



# Indiana Department of Environmental Management

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100 N. Senate Avenue • Indianapolis, IN 46204

(800) 451-6027 • (317) 232-8603 • [www.idem.IN.gov](http://www.idem.IN.gov)

Michael R. Pence  
*Governor*

Carol S. Comer  
*Commissioner*

May 4, 2016

Mr. Robert Kaplan  
Acting Regional Administrator  
U.S. Environmental Protection Agency  
Region 5  
77 West Jackson Boulevard  
Chicago, IL 60604-3950

Re: Supplemental Revised 2014 Attainment  
Year Emissions Inventory for the Request  
for Redesignation Petition and  
Maintenance Plan for Ozone Attainment  
for the Indiana Portion (Lawrenceburg  
Township, Dearborn County, IN) of the  
Cincinnati-Hamilton, OH-KY-IN 2008 8-  
Hour Ozone Nonattainment Area

Dear Mr. Kaplan:

This letter is in response to a request by your staff seeking supplemental emissions data for Indiana's Portion (Lawrenceburg Township) of the Cincinnati-Hamilton, OH-KY-IN 2008 8-Hour Ozone Nonattainment Area. The Indiana Department Environmental Management (IDEM) has prepared the emissions information in order to satisfy Indiana's obligation to submit a comprehensive inventory of ozone precursor emissions (oxides of nitrogen (NO<sub>x</sub>) and volatile organic compounds (VOCs)) representative of the year when the area achieved attainment of the 2008 8-hour NAAQS for ozone (i.e. 2014), as required by Section 182(a)(1) of the Clean Air Act (CAA). The 2014 attainment-year emissions inventory supplied in this supplemental submittal should be used in conjunction with the information contained in Section 4.0 of the Request for Redesignation Petition and Maintenance Plan for Ozone Attainment for the Indiana Portion (Lawrenceburg Township, Dearborn County, IN) of the Cincinnati-Hamilton, Ohio-Kentucky-Indiana, Nonattainment Area, in reference to the 2008 8-hour ozone standard that was submitted to United States Environmental Protection Agency (U.S. EPA) for review and approval on February 23, 2016.

The 2014 attainment-year emissions inventory is broken down into four anthropogenic source categories: area, non-road, onroad, and point (point consists of non-EGU, EGU, and airport emissions). The 2014 attainment-year emissions for EGU and non-EGU point emissions were taken from the reported 2014 emissions from Indiana's emission inventory database. IDEM's Office of Air Quality (OAQ) collects data, calculates, and stores emissions for point sources on an annual basis in the Emission Inventory Tracking System (EMITS). These point source emissions are

uploaded to the National Emissions Inventory (NEI) each year. Airport-related emissions are also part of the non-EGU point source category. Airport activities fall outside of the required reporting under 326 Indiana Administrative Code (IAC) 2-6. Airport, nonroad, and area emissions for Dearborn County, Indiana were collected from the data available on U.S. EPA's Emission Modeling Clearinghouse. Using Ozone NAAQS Emission Modeling platform (2011v6.1), data were collected together for the 2011 NEI year. The 2014 attainment-year emission inventories for airport, area, and nonroad source categories were developed by interpolating between the 2011 and 2018 inventory datasets. Mobile source emissions were developed in conjunction with the Ohio Environmental Protection Agency (Ohio EPA) and Kentucky Division of Air Quality (KDAQ) and were calculated from emission factors produced by (U.S. EPA's 2014 Motor Vehicle Emission Simulator (MOVES) software program and data extracted from the region's travel-demand model.

Tables 1 and 3 below show emission totals for NO<sub>x</sub> and VOC emissions for all sectors in Dearborn County, Indiana and Tables 2 and 4 show emission totals for all sectors for the entire nonattainment area for the 2014 attainment-year.

**Table 1: NO<sub>x</sub> Emissions, All Sources, Dearborn County, Indiana, 2014 (Attainment-Year)**

Dearborn County	
Sector	2014 (attainment-year)
Point	11.74
Area	0.47
Nonroad	0.44
Onroad	1.37
<b>TOTAL</b>	<b>14.02</b>

**Table 2: NO<sub>x</sub> Emissions, All Sources, Entire Nonattainment Area 2014 (Attainment-Year)**

Entire Nonattainment Area	
Sector	2014 (attainment-year)
Point	95.84
Area	20.59
Nonroad	17.75
Onroad	64.70
<b>TOTAL</b>	<b>198.88</b>

**Table 3: VOC Emissions, All Sources, Dearborn County, Indiana, 2014 (Attainment-Year)**

Dearborn County	
Sector	2014 (attainment-year)
Point	5.54
Area	1.75
Nonroad	0.36
Onroad	0.99
<b>TOTAL</b>	<b>8.64</b>

**Table 4: VOC Emissions, All Sources, Entire Nonattainment Area 2014 (Attainment-Year)**

Entire Nonattainment Area	
Sector	2014 (attainment-year)
Point	14.94
Area	52.70
Nonroad	16.07
Onroad	48.25
<b>TOTAL</b>	<b>131.96</b>

The 2014 supplemental data submitted above does not change the overall conclusion of the February 23, 2016 submittal. Monitored air quality in the Cincinnati area through the year 2015 continues to attain the 2008 8-hour ozone standard. Air quality improvements in the area are due to permanent and enforceable measures that have achieved significant emission reductions that will ensure continued compliance (maintenance) with the standard with an increasing margin of safety over time. Emission projections outlined below in the following graphs and tables clearly illustrate that NO<sub>x</sub> and VOC emissions in Dearborn County, Indiana, and the entire nonattainment area will continue to decline between 2014, the attainment year, and 2030, the maintenance year. Section 7.0 of the Redesignation Petition and Maintenance Plan for Ozone Attainment in the Indiana Portion of the (OH-KY-IN) 2008 8-Hour Ozone Nonattainment Area Petition submitted to U.S. EPA for approval on February 23, 2016 further discusses the implications of these emission trends and provides an analysis to support these conclusions. As such, air quality in the Cincinnati area should continue to attain the 2008 8-hour ozone standard through the projected years of 2020 and 2030.

The 2011 base-year emissions and the projected emissions for 2020 and 2030 did not change. An explanation of how these emission inventories were derived can be found in Section 4.0 of the Request for Redesignation and Maintenance Plan for Ozone Attainment in the Indiana Portion of the (OH-KY-IN) 2008 8-Hour Ozone Nonattainment Area Petition previously submitted to U.S. EPA. Tables 5 and 7 and Graphs 1 and 3 below show emission totals for NO<sub>x</sub> and VOC emissions for all sectors for the 2011 base-year inventory, 2014 attainment-year inventory, 2020 interim-year inventory and

2030 maintenance-year inventory for Dearborn County, while Tables 6 and 8 and Graphs 2 and 4 show emissions for all sectors for the entire nonattainment area for all the same years.

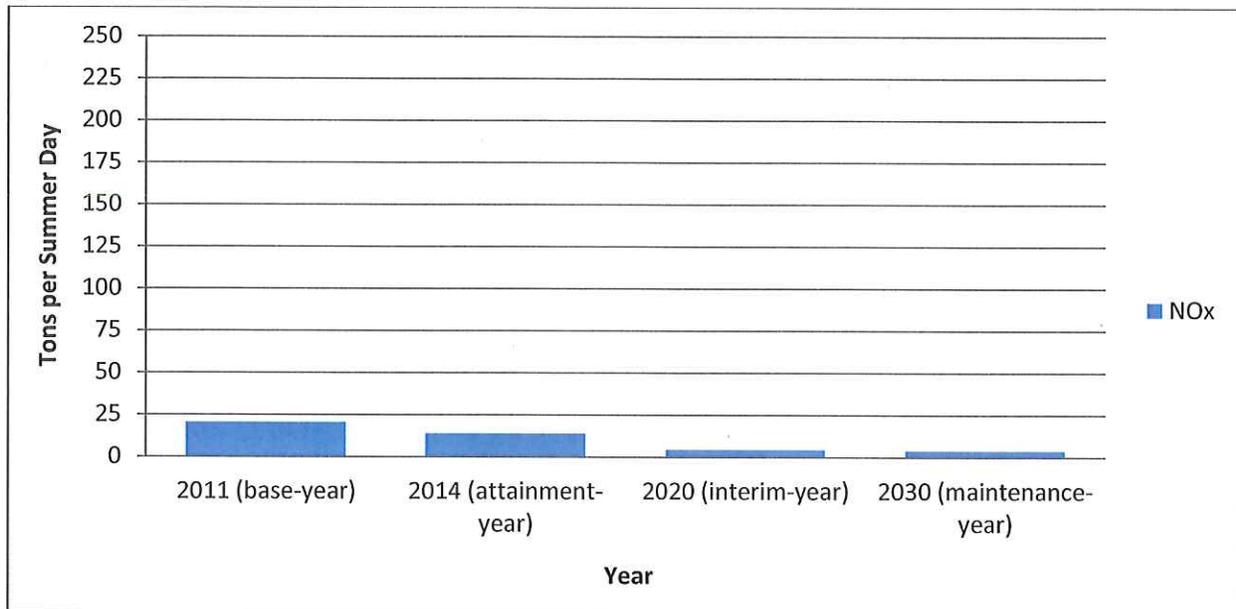
**Table 5: NO<sub>x</sub> Emissions, All Sources, Dearborn County, Indiana, 2011 (Base-Year), 2014 (Attainment-Year), 2020 (Interim-Year) and 2030 (Maintenance-Year)**

<b>Dearborn County</b>				
<b>Sector</b>	<b>2011 (base-year)</b>	<b>2014 (attainment-year)</b>	<b>2020 (interim-year)</b>	<b>2030 (maintenance-year)</b>
<b>Point</b>	17.79	11.74	2.96	2.96
<b>Area</b>	0.47	0.47	0.48	0.48
<b>Nonroad</b>	0.53	0.44	0.30	0.18
<b>Onroad</b>	1.89	1.37	0.74	0.39
<b>TOTAL</b>	<b>20.68</b>	<b>14.02</b>	<b>4.48</b>	<b>4.01</b>

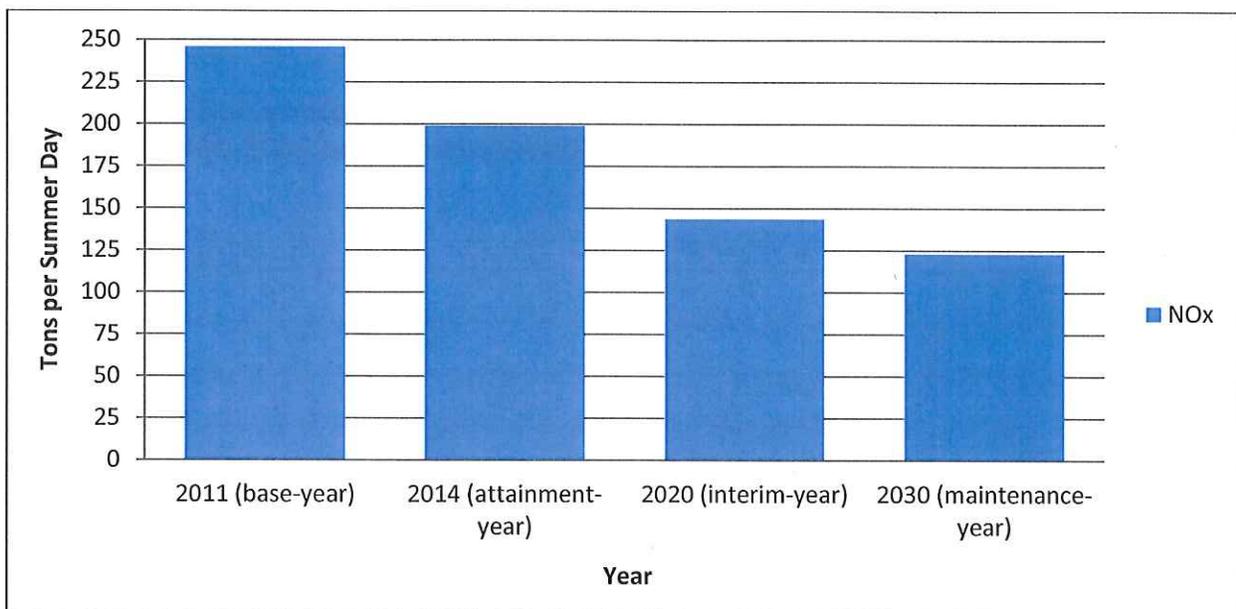
**Table 6: NO<sub>x</sub> Emissions, All Sources, Entire Nonattainment Area 2011 (Base-Year), 2014 (Attainment-Year), 2020 (Interim-Year) and 2030 (Maintenance-Year)**

<b>Entire Nonattainment Area</b>				
<b>Sector</b>	<b>2011 (base-year)</b>	<b>2014 (attainment-year)</b>	<b>2020 (interim-year)</b>	<b>2030 (maintenance-year)</b>
<b>Point</b>	110.23	95.84	75.53	76.44
<b>Area</b>	22.17	20.59	22.17	22.24
<b>Nonroad</b>	23.96	17.75	11.89	7.06
<b>Onroad</b>	89.63	64.70	34.08	17.32
<b>TOTAL</b>	<b>245.99</b>	<b>198.88</b>	<b>143.67</b>	<b>123.06</b>

**Graph 1: NO<sub>x</sub> Emission Trends, All Sources, Dearborn County, Indiana, 2011 (Base-Year), 2014 (Attainment-Year), 2020 (Interim-Year) and 2030 (Maintenance-Year)**



**Graph 2: NO<sub>x</sub> Emission Trends, All Sources, Entire Nonattainment Area 2011 (Base-Year), 2014 (Attainment-Year), 2020 (Interim-Year) and 2030 (Maintenance-Year)**



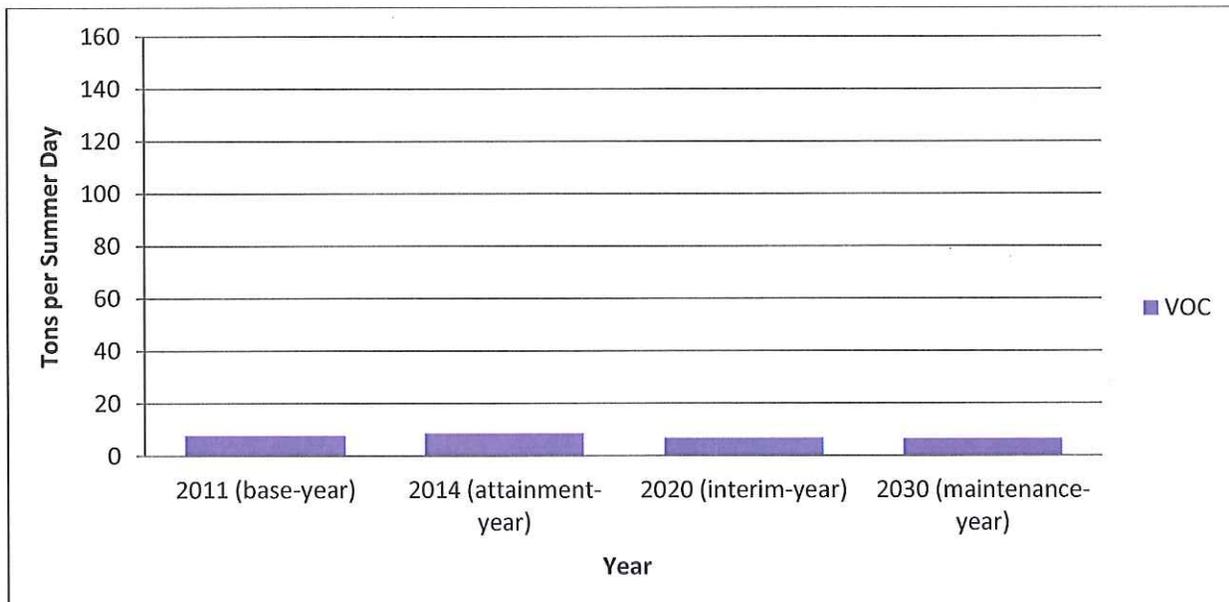
**Table 7: VOC Emissions, All Sources, Dearborn County, Indiana, 2011 (Base-Year), 2014 (Attainment-Year), 2020 (Interim-Year) and 2030 (Maintenance-Year)**

Dearborn County				
Sector	2011 (base-year)	2014 (attainment-year)	2020 (interim-year)	2030 (maintenance-year)
Point	4.28	5.54	4.06	4.06
Area	1.75	1.75	1.77	1.85
Nonroad	0.42	0.36	0.29	0.27
Onroad	1.33	0.99	0.62	0.38
<b>TOTAL</b>	<b>7.78</b>	<b>8.64</b>	<b>6.73</b>	<b>6.56</b>

**Table 8: VOC Emissions, All Sources, Entire Nonattainment Area 2011 (Base-Year), 2014 (Attainment-Year), 2020 (Interim-Year) and 2030 (Maintenance-Year)**

Entire Nonattainment Area				
Sector	2011 (base-year)	2014 (attainment-year)	2020 (interim-year)	2030 (maintenance-year)
Point	15.04	14.94	14.54	14.70
Area	58.44	52.70	56.53	55.92
Nonroad	20.14	16.07	14.53	14.87
Onroad	65.83	48.25	30.27	18.20
<b>TOTAL</b>	<b>159.45</b>	<b>131.96</b>	<b>115.87</b>	<b>103.69</b>

**Graph 3: VOC Emission Trends, All Sources, Dearborn County, Indiana, 2011 (Base-Year), 2014 (Attainment-Year), 2020 (Interim-Year) and 2030 (Maintenance-Year)**



**Graph 4: VOC Emission Trends, All Sources, Entire Nonattainment Area, 2011 (Base-Year), 2014 (Attainment-Year), 2020 (Interim-Year) and 2030 (Maintenance-Year)**

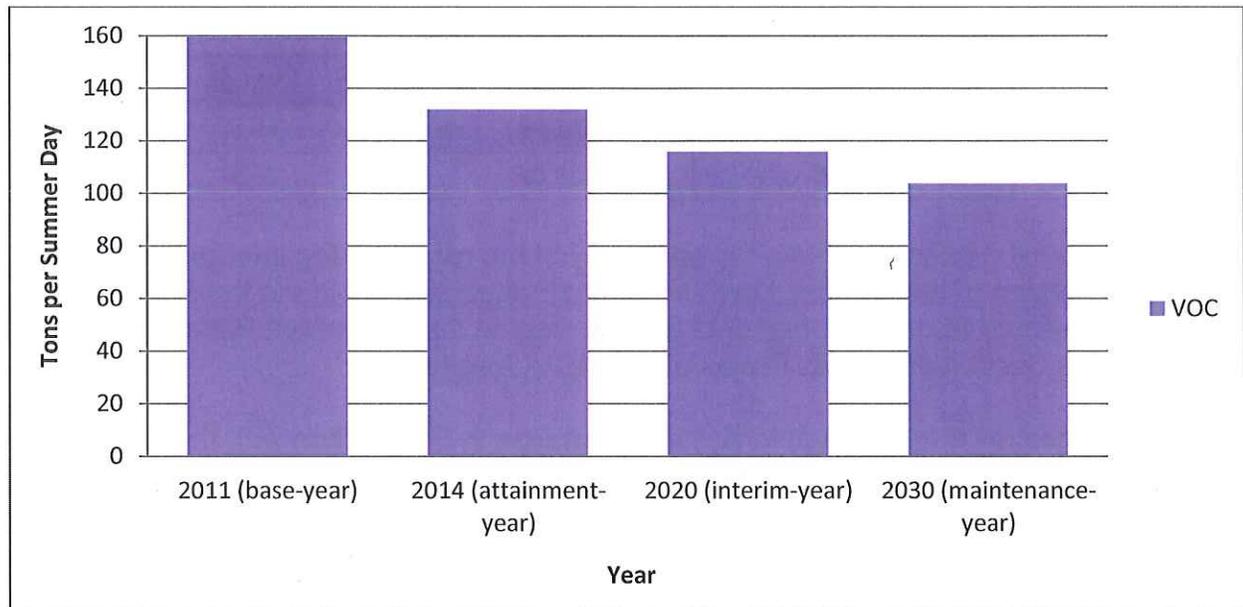


Table 9 compares estimated NO<sub>x</sub> and VOC emissions for all sources for the years 2014 and 2030 for Dearborn County, Indiana. Table 10 compares estimated NO<sub>x</sub> and VOC emissions for all sources for the years 2014 and 2030 for the entire nonattainment area. NO<sub>x</sub> emissions within Dearborn County are projected to decline by 71.40% between 2014 and 2030 and by 38.12% in the entire nonattainment area. VOC emissions within Dearborn County are projected to decline by 24.07% between 2014 and 2030 and by 21.14% in the entire nonattainment area. The decrease in emissions shown between 2014 (attainment-year) and 2030 (maintenance-year) in Tables 9 and 10 illustrates the continued maintenance of the 2008 8-hour ozone NAAQS is expected in Lawrenceburg Township, as well as the entire nonattainment area. Emission reduction benefits from major federal emission strategies are factored into these changes as outlined in Section 6.0 of the Request for Redesignation and Maintenance Plan for Ozone Attainment in the Indiana Portion of the (OH-KY-IN) 2008 8-Hour Ozone Nonattainment Area Petition submitted to U.S. EPA.

**Table 9: Comparison of 2014 (Attainment-Year) and 2030 (Maintenance-Year) NO<sub>x</sub> and VOC Emissions, All Sources, Dearborn County, Indiana (tons per summer day)**

	2014	2030	Change	%Change
NO <sub>x</sub>	14.02	4.01	-10.01	-71.40%
VOC	8.64	6.56	-2.08	-24.07%

**Table 10: Comparison of 2014 (Attainment-Year) and 2030 (Maintenance-Year) NO<sub>x</sub> and VOC Emissions, All Sources, Entire Nonattainment Area (tons per summer day)**

Entire Nonattainment Area				
	2014	2030	Change	%Change
NO <sub>x</sub>	198.88	123.06	-75.82	-38.12%
VOC	131.96	103.69	-28.27	-21.42%

This submittal consists of one (1) hard copy of the required documentation. An electronic version of the submittal in PDF format that is identical to the hard copy has been sent to Doug Aburano, Chief of U.S. EPA Region 5's Attainment Planning and Maintenance Section and Chris Panos of U.S. EPA Region 5.

IDEM believes that this supplemental information in conjunction with the Redesignation Petition and Maintenance Plan meets the requirements for redesignation under Section 107(d)(3) of the CAA and U.S. EPA guidance.

IDEM requests that U.S. EPA proceed with review and approval of the Request for Redesignation Petition and Maintenance Plan for Ozone Attainment of the Indiana Portion (Lawrenceburg Township, Dearborn County, IN) of the Cincinnati-Hamilton, Ohio-Kentucky-Indiana 2008 8-Hour Ozone Nonattainment Area submitted to U.S. EPA February 23, 2016 contingent upon revisions to Indiana's Emission Reporting Rule. Indiana is currently amending its Emission Reporting Rule (326 IAC 2-6), as required under Section 182(a)(3)(b) of the CAA, to revise the reporting thresholds for NO<sub>x</sub> and VOCs for sources located in Lawrenceburg Township, Dearborn County and change the reporting schedule from triennial to annual. This rulemaking should be complete by late summer or early fall. Indiana will submit the rule amendments to your agency as a revision to Indiana's State Implementation Plan (SIP) later this year.

If you have any questions or need additional information, please contact Brian Callahan, Chief, Air Quality Standards and Implementation Section, Office of Air Quality at (317) 232-8244 or bcallaha@idem.IN.gov.

Sincerely,



Keith Baugues  
Assistant Commissioner  
Office of Air Quality

Mr. Robert Kaplan  
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KB/sad/bc/gf/mlb

cc: George Czerniak, U.S. EPA Region 5  
Doug Aburano U.S. EPA Region 5  
Chris Panos, U.S. EPA Region 5  
John Mooney, U.S. EPA Region 5  
Steve Rosenthal, U.S. EPA Region 5  
Ed Doty, U.S. EPA Region 5  
Keith Baugues, IDEM-OAQ  
Scott Deloney, IDEM-OAQ  
Brian Callahan, IDEM-OAQ  
Gale Ferris, IDEM-OAQ  
Michele Boner, IDEM-OAQ  
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