

## **Analysis of technical information for Michigan 8-hr Designation 120 day letters**

The following is a list of the metropolitan areas in Michigan and the summary of the analysis performed to inform decisions regarding designations for the 120 day letters. Additional data is available as part of the docket (i.e. tables and charts summarizing data as well as the Michigan DEQ submittal).

### **Grand Rapids-Muskegon-Holland MSA**

Includes Kent, Ottawa, Allegan and Muskegon Counties.

#### Michigan DEQ Recommendation:

Michigan DEQ recommended Ottawa, Allegan and Muskegon Counties as individual nonattainment areas and recommended Kent County as attainment.

#### Issue:

Separating a presumptive area into more than one nonattainment area.

EPA 120 day Recommendation: We believe these areas should be kept as one nonattainment area. The State has not submitted enough information to justify separating this area into three, possibly four, distinct and individual nonattainment areas.

#### Technical Analysis:

This is a summary of how the 11 factors are addressed by the Michigan DEQ. Bold areas indicate where we included technical information to supplement the State recommendation. Copies of the data are included in the docket.

#### 1) Emissions and Air Quality

MDEQ submitted emissions data for each of the four counties but did not base their argument for designating each of these counties on an individual basis on these data.

NOx Emissions (Tons/Yr)

County	Point	Area	Non-road	On-road	Total	% of Total
Allegan	934.82	573.40	1348.10	4680.73	7537.05	7 %
Kent	1133.67	3124.08	4514.99	15982.09	24754.83	24 %
Muskegon	6781.08	859.80	1665.98	4701.03	14007.89	14 %
Ottawa	36680.13	132.03	2304.79	7795.32	47912.26	47 %

VOC Emissions (Tons/Yr)

County	Point	Area	Non-road	On-road	Total	% of Total
Allegan	1729.63	3780.12	1882.94	2551.83	9944.51	12 %
Kent	4506.39	15318.71	3862.95	12259.31	35947.36	44 %
Muskegon	656.18	4307.07	1739.97	3322.44	10025.67	12 %
Ottawa	1640.27	5882.60	2484.41	5085.62	15092.89	19 %

2) Population Density and degree of Urbanization

No data submitted by MDEQ.

3) Monitoring Data

MDEQ based their recommendations on 2000-2002 ozone data. At the time, the monitors in Ottawa, Allegan and Muskegon Counties were all violating the 8-hour ozone standard and Kent County was below the standard.

Preliminary 2001-2003 data indicate all four counties are violating the 8-hour ozone standard.

4) Location of Emissions Sources

No data submitted by MDEQ.

5) Traffic and Commuting Patterns

No data submitted by MDEQ.

6) Expected Growth

No data submitted by MDEQ.

7) Meteorology

MDEQ submitted meteorological data, including wind roses, indicating the area is highly impacted by transport from upwind areas located in Illinois, Indiana and Wisconsin. **The ozone transport phenomenon that occurs in this area is well documented and recognized by EPA. Monitors on the Lake Michigan lakeshore typically experience the highest ozone levels in the area. These monitors are sited such that they are not impacted by emissions sources in**

**Michigan. However, these areas may contribute to ozone levels recorded at downwind inland monitors.**

8) Geography

Allegan, Ottawa and Muskegon all lie on the Lake Michigan shoreline and the transport phenomenon has been linked to this proximity.

9) Jurisdictional Boundaries

No data submitted by MDEQ.

10) Level of Emission Controls

No data submitted by MDEQ.

11) Regional Emission Reductions

No data submitted by MDEQ. This entire area is subject to EPA's SIP Call requirements.

Region 5 review:

Based on our analysis of the 11 factors, MDEQ has not justified separating the area into more than one nonattainment area. There are not sufficient distinctions between the areas the State has suggested as individual nonattainment areas. They are all in the same air basin.

**Detroit-Ann Arbor-Flint MSA**

Includes Wayne, Oakland, Macomb, St. Clair, Livingston, Washtenaw, Monroe, Genesee, Lapeer and Lenawee Counties

Michigan DEQ Recommendation:

Michigan DEQ recommended Wayne, Oakland, Macomb, St. Clair, Livingston, Washtenaw, and Monroe Counties as one nonattainment area. Genesee and Lapeer Counties as a separate nonattainment area (the Flint Area) and Lenawee County as its own nonattainment area.

Issue:

Separating a presumptive area into more than one nonattainment area.

EPA 120 day Recommendation:

We believe these areas should be kept as one nonattainment area. The State has not submitted enough information to justify separating this area into three distinct and individual nonattainment areas.

Technical Analysis:

This is a summary of how the 11 factors are addressed by the Michigan DEQ. Bold areas indicate where EPA included technical information to supplement the State recommendation. Copies of the data are included in the docket.

### 1) Emissions and Air Quality

Flint Area: The Flint area contributes 7.2% and 11.5% of the total NO<sub>x</sub> and VOC emissions, respectively, in the 1999 CMSA. The State has argued that prevailing winds are from the southwest, therefore, the greater Detroit area does not contribute to the Flint area and vice-versa.

Lenawee County: Less than 1.2% and 2.1% of total NO<sub>x</sub> and VOC emissions, respectively.

### 2) Population Density and degree of Urbanization

Flint Area: Population density for Genesee County is 681.9 persons/sq. mile. Lapeer County has a population density of 134.4 persons/sq. mile.

The population of Genesee County is 8% of the Detroit-Ann Arbor-Flint CMSA. Lapeer County accounts for 1.6% of the total population.

Lenawee County: Lenawee County is no longer considered part of the 2000 Combined Statistical Area for southeast Michigan, according to the U.S. Census. 2000 population density is 131.8 persons/sq. mile. Lenawee County is 1.8% of the 1999 Detroit-Ann Arbor-Flint population. 81% is forest or farmland.

### 3) Monitoring Data

Flint Area: The two ozone monitors are both in Genesee County. Both monitors measured a design value of .084 ppm given 2000-2002 data. However, in 2003 the design value changed to .090 ppm. Therefore, this area should be designated as nonattainment.

Lenawee County: 2000-2002 design value is .085 ppm. **2001-2003 design value is .087 ppm.**

### 4) Location of Emissions Sources

Flint Area: Thirteen major sources of NO<sub>x</sub> are located in Genesee County. They are located in the central and northern portions of the county and are thus fairly removed from the greater Detroit area. There are four major NO<sub>x</sub> sources in Lapeer County. The state has not submitted locations for these sources.

Lenawee County: Only two major NO<sub>x</sub> sources. The state has not submitted locations for these sources.

### 5) Traffic and Commuting Patterns

Flint Area: Genesee County contributes 9.4% and 9.3% of the NO<sub>x</sub> and VOC on-road mobile emissions, respectively, in the 1999 CMSA. The VMT is projected to increase by 29.1% from

2000 to 2025, a stable rate of 1.1% per year. By 2025, Genesee County is expected to account for 9.5% of the total VMT in the 1999 CMSA. The county-to-county worker flow data shows that 16.3% of Genesee County's workers commute to the seven-county recommended nonattainment area. This represents 1.4% of the workers in the seven-county area.

Lenawee County: 2% and 1.6% of NO<sub>x</sub> and VOC on-road mobile emissions in the total CMSA. VMT is expected to increase 28.5% from 2000 to 2025, or 1.1%/year. By 2025, this will be 1.8% of the CMSA's total VMT. 21.8% of the Lenawee County workers commute to the greater Detroit area (the seven county area, not including Flint and Lenawee). This is .5% of the workforce in the greater Detroit area.

**While not significant to the total level of VMT or commuting in the area, Lenawee County is directly upwind of the Detroit area and emissions from motor vehicles in Lenawee County could contribute to high ozone levels.**

#### 6) Expected Growth

Flint Area: Genesee County has a rather high population density and a large urban area. The expected population and employment growth, however, is quite low. From 1990-2000, Genesee County's growth rate was 0.12% per year. From 2000-2020, Genesee County's population is projected to increase by 5.3%, a rate of just 0.25% per year. Employment projections for Genesee County are higher than the population projections, but this growth rate is still relatively low. From 2000-2020, total employment will increase by 13.4%, a rate of 0.64% per year.

**Despite low growth, the overall population in Genesee County remains high.**

In direct contrast to Genesee County, Lapeer County has a rather high population growth rate of 1.6% per year from 1990-2000, second only to Livingston County. From 2000-2020, the population growth rate is expected to increase 21.2%, a rate of 1% per year and the fourth highest in the 1999 CMSA. The 2000-2020 total employment projection for Lapeer County is comparable with the employment projection for Genesee County. An increase of 12.6% is expected during this time frame, a rate of 0.6% per year.

Lenawee County: From 2000-2020, the population of Lenawee County is expected to grow by 6.9%. Similarly, the employment projections show an increase of 7.2% from 2000-2020.

#### 7) Meteorology

Flint Area: A wind rose for Flint, the major city in Genesee County, for April through September 2002 shows that the winds are mainly from the South and Southwest (Wind Rose 2, page 36). This southwesterly wind flow is similar to Detroit's wind patterns. The state argues that, Genesee and Lapeer counties, located northwest of Detroit, are neither major contributors nor major receptors of emissions from the Detroit region.

On occasion, however, the two Genesee County monitors measure elevated ozone levels when winds are from the southeast Detroit region. Emission reductions will occur in the seven-county

Detroit region and can be expected to slightly benefit air quality in these two counties as well.

**Upon analysis of the meteorological information submitted by the state, EPA believes that there are instances where Flint's ozone problem is the result of emissions from the rest of Southeast Michigan when the winds are out of the south. The EPA agrees that Genesee and Lapeer counties are not major contributors to high levels in other parts of Southeast Michigan, but disagrees with the statement that they are not a receptor of emissions from other parts of Southeast Michigan.**

Lenawee County: Lenawee County is located in the southwestern portion of the Detroit-Ann Arbor-Flint area. It is south of Washtenaw County and west of Monroe County. A windrose supplied by MDEQ indicates summer winds are predominantly from the South and Southwest. Therefore, Detroit's emission do not impact the air quality in Lenawee County. MDEQ claims that because emissions in Lenawee County are small enough that they do not significantly contribute to Detroit's air quality problem.

**Lenawee County, however, is located directly upwind of the rest of Southeast Michigan and any emissions from this county, although low, would be expected to contribute to high ozone levels.**

#### 8) Geography

Flint Area: - **not applicable.**

Lenawee County: - **not applicable**

#### 9) Jurisdictional Boundaries

Flint Area: Existing one-hour ozone designation boundaries coincide with the Flint and Detroit MPO boundaries in the region. Genesee County is the jurisdictional MPO boundary for the Genesee County Metropolitan Planning Commission (GCMPC). The MPO for the Detroit region, SEMCOG, consists of the seven-county recommended nonattainment area for Detroit: Livingston, Macomb, Monroe, Oakland, St. Clair, Washtenaw, and Wayne counties. These existing MPO jurisdictional boundaries are another reason to have separate designation boundaries for Genesee and Lapeer Counties and the seven-county Detroit region. The GCMPC and SEMCOG have distinct procedures in place for conformity analyses and transportation planning that would become unnecessarily complicated if the two areas were included in the same designation boundary.

While the jurisdictional boundary for the GCMPC does not include Lapeer County, the 8-hour designation boundary should include both counties because of the high amount of growth that is occurring in Lapeer County. In addition, Genesee and Lapeer counties already coordinate work on several transportation and non-transportation related items, primarily due to their membership on the Genesee, Lapeer, and Shiawassee Region V Planning and Development Commission (GLS Region V PDC).

The non-transportation related work performed by the GLS Region V PDC includes reviewing applications that are eventually submitted to agencies such as the Michigan Department of Natural Resources (MDNR), the Michigan State Housing Development Authority (MSHDA), and the U.S. Department of Housing and Urban Development (HUD). An air quality designation that links these two counties and builds on their existing relationships is more reasonable than including Lapeer County with the Detroit region's designation.

Lenawee County: Lenawee County is not part of the Southeast Michigan Council of Governments (SEMCOG) which is the metropolitan planning organization (MPO) for the greater Detroit Area. Coordination between SEMCOG and the Lackson MPO of which Lenawee County is a member would be an enormous undertaking.

#### 10) Level of Emission Controls

Flint Area: Some RACT requirements in place at the State apply on a statewide basis.

**The state has developed RACT regulations for some, but not all, of the source categories identified in the Clean Air Act.**

Lenawee County: Some RACT requirements in place at the State apply on a statewide basis.

**The state has developed RACT regulations for some, but not all, of the source categories identified in the Clean Air Act.**

#### 11) Regional Emission Reductions

Flint Area: All major NO<sub>x</sub> sources in the 1999 Southeast Michigan CMSA are subject to NO<sub>x</sub> SIP call requirements.

Lenawee County: All major NO<sub>x</sub> sources in the 1999 Southeast Michigan CMSA, which includes Lenawee County, are subject to the NO<sub>x</sub> SIP Call requirements.

#### Region 5 review:

No one factor is the basis for the designation process. All of the 11 factors were analyzed together.

Flint Area: MDEQ has provided information attempting to demonstrate that the Flint area should be a separate nonattainment area from the rest of the Detroit-Ann Arbor area. While the information supplied does indicate that there are jurisdictional distinctions between Flint and Detroit-Ann Arbor, low growth in Genesee County, and some meteorological information that argues for splitting the area, the EPA believes that the population, emissions and meteorological information indicating that emissions from Detroit-Ann Arbor significantly impact the air quality in Flint provide more compelling reasons to keep the area together. As a result, the EPA believes that these areas should remain joined to allow for more comprehensive airshed management in the area.

Lenawee County: While Lenawee County does not contribute a major percentage of overall

emissions to the Detroit-Ann Arbor area it is upwind and does contain a significant population (close to 100,000 people) that is expected to grow. As a result, the EPA believes that this county should be included in the area to better capture the emissions sources that contribute to high ozone levels in Southeast Michigan.

### **Huron County Area**

Includes Huron County.

#### Michigan DEQ Recommendation:

Michigan DEQ recommended this county as attainment as it was not violating the ozone standard during the 2000-2002 time period that the State's recommendations were based on.

#### Issue:

New nonattainment area based on 2001-2003 data.

#### EPA 120 day Recommendation:

A modification was made to the State's recommendation. EPA would include the Huron County Area as a nonattainment area. This includes only Huron County, which contains a monitor that is violating the NAAQS based on 2001-2003 data.

#### Technical Analysis:

There is no analysis of the 11 factors as MDEQ made did not recommend this area as nonattainment and it is only a single county.

#### Region 5 review:

This is an area that was not violating the ozone standard given 2000-2002 ozone data which the State based its recommendations on. Therefore, the State made a recommendation of attainment for this area. However, given preliminary 2001-2003 data, this area is now violating the ozone standard and should be designated as nonattainment.

### **Kalamazoo-Battle Creek Area**

Includes Calhoun County, Kalamazoo County, and Van Buren County

#### Michigan DEQ Recommendation:

Michigan DEQ recommended this area as attainment as it was not violating the ozone standard during the 2000-2002 time period that the State's recommendations were based on.

#### Issue:

New nonattainment area based on 2001-2003 data.

#### EPA 120 day Recommendation:

A modification was made to the State's recommendation. EPA would include the Kalamazoo-Battle Creek Area as a nonattainment area. This includes Calhoun County, Kalamazoo County,

and Van Buren County, which contain a monitor that is violating the NAAQS based on 2001-2003 data.

Technical Analysis:

A modification was made to include the Kalamazoo-Battle Creek Area as a nonattainment area. This includes. This area contains a violating monitor so the presumption is that the entire MSA would be designated nonattainment.

There is no analysis of the 11 factors as MDEQ made did not recommend this area as nonattainment.

Region 5 review:

This is an area that was not violating the ozone standard given 2000-2002 ozone data which the State based its recommendations on. Therefore, the State made a recommendation of attainment for this area. However, given preliminary 2001-2003 data, this area is now violating the ozone standard and should be designated as nonattainment.

**Lansing-East Lansing Area**

Includes Clinton County, Eaton County, and Ingham County.

Michigan DEQ Recommendation:

Michigan DEQ recommended this area as attainment as it was not violating the ozone standard during the 2000-2002 time period that the State's recommendations were based on.

Issue:

New nonattainment area based on 2001-2003 data.

EPA 120 day Recommendation:

A modification was made to the State's recommendation. EPA would include the Lansing-East Lansing Area as a nonattainment area. This includes Clinton County, Eaton County, and Ingham County, which contain a monitor that is violating the NAAQS based on 2001-2003 data.

Technical Analysis:

A modification was made to include the Lansing-East Lansing Area as a nonattainment area. This includes. This area contains a violating monitor so the presumption is that the entire MSA would be designated nonattainment.

There is no analysis of the 11 factors as MDEQ made did not recommend this area as nonattainment.

A modification was made to include the Lansing-East Lansing Area as a nonattainment area. This includes Clinton County, Eaton County, and Ingham County. This area contains a violating

monitor so the presumption is that the entire MSA would be designated nonattainment.

There is no analysis of the 11 factors as MDEQ made did not recommend this area as nonattainment.

Region 5 review:

This is an area that was not violating the ozone standard given 2000-2002 ozone data which the State based its recommendations on. Therefore, the State made a recommendation of attainment for this area. However, given preliminary 2001-2003 data, this area is now violating the ozone standard and should be designated as nonattainment.