesel	Rural Unrestricted	4,606	6,863	7,414	7,774
Passenger Car	Diesel	Urban Restricted	1,996	2,956	3,178	3,324
Passenger Car	Diesel	Urban Unrestricted	4,272	6,361	6,871	7,206
Passenger Car	Ethanol (E-85)	Off-Network				
Passenger Car	Ethanol (E-85)	Rural Restricted	849	3,470	3,084	2,950
Passenger Car	Ethanol (E-85)	Rural Unrestricted	2,023	8,301	7,400	7,090
Passenger Car	Ethanol (E-85)	Urban Restricted	877	3,575	3,172	3,031
Passenger Car	Ethanol (E-85)	Urban Unrestricted	1,876	7,694	6,857	6,572
Passenger Truck	Gasoline	Off-Network				
Passenger Truck	Gasoline	Rural Restricted	174,470	175,233	185,268	192,595
Passenger Truck	Gasoline	Rural Unrestricted	481,342	485,404	514,788	536,040
Passenger Truck	Gasoline	Urban Restricted	162,984	163,304	172,366	179,033
Passenger Truck	Gasoline	Urban Unrestricted	360,825	363,600	385,554	401,563
Passenger Truck	Diesel	Off-Network				
Passenger Truck	Diesel	Rural Restricted	3,490	3,758	3,958	4,102
Passenger Truck	Diesel	Rural Unrestricted	9,629	10,411	10,998	11,416
Passenger Truck	Diesel	Urban Restricted	3,260	3,502	3,682	3,813
Passenger Truck	Diesel	Urban Unrestricted	7,218	7,798	8,237	8,552
Passenger Truck	Ethanol (E-85)	Off-Network				
Passenger Truck	Ethanol (E-85)	Rural Restricted	2,281	9,567	8,552	8,182
Passenger Truck	Ethanol (E-85)	Rural Unrestricted	6,294	26,501	23,763	22,773
Passenger Truck	Ethanol (E-85)	Urban Restricted	2,131	8,916	7,957	7,606
Passenger Truck	Ethanol (E-85)	Urban Unrestricted	4,718	19,851	17,798	17,060
Light Commercial Truck	Gasoline	Off-Network				
Light Commercial Truck	Gasoline	Rural Restricted	43,329	43,526	46,007	47,809
Light Commercial Truck	Gasoline	Rural Unrestricted	118,632	119,654	126,865	132,054
Light Commercial Truck	Gasoline	Urban Restricted	40,177	40,263	42,487	44,114
Light Commercial Truck	Gasoline	Urban Unrestricted	88,626	89,323	94,693	98,588
Light Commercial Truck	Diesel	Off-Network				
Light Commercial Truck	Diesel	Rural Restricted	2,472	2,566	2,695	2,789
Light Commercial Truck	Diesel	Rural Unrestricted	6,768	7,055	7,432	7,705
Light Commercial Truck	Diesel	Urban Restricted	2,292	2,374	2,489	2,574
Light Commercial Truck	Diesel	Urban Unrestricted	5,056	5,266	5,547	5,752
Light Commercial Truck	Ethanol (E-85)	Off-Network				
Light Commercial Truck	Ethanol (E-85)	Rural Restricted	483	2,245	2,027	1,947
Light Commercial Truck	Ethanol (E-85)	Rural Unrestricted	1,323	6,173	5,589	5,378
Light Commercial Truck	Ethanol (E-85)	Urban Restricted	448	2,077	1,872	1,796
Light Commercial Truck	Ethanol (E-85)	Urban Unrestricted	988	4,608	4,172	4,015
Intercity Bus	Diesel	Off-Network				
Intercity Bus	Diesel	Rural Restricted	273	299	321	339
Intercity Bus	Diesel	Rural Unrestricted	556	601	642	676
Intercity Bus	Diesel	Urban Restricted	344	382	416	442
Intercity Bus	Diesel	Urban Unrestricted	450	487	520	547

Source Type	Fuel Type	Road Type	Sheboygan Whole County Nonattainment Area			
			Vehicle-Miles of Travel Summer Weekday			
			2018	2028	2038	2045
Transit Bus	Gasoline	Off-Network				
Transit Bus	Gasoline	Rural Restricted	10	14	16	17
Transit Bus	Gasoline	Rural Unrestricted	20	28	33	35
Transit Bus	Gasoline	Urban Restricted	12	18	21	23
Transit Bus	Gasoline	Urban Unrestricted	16	23	27	29
Transit Bus	Diesel	Off-Network				
Transit Bus	Diesel	Rural Restricted	456	493	543	574
Transit Bus	Diesel	Rural Unrestricted	945	1,009	1,106	1,165
Transit Bus	Diesel	Urban Restricted	585	641	716	762
Transit Bus	Diesel	Urban Unrestricted	769	821	901	949
Transit Bus	CNG	Off-Network				
Transit Bus	CNG	Rural Restricted	71	92	105	111
Transit Bus	CNG	Rural Unrestricted	148	189	214	225
Transit Bus	CNG	Urban Restricted	92	120	138	147
Transit Bus	CNG	Urban Unrestricted	121	154	174	184
School Bus	Gasoline	Off-Network				
School Bus	Gasoline	Rural Restricted	16	16	17	18
School Bus	Gasoline	Rural Unrestricted	33	33	35	37
School Bus	Gasoline	Urban Restricted	20	21	23	24
School Bus	Gasoline	Urban Unrestricted	27	27	29	30
School Bus	Diesel	Off-Network				
School Bus	Diesel	Rural Restricted	1,470	1,598	1,723	1,816
School Bus	Diesel	Rural Unrestricted	3,049	3,274	3,508	3,688
School Bus	Diesel	Urban Restricted	1,886	2,081	2,272	2,413
School Bus	Diesel	Urban Unrestricted	2,482	2,665	2,857	3,006
Refuse Truck	Gasoline	Off-Network				
Refuse Truck	Gasoline	Rural Restricted	6	4	4	5
Refuse Truck	Gasoline	Rural Unrestricted	7	5	5	5
Refuse Truck	Gasoline	Urban Restricted	5	4	4	4
Refuse Truck	Gasoline	Urban Unrestricted	4	3	3	3
Refuse Truck	Diesel	Off-Network				
Refuse Truck	Diesel	Rural Restricted	1,289	1,376	1,451	1,490
Refuse Truck	Diesel	Rural Unrestricted	1,492	1,573	1,648	1,688
Refuse Truck	Diesel	Urban Restricted	1,099	1,190	1,270	1,314
Refuse Truck	Diesel	Urban Unrestricted	823	868	910	933
Single Unit Short-haul Truck	Gasoline	Off-Network				
Single Unit Short-haul Truck	Gasoline	Rural Restricted	5,820	6,471	6,847	7,041
Single Unit Short-haul Truck	Gasoline	Rural Unrestricted	10,421	11,444	12,035	12,342
Single Unit Short-haul Truck	Gasoline	Urban Restricted	6,753	7,618	8,163	8,456
Single Unit Short-haul Truck	Gasoline	Urban Unrestricted	7,264	7,976	8,394	8,614
Single Unit Short-haul Truck	Diesel	Off-Network				
Single Unit Short-haul Truck	Diesel	Rural Restricted	12,900	13,699	14,392	14,790
Single Unit Short-haul Truck	Diesel	Rural Unrestricted	23,098	24,229	25,294	25,927
Single Unit Short-haul Truck	Diesel	Urban Restricted	14,968	16,128	17,156	17,764
Single Unit Short-haul Truck	Diesel	Urban Unrestricted	16,101	16,885	17,642	18,095
Single Unit Long-haul Truck	Gasoline	Off-Network				
Single Unit Long-haul Truck	Gasoline	Rural Restricted	53	5	0	0
Single Unit Long-haul Truck	Gasoline	Rural Unrestricted	94	9	0	0
Single Unit Long-haul Truck	Gasoline	Urban Restricted	61	6	0	0
Single Unit Long-haul Truck	Gasoline	Urban Unrestricted	65	7	0	0
Single Unit Long-haul Truck	Diesel	Off-Network				
Single Unit Long-haul Truck	Diesel	Rural Restricted	1,014	1,172	1,228	1,264
Single Unit Long-haul Truck	Diesel	Rural Unrestricted	1,812	2,070	2,154	2,211
Single Unit Long-haul Truck	Diesel	Urban Restricted	1,174	1,378	1,461	1,515
Single Unit Long-haul Truck	Diesel	Urban Unrestricted	1,261	1,440	1,500	1,541
Motor Home	Gasoline	Off-Network				
Motor Home	Gasoline	Rural Restricted	323	266	256	261
Motor Home	Gasoline	Rural Unrestricted	769	626	598	609
Motor Home	Gasoline	Urban Restricted	478	400	389	400
Motor Home	Gasoline	Urban Unrestricted	617	502	480	489
Motor Home	Diesel	Off-Network				
Motor Home	Diesel	Rural Restricted	185	232	255	261
Motor Home	Diesel	Rural Unrestricted	439	546	595	609
Motor Home	Diesel	Urban Restricted	273	349	387	400
Motor Home	Diesel	Urban Unrestricted	353	438	478	489

Source Type	Fuel Type	Road Type	Sheboygan Whole County Nonattainment Area			
			Vehicle-Miles of Travel Summer Weekday			
			2018	2028	2038	2045
Combination Short-haul Truck	Gasoline	Off-Network				
Combination Short-haul Truck	Gasoline	Rural Restricted	1	0	0	0
Combination Short-haul Truck	Gasoline	Rural Unrestricted	1	0	0	0
Combination Short-haul Truck	Gasoline	Urban Restricted	0	0	0	0
Combination Short-haul Truck	Gasoline	Urban Unrestricted	0	0	0	0
Combination Short-haul Truck	Diesel	Off-Network				
Combination Short-haul Truck	Diesel	Rural Restricted	11,309	13,329	14,319	15,355
Combination Short-haul Truck	Diesel	Rural Unrestricted	13,380	15,576	16,630	17,785
Combination Short-haul Truck	Diesel	Urban Restricted	9,725	11,629	12,651	13,667
Combination Short-haul Truck	Diesel	Urban Unrestricted	7,345	8,548	9,133	9,774
Combination Long-haul Truck	Diesel	Off-Network				
Combination Long-haul Truck	Diesel	Rural Restricted	35,974	38,713	42,826	45,486
Combination Long-haul Truck	Diesel	Rural Unrestricted	40,108	42,634	46,868	49,649
Combination Long-haul Truck	Diesel	Urban Restricted	29,881	32,626	36,547	39,107
Combination Long-haul Truck	Diesel	Urban Unrestricted	21,419	22,761	25,042	26,545
ALL	ALL	ALL	3,409,332	3,621,244	3,833,152	3,981,490
Motorcycle	ALL	ALL	32,201	34,139	36,076	37,430
Passenger Car	ALL	ALL	1,553,881	1,664,307	1,766,906	1,833,655
Passenger Truck	ALL	ALL	1,218,643	1,277,844	1,342,920	1,392,734
Light Commercial Truck	ALL	ALL	310,593	325,131	341,875	354,520
Intercity Bus	ALL	ALL	1,624	1,770	1,899	2,005
Transit Bus	ALL	ALL	3,245	3,602	3,995	4,221
School Bus	ALL	ALL	8,982	9,716	10,465	11,035
Refuse Truck	ALL	ALL	4,724	5,021	5,296	5,443
Single Unit Short-haul Truck	ALL	ALL	97,325	104,450	109,923	113,028
Single Unit Long-haul Truck	ALL	ALL	5,534	6,088	6,344	6,531
Motor Home	ALL	ALL	3,436	3,360	3,437	3,521
Combination Short-haul Truck	ALL	ALL	41,760	49,083	52,733	56,581
Combination Long-haul Truck	ALL	ALL	127,382	136,734	151,284	160,787
ALL	ALL	ALL	3,409,332	3,621,244	3,833,152	3,981,490
ALL	Gasoline	ALL	3,070,929	3,172,192	3,367,324	3,500,145
ALL	Diesel	ALL	313,680	345,521	372,954	392,279
ALL	CNG	ALL	432	554	631	667
ALL	Ethanol (E-85)	ALL	24,292	102,977	92,242	88,399
ALL	ALL	ALL	3,409,332	3,621,244	3,833,152	3,981,490
ALL	ALL	Off-Network				
ALL	ALL	Rural Restricted	536,634	569,990	603,344	626,693
ALL	ALL	Rural Unrestricted	1,293,330	1,373,717	1,454,105	1,510,378
ALL	ALL	Urban Restricted	524,706	557,320	589,933	612,762
ALL	ALL	Urban Unrestricted	1,054,662	1,120,217	1,185,769	1,231,657
ALL	ALL	ALL	3,409,332	3,621,244	3,833,152	3,981,490

Table 2-b: Vehicle Population Output from the MOVES2014b Model;
Years 2018, 2028, 2038 and 2045

Source Type	Fuel Type	Road Type	Sheboygan Whole County Nonattainment Area			
			Vehicle Population			
			2018	2028	2038	2045
Motorcycle	Gasoline	Off-Network	3,309	3,508	3,707	3,846
Motorcycle	Gasoline	Rural Restricted				
Motorcycle	Gasoline	Rural Unrestricted				
Motorcycle	Gasoline	Urban Restricted				
Motorcycle	Gasoline	Urban Unrestricted				
Passenger Car	Gasoline	Off-Network	46,282	48,353	51,179	53,129
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	348	555	603	638
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	158	681	609	583
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	31,760	32,295	34,372	35,782
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	625	690	734	762
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	386	1,737	1,588	1,524
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	7,790	7,976	8,471	8,816
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	446	470	497	514
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	76	400	372	360
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	6	7	7	8
Intercity Bus	Diesel	Rural Restricted				
Intercity Bus	Diesel	Rural Unrestricted				
Intercity Bus	Diesel	Urban Restricted				
Intercity Bus	Diesel	Urban Unrestricted				

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Transit Bus	Gasoline	Off-Network	0	1	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	20	21	22	24
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	3	4	4	5
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	3
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	206	224	243	257
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	0	0	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	68	73	77	80
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	689	733	787	816
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	1,480	1,585	1,666	1,715
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	13	2	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	79	94	101	105
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	341	311	308	317
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	195	271	307	317
Motor Home	Diesel	Rural Restricted				
Motor Home	Diesel	Rural Unrestricted				
Motor Home	Diesel	Urban Restricted				
Motor Home	Diesel	Urban Unrestricted				
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				

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Combination Short-haul Truck	Gasoline	Urban Unrestricted				
Combination Short-haul Truck	Diesel	Off-Network	403	406	453	484
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	466	549	596	634
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	95,153	100,950	106,708	110,718
Motorcycle	ALL	ALL	3,309	3,508	3,707	3,846
Passenger Car	ALL	ALL	46,788	49,589	52,390	54,351
Passenger Truck	ALL	ALL	32,771	34,722	36,694	38,068
Light Commercial Truck	ALL	ALL	8,312	8,846	9,340	9,691
Intercity Bus	ALL	ALL	6	7	7	8
Transit Bus	ALL	ALL	23	25	27	29
School Bus	ALL	ALL	208	227	246	259
Refuse Truck	ALL	ALL	68	73	77	80
Single Unit Short-haul Truck	ALL	ALL	2,169	2,319	2,453	2,531
Single Unit Long-haul Truck	ALL	ALL	92	96	101	105
Motor Home	ALL	ALL	536	582	615	634
Combination Short-haul Truck	ALL	ALL	404	406	453	484
Combination Long-haul Truck	ALL	ALL	466	549	596	634
ALL	ALL	ALL	95,153	100,950	106,708	110,718
ALL	Gasoline	ALL	90,188	93,182	98,827	102,709
ALL	Diesel	ALL	4,342	4,946	5,307	5,536
ALL	CNG	ALL	3	4	4	5
ALL	Ethanol (E-85)	ALL	620	2,818	2,569	2,468
ALL	ALL	ALL	95,153	100,950	106,708	110,718
ALL	ALL	Off-Network	95,153	100,950	106,708	110,718
ALL	ALL	Rural Restricted				
ALL	ALL	Rural Unrestricted				
ALL	ALL	Urban Restricted				
ALL	ALL	Urban Unrestricted				
ALL	ALL	ALL	95,153	100,950	106,708	110,718