Request for Redesignation to Attainment for the 2015 Ozone National Ambient Air Quality Standard and Revision to Michigan's State Implementation Plan and Ozone Maintenance Plan for Southeast Michigan Ozone Nonattainment Area

MICHIGAN DEPARTMENT OF
ENVIRONMENT, GREAT LAKES, AND ENERGY

Michigan Department of Environment, Great Lakes, and Energy
Air Quality Division

P.O. Box 30260
Lansing, Michigan 48906-7760
www.michigan.gov/air

January 2022

TABLE OF CONTENTS

LIST OF FIGURES:

LIST OF TABLES:

LIST OF CHARTS:

ATTACHMENTS:

Proposed Request for Redesignation to Attainment for the 2015 Ozone National Ambient Air Quality Standard and Revision to Michigan's State Implementation Plan and Ozone Maintenance Plan for Southeast Michigan Ozone Nonattainment Area

Introduction

On October 1, 2015, the United States Environmental Protection Agency (USEPA) promulgated a revised National Ambient Air Quality Standard (NAAQS) for ozone (the 2015 ozone NAAQS). The 2015 ozone NAAQS was revised to an 8-hour standard of 0.070 parts per million (throughout this document, the 2015 ozone NAAQS will be expressed as 70 parts per billion [ppb]).

The USEPA made initial attainment/unclassifiable designations for the 2015 ozone NAAQS for the state of Michigan on November 16, 2017 (82 *Federal Register* [FR] 54232) and made corrections to those designations on October 16, 2018 (83 FR 52157). On June 4, 2018 (83 FR 25776), the USEPA made the final designations and classifications for Michigan, including designating the following seven southeast Michigan counties as marginal nonattainment, effective August 3, 2018: Wayne, Oakland, Macomb, Washtenaw, St. Clair, Livingston, and Monroe.

Section 107(d)(3)(E) of the Clean Air Act (CAA) allows states to request the redesignation of nonattainment areas to attainment provided certain criteria are met. In addition, Title 40 of the Code of Federal Regulations (CFR), Part 51, contains requirements for State Implementation Plan (SIP) revisions.

This SIP document describes these criteria and Michigan's demonstration of attainment for the seven southeast Michigan ozone nonattainment counties, herein referred to as "southeast Michigan." Therefore, the State of Michigan, through the Department of Environment, Great Lakes, and Energy (EGLE), is asking the USEPA to make a determination that the southeast Michigan counties are now in attainment with the 2015 ozone NAAQS, to change the status of the area from nonattainment to attainment, and to approve the Section 175A maintenance plan and emissions inventories included in this document as a revision to the Michigan SIP. In addition, EGLE requests approval of the Motor Vehicle Emissions Budgets (MVEBs) for the southeast Michigan counties, included in this document, for the duration of the maintenance period.

Background

Under the 2015 ozone NAAQS, areas that had a three-year design value of 71 ppb or higher were considered nonattainment. A design value for the 2015 ozone NAAQS is the three-year average of the 4th highest daily maximum 8-hour average ozone concentration. The 2015 ozone NAAQS classification level was determined by the amount the design value for an area was above 71 ppb. Design values equal to or

above 71 ppb and below 81 ppb were identified as a marginal nonattainment classification.

In 2018, the southeast Michigan counties were designated marginal nonattainment based on air monitoring data from the 2014 through 2017 ozone seasons. Monitors with a 3-year design value for 2014-2016 above 70 ppb were Port Huron (26-147-0005) 73 ppb, New Haven (26-099-0009) 72 ppb and Detroit East 7-Mile (26-163-0019) 72 ppb. The same three sites had 3-year design values in 2015-2017 of 71 ppb, 71 ppb, and 73 ppb, respectively.

Clean Air Act Section 107(d)(3)(E) Requirements and Demonstrations

1. Attainment of the NAAQS

CAA Section 107(d)(3)(E)(i) sets out requirements to demonstrate attainment of the 2015 ozone NAAQS. There are two components involved in making this demonstration: air quality data and supplemental air quality modeling. According to the USEPA's 1992 Procedures for Processing Requests to Redesignate Areas to Attainment (USEPA Guidance), supplemental USEPA-approved air quality modeling is not required for ozone nonattainment areas seeking redesignation. The air quality data requirements, and Michigan's demonstration of those, are listed in subsections a through c, below.

a. Attaining Data

Section 107(d)(3)(E)(i) requires three complete, consecutive calendar years of quality-assured air quality monitoring data to demonstrate attainment. This subsection addresses the three complete, consecutive year requirement. Quality assurance is addressed more thoroughly in subsection c, below.

According to 40 CFR Part 50, Appendix I, the requirement for three complete, consecutive calendar years of data is met if the "daily maximum 8-hour average concentrations are available for at least 90 percent, on average, of the days during the designated ozone monitoring season, with a minimum data completeness in any one year of at least 75 percent of the designated sampling days."

Ozone monitoring data was collected at seven area ozone sites for the consecutive years of 2019 through 2021. Table 1 lists the highest four 8-hour average values collected in 2019 through 2021 for all 7 sites, along with the 2019 through 2021 design value. These values were obtained during the ozone season, which runs March 1 through October 31 in Michigan each year. Table 1 also lists the percentage of days (% Days) during the ozone season that data was obtained from this monitor, demonstrating completeness.

Table 1. Southeast Michigan Air Monitoring Sites, Ozone 8-Hour Average, Design Value, and Completeness for 2019 Through 2021.

Site Name	Site ID	Year	% Days	1st High	2nd High	3rd High	4th High	2019-2021 Design Value
Allen Park	26-163-0001	2019	89	63	63	62	62	
		2020	89	73	71	70	70	
		2021	90	73	71	70	69	67
Detroit-E. 7 Mile	26-163-0019	2019	94	74	74	73	68	
		2020	93	76	75	74	73	
		2021	95	71	71	70	69	70
New Haven	26-099-0009	2019	95	71	64	63	63	
		2020	95	78	76	75	74	
		2021	95	75	74	73	68	68
Oak Park	26-125-0001	2019	95	77	72	67	66	
		2020	96	78	77	76	74	
		2021	94	71	70	69	68	69
Port Huron	26-147-0005	2019	92	73	72	72	70	
		2020	96	72	70	70	68	
		2021	95	82	76	73	72	70
Warren	26-099-1003	2019	94	70	68	67	62	
		2020	95	77	71	70	70	
		2021	95	71	68	68	67	66
Ypsilanti	26-161-0009	2019	95	64	62	62	60	
		2020	95	74	73	72	72	
		2021	95	70	68	66	66	66

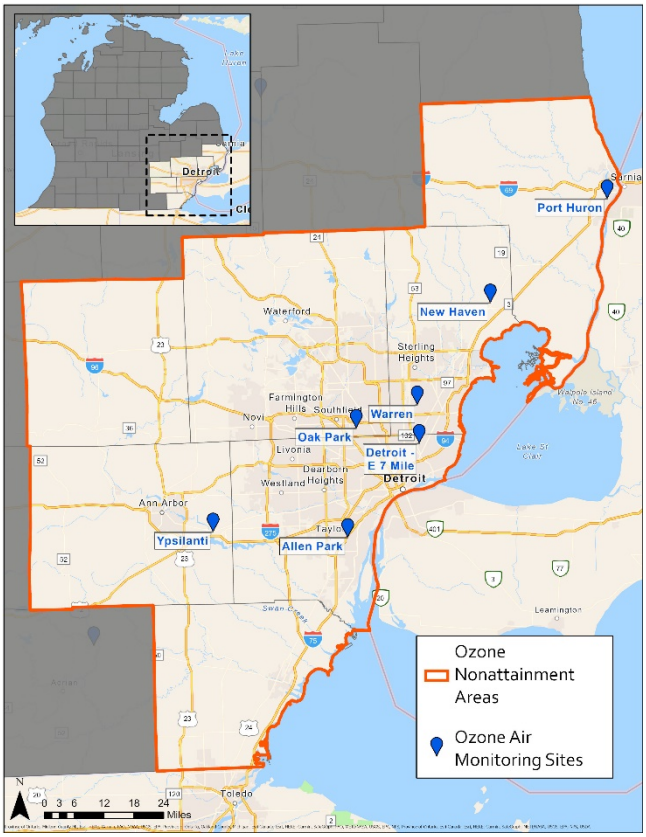
For the years 2019 through 2021, the southeast Michigan monitors had design values in the range of 66 ppb to 70 ppb, a yearly completeness over 89 percent, and an average completeness over 93 percent. These completeness values align with the requirements under 40 CFR Part 50, Appendix I, and the design value is below the 2015 ozone NAAQS set at 70 ppb, therefore, demonstrating the monitoring data is attaining the NAAQS.

b. Representative Data

Section 107(d)(3)(E)(i) also requires that the ambient air quality data is representative of the area of highest concentration and the ambient air monitor remained at the same location for the duration of the monitoring period.

As stated above, the southeast Michigan nonattainment area contains seven ozone monitoring sites.

Figure 1. Air Quality Monitor Locations



EGLE's air monitoring network, including the seven ozone monitors, adheres to the requirements in 40 CFR Part 58. This ensures the monitors are correctly sited.

The seven ozone monitors in the southeast Michigan nonattainment area have remained at the same locations for the 2019 through 2021 sampling years as referenced in the 2017 through 2022 Annual Ambient Air Monitoring Network Reviews submitted to the USEPA. The most recent Network Review was submitted prior to July 1, 2021. A copy of that document is available at EGLE's Air Quality Division (AQD) Webpage: Annual Air Monitoring Network Review 2022 (michigan.gov).

c. Quality-assured Data

Section 107(d)(3)(E)(i) requires the ambient air quality data was collected and quality-assured in accordance with 40 CFR Part 58 and recorded in the Air Quality System.

As stated above, EGLE has quality-assured all ozone data for 2019 through 2021, shown in Table 1. EGLE submits annual data certification letters to the USEPA, Region 5, certifying the completeness criteria under 40 CFR Part 50 and the quality assurance criteria under 40 CFR Section 58.10. A certification letter for the 2021 statewide ozone data was submitted to the USEPA on November 24, 2021, and is available upon request.

2. Approved SIP Under Section 110(k)

CAA Section 107(d)(3)(E)(ii) requires an approved SIP under Section 110(k) for an area to be redesignated to attainment. According to the USEPA Guidance, "[t]he SIP for the area must be fully approved under section 110(k) and must satisfy all requirements that apply to the area." Section 110(k) contains the requirements for USEPA actions on SIP submissions. For marginal ozone areas,

the requirements referred to in Section 110(k) are listed in Sections 172(c) and 182(a).

The requirements, and Michigan's demonstration of those requirements, under Section 172(c) for nonattainment area plans in general, are listed in subsections a through c, below. The requirements, and Michigan's demonstration of those requirements, under Section 182(a), are listed under the CAA Section 182(a) Requirements and Demonstrations subsections, following the Section 172(c) discussion.

CAA Section 172(c) Requirements and Demonstration

a. Not Applicable Requirements Under Section 172(c)

CAA Section 182(a) requires compliance with certain Section 182(a) requirements for marginal ozone nonattainment areas, instead of certain Section 172(c) requirements. The Section 172(c) requirements that are not applicable to marginal ozone nonattainment areas, such as the southeast Michigan nonattainment area, are the requirements to provide for the implementation of all reasonable control measures to attain the standard under Section 172(c)(1) and the requirement for reasonable further progress toward attainment under Section 172(c)(2).

The requirements under Section 172(c)(4) and 172(c)(5) are also not applicable for redesignation purposes. Section 172(c)(4) requires the identification and quantification of allowable emissions for major new and modified stationary sources in an area, and Section 172(c)(5) requires source permits for the construction and operation of new and modified major stationary sources anywhere in the nonattainment area. The USEPA, in a memorandum from Mary Nichols, Assistant Administrator for Air and Radiation, dated October 14, 1994, entitled, "Part D New Source Review Requirements for Areas Requesting Redesignation to Attainment," determined if an area demonstrates attainment without a Part D Nonattainment New Source Review (NNSR) program, having an approved program is not required for redesignation.

Michigan's Nonattainment New Source Review (NNSR) rules were approved into the Michigan SIP for southeast Michigan for the 1997 8-hour ozone NAAQS on December 16, 2013 (78 FR 76064). However, this document demonstrates the seven-county area is able to maintain the standard regardless of Part D NNSR; therefore, Sections 172(c)(4) and 172(c)(5) are not applicable to this redesignation request.

There are no applicable requirements under Section 172(c)(8) because Michigan has not requested any equivalent techniques from the USEPA for the southeast Michigan nonattainment counties.

Finally, Section 172(c)(6) requires the SIP include measures to provide for attainment by the attainment date. In addition, Section 172(c)(9) requires contingency measures in case "the area fails to make reasonable further progress, or to attain" the NAAQS by the attainment date. This document details southeast Michigan's attainment of the 2015 ozone NAAQS, therefore additional SIP measures to provide for attainment or reasonable further progress are not needed.

b. Inventory

Section 172(c)(3) requires each plan to "include a comprehensive, accurate, current inventory of actual emissions from all sources of the relevant pollutant or pollutants in such area..." The USEPA Guidance states "[f]or O_3 nonattainment areas, the inventory should be based on actual *typical summer day* emissions of O_3 precursors...during the attainment year." Michigan submits the following inventory to comply with this requirement.

For on-road emissions, as stated in the Southeast Michigan Council of Governments (SEMCOG) analysis (Attachment A), SEMCOG used the MOVES3 model to generate July weekday on-road emissions for all years.

For the nonroad, point, and nonpoint emissions, the primary source of the inventory data is from the USEPA 2016v2 modelling platform for the future years. The AQD interpolated between the 2016 and 2023 year data from the 2016v2 modeling platform to obtain the 2019 inventory emissions. The 2014 values are from the USEPA 2014 NEI - Version 2.

These datasets have been rigorously quality-assured and have scrupulously documented estimation methods available on https://www.epa.gov/air-emissions-inventories/2014-national-emissions-inventory-nei-technical-support-document-tsd and https://www.epa.gov/air-emissions-modeling/2016-version-2-technical-support-document. The 2016v2 modeling platform was very recently updated and released for use, with some improved estimates for the point category. These are the best available datasets from which to compile the required current and future inventories for the seven southeast Michigan counties.

On-road emissions include emissions estimates from all vehicle types that typically traverse public roads. Nonroad emissions include emission estimates that are engine-based emissions that do not occur on-roads, such as trains, boats, and recreational vehicles. Point emissions include those sources that submit emissions estimates to EGLE, and other releases which are not accounted for in the EGLE reports, such as airports and rail yards. A detailed listing of the facilities used to create the point emissions category from the 2014 NEI are listed in Attachment B. Nonpoint emissions include emissions from all other sources that are more ubiquitous, such as consumer products, graphic arts, architectural coatings, and a variety of other activities.

To obtain the inventories, the annual totals of nitrogen oxides (NOx) and volatile organic compounds (VOC) for each emission category were summed to annual totals for each of the seven counties in southeast Michigan. Then, a conversion factor was created to convert the annual totals to a tons per ozone season day value for both NOx and VOC for each county. The conversion factor is a ratio or fraction; it was generated by taking the July pollutant category emissions and dividing them by the annual total category emissions (on a per county basis for both NOx and VOC). July was chosen as the standard southeast Michigan typical ozone season month after evaluating the summer months for ozone season production. Over the past several years in southeast Michigan, July had the most days with high ozone values.

Tables 2 and 3 display the emissions inventory for the southeast Michigan area. This inventory shows a decrease in all inventory emissions categories throughout southeast Michigan from 2014 through 2019 and a total emission decrease for both NOx and VOC.

Table 2. Southeast Michigan NOx Emissions Inventory for 2014 and 2019 (tons/ozone season day).

Emission Category	2014	2019
On-road	192.70	105.80
Nonroad	60.26	22.51
Point	166.86	97.01
Nonpoint	36.69	27.98
Total NOx Emissions	456.51	253.30

Table 3. Southeast Michigan VOC Emissions Inventory for 2014 and 2019 (tons/ozone season day).

Emission Category	2014	2019
On-road	83.20	51.70
Nonroad	69.63	30.46
Point	32.24	13.74
Nonpoint	149.93	134.77
Total VOC Emissions	335.00	230.67

c. Compliance with Section 110(a)(2)

Section 172(a)(7) requires compliance with the applicable sections of Section 110(a)(2). This section provides that the infrastructure SIP submitted by a state must have been adopted by the state after reasonable public notice and hearing, and among other things, it must:

- include enforceable emission limitations and other control measures (other than nonattainment emission limitations and measures which are a part of nonattainment area plans and subject to the timing requirements of Section 172);
- include means or techniques necessary to meet the requirements of the CAA;
- provide for establishment and operation of appropriate devices, methods, systems, and procedures necessary to monitor ambient air quality;
- provide for implementation of a source permit program to regulate the modification and construction of any stationary source within the areas covered by the plan;
- include provisions for the implementation of Part C, prevention of significant deterioration and Part D, NNSR permit programs;
- include criteria for stationary source emission control measures, monitoring, and reporting;
- include provisions for air quality modeling; and
- provide for public and local agency participation in planning and emission control rule development.

Michigan verified the State fulfills the requirements of Section 110(a)(2) through the 2015 ozone NAAQS infrastructure SIP submitted to the USEPA on March 5, 2019. The USEPA approved all infrastructure SIP elements with the following exceptions effective October 28, 2021 (86 FR 53550); the USEPA disapproved element (D)4 because the State of Michigan is under a federal implementation plan for regional haze; the USEPA took no action on elements (I) and (J)4 because they are not germane to infrastructure SIPs; and the USEPA took no action and will make a separate rulemaking on elements (D)1, (D)2, and (E)2.

<u>CAA Section 182(a) Requirements and Demonstrations</u>

a. Applicable Requirement Under Section 182(a)

Section 182(a)(1) states for marginal nonattainment areas, “[w]ithin 2 years after the date of enactment of the [CAA] Amendments of 1990, the State shall submit a comprehensive, accurate, current inventory of actual emissions from all sources, as described in Section 172(c)(3)...”

The required inventory was submitted to the USEPA on December 18, 2020.

b. Corrections to the SIP

Section 182(a)(2) requires the following updates to a marginal area nonattainment SIP:

1. *Not Applicable Requirements Under Section 182(a)(2)*
Marginal areas are not subject to the requirements under Sections 182(a)(2)(A) and (B) dealing with reasonable available control technology, and vehicle inspection and maintenance updates before the CAA Amendments of 1990; therefore, updates to these programs are not applicable.

2. *Permit Programs*
Section 182(a)(2)(C) requires updates to the NNSR permitting program that were enacted before the CAA Amendments of 1990.

As stated above, NNSR rules were approved into the Michigan SIP for southeast Michigan for the 1997 8-hour ozone NAAQS on December 16, 2013 (78 FR 76064). In addition, Michigan's SIP contains all emission control programs under the 1979 1-hour ozone NAAQS included in the SIP revisions related to ozone submitted to the USEPA from March 8, 1994, through August 30, 2000.

c. Periodic Inventory

Section 182(a)(3)(A) requires a general inventory. This inventory must meet the requirements of Section 182(a)(1) every three years until attainment. Michigan satisfies the general inventory requirement through the 2019 inventory included above because this document is submitted before the Section 182(a)(1) requirement is due.

Section 182(a)(3)(B) requires the State of Michigan to submit a SIP revision that "require[s] that the owner or operator of each stationary source of oxides of nitrogen or volatile organic compounds provide the State with a statement...showing the actual emissions...from that source." These statements must be submitted at least annually.

Michigan Air Pollution Control Rule (MAPCR) 336.202 requires an annual report from sources of air contaminants. The rule is written broadly enough to require submittal of all pollutants. MAPCR 336.202 was approved into the Michigan SIP on March 8, 1994 (59 FR 10752). Sources subject to MAPCR 336.202 are required to submit their emission estimates to the Michigan Air Emissions Reporting System (MAERS) annually.

In addition, the AQD has created Policy and Procedure AQD-013. It specifies which facilities must report to MAERS. AQD-013 states sources with NOx emission above 40 tons per year (tpy) or VOC emissions over 10 tpy will be notified to report emissions annually. AQD-013 is available on the

AQD Webpage under Emissions/Laws and Rules and was submitted to the USEPA on October 30, 2020.

d. General Offset Requirements

Section 182(a)(4) requires the general NNSR permit offset ratio for VOCs set at 1.1 to 1.

For marginal nonattainment areas, MAPCR 336.2908(6)(a)(i) sets the permit offset ratio for VOCs at 1.1 to 1. MAPCR 336.2908 was approved into the Michigan SIP on December 16, 2013 (78 FR 76064).

3. Permanent and Enforceable Reductions

CAA Section 107(d)(3)(E) requires that the improvement in air quality is due to permanent and enforceable reductions in emissions. According to the USEPA Guidance, "[t]he State must be able to reasonably attribute the improvement in air quality to emission reductions which are permanent and enforceable." EGLE must demonstrate the improvement in air quality between the year the violations occurred, and the year attainment was achieved, is due to permanent and enforceable measures, not to temporary adverse economic conditions or unusually favorable meteorology.

Section 1, above, demonstrates attainment of the 2015 ozone NAAQS for the seven-county nonattainment area. Michigan ozone is typically formed in the presence of VOCs and NOx on sunny, high temperature, and humid days. Consistent with the USEPA Guidance, EGLE demonstrates below attainment of the 2015 ozone NAAQS in the seven counties is not based on meteorology or temporary adverse economic conditions.

a. Attainment Not Based on Meteorology

To demonstrate the improvement in air quality was not based on unusually favorable meteorology, EGLE analyzed the elements typical of ozone formation.

Ozone typically will form on hotter days. Charts 1a-1c demonstrate the number of days at or above 80 degrees Fahrenheit (°F) in southeast Michigan compared to the maximum 8-hour ozone concentration measured at the East 7-Mile, New Haven, and Port Huron monitors from the years 2000 to 2020. These downwind sites have historically yielded the highest ozone concentrations in southeast Michigan. Temperature data for the Detroit area, which represents southeast Michigan, was provided by the National Weather Service.

Chart 1a. Southeast Michigan Days at or Above 80°F vs. Maximum 8-Hour Ozone (East 7-Mile).

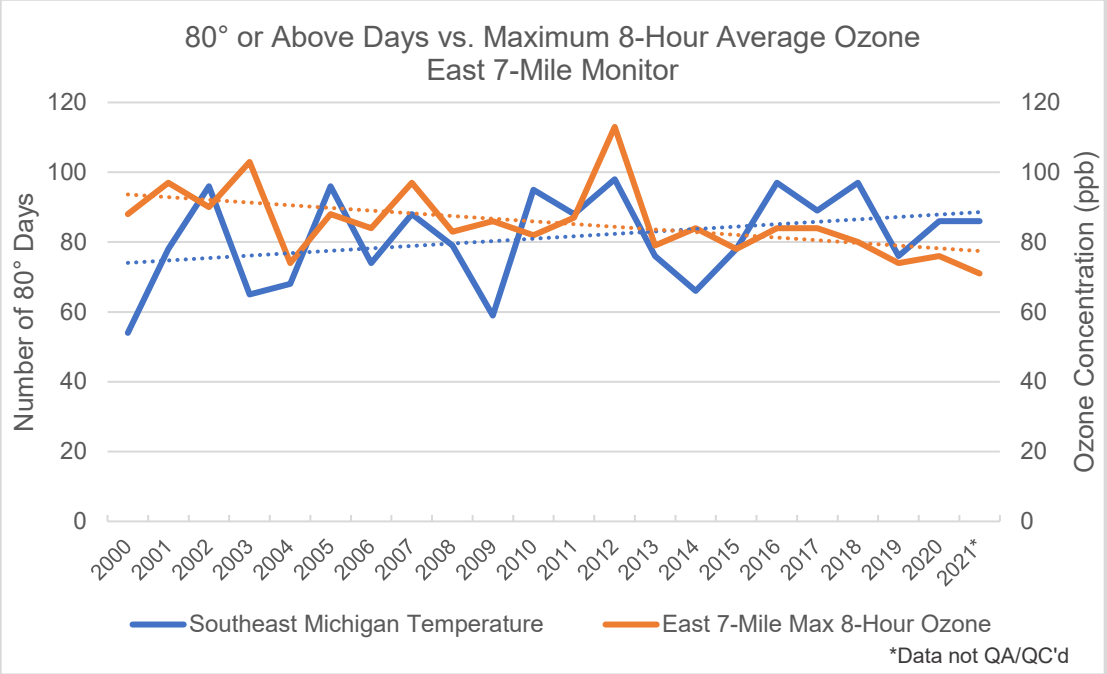


Chart 1b. Southeast Michigan Days at or Above 80°F vs. Maximum 8-Hour Ozone (New Haven).

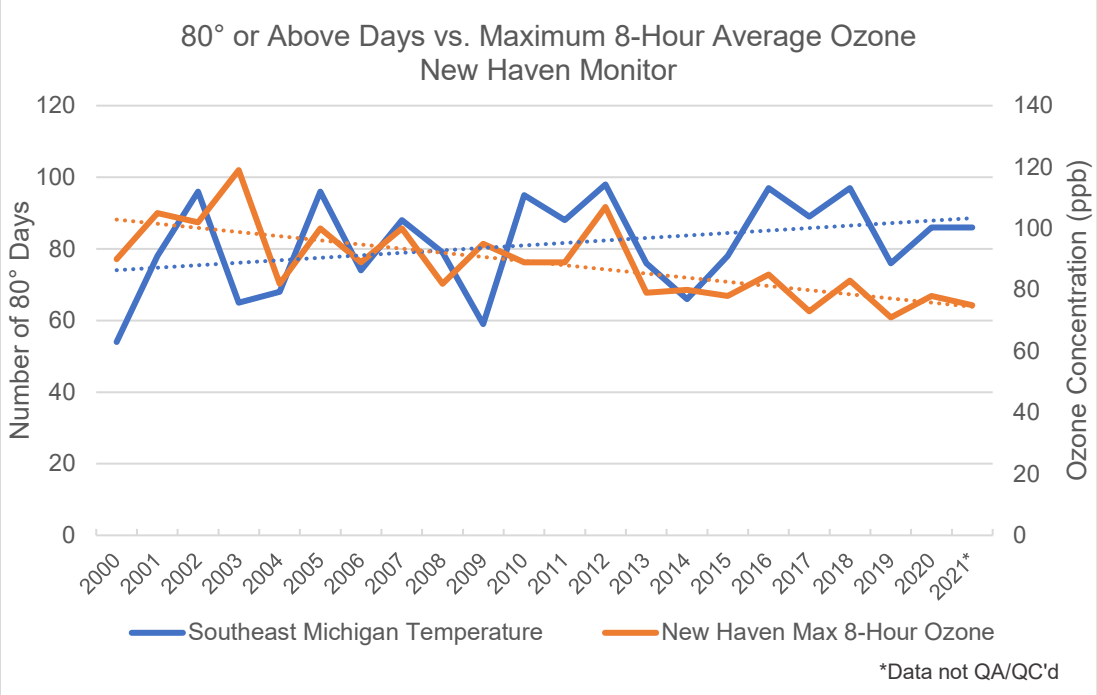
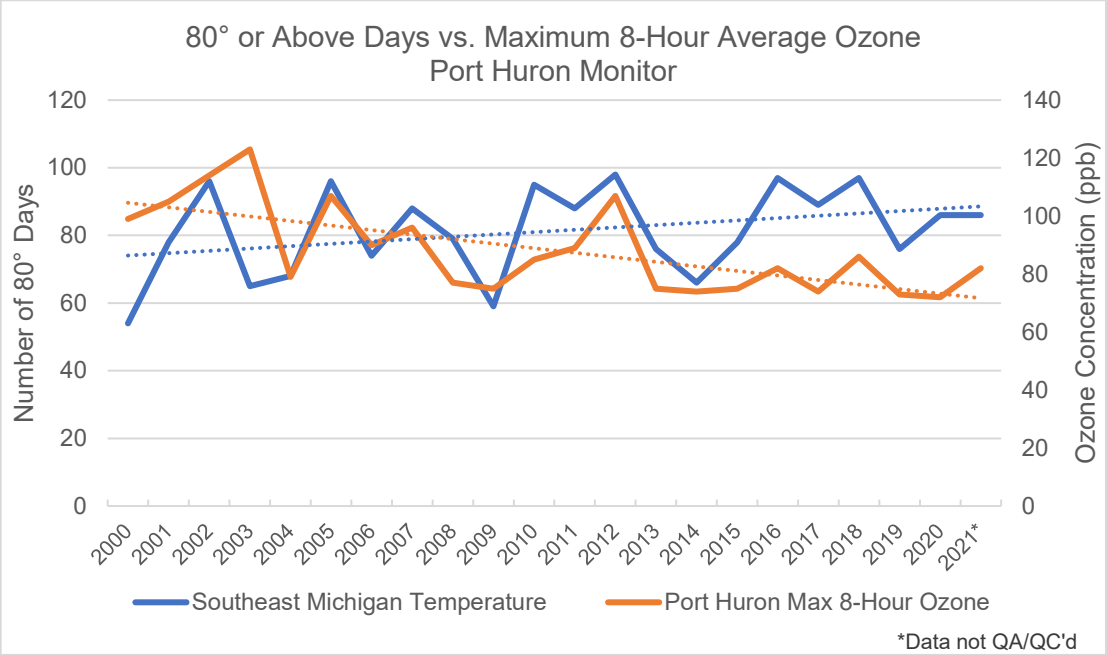


Chart 1c. Southeast Michigan Days at or Above 80°F vs. Maximum 8-Hour Ozone (Port Huron).



Data trends indicate the number of hot days, those at or above 80 degrees, increased in southeast Michigan while the maximum 8-hour ozone concentrations trended downward at all high ozone monitor sites.

To further demonstrate temperature was not a driver of ozone production at the East 7-Mile, New Haven, and Port Huron monitors, EGLE analyzed the average temperature during the ozone season and compared it to the average 4th highest 8-hour ozone concentration during the same 2000 to 2020 period (Charts 2a-2c). The 4th highest 8-hour ozone concentration is significant because the USEPA uses the 3-year average of the 4th highest 8-hour ozone concentration to determine attainment or nonattainment.

The USEPA originally determined April through September to be defined as the ozone season. With the updated 2015 ozone NAAQS of 70 ppb, the USEPA changed the ozone season to include March and October. For this analysis, EGLE chose to only include May through September data as those months, in Michigan, are more likely to have days over 80 degrees, leading to higher ozone formation. Also, historically, ozone data was not collected during March and October.

Chart 2a. Southeast Michigan Average Temperature vs. 4th High 8-Hour Ozone Concentration (East 7-Mile).

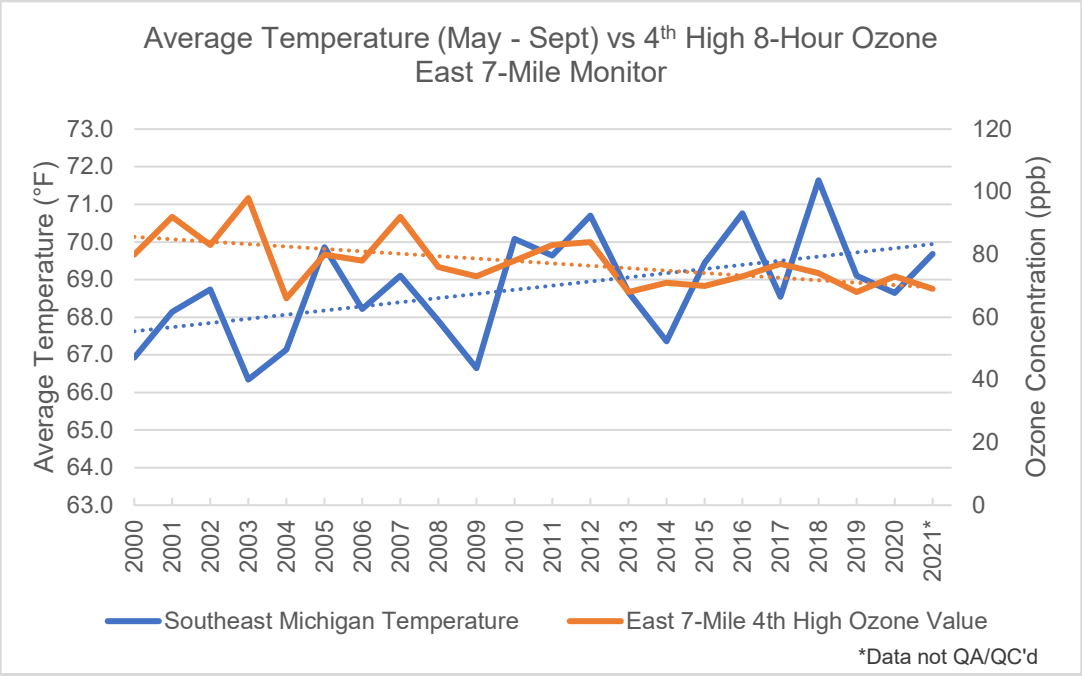


Chart 2b. Southeast Michigan Average Temperature vs. 4th High 8-Hour Ozone Concentration (New Haven).

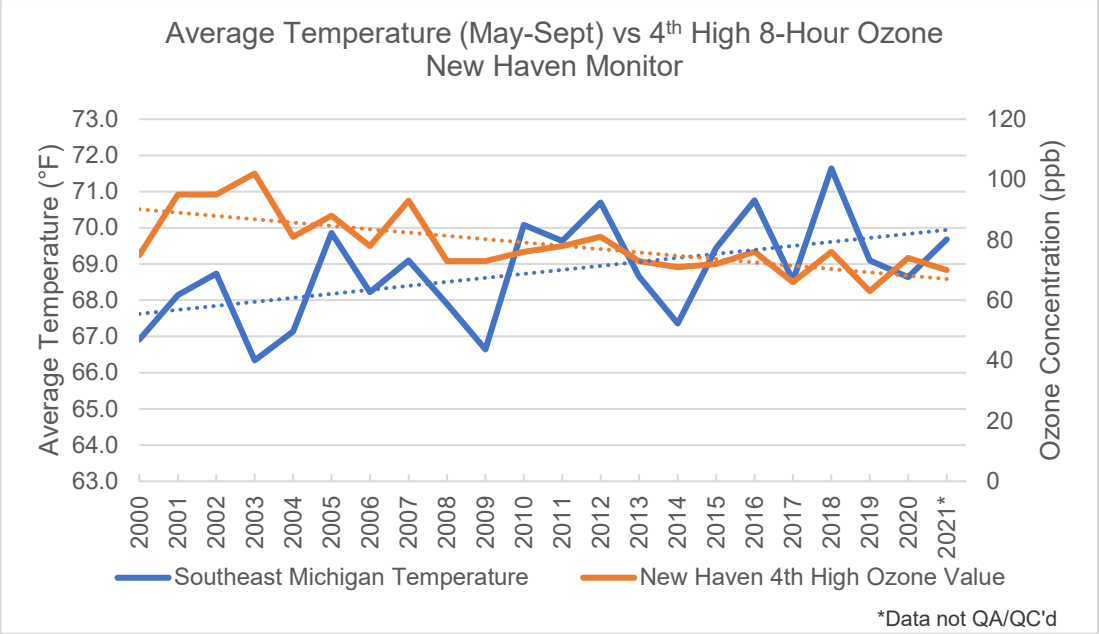
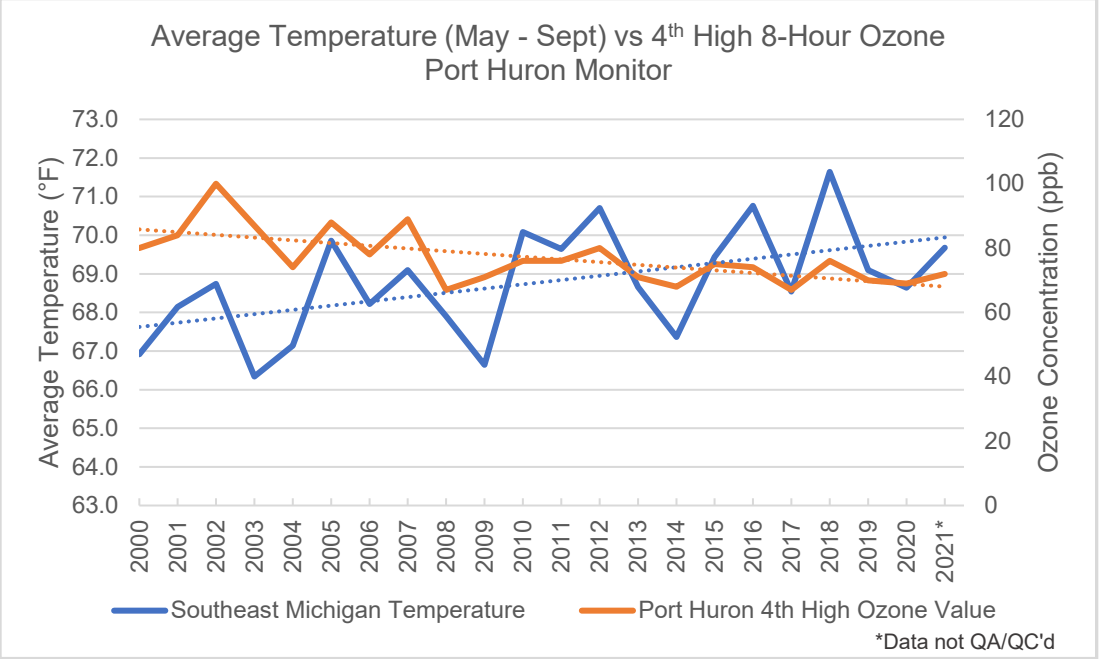


Chart 2c. Southeast Michigan Average Temperature vs. 4th High 8-Hour Ozone Concentration (Port Huron).



While the average May through September temperature varies from year to year based mainly on warm and cold global cycles, there is a clear warming pattern in southeast Michigan. The trendlines on Charts 2a-2c demonstrate

the average May through September temperature in southeast Michigan sites increased while a decreasing trend occurred concurrently with the 4th high 8-hour ozone concentrations at the East 7-Mile, New Haven, and Port Huron monitors.

While Charts 1a-1c and Charts 2a-2c show a reduction trend in peak and design value concentrations, the total number of Unhealthy for Sensitive Groups (USG) days (i.e., days with an 8-hour average greater than 70 ppb) has also been trending downward, as shown in Charts 3a-3c.

Chart 3a. Southeast Michigan Days of 80° or Above vs. Ozone USG Days (East 7-Mile).

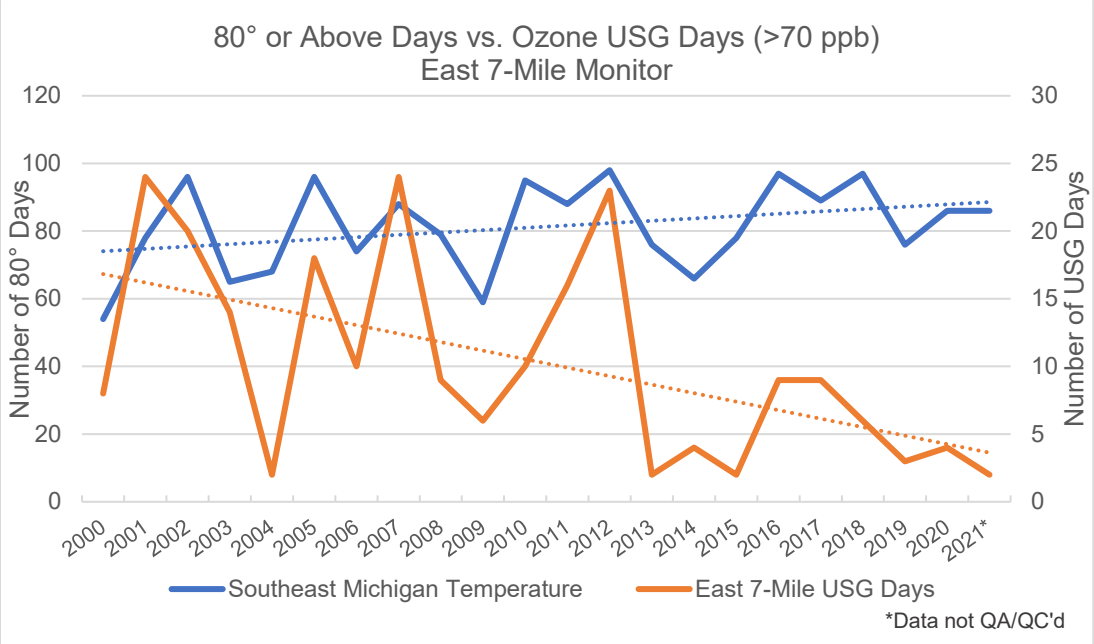


Chart 3b. Southeast Michigan Days of 80° or Above vs. Ozone USG Days (New Haven).

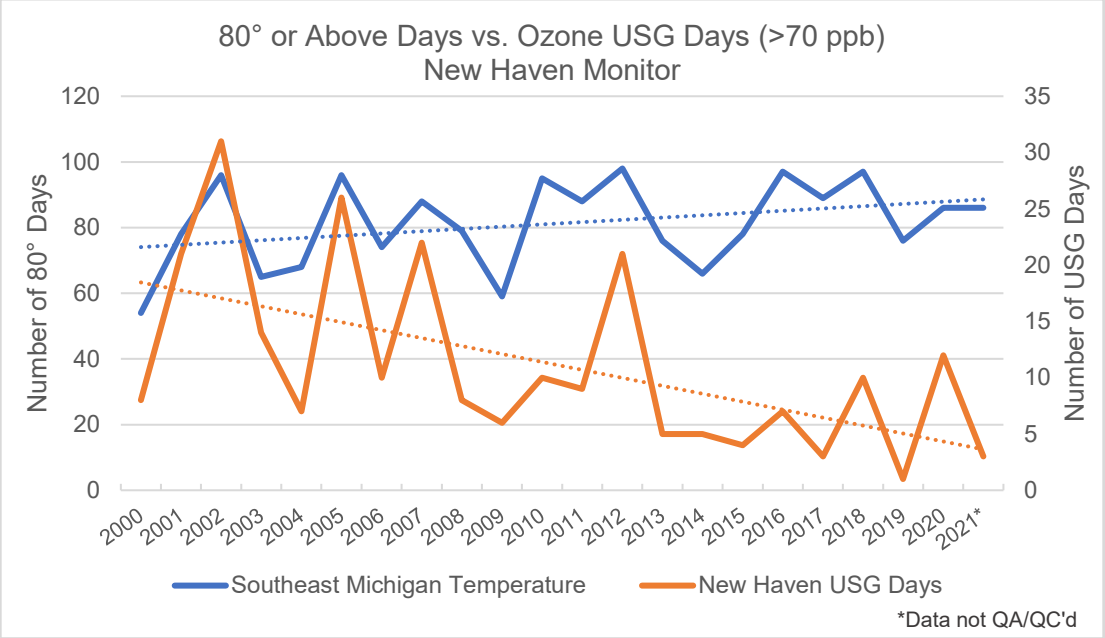
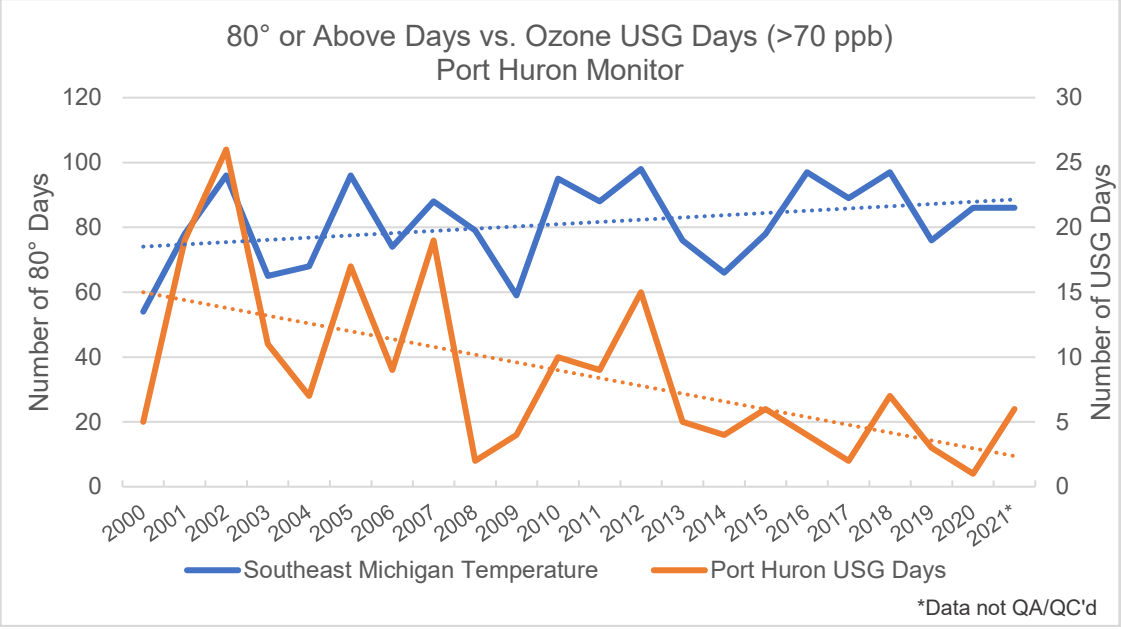


Chart 3c. Southeast Michigan Days of 80° or Above vs. Ozone USG Days (Port Huron).



Together, Charts 1a-1c, 2a-2c, and 3a-3c demonstrate there is no connection between temperature trends and ozone production at the East 7-Mile, New Haven, and Port Huron high ozone monitor sites. In fact, despite a gradual

warming trend, peak ozone value, design value, and total annual USG days have been trending downward. There was a slight upward trend for the Port Huron monitor in 2021 (Chart 3c). For that monitor there were still fewer USG days than in 2018 and the overall trend is still downward.

In addition, the Lake Michigan Air Directors Consortium (LADCO) has studied ozone production in the Lake Michigan states. LADCO conducted a CART analysis from 2005 through 2019 for the Detroit area (Attachment C). A CART analysis is a statistical methodology to remove meteorology from the causes of ozone production. Results of that CART analysis for Detroit are shown in Chart 4.

Chart 4. Southeast Michigan CART Analysis.

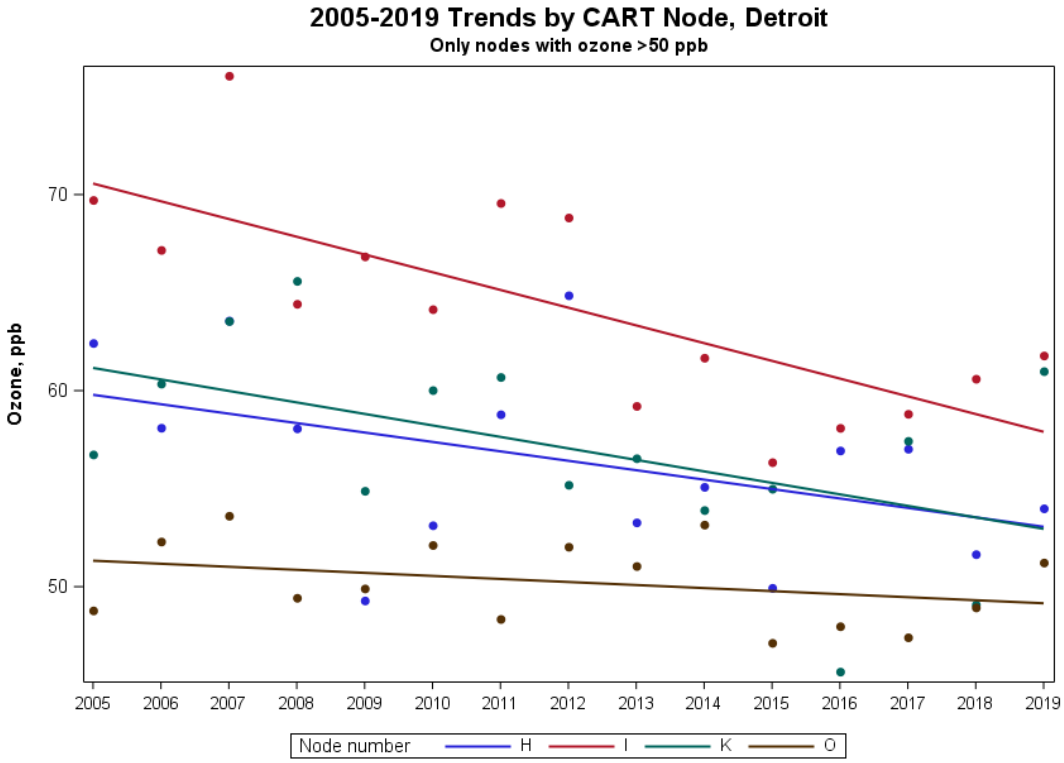


Chart 4 shows analysis nodes for ozone values above 50 ppb at the Allen Park (26-163-0001), East 7-Mile (26-163-0019), New Haven (26-099-0009), Oak Park (26-125-0001), and Warren (26-099-1003) air monitoring sites from 2005 through 2019. Each node defines a set of days with similar meteorological conditions. Looking at trends by node eliminates the effect of changes in meteorology on ozone production. The downward slope of the nodes in Chart 4 demonstrates controlling for meteorological variability, ozone concentrations in Detroit have declined over time. Because meteorological conditions are held constant, the declining concentrations are most likely due to declining ozone precursor concentrations.

These results together demonstrate attainment of the 2015 ozone NAAQS in southeast Michigan was not driven by weather.

b. Attainment Not Based on Temporary Adverse Economic Conditions

To demonstrate the improvement in air quality was not based on temporary adverse economic conditions, EGLE utilized MAERS data, the SEMCOG Analysis (Attachment A), and the United States Bureau of Labor Statistics (BLS) data. Temporary adverse economic conditions would have been seen in an abrupt reduction in emissions from point sources, vehicle travel, or employment in the southeast Michigan counties. Correlations to ozone levels would be noted by comparing these numbers to the highest 4th high 8-hour ozone concentrations throughout southeast Michigan.

From 2012 through 2020, the VOC emitting point sources in the southeast Michigan area showed overall downward emissions, as shown in Chart 5. Chart 6 shows the downward trend of the NOx emitting point sources in southeast Michigan over the 2012 through 2020 period. EGLE used the MAERS data to obtain the VOC and NOx emissions. This data includes the majority of the point sources included in the point emission category.

Chart 5. Southeast Michigan Point Source* VOC Emissions.

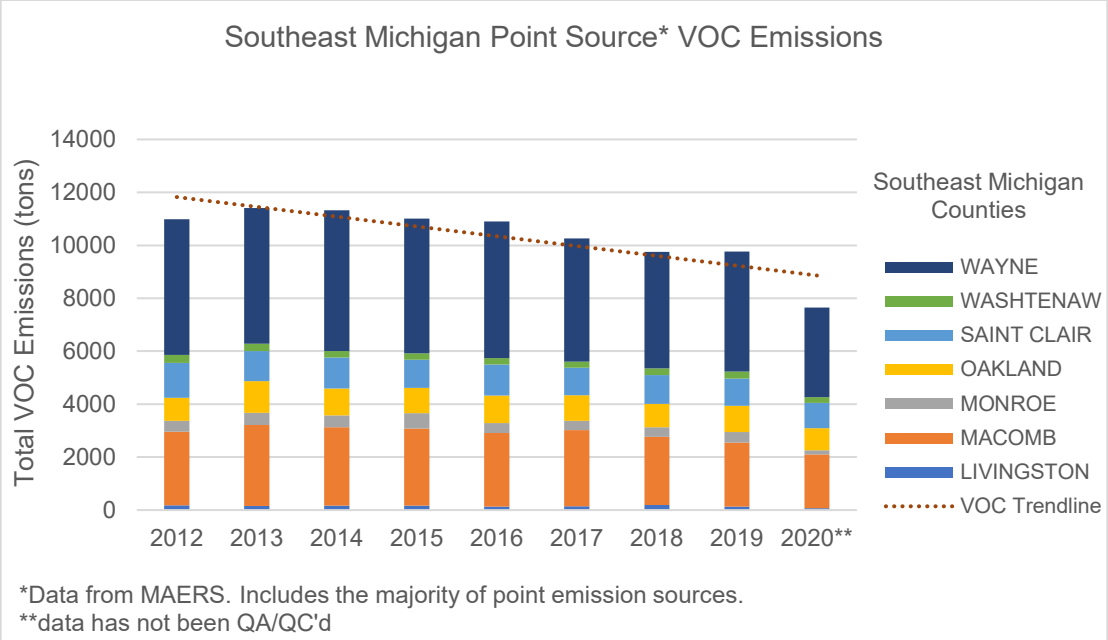


Chart 6. Southeast Michigan Point Source* NOx Emissions.

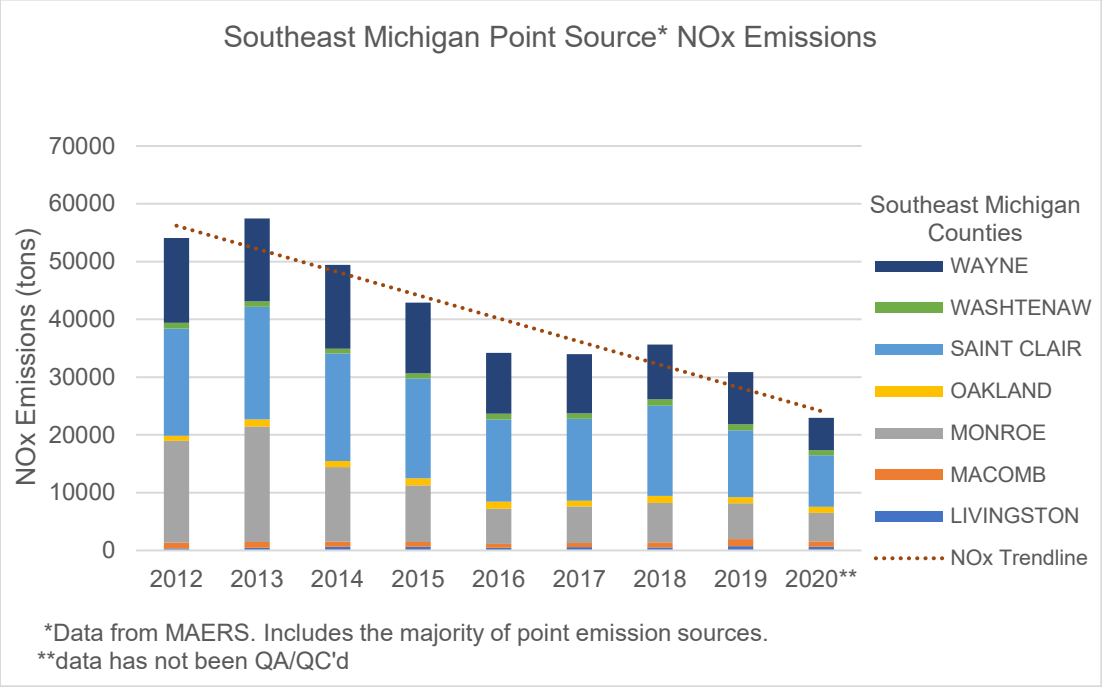


Chart 7 shows the southeast Michigan ozone monitor with the highest 4th high 8-hour ozone average number charted against the vehicle miles traveled (VMT) in southeast Michigan and the southeast Michigan employment data. The VMT was supplied by the SEMCOG Analysis (Attachment A). EGLE interpolated the data for years 2016-2018 and 2021 based on the SEMCOG Analysis years. The employment data was taken directly from the BLS Quarterly Census of Employment and Wages, which can be found on their website at www.bls.gov/cew/. The 2021 data is preliminary through March.

Chart 7. Southeast Michigan 4th High 8-Hour Average Ozone Concentration vs Employment Data and VMT.

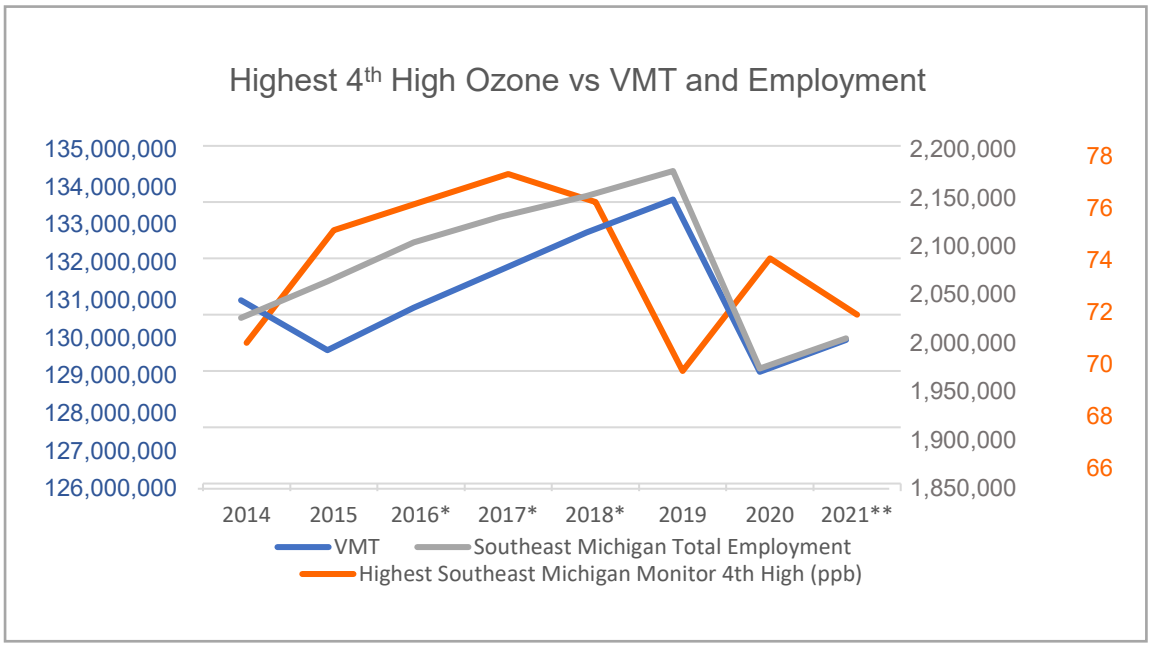


Chart 7 shows a direct correlation between VMT and employment in southeast Michigan, but no direct correlation between these economic indicators and the high ozone values.

The impacts of the 2020 Covid 19 pandemic are apparent in the economic indicators on Charts 5 through 7; however, the ozone values did not show a corresponding decline. The modest economic slowdown experienced in 2020 is demonstrated by a reduction of less than 5 percent of VMT and a less than 10 percent reduction in total employment in southeast Michigan and did not result in any corresponding reduction in ozone.

Together, the point source emissions, VMT, and employment data demonstrate temporary adverse economic conditions were not a driving force of the ozone production in southeast Michigan from 2019 through 2021.

c. Permanent and Enforceable Conditions

Permanent and enforceable reductions of VOC and NOx emissions have contributed to the attainment of the 2015 ozone NAAQS in the seven-county nonattainment area through the following measures:

1. *Tier II and Tier III Emission Standards for Vehicles and Gasoline Sulfur Standards with Vehicle Turnover*
   In February 2000, the USEPA finalized the Tier II rule to significantly reduce emissions from cars and light-duty trucks. Automakers were

required to sell cleaner cars and refineries were required to produce cleaner, lower sulfur gasoline. This rule was phased in between 2004 and 2009. The USEPA estimated a 77 percent reduction in NOx from passenger cars; 86 percent reduction for smaller sport utility vehicles (SUVs), light-duty trucks, and minivans; and 65 to 95 percent reduction for larger SUVs, vans, and heavy-duty trucks. The USEPA also estimated VOC reductions of 12 percent for passenger cars; 18 percent for smaller SUVs, light-duty trucks, and minivans; and 15 percent for larger SUVs, vans, and heavy-duty trucks.

In April 2014, the USEPA finalized the Tier III rule to strengthen vehicle emission and fuel standards. This rule requires automakers to produce cleaner vehicles and refineries to make cleaner, low sulfur gasoline. The standards aim to reduce both tailpipe and evaporative emissions from passenger cars, light-duty trucks, medium-duty passenger vehicles, and some heavy-duty vehicles. This rule has a phase-in between 2017 and 2025. Tier III is estimated to reduce NOx and VOC emissions by approximately 80 percent.

Table 4 demonstrates emissions from on-road vehicles in southeast Michigan have declined since 2014, due in part to older vehicle retirements and newer vehicles in compliance with the Tier II and Tier III standards. More information on the methodology used to determine the emissions in Table 4 is located in the SEMCOG Analysis (Attachment A).

Table 4. Southeast Michigan Counties On-road Vehicle Emission Reductions (tons/ozone season day).

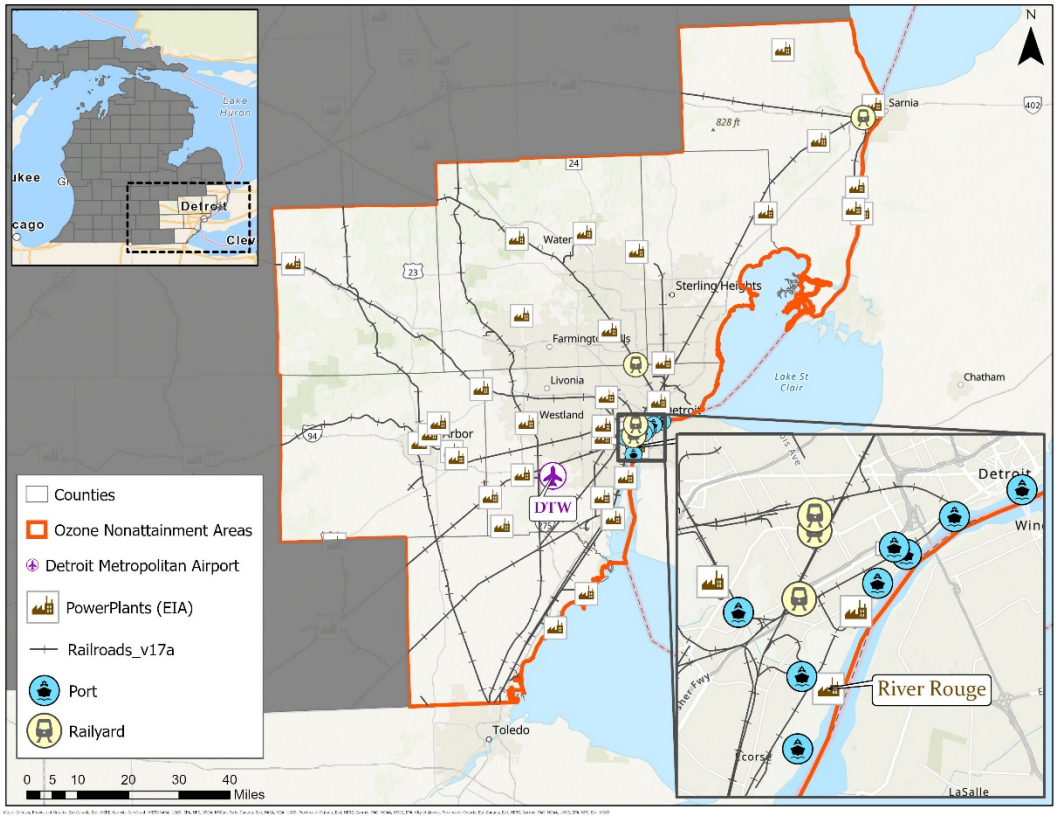
Analysis Year	VOC Emissions	NOx Emissions
2014	83.2	192.7
2019	51.7	105.8

The SEMCOG Analysis projects continued vehicle turnover in southeast Michigan through 2035. This means the southeast Michigan area will continue to see emission reductions based on these standards.

2. *Category 3 Marine Diesel Engine Standards*
The USEPA finalized emissions standards for category 3 marine diesel engines effective June 2010. The standards require more stringent exhaust standards for new, large marine diesel engines with per-cylinder displacement at or above 30 liters. The standards apply in two stages: near-term standards from newly built engines, which took effect in 2011, and long-term standards requiring an 80 percent reduction in NOx emissions that began in 2016.

The seven-county nonattainment area borders Lake Erie, Lake St. Clair, Lake Huron, and the Detroit and St. Clair Rivers. (Figure 2). Shipping traffic in these bodies of water indirectly impacts the formation of ozone within the counties; therefore, reductions in those emissions help reduce ozone concentrations.

Figure 2. Sources of Emission Reductions in Southeast Michigan.



3. *Emissions Standards for Locomotive and Marine Compression-Ignition Engines*
   In 2008, the USEPA published regulations for a comprehensive program to dramatically reduce pollution from locomotives and marine diesel engines. The controls apply to all types of locomotives, including line-haul, switch, and passenger, and all types of marine diesel engines below 30 liters per cylinder displacement, including commercial and recreational, propulsion, and auxiliary. Near-term emission standards for the newly built engines phase-in started in 2009. The near-term program also includes new emission limits for existing locomotives and marine diesel engines that apply when they are remanufactured and take effect as soon as certified remanufacture systems are available. Long-term emissions standards for newly built locomotives and marine diesel engines began in 2015 for locomotives and in 2014 for marine diesel engines.

As stated above, the seven-county area is situated on the shores of several bodies of water, so it benefits from any reductions in marine emissions. The area also contains heavily used rail lines and rail yards; therefore, it also benefits from reductions in rail emissions (Figure 2).

4. *Power Plant Shutdowns*
   The DTE Energy (DTE) River Rouge power plant (Figure 2) ceased operations in May 2021. EGLE's 2019 DTE Energy Integrated Resource Plan (IRP) advisory opinion estimates annual reductions of 2,716 tons of NOx, in addition to reductions of other pollutants of concern, such as sulfur dioxide (SO_2), particulate matter less than 10 and 2.5 microns (PM), mercury, and carbon dioxide. DTE's Trenton Channel Power Plant is slated to retire in 2022. EGLE's 2019 DTE IRP advisory opinion estimates annual reductions of up to 3,284 tons of NOx in addition to reductions of other pollutants of concern such as SO_2, PM, mercury, and carbon dioxide. In addition, DTE's St. Clair power plant will shut down in 2022; however, the new natural gas-powered Blue Water Energy Center, located on the same property, is expected to come online in 2022. While reductions in NOx, SO_2, PM, mercury, and carbon dioxide can be expected with the retirement of the coal-burning St. Clair power plant, those reductions are more difficult to estimate based on the addition of a new, natural gas-burning facility located on the same property.

5. *NOx Emission Standard for New Commercial Aircraft Engines*
   On June 18, 2012, the USEPA finalized a rule to adopt NOx emission standards for certain commercial passenger and freighter aircraft engines in common use at airports across the United States [77 FR 36342]. The rule contains six major provisions, two of which are new NOx emission standards for newly certified engine models. The first standards, Tier 6, took effect when the rule became effective and represent an approximate 12 percent reduction from current Tier 4 levels. The second standards, Tier 8, took effect in 2014 and represent an approximate 15 percent reduction from Tier 6 levels. The southeast Michigan area will benefit from these reductions as newer aircraft are used at Detroit Metro Airport.

6. *CAIR, CSAPR, CSAPR Update, and Revised CSAPR Update*
   The USEPA finalized four rules that limit NOx emissions from electrical generating units (EGU): the Clean Air Interstate Rule (CAIR) in 2009, the Cross State Air Pollution Rule (CSAPR) in 2015, the CSAPR Update in 2016, and the Revised CSAPR Update in 2021. Power plants in Michigan are subject to the rules. The USEPA has allocated NOx emissions to the Michigan power plants according to Table 5, below. Michigan has seen a continued decrease in NOx emissions resulting from these programs. That decrease will continue into the future based on the USEPA required NOx allocations under the Revised CSAPR Update (RCU) rule. The southeast Michigan area benefits from these reductions as that area contains

multiple power plants, as shown in Figure 2. The RCU will continue to require NOx reductions from Michigan EGUs through 2025.

Table 5. Southeast Michigan EGU NOx Allocations and Emissions (tons).

	2014	2015	2016	2017	2018	2019	2020	2021
Program	CAIR	CSAPR	CSAPR	CSAPR Update	CSAPR Update	CSAPR Update	CSAPR Update	RCU
Allocation	31180	28041	28041	17023	17023	17023	17023	12727
Emissions	25132	21533	17632	16758	17787	14055	11068	NA

7. *Diesel Emissions Reduction Act (DERA) Grants*
   EGLE administers the USEPA DERA grant program, which provides grants to replace older diesel vehicles with more efficient, cleaner vehicles. Vehicles eligible for replacement include school buses, class 5 through 8 heavy-duty highway vehicles, locomotive engines, marine engines, and certain nonroad engines, equipment, or vehicles. The program helps reduce NOx emissions through increased vehicle turnover and promoting cleaner energy vehicles. EGLE prioritizes grant recipients in nonattainment and maintenance areas such as southeast Michigan.

8. *Volkswagen (VW) Beneficiary Mitigation Plan*
   EGLE developed a Beneficiary Mitigation Plan to accept and distribute funds allocated to Michigan from the VW settlement. Michigan's plan allocates $55.1 million to on-road fleets (school bus replacements, transit bus replacements, and class 4-8 local freight and port drayage trucks, and shuttle buses), off-road equipment (tugboats and ferries, switcher locomotives, and airport ground support and port cargo handling equipment); and $9.7 million for infrastructure to support light-duty Zero Emissions Vehicles. Funds are planned to be distributed over the next six years.

   EGLE estimates applying the entire amount of funding allocated to Michigan ($64.8 million) to fund the Eligible Mitigation Actions will result in annual statewide emission reductions of approximately 296 tons of NOx. Projects like these will also significantly reduce emissions of other pollutants of concern, such as PM 2.5, hydrocarbons, carbon monoxide, and carbon dioxide. Actual emission reductions are dependent on the types of projects that are ultimately selected to receive funding. Benefits will compound over the lifetime of the equipment purchased or repowered. EGLE prioritizes funding recipients in nonattainment and maintenance areas, such as southeast Michigan.

9. *Area Source Boilers, Major Source Boilers, and Commercial and Industrial Solid Waste Incinerator (CISWI) National Emission Standards for Hazardous Air Pollutants*
   In 2013 the USEPA finalized revisions to the emission standards for large boilers, small boilers, and incinerators. These standards cover more than 200,000 boilers and incinerators nationwide. Large boilers are located at industrial facilities. Small boilers are located at universities, hospitals, hotels, and commercial buildings. A CISWI unit is an incinerator that burns solid waste at a commercial or industrial facility.

   In a separate action, the USEPA revised the non-hazardous secondary materials rule. This rule helps determine which standard applies (boiler or CISWI) to a unit that burns material that is not solid waste. These combined rules led to additional NOx and VOC reductions. The compliance deadlines for area source boilers, major source boilers, and CISWI units was 2014, 2016, and 2018, respectively.

4. **Section 175A Maintenance Plan**
   CAA Section 107(d)(3)(E) requires a fully approved Section 175A maintenance plan for a redesignation to attainment. Section 175A of the CAA, and the USEPA Guidance, contains the following requirements for maintenance plans with which EGLE demonstrates compliance. According to the USEPA Guidance, a state may submit both the redesignation request and the maintenance plan at the same time. EGLE submits the following maintenance plan for approval for the southeast Michigan nonattainment area.

   a. Maintenance for 10 Years
   Section 175A(a) requires the maintenance plan must provide for maintenance of the NAAQS for at least 10 years after the redesignation. The USEPA Guidance states, “the State should project emissions for the 10-year period following redesignation...for the purpose of showing that emissions will not increase over the attainment inventory...The projected inventory should consider future growth, including population and industry, should be consistent with the attainment inventory, and should document data inputs and assumptions.”

   Tables 6 and 7 demonstrate southeast Michigan’s maintenance of the 2015 ozone NAAQS through continued decreasing emissions across emissions inventory categories through 2035. Table 7 shows a slight increase in point VOC emissions through 2035 but with an overall decrease in VOC emissions throughout the southeast Michigan area.

   The on-road emissions were derived from the SEMCOG Analysis (Attachment A). The inputs and assumptions for those projections are detailed in that analysis and are based on July weekday emissions. The nonroad, nonpoint, and point emissions were derived using the same

methodology included in the CAA Section 172(c) Inventory section of this document, with the following additions. For the 2025-year inventory projection, the AQD interpolated between the 2016v2 platform data for years 2023 and 2026. For the 2035-year inventory projections, the AQD extrapolated forward with the 2016v2 platform data using the 2026 and 2032 years.

Projected Maintenance Emissions

Table 6. Southeast Michigan Counties NOx Emissions Inventory Projections (tons/ozone season day).

Emission Category	2019	2025	2035
On-road	105.80	61.20	40.30
Nonroad	22.51	17.49	15.17
Point	97.01	80.83	76.44
Nonpoint	27.98	27.39	25.84
Total NOx Emissions	253.30	186.91	157.75

Table 7. Southeast Michigan Counties VOC Emissions Inventory Projections (tons/ozone season day).

Emission Category	2019	2025	2035
On-road	51.70	34.40	22.00
Nonroad	30.46	27.39	26.56
Point	13.74	14.06	14.12
Nonpoint	134.77	134.12	133.11
Total VOC Emissions	230.67	209.97	195.79

b. Monitoring Network Commitment

The USEPA Guidance states “[t]he maintenance plan should contain provisions for continued operation of air quality monitors that will provide” verification of the NAAQS.

EGLE commits to continued operation of the ozone monitors in the seven-county area of southeast Michigan in accordance with 40 CFR Part 58 for the duration of the maintenance period.

c. Second Maintenance Plan and Nonattainment Requirements

Section 175A(b) requires the State of Michigan to submit an additional 10-year maintenance plan 8 years after the redesignation is approved. EGLE commits to submitting a revised maintenance plan as required under this section.

Section 175A(c) states the nonattainment requirements still apply until the area is redesignated and the maintenance plan is approved.

d. Verification of Continued Attainment

The USEPA Guidance recommends "the State submittal should indicate how the State will track the progress of the maintenance plan."

EGLE will continue to track ozone levels through the operation of a USEPA-approved monitoring network as necessary to demonstrate ongoing compliance with the 2015 ozone NAAQS. EGLE will consult with the USEPA prior to making changes to the existing monitoring network, should changes become necessary in the future. EGLE will continue to quality-assure the monitoring data to meet the requirements of 40 CFR Part 58 and all other federal requirements. EGLE will enter all data into the Air Quality System on a timely basis in accordance with federal guidelines.

EGLE will continue to produce periodic emission inventories, as required by 40 CFR Part 51, to track levels of emissions in the future.

e. Contingency Provisions

1. *Requirement to Maintain Measures in the SIP*

   Section 175A(d) states contingency provisions "shall include a requirement that the State will implement all measures with respect to the control of the air pollutant concerned which were contained in the [SIP] for the area before redesignation..."

   EGLE commits to maintaining the control measures for VOC and NOx emissions that were contained in the SIP before redesignation of this area to attainment.

2. *Measures to Promptly Correct Any Violation*

   Section 175A(d) requires each maintenance plan to contain contingency provisions "to assure that the State will promptly correct any violation of the standard which occurs after the redesignation of the area as an attainment area." The USEPA Guidance states "the State should also identify specific ... triggers, which will be used to determine when the contingency measures need to be implemented." The USEPA Guidance also states "[t]he plan should clearly identify ... a schedule and procedure for adoption and implementation, and a specific time limit for action by the State."

Michigan commits to adopt and expeditiously implement necessary corrective actions in the following circumstances:

Warning Level Response:
A warning level response shall be prompted whenever an annual (1-year) 4th high, daily maximum 8-hour average, monitored value of 74 ppb or greater occurs in a single ozone season within the maintenance area. A warning level response will consist of a study to determine whether the ozone value indicates a trend toward a higher ozone value and whether emissions appear to be increasing. The study will evaluate whether the trend, if any, is likely to continue and, if so, the control measures necessary to reverse the trend taking into consideration ease and timing for implementation. Implementation of necessary controls in response to a warning level response trigger will take place as expeditiously as possible, but in no event later than 18 months from the conclusion of the most recent ozone season.

Should it be determined through the warning level study action is necessary to reverse the noted trend, the procedures for control selection and implementation outlined under “Action Level Response” (below) shall be followed.

Action Level Response:
An action level response shall be prompted whenever a 4th high, daily maximum 8-hour average monitored value, averaged over two years, of 71 ppb or greater occurs within the maintenance area. A violation of the NAAQS (4th high, daily maximum 8-hour average, averaged over three years, with a value of 71 ppb or greater) shall also prompt an action level response.

In the event the action level is triggered and is not found to be due to an exceptional event, malfunction, or noncompliance with a permit condition or rule requirement, EGLE and the Michigan Department of Transportation (MDOT), in consultation with SEMCOG, will determine additional control measures needed to assure future attainment of the 2015 ozone NAAQS.

The additional control measures to be considered will be those listed in the Contingency Measure section, below. In this case, measures that can be implemented in a short time will be selected to be in place within 18 months from the close of the ozone season that prompted the action level. EGLE will also consider the timing of an action level trigger and determine if additional, significant new regulations not currently included as part of the maintenance provisions will be implemented in a timely manner and will constitute the response.

3. *Adoption of Contingency Measures*

The USEPA Guidance states "[t]he plan should clearly identify the measures to be adopted, a schedule and procedure for adoption and implementation, and a specific time limit for action by the State."

After meeting the Action Level Response or Warning Level Response criteria listed above, Michigan will have 18 months to implement additional needed control measures. Michigan commits to the following control measure options, selection, and implementation:

Control Measure Selection and Implementation:

Adoption of any additional control measures is subject to the necessary administrative and legal process. If a new measure is already promulgated and scheduled to be implemented at the federal or state level, and that measure is determined to be sufficient to address the upward trend in air quality, additional local measures may not be necessary. Michigan will submit to the USEPA an analysis to demonstrate the proposed measures are adequate to return the area to attainment. This analysis will include the schedule and procedure for adoption and implementation.

Control Measure Options:

Michigan may select one of the following control measures, if necessary, to address an upward trend in air quality:

1. Adopt or update VOC or NOx Reasonable Available Control Technology (RACT) rules for existing sources covered by USEPA Control Technique Guidelines, Alternative Control Guidelines, or other appropriate guidance issued after the 1990 CAA, such as:
    a. VOC RACT
        i. increased methane leak monitoring and repair at oil and gas compressor stations;
        ii. automobile and light-duty truck assembly coatings;
        iii. miscellaneous metal and plastic parts coatings;
        iv. paper, film, and foil coatings;
        v. miscellaneous industrial adhesives; or
        vi. industrial cleaning solvents.
    b. NOx RACT
        i. stationary internal combustion sources;
        ii. utility boilers;
        iii. process heaters;
        iv. iron and steel mills; or
        v. glass manufacturing.
2. Apply VOC RACT on existing smaller sources.
3. Alternative fuel and diesel retrofit programs for fleet vehicle operations.

4. Require VOC or NOx control on new minor sources (less than 100 tons per year).
5. Increase the VOC or NOx emission offsets for new and modified major sources.
6. Reduced idling programs.
7. Trip reduction programs.
8. Traffic flow and transit improvements.
9. Work with the Michigan Department of Licensing and Regulatory Affairs to encourage natural gas utilities to increase turnover of legacy distribution pipelines.
10. Stationary engine controls to reduce formaldehyde and NOx emissions
11. Phase 2 AIM rules.
12. Phase 5 Consumer Products rules.
13. Additional measures as identified by EGLE.

5. Section 110 and Part D Requirements

CAA Section 107(d)(3)(E) requires a determination that all Section 110 and Part D requirements have been met for an area to be redesignated to attainment. The USEPA Guidance states, "For the purposes of redesignation, a State must meet all requirements of Section 110 and Part D that were applicable prior to submittal of the complete redesignation request." The USEPA Guidance suggests the only Section 110 requirements at issue are those in Section 110(a)(2). Section 110(a)(2) lists the infrastructure SIP requirements. Part D lists the general requirements for nonattainment areas. These requirements, except the Part D CAA Section 176 requirements, are already addressed in Section 2 above.

a. Conformity Requirements

The USEPA Guidance states the State must "…show that its SIP provisions are consistent with section 176(c)(4) conformity requirements. The redesignation request should include conformity procedures if the State already has these procedures in place."

Section 176(c) of the CAA requires states to establish criteria and procedures to ensure federally supported or funded activities, including highway projects, conform to the air quality planning goals in the applicable SIPs. The two types of conformity requirements and Michigan's demonstration of compliance with them are listed below.

1. *Transportation Conformity Requirements and Motor Vehicle Emission Budgets*

   Transportation conformity under Section 176(c) is the requirement to determine conformity for transportation plans, programs, and projects developed, funded, or approved under Title 23 of the United States Code and the Federal Transit Act. Conformity to a SIP means transportation

activities will not produce new air quality violations, worsen existing violations, or delay timely attainment of the NAAQS.

Michigan's transportation conformity SIP was approved by the USEPA on December 18, 1996 (61 FR 66609) and was updated on April 10, 2017 (82 FR 17134). In addition, EGLE has a Memorandum of Agreement (MOA) among MDOT, the USEPA, and the various state and local agencies involved in the transportation process. The 2016 MOA Regarding Determination of Conformity of Transportation Plans, Programs, and Projects to State Implementation Plans was signed on December 13, 2016, by the USEPA and is available on the AQD Webpage at https://www.michigan.gov/documents/egle/egle-aqd-sdu-transportation_conformity_moa_671525_7.pdf.

Estimates of on-road motor vehicle emissions are projected for the maintenance period (see Section 4, above) to assess emission trends and to ensure continued compliance with the 2015 ozone NAAQS. On-road emissions include those from cars, buses, and trucks driven on public roadways. These estimates are considered a ceiling or "budget" for emissions and are used to determine whether transportation plans and projects conform to the SIP. Estimated on-road mobile emissions of VOCs and NOx must not exceed the emission budgets contained in the maintenance plan.

A safety margin is utilized to account for potential variation of forecast models used to project emissions for the maintenance period. A safety margin, as defined by the conformity rule, looks at the total emissions from all sources in the nonattainment area. States can apply a percentage of that safety margin to the mobile source categories when creating motor vehicle emission budgets.

Tables 2, 3, 6, and 7 list the emissions from all sectors along with the projected emissions for 2025 and 2035. Tables 6 and 7 demonstrate the projected decrease in emissions from 2019 through 2035. To obtain the safety margin, a percentage of the projected total emission decrease was added to the on-road sector for southeast Michigan. Sixty-five percent was chosen as the safety margin for both NOx and VOCs because it allowed both the on-road emissions projections and total emissions for all four sectors (on-road, nonroad, point and nonpoint) for 2025 and 2035 to remain below 2019 on-road and total emissions. Tables 8 and 9 detail the total projected emission decrease used in the first step to create the safety margin. Table 10 details the safety margin and resulting motor vehicle emissions budget for southeast Michigan.

Table 8. Projected NOx Emission Reductions for Southeast Michigan Counties (tons/summer day).

Emission Category	2019 Emissions	2025 Projected Emissions	Projected 2025 Emissions Reductions	2035 Projected Emissions	Projected 2035 Emissions Reductions
On-road	105.8	61.2	--	40.3	--
Nonroad	22.51	17.49	--	15.17	--
Point	97.01	80.83	--	76.44	--
Nonpoint	27.98	27.39	--	25.84	--
Total NOx Emissions	253.3	186.91	66.39	157.75	95.55

Table 9. Projected VOC Emission Reductions for Southeast Michigan Counties (tons/summer day).

Emission Category	2019 Emissions	2025 Projected Emissions	Projected 2025 Emissions Reductions	2035 Projected Emissions	Projected 2035 Emissions Reductions
On-road	51.7	34.4	--	22	--
Nonroad	30.46	27.39	--	26.56	--
Point	13.74	14.06	--	14.12	--
Nonpoint	134.77	134.12	--	133.11	--
Total VOC Emissions	230.67	209.98	20.69	195.79	34.88

Table 10. Motor Vehicle Emissions Budget for Southeast Michigan Counties (tons/summer day).

	2025 Projected On-road Emissions	65% Safety Margin	2025 Total MVEB	2035 Projected On-road Emissions	65% Safety Margin	2035 Total MVEB
NOx	61.2	43.15	104.35	40.3	62.11	102.41
VOCs	34.4	13.46	47.86	22.00	22.67	44.67

2. *General Conformity Requirements*
   General conformity under Section 176(c) also requires conformity for all other non-transportation, federally supported or funded projects.

   Michigan's general conformity SIP was approved by the USEPA on December 18, 1996 (61 FR 66607).

Title 40, Code of Federal Regulations, Part 51, Appendix V Requirements

40 CFR Part 51, Appendix V, contains requirements EGLE must follow to revise the SIP. The applicable requirements and EGLE's fulfillment of them are as follows:

1. **Formal Request**
   Appendix V requires all SIP submittals contain a formal letter of submittal from the governor or the governor's designee requesting the USEPA approval of the SIP revision.

   A letter dated July 3, 2019, from Governor Gretchen Whitmer to the USEPA, Region 5, delegates authority from the Governor to EGLE's Director to make any SIP submittal, request, or application under the CAA. This letter was submitted to the USEPA on July 30, 2019, for inclusion in the Michigan SIP, and is available upon request. This delegation of authority and the cover letter included with this SIP submittal to the USEPA satisfies the formal request requirement.

2. **Necessary Legal Authority**
   Appendix V requires states submit evidence the state has the necessary legal authority under state law to adopt and implement the requested SIP revision.

   Part 55, Air Pollution Control, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended, and Executive Reorganization Order 2011-1 provide EGLE with the legal authority under state law to implement and enforce the provisions of the Michigan SIP. A copy has been submitted to the USEPA through previous SIP submittals and is available upon request.

3. **Sufficient Public Notice**
   Appendix V requires the State of Michigan to submit evidence that public notice was given of the proposed change consistent with procedures approved by the USEPA, including the date of publication of such notice.

   The notice of this SIP revision and an opportunity for public comment and hearing is provided in Attachment D.

4. **Valid Public Hearing**
   Appendix V requires the state submit a certification that a public hearing, if held, was held in accordance with the information provided in the public notice and the state's Administrative Procedures Act.

   According to the public notice in Attachment D, EGLE provided an opportunity for a public hearing upon request. As stated in the public notice, a request for a public hearing needed to be submitted to the AQD by November 30, 2021. No public hearing was requested by that date.

5. Public Comments

Appendix V requires the state to compile any public comments and the state's responses to them in the SIP submittal.

EGLE received six public comments, all in support of this SIP submittal. In addition to the general comments of support the following more specific comments were received:

- One public commentor noted the need for EGLE to update the monitoring data after the close of the public comment period.

  EGLE has done that, and the completed air monitoring numbers and data completeness are reflected in this document.

- One public commentor requested that EGLE request the USEPA remove the reid vapor pressure (RVP) requirements for the southeast Michigan area. The commentor submitted letters from the USEPA granting similar request from other states.

  Upon reviewing the commentors submissions, EGLE is not prepared at this time to make such a request of the USEPA but will take it under advisement. EGLE noted some areas that needed more exploration, such as the USEPA actions were related to the 1-hour ozone NAAQS and not the 2015 ozone NAAQS, which is the subject of this SIP submittal, and the request to remove the RVP requirements contained an anti-backsliding demonstration including additional MOVES modeling, which EGLE has not performed.

A copy of all public comments received is located in Attachment D.

Conclusion

The southeast Michigan ozone nonattainment area has attained the 2015 ozone NAAQS and complied with the applicable provisions of the 1990 Amendments to the CAA regarding redesignations of ozone nonattainment areas. Documentation to that effect is contained herein. EGLE has prepared a redesignation request and maintenance plan that meets the requirements of Section 107(d)(3) and Section 110 of the 1990 CAA.

Based on this document, the southeast Michigan ozone nonattainment area meets the requirements for redesignation under the CAA and the USEPA Guidance. Michigan has performed an analysis demonstrating the air quality improvements are due to permanent and enforceable measures. The State of Michigan hereby requests the southeast Michigan ozone nonattainment area be redesignated to attainment, simultaneously with the USEPA's approval of the maintenance plan provisions contained herein. In addition, EGLE requests the USEPA's approval that this maintenance plan satisfies the requirements of CAA Section 175A(b), for subsequent plan revisions required for areas redesignated for the 2015 ozone NAAQS.

ATTACHMENT A

Ozone On-road Emissions
for
The Seven Counties of Southeast Michigan

(Livingston, Monroe, Macomb, Oakland, St. Clair, Washtenaw, and Wayne)

Oct. 07, 2021

Prepared by the
Southeast Michigan Council of Governments (SEMCOG)
1001 Woodward Avenue, Suite 1400
Detroit, MI 48226
(313) 961-4266

Table of Contents

List of Tables:

1 Introduction

This report describes the process used to determine the on-road mobile emissions for the seven counties of Southeast Michigan: Livingston, Macomb, Monroe, Oakland, St. Clair, Washtenaw, and Wayne, as part of a redesignation of attainment request for the 2015 ozone National Ambient Air Quality Standard (NAAQS) by the Michigan Department of Environment, Great Lakes, and Energy (EGLE) to the US Environment Protection Agency (EPA).

2 Geographical Area

The seven counties mentioned above are nonattainment areas for the 2015 ozone NAAQS. The boundary of these seven counties aligns with the boundary of the metropolitan planning organizations (MPOs) of Southeast Michigan Council of Governments (SEMCOG). They are referred as the SEMCOG region in this report.

3 Attainment Status

The SEMCOG region was originally designated nonattainment for the 1997 ozone NAAQS of 0.08 ppm. Following successful implementation of Michigan's SIP for this pollutant, the region was re-designated as maintenance in 2009.

In 2012, the SEMCOG region was designated as attainment for the 2008 ozone NAAQS of 0.075 ppm.

On August 3, 2018, the EPA designated the SEMCOG region as nonattainment for the strengthened 2015 ozone NAAQS of 0.070 ppm.

As the SEMCOG region being both the 1997 ozone maintenance area and the 2015 ozone nonattainment area, transportation conformity is required by the Clean Air Act to ensure that federal funding and approval are given to highway and transit projects that are conform to the air quality goals established by a state air quality implementation plan (SIP). Up to this date, SEMCOG has been conducting the ozone conformity analysis for the entire SEMCOG region and showing the conformity.

4 Emission Analysis

The vehicle emission estimates derived from this analysis use the methodology developed and utilized to perform transportation conformity analysis for the seven counties of SEMCOG region. This methodology has been accepted by the FHWA and the EPA. To analyze conformity, emissions generated by all vehicles on Southeast Michigan's roadway system are estimated using a complex set of computer models. The models estimate the expected change in these emissions due to the combination of:

- Anticipated growth in the region, and
- The implementation of regionally significant transportation projects that either increase or decrease roadway capacity (e.g., building of new roads, adding or reducing the number of traffic lanes on existing roads). The impact of major transit projects is also included.

4.1 Analysis Years

Emissions were estimated for analysis years 2014, 2019, 2025, and 2035. The Air Quality Conformity Analysis for the SEMCOG region Nonattainment Area dated March 24,2021 provided the base input data for all four analysis years.

4.2 On-road Emissions

Estimates of on-road emissions were generated by EPA's latest Motor Vehicle Emission Simulator (MOVES3) and incorporate numerous local input data. The data in Table 1 provides the typical summer weekday and annual on-road emissions of the two pollutants causing ozone formation - volatile organic compounds (VOC) and nitrogen oxides (NO_x), for each of these four analysis years. The summer weekday emission results were extracted from the July weekday numbers of MOVES runs. The annual emissions were summarized from each of the twelve months including both weekdays and weekends.

Table 1: Ozone On-road Emissions

Analysis Year	Emissions (tons/summer weekday)		Regional Summer Weekday VMT (millions)	Annual Emissions (tons/year)		Regional Annual VMT (millions)
	VOC	NO_x		VOC	NOx	
2014	83.2	192.7	139.6	25,418	60,263	44,699
2019	51.7	105.8	142.4	15,857	33,038	45,607
2025	34.4	61.2	139.5	10,765	19,110	44,631
2035	22.0	40.3	143.9	7,588	12,703	46,102

The methodology used to develop each is described in the following sections.

5 Key Modeling Inputs and Assumptions for SEMCOG area

This section describes the key modeling inputs to both transportation and emission models. Session 5.1 explains in detail how MOVES run specifications were setup for the pollutant of ozone. Session 5.2 describes the development of local travel data inputs. Section 5.3 describes how other MOVES input data was produced.

5.1 MOVES Model Run Specifications

EPA's MOVES version MOVES3 was used to perform this on-road emission analysis.

Due to heavy interaction of the travels among the seven counties of SEMCOG region, the emissions of these seven counties were analyzed as one area in MOVES. MOVES' County level run was utilized, and Wayne County was chosen to represent the characteristics of all seven SEMCOG counties when default data is used. As ozone conformity analysis involves generating emissions for a high-ozone summer weekday, only weekday emissions were specified in MOVES. The simulated ozone meteorological data was used for the month of July to represent the typical summer day. Although Wayne County was chosen to represent the whole region geographically in MOVES runs, all local inputs were developed to represent the transportation activities in all seven SEMCOG counties.

More information on the development of these local inputs is provided in specific sections below.

5.2 Description of Local Travel Data Inputs

5.2.1 Demographic Data

Travel forecasts used to calculate on-road mobile source emissions for the redesignation emission analysis are based on demographic data from SEMCOG's 2045 Regional Development Forecast (RDF). A three-step process was used to develop this forecast.

a. Regional forecast totals of population and jobs were generated from the REMI (Regional Economic Models, Inc.) model. The model forecasts Southeast Michigan's ability to attract and retain population and jobs relative to all other parts of the United States. Regional totals were developed for all forecast years from the 2015 base year to 2045.
b. The regional totals were then used to develop a small-area forecast that disaggregates regional population, households and jobs into 1.8 million land parcels using the UrbanSim model. UrbanSim is a computer simulation model for planning and analysis of urban development. It incorporates the interaction between land use, transportation, and public policy. In doing so, it finds the most desirable land parcels for future population and jobs, and models residential and nonresidential developments as demand changes.
c. Land parcels from the small-area forecast were aggregated to traffic analysis zones (TAZs) for use in SEMCOG's travel demand forecasting model.

5.2.2 SEMCOG's Travel Demand Forecasting Model (TDFM)

The travel demand forecasting model (TDFM) produces vehicle miles of travel (VMT), vehicle hours of travel (VHT), and average speed data for MOVES. These forecasts for the on-road emissions inventory were developed using version E7 of SEMCOG's regional TDFM, which was implemented in 2018 using SEMCOG's 2015 household travel survey and observation data. The TDFM runs on the TransCAD software platform and utilizes the standard four-step travel modeling process: trip generation, trip distribution, mode choice, and traffic assignment.

The model networks contain projects from SEMCOG's 2045 long range transportation plans (RTP) and 2020-2023 transportation improvement programs (TIP). The 2035 network includes the completion of several large regional projects, such as: I-75 High-Occupancy Vehicle (HOV) lanes, Gordie Howe International Bridge (GHIB), US-23 Advanced Traffic Management (ATM) lane, and the first two phases of I-94 project.

Detailed documentation on the model is contained in a separate SEMCOG document that is available upon request.

5.2.3 Mapping of TDFM Functional Classes and Area Types to MOVES Road Types

To use TDFM data in MOVES, the road types used in SEMCOG's model must be reconciled with those used in MOVES. The MOVES model uses four basic road types for on-road activities: Urban Restricted, Urban Unrestricted, Rural Restricted and Rural Unrestricted. The term, "restricted," refers to restricted or limited-access roadways. In the SEMCOG region, this includes all freeway facilities. All other roadways in the SEMCOG region are considered unrestricted facilities. The TDFM also includes several special functional classes that are not part of the regular roadway network (e.g. walk only, external zone connectors, transit-only links). These are not included in SEMCOG's emissions modeling.

As TDFM functional classes do not distinguish between urban and rural facilities, another TDFM variable, Area Type, was used as a surrogate. The TDFM defines five area types (urban business, urban fringe, urban, suburban and rural) and assigns one to each roadway link based on the density of households, population and employment in the traffic analysis zone in which the link resides.

Table 2 shows how each area type and functional class in SEMCOG's TDFM is mapped to the four road types used in MOVES.

Table 2: Mapping of TDFM Functional Class and Area Type to MOVES Road Type

<table>
<tr><th rowspan="2">SEMCOG TDFM
Functional Class</th><th colspan="5">SEMCOG TDFM Area Type</th></tr>
<tr><th>Urban Business</th><th>Urban Fringe</th><th>Urban</th><th>Suburban</th><th>Rural</th></tr>
<tr><td>1 - Interstate Freeway</td><td colspan="4" rowspan="2">4 – MOVES Urban Restricted Road Type</td><td rowspan="2">2 – MOVES Rural Restricted Road Type</td></tr>
<tr><td>2 - Other Freeway</td></tr>
<tr><td>3 - Principal Arterial</td><td colspan="4" rowspan="6">5 – MOVES Urban Unrestricted Road Type</td><td rowspan="6">3 – MOVES Rural Unrestricted Road Type</td></tr>
<tr><td>4 - Minor Arterial</td></tr>
<tr><td>5/6 - Collector</td></tr>
<tr><td>7 - Local</td></tr>
<tr><td>9 - Uncertified Road</td></tr>
<tr><td>99 - Centroid connector (local road surrogate)</td></tr>
<tr><td>81 - 94 Transit Use Only</td><td colspan="5" rowspan="3">Non-road or outside region. Not used in MOVES</td></tr>
<tr><td>90 - External</td></tr>
<tr><td>96 - Walk Only</td></tr>
</table>

5.2.4 Vehicle Miles of Travel (VMT)

MOVES provides an option to input annual VMT by the six FHWA Highway Performance Monitoring System (HPMS) vehicle types with the passenger car (HPMS 20) and other 4-tire/2-axle vehicles (HPMS 30) combined as HPMS25.

- HPMS10 – Motorcycle;
- HPMS25 - Passenger car and Other 4-tire, 2-axle vehicles;
- HPMS40 – Bus;
- HPMS50 - Single unit truck;
- HPMS60 - Combination truck.

Local VMT data used in the MOVES model is derived from SEMCOG's Travel Demand Forecasting Model (TDFM). The model generates average weekday VMT forecasts and does not currently have the capability to allocate this VMT to different vehicle types. Adjustments were required to convert the TDFM data into the format required for MOVES.

a. **HPMS Normalization**

In accordance with EPA and FHWA guidance, SEMCOG TDFM VMT was normalized to HPMS VMT by county and road type. Normalization factors were developed by dividing

2015 HPMS VMT by the estimated 2015 VMT from regional TDFM. Table 3 shows the resulting factors. These factors were applied to TDFM VMT in all analysis years.

Table 3: HPMS Normalization Factors

County	Road Type	
	Restricted	Unrestricted
Livingston	1.06146	0.96310
Macomb	0.92232	0.97739
Monroe	0.90947	1.12472
Oakland	0.94420	0.96211
St Clair	0.88407	1.41495
Washtenaw	0.92334	0.99751
Wayne	0.92180	1.21861

b. **Average Weekday VMTs**

Table 4 provides the normalized VMTs from regional TDFM for the analysis years of 2015, 2020, 2025 and 2035. The 2014* VMT was derived by taking the 2015 VMT from the TDFM and normalizing it to the 2014 HPMS using the single scale factor of 1.010215 (calculated by the 2014 Annual HPMS VMT/the 2015 Converted TDFM Annual VMT). The same approach was used for the 2019* VMT by taking the 2020 VMT from the TDFM and normalizing it to the 2019 HPMS using the single scale factor of 1.035396 (calculated by the 2019 Annual HPMS VMT/the 2020 converted TDFM Annual VMT).

Table 4: Average Weekday Vehicle Miles of Travel (VMT)

MOVES Road Type	2014*	2015	2019*	2020	2025	2035
Rural Restricted	8,772,149	8,683,449	9,150,802	8,837,969	8,973,170	9,286,346
Rural Unrestricted	13,679,430	13,541,110	14,103,185	13,621,048	13,926,852	14,707,627
Urban Restricted	39,904,844	39,501,345	40,541,767	39,155,792	40,100,843	41,303,799
Urban Unrestricted	68,643,217	67,949,129	69,874,962	67,486,191	67,811,877	69,817,954
Region Total	130,999,640	129,675,033	133,670,715	129,101,000	130,812,742	135,115,726

c. **Distribution of VMT Among HPMS Vehicle Types**

Two sets of distribution factors for restricted and unrestricted roadways have been developed to allocate the total VMT of an analysis year among five vehicle classes as described at the beginning of this section.

Every year, MDOT collects permanent traffic recording (PTR) counts, which includes vehicle classification counts from 13 freeway stations through SEMCOG region. These 2015 PTR classification counts were used to develop the average distribution factors for restricted roadways.

Every five years beginning in 2005, SEMCOG has been collecting screen line counts, which are mostly non-freeway counts, throughout the seven-county SEMCOG region. The 2015 screen line traffic count was used to develop VMT distribution factors for unrestricted roadways.

Both counts collected from MDOT and SEMCOG were classified based on FHWA's standard 13 traffic bins. These bins were aggregated to five vehicle classes required by MOVES. The factors derived from these counts are shown in Table 5.

Table 5: VMT Distribution Factors by HPMS Vehicle Type

HPMS Vehicle Type	Restricted	Unrestricted
H10 - Motorcycle	0.00276	0.00589
H25 - Passenger Car and Other 4-tire, 2-axle vehicles	0.89201	0.90783
H40 - Bus	0.00166	0.00442
H50 - Single-Unit Truck	0.01931	0.05772
H60 - Combination Truck	0.08426	0.02414

d. **Conversion of Average Weekday VMT to Annual VMT**

Monthly and weekend adjustment factors were developed using 2014-2016 traffic count data from the 35 PTR stations in Southeast Michigan. Monthly adjustment factors for motorcycles were developed separately due to its significant difference from other vehicle types. Weekend adjustment factors were developed for each of the five vehicle types since significant variations were shown between vehicle types. These adjustment factors (shown in Table 6), along with the HPMS-normalized weekday VMT by vehicle types, were then entered into EPA's AADVMT converter of "*aadvmt-conveter-tool-moves2014.xls"* to compute the annual VMT, monthly and daily VMT fractions needed for MOVES3.

Table 6: Monthly and Weekend Adjustment Factors

Month	Monthly Adjustment Factors		Weekend Adjustment Factors				
	Motorcycle	Others	H10	H25	H40	H50	H60
Jan	0.61591	0.84277	0.74004	0.76880	0.50814	0.31258	0.34568
Feb	0.64898	0.89507	0.72627	0.74810	0.53906	0.28693	0.32378
Mar	0.70943	0.97283	0.78072	0.80027	0.56487	0.28654	0.32074
Apr	0.86564	1.01831	1.06431	0.80995	0.56013	0.30115	0.30696
May	1.18817	1.03520	1.00755	0.82747	0.51042	0.31796	0.31331
Jun	1.39409	1.08036	1.09094	0.82842	0.53217	0.34252	0.32225
Jul	1.47548	1.06434	1.04333	0.83058	0.61693	0.34956	0.31060
Aug	1.42116	1.07990	1.07714	0.85262	0.61017	0.36666	0.32662
Sep	1.29399	1.04244	1.02136	0.85271	0.61270	0.36014	0.32851
Oct	0.95050	1.04384	0.84475	0.82973	0.63029	0.33629	0.33077
Nov	0.78996	0.98673	0.72377	0.79581	0.61643	0.32037	0.34036
Dec	0.64280	0.93822	0.77974	0.78883	0.52432	0.31239	0.34840

5.2.5 Hourly VMT Fractions

Two different data sources were used to develop hourly VMT fractions for MOVES:

- 2015 screen line traffic counts collected by SEMCOG - All screen line counts include classification data but were only collected on weekdays.
- 2015 PTR counts for locations within the SEMCOG region - This data includes both weekdays and weekends. All the count stations are on freeways and only a limited number of these stations collect classification data.

Using this data, SEMCOG was able to develop weekday hourly VMT fractions for each of five HPMS vehicle types by restricted (shown in Table 7) and unrestricted MOVES road types (shown in Table 8).

However, for weekends, the count data was not robust enough to develop separate factors by road type or by vehicle type so only a single set of hourly VMT factors (shown in Table 9 below) was developed.

Table 7: Weekday Hourly Fractions for Restricted Road Types

HOUR	H10	H25	H40	H50	H60	Total
1	0.00901	0.00853	0.01300	0.00685	0.01929	0.00941
2	0.00506	0.00508	0.01077	0.00607	0.01775	0.00618
3	0.00495	0.00412	0.01079	0.00671	0.01748	0.00531
4	0.00572	0.00487	0.01220	0.00855	0.01974	0.00621
5	0.01331	0.01094	0.01839	0.01323	0.02500	0.01218
6	0.03873	0.02914	0.02854	0.02445	0.03304	0.02940
7	0.05610	0.05634	0.04263	0.05114	0.04400	0.05518
8	0.05897	0.07031	0.05985	0.06570	0.04968	0.06843
9	0.05187	0.06151	0.06112	0.07814	0.05658	0.06139
10	0.04527	0.04812	0.06610	0.07654	0.06325	0.04996
11	0.04491	0.04411	0.06347	0.07401	0.06555	0.04653
12	0.04792	0.04569	0.05739	0.07388	0.06606	0.04798
13	0.05076	0.04846	0.06006	0.07350	0.06413	0.05029
14	0.05422	0.05120	0.06267	0.07587	0.06291	0.05269
15	0.06414	0.06073	0.06700	0.07750	0.06062	0.06107
16	0.07425	0.07509	0.06726	0.07268	0.05566	0.07339
17	0.07592	0.08344	0.05918	0.06113	0.04929	0.08007
18	0.07156	0.08323	0.05087	0.04636	0.04353	0.07909
19	0.06320	0.06326	0.04795	0.03500	0.04076	0.06079
20	0.04912	0.04401	0.03725	0.02398	0.03570	0.04292
21	0.03837	0.03466	0.02944	0.01737	0.03160	0.03407
22	0.03307	0.02891	0.03085	0.01314	0.02904	0.02863
23	0.02533	0.02233	0.02336	0.01009	0.02620	0.02243
24	0.01823	0.01591	0.01989	0.00810	0.02316	0.01638

Table 8: Weekday Hourly Fractions for Unrestricted Road Types

Hour	H10	H25	H40	H50	H60	Total
1	0.00536	0.00794	0.00434	0.00529	0.01420	0.00791
2	0.00371	0.00543	0.00249	0.00395	0.01364	0.00552
3	0.00416	0.00527	0.00357	0.00407	0.01379	0.00539
4	0.00426	0.00685	0.00344	0.00528	0.01637	0.00696
5	0.00865	0.01299	0.00744	0.00917	0.02186	0.01294
6	0.01924	0.02808	0.01596	0.02223	0.03012	0.02769
7	0.03800	0.04830	0.06490	0.04586	0.04488	0.04809
8	0.06079	0.06905	0.09539	0.06604	0.06031	0.06873
9	0.05785	0.06046	0.09259	0.07022	0.06781	0.06133
10	0.04103	0.04541	0.06258	0.06268	0.06417	0.04691
11	0.04297	0.04380	0.05978	0.06083	0.06390	0.04533
12	0.04714	0.04747	0.06159	0.06332	0.06677	0.04891
13	0.05924	0.05097	0.05531	0.06543	0.06308	0.05216
14	0.06083	0.05242	0.06116	0.06275	0.06378	0.05338
15	0.07287	0.06154	0.08679	0.06809	0.06259	0.06213
16	0.08846	0.07415	0.09969	0.07556	0.06072	0.07411
17	0.10167	0.08174	0.08279	0.07774	0.05772	0.08105
18	0.09847	0.08327	0.04963	0.07190	0.05491	0.08187
19	0.07032	0.06446	0.03165	0.05387	0.04189	0.06319
20	0.04197	0.04739	0.01901	0.03639	0.03149	0.04621
21	0.03187	0.03906	0.01488	0.02833	0.02705	0.03800
22	0.01966	0.02956	0.01118	0.01918	0.02313	0.02866
23	0.01337	0.02062	0.00735	0.01304	0.01861	0.02003
24	0.00810	0.01378	0.00649	0.00879	0.01722	0.01351

Table 9: Weekend Hourly Fractions for Restricted/Unrestricted Road Types

HOUR	H10	H25	H40	H50	H60	Total
1	0.01635	0.01781	0.03310	0.01946	0.03316	0.01839
2	0.01066	0.01119	0.02323	0.01586	0.02873	0.01187
3	0.00790	0.00841	0.01984	0.01526	0.02595	0.00911
4	0.00579	0.00642	0.01708	0.01556	0.02498	0.00718
5	0.00749	0.00823	0.01755	0.01712	0.02806	0.00902
6	0.01279	0.01332	0.02291	0.02249	0.03179	0.01407
7	0.01867	0.02010	0.03379	0.03690	0.03798	0.02089
8	0.02291	0.02624	0.05137	0.05046	0.04349	0.02708
9	0.03282	0.03478	0.05412	0.06060	0.04905	0.03552
10	0.04456	0.04581	0.05471	0.06376	0.05285	0.04622
11	0.05503	0.05565	0.05689	0.06525	0.05602	0.05574
12	0.06466	0.06392	0.05137	0.06709	0.05710	0.06369
13	0.07084	0.06986	0.05404	0.06761	0.05578	0.06932
14	0.07520	0.07230	0.04839	0.06710	0.05434	0.07159
15	0.07703	0.07398	0.04786	0.06348	0.05153	0.07307
16	0.08072	0.07576	0.05201	0.06053	0.04996	0.07469
17	0.07736	0.07454	0.05285	0.05702	0.04782	0.07342
18	0.07136	0.07088	0.05550	0.05255	0.04620	0.06982
19	0.06338	0.06289	0.05654	0.04594	0.04549	0.06211
20	0.05482	0.05373	0.04961	0.03817	0.04285	0.05321
21	0.04560	0.04517	0.03900	0.03143	0.03990	0.04486
22	0.03578	0.03735	0.04079	0.02575	0.03628	0.03722
23	0.02814	0.02989	0.03471	0.02164	0.03196	0.02990
24	0.02016	0.02177	0.03273	0.01898	0.02874	0.02201

5.2.6 Road Type Distribution

Several steps were involved to produce the VMT road type distribution factors for each HPMS vehicle class. First, the 2015 HPMS VMT numbers were grouped into four MOVES road types (Urban Restricted, Urban Unrestricted, Rural Restricted and Rural Unrestricted). Then, the VMT value for each of the four MOVES road types was divided among five HPMS vehicle types based on the vehicle type distribution factors developed in Table 5. The final VMT road type distribution factors (shown in Table 10) were developed by dividing the calculated VMT for each MOVES road type and each HPMS vehicle type with the total VMT of each HPMS vehicle class.

Table 10: Road Type Distribution

HPMS Vehicle Type	Road Type Distribution for SEMCOG Region			
	Rural Restricted	Rural Unrestricted	Urban Restricted	Urban Unrestricted
H10 - Motorcycle	0.01934	0.05799	0.19721	0.72546
H25 - Passenger Car or Other 4-tire, 2-axle vehicles	0.03277	0.04686	0.33416	0.58621
H40 - Bus	0.01622	0.06058	0.16539	0.75782
H50 - Single-Unit Truck	0.01472	0.06182	0.15009	0.77337
H60 - Combination Truck	0.06011	0.02420	0.61294	0.30275

5.2.7 Vehicle Hours of Travel (VHT) and Average Speed Distributions

MOVES uses the distribution of vehicle hours of travel (VHT) by average speed to determine an appropriate operating mode distribution. To develop the local average speed distribution for Southeast Michigan, SEMCOG used congested speed and VHT output from the TDFM to compute the VHT fraction in each MOVES speed bin. The 2014 average speed data was using the speed data of the 2015 TDFM output and the 2019 average speed data was using the speed data of the 2020 TDFM output. Table 11 provides the VHTs of these years from the TDFM.

Table 11: Average Weekday Vehicle Hours of Travel (VHT)

MOVES Road Type	2015	2020	2025	2035
Rural Restricted	8,683,449	8,837,969	8,973,170	9,286,346
Rural Unrestricted	13,541,110	13,621,048	13,926,852	14,707,627
Urban Restricted	39,501,345	39,155,792	40,100,843	41,303,799
Urban Unrestricted	67,949,129	67,486,191	67,811,877	69,817,954
Region Total	129,675,033	129,101,000	130,812,742	135,115,726

MOVES requires the user to input hourly speed distributions by road type and vehicle class. While SEMCOG's travel model does not provide hourly speed data, it calculates speeds by five different time periods:

- AM peak, simulating the hours of 6:30 - 9:00 a.m.
- Mid-day, simulating the hours of 9:00 a.m. - 2:30 p.m.
- PM peak, simulating the hours of 2:30 - 6:30 p.m.
- Evening, simulating the hours of 6:30 p.m. - 10:00 p.m.
- Night, simulating the hours of 10 p.m. – 6:30 a.m.

For MOVES, separate speed distributions were developed for each of these time periods and applied to all hours within that period. This was done as follows:

- For each time period, the directional congested speed of each roadway link was assigned to one of MOVES 16 speed bins.
- The associated directional VHTs on the links were then aggregated by speed bin and MOVES road type.
- Then, for each road type, the VHT fraction in each speed bin was computed.

For each analysis year, the average speed distributions were developed. As no local data is currently available on speed differentiation between vehicle classes, the same distributions were applied to all vehicle types.

5.2.8 Vehicle Population

Both year 2014 and year 2015 vehicle registration data from the Michigan Department of State (DOS) were used to develop the base year vehicle population inputs for MOVES. In addition, 2015 school bus fleet records from the Michigan Department of Education (MDOE) and 2017 public transit bus records from the Michigan Department of Transportation (MDOT) were used to supplement the base year vehicle population.

The body style and plate type fields in the DOS database were used to determine the MOVES source type of each vehicle. Table 12 shows how each DOS body style and plate type was mapped to the MOVES source types. Where DOS data did not provide sufficient detail, it was supplemented with information from MOVES default distributions for Southeast Michigan counties.

Table 12: Mapping between MOVES Vehicle Types and Michigan DOS Body Styles

MOVES Vehicle Type	Michigan DOS Body Style
M11 – Motorcycle	Motorcycle
M21 – Passenger Car	2-door, 4-door, Convertible
M31 – Passenger Truck	Station Wagon, Non-Commercial Pick-up/Van
M32 – Light Commercial Truck	Ambulance, Hearse, Panel, Commercial Pick-up/Van
M41 – Intercity Bus	Bus (Apportioned this data between MOVES M41 and M43 vehicle types the Fee Code of "B03"; data for M42-transit buses and M43-school buses were added using fleet information from MDOE and MDOT)
M42 – Transit Bus	
M43 – School Bus	
M51 – Refuse Truck	Dump Truck, Mixer, utility, Wrecker, Stake, Tank (Apportioned this data MOVES M51, M52 and M53 vehicle types using split factors from MOVES2014 default run.)
M52 – Single-unit Short-haul Truck	
M53 – Single–unit Long-haul Truck	
M54 – Motor Home	Motor Home
M61 – Combination Short-haul Truck	Tractor (Apportioned this data between MOVES M61 and M62 vehicle types using split factors from MOVES2014 default run)
M62 – Combination Long-haul Truck	

Future year vehicle population data was based on future growth of regional population, households and jobs of that year from SEMCOG's 2045 regional development forecasts (RDF). The rate of growth between 2015 and each future analysis year was calculated. Table 13 shows the regional vehicle population and the growth factors used for each forecast year. This rate was then uniformly applied to all 2015 vehicle population source types to generate the future year population.

Table 13 Regional Vehicle Population and Growth Factors

MOVES Source Type	Base Year	Base Year	Forecast Year		
	2014	2015	2019	2025	2035
M11	116,476	115,840	119,003	119,733	123,077
M21	1,983,940	1,943,014	1,996,070	2,008,317	2,064,401
M31	1,755,233	1,841,688	1,891,977	1,903,586	1,956,745
M32	113,243	112,476	115,547	116,256	119,503
M41	1,286	1,399	1,437	1,446	1,486
M42	1,510	1,366	1,403	1,412	1,451
M43	8,046	7,815	8,028	8,078	8,303
M51	810	832	854.7184867	860	884
M52	28,073	28,884	29,673	29,855	30,688
M53	1,182	1,217	1,250	1,258	1,293
M54	13,640	13,537	13,907	13,992	14,383
M61	13,715	14,720	15,122	15,215	15,640
M62	15,046	16,151	16,592	16,694	17,160
Regional Total	4,052,200	4,098,939	4,210,864	4,236,701	4,355,014
Growth Factor	N.A.	1.000000	1.027306	1.033609	1.062473

Detailed documentation on the development of SEMCOG's vehicle population data is contained in a separate SEMCOG mobile emissions model development memo, which is available upon request.

5.2.9 Vehicle Age Distribution

Year 2015 DOS vehicle registration was also used to develop the vehicle/source type age distribution used in MOVES. The DOS body style field was used to assign each vehicle to one of six HPMS vehicle types (see Table 14 below). Once HPMS vehicle types had been assigned, the data was aggregated by model year and assigned to the appropriate age category. Model years 2015 and 2016 were considered age 0, 2014 was considered age 1 and so on. Model years 1985 and older were grouped into the age 30+ category. The age distribution for each HPMS vehicle type was then computed.

Table 14: Mapping between HPMS Vehicle Types and Michigan DOS Body Styles

HPMS Vehicle Type	Michigan DOS Body Style
H10 – Motorcycle	Motorcycle
H20 – Passenger Car	2-door; 4-door; Convertible
H30 – Other 4-tire, 2-axle vehicles	Station Wagon; Pick-up/Van; Ambulance; Hearse; Panel;
H40 – Bus	Bus
H50 – Single-unit Short Truck	Dump Truck; Mixer; Utility; Wrecker; Stake; Tank, Motor Home
H60 – Combination Truck	Tractor

By using base year 2015 data, future year age distribution was projected by applying EPA's age projection tool of "*age-distribution-projection-tool-moves2014*.xls."

5.3 Other Local Data Inputs

5.3.1 Temperature and Humidity Data

Temperature and humidity data are required inputs for MOVES. For ozone analysis, the objective is to simulate the on-road emissions that are likely to occur on days when meteorological conditions are conducive to high ozone formation (i.e., hot summer days). Thus, the maximum summer temperature used in MOVES was calculated by averaging the maximum local temperatures on the 10 highest ozone days in the year of 2014 to 2016. Similarly, the minimum summer temperature was calculated by averaging the minimum local temperatures on the same 10 highest ozone days. This yielded a maximum temperature of 86.9 degrees and a minimum of 60.0 degrees. These numbers were entered into the month of July to simulate a typical summer day for ozone analysis.

The relative humidity data was developed using the 2014-2016 National Centers for Environmental Information (NCDC) for the Detroit metropolitan airport posted by National Oceanic and Atmospheric Administration (NOAA).

EPA's "*MeteorologicalDataConverter_Mobile6.xls*" tool was then used to convert these numbers to the required hourly temperature and relative humidity inputs for MOVES. Table 15 shows the necessary input format used in the tool to develop the relative humidity.

Table 15: Hourly Relative Humidity by each Month

Month	HOUR ID											
	Hour 1 (6:00 AM)	Hour 2 (7:00 AM)	Hour 3 (8:00 AM)	Hour 4 (9:00 AM)	Hour 5 (10:00 AM)	Hour 6 (11:00 AM)	Hour 7 (12:00 Noon)	Hour 8 (1:00 PM)	Hour 9 (2:00 PM)	Hour 10 (3:00 PM)	Hour 11 (4:00 PM)	Hour 12 (5:00 PM)
	Hour 13 (6:00 PM)	Hour 14 (7:00 PM)	Hour 15 (8:00 PM)	Hour 16 (9:00 PM)	Hour 17 (10:00 PM)	Hour 18 (11:00 PM)	Hour 19 (12:00 AM)	Hour 20 (1:00 AM)	Hour 21 (2:00 AM)	Hour 22 (3:00 AM)	Hour 23 (4:00 AM)	Hour 24 (5:00 AM)
ENTER MOBILE6 HOURLY RELATIVE HUMIDITY												
1	78.8	79.0	78.3	78.1	74.0	76.8	79.3	77.8	79.0	78.8	78.0	79.2
	73.4	73.4	77.5	77.3	76.7	73.0	69.1	67.3	67.9	70.0	69.6	72.6
2	79.1	77.3	77.3	74.7	70.7	73.7	76.4	76.6	78.1	78.7	77.8	78.8
	68.8	67.9	71.4	73.4	72.5	66.7	66.5	63.7	64.5	61.5	60.8	67.3
3	77.5	75.3	73.6	69.7	64.3	72.8	74.5	73.7	75.8	77.0	76.3	77.6
	62.3	63.2	66.9	71.3	69.7	63.1	60.5	56.6	57.5	58.1	55.3	61.1
4	74.4	69.6	62.7	60.4	55.7	69.5	71.2	70.5	74.9	76.1	73.0	75.6
	57.8	57.8	64.9	67.8	66.3	55.6	51.1	48.9	51.1	54.6	50.0	55.1
5	76.4	72.8	66.9	61.6	59.3	71.1	74.5	74.1	77.7	77.8	77.2	79.4
	56.4	57.9	63.9	66.2	66.4	57.0	54.6	52.2	53.9	58.4	53.4	55.8
6	78.5	73.7	67.7	62.9	59.7	73.2	76.9	76.6	79.4	80.6	81.2	81.1
	59.8	60.6	67.1	69.5	69.2	59.5	54.9	53.4	55.2	55.0	52.7	55.8
7	74.4	68.8	53.8	47.2	45.1	67.6	73.9	75.3	78.0	79.6	80.1	80.6
	45.3	49.4	60.5	64.1	65.1	40.5	38.0	37.8	37.0	38.1	38.5	40.3
8	85.9	82.1	74.1	69.2	65.3	79.3	83.1	83.5	86.6	86.9	86.8	88.4
	66.3	65.4	71.0	74.6	76.4	62.6	58.0	56.8	60.6	61.8	58.3	65.5
9	88.5	85.2	78.2	72.9	69.1	83.5	85.8	86.3	87.9	88.3	88.1	88.7
	69.8	69.7	75.5	78.5	80.0	63.6	62.3	60.2	59.0	58.3	58.6	62.0
10	85.9	85.0	80.4	74.5	69.9	79.7	83.1	82.8	84.3	85.0	84.5	85.3
	69.3	69.7	73.9	77.0	77.8	67.6	62.4	60.5	60.4	60.4	59.9	64.8
11	81.8	81.3	78.9	75.9	71.6	76.3	80.7	78.9	80.7	80.5	79.8	81.7
	71.4	71.1	75.2	76.0	75.1	68.1	63.4	61.1	62.8	65.2	63.1	69.2
12	83.1	82.4	82.7	81.3	77.3	80.6	83.5	82.2	83.1	84.1	83.3	83.8
	77.0	76.8	79.5	79.7	79.2	75.4	73.1	71.2	73.4	73.4	72.4	76.2

5.3.2 Fuel Supply/Fuel Formulation

Both Fuel Supply and Fuel Formulation default values from MOVES3 were used for SEMCOG's emission analysis conducted in this report.

ATTACHMENT B

Southeast Michigan 2014 Point Source Emissions Inventory
Nitrogen Oxide (NOx)

County	Point Emission Source	Primary Facility Description	Site Latitude	Site Longitude	City	Total NOx Emissions (tons per year)	NOx Emissions (tons per ozone season day)
Livingston	Howell Compressor Station	Pipeline Transportation of Natural Gas	42.55525	-83.875049	Howell	592.8000	1.6168
Livingston	Hartland Gas Plant	Oil and Gas Extraction	42.6181	-83.6885	Hartland	11.6500	0.0318
Livingston	DTE Electric Company - Colfax Peaking Facility	Fossil Fuel Electric Power Generation	42.6586	-84.0944	Fowlerville	8.1415	0.0222
Livingston	VENTRA Fowlerville LLC	Other Motor Vehicle Parts Manufacturing	42.6603	-84.0888	Fowlerville	4.1250	0.0113
Livingston	AJAX Materials Corp.	Asphalt Paving Mixture and Block Manufacturing	42.4973	-83.6943	Brighton	3.3285	0.0091
Livingston	Novares - Howell	Other Motor Vehicle Parts Manufacturing	42.6054	-83.9488	Howell	2.7455	0.0075
Livingston	CHEM-TREND LP	All Other Miscellaneous Chemical Product and Preparation Manufacturing	42.6072	-83.9521	Howell	1.6775	0.0046
Livingston	Livingston County	Airport Operations	42.6295	-83.98417	Howell	1.3476	0.0037
Livingston	Brighton	Airport Operations	42.56981	-83.77853	Brighton	0.6036	0.0016
Livingston	Maple Grove	Airport Operations	42.7171	-84.0619	Fowlerville	0.2744	0.0007
Livingston	Richmond Field	Airport Operations	42.4417	-84.0666	Gregory	0.2286	0.0006
Livingston	Maple Grove	Airport Operations	42.7173	-84.0625	Fowlerville	0.1132	0.0003
Livingston	VCF Films, Inc.	Unlaminated Plastics Film and Sheet (except Packaging) Manufacturing	42.6064	-83.9156	Howell	0.0805	0.0002
Livingston	Johnston Field	Airport Operations	42.6092	-83.8139	Howell	0.0059	0.0000
Livingston	Ponderosa	Airport Operations	42.6292	-83.6831	Highland	0.0034	0.0000
Livingston	Raether	Airport Operations	42.5653	-83.8565	Howell	0.0034	0.0000

Southeast Michigan 2014 National Emissions Inventory NOx and VOC Point Emission Sources

Livingston	Haigh	Airport Operations	42.6125	-83.8541	Howell	0.0032	0.0000
Livingston	Cloud Nine Field	Airport Operations	42.5461	-84.1278	Webberville	0.0032	0.0000
Livingston	CLOUD NINE EAST	Airport Operations	42.55114	-84.098288	Webberville	0.0029	0.0000
Livingston	TROLLMANS FIELD	Airport Operations	42.7392	-83.7549	Fenton	0.0028	0.0000
Livingston	MCKENZIES LANDING	Airport Operations	42.6031	-83.8597	Howell	0.0027	0.0000
Livingston	Cadillac Asphalt, L.L.C.	Asphalt Paving Mixture and Block Manufacturing	42.4341	-83.7644	Whitmore Lake	0.0000	0.0000
Macomb	Selfridge Angb	Airport Operations	42.60087	-82.83714	Mount Clemens	207.7249	0.5657
Macomb	FCA US LLC Warren Truck Assembly Plant	Light Truck and Utility Vehicle Manufacturing	42.45544	-83.040949	Warren	117.2840	0.3194
Macomb	Sumpter Energy Associates	Other Electric Power Generation	42.7641	-82.7475	Lenox Twp	89.0500	0.2425
Macomb	ANR Pipeline Co.- Muttonville Compressor Station	Pipeline Transportation of Natural Gas	42.7697	-82.7454	Muttonville	86.9302	0.2367
Macomb	Pine Tree Acres, Inc.	Solid Waste Landfill	42.7592	-82.7479	Lenox	82.5886	0.2249
Macomb	DTE Gas Company - Washington 10 Compressor Station	Natural Gas Distribution	42.7678	-83.0057	Washington	80.3079	0.2187
Macomb	GM Technical Center	Testing Laboratories	42.5169	-83.0391	Warren	79.6683	0.2170
Macomb	Ford Motor Company - Sterling Plant	Motor Vehicle Transmission and Power Train Parts Manufacturing	42.5835	-83.0448	Sterling Hts	61.5745	0.1677
Macomb	Consumers Energy - Ray Compressor Station	Pipeline Transportation of Natural Gas	42.8107	-82.8658	Armada	46.3829	0.1263
Macomb	FCA US LLC Sterling Heights Assembly plant	Automobile Manufacturing	42.56955	-83.033734	Sterling Hts	32.9997	0.0899
Macomb	MNP Corp.	All Other Miscellaneous Fabricated Metal Product Manufacturing	42.6207	-83.04	Utica	26.3450	0.0717
Macomb	A G Simpson (USA), Inc.	Electroplating, Plating, Polishing, Anodizing, and Coloring	42.54325	-83.039527	Sterling Hts	22.1290	0.0603

Southeast Michigan 2014 National Emissions Inventory NOx and VOC Point Emission Sources

Macomb	General Motors LLC - Warren Transmission Plant	Motor Vehicle Transmission and Power Train Parts Manufacturing	42.4667	-83.0404	Warren	20.6253	0.0562
Macomb	Warren Waste Water Treatment Plant	Sewage Treatment Facilities	42.53319	-83.019666	Warren	16.6700	0.0454
Macomb	Selfridge Air National Guard Base	Other Nonscheduled Air Transportation	42.61952	-82.84478	Mt Clemens	13.2171	0.0360
Macomb	Ford Motor Company-Van Dyke Plant	Motor Vehicle Transmission and Power Train Parts Manufacturing	42.5974	-83.0349	Sterling Hts	12.9282	0.0352
Macomb	Specialty Steel Treating, Inc.	Metal Heat Treating	42.5505	-82.9432	Fraser	11.0800	0.0302
Macomb	Ford Motor Company - Romeo Engine Plant	Motor Vehicle Gasoline Engine and Engine Parts Manufacturing	42.8057	-82.9952	Romeo	10.6808	0.0291
Macomb	FCA US LLC, Sterling Stamping Plant	Motor Vehicle Metal Stamping	42.55616	-83.033974	Sterling Hts	10.6200	0.0289
Macomb	Vector Pipeline, LP Washington Compressor Station	Pipeline Transportation of Natural Gas	42.7733	-83.0083	Washington	10.0660	0.0274
Macomb	Curtis Metal Finishing Co.	Metal Coating, Engraving (except Jewelry and Silverware), and Allied Services to Manufacturers	42.59	-83.0421	Sterling Hts	9.2615	0.0252
Macomb	U.S. Army Garrison-Detroit Arsenal	National Security	42.4979	-83.041	Warren	8.6329	0.0235
Macomb	Wiegands Crushing, Inc.	Other Crushed and Broken Stone Mining and Quarrying	42.4601	-82.9947	Warren	7.0300	0.0191
Macomb	Axalta Coating Systems, LLC- Mt Clemens Plant	Paint and Coating Manufacturing	42.6122	-82.8858	Mt Clemens	6.9185	0.0188
Macomb	FCA US LLC Warren Stamping Plant	Motor Vehicle Metal Stamping	42.4611	-83.0436	Warren	6.3900	0.0174
Macomb	DTE Electric Company - Northeast Peaking Facility	Fossil Fuel Electric Power Generation	42.4506	-83.0383	Warren	4.9926	0.0136

Southeast Michigan 2014 National Emissions Inventory NOx and VOC Point Emission Sources

Macomb	Ajax Materials Corp.	Asphalt Paving Mixture and Block Manufacturing	42.4875	-83.0392	Warren	4.7230	0.0129
Macomb	Pioneer Metal Finishing Industrial Hwy	Metal Coating, Engraving (except Jewelry and Silverware), and Allied Services to Manufacturers	42.4762	-82.9885	Warren	4.7160	0.0128
Macomb	Cadillac Asphalt - Shelby Plant	Asphalt Paving Mixture and Block Manufacturing	42.6756	-83.0075	Shelby Twp	3.8260	0.0104
Macomb	Gannett Publishing Services	Newspaper Publishers	42.5642	-83.048	Sterling Hts	3.4435	0.0094
Macomb	Ajax Materials Corp.	Asphalt Paving Mixture and Block Manufacturing	42.7223	-82.8036	New Haven	1.7327	0.0047
Macomb	Henkel Corporation	All Other Miscellaneous Chemical Product and Preparation Manufacturing	42.4659	-83.0355	Warren	1.6010	0.0044
Macomb	Faurecia Interior Systems	Motor Vehicle Seating and Interior Trim Manufacturing	42.54154	-82.93816	Fraser	1.5909	0.0043
Macomb	Pioneer Metal Finishing - Stephens Road	Metal Coating, Engraving (except Jewelry and Silverware), and Allied Services to Manufacturers	42.4734	-82.9891	Warren	1.4030	0.0038
Macomb	Tweddle Group	Books Printing	42.6245	-82.8579	Clinton Twp	1.2700	0.0035
Macomb	Cadillac Asphalt, LLC	Asphalt Paving Mixture and Block Manufacturing	42.601	-82.8927	Mt Clemens	1.2090	0.0033
Macomb	Ray Community	Airport Operations	42.73753	-82.8902	Ray	0.9946	0.0027
Macomb	Norbrook Plating, Inc.	Electroplating, Plating, Polishing, Anodizing, and Coloring	42.46378	-83.009942	Warren	0.8054	0.0022
Macomb	Romeo State	Airport Operations	42.79699	-82.97527	Romeo	0.5598	0.0015
Macomb	Depor Industries	Metal Coating, Engraving (except Jewelry and Silverware), and Allied Services to Manufacturers	42.67039	-82.980565	Shelby Twp	0.3860	0.0011
Macomb	Wolverine Bronze Co.	Aluminum Foundries (except Die-Casting)	42.5039	-82.968	Roseville	0.3587	0.0010
Macomb	NJT Enterprises, LLC (Formally Mayco Plastics)	All Other Plastics Product Manufacturing	42.603	-83.0456	Sterling Hts	0.3114	0.0008

Southeast Michigan 2014 National Emissions Inventory NOx and VOC Point Emission Sources

Macomb	Global Enterprises	Other Motor Vehicle Parts Manufacturing	42.6659	-82.8468	Chesterfield	0.2875	0.0008
Macomb	Grant Pad	Airport Operations	42.5445	-82.9316	Fraser	0.0059	0.0000
Macomb	TI	Airport Operations	42.6647	-83.0122	Utica	0.0059	0.0000
Macomb	Acme	Airport Operations	42.472	-83.011	Centerline	0.0059	0.0000
Macomb	Jott	Airport Operations	42.6609	-82.9963	Utica	0.0059	0.0000
Macomb	Bayview	Airport Operations	42.6817	-82.7491	New Baltimore	0.0059	0.0000
Macomb	Eagle	Airport Operations	42.7931	-83.0261	Romeo	0.0059	0.0000
Macomb	American Metal Processing	Metal Heat Treating	42.4606	-83.0019	Warren	0.0045	0.0000
Macomb	Kriewall Strip	Airport Operations	42.8381	-82.9688	Romeo	0.0042	0.0000
Macomb	Quala	All Other Miscellaneous Manufacturing	42.6653	-82.8501	Chesterfield	0.0000	0.0000
Macomb	PPI Aerospace	Electroplating, Plating, Polishing, Anodizing, and Coloring	42.4678	-82.9877	Warren	0.0000	0.0000
Monroe	DTE Electric Company - Monroe Power Plant	Fossil Fuel Electric Power Generation	41.8887	-83.3437	Monroe	8319.6702	21.3459
Monroe	J.R. Whiting Co.	Fossil Fuel Electric Power Generation	41.79191	-83.449167	Erie	2356.1981	6.0453
Monroe	Guardian Industries-Carleton	Flat Glass Manufacturing	42.0897	-83.3599	Carleton	1887.9580	4.8440
Monroe	Gerdau MacSteel Monroe	Iron and Steel Mills and Ferroalloy Manufacturing	41.8933	-83.3577	Monroe	172.9969	0.4439
Monroe	Delta	Support Activities for Rail Transportation	41.77004	-83.521123	Unknown	138.4140	0.3551
Monroe	Spartan Steel Coating	Metal Coating, Engraving (except Jewelry and Silverware), and Allied Services to Manufacturers	41.9539	-83.3516	Monroe	45.4455	0.1166
Monroe	DTE Electric Company - Fermi Energy Center	Nuclear Electric Power Generation	41.9606	-83.2583	Newport	29.8020	0.0765
Monroe	Michigan Paving & Materials	Asphalt Paving Mixture and Block Manufacturing	41.896	-83.3566	Monroe	8.5765	0.0220

Southeast Michigan 2014 National Emissions Inventory NOx and VOC Point Emission Sources

Monroe	FCA US LLC - Dundee Engine Plant	Motor Vehicle Gasoline Engine and Engine Parts Manufacturing	41.9785	-83.6722	Dundee	7.2545	0.0186
Monroe	Vienna Junction Landfill	Solid Waste Landfill	41.7342	-83.5083	Erie	4.5090	0.0116
Monroe	ADM Grain Co. - Ottawa Lake	Grain and Field Bean Merchant Wholesalers	41.7348	-83.7218	Ottawa Lake	2.5555	0.0066
Monroe	Cadillac Asphalt, LLC	Asphalt Paving Mixture and Block Manufacturing	41.8935	-83.4349	Monroe	1.0169	0.0026
Monroe	Toledo Suburban	Airport Operations	41.73588	-83.65541	Lambertville	0.5391	0.0014
Monroe	Custer	Airport Operations	41.93991	-83.43468	Monroe	0.4392	0.0011
Monroe	Milan	Airport Operations	42.05	-83.7402	Milan	0.1495	0.0004
Monroe	VenTower Industries LLC	Fabricated Structural Metal Manufacturing	41.8965	-83.3698	Monroe	0.1301	0.0003
Monroe	Carls	Airport Operations	42.0406	-83.3035	South Rockwood	0.0288	0.0001
Monroe	Mills Field	Airport Operations	42.0092	-83.2583	Newport	0.0137	0.0000
Monroe	Lada	Airport Operations	41.8875	-83.6766	Petersburg	0.0110	0.0000
Monroe	Four Star	Airport Operations	42.0431	-83.3594	Carleton	0.0059	0.0000
Monroe	Helifarm	Airport Operations	41.7936	-83.5381	Monroe	0.0059	0.0000
Monroe	Mercy Memorial Hospital	Airport Operations	41.9261	-83.3883	Monroe	0.0059	0.0000
Monroe	Air Rahe	Airport Operations	41.8306	-83.6874	Petersburg	0.0051	0.0000
Monroe	Gradolph Fld	Airport Operations	41.9198	-83.7349	Petersburg	0.0034	0.0000
Monroe	Newport Woods	Airport Operations	41.9878	-83.3076	Newport	0.0030	0.0000
Monroe	Maybee	Airport Operations	42.0414	-83.5669	Maybee	0.0026	0.0000
Monroe	Ham-a-Lot Field	Airport Operations	41.8334	-83.6833	Petersburg	0.0026	0.0000
Monroe	Wickenheiser	Airport Operations	42.0181	-83.3772	Carleton	0.0017	0.0000
Monroe	Laszlo	Airport Operations	42.075	-83.6083	Milan	0.0000	0.0000
Monroe	Johnston	Airport Operations	42.08444	-83.517222	Belleville	0.0000	0.0000
Monroe	Gerken Materials, Inc. HMA Plant #22	Asphalt Paving Mixture and Block Manufacturing	41.7489	-83.6666	Ottawa Lake	0.0000	0.0000
Monroe	Great Lakes Aggregates, LLC. - Sylvania Minerals	Crushed and Broken Limestone Mining and Quarrying	42.0535	-83.2718	S Rockwood	0.0000	0.0000

Southeast Michigan 2014 National Emissions Inventory NOx and VOC Point Emission Sources

Oakland	DTE Gas Company - Milford Compressor Station	Pipeline Transportation of Natural Gas	42.5434	-83.5645	Milford	160.8429	0.4651
Oakland	FCA US Technology Center	Automobile Manufacturing	42.65322	-83.228884	Auburn Hills	155.5352	0.4498
Oakland	General Motors LLC - Pontiac Engineering Center	Testing Laboratories	42.6621	-83.2861	Pontiac	127.2529	0.3680
Oakland	Par Sterile Products LLC	Medicinal and Botanical Manufacturing	42.6848	-83.1147	Rochester	100.8583	0.2917
Oakland	General Motors LLC - Orion Assembly	Automobile Manufacturing	42.7158	-83.2607	Lake Orion	64.1859	0.1856
Oakland	Eagle Valley Recycle and Disposal Facility	Solid Waste Landfill	42.7259	-83.2549	Orion Twp	49.1300	0.1421
Oakland	General Motors LLC - Milford Proving Ground	Testing Laboratories	42.5691	-83.6745	Milford	41.5764	0.1202
Oakland	William Beaumont Hospital	General Medical and Surgical Hospitals	42.5143	-83.1923	Royal Oak	32.7335	0.0947
Oakland	DTE Electric Company - Hancock Peaking Facility	Fossil Fuel Electric Power Generation	42.54965	-83.442218	Commerce Twp	30.7675	0.0890
Oakland	Vector Pipeline L.P., Highland Compressor Station	Pipeline Transportation of Natural Gas	42.6203	-83.5743	Highland	27.6340	0.0799
Oakland	Commercial Steel Treating Corp.	Metal Heat Treating	42.5239	-83.1179	Madison Hts	17.2291	0.0498
Oakland	Specialty Steel Treating, Inc.	Metal Heat Treating	42.4416	-83.3583	Farmington Hills	16.6550	0.0482
Oakland	St. Joseph Mercy Hospital	General Medical and Surgical Hospitals	42.6144	-83.2759	Pontiac	16.0688	0.0465
Oakland	Oakland Heights Development, Inc.	Solid Waste Landfill	42.7046	-83.2481	Auburn Hills	13.4800	0.0390
Oakland	Oakland University	Colleges, Universities, and Professional Schools	42.6751	-83.215	Rochester	12.5402	0.0363
Oakland	Oakland County Intl.	Airport Operations	42.6672	-83.4333	Pontiac	12.2621	0.0355
Oakland	Henry Ford West Bloomfield Hospital	General Medical and Surgical Hospitals	42.5385	-83.4058	W Bloomfield	11.3869	0.0329

Southeast Michigan 2014 National Emissions Inventory NOx and VOC Point Emission Sources

Oakland	Heat Treating Services Corp - Plant 3	Metal Heat Treating	42.6584	-83.3179	Pontiac	11.0475	0.0319
Oakland	DTE Electric Company - Placid Peaking Facility	Fossil Fuel Electric Power Generation	42.71	-83.4557	Clarkston	10.3150	0.0298
Oakland	Michigan Seamless Tube, LLC	Iron and Steel Pipe and Tube Manufacturing from Purchased Steel	42.4565	-83.6588	South Lyon	8.8160	0.0255
Oakland	Heat Treating Services Corp. of America - Plant 1	Metal Heat Treating	42.6206	-83.2793	Pontiac	8.5845	0.0248
Oakland	Procat Testing, LLC	Testing Laboratories	42.5198	-83.5481	Wixom	8.0520	0.0233
Oakland	Oakland Co. Service Center	Other General Government Support	42.6586	-83.3256	Pontiac	7.7006	0.0223
Oakland	Ascension Providence Southfield Hospital	General Medical and Surgical Hospitals	42.4578	-83.2049	Southfield	7.4200	0.0215
Oakland	William Beaumont Hospital	General Medical and Surgical Hospitals	42.619	-83.0929	Troy	6.5122	0.0188
Oakland	Continental Aluminum	Secondary Smelting and Alloying of Aluminum	42.5022	-83.6164	New Hudson	5.9900	0.0173
Oakland	Ascension Providence Park Hospital	General Medical and Surgical Hospitals	42.488	-83.5195	Novi	5.9070	0.0171
Oakland	Atmosphere Heat Treating, Inc.	Metal Heat Treating	42.5183	-83.5481	Wixom	5.8850	0.0170
Oakland	Cadillac Asphalt LLC	Asphalt Paving Mixture and Block Manufacturing	42.4887	-83.5613	Wixom	5.8490	0.0169
Oakland	RMT Woodworth, Southfield	Metal Heat Treating	42.4446	-83.3029	Southfield	5.8300	0.0169
Oakland	Lyon Development, Inc.	Solid Waste Landfill	42.5164	-83.6189	New Hudson	5.6500	0.0163
Oakland	Robert Bosch, LLC	Testing Laboratories	42.491	-83.4241	Farmington Hills	5.4986	0.0159
Oakland	Ace Asphalt & Paving Co, Inc. - Plant 1	Asphalt Paving Mixture and Block Manufacturing	42.7866	-83.5283	Davisburg	4.6945	0.0136
Oakland	Cadillac Asphalt, LLC	Asphalt Paving Mixture and Block Manufacturing	42.7074	-83.4433	Clarkston	4.1060	0.0119
Oakland	Huron Valley - Sinai Hospital	General Medical and Surgical Hospitals	42.5921	-83.4989	Commerce Twp	3.1437	0.0091

Southeast Michigan 2014 National Emissions Inventory NOx and VOC Point Emission Sources

Oakland	Ajax Materials Corp.	Asphalt Paving Mixture and Block Manufacturing	42.6463	-83.1808	Rochester HLS	3.1014	0.0090
Oakland	McLaren Oakland	General Medical and Surgical Hospitals	42.6385	-83.2908	Pontiac	3.0444	0.0088
Oakland	Beaumont Hospital Farmington Hills	General Medical and Surgical Hospitals	42.4468	-83.3243	Farmington Hills	2.9108	0.0084
Oakland	BASF Corp.	Testing Laboratories	42.4856	-83.2858	Southfield	2.7850	0.0081
Oakland	East-Lind Heat Treat, Inc.	Metal Heat Treating	42.5279	-83.0879	Madison Hts	2.6870	0.0078
Oakland	Umicore Autocat USA, Inc.	Testing Laboratories	42.6761	-83.2442	Auburn Hills	2.5855	0.0075
Oakland	Gage Products Company	All Other Miscellaneous Chemical Product and Preparation Manufacturing	42.4516	-83.1144	Ferndale	2.4000	0.0069
Oakland	Ajax Materials Corp.	Asphalt Paving Mixture and Block Manufacturing	42.7112	-83.2284	Auburn Hills	2.3953	0.0069
Oakland	Standard Coating, Inc.	Electroplating, Plating, Polishing, Anodizing, and Coloring	42.53168	-83.088014	Madison Hts	2.2295	0.0064
Oakland	Tribar Technologies, Inc. (Plant 4)	Electroplating, Plating, Polishing, Anodizing, and Coloring	42.5185	-83.5161	Wixom	1.9225	0.0056
Oakland	Eaton Research Center	Engineering Services	42.4801	-83.2565	Southfield	1.6755	0.0048
Oakland	Cadillac Asphalt, LLC, Troy	Asphalt Paving Mixture and Block Manufacturing	42.5525	-83.15842	Troy	1.6305	0.0047
Oakland	Power Solutions International	Testing Laboratories	42.5323	-83.0909	Madison Hts	1.5297	0.0044
Oakland	Sterling Performance, Inc.	Other Engine Equipment Manufacturing	42.5231	-83.5896	Milford	1.3889	0.0040
Oakland	2600 WBB, LLC	Commercial Banking	42.5617	-83.1797	Troy	1.3865	0.0040
Oakland	Racer Trust - Pontiac Central and West	Trusts, Estates, and Agency Accounts	42.6123	-83.2512	Pontiac	1.1655	0.0034
Oakland	Beaumont Information Technology Center	Data Processing, Hosting, and Related Services	42.5458	-83.118	Troy	1.0065	0.0029
Oakland	Mac Valves, Inc.	Industrial Valve Manufacturing	42.5189	-83.5186	Wixom	1.0035	0.0029

Southeast Michigan 2014 National Emissions Inventory NOx and VOC Point Emission Sources

Oakland	Oakland/Troy	Airport Operations	42.54294	-83.17791	Troy	0.8544	0.0025
Oakland	Mahle Industries, Inc.	Testing Laboratories	42.4591	-83.4335	Farmington Hills	0.7940	0.0023
Oakland	Quikrete-Flint	All Other Miscellaneous Nonmetallic Mineral Product Manufacturing	42.81943	-83.564908	Holly	0.7785	0.0023
Oakland	Arrow Racing Engines	Other Engine Equipment Manufacturing	42.6342	-83.2109	Auburn Hills	0.6990	0.0020
Oakland	Lymtal International, Inc.	Paint and Coating Manufacturing	42.7194	-83.2458	Lake Orion	0.5110	0.0015
Oakland	Henry Ford Hospital System-Rochester Hills	Corporate, Subsidiary, and Regional Managing Offices	42.6436	-83.1657	Rochester HLS	0.4772	0.0014
Oakland	Oakland Southwest	Airport Operations	42.50312	-83.62372	New Hudson	0.4066	0.0012
Oakland	ND Industries, Inc.	Metal Coating, Engraving (except Jewelry and Silverware), and Allied Services to Manufacturers	42.5411	-83.1648	Clawson	0.3851	0.0011
Oakland	FoamPartner Americas, Inc. (formerly Otto Bock)	Urethane and Other Foam Product (except Polystyrene) Manufacturing	42.6392	-83.1942	Rochester HLS	0.3760	0.0011
Oakland	Sun Steel Treating, Inc.	Metal Heat Treating	42.4653	-83.6448	South Lyon	0.2235	0.0006
Oakland	FEV North America, Inc.	Engineering Services	42.7043	-83.2534	Auburn Hills	0.2211	0.0006
Oakland	Denso International America, Inc.	Engineering Services	42.4774	-83.2894	Southfield	0.1159	0.0003
Oakland	Martin Technologies	Motor Vehicle Gasoline Engine and Engine Parts Manufacturing	42.5124	-83.6016	New Hudson	0.0192	0.0001
Oakland	Guardian Industries	Airport Operations	42.6998	-83.2474	Auburn Hills	0.0059	0.0000
Oakland	William Beaumont Hospital	Airport Operations	42.515	-83.1928	Royal Oak	0.0059	0.0000
Oakland	Zayti Field	Airport Operations	42.4402	-83.5159	Novi	0.0059	0.0000
Oakland	Highland	Airport Operations	42.657	-83.6502	Highland	0.0059	0.0000
Oakland	Huron Valley Sinai Hospital	Airport Operations	42.5939	-83.4992	Commerce	0.0059	0.0000
Oakland	TV2	Airport Operations	42.4606	-83.2172	Southfield	0.0059	0.0000

Oakland	Providence Hospital	Airport Operations	42.4892	-83.5219	Novi	0.0059	0.0000
Oakland	Wagners Landing	Airport Operations	42.7384	-83.4374	Clarkston	0.0059	0.0000
Oakland	Kamikaze Run	Airport Operations	42.5139	-83.4894	Novi	0.0059	0.0000
Oakland	McPhail	Airport Operations	42.5723	-83.3944	Orchard Lake	0.0059	0.0000
Oakland	Guardian Industries	Airport Operations	42.45	-83.4699	Novi	0.0059	0.0000
Oakland	McPhail Corp.	Airport Operations	42.6603	-83.1555	Rochester	0.0059	0.0000
Oakland	Glen Oaks	Airport Operations	42.49	-83.4652	Novi	0.0059	0.0000
Oakland	Adams	Airport Operations	42.5723	-83.391	Orchard Lake	0.0059	0.0000
Oakland	Bendix	Airport Operations	42.4806	-83.2477	Southfield	0.0059	0.0000
Oakland	Chrysler Corp.	Airport Operations	42.6531	-83.225	Auburn Hills	0.0059	0.0000
Oakland	Independence Green	Airport Operations	42.47	-83.4194	Farmington	0.0059	0.0000
Oakland	Heliflite	Airport Operations	42.4873	-83.6519	South Lyon	0.0059	0.0000
Oakland	Cass	Airport Operations	42.601	-83.3942	W Bloomfield	0.0059	0.0000
Oakland	Express	Airport Operations	42.5139	-83.3578	Farmington Hills	0.0059	0.0000
Oakland	Six CS	Airport Operations	42.72165	-83.18158	Oakland Twp	0.0059	0.0000
Oakland	Willie Run	Airport Operations	42.8292	-83.3686	Ortonville	0.0055	0.0000
Oakland	Handleman Sky Ranch	Airport Operations	42.8528	-83.2277	Oxford	0.0052	0.0000
Oakland	Cass Lake-Cove Island	Airport Operations	42.6161	-83.356	Pontiac	0.0051	0.0000
Oakland	Ed Schulte's Place	Airport Operations	42.8081	-83.4519	Ortonville	0.0051	0.0000
Oakland	DTE Pontiac North, LLC	Steam and Air-Conditioning Supply	42.66062	-83.297627	Pontiac	0.0000	0.0000
Oakland	Clinton River WRRF	Sewage Treatment Facilities	42.6392	-83.2547	Pontiac	0.0000	0.0000
Oakland	Aramco Services Company	Research and Development in the Physical, Engineering, and Life Sciences (except Nanotechnology and Biotechnology)	42.5127	-83.5085	Novi	0.0000	0.0000
St. Clair	St. Clair / Belle River Power Plant	Fossil Fuel Electric Power Generation	42.7687	-82.4855	China Twp	17036.1031	66.7443
St. Clair	DTE Gas Company - Belle River Compressor Station	Natural Gas Distribution	42.788	-82.5306	China	426.8292	1.6722
St. Clair	E.B. Eddy Paper, Inc.	Paper (except Newsprint) Mills	42.98713	-82.440658	Port Huron	324.7838	1.2724

Southeast Michigan 2014 National Emissions Inventory NOx and VOC Point Emission Sources

St. Clair	Consumers Energy - St. Clair Compressor Station	Pipeline Transportation of Natural Gas	42.7194	-82.7157	Ira Twp	260.9867	1.0225
St. Clair	Cargill Salt - St. Clair	Spice and Extract Manufacturing	42.8184	-82.4858	St. Clair	161.4630	0.6326
St. Clair	DTE Electric Company - Greenwood Energy Center	Fossil Fuel Electric Power Generation	43.10546	-82.697602	Avoca	147.9257	0.5795
St. Clair	DTE Gas Company - Columbus Compressor Station	Natural Gas Distribution	42.8505	-82.6759	Richmond	64.6560	0.2533
St. Clair	Marysville Ethanol, LLC	Ethyl Alcohol Manufacturing	42.8825	-82.4948	Marysville	33.3500	0.1307
St. Clair	Bluewater Gas Storage Facility	Pipeline Transportation of Natural Gas	42.8924	-82.6682	Columbus	25.7120	0.1007
St. Clair	Dunn Paper, Inc.	Paper (except Newsprint) Mills	43.0047	-82.4233	Port Huron	18.9507	0.0742
St. Clair	Blue Water Renewables	Other Electric Power Generation	42.9158	-82.5945	Smiths Creek	17.0250	0.0667
St. Clair	Intertape Polymer Group	Paper Bag and Coated and Treated Paper Manufacturing	42.8841	-82.4825	Marysville	11.4205	0.0447
St. Clair	ZF Axle Drives Marysville	Motor Vehicle Transmission and Power Train Parts Manufacturing	42.8748	-82.4795	Marysville	10.6100	0.0416
St. Clair	Bluewater Gas Storage, LLC - Kimball Gas Storage	Pipeline Transportation of Natural Gas	42.9265	-82.5506	Kimball Twp	9.4850	0.0372
St. Clair	Flint Hills Resources Marysville, LLC	Plastics Material and Resin Manufacturing	42.88439	-82.494863	Marysville	8.5671	0.0336
St. Clair	SEMCO Energy Gas Company - Morton Wells Facility	Pipeline Transportation of Natural Gas	42.9285	-82.4754	Marysville	4.6130	0.0181
St. Clair	FCA US LLC	Automobile and Other Motor Vehicle Merchant Wholesalers	42.9046	-82.4729	Marysville	4.0799	0.0160
St. Clair	Mueller Brass Co..	Other Nonferrous Metal Foundries (except Die-Casting)	42.9783	-82.4498	Port Huron	2.8280	0.0111

Southeast Michigan 2014 National Emissions Inventory NOx and VOC Point Emission Sources

St. Clair	Ace Asphalt & Paving Co., Inc. - Plant 4	Asphalt Paving Mixture and Block Manufacturing	42.9598	-82.498	Port Huron	2.5276	0.0099
St. Clair	SMR Automotive Systems USA, Inc.	Other Motor Vehicle Parts Manufacturing	42.8978	-82.4836	Marysville	2.4445	0.0096
St. Clair	Marysville Hydrocarbons, LLC.	Other Warehousing and Storage	42.88313	-82.494401	Marysville	2.0384	0.0080
St. Clair	SEMCO Energy Gas Company - Collin Field	Pipeline Transportation of Natural Gas	42.671	-82.5833	Starrville	1.5935	0.0062
St. Clair	TI Fluid Systems, (Formerly TI Group Auto , Marys)	Motor Vehicle Brake System Manufacturing	42.9322	-82.4595	Marysville	1.1735	0.0046
St. Clair	St. Clair County Intl	Airport Operations	42.91096	-82.52886	Port Huron	0.8593	0.0034
St. Clair	Smiths Creek Landfill	Solid Waste Landfill	42.9096	-82.5948	Smiths Creek	0.7880	0.0031
St. Clair	Marine City	Airport Operations	42.72087	-82.59575	Marine City	0.2744	0.0011
St. Clair	Michigan Metal Coatings	Metal Coating, Engraving (except Jewelry and Silverware), and Allied Services to Manufacturers	42.9529	-82.4478	Port Huron	0.1715	0.0007
St. Clair	ANR Pipeline Company - Capac Compressor Station	Pipeline Transportation of Natural Gas	43.0388	-82.9464	Capac	0.1246	0.0005
St. Clair	Yale	Airport Operations	43.1125	-82.7874	Yale	0.0069	0.0000
St. Clair	BPS	Airport Operations	43.007	-82.6013	Ruby	0.0059	0.0000
St. Clair	Port Huron Hospital	Airport Operations	42.9868	-82.4292	Port Huron	0.0059	0.0000
St. Clair	Hawks Landing	Airport Operations	42.715	-82.5864	Marine City	0.0059	0.0000
St. Clair	Janski	Airport Operations	42.6917	-82.5574	Marine City	0.0059	0.0000
St. Clair	Davids Landing	Airport Operations	42.7978	-82.5365	St. Clair	0.0051	0.0000
St. Clair	Avoca	Airport Operations	43.03	-82.6694	Avoca	0.0051	0.0000
St. Clair	Gavagan Fld	Airport Operations	43.1034	-82.8902	Yale	0.0034	0.0000
St. Clair	Sharpes Strip	Airport Operations	42.9516	-82.7759	Emmett	0.0034	0.0000
St. Clair	Harsens Island	Airport Operations	42.5894	-82.5757	Harsens Island	0.0034	0.0000
St. Clair	Crystal	Airport Operations	42.8317	-82.5346	St. Clair	0.0028	0.0000
St. Clair	Wards Long Acres	Airport Operations	42.7292	-82.6652	Fair Haven	0.0027	0.0000

Southeast Michigan 2014 National Emissions Inventory NOx and VOC Point Emission Sources

St. Clair	Fasel Field	Airport Operations	43.0578	-82.6769	Avoca	0.0025	0.0000
St. Clair	Wenning Landing Area	Airport Operations	42.7556	-82.5582	Marine City	0.0025	0.0000
St. Clair	Adair Airstrip	Airport Operations	42.7923	-82.6394	Richmond	0.0025	0.0000
St. Clair	Robertson Field	Airport Operations	42.7989	-82.6588	Richmond	0.0025	0.0000
St. Clair	Johnson Field	Airport Operations	42.9211	-82.5855	Smiths Creek	0.0017	0.0000
St. Clair	Harsens Island	Airport Operations	42.59223	-82.57195	Harsens Island	0.0017	0.0000
St. Clair	Norton Field	Airport Operations	42.9714	-82.8478	Riley	0.0000	0.0000
St. Clair	Hess Asphalt Paving	Asphalt Paving Mixture and Block Manufacturing	42.9927	-82.5763	Clyde Twp	0.0000	0.0000
St. Clair	Tunnel Yard (Sarnia)	Support Activities for Rail Transportation	42.96372	-82.471249	Unknown	0.0000	0.0000
Washtenaw	University of Michigan	Colleges, Universities, and Professional Schools	42.2839	-83.7312	Ann Arbor	359.6352	0.9815
Washtenaw	Consumers Energy - Freedom Compressor Station	Pipeline Transportation of Natural Gas	42.20621	-83.96926	Manchester	237.6237	0.6485
Washtenaw	Green for Life Environmental Arbor Hills Landfill	Solid Waste Landfill	42.3969	-83.5575	Northville	78.7895	0.2150
Washtenaw	Eastern Michigan University	Colleges, Universities, and Professional Schools	42.2489	-83.6289	Ypsilanti	73.9949	0.2019
Washtenaw	St. Joseph Mercy Hospital	General Medical and Surgical Hospitals	42.2652	-83.6531	Ann Arbor	13.7706	0.0376
Washtenaw	Faurecia Interior Systems Saline, LLC	Motor Vehicle Seating and Interior Trim Manufacturing	42.18014	-83.751795	Saline	13.1078	0.0358
Washtenaw	Ford Motor Co., Rawsonville Plant	Motor Vehicle Gasoline Engine and Engine Parts Manufacturing	42.2	-83.5581	Ypsilanti	11.8883	0.0324
Washtenaw	V A Medical Center	General Medical and Surgical Hospitals	42.2853	-83.7139	Ann Arbor	7.1795	0.0196
Washtenaw	Federal Mogul Powertrain, Inc.	Motor Vehicle Transmission and Power Train Parts Manufacturing	42.214	-83.7392	Ann Arbor	6.6870	0.0182
Washtenaw	Hyundai America Technical Center Inc. (HATCI)	Testing Laboratories	42.2715	-83.6256	Superior Twp	6.4377	0.0176

Southeast Michigan 2014 National Emissions Inventory NOx and VOC Point Emission Sources

Washtenaw	AVL Powertrain Engineering	Testing Laboratories	42.2317	-83.7211	Ann Arbor	5.9945	0.0164
Washtenaw	B.O.P. Federal Correctional Institute	Correctional Institutions	42.0943	-83.6723	Milan	5.9870	0.0163
Washtenaw	Toyota Motor North America R&D	Research and Development in the Physical, Engineering, and Life Sciences (except Nanotechnology and Biotechnology)	42.2969	-83.6765	Ann Arbor	4.0584	0.0111
Washtenaw	LOTUS ENGINEERING INC	Testing Laboratories	42.2964	-83.7465	Ann Arbor	3.9633	0.0108
Washtenaw	DTE Gas Company - Willow Run Compressor Station	Pipeline Transportation of Natural Gas	42.2528	-83.5517	Ypsilanti	3.0805	0.0084
Washtenaw	Georgia-Pacific Corrugated LLC	Corrugated and Solid Fiber Box Manufacturing	42.0854	-83.6676	Milan	2.8065	0.0077
Washtenaw	AW Technical Center USA, Inc. (AW-TC)	Testing Laboratories	42.2919	-83.6764	Ann Arbor	2.7747	0.0076
Washtenaw	Ypsilanti Comm. Utilities Authority	Sewage Treatment Facilities	42.2273	-83.5552	Ypsilanti	2.5847	0.0071
Washtenaw	Ann Arbor Muni	Airport Operations	42.2209	-83.7505	Ann Arbor	2.3988	0.0065
Washtenaw	Pollard (U.S.) LTD	Commercial Gravure Printing	42.22385	-83.624387	Ypsilanti	2.2650	0.0062
Washtenaw	Cadillac Asphalt, LLC, Ann Arbor	Asphalt Paving Mixture and Block Manufacturing	42.2702	-83.7981	Ann Arbor	2.0565	0.0056
Washtenaw	Stoneco of Michigan, Pleasant Hills	Construction Sand and Gravel Mining	42.2084	-83.9726	Manchester	1.0995	0.0030
Washtenaw	Edwards Brothers, Inc.	Books Printing	42.2514	-83.7417	Ann Arbor	0.9300	0.0025
Washtenaw	Racer Trust - Willow Run Plant Industrial Land	Trusts, Estates, and Agency Accounts	42.2408	-83.5504	Ypsilanti	0.8110	0.0022
Washtenaw	Kaiser Optical Systems, Inc.	Optical Instrument and Lens Manufacturing	42.2795	-83.8107	Ann Arbor	0.3290	0.0009
Washtenaw	Rossettie	Airport Operations	42.195	-84.0308	Manchester	0.0202	0.0001
Washtenaw	Larsen Air Park	Airport Operations	42.1767	-83.5458	Belleville	0.0171	0.0000
Washtenaw	Downwind Acres	Airport Operations	42.1528	-83.5674	Willis	0.0069	0.0000

Southeast Michigan 2014 National Emissions Inventory NOx and VOC Point Emission Sources

Washtenaw	C M H S	Airport Operations	42.2645	-83.6541	Ypsilanti	0.0059	0.0000
Washtenaw	Overflow Pad (Lower Pad)	Airport Operations	42.2889	-83.7305	Ann Arbor	0.0059	0.0000
Washtenaw	White Omorn	Airport Operations	42.2526	-84.0074	Chelsea	0.0059	0.0000
Washtenaw	UMMC	Airport Operations	42.2859	-83.728	Ann Arbor	0.0059	0.0000
Washtenaw	Cackleberry	Airport Operations	42.425	-83.8694	Dexter	0.0034	0.0000
Washtenaw	Winters Field	Airport Operations	42.305	-84.1067	Chelsea	0.0030	0.0000
Washtenaw	Gooding	Airport Operations	42.3764	-83.7927	Whitmore Lake	0.0030	0.0000
Washtenaw	Trudeau	Airport Operations	42.08793	-83.765519	Milan	0.0030	0.0000
Washtenaw	DTE Electric Company - Superior Peaking Facility	Fossil Fuel Electric Power Generation	42.2645	-83.6427	Superior Twp	0.0013	0.0000
Washtenaw	City of Chelsea	Fossil Fuel Electric Power Generation	42.3185	-84.0312	Chelsea	0.0000	0.0000
Wayne	DTE Electric Company - River Rouge Power Plant	Fossil Fuel Electric Power Generation	42.2727	-83.1124	River Rouge	3683.8695	11.3750
Wayne	DTE Electric Company - Trenton Channel Power Plant	Fossil Fuel Electric Power Generation	42.1237	-83.1812	Trenton	3113.5360	9.6139
Wayne	Detroit Metropolitan Wayne County	Airport Operations	42.2072	-83.3731	Detroit	1997.3402	6.1674
Wayne	U S Steel Great Lakes Works	Iron and Steel Mills and Ferroalloy Manufacturing	42.2774	-83.1103	Ecorse	1185.0665	3.6592
Wayne	EES Coke Battery, LLC	All Other Petroleum and Coal Products Manufacturing	42.2811	-83.1113	River Rouge	1072.5394	3.3118
Wayne	Detroit Renewable Power, LLC	Solid Waste Combustors and Incinerators	42.36865	-83.051749	Detroit	843.1825	2.6036
Wayne	Carmeuse Lime, Inc., River Rouge Operation	Lime Manufacturing	42.2778	-83.1279	River Rouge	615.0000	1.8990
Wayne	AK Steel - Dearborn Works	Iron and Steel Mills and Ferroalloy Manufacturing	42.30174	-83.162934	Dearborn	465.6578	1.4379
Wayne	Marathon Petroleum Company LP	Petroleum Refineries	42.2841	-83.1527	Detroit	430.4626	1.3292
Wayne	Mahle Powertrain, LLC	Testing Laboratories	42.3906	-83.5136	Plymouth	412.5836	1.2740

Southeast Michigan 2014 National Emissions Inventory NOx and VOC Point Emission Sources

Wayne	Dearborn Industrial Generation	Fossil Fuel Electric Power Generation	42.3041	-83.1521	Dearborn	342.8606	1.0587
Wayne	GLWA Water Resource Recovery Facility	Sewage Treatment Facilities	42.2852	-83.1281	Detroit	256.7925	0.7929
Wayne	Wyandotte Dept. Muni. Power Plant	Fossil Fuel Electric Power Generation	42.2082	-83.1456	Wyandotte	186.2225	0.5750
Wayne	Flat Rock	Support Activities for Rail Transportation	42.11507	-83.259699	Unknown	148.4050	0.4582
Wayne	Carleton Farms Landfill	Solid Waste Landfill	42.0937	-83.4301	New Boston	104.1428	0.3216
Wayne	Detroit Thermal Beacon Heating Plant	Steam and Air-Conditioning Supply	42.3384	-83.0442	Detroit	93.2365	0.2879
Wayne	General Motors, LLC Detroit - Hamtramck Assembly	Automobile Manufacturing	42.38197	-83.044919	Detroit	93.0272	0.2872
Wayne	Ford Motor Co., Elm Street Boilerhouse	Steam and Air-Conditioning Supply	42.3061	-83.2371	Dearborn	84.8600	0.2620
Wayne	Ford Motor Co., Research & Dev. Ctr.	Research and Development in the Physical, Engineering, and Life Sciences (except Nanotechnology and Biotechnology)	42.2959	-83.2341	Dearborn	80.1885	0.2476
Wayne	Consumers Energy - Northville Compressor Station	Pipeline Transportation of Natural Gas	42.4281	-83.5467	Northville	67.5735	0.2087
Wayne	Ford Motor Co./ Wayne Complex	Automobile Manufacturing	42.2759	-83.4121	Wayne	63.9850	0.1976
Wayne	FCA US LLC - Jefferson North Assembly Plant	Light Truck and Utility Vehicle Manufacturing	42.3747	-82.969	Detroit	62.5865	0.1933
Wayne	Ford Motor Company - Flat Rock Assembly	Automobile Manufacturing	42.10621	-83.247708	Flat Rock	56.8158	0.1754
Wayne	Ford Motor Co. Auto Transmis. New Product Cntr.	Research and Development in the Physical, Engineering, and Life Sciences (except Nanotechnology and Biotechnology)	42.3718	-83.3914	Livonia	55.6815	0.1719

Southeast Michigan 2014 National Emissions Inventory NOx and VOC Point Emission Sources

Wayne	Ford Motor Co. Rouge Complex	Light Truck and Utility Vehicle Manufacturing	42.30313	-83.164754	Dearborn	55.1177	0.1702
Wayne	Detroit Diesel Corp.	Other Engine Equipment Manufacturing	42.3776	-83.2701	Detroit	50.1355	0.1548
Wayne	Wyandotte	Support Activities for Rail Transportation	42.18927	-83.165277	Unknown	46.1380	0.1425
Wayne	Woodland Meadows RDF	Solid Waste Landfill	42.2666	-83.4314	Wayne	34.3791	0.1062
Wayne	Wayne State University	Colleges, Universities, and Professional Schools	42.3574	-83.0702	Detroit	33.9373	0.1048
Wayne	US Ecology Michigan	Hazardous Waste Treatment and Disposal	42.2237	-83.5185	Belleville	32.3800	0.1000
Wayne	Roush Industries	Engineering Services	42.3737	-83.4041	Livonia	31.9135	0.0985
Wayne	Ford Motor Co./ Livonia Transmission	Motor Vehicle Transmission and Power Train Parts Manufacturing	42.3713	-83.3977	Livonia	28.5832	0.0883
Wayne	Livernois	Support Activities for Rail Transportation	42.32167	-83.120382	Unknown	27.2825	0.0842
Wayne	West Bay Exploration Company-Livonia 6 CTB	Support Activities for Oil and Gas Operations	42.4241	-83.4236	Livonia	26.8850	0.0830
Wayne	Rougemere	Support Activities for Rail Transportation	42.30535	-83.150769	Unknown	25.1191	0.0776
Wayne	Henry Ford Hospital	General Medical and Surgical Hospitals	42.3679	-83.0847	Detroit	24.0038	0.0741
Wayne	Oakwood	Support Activities for Rail Transportation	42.27746	-83.176855	Unknown	23.6524	0.0730
Wayne	Riverview Land Preserve	Solid Waste Landfill	42.16055	-83.21257	Riverview	23.2886	0.0719
Wayne	Willow Run	Airport Operations	42.2379	-83.5414	Detroit	22.7217	0.0702
Wayne	Detroit Metropolitan Wayne County Airport	Other Airport Operations	42.2179	-83.3511	Detroit	18.6630	0.0576
Wayne	Ford Motor Co. Brownstown	Motor Vehicle Supplies and New Parts Merchant Wholesalers	42.1764	-83.2855	Romulus	17.1834	0.0531
Wayne	FCA US LLC Trenton Engine Complex	Motor Vehicle Gasoline Engine and Engine Parts Manufacturing	42.1301	-83.1923	Trenton	16.7889	0.0518

Southeast Michigan 2014 National Emissions Inventory NOx and VOC Point Emission Sources

Wayne	Sauk Trail Hills Development	Solid Waste Landfill	42.2703	-83.4563	Canton Twp.	15.8400	0.0489
Wayne	FCA US LLC - Mack Avenue Engine Plant	Other Engine Equipment Manufacturing	42.3793	-82.9677	Detroit	15.2297	0.0470
Wayne	AVL Powertrain Engineering, Inc.	Other Engine Equipment Manufacturing	42.3845	-83.5112	Plymouth	15.0020	0.0463
Wayne	City Sand & Landfill, Inc.	Solid Waste Landfill	42.11009	-83.494311	Sumpter Twp.	14.4068	0.0445
Wayne	Ajax Metal Processing, Inc..	Electroplating, Plating, Polishing, Anodizing, and Coloring	42.369	-83.0222	Detroit	13.8236	0.0427
Wayne	RMT Woodworth Heat Treat	Metal Heat Treating	42.395	-83.4977	Plymouth	13.5300	0.0418
Wayne	Federal-Mogul Powertrain, LLC	Testing Laboratories	42.3865	-83.505	Plymouth	12.6775	0.0391
Wayne	John D. Dingell VA Medical Center	General Medical and Surgical Hospitals	42.3561	-83.0594	Detroit	12.3702	0.0382
Wayne	Wayne State University	Support Activities for Rail Transportation	42.27831	-83.398021	Unknown	11.9842	0.0370
Wayne	Ford	Support Activities for Rail Transportation	42.37495	-83.396274	Unknown	11.9032	0.0368
Wayne	Beaumont Hospital - Dearborn	General Medical and Surgical Hospitals	42.2908	-83.2149	Dearborn	9.6674	0.0299
Wayne	Sumpter Generating Plant	Fossil Fuel Electric Power Generation	42.167	-83.532	Belleville	9.6574	0.0298
Wayne	Praxair, Inc.	Industrial Gas Manufacturing	42.2619	-83.1251	River Rouge	9.3630	0.0289
Wayne	East	Support Activities for Rail Transportation	42.40001	-83.041654	Unknown	8.8163	0.0272
Wayne	AmCane Sugar, LLC	Cane Sugar Manufacturing	42.2634	-83.2428	Taylor	8.5950	0.0265
Wayne	Ford Motor Co.	Office Administrative Services	42.3147	-83.2101	Dearborn	8.3172	0.0257
Wayne	Ford Motor Co., Woodhaven Stamping Plant	Motor Vehicle Metal Stamping	42.1423	-83.2364	Woodhaven	8.1985	0.0253
Wayne	North Yard (Plymouth)	Support Activities for Rail Transportation	42.38512	-83.468684	Unknown	7.3915	0.0228
Wayne	Ajax Materials Corp.	Asphalt Paving Mixture and Block Manufacturing	42.2438	-83.3107	Romulus	6.8704	0.0212

Southeast Michigan 2014 National Emissions Inventory NOx and VOC Point Emission Sources

Wayne	Fitzgerald Finishing, LLC	Metal Coating, Engraving (except Jewelry and Silverware), and Allied Services to Manufacturers	42.4229	-83.0369	Detroit	6.7150	0.0207
Wayne	Great Lakes Petroleum Terminal, LLC	Petroleum Bulk Stations and Terminals	42.2882	-83.1432	Detroit	6.5550	0.0202
Wayne	University MI Dearborn	Colleges, Universities, and Professional Schools	42.3194	-83.2325	Dearborn	6.5344	0.0202
Wayne	General Motors Romulus Engine Plant	Motor Vehicle Gasoline Engine and Engine Parts Manufacturing	42.2552	-83.4027	Romulus	6.4450	0.0199
Wayne	Cadillac Asphalt Products	Asphalt Paving Mixture and Block Manufacturing	42.2917	-83.1567	Detroit	6.1280	0.0189
Wayne	Cadillac Asphalt LLC, Rawsonville	Asphalt Paving Mixture and Block Manufacturing	42.2206	-83.541	Belleville	6.0140	0.0186
Wayne	Ascension St. John Hospital	General Medical and Surgical Hospitals	42.4197	-82.9134	Detroit	6.0095	0.0186
Wayne	Ford Sheldon Road Plant	Special Die and Tool, Die Set, Jig, and Fixture Manufacturing	42.3881	-83.4841	Plymouth	5.6340	0.0174
Wayne	Flat Rock Metal, Inc.	Electroplating, Plating, Polishing, Anodizing, and Coloring	42.099	-83.2993	Flat Rock	5.1327	0.0158
Wayne	BASF Corp.	All Other Basic Organic Chemical Manufacturing	42.2192	-83.14674	Wyandotte	5.0335	0.0155
Wayne	3M Detroit Abrasives	Abrasive Product Manufacturing	42.4478	-83.0029	Detroit	4.9446	0.0153
Wayne	US Silica Co.	Industrial Sand Mining	42.0609	-83.2301	Rockwood	4.6985	0.0145
Wayne	Darling Ingredients Inc.	Rendering and Meat Byproduct Processing	42.2905	-83.1724	Melvindale	4.3390	0.0134
Wayne	Detroit City	Airport Operations	42.4108	-83.0163	Detroit	4.0620	0.0125
Wayne	DTE Electric Company - Delray Power Plant	Fossil Fuel Electric Power Generation	42.29525	-83.10284	Detroit	3.9220	0.0121
Wayne	Fritz Products	Secondary Smelting and Alloying of Aluminum	42.2732	-83.1208	River Rouge	3.5113	0.0108
Wayne	Walter P. Reuther Psychiatric Hospital	Psychiatric and Substance Abuse Hospitals	42.2948	-83.345811	Westland	3.3460	0.0103

Southeast Michigan 2014 National Emissions Inventory NOx and VOC Point Emission Sources

Wayne	Beaumont Hospital - Wayne	General Medical and Surgical Hospitals	42.27312	-83.365174	Wayne	3.2000	0.0099
Wayne	Valassis Manufacturing Company	Commercial Gravure Printing	42.3797	-83.3973	Livonia	3.1900	0.0099
Wayne	Aunt Millies Bakeries, Plymouth	Commercial Bakeries	42.3875	-83.4951	Plymouth	3.1865	0.0098
Wayne	St Marys Cement	Cement Manufacturing	42.2853	-83.1364	Detroit	3.0856	0.0095
Wayne	Plastipak Packaging, Inc.	Plastics Bottle Manufacturing	42.3181	-83.4186	Westland	3.0610	0.0095
Wayne	Excel Engineering	Engineering Services	42.2372	-83.4409	Van Buren Twp.	2.8671	0.0089
Wayne	Beaumont Health Trenton Hospital	General Medical and Surgical Hospitals	42.1178	-83.2137	Trenton	2.8485	0.0088
Wayne	Cadon Acquisitions, LLC	Electroplating, Plating, Polishing, Anodizing, and Coloring	42.19502	-83.165319	Wyandotte	2.8100	0.0087
Wayne	Johnson Matthey, Inc.	Testing Laboratories	42.2147	-83.2738	Taylor	2.5750	0.0080
Wayne	Quaker Chemical Corp.	Petroleum Lubricating Oil and Grease Manufacturing	42.3927	-83.1635	Detroit	2.5245	0.0078
Wayne	Cadillac Asphalt, LLC, Romulus	Asphalt Paving Mixture and Block Manufacturing	42.2044	-83.3995	Romulus	2.2420	0.0069
Wayne	South	Support Activities for Rail Transportation	42.25385	-83.135159	Unknown	1.5663	0.0048
Wayne	Durr Systems, Inc.	All Other Miscellaneous Fabricated Metal Product Manufacturing	42.3747	-83.4424	Plymouth	1.2555	0.0039
Wayne	BASF Corp.	Plastics Material and Resin Manufacturing	42.3775	-83.401388	Livonia	1.1930	0.0037
Wayne	Canton-Plymouth-Metteta	Airport Operations	42.35004	-83.45827	Plymouth	1.0622	0.0033
Wayne	Canton Renewables, LLC	Natural Gas Distribution	42.2753	-83.4561	Canton Twp.	1.0435	0.0032
Wayne	Maksteel Processing, LLC I A Union Parteners Co.	Metal Service Centers and Other Metal Merchant Wholesalers	42.3194	-83.1518	Dearborn	1.0150	0.0031
Wayne	Detroit Public Lighting Dept.	Fossil Fuel Electric Power Generation	42.3031	-83.0904	Detroit	0.9415	0.0029

Southeast Michigan 2014 National Emissions Inventory NOx and VOC Point Emission Sources

Wayne	Gibraltar National Corp. / Quikrete Detroit	All Other Miscellaneous Nonmetallic Mineral Product Manufacturing	42.36038	-83.179844	Detroit	0.8960	0.0028
Wayne	Alpha Resins, LLC	Plastics Material and Resin Manufacturing	42.4211	-83.0623	Detroit	0.8931	0.0028
Wayne	Taylor East Terminal - Buckeye (was Atlas Oil Co.)	General Warehousing and Storage	42.25505	-83.274415	Taylor	0.8405	0.0026
Wayne	Wayne Co. Comm. College Eastern	Junior Colleges	42.3941	-82.9866	Detroit	0.7300	0.0023
Wayne	Ford Engine Mfg. Development Operations	Engineering Services	42.2645	-83.22	Allen Park	0.7266	0.0022
Wayne	Wayne Co. Comm. College Downriver	Junior Colleges	42.2149	-83.2411	Taylor	0.7200	0.0022
Wayne	Grosse Ile Muni	Airport Operations	42.09861	-83.16106	Detroit/Grosse Ile	0.6589	0.0020
Wayne	United States Gypsum Co.	Gypsum Product Manufacturing	42.2806	-83.1331	River Rouge	0.6496	0.0020
Wayne	IAV Automotive Engineering Inc.	Testing Laboratories	42.3977	-83.5053	Northville	0.6016	0.0019
Wayne	Huron Valley Steel Corp.	Materials Recovery Facilities	42.21173	-83.440073	Belleville	0.5535	0.0017
Wayne	Meiden America Inc.	Testing Laboratories	42.3971	-83.4995	Northville Twp.	0.4957	0.0015
Wayne	Ilmor Engineering, Inc.	Motor Vehicle Gasoline Engine and Engine Parts Manufacturing	42.3836	-83.4709	Plymouth Twp.	0.4530	0.0014
Wayne	BASF Corp.	Custom Compounding of Purchased Resins	42.2215	-83.1472	Wyandotte	0.4495	0.0014
Wayne	GSA - Federal Building	Public Finance Activities	42.331	-83.0589	Detroit	0.3875	0.0012
Wayne	Cygnet Automated Cleaning, LLC	Paint and Coating Manufacturing	42.3883	-83.4933	Plymouth	0.3834	0.0012
Wayne	Detroit Thermal Blvd. Heating Plant	Steam and Air-Conditioning Supply	42.367	-83.075	Detroit	0.3150	0.0010
Wayne	Kerr Corporation / Romo Manufacturing	Medical, Dental, and Hospital Equipment and Supplies Merchant Wholesalers	42.2402	-83.3168	Romulus	0.3144	0.0010

Southeast Michigan 2014 National Emissions Inventory NOx and VOC Point Emission Sources

Wayne	DTE Energy Serv-Ford Motor Co. World Headquarters	Fossil Fuel Electric Power Generation	42.3179	-83.2057	Dearborn	0.3117	0.0010
Wayne	Wayne Co. Comm. College Western	Junior Colleges	42.2324	-83.4391	Belleville	0.3100	0.0010
Wayne	McLaren Performance Technologies	Engineering Services	42.44025	-83.364499	Livonia	0.3067	0.0009
Wayne	DTE (Emergency Generators at Ford R&E Center	Fossil Fuel Electric Power Generation	42.2941	-83.2346	Dearborn	0.2945	0.0009
Wayne	Toyota Motor North America	Research and Development in the Physical, Engineering, and Life Sciences (except Nanotechnology and Biotechnology)	42.3894	-83.4931	Plymouth Twp.	0.2080	0.0006
Wayne	Johnson Matthey, Inc.	Testing Laboratories	42.2182	-83.2811	Taylor	0.1330	0.0004
Wayne	Marathon Pipe Line LLC (Woodhaven)	Petroleum Bulk Stations and Terminals	42.1308	-83.228161	Woodhaven	0.1230	0.0004
Wayne	Detroit Thermal Henry Heating Plant	Steam and Air-Conditioning Supply	42.3366	-83.062	Detroit	0.1065	0.0003
Wayne	New Boston RTM, Inc.	All Other Plastics Product Manufacturing	42.164	-83.394	New Boston	0.0716	0.0002
Wayne	Process Prototype, Inc.	Iron Foundries	42.23954	-83.311454	Romulus	0.0688	0.0002
Wayne	Advance Engineering Co.	Metal Crown, Closure, and Other Metal Stamping (except Automotive)	42.3738	-83.2834	Redford Twp.	0.0500	0.0002
Wayne	Fabricon Products, Inc.	Commercial Gravure Printing	42.2776	-83.138	River Rouge	0.0490	0.0002
Wayne	Nortru, LLC	Hazardous Waste Treatment and Disposal	42.36278	-82.96459	Detroit	0.0430	0.0001
Wayne	Buckeye Terminals, LLC - River Rouge Terminal	Other Warehousing and Storage	42.2761	-83.1236	River Rouge	0.0337	0.0001
Wayne	A123 Systems	Storage Battery Manufacturing	42.2519	-83.4147	Romulus	0.0331	0.0001
Wayne	Henry Ford Hospital	Airport Operations	42.3675	-83.0844	Detroit	0.0059	0.0000
Wayne	L & L	Airport Operations	42.1633	-83.3453	Huron Twp.	0.0059	0.0000

Wayne	Grace Hospital	Airport Operations	42.4178	-83.183	Detroit	0.0059	0.0000
Wayne	A T I	Airport Operations	42.2209	-83.4766	Belleville	0.0059	0.0000
Wayne	Detroit Medical Center	Airport Operations	42.357	-83.0577	Detroit	0.0059	0.0000
Wayne	Oakwood Hospital	Airport Operations	42.2917	-83.2136	Dearborn	0.0059	0.0000
Wayne	St. Mary Hospital	Airport Operations	42.4278	-83.4041	Livonia	0.0059	0.0000
Wayne	Dearborn Helistop	Airport Operations	42.2973	-83.2271	Dearborn	0.0059	0.0000
Wayne	Fairlane Plaza	Airport Operations	42.3209	-83.2194	Dearborn	0.0059	0.0000
Wayne	Henry Ford Wyandotte Hospital	Airport Operations	42.2084	-83.1442	Wyandotte	0.0059	0.0000
Wayne	WDIV-TV Channel 4	Airport Operations	42.3298	-83.0535	Detroit	0.0059	0.0000
Wayne	Executive	Airport Operations	42.3481	-83.4539	Plymouth/ Canton	0.0059	0.0000
Wayne	Oakwood Heritage Hospital	Airport Operations	42.23639	-83.276388	Taylor	0.0059	0.0000
Wayne	Envirosolids, LLC	Other Nonhazardous Waste Treatment and Disposal	42.3336	-83.1604	Dearborn	0.0026	0.0000
Wayne	Sunoco Partners Mkting & Terminals LP - River Rouge	Other Warehousing and Storage	42.2938	-83.154857	Detroit	0.0010	0.0000
Wayne	Wayne Co. Comm. College Northwest	Junior Colleges	42.3559	-83.1974	Detroit	0.0000	0.0000
Wayne	Buckeye Terminals, LLC - Woodhaven Terminal	General Warehousing and Storage	42.1359	-83.2337	Woodhaven	0.0000	0.0000
Wayne	Ford Motor Co. New Model Program Ctr.	Engineering Services	42.28897	-83.197331	Allen Park	0.0000	0.0000
Wayne	Fritz Enterprises, Inc.	Materials Recovery Facilities	42.1874	-83.2618	Taylor	0.0000	0.0000
Wayne	BASF Corporation	Unlaminated Plastics Profile Shape Manufacturing	42.2247	-83.1481	Wyandotte	0.0000	0.0000
Wayne	Buckeye Terminals LLC - Detroit Taylor Terminal	General Warehousing and Storage	42.2494	-83.2894	Taylor	0.0000	0.0000
Wayne	East Plymouth	Support Activities for Rail Transportation	42.38124	-83.444101	Unknown	0.0000	0.0000

Southeast Michigan 2014 Point Source Emissions Inventory
Volatile Organic Compounds (VOC)

County	Point Emission Source	Primary Facility Description	Site Latitude	Site Longitude	City	Total VOC Emissions (tons per year)	VOC Emissions (tons per ozone season day)
Livingston	Ventra Fowlerville, LLC	Other Motor Vehicle Parts Manufacturing	42.6603	-84.0888	Fowlerville	83.0968	0.2102
Livingston	Novares - Howell	Other Motor Vehicle Parts Manufacturing	42.6054	-83.9488	Howell	27.1919	0.0688
Livingston	Hartland Gas Plant	Oil and Gas Extraction	42.6181	-83.6885	Hartland	13.0350	0.0330
Livingston	Diamond Chrome Plating, Inc.	Electroplating, Plating, Polishing, Anodizing, and Coloring	42.60293	-83.932876	Howell	8.8150	0.0223
Livingston	Howell Compressor Station	Pipeline Transportation of Natural Gas	42.55525	-83.875049	Howell	8.4201	0.0213
Livingston	March Coatings, Inc.	Metal Coating, Engraving (except Jewelry and Silverware), and Allied Services to Manufacturers	42.5179	-83.7761	Brighton	5.6745	0.0144
Livingston	March Coatings Plant 2	Metal Coating, Engraving (except Jewelry and Silverware), and Allied Services to Manufacturers	42.51792	-83.770849	Brighton	5.3997	0.0137
Livingston	Asahi Kasei Plastics North America, Inc.	Custom Compounding of Purchased Resins	42.6487	-84.0563	Fowlerville	4.1306	0.0104
Livingston	Chem-Trend LP	All Other Miscellaneous Chemical Product and Preparation Manufacturing	42.6072	-83.9521	Howell	4.0598	0.0103
Livingston	Ajax Materials Corp.	Asphalt Paving Mixture and Block Manufacturing	42.4973	-83.6943	Brighton	3.7069	0.0094
Livingston	Livingston County	Airport Operations	42.6295	-83.98417	Howell	2.9553	0.0075

Southeast Michigan 2014 National Emissions Inventory NOx and VOC Point Emission Sources

Livingston	American Compounding Specialties	Custom Compounding of Purchased Resins	42.5192	-83.7641	Brighton	2.2944	0.0058
Livingston	Brighton	Airport Operations	42.56981	-83.77853	Brighton	1.3238	0.0033
Livingston	Maple Grove	Airport Operations	42.7171	-84.0619	Fowlerville	0.6017	0.0015
Livingston	Richmond Field	Airport Operations	42.4417	-84.0666	Gregory	0.5012	0.0013
Livingston	DTE Electric Company - Colfax Peaking Facility	Fossil Fuel Electric Power Generation	42.6586	-84.0944	Fowlerville	0.2546	0.0006
Livingston	Maple Grove	Airport Operations	42.7173	-84.0625	Fowlerville	0.2482	0.0006
Livingston	Johnston Field	Airport Operations	42.6092	-83.8139	Howell	0.0127	0.0000
Livingston	Ponderosa	Airport Operations	42.6292	-83.6831	Highland	0.0075	0.0000
Livingston	Raether	Airport Operations	42.5653	-83.8565	Howell	0.0075	0.0000
Livingston	Haigh	Airport Operations	42.6125	-83.8541	Howell	0.0073	0.0000
Livingston	Cloud Nine Field	Airport Operations	42.5461	-84.1278	Webberville	0.0073	0.0000
Livingston	Cloud Nine East	Airport Operations	42.55114	-84.098288	Webberville	0.0068	0.0000
Livingston	Trollmans Field	Airport Operations	42.7392	-83.7549	Fenton	0.0066	0.0000
Livingston	McKenzies Landing	Airport Operations	42.6031	-83.8597	Howell	0.0063	0.0000
Livingston	Centurion Medical Products	Surgical Appliance and Supplies Manufacturing	42.60552	-83.913656	Howell	0.0047	0.0000
Livingston	VCF Films, Inc.	Unlaminated Plastics Film and Sheet (except Packaging) Manufacturing	42.6064	-83.9156	Howell	0.0044	0.0000
Livingston	Cadillac Asphalt, LLC	Asphalt Paving Mixture and Block Manufacturing	42.4341	-83.7644	Whitmore Lake	0.0000	0.0000
Macomb	FCA US LLC Warren Truck Assembly Plant	Light Truck and Utility Vehicle Manufacturing	42.45544	-83.040949	Warren	1522.3080	4.1497
Macomb	FCA US LLC Sterling Heights Assembly Plant	Automobile Manufacturing	42.56955	-83.033734	Sterling Hts	511.2190	1.3936
Macomb	Pine Tree Acres, Inc.	Solid Waste Landfill	42.7592	-82.7479	Lenox	122.1544	0.3330
Macomb	Selfridge Angb	Airport Operations	42.60087	-82.83714	Mount Clemens	101.0634	0.2755
Macomb	Shelby Foam Systems, a Division of Magna Seating	Urethane and Other Foam Product (except Polystyrene) Manufacturing	42.713	-83.0522	Shelby Twp	96.7899	0.2638

Southeast Michigan 2014 National Emissions Inventory NOx and VOC Point Emission Sources

Macomb	Axalta Coating Systems, LLC- Mt Clemens Plant	Paint and Coating Manufacturing	42.6122	-82.8858	Mount Clemens	63.3314	0.1726
Macomb	Romeo Rim, Inc.	All Other Plastics Product Manufacturing	42.83956	-83.018509	Romeo	61.9758	0.1689
Macomb	A G Simpson (USA), Inc.	Electroplating, Plating, Polishing, Anodizing, and Coloring	42.54325	-83.039527	Sterling Hts	61.7834	0.1684
Macomb	Warren Waste Water Treatment Plant	Sewage Treatment Facilities	42.53319	-83.019666	Warren	36.7272	0.1001
Macomb	LAFATA ENTERPRISES INC.	Wood Kitchen Cabinet and Countertop Manufacturing	42.6696	-82.9759	Shelby Twp	35.3850	0.0965
Macomb	Ford Motor Company - Romeo Engine Plant	Motor Vehicle Gasoline Engine and Engine Parts Manufacturing	42.8057	-82.9952	Romeo	33.9941	0.0927
Macomb	Ford Motor Company - Sterling Plant	Motor Vehicle Transmission and Power Train Parts Manufacturing	42.5835	-83.0448	Sterling Hts	33.4653	0.0912
Macomb	Curtis Metal Finishing Co	Metal Coating, Engraving (except Jewelry and Silverware), and Allied Services to Manufacturers	42.59	-83.0421	Sterling Hts	33.0907	0.0902
Macomb	Gannett Publishing Services	Newspaper Publishers	42.5642	-83.048	Sterling Hts	21.1638	0.0577
Macomb	DTE Gas Company - Washington 10 Compressor Station	Natural Gas Distribution	42.7678	-83.0057	Washington	20.9463	0.0571
Macomb	Sumpter Energy Associates	Other Electric Power Generation	42.7641	-82.7475	Lenox Twp	20.7550	0.0566
Macomb	Faurecia Interior Systems	Motor Vehicle Seating and Interior Trim Manufacturing	42.54154	-82.93816	Fraser	20.2277	0.0551
Macomb	Quala	All Other Miscellaneous Manufacturing	42.6653	-82.8501	Chesterfield	19.9676	0.0544
Macomb	Ceratizit USA, Inc.	Cutting Tool and Machine Tool Accessory Manufacturing	42.4705	-83.0104	Warren	17.3800	0.0474

Southeast Michigan 2014 National Emissions Inventory NOx and VOC Point Emission Sources

Macomb	Nylok LLC	Metal Coating, Engraving (except Jewelry and Silverware), and Allied Services to Manufacturers	42.6747	-82.9743	Macomb	16.9800	0.0463
Macomb	Carroll Products, Inc.	Commercial Gravure Printing	42.6176	-83.0426	Sterling Hts	16.9145	0.0461
Macomb	Consumers Energy - Ray Compressor Station	Pipeline Transportation of Natural Gas	42.8107	-82.8658	Armada	14.7994	0.0403
Macomb	GM Technical Center	Testing Laboratories	42.5169	-83.0391	Warren	14.3626	0.0392
Macomb	Progressive Finishing, Inc.	Other Motor Vehicle Parts Manufacturing	42.6718	-82.8439	Chesterfield	13.0300	0.0355
Macomb	Global Enterprises	Other Motor Vehicle Parts Manufacturing	42.6659	-82.8468	Chesterfield	12.8382	0.0350
Macomb	Nor Cote, Inc.	Metal Heat Treating	42.4683	-83.0093	Warren	11.9620	0.0326
Macomb	NJT Enterprises, LLC (Formally Mayco Plastics)	All Other Plastics Product Manufacturing	42.603	-83.0456	Sterling Hts	10.3118	0.0281
Macomb	Hilco Technologies	All Other Plastics Product Manufacturing	42.814	-82.9788	Armada	10.2465	0.0279
Macomb	Depor Industries	Metal Coating, Engraving (except Jewelry and Silverware), and Allied Services to Manufacturers	42.67039	-82.980565	Shelby Twp	9.9822	0.0272
Macomb	Pioneer Metal Finishing - Stephens Road	Metal Coating, Engraving (except Jewelry and Silverware), and Allied Services to Manufacturers	42.4734	-82.9891	Warren	9.1072	0.0248
Macomb	Pioneer Metal Finishing - Industrial Hwy	Metal Coating, Engraving (except Jewelry and Silverware), and Allied Services to Manufacturers	42.4762	-82.9885	Warren	8.3744	0.0228
Macomb	Ford Motor Company - Van Dyke Plant	Motor Vehicle Transmission and Power Train Parts Manufacturing	42.5974	-83.0349	Sterling Hts	7.5409	0.0206
Macomb	Burktek Enterprises, Inc.	Military Armored Vehicle, Tank, and Tank Component Manufacturing	42.6694	-82.8407	Chesterfield	6.6635	0.0182

Southeast Michigan 2014 National Emissions Inventory NOx and VOC Point Emission Sources

Macomb	Paint Work, Inc.	Metal Coating, Engraving (except Jewelry and Silverware), and Allied Services to Manufacturers	42.4782	-83.0816	Warren	5.6830	0.0155
Macomb	Ajax Materials Corporation	Asphalt Paving Mixture and Block Manufacturing	42.4875	-83.0392	Warren	5.3969	0.0147
Macomb	Selfridge Air National Guard Base	Other Nonscheduled Air Transportation	42.61952	-82.84478	Mount Clemens	4.5394	0.0124
Macomb	Ferro Industries, Inc.	Other Industrial Machinery Manufacturing	42.5553	-82.8638	Mount Clemens	4.1755	0.0114
Macomb	FCA US LLC Warren Stamping Plant	Motor Vehicle Metal Stamping	42.4611	-83.0436	Warren	3.7835	0.0103
Macomb	ANR Pipeline Co. - Muttonville Compressor Station	Pipeline Transportation of Natural Gas	42.7697	-82.7454	Muttonville	3.6611	0.0100
Macomb	Cadillac Asphalt - Shelby Plant	Asphalt Paving Mixture and Block Manufacturing	42.6756	-83.0075	Shelby Twp	3.3913	0.0092
Macomb	PPI Aerospace	Electroplating, Plating, Polishing, Anodizing, and Coloring	42.4678	-82.9877	Warren	3.1918	0.0087
Macomb	Hicks Plastics Company LLC	All Other Plastics Product Manufacturing	42.6729	-82.9695	Macomb	3.1533	0.0086
Macomb	Selfridge Plating, Inc.	Electroplating, Plating, Polishing, Anodizing, and Coloring	42.6037	-82.8524	Harrison Twp	2.9340	0.0080
Macomb	Henkel Corporation	All Other Miscellaneous Chemical Product and Preparation Manufacturing	42.4659	-83.0355	Warren	2.7286	0.0074
Macomb	Ray Community	Airport Operations	42.73753	-82.8902	Ray	2.1812	0.0059
Macomb	Wolverine Bronze Co	Aluminum Foundries (except Die-Casting)	42.5039	-82.968	Roseville	2.0157	0.0055
Macomb	U.S. Army Garrison - Detroit Arsenal	National Security	42.4979	-83.041	Warren	1.9887	0.0054
Macomb	Ajax Materials Corporation	Asphalt Paving Mixture and Block Manufacturing	42.7223	-82.8036	New Haven	1.8266	0.0050
Macomb	Cadillac Asphalt, LLC	Asphalt Paving Mixture and Block Manufacturing	42.601	-82.8927	Mount Clemens	1.4880	0.0041

Macomb	Electroplating Industries, Inc.	Electroplating, Plating, Polishing, Anodizing, and Coloring	42.6262	-82.9024	Clinton Twp	1.3445	0.0037
Macomb	Norbrook Plating, Inc.	Electroplating, Plating, Polishing, Anodizing, and Coloring	42.46378	-83.009942	Warren	1.2933	0.0035
Macomb	Specialty Steel Treating, Inc.	Metal Heat Treating	42.5505	-82.9432	Fraser	1.2466	0.0034
Macomb	Romeo State	Airport Operations	42.79699	-82.97527	Romeo	1.2277	0.0033
Macomb	Selfridge Technologies Div.	Electroplating, Plating, Polishing, Anodizing, and Coloring	42.7178	-82.7996	Chesterfield	1.0915	0.0030
Macomb	Vector Pipeline L.P. Washington Compressor Station	Pipeline Transportation of Natural Gas	42.7733	-83.0083	Washington	1.0548	0.0029
Macomb	MNP Corp.	All Other Miscellaneous Fabricated Metal Product Manufacturing	42.6207	-83.04	Utica	0.8906	0.0024
Macomb	FCA US LLC, Sterling Stamping Plant	Motor Vehicle Metal Stamping	42.55616	-83.033974	Sterling Hts	0.8658	0.0024
Macomb	ISP Coatings	Metal Coating, Engraving (except Jewelry and Silverware), and Allied Services to Manufacturers	42.8081	-82.9825	Romeo	0.8200	0.0022
Macomb	Wiegands Crushing, Inc.	Other Crushed and Broken Stone Mining and Quarrying	42.4601	-82.9947	Warren	0.5740	0.0016
Macomb	Pro Weld, LLC	All Other Miscellaneous Fabricated Metal Product Manufacturing	42.6695	-82.8499	Chesterfield	0.5510	0.0015
Macomb	Tweddle Group	Books Printing	42.6245	-82.8579	Clinton Twp	0.5201	0.0014
Macomb	Plast-O-Foam, LLC	All Other Plastics Product Manufacturing	42.6232	-82.859	Clinton Twp	0.4890	0.0013
Macomb	General Motors LLC - Warren Transmission Plant	Motor Vehicle Transmission and Power Train Parts Manufacturing	42.4667	-83.0404	Warren	0.3978	0.0011
Macomb	PPI Aerospace	Metal Coating, Engraving (except Jewelry and	42.4651	-82.9988	Warren	0.3528	0.0010

		Silverware), and Allied Services to Manufacturers					
Macomb	Burkard Industries, Inc.	Metal Coating, Engraving (except Jewelry and Silverware), and Allied Services to Manufacturers	42.5555	-82.9299	Clinton Twp	0.2583	0.0007
Macomb	American Metal Processing	Metal Heat Treating	42.4606	-83.0019	Warren	0.1879	0.0005
Macomb	Ferrous Processing and Trading Co. (SLC Recycling)	Secondary Smelting and Alloying of Aluminum	42.4513	-83.0152	Warren	0.0540	0.0001
Macomb	DTE Electric Company - Northeast Peaking Facility	Fossil Fuel Electric Power Generation	42.4506	-83.0383	Warren	0.0177	0.0000
Macomb	Grant Pad	Airport Operations	42.5445	-82.9316	Fraser	0.0127	0.0000
Macomb	TI	Airport Operations	42.6647	-83.0122	Utica	0.0127	0.0000
Macomb	Acme	Airport Operations	42.472	-83.011	Centerline	0.0127	0.0000
Macomb	Jott	Airport Operations	42.6609	-82.9963	Utica	0.0127	0.0000
Macomb	Bayview	Airport Operations	42.6817	-82.7491	New Baltimore	0.0127	0.0000
Macomb	Eagle	Airport Operations	42.7931	-83.0261	Romeo	0.0127	0.0000
Macomb	Kriewall Strip	Airport Operations	42.8381	-82.9688	Romeo	0.0097	0.0000
Monroe	Gerdau MacSteel Monroe	Iron and Steel Mills and Ferroalloy Manufacturing	41.8933	-83.3577	Monroe	32.7437	0.0916
Monroe	VenTower Industries LLC	Fabricated Structural Metal Manufacturing	41.8965	-83.3698	Monroe	30.6782	0.0859
Monroe	Marathon Pipe Line, LLC (Samaria)	Pipeline Transportation of Crude Oil	41.8068	-83.6014	Samaria	16.2497	0.0455
Monroe	Yanfeng Global Automotive - Frenchtown Plant #1/#2	All Other Plastics Product Manufacturing	41.9321	-83.3497	Monroe	13.7300	0.0384
Monroe	Spartan Steel Coating	Metal Coating, Engraving (except Jewelry and Silverware), and Allied Services to Manufacturers	41.9539	-83.3516	Monroe	9.9400	0.0278
Monroe	Delta	Support Activities for Rail Transportation	41.77004	-83.521123	Unknown	9.9098	0.0277

Southeast Michigan 2014 National Emissions Inventory NOx and VOC Point Emission Sources

Monroe	Vienna Junction Landfill	Solid Waste Landfill	41.7342	-83.5083	Erie	6.1289	0.0172
Monroe	Advanced Heat Treat Corp.	Metal Heat Treating	41.9207	-83.3677	Monroe	5.6455	0.0158
Monroe	FCA US LLC - Dundee Engine Plant	Motor Vehicle Gasoline Engine and Engine Parts Manufacturing	41.9785	-83.6722	Dundee	3.4990	0.0098
Monroe	Toledo Suburban	Airport Operations	41.73588	-83.65541	Lambertville	1.1821	0.0033
Monroe	Custer	Airport Operations	41.93991	-83.43468	Monroe	0.9632	0.0027
Monroe	Cadillac Asphalt, LLC	Asphalt Paving Mixture and Block Manufacturing	41.8935	-83.4349	Monroe	0.8810	0.0025
Monroe	Midwest II	Electroplating, Plating, Polishing, Anodizing, and Coloring	41.74102	-83.690121	Ottawa Lake	0.7070	0.0020
Monroe	Milan	Airport Operations	42.05	-83.7402	Milan	0.3279	0.0009
Monroe	DTE Electric Company - Fermi Energy Center	Nuclear Electric Power Generation	41.9606	-83.2583	Newport	0.2545	0.0007
Monroe	Michigan Paving & Materials	Asphalt Paving Mixture and Block Manufacturing	41.896	-83.3566	Monroe	0.1716	0.0005
Monroe	ADM Grain Co - Ottawa Lake	Grain and Field Bean Merchant Wholesalers	41.7348	-83.7218	Ottawa Lake	0.1406	0.0004
Monroe	Carls	Airport Operations	42.0406	-83.3035	South Rockwood	0.0632	0.0002
Monroe	Mills Field	Airport Operations	42.0092	-83.2583	Newport	0.0301	0.0001
Monroe	Lada	Airport Operations	41.8875	-83.6766	Petersburg	0.0241	0.0001
Monroe	Four Star	Airport Operations	42.0431	-83.3594	Carleton	0.0127	0.0000
Monroe	Helifarm	Airport Operations	41.7936	-83.5381	Monroe	0.0127	0.0000
Monroe	Mercy Memorial Hospital	Airport Operations	41.9261	-83.3883	Monroe	0.0127	0.0000
Monroe	Air Rahe	Airport Operations	41.8306	-83.6874	Petersburg	0.0118	0.0000
Monroe	Gradolph Field	Airport Operations	41.9198	-83.7349	Petersburg	0.0075	0.0000
Monroe	Newport Woods	Airport Operations	41.9878	-83.3076	Newport	0.0069	0.0000
Monroe	Maybee	Airport Operations	42.0414	-83.5669	Maybee	0.0061	0.0000
Monroe	Ham-a-Lot Field	Airport Operations	41.8334	-83.6833	Petersburg	0.0061	0.0000
Monroe	Wickenheiser	Airport Operations	42.0181	-83.3772	Carleton	0.0038	0.0000
Monroe	Laszlo	Airport Operations	42.075	-83.6083	Milan	0.0001	0.0000

Southeast Michigan 2014 National Emissions Inventory NOx and VOC Point Emission Sources

Monroe	Johnston	Airport Operations	42.08444	-83.517222	Belleville	0.0001	0.0000
Monroe	Gerken Materials, Inc. HMA Plant #22	Asphalt Paving Mixture and Block Manufacturing	41.7489	-83.6666	Ottawa Lake	0.0000	0.0000
Monroe	Great Lakes Aggregates, LLC - Sylvania Minerals	Crushed and Broken Limestone Mining and Quarrying	42.0535	-83.2718	South Rockwood	0.0000	0.0000
Oakland	General Motors LLC - Orion Assembly	Automobile Manufacturing	42.7158	-83.2607	Lake Orion	133.7724	0.3659
Oakland	Eagle Industries, Inc.	Urethane and Other Foam Product (except Polystyrene) Manufacturing	42.5206	-83.5481	Wixom	125.3845	0.3430
Oakland	X-Cel Industries, Inc.	Other Motor Vehicle Parts Manufacturing	42.44549	-83.279696	Southfield	65.3865	0.1788
Oakland	Spraytek, Inc.	Metal Coating, Engraving (except Jewelry and Silverware), and Allied Services to Manufacturers	42.46705	-83.127621	Ferndale	56.5795	0.1548
Oakland	JVISFH, LLC	Motor Vehicle Seating and Interior Trim Manufacturing	42.4652	-83.4206	Farmington Hills	48.3510	0.1323
Oakland	FoamPartner Americas, Inc. (formerly Otto bock)	Urethane and Other Foam Product (except Polystyrene) Manufacturing	42.6392	-83.1942	Rochester Hills	45.9846	0.1258
Oakland	Tribar Technologies Inc. (Plant 1)	Other Motor Vehicle Parts Manufacturing	42.5181	-83.5193	Wixom	37.9170	0.1037
Oakland	Eagle Valley Recycle and Disposal Facility	Solid Waste Landfill	42.7259	-83.2549	Orion Twp	29.6045	0.0810
Oakland	Kay Automotive Graphics	Commercial Screen Printing	42.71718	-83.240986	Lake Orion	27.6248	0.0756
Oakland	FCA US Technology Center	Automobile Manufacturing	42.65322	-83.228884	Auburn Hills	27.3533	0.0748
Oakland	Gage Products Company	All Other Miscellaneous Chemical Product and Preparation Manufacturing	42.4516	-83.1144	Ferndale	24.8420	0.0679
Oakland	Umicore Autocat USA, Inc.	Testing Laboratories	42.6761	-83.2442	Auburn Hills	24.5656	0.0672
Oakland	Valspar Automotive	Paint and Coating Manufacturing	42.5753	-83.4494	Walled Lake	20.3955	0.0558

Southeast Michigan 2014 National Emissions Inventory NOx and VOC Point Emission Sources

Oakland	Lear Corporation dba Eagle Ottawa	Leather and Hide Tanning and Finishing	42.6351	-83.1911	Rochester Hills	19.8800	0.0544
Oakland	Delta Tube & Fabricating Corp.	All Other Miscellaneous Fabricated Metal Product Manufacturing	42.80864	-83.621797	Holly	18.2405	0.0499
Oakland	US Energy Distribution LLC - Novi Terminal	Petroleum Bulk Stations and Terminals	42.4764	-83.4478	Novi	18.1193	0.0496
Oakland	Heat Treating Services Corp of America - Plant 1	Metal Heat Treating	42.6206	-83.2793	Pontiac	17.4982	0.0479
Oakland	Depor Industries	Metal Coating, Engraving (except Jewelry and Silverware), and Allied Services to Manufacturers	42.5524	-83.1627	Troy	15.9200	0.0435
Oakland	Standard Coating, Inc.	Electroplating, Plating, Polishing, Anodizing, and Coloring	42.53168	-83.088014	Madison Hts	15.5526	0.0425
Oakland	United Paint & Chemical Corp.	Paint and Coating Manufacturing	42.4697	-83.2808	Southfield	14.9985	0.0410
Oakland	Oakland County Internat	Airport Operations	42.6672	-83.4333	Pontiac	14.3091	0.0391
Oakland	General Motors LLC - Milford Proving Ground	Testing Laboratories	42.5691	-83.6745	Milford	13.8060	0.0378
Oakland	NTVB Media, Inc.	Commercial Gravure Printing	42.5445	-83.1418	Troy	13.4205	0.0367
Oakland	Prefix Corporation	Other Motor Vehicle Parts Manufacturing	42.6939	-83.2786	Auburn Hills	13.3980	0.0366
Oakland	AkzoNobel Coatings, Inc.	Paint and Coating Manufacturing	42.6263	-83.2891	Pontiac	11.7850	0.0322
Oakland	Oakland Heights Development, Inc.	Solid Waste Landfill	42.7046	-83.2481	Auburn Hills	11.1676	0.0305
Oakland	ND Industries, Inc.	Metal Coating, Engraving (except Jewelry and Silverware), and Allied Services to Manufacturers	42.5411	-83.1648	Clawson	9.6030	0.0263
Oakland	Aactron, Inc.	Electroplating, Plating, Polishing, Anodizing, and Coloring	42.5089	-83.1162	Madison Hts	8.5577	0.0234

Southeast Michigan 2014 National Emissions Inventory NOx and VOC Point Emission Sources

Oakland	General Motors LLC. Pontiac Engineering Center	Testing Laboratories	42.6621	-83.2861	Pontiac	8.1970	0.0224
Oakland	Commercial Steel Treating Corp.	Metal Heat Treating	42.5239	-83.1179	Madison Hts	8.1015	0.0222
Oakland	Woodspecs, Inc.	All Other Plastics Product Manufacturing	42.6725	-83.3467	Waterford	7.8599	0.0215
Oakland	Ace Asphalt & Paving Co., Inc. Plant 1	Asphalt Paving Mixture and Block Manufacturing	42.7866	-83.5283	Davisburg	7.1722	0.0196
Oakland	Jabil	Printed Circuit Assembly (Electronic Assembly) Manufacturing	42.6986	-83.2603	Auburn Hills	6.8115	0.0186
Oakland	Par Sterile Products LLC	Medicinal and Botanical Manufacturing	42.6848	-83.1147	Rochester	6.5252	0.0178
Oakland	Precision Coatings, Inc.	Unlaminated Plastics Film and Sheet (except Packaging) Manufacturing	42.57584	-83.442542	Walled Lake	6.0676	0.0166
Oakland	Lyon Development, Inc.	Solid Waste Landfill	42.5164	-83.6189	New Hudson	5.9734	0.0163
Oakland	Cadillac Asphalt LLC	Asphalt Paving Mixture and Block Manufacturing	42.4887	-83.5613	Wixom	5.7588	0.0158
Oakland	Tiodize Co., Inc., - Michigan Division	Metal Coating, Engraving (except Jewelry and Silverware), and Allied Services to Manufacturers	42.5044	-83.5294	Wixom	5.7163	0.0156
Oakland	Continental Aluminum	Secondary Smelting and Alloying of Aluminum	42.5022	-83.6164	New Hudson	5.4724	0.0150
Oakland	Tribar Technologies, Inc. (Plant 3)	Other Motor Vehicle Parts Manufacturing	42.5123	-83.5185	Wixom	5.4650	0.0149
Oakland	Total Door	Metal Window and Door Manufacturing	42.6942	-83.411	Waterford	4.8680	0.0133
Oakland	Mac Valves, Inc.	Industrial Valve Manufacturing	42.5189	-83.5186	Wixom	4.7281	0.0129
Oakland	Cadillac Asphalt, LLC.	Asphalt Paving Mixture and Block Manufacturing	42.7074	-83.4433	Clarkston	3.8332	0.0105
Oakland	Clawson Tank Company	Metal Tank (Heavy Gauge) Manufacturing	42.7067	-83.441	Clarkston	3.7518	0.0103

Southeast Michigan 2014 National Emissions Inventory NOx and VOC Point Emission Sources

Oakland	Ajax Materials Corp.	Asphalt Paving Mixture and Block Manufacturing	42.6463	-83.1808	Rochester Hills	3.3748	0.0092
Oakland	Eaton Research Center	Engineering Services	42.4801	-83.2565	Southfield	2.7145	0.0074
Oakland	Ajax Materials Corp.	Asphalt Paving Mixture and Block Manufacturing	42.7112	-83.2284	Auburn Hills	2.5634	0.0070
Oakland	Lymtal International, Inc.	Paint and Coating Manufacturing	42.7194	-83.2458	Lake Orion	2.5548	0.0070
Oakland	Robert Bosch, LLC.	Testing Laboratories	42.491	-83.4241	Farmington Hills	2.5215	0.0069
Oakland	ND Industries, Inc.	Adhesive Manufacturing	42.5499	-83.1596	Troy	2.3625	0.0065
Oakland	Compazo, Inc.	Plastics Plumbing Fixture Manufacturing	42.4539	-83.4672	Novi	2.2804	0.0062
Oakland	Dakkota Lighting Technologies	All Other Plastics Product Manufacturing	42.6784	-83.1334	Rochester	2.2243	0.0061
Oakland	Sterling Performance, Inc.	Other Engine Equipment Manufacturing	42.5231	-83.5896	Milford	2.0156	0.0055
Oakland	Cadillac Asphalt, LLC, Troy	Asphalt Paving Mixture and Block Manufacturing	42.5525	-83.15842	Troy	2.0065	0.0055
Oakland	William Beaumont Hospital	General Medical and Surgical Hospitals	42.5143	-83.1923	Royal Oak	1.9002	0.0052
Oakland	Oakland/Troy	Airport Operations	42.54294	-83.17791	Troy	1.8737	0.0051
Oakland	Dokka Fasteners, Inc.	Bolt, Nut, Screw, Rivet, and Washer Manufacturing	42.7036	-83.2393	Auburn Hills	1.7170	0.0047
Oakland	Vogue Furniture	Wood Kitchen Cabinet and Countertop Manufacturing	42.5338	-83.1788	Royal Oak	1.3995	0.0038
Oakland	Heat Treating Services Corp - Plant 3	Metal Heat Treating	42.6584	-83.3179	Pontiac	1.2116	0.0033
Oakland	East-Lind Heat Treat, Inc.	Metal Heat Treating	42.5279	-83.0879	Madison Hts	1.2100	0.0033
Oakland	Vector Pipeline L.P., Highland Compressor Station	Pipeline Transportation of Natural Gas	42.6203	-83.5743	Highland	1.1711	0.0032
Oakland	St. Joseph Mercy Hospital	General Medical and Surgical Hospitals	42.6144	-83.2759	Pontiac	1.0934	0.0030
Oakland	Dura Sill Corp.	All Other Plastics Product Manufacturing	42.4545	-83.4673	Novi	0.9995	0.0027

Southeast Michigan 2014 National Emissions Inventory NOx and VOC Point Emission Sources

Oakland	Armaly Sponge Co.	Urethane and Other Foam Product (except Polystyrene) Manufacturing	42.5431	-83.4627	Walled Lake	0.9466	0.0026
Oakland	George P. Johnson	All Other Miscellaneous Manufacturing	42.6943	-83.2606	Auburn Hills	0.8961	0.0025
Oakland	Oakland Southwest	Airport Operations	42.50312	-83.62372	New Hudson	0.8917	0.0024
Oakland	Procat Testing, LLC	Testing Laboratories	42.5198	-83.5481	Wixom	0.7741	0.0021
Oakland	Oakland University	Colleges, Universities, and Professional Schools	42.6751	-83.215	Rochester	0.6949	0.0019
Oakland	Mahle Industries, Inc.	Testing Laboratories	42.4591	-83.4335	Farmington Hills	0.6874	0.0019
Oakland	Henry Ford West Bloomfield Hospital	General Medical and Surgical Hospitals	42.5385	-83.4058	W. Bloomfield	0.6823	0.0019
Oakland	Electro-Plating Services, Inc.	Electroplating, Plating, Polishing, Anodizing, and Coloring	42.4764	-83.0964	Madison Hts	0.6660	0.0018
Oakland	DTE Gas Company - Milford Compressor Station	Pipeline Transportation of Natural Gas	42.5434	-83.5645	Milford	0.6363	0.0017
Oakland	General Filters, Inc.	All Other Miscellaneous Textile Product Mills	42.4828	-83.4801	Novi	0.6020	0.0016
Oakland	H R Technologies, Inc.	Other Motor Vehicle Parts Manufacturing	42.5295	-83.0946	Madison Hts	0.4952	0.0014
Oakland	Michigan Seamless Tube, LLC	Iron and Steel Pipe and Tube Manufacturing from Purchased Steel	42.4565	-83.6588	South Lyon	0.4848	0.0013
Oakland	Ascension Providence Southfield Hospital	General Medical and Surgical Hospitals	42.4578	-83.2049	Southfield	0.4120	0.0011
Oakland	Oakland Co. Service Center	Other General Government Support	42.6586	-83.3256	Pontiac	0.3962	0.0011
Oakland	William Beaumont Hospital	General Medical and Surgical Hospitals	42.619	-83.0929	Troy	0.3835	0.0010
Oakland	Beaumont Hospital Farmington Hills	General Medical and Surgical Hospitals	42.4468	-83.3243	Farmington Hills	0.3825	0.0010
Oakland	Ascension Providence Park Hospital	General Medical and Surgical Hospitals	42.488	-83.5195	Novi	0.3675	0.0010
Oakland	Specialty Steel Treating Inc	Metal Heat Treating	42.4416	-83.3583	Farmington Hills	0.3331	0.0009

Southeast Michigan 2014 National Emissions Inventory NOx and VOC Point Emission Sources

Oakland	DTE Electric Company - Placid Peaking Facility	Fossil Fuel Electric Power Generation	42.71	-83.4557	Clarkston	0.3227	0.0009
Oakland	FEV North America, INC.	Engineering Services	42.7043	-83.2534	Auburn Hills	0.2715	0.0007
Oakland	Denso International America, Inc.	Engineering Services	42.4774	-83.2894	Southfield	0.2197	0.0006
Oakland	Huron Valley - Sinai Hospital	General Medical and Surgical Hospitals	42.5921	-83.4989	Commerce Twp	0.1770	0.0005
Oakland	McLaren Oakland	General Medical and Surgical Hospitals	42.6385	-83.2908	Pontiac	0.1690	0.0005
Oakland	Arrow Racing Engines	Other Engine Equipment Manufacturing	42.6342	-83.2109	Auburn Hills	0.1471	0.0004
Oakland	Power Solutions International	Testing Laboratories	42.5323	-83.0909	Madison Hts	0.1333	0.0004
Oakland	Atmosphere Heat Treating, Inc.	Metal Heat Treating	42.5183	-83.5481	Wixom	0.1178	0.0003
Oakland	RMT Woodworth, Southfield	Metal Heat Treating	42.4446	-83.3029	Southfield	0.1166	0.0003
Oakland	BASF Corporation	Testing Laboratories	42.4856	-83.2858	Southfield	0.1095	0.0003
Oakland	DTE Electric Company - Hancock Peaking Facility	Fossil Fuel Electric Power Generation	42.54965	-83.442218	Commerce Twp	0.1075	0.0003
Oakland	Tribar Technologies, Inc. (Plant 4)	Electroplating, Plating, Polishing, Anodizing, and Coloring	42.5185	-83.5161	Wixom	0.1058	0.0003
Oakland	Beaumont Information Technology Center	Data Processing, Hosting, and Related Services	42.5458	-83.118	Troy	0.0796	0.0002
Oakland	Racer Trust - Pontiac Central and West	Trusts, Estates, and Agency Accounts	42.6123	-83.2512	Pontiac	0.0618	0.0002
Oakland	Toggled	Semiconductor and Related Device Manufacturing	42.5361	-83.0933	Troy	0.0477	0.0001
Oakland	2600 WBB, LLC	Commercial Banking	42.5617	-83.1797	Troy	0.0434	0.0001
Oakland	Quikrete-Flint	All Other Miscellaneous Nonmetallic Mineral Product Manufacturing	42.81943	-83.564908	Holly	0.0428	0.0001

Southeast Michigan 2014 National Emissions Inventory NOx and VOC Point Emission Sources

Oakland	Henry Ford Hospital System-Rochester Hills	Corporate, Subsidiary, and Regional Managing Offices	42.6436	-83.1657	Rochester Hills	0.0389	0.0001
Oakland	Owens Corning - Automotive Market Development	Research and Development in the Physical, Engineering, and Life Sciences (except Nanotechnology and Biotechnology)	42.5027	-83.5074	Novi	0.0300	0.0001
Oakland	Martin Technologies	Motor Vehicle Gasoline Engine and Engine Parts Manufacturing	42.5124	-83.6016	New Hudson	0.0278	0.0001
Oakland	Sun Steel Treating, Inc.	Metal Heat Treating	42.4653	-83.6448	South Lyon	0.0183	0.0000
Oakland	Willie Run	Airport Operations	42.8292	-83.3686	Ortonville	0.0128	0.0000
Oakland	Guardian Industries	Airport Operations	42.6998	-83.2474	Auburn Hills	0.0127	0.0000
Oakland	William Beaumont Hospital	Airport Operations	42.515	-83.1928	Royal Oak	0.0127	0.0000
Oakland	Zayti Field	Airport Operations	42.4402	-83.5159	Novi	0.0127	0.0000
Oakland	Highland	Airport Operations	42.657	-83.6502	Highland	0.0127	0.0000
Oakland	Huron Valley Sinai Hospital	Airport Operations	42.5939	-83.4992	Commerce	0.0127	0.0000
Oakland	TV2	Airport Operations	42.4606	-83.2172	Southfield	0.0127	0.0000
Oakland	Providence Hospital	Airport Operations	42.4892	-83.5219	Novi	0.0127	0.0000
Oakland	Wagners Landing	Airport Operations	42.7384	-83.4374	Clarkston	0.0127	0.0000
Oakland	Kamikaze Run	Airport Operations	42.5139	-83.4894	Novi	0.0127	0.0000
Oakland	McPhail	Airport Operations	42.5723	-83.3944	Orchard Lake	0.0127	0.0000
Oakland	Guardian Industries	Airport Operations	42.45	-83.4699	Novi	0.0127	0.0000
Oakland	McPhail Corp.	Airport Operations	42.6603	-83.1555	Rochester	0.0127	0.0000
Oakland	Glen Oaks	Airport Operations	42.49	-83.4652	Novi	0.0127	0.0000
Oakland	Adams	Airport Operations	42.5723	-83.391	Orchard Lake	0.0127	0.0000
Oakland	Bendix	Airport Operations	42.4806	-83.2477	Southfield	0.0127	0.0000
Oakland	Chrysler Corp.	Airport Operations	42.6531	-83.225	Auburn Hills	0.0127	0.0000
Oakland	Independence Green	Airport Operations	42.47	-83.4194	Farmington	0.0127	0.0000
Oakland	Heliflite	Airport Operations	42.4873	-83.6519	South Lyon	0.0127	0.0000
Oakland	Cass	Airport Operations	42.601	-83.3942	West Bloomfield	0.0127	0.0000

Southeast Michigan 2014 National Emissions Inventory NOx and VOC Point Emission Sources

Oakland	Express	Airport Operations	42.5139	-83.3578	Farmington HILLS	0.0127	0.0000
Oakland	Six CS	Airport Operations	42.72165	-83.18158	Oakland Twp	0.0127	0.0000
Oakland	Handleman Sky Ranch	Airport Operations	42.8528	-83.2277	Oxford	0.0120	0.0000
Oakland	Cass Lake-Cove Island	Airport Operations	42.6161	-83.356	Pontiac	0.0117	0.0000
Oakland	Ed Schulte's Place	Airport Operations	42.8081	-83.4519	Ortonville	0.0117	0.0000
Oakland	DTE Pontiac North, LLC	Steam and Air-Conditioning Supply	42.66062	-83.297627	Pontiac	0.0000	0.0000
Oakland	Clinton River WRRF	Sewage Treatment Facilities	42.6392	-83.2547	Pontiac	0.0000	0.0000
Oakland	Aramco Services Company	Research and Development in the Physical, Engineering, and Life Sciences (except Nanotechnology and Biotechnology)	42.5127	-83.5085	Novi	0.0000	0.0000
St. Clair	Intertape Polymer Group	Paper Bag and Coated and Treated Paper Manufacturing	42.8841	-82.4825	Marysville	389.2729	1.2475
St. Clair	St. Clair / Belle River Power Plant	Fossil Fuel Electric Power Generation	42.7687	-82.4855	China Twp	224.1650	0.7184
St. Clair	Pregis	All Other Plastics Product Manufacturing	42.8789	-82.4871	Marysville	178.3000	0.5714
St. Clair	DTE Gas Company - Belle River Compressor Station	Natural Gas Distribution	42.788	-82.5306	China	43.2730	0.1387
St. Clair	Heartland Steel Products, LLC	All Other Miscellaneous Manufacturing	42.8865	-82.4814	Marysville	37.6800	0.1208
St. Clair	Flint Hills Resources Marysville, LLC	Plastics Material and Resin Manufacturing	42.88439	-82.494863	Marysville	37.2362	0.1193
St. Clair	Michigan Metal Coatings	Metal Coating, Engraving (except Jewelry and Silverware), and Allied Services to Manufacturers	42.9529	-82.4478	Port Huron	36.8204	0.1180
St. Clair	Marysville Ethanol, LLC	Ethyl Alcohol Manufacturing	42.8825	-82.4948	Marysville	36.0567	0.1156
St. Clair	TI Fluid Systems, (Formely TI Group Auto , Marys)	Motor Vehicle Brake System Manufacturing	42.9322	-82.4595	Marysville	30.7672	0.0986

Southeast Michigan 2014 National Emissions Inventory NOx and VOC Point Emission Sources

St. Clair	E.B. Eddy Paper, Inc.	Paper (except Newsprint) Mills	42.98713	-82.440658	Port Huron	19.1109	0.0612
St. Clair	Smiths Creek Landfill	Solid Waste Landfill	42.9096	-82.5948	Smiths Creek	16.1405	0.0517
St. Clair	SMR Automotive Systems USA, Inc.	Other Motor Vehicle Parts Manufacturing	42.8978	-82.4836	Marysville	14.6210	0.0469
St. Clair	Marysville Hydrocarbons, LLC.	Other Warehousing and Storage	42.88313	-82.494401	Marysville	12.9446	0.0415
St. Clair	Sunoco Pipeline L.P. - Marysville Pump Station	Pipeline Transportation of Crude Oil	42.90085	-82.510534	Marysville	12.3314	0.0395
St. Clair	Consumers Energy - St. Clair Compressor Station	Pipeline Transportation of Natural Gas	42.7194	-82.7157	Ira Twp	9.2206	0.0295
St. Clair	International Automotive Components	Other Motor Vehicle Parts Manufacturing	42.9583	-82.4458	Port Huron	8.9309	0.0286
St. Clair	Bluewater Gas Storage Facility	Pipeline Transportation of Natural Gas	42.8924	-82.6682	Columbus	8.5752	0.0275
St. Clair	Blue Water Renewables	Other Electric Power Generation	42.9158	-82.5945	Smiths Creek	8.5290	0.0273
St. Clair	Dunn Paper, Inc.	Paper (except Newsprint) Mills	43.0047	-82.4233	Port Huron	7.0373	0.0226
St. Clair	ZF Axle Drives Marysville	Motor Vehicle Transmission and Power Train Parts Manufacturing	42.8748	-82.4795	Marysville	6.4610	0.0207
St. Clair	DTE Electric Company - Greenwood Energy Center	Fossil Fuel Electric Power Generation	43.10546	-82.697602	Avoca	6.2739	0.0201
St. Clair	Conformance Coating and Prototype, INC	All Other Plastics Product Manufacturing	42.8881	-82.4887	Marysville	4.6858	0.0150
St. Clair	DTE Gas Company - Columbus Compressor Station	Natural Gas Distribution	42.8505	-82.6759	Richmond	4.1642	0.0133
St. Clair	Ace Asphalt & Paving Co., Inc. Plant 4	Asphalt Paving Mixture and Block Manufacturing	42.9598	-82.498	Port Huron	3.9772	0.0127
St. Clair	Cargill Salt, St. Clair	Spice and Extract Manufacturing	42.8184	-82.4858	St. Clair	3.3927	0.0109

Southeast Michigan 2014 National Emissions Inventory NOx and VOC Point Emission Sources

St. Clair	Mod Interiors, Inc.	Other Millwork (including Flooring)	42.7227	-82.6818	Ira Twp	3.1030	0.0099
St. Clair	St. Clair County Intl	Airport Operations	42.91096	-82.52886	Port Huron	1.8844	0.0060
St. Clair	Sunsation Products, Inc.	Boat Building	42.6218	-82.5709	Algonac	1.7005	0.0054
St. Clair	SEMCO Energy Gas Company - Morton Wells Facility	Pipeline Transportation of Natural Gas	42.9285	-82.4754	Marysville	1.4289	0.0046
St. Clair	FCA US LLC	Automobile and Other Motor Vehicle Merchant Wholesalers	42.9046	-82.4729	Marysville	0.7623	0.0024
St. Clair	ANR Pipeline Company - Capac Compressor Station	Pipeline Transportation of Natural Gas	43.0388	-82.9464	Capac	0.6464	0.0021
St. Clair	Bluewater Gas Storage, LLC – Kimball Gas Storage	Pipeline Transportation of Natural Gas	42.9265	-82.5506	Kimball Twp	0.6412	0.0021
St. Clair	Marine City	Airport Operations	42.72087	-82.59575	Marine City	0.6017	0.0019
St. Clair	SEMCO Energy Gas Company - Collin Field	Pipeline Transportation of Natural Gas	42.671	-82.5833	Starrville	0.2666	0.0009
St. Clair	Mueller Brass	Other Nonferrous Metal Foundries (except Die-Casting)	42.9783	-82.4498	Port Huron	0.0566	0.0002
St. Clair	Yale	Airport Operations	43.1125	-82.7874	Yale	0.0150	0.0000
St. Clair	BPS	Airport Operations	43.007	-82.6013	Ruby	0.0127	0.0000
St. Clair	Port Huron Hospital	Airport Operations	42.9868	-82.4292	Port Huron	0.0127	0.0000
St. Clair	Hawks Landing	Airport Operations	42.715	-82.5864	Marine City	0.0127	0.0000
St. Clair	Janski	Airport Operations	42.6917	-82.5574	Marine City	0.0127	0.0000
St. Clair	Davids Landing	Airport Operations	42.7978	-82.5365	St. Clair	0.0113	0.0000
St. Clair	Avoca	Airport Operations	43.03	-82.6694	Avoca	0.0113	0.0000
St. Clair	Gavagan Field	Airport Operations	43.1034	-82.8902	Yale	0.0075	0.0000
St. Clair	Sharpes Strip	Airport Operations	42.9516	-82.7759	Emmett	0.0075	0.0000
St. Clair	Harsens Island	Airport Operations	42.5894	-82.5757	Harsens Island	0.0075	0.0000
St. Clair	Crystal	Airport Operations	42.8317	-82.5346	St. Clair	0.0064	0.0000
St. Clair	Wards Long Acres	Airport Operations	42.7292	-82.6652	Fair Haven	0.0062	0.0000

Southeast Michigan 2014 National Emissions Inventory NOx and VOC Point Emission Sources

St. Clair	Fasel Field	Airport Operations	43.0578	-82.6769	Avoca	0.0059	0.0000
St. Clair	Wenning Landing Area	Airport Operations	42.7556	-82.5582	Marine City	0.0059	0.0000
St. Clair	Adair Airstrip	Airport Operations	42.7923	-82.6394	Richmond	0.0059	0.0000
St. Clair	Robertson Field	Airport Operations	42.7989	-82.6588	Richmond	0.0059	0.0000
St. Clair	Johnson Field	Airport Operations	42.9211	-82.5855	Smiths Creek	0.0038	0.0000
St. Clair	Harsens Island	Airport Operations	42.59223	-82.57195	Harsens Island	0.0038	0.0000
St. Clair	Norton Field	Airport Operations	42.9714	-82.8478	Riley	0.0001	0.0000
St. Clair	Hess Asphalt Paving	Asphalt Paving Mixture and Block Manufacturing	42.9927	-82.5763	Clyde Twp	0.0000	0.0000
St. Clair	Tunnel Yard (Sarnia)	Support Activities for Rail Transportation	42.96372	-82.471249	Unknown	0.0000	0.0000
Washtenaw	Green for Life Environmental Arbor Hills Landfill	Solid Waste Landfill	42.3969	-83.5575	Northville	67.6467	0.1854
Washtenaw	Thomson Shore, Inc.	Commercial Gravure Printing	42.343	-83.8758	Dexter	37.3465	0.1024
Washtenaw	Faurecia Interior Systems Saline, LLC	Motor Vehicle Seating and Interior Trim Manufacturing	42.18014	-83.751795	Saline	32.6645	0.0895
Washtenaw	Malloy, Inc.	Books Printing	42.2868	-83.8363	Ann Arbor	29.3390	0.0804
Washtenaw	University of Michigan	Colleges, Universities, and Professional Schools	42.2839	-83.7312	Ann Arbor	14.9584	0.0410
Washtenaw	Sheridan Books	Books Printing	42.3202	-84.0319	Chelsea	10.2039	0.0280
Washtenaw	Consumers Energy - Freedom Compressor Station	Pipeline Transportation of Natural Gas	42.20621	-83.96926	Manchester	9.2018	0.0252
Washtenaw	Pollard (US), Ltd.	Commercial Gravure Printing	42.22385	-83.624387	Ypsilanti	6.5316	0.0179
Washtenaw	DAPCO Industries	Industrial Valve Manufacturing	42.326	-83.8767	Dexter	5.6650	0.0155
Washtenaw	Hyundai America Technical Center, Inc. (HATCI)	Testing Laboratories	42.2715	-83.6256	Superior Twp	5.3630	0.0147
Washtenaw	Ann Arbor Muni.	Airport Operations	42.2209	-83.7505	Ann Arbor	4.5523	0.0125
Washtenaw	AW Technical Center USA, Inc. (AW-TC)	Testing Laboratories	42.2919	-83.6764	Ann Arbor	4.0252	0.0110
Washtenaw	Lotus Engineering, Inc.	Testing Laboratories	42.2964	-83.7465	Ann Arbor	3.0772	0.0084
Washtenaw	Edward Brothers, Inc.	Books Printing	42.2514	-83.7417	Ann Arbor	2.9151	0.0080

Southeast Michigan 2014 National Emissions Inventory NOx and VOC Point Emission Sources

Washtenaw	Ford Motor Co., Rawsonville Plant	Motor Vehicle Gasoline Engine and Engine Parts Manufacturing	42.2	-83.5581	Ypsilanti	2.5013	0.0069
Washtenaw	DTE Gas Company - Willow Run Compressor Station	Pipeline Transportation of Natural Gas	42.2528	-83.5517	Ypsilanti	2.1373	0.0059
Washtenaw	Kaiser Optical Systems, Inc.	Optical Instrument and Lens Manufacturing	42.2795	-83.8107	Ann Arbor	1.9347	0.0053
Washtenaw	Georgia-Pacific Corrugated, LLC	Corrugated and Solid Fiber Box Manufacturing	42.0854	-83.6676	Milan	1.7727	0.0049
Washtenaw	AVL Powertrain Engineering	Testing Laboratories	42.2317	-83.7211	Ann Arbor	1.7234	0.0047
Washtenaw	Eastern MI University	Colleges, Universities, and Professional Schools	42.2489	-83.6289	Ypsilanti	1.2518	0.0034
Washtenaw	Federal-Mogul Powertrain, Inc.	Motor Vehicle Transmission and Power Train Parts Manufacturing	42.214	-83.7392	Ann Arbor	0.8607	0.0024
Washtenaw	St. Joseph Mercy Hospital	General Medical and Surgical Hospitals	42.2652	-83.6531	Ann Arbor	0.8008	0.0022
Washtenaw	Toyota Motor North America R&D	Research and Development in the Physical, Engineering, and Life Sciences (except Nanotechnology and Biotechnology)	42.2969	-83.6765	Ann Arbor	0.7639	0.0021
Washtenaw	Cadillac Asphalt, LLC, Ann Arbor	Asphalt Paving Mixture and Block Manufacturing	42.2702	-83.7981	Ann Arbor	0.5715	0.0016
Washtenaw	API Inmet, Inc.	Capacitor, Resistor, Coil, Transformer, and Other Inductor Manufacturing	42.2881	-83.88101	Scio Twp	0.5005	0.0014
Washtenaw	VA Medical Center	General Medical and Surgical Hospitals	42.2853	-83.7139	Ann Arbor	0.4419	0.0012
Washtenaw	B.O.P. Federal Correctional Institute	Correctional Institutions	42.0943	-83.6723	Milan	0.3398	0.0009
Washtenaw	Stoneco of Michigan, Pleasant Hills	Construction Sand and Gravel Mining	42.2084	-83.9726	Manchester	0.0898	0.0002
Washtenaw	Rossettie	Airport Operations	42.195	-84.0308	Manchester	0.0442	0.0001

Southeast Michigan 2014 National Emissions Inventory NOx and VOC Point Emission Sources

Washtenaw	Racer Trust - Willow Run Plant Industrial Land	Trusts, Estates, and Agency Accounts	42.2408	-83.5504	Ypsilanti	0.0430	0.0001
Washtenaw	Larsen Air Park	Airport Operations	42.1767	-83.5458	Belleville	0.0376	0.0001
Washtenaw	Downwind Acres	Airport Operations	42.1528	-83.5674	Willis	0.0150	0.0000
Washtenaw	C M H S	Airport Operations	42.2645	-83.6541	Ypsilanti	0.0127	0.0000
Washtenaw	Overflow Pad (Lower Pad)	Airport Operations	42.2889	-83.7305	Ann Arbor	0.0127	0.0000
Washtenaw	White Omorn	Airport Operations	42.2526	-84.0074	Chelsea	0.0127	0.0000
Washtenaw	UMMC	Airport Operations	42.2859	-83.728	Ann Arbor	0.0127	0.0000
Washtenaw	Cackleberry	Airport Operations	42.425	-83.8694	Dexter	0.0075	0.0000
Washtenaw	Winters Field	Airport Operations	42.305	-84.1067	Chelsea	0.0070	0.0000
Washtenaw	Gooding	Airport Operations	42.3764	-83.7927	Whitmore Lake	0.0070	0.0000
Washtenaw	Trudeau	Airport Operations	42.08793	-83.765519	Milan	0.0070	0.0000
Washtenaw	Ypsilanti Comm. Utilities Authority	Sewage Treatment Facilities	42.2273	-83.5552	Ypsilanti	0.0064	0.0000
Washtenaw	DTE Electric Company Superior Peaking Facility	Fossil Fuel Electric Power Generation	42.2645	-83.6427	Superior Twp	0.0000	0.0000
Washtenaw	Marathon Pipe Line LLC (Freedom Station)	Pipeline Transportation of Refined Petroleum Products	42.2236	-83.9706	Chelsea	0.0000	0.0000
Washtenaw	CITY OF CHELSEA	Fossil Fuel Electric Power Generation	42.3185	-84.0312	Chelsea	0.0000	0.0000
Wayne	FCA US LLC - Jefferson North Assembly Plant	Light Truck and Utility Vehicle Manufacturing	42.3747	-82.969	Detroit	704.2527	1.9706
Wayne	Ford Motor Co. Rouge Complex	Light Truck and Utility Vehicle Manufacturing	42.30313	-83.164754	Dearborn	608.0137	1.7013
Wayne	Marathon Petroleum Co., LP	Petroleum Refineries	42.2841	-83.1527	Detroit	435.6110	1.2189
Wayne	Ford Motor Co./ Wayne Complex	Automobile Manufacturing	42.2759	-83.4121	Wayne	395.5930	1.1069
Wayne	Ford Motor Company - Flat Rock Assembly	Automobile Manufacturing	42.10621	-83.247708	Flat Rock	384.6311	1.0762

Southeast Michigan 2014 National Emissions Inventory NOx and VOC Point Emission Sources

Wayne	Detroit Metropolitan Wayne County	Airport Operations	42.2072	-83.3731	Detroit	379.7543	1.0626
Wayne	General Motors LLC Detroit Hamtramck Assembly	Automobile Manufacturing	42.38197	-83.044919	Detroit	195.7308	0.5477
Wayne	Woodland Meadows RDF	Solid Waste Landfill	42.2666	-83.4314	Wayne	174.2180	0.4875
Wayne	Solutia, Inc.	Plastics Material and Resin Manufacturing	42.1181	-83.1919	Trenton	101.2475	0.2833
Wayne	BASF Corporation	Unlaminated Plastics Profile Shape Manufacturing	42.2247	-83.1481	Wyandotte	81.8157	0.2289
Wayne	Integrated Manufacturing	Urethane and Other Foam Product (except Polystyrene) Manufacturing	42.4232	-83.0351	Detroit	79.3000	0.2219
Wayne	Buckeye Terminals, LLC - River Rouge Terminal	Other Warehousing and Storage	42.2761	-83.1236	River Rouge	77.7053	0.2174
Wayne	Woodbridge Foam Corp.	Urethane and Other Foam Product (except Polystyrene) Manufacturing	42.18644	-83.39196	Romulus	75.1330	0.2102
Wayne	Ford Motor Co. Research & Dev. Ctr.	Research and Development in the Physical, Engineering, and Life Sciences (except Nanotechnology and Biotechnology)	42.2959	-83.2341	Dearborn	74.2790	0.2078
Wayne	Marathon Pipe Line LLC (Woodhaven)	Petroleum Bulk Stations and Terminals	42.1308	-83.228161	Woodhaven	69.8745	0.1955
Wayne	AK Steel - Dearborn Works	Iron and Steel Mills and Ferroalloy Manufacturing	42.30174	-83.162934	Dearborn	64.6567	0.1809
Wayne	EES Coke Battery, LLC	All Other Petroleum and Coal Products Manufacturing	42.2811	-83.1113	River Rouge	61.0683	0.1709
Wayne	DTE Electric Co. Trenton Channel Power Plant	Fossil Fuel Electric Power Generation	42.1237	-83.1812	Trenton	58.2969	0.1631
Wayne	Fitzgerald Finishing LLC	Metal Coating, Engraving (except Jewelry and Silverware), and Allied Services to Manufacturers	42.4229	-83.0369	Detroit	55.0695	0.1541

Southeast Michigan 2014 National Emissions Inventory NOx and VOC Point Emission Sources

Wayne	US Steel Great Lakes Works	Iron and Steel Mills and Ferroalloy Manufacturing	42.2774	-83.1103	Ecorse	52.6868	0.1474
Wayne	Windsor Machine & Stamping US, Ltd.	Machine Shops	42.2098	-83.2991	Taylor	52.4000	0.1466
Wayne	GLWA Water Resource Recovery Facility	Sewage Treatment Facilities	42.2852	-83.1281	Detroit	51.0211	0.1428
Wayne	Riverview Land Preserve	Solid Waste Landfill	42.16055	-83.21257	Riverview	45.1199	0.1263
Wayne	Aunt Millies Bakeries, Plymouth	Commercial Bakeries	42.3875	-83.4951	Plymouth	39.0281	0.1092
Wayne	DTE Electric Company - River Rouge Power Plant	Fossil Fuel Electric Power Generation	42.2727	-83.1124	River Rouge	38.3936	0.1074
Wayne	Carleton Farms Landfill	Solid Waste Landfill	42.0937	-83.4301	New Boston	38.3419	0.1073
Wayne	Sauk Trail Hills Development	Solid Waste Landfill	42.2703	-83.4563	Canton Twp.	37.9199	0.1061
Wayne	Magni Industries, Inc.	Paint and Coating Manufacturing	42.3227	-83.1106	Detroit	37.8140	0.1058
Wayne	Buckeye Terminals, LLC - Detroit Terminal	General Warehousing and Storage	42.2817	-83.1403	Detroit	33.9816	0.0951
Wayne	Mahle Powertrain, LLC	Testing Laboratories	42.3906	-83.5136	Plymouth	33.6600	0.0942
Wayne	Sunoco Partners Marketing & Terminals LP - Romulus	Other Warehousing and Storage	42.2399	-83.3223	Romulus	29.0623	0.0813
Wayne	Roush Industries	Engineering Services	42.3737	-83.4041	Livonia	27.9047	0.0781
Wayne	MPLX Terminals LLC - Romulus Terminal	Petroleum Bulk Stations and Terminals	42.245	-83.3126	Romulus	27.4482	0.0768
Wayne	Flat Rock Metal, Inc.	Electroplating, Plating, Polishing, Anodizing, and Coloring	42.099	-83.2993	Flat Rock	25.0897	0.0702
Wayne	Ford Motor Co. Auto Transmission New Product Center	Research and Development in the Physical, Engineering, and Life Sciences (except Nanotechnology and Biotechnology)	42.3718	-83.3914	Livonia	24.9429	0.0698
Wayne	Fabricon Products, Inc.	Commercial Gravure Printing	42.2776	-83.138	River Rouge	24.1260	0.0675

Southeast Michigan 2014 National Emissions Inventory NOx and VOC Point Emission Sources

Wayne	Ground Effects, LLC	All Other Automotive Repair and Maintenance	42.3055	-83.1827	Dearborn	20.9403	0.0586
Wayne	Buckeye Terminals, LLC - Woodhaven Terminal	General Warehousing and Storage	42.1359	-83.2337	Woodhaven	20.5679	0.0576
Wayne	Valassis Manufacturing Company	Commercial Gravure Printing	42.3797	-83.3973	Livonia	20.4810	0.0573
Wayne	Rim Custom Racks	Other Metal Container Manufacturing	42.4196	-83.0351	Detroit	19.2000	0.0537
Wayne	Cadon Acquisitions LLC	Electroplating, Plating, Polishing, Anodizing, and Coloring	42.19502	-83.165319	Wyandotte	19.0346	0.0533
Wayne	Ajax Metal Processing, Inc..	Electroplating, Plating, Polishing, Anodizing, and Coloring	42.369	-83.0222	Detroit	18.8532	0.0528
Wayne	Sunoco Partners Mkting & Terminals LP-River Rouge	Other Warehousing and Storage	42.2938	-83.154857	Detroit	18.1477	0.0508
Wayne	Willow Run	Airport Operations	42.2379	-83.5414	Detroit	17.7546	0.0497
Wayne	FCA US LLC Trenton Engine Complex	Motor Vehicle Gasoline Engine and Engine Parts Manufacturing	42.1301	-83.1923	Trenton	17.0654	0.0478
Wayne	BASF Corp.	All Other Basic Organic Chemical Manufacturing	42.2192	-83.14674	Wyandotte	15.6804	0.0439
Wayne	AWTEC	Motor Vehicle Transmission and Power Train Parts Manufacturing	42.3911	-83.4964	Plymouth	14.9355	0.0418
Wayne	3M Detroit Abrasives	Abrasive Product Manufacturing	42.4478	-83.0029	Detroit	14.7491	0.0413
Wayne	Vacuum Orna Metal, Inc.	All Other Plastics Product Manufacturing	42.221	-83.3178	Romulus	14.7426	0.0413
Wayne	Green Polymeric Materials, Inc	Urethane and Other Foam Product (except Polystyrene) Manufacturing	42.3594	-83.1371	Detroit	14.3750	0.0402
Wayne	Sun Plastic Coating Co.	Metal Coating, Engraving (except Jewelry and Silverware), and Allied Services to Manufacturers	42.3568	-83.457	Plymouth	14.2316	0.0398

Southeast Michigan 2014 National Emissions Inventory NOx and VOC Point Emission Sources

Wayne	Z Technologies Corp.	Paint and Coating Manufacturing	42.3762	-83.3041	Redford Twp.	13.5950	0.0380
Wayne	Sunoco Pipeline L.P. - Inkster Terminal	Pipeline Transportation of Refined Petroleum Products	42.2526	-83.3075	Taylor	13.1450	0.0368
Wayne	Johnson Matthey, Inc.	Testing Laboratories	42.2147	-83.2738	Taylor	11.3607	0.0318
Wayne	Detroit Diesel Corp.	Other Engine Equipment Manufacturing	42.3776	-83.2701	Detroit	10.7944	0.0302
Wayne	Nortru, LLC	Hazardous Waste Treatment and Disposal	42.36278	-82.96459	Detroit	10.1904	0.0285
Wayne	Advance Engineering Co.	Metal Crown, Closure, and Other Metal Stamping (except Automotive)	42.3738	-83.2834	Redford Twp.	10.0478	0.0281
Wayne	BASF Corporation	Research and Development in the Physical, Engineering, and Life Sciences (except Nanotechnology and Biotechnology)	42.2183	-83.1459	Wyandotte	10.0000	0.0280
Wayne	Flat Rock	Support Activities for Rail Transportation	42.11507	-83.259699	Unknown	9.9260	0.0278
Wayne	C. L. Rieckhoff Co.	All Other Miscellaneous Fabricated Metal Product Manufacturing	42.2118	-83.2799	Taylor	9.8600	0.0276
Wayne	Ford Motor Co. New Model Program Ctr.	Engineering Services	42.28897	-83.197331	Allen Park	9.6090	0.0269
Wayne	Taylor East Terminal - Buckeye (was Atlas Oil Co.)	General Warehousing and Storage	42.25505	-83.274415	Taylor	8.6514	0.0242
Wayne	Buckeye Pipe Line Holdings, LP - Taylor Terminal	General Warehousing and Storage	42.2538	-83.278	Taylor	8.6110	0.0241
Wayne	Cooper Heat Treating LLC	Metal Heat Treating	42.4458	-83.0347	Detroit	8.2750	0.0232
Wayne	Plastomer Corp.	Urethane and Other Foam Product (except Polystyrene) Manufacturing	42.38	-83.42	Livonia	8.1515	0.0228
Wayne	Fintex, LLC	Electroplating, Plating, Polishing, Anodizing, and Coloring	42.2421	-83.3091	Romulus	8.0069	0.0224

Southeast Michigan 2014 National Emissions Inventory NOx and VOC Point Emission Sources

Wayne	New Boston RTM, Inc.	All Other Plastics Product Manufacturing	42.164	-83.394	New Boston	7.9516	0.0222
Wayne	Ajax Materials Corp.	Asphalt Paving Mixture and Block Manufacturing	42.2438	-83.3107	Romulus	7.9287	0.0222
Wayne	DNR, Inc.	All Other Miscellaneous Chemical Product and Preparation Manufacturing	42.3269	-83.4198	Westland	7.8000	0.0218
Wayne	Ford Motor Co. Brownstown	Motor Vehicle Supplies and New Parts Merchant Wholesalers	42.1764	-83.2855	Romulus	7.3556	0.0206
Wayne	Univar USA, Inc. - Romulus Branch	Other Chemical and Allied Products Merchant Wholesalers	42.20657	-83.403378	Romulus	7.2560	0.0203
Wayne	BASF Corp.	Custom Compounding of Purchased Resins	42.2215	-83.1472	Wyandotte	7.0940	0.0198
Wayne	City Sand & Landfill, Inc.	Solid Waste Landfill	42.11009	-83.494311	Sumpter Twp.	6.9791	0.0195
Wayne	Quaker Chemical Corp.	Petroleum Lubricating Oil and Grease Manufacturing	42.3927	-83.1635	Detroit	6.2478	0.0175
Wayne	US Ecology Michigan, Inc. (Detroit North)	Hazardous Waste Treatment and Disposal	42.393	-83.0326	Detroit	5.9675	0.0167
Wayne	Cadillac Asphalt LLC, Rawsonville	Asphalt Paving Mixture and Block Manufacturing	42.2206	-83.541	Belleville	5.9588	0.0167
Wayne	Material Processing, Inc.	Metal Coating, Engraving (except Jewelry and Silverware), and Allied Services to Manufacturers	42.17898	-83.16303	Riverview	5.3270	0.0149
Wayne	Cadillac Asphalt Products	Asphalt Paving Mixture and Block Manufacturing	42.2917	-83.1567	Detroit	5.0393	0.0141
Wayne	FCA US LLC - Mack Avenue Engine Plant	Other Engine Equipment Manufacturing	42.3793	-82.9677	Detroit	5.0057	0.0140
Wayne	Wyandotte Dept. Muni. Power Plant	Fossil Fuel Electric Power Generation	42.2082	-83.1456	Wyandotte	4.9638	0.0139
Wayne	Detroit City	Airport Operations	42.4108	-83.0163	Detroit	4.7394	0.0133
Wayne	Swissport Fuel Services	Other Airport Operations	42.2277	-83.3593	Detroit	4.3329	0.0121

Southeast Michigan 2014 National Emissions Inventory NOx and VOC Point Emission Sources

Wayne	Ford Sheldon Road Plant	Special Die and Tool, Die Set, Jig, and Fixture Manufacturing	42.3881	-83.4841	Plymouth	4.2525	0.0119
Wayne	Ford Motor Co. Elm Street Boilerhouse	Steam and Air-Conditioning Supply	42.3061	-83.2371	Dearborn	3.7095	0.0104
Wayne	EQ Detroit, Inc. (dba US Ecology - Detroit South)	Hazardous Waste Treatment and Disposal	42.3667	-83.048061	Detroit	3.5952	0.0101
Wayne	Dearborn Industrial Generation	Fossil Fuel Electric Power Generation	42.3041	-83.1521	Dearborn	3.5395	0.0099
Wayne	Cygnet Automated Cleaning, LLC	Paint and Coating Manufacturing	42.3883	-83.4933	Plymouth	3.3686	0.0094
Wayne	Crown Group, Lynch Road Plant	Metal Coating, Engraving (except Jewelry and Silverware), and Allied Services to Manufacturers	42.4048	-83.0377	Detroit	3.3645	0.0094
Wayne	Red Spot Westland, Inc.	Paint and Coating Manufacturing	42.3047	-83.4114	Westland	3.2779	0.0092
Wayne	Detroit Thermal Beacon Heating Plant	Steam and Air-Conditioning Supply	42.3384	-83.0442	Detroit	3.2177	0.0090
Wayne	Wayne State University	Colleges, Universities, and Professional Schools	42.3574	-83.0702	Detroit	3.1366	0.0088
Wayne	Wyandotte	Support Activities for Rail Transportation	42.18927	-83.165277	Unknown	3.0816	0.0086
Wayne	Consumers Energy - Northville Compressor Station	Pipeline Transportation of Natural Gas	42.4281	-83.5467	Northville	2.8419	0.0080
Wayne	Cadillac Asphalt, LLC, Romulus	Asphalt Paving Mixture and Block Manufacturing	42.2044	-83.3995	Romulus	2.7590	0.0077
Wayne	Excel Engineering	Engineering Services	42.2372	-83.4409	Van Buren Twp	2.7238	0.0076
Wayne	Plastipak Packaging, Inc.	Plastics Bottle Manufacturing	42.3181	-83.4186	Westland	2.6346	0.0074
Wayne	Loc Pac, Inc.	Metal Coating, Engraving (except Jewelry and Silverware), and Allied Services to Manufacturers	42.3787	-83.4495	Plymouth	2.5660	0.0072
Wayne	EWI Worldwide	Sign Manufacturing	42.37834	-83.353904	Livonia	2.4900	0.0070

Southeast Michigan 2014 National Emissions Inventory NOx and VOC Point Emission Sources

Wayne	Fritz Products	Secondary Smelting and Alloying of Aluminum	42.2732	-83.1208	River Rouge	2.3792	0.0067
Wayne	Canton-Plymouth-Metteta	Airport Operations	42.35004	-83.45827	Plymouth	2.3293	0.0065
Wayne	Darling Ingredients, Inc.	Rendering and Meat Byproduct Processing	42.2905	-83.1724	Melvindale	2.3277	0.0065
Wayne	Ilmor Engineering, Inc.	Motor Vehicle Gasoline Engine and Engine Parts Manufacturing	42.3836	-83.4709	Plymouth Twp	2.2590	0.0063
Wayne	Federal-Mogul Powertrain, LLC	Testing Laboratories	42.3865	-83.505	Plymouth	2.1280	0.0060
Wayne	Johnson Matthey, Inc.	Testing Laboratories	42.2182	-83.2811	Taylor	2.1158	0.0059
Wayne	Dearborn Mid-West Company	Conveyor and Conveying Equipment Manufacturing	42.2091	-83.2316	Taylor	1.9925	0.0056
Wayne	Livernois	Support Activities for Rail Transportation	42.32167	-83.120382	Unknown	1.9544	0.0055
Wayne	A123 Systems	Storage Battery Manufacturing	42.2519	-83.4147	Romulus	1.9306	0.0054
Wayne	Durr Systems, Inc.	All Other Miscellaneous Fabricated Metal Product Manufacturing	42.3747	-83.4424	Plymouth	1.9306	0.0054
Wayne	Ford Motor Co./ Livonia Transmission	Motor Vehicle Transmission and Power Train Parts Manufacturing	42.3713	-83.3977	Livonia	1.9002	0.0053
Wayne	US Ecology Michigan	Hazardous Waste Treatment and Disposal	42.2237	-83.5185	Belleville	1.8430	0.0052
Wayne	Oakwood	Support Activities for Rail Transportation	42.27746	-83.176855	Unknown	1.7922	0.0050
Wayne	ROUGEMERE	Support Activities for Rail Transportation	42.30535	-83.150769	Unknown	1.7598	0.0049
Wayne	Kopacz Industrial Painting Co.	Metal Coating, Engraving (except Jewelry and Silverware), and Allied Services to Manufacturers	42.3716	-83.3537	Livonia	1.4665	0.0041
Wayne	Grosse Ile Muni	Airport Operations	42.09861	-83.16106	Detroit/Grosse Ile	1.4449	0.0040
Wayne	Henry Ford Hospital	General Medical and Surgical Hospitals	42.3679	-83.0847	Detroit	1.4153	0.0040

Southeast Michigan 2014 National Emissions Inventory NOx and VOC Point Emission Sources

Wayne	AVL Powertrain Engineering, Inc.	Other Engine Equipment Manufacturing	42.3845	-83.5112	Plymouth	1.2819	0.0036
Wayne	Edw C. Levy Co. Plant 3	Ground or Treated Mineral and Earth Manufacturing	42.2452	-83.1381	Ecorse	1.2500	0.0035
Wayne	Detroit Metropolitan Wayne County Airport	Other Airport Operations	42.2179	-83.3511	Detroit	1.1003	0.0031
Wayne	McLaren Performance Technologies	Engineering Services	42.44025	-83.364499	Livonia	0.8999	0.0025
Wayne	Meiden America, Inc.	Testing Laboratories	42.3971	-83.4995	Northville Twp	0.8712	0.0024
Wayne	Wayne	Support Activities for Rail Transportation	42.27831	-83.398021	Unknown	0.8596	0.0024
Wayne	Ford	Support Activities for Rail Transportation	42.37495	-83.396274	Unknown	0.8515	0.0024
Wayne	Fritz Enterprises, Inc.	Materials Recovery Facilities	42.1874	-83.2618	Taylor	0.8360	0.0023
Wayne	John D. Dingell VA Medical Center	General Medical and Surgical Hospitals	42.3561	-83.0594	Detroit	0.7051	0.0020
Wayne	General Motors Romulus Engine Plant	Motor Vehicle Gasoline Engine and Engine Parts Manufacturing	42.2552	-83.4027	Romulus	0.6526	0.0018
Wayne	Alpha Resins, LLC	Plastics Material and Resin Manufacturing	42.4211	-83.0623	Detroit	0.6372	0.0018
Wayne	Huron Valley Steel Corp.	Materials Recovery Facilities	42.21173	-83.440073	Belleville	0.6346	0.0018
Wayne	Chemical Processing, Inc.	Electroplating, Plating, Polishing, Anodizing, and Coloring	42.376	-83.0259	Detroit	0.6285	0.0018
Wayne	Toyota Motor North America	Research and Development in the Physical, Engineering, and Life Sciences (except Nanotechnology and Biotechnology)	42.3894	-83.4931	Plymouth TWP	0.6225	0.0017
Wayne	East	Support Activities for Rail Transportation	42.40001	-83.041654	Unknown	0.6073	0.0017
Wayne	Sumpter Generating Plant	Fossil Fuel Electric Power Generation	42.167	-83.532	Belleville	0.6065	0.0017
Wayne	Beaumont Hospital - Dearborn	General Medical and Surgical Hospitals	42.2908	-83.2149	Dearborn	0.5378	0.0015

Southeast Michigan 2014 National Emissions Inventory NOx and VOC Point Emission Sources

Wayne	Envirosolids, LLC	Other Nonhazardous Waste Treatment and Disposal	42.3336	-83.1604	Dearborn	0.5274	0.0015
Wayne	Praxair, Inc.	Industrial Gas Manufacturing	42.2619	-83.1251	River Rouge	0.5174	0.0014
Wayne	North Yard (Plymouth)	Support Activities for Rail Transportation	42.38512	-83.468684	Unknown	0.5092	0.0014
Wayne	AmCane Sugar, LLC	Cane Sugar Manufacturing	42.2634	-83.2428	Taylor	0.4728	0.0013
Wayne	Ford Motor Co.	Office Administrative Services	42.3147	-83.2101	Dearborn	0.4628	0.0013
Wayne	Ford Motor Co., Woodhaven Stamping Plant	Motor Vehicle Metal Stamping	42.1423	-83.2364	Woodhaven	0.4357	0.0012
Wayne	Detroit Renewable Power, LLC	Solid Waste Combustors and Incinerators	42.36865	-83.051749	Detroit	0.3991	0.0011
Wayne	Ascension St. John Hospital	General Medical and Surgical Hospitals	42.4197	-82.9134	Detroit	0.3735	0.0010
Wayne	Canton Renewables, LLC	Natural Gas Distribution	42.2753	-83.4561	Canton Twp.	0.3705	0.0010
Wayne	University MI Dearborn	Colleges, Universities, and Professional Schools	42.3194	-83.2325	Dearborn	0.3581	0.0010
Wayne	Environmental Geo-Technologies, LLC	Hazardous Waste Treatment and Disposal	42.2433	-83.3171	Romulus	0.2945	0.0008
Wayne	IAV Automotive Engineering, Inc.	Testing Laboratories	42.3977	-83.5053	Northville	0.2914	0.0008
Wayne	RMT Woodworth Heat Treat	Metal Heat Treating	42.395	-83.4977	Plymouth	0.2706	0.0008
Wayne	US Silica Co.	Industrial Sand Mining	42.0609	-83.2301	Rockwood	0.2584	0.0007
Wayne	Great Lakes Petroleum Terminal, LLC	Petroleum Bulk Stations and Terminals	42.2882	-83.1432	Detroit	0.2499	0.0007
Wayne	Beaumont Hospital - Wayne	General Medical and Surgical Hospitals	42.27312	-83.365174	Wayne	0.1760	0.0005
Wayne	DTE Electric Company - Delray Power Plant	Fossil Fuel Electric Power Generation	42.29525	-83.10284	Detroit	0.1675	0.0005
Wayne	Beaumont Health Trenton Hospital	General Medical and Surgical Hospitals	42.1178	-83.2137	Trenton	0.1469	0.0004

Southeast Michigan 2014 National Emissions Inventory NOx and VOC Point Emission Sources

Wayne	West Bay Exploration Co. - Livonia 6 CTB	Support Activities for Oil and Gas Operations	42.4241	-83.4236	Livonia	0.1317	0.0004
Wayne	Hinkle Manufacturing, LLC	Plastics Packaging Film and Sheet (including Laminated) Manufacturing	42.3367	-83.1662	Dearborn	0.1175	0.0003
Wayne	Ford Engine Mfg. Development Operations	Engineering Services	42.2645	-83.22	Allen Park	0.1150	0.0003
Wayne	South	Support Activities for Rail Transportation	42.25385	-83.135159	Unknown	0.1079	0.0003
Wayne	Process Prototype, Inc.	Iron Foundries	42.23954	-83.311454	Romulus	0.0757	0.0002
Wayne	Walter P. Reuther Psychiatric Hospital	Psychiatric and Substance Abuse Hospitals	42.2948	-83.345811	Westland	0.0669	0.0002
Wayne	BASF Corp.	Plastics Material and Resin Manufacturing	42.3775	-83.401388	Livonia	0.0656	0.0002
Wayne	Maksteel Processing, LLC I A Union Partners Co.	Metal Service Centers and Other Metal Merchant Wholesalers	42.3194	-83.1518	Dearborn	0.0559	0.0002
Wayne	Gibraltar National Corp. / Quikrete Detroit	All Other Miscellaneous Nonmetallic Mineral Product Manufacturing	42.36038	-83.179844	Detroit	0.0493	0.0001
Wayne	Wayne Co. Comm. College Eastern	Junior Colleges	42.3941	-82.9866	Detroit	0.0402	0.0001
Wayne	Wayne Co. Comm. College Downriv	Junior Colleges	42.2149	-83.2411	Taylor	0.0396	0.0001
Wayne	GSA - Federal Building	Public Finance Activities	42.331	-83.0589	Detroit	0.0297	0.0001
Wayne	DTE Energy Serv-Ford Motor Co. World Headquarters	Fossil Fuel Electric Power Generation	42.3179	-83.2057	Dearborn	0.0254	0.0001
Wayne	DTE (Emergency Generators at Ford R&E Center)	Fossil Fuel Electric Power Generation	42.2941	-83.2346	Dearborn	0.0240	0.0001
Wayne	Detroit Public Lighting Department	Fossil Fuel Electric Power Generation	42.3031	-83.0904	Detroit	0.0188	0.0001
Wayne	Detroit Thermal Blvd. Heating Plant	Steam and Air-Conditioning Supply	42.367	-83.075	Detroit	0.0173	0.0000

Southeast Michigan 2014 National Emissions Inventory NOx and VOC Point Emission Sources

Wayne	Wayne Co. Comm. College Western	Junior Colleges	42.2324	-83.4391	Belleville	0.0171	0.0000
Wayne	St. Marys Cement	Cement Manufacturing	42.2853	-83.1364	Detroit	0.0136	0.0000
Wayne	Edw C Levy Co. Plant 6	Ground or Treated Mineral and Earth Manufacturing	42.2912	-83.1587	Detroit	0.0135	0.0000
Wayne	United States Gypsum Co.	Gypsum Product Manufacturing	42.2806	-83.1331	River Rouge	0.0130	0.0000
Wayne	Henry Ford Hospital	Airport Operations	42.3675	-83.0844	Detroit	0.0127	0.0000
Wayne	L & L	Airport Operations	42.1633	-83.3453	Huron Twp.	0.0127	0.0000
Wayne	Grace Hospital	Airport Operations	42.4178	-83.183	Detroit	0.0127	0.0000
Wayne	A T I	Airport Operations	42.2209	-83.4766	Belleville	0.0127	0.0000
Wayne	Detroit Medical Center	Airport Operations	42.357	-83.0577	Detroit	0.0127	0.0000
Wayne	Oakwood Hospital	Airport Operations	42.2917	-83.2136	Dearborn	0.0127	0.0000
Wayne	St. Mary Hospital	Airport Operations	42.4278	-83.4041	Livonia	0.0127	0.0000
Wayne	Dearborn Helistop	Airport Operations	42.2973	-83.2271	Dearborn	0.0127	0.0000
Wayne	Fairlane Plaza	Airport Operations	42.3209	-83.2194	Dearborn	0.0127	0.0000
Wayne	Henry Ford Wyandotte Hospital	Airport Operations	42.2084	-83.1442	Wyandotte	0.0127	0.0000
Wayne	WDIV-TV Channel 4	Airport Operations	42.3298	-83.0535	Detroit	0.0127	0.0000
Wayne	Executive	Airport Operations	42.3481	-83.4539	Plymouth/Canton	0.0127	0.0000
Wayne	Oakwood Heritage Hospital	Airport Operations	42.23639	-83.276388	Taylor	0.0127	0.0000
Wayne	Detroit Thermal Henry Heating Plant	Steam and Air-Conditioning Supply	42.3366	-83.062	Detroit	0.0059	0.0000
Wayne	Kerr Corporation / Romo Manufacturing	Medical, Dental, and Hospital Equipment and Supplies Merchant Wholesalers	42.2402	-83.3168	Romulus	0.0017	0.0000
Wayne	Wayne Co. Comm. College Northwest	Junior Colleges	42.3559	-83.1974	Detroit	0.0000	0.0000
Wayne	Cousins Petroleum	Petroleum Bulk Stations and Terminals	42.2447	-83.3029	Taylor	0.0000	0.0000
Wayne	Detroit Steel Co. - Trenton	Iron and Steel Mills and Ferroalloy Manufacturing	42.158	-83.1704	Trenton	0.0000	0.0000

Southeast Michigan 2014 National Emissions Inventory NOx and VOC Point Emission Sources

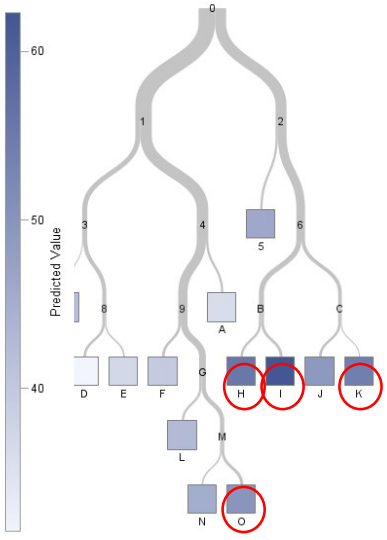
Wayne	Unistrut International Corp.	Fabricated Structural Metal Manufacturing	42.2772	-83.3883	Wayne	0.0000	0.0000
Wayne	Buckeye Terminals, LLC - Detroit Taylor Terminal	General Warehousing and Storage	42.2494	-83.2894	Taylor	0.0000	0.0000
Wayne	Great Lakes Aggregates - River Rouge Oil Storage	Asphalt Paving Mixture and Block Manufacturing	42.2642	-83.1264	River Rouge	0.0000	0.0000
Wayne	East Plymouth	Support Activities for Rail Transportation	42.38124	-83.444101	Unknown	0.0000	0.0000
Wayne	Ameresco Woodland Meadows Romulus, LLC	All Other Pipeline Transportation	42.257	-83.4269	Canton Twp.	0.0000	0.0000

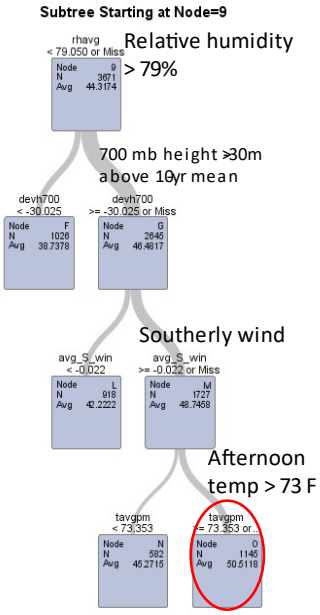
ATTACHMENT C

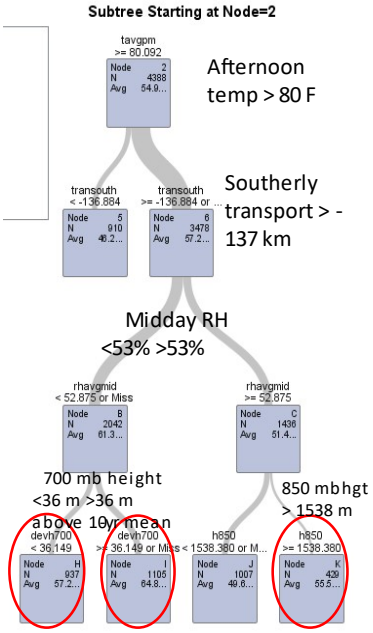
Detroit Cart Analysis

Ozone data for five monitors in the Detroit metro area were combined for this analysis: Allen Park, E. 7 Mile, Oak Park, Warren, and New Haven. The meteorological surface data come from Detroit Metro Airport; the National Climatic Data Center's Integrated Surface Database and Integrated Radiosonde Archive; and HYSPLIT trajectories.

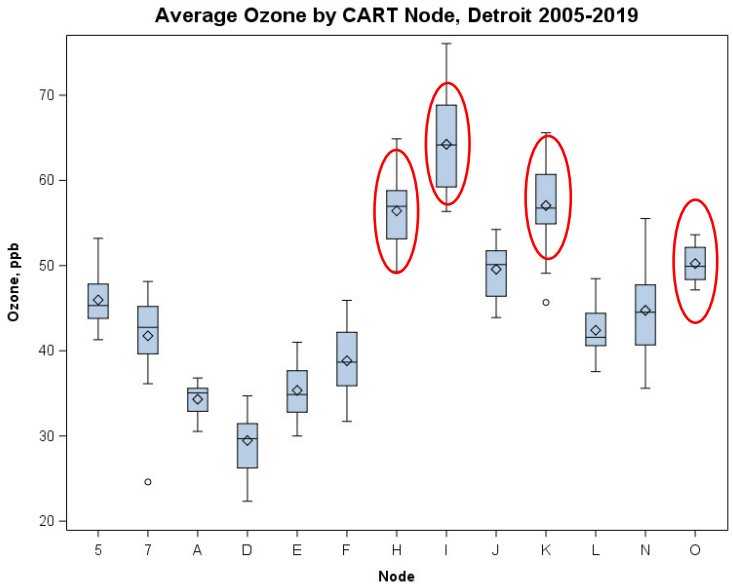
Overall regression tree for Detroit below, with highest ozone nodes circled in red and detailed at right







LADCO 2019 Southeast Michigan CART Analysis

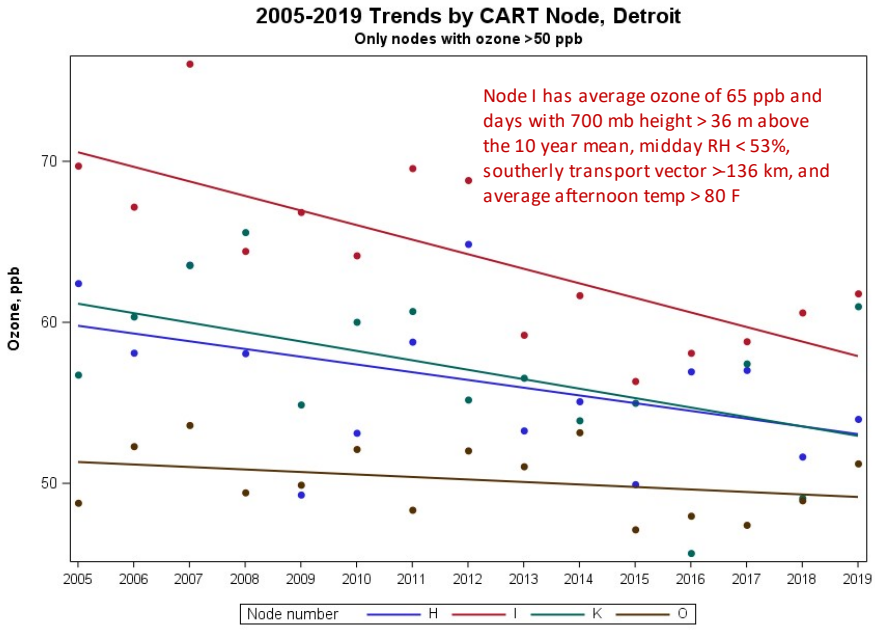


Temperature is the most important predictor of ozone in Detroit, followed by southerly winds and transport and relative humidity.

Variable Importance

Variable	Variable Label	Training		Count	Times Used as a Surrogate
		Relative	Importance		
tavgpm	Average PM Temp	1.0000	803.7	3	0
tmax	Max Daily Temp	0.9732	782.2	0	3
tamax	Max Apparent Temp	0.9522	765.3	0	3
tavgam	Average AM Temp	0.9273	745.3	0	2
avg_S_win	Average Wind South (V) Vector	0.5763	463.2	2	1
avg_S_am	Average AM Wind South (V) Vector	0.5501	442.2	0	3
transouth	v Component of 24-hr Transport Vector, km	0.5233	420.6	1	1
rhavgmid	Average Midday Rel Humid	0.5182	416.5	1	2
rhavg	Average Daily Rel Humid	0.5133	412.6	2	1
avg_S_pm	Average AM Wind South (V) Vector	0.4351	349.7	0	2
dpavg	Average Daily Dew Point	0.3670	295.0	0	2
rhavgnight	Average Nighttime Rel Humid	0.3640	292.6	0	2
trandir	24-hr Transport Direction, deg	0.3476	279.4	0	1
devh850	Deviation in AM 850 mb Height from 10-yr mean	0.3401	273.3	0	3
devh700	Deviation in AM 700 mb Height from 10-yr mean	0.3371	271.0	2	0
h700	700 mb Height, m	0.3335	268.0	0	3
devh500	Deviation in AM 500 mb Height from 10-yr mean	0.3200	257.2	0	2
mrmax	Max Water Vapor Mixing Ratio	0.3101	249.2	0	1
hazehrs	Hours of Haze	0.3057	245.7	0	1
wdavgpm	Average PM Wind Dxn	0.1757	141.2	0	1
h850	850 mb Height, m	0.1269	102.0	1	0

LADCO 2019 Southeast Michigan CART Analysis



Node K has average ozone of 55 ppb and days with 850 mb height > 1538 m, midday RH > 53%, southerly transport vector >-136 km, and average afternoon temp > 80 F

Node H has average ozone of 57 ppb and 700 mb height < 36 m above the 10 year mean, midday RH < 53%, southerly transport vector >-136 km, and average afternoon temp > 80 F

Node O had average ozone of 50 ppb and afternoon temps >73 F, winds from the south, 700 mb height > -30 m above the 10 year mean, average RH < 79%, and average afternoon temp < 80 F