



# North Central Indiana Air Quality Update

PARTNERS FOR



CLEAN AIR

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Office of Air Quality

Indiana Department of Environmental Management (IDEM)  
April 29, 2015



## Presentation Summary:

- Geographic area
- Long-term PM<sub>2.5</sub> air quality and emission trends
- Long-term ozone air quality and emission trends
- Current schedule for ongoing NAAQS review
- 8-hour ozone area designations
- Effects of designations
- Conclusions

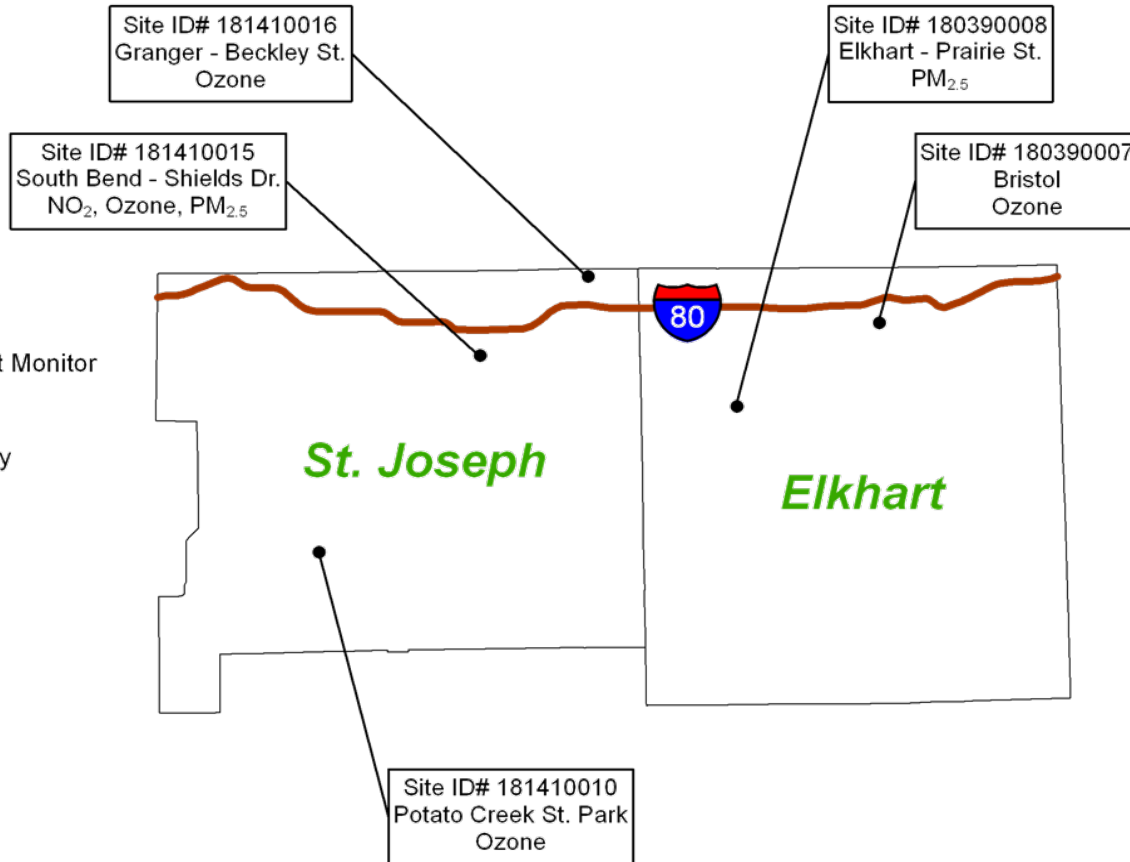


# Geographic area:



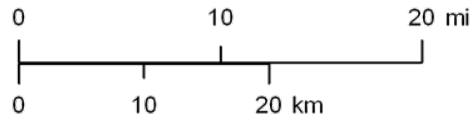
### Legend

- Criteria Pollutant Monitor
- Interstate
- County Boundary



## Criteria Pollutant Monitors for *Elkhart* and *St. Joseph* Counties

Date: 4/8/2014  
Mapped By: C. Mitchell, OAQ  
Sources: Office of Air Quality  
Map Projection: UTM Zone 16 N  
Map Datum: NAD83



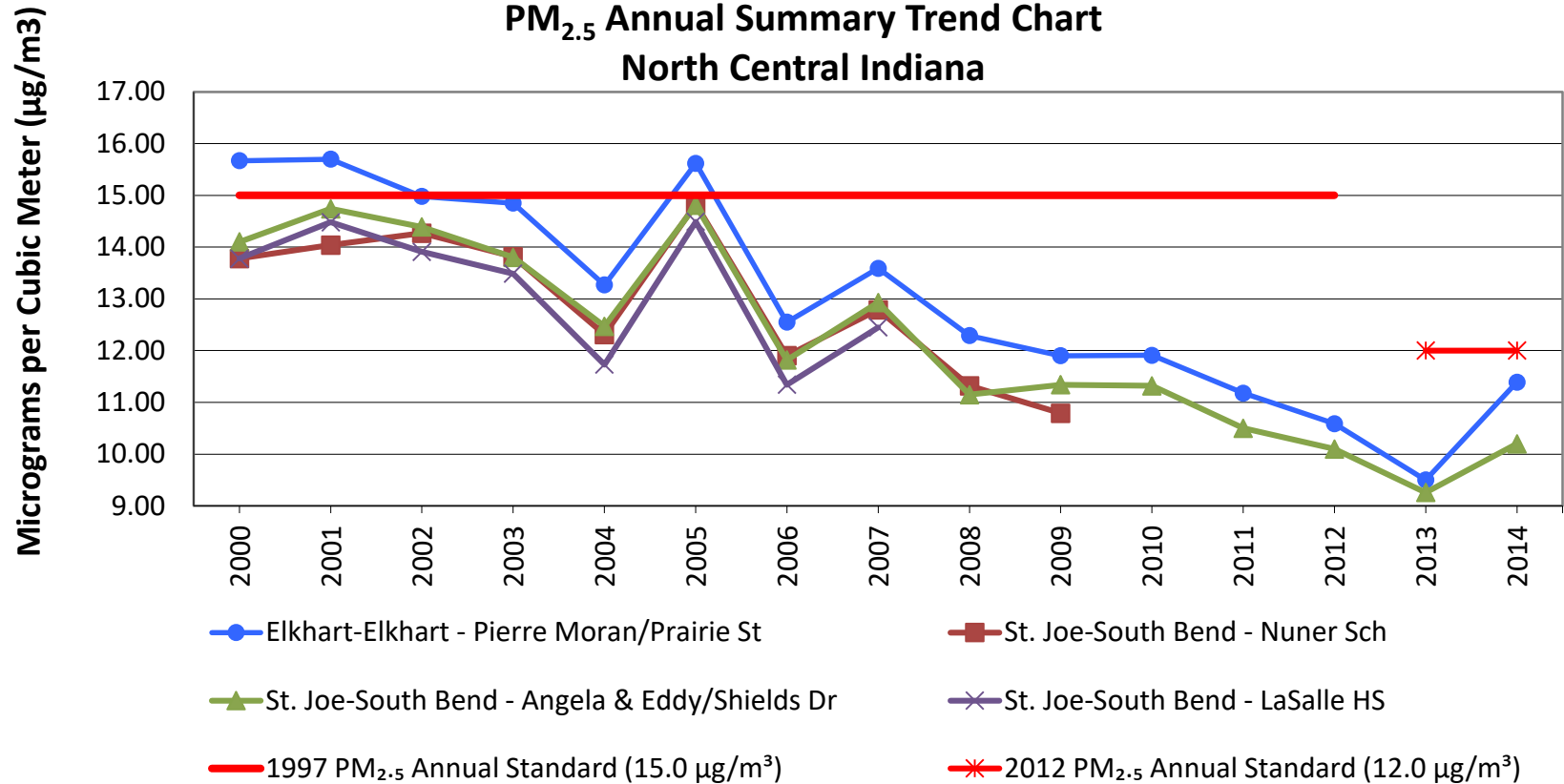


# Long-term air quality trends:



# PM<sub>2.5</sub>

## PM<sub>2.5</sub> Annual Summary Trend Chart North Central Indiana

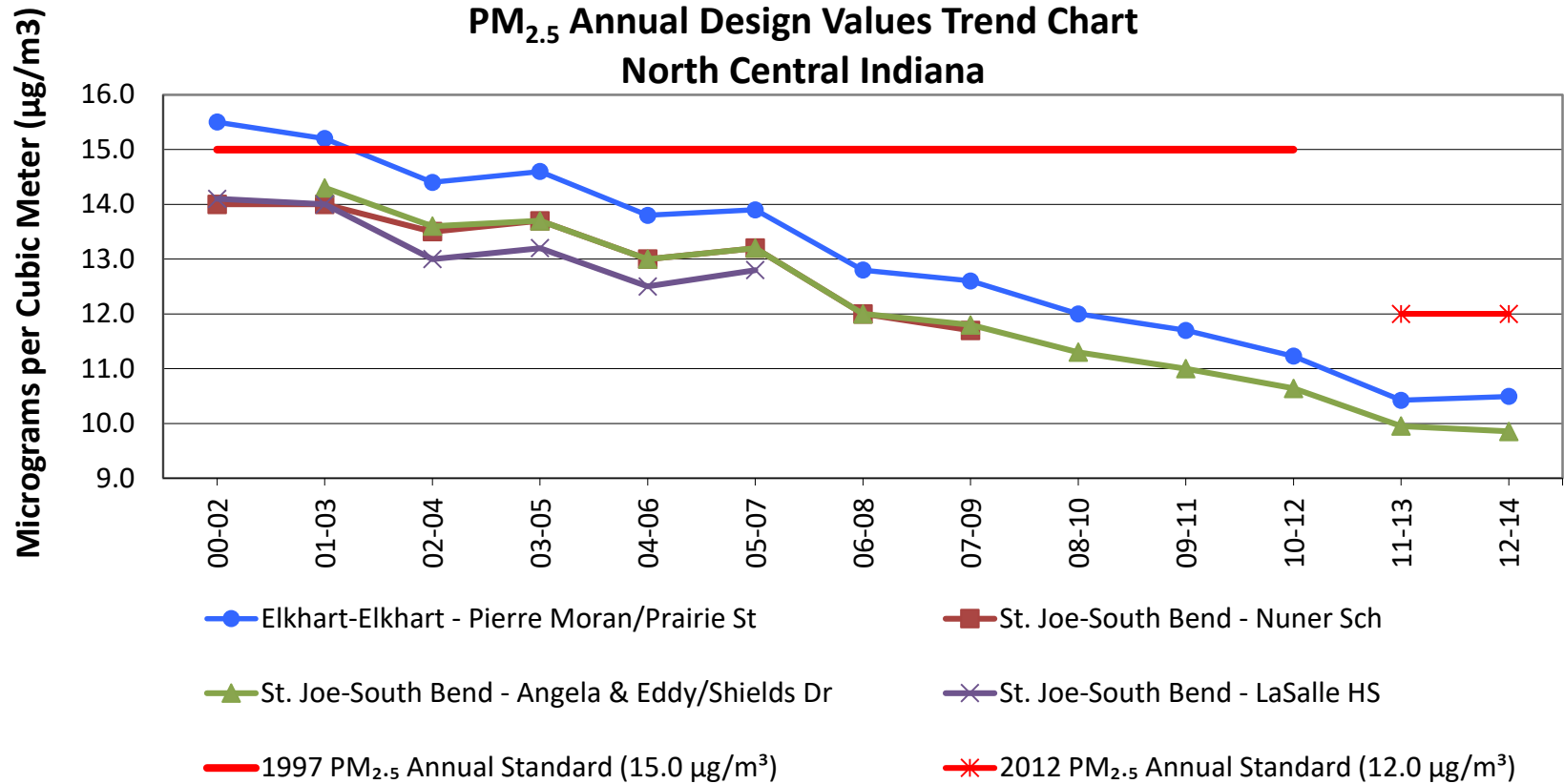




# PM<sub>2.5</sub>

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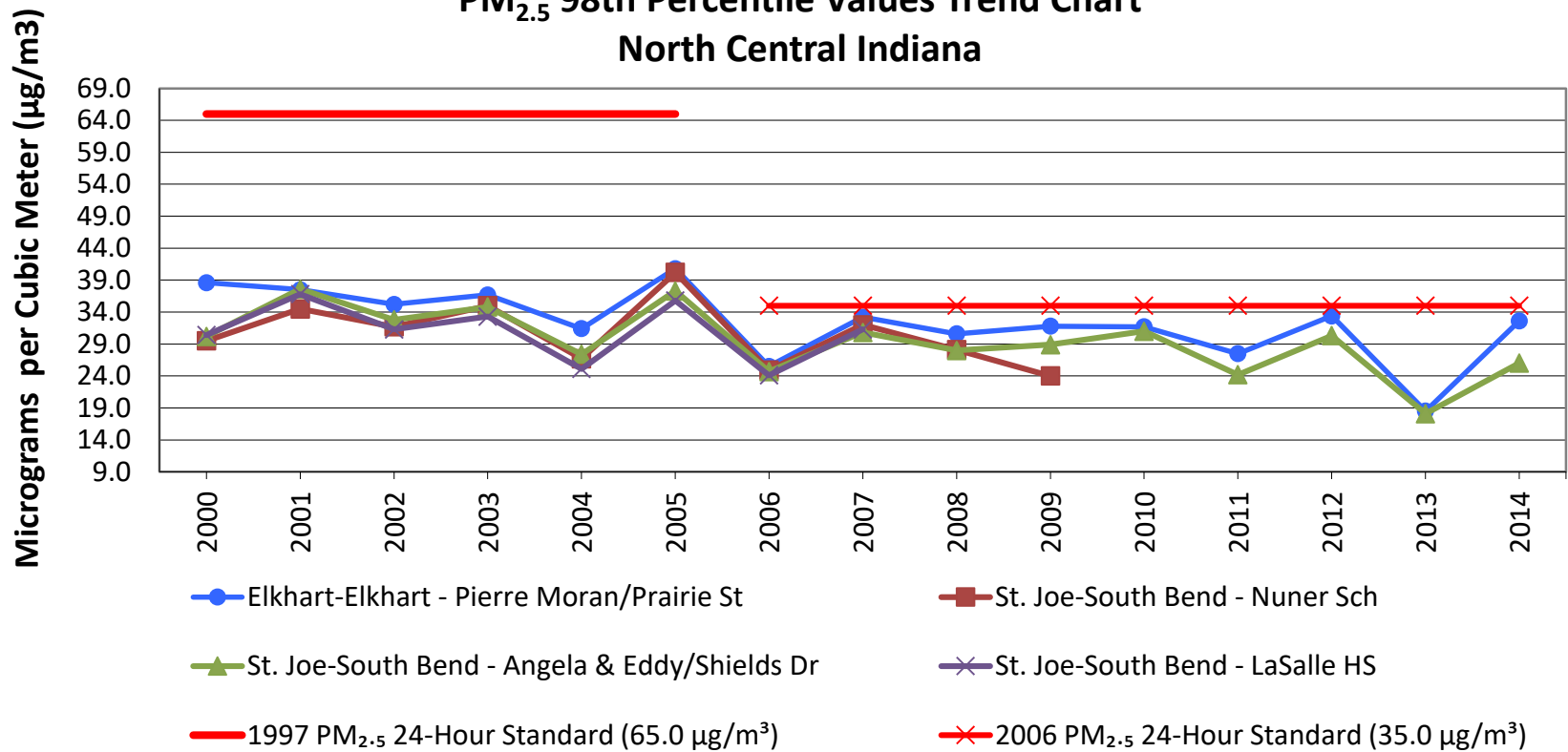
### PM<sub>2.5</sub> Annual Design Values Trend Chart North Central Indiana





# PM<sub>2.5</sub>

## PM<sub>2.5</sub> 98th Percentile Values Trend Chart North Central Indiana

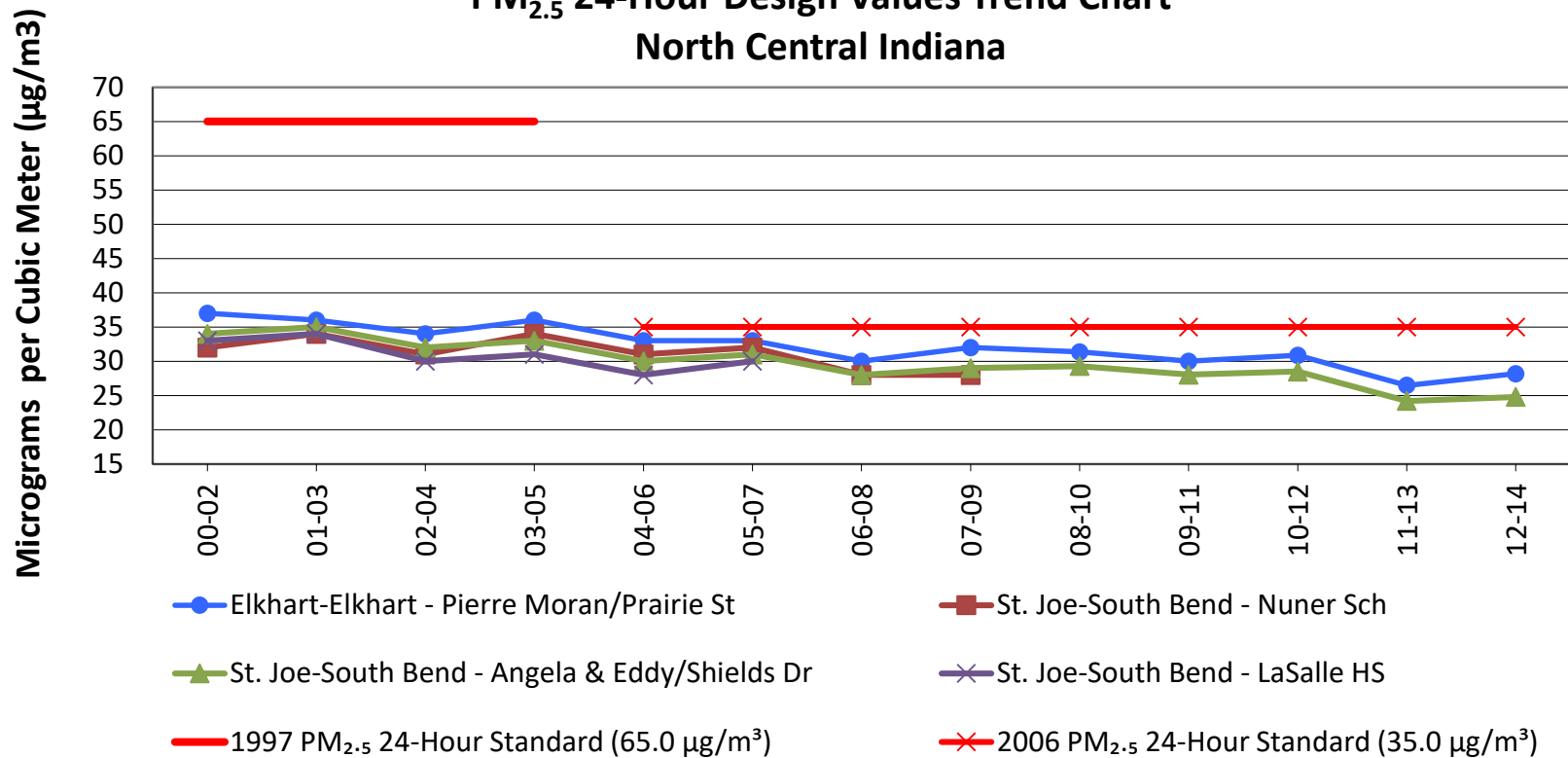






# PM<sub>2.5</sub>

## PM<sub>2.5</sub> 24-Hour Design Values Trend Chart North Central Indiana





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**PM<sub>2.5</sub> Annual  
Design Values  
2012 - 2014**



**Standard set  
at 12.0 µg/m<sup>3</sup>**

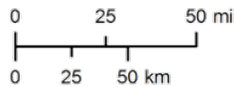
*1997:  
U.S. EPA  
Established This  
Standard at  
15.0 µg/m<sup>3</sup>*

*2006:  
U.S. EPA  
Retained This  
Standard at  
15.0 µg/m<sup>3</sup>*

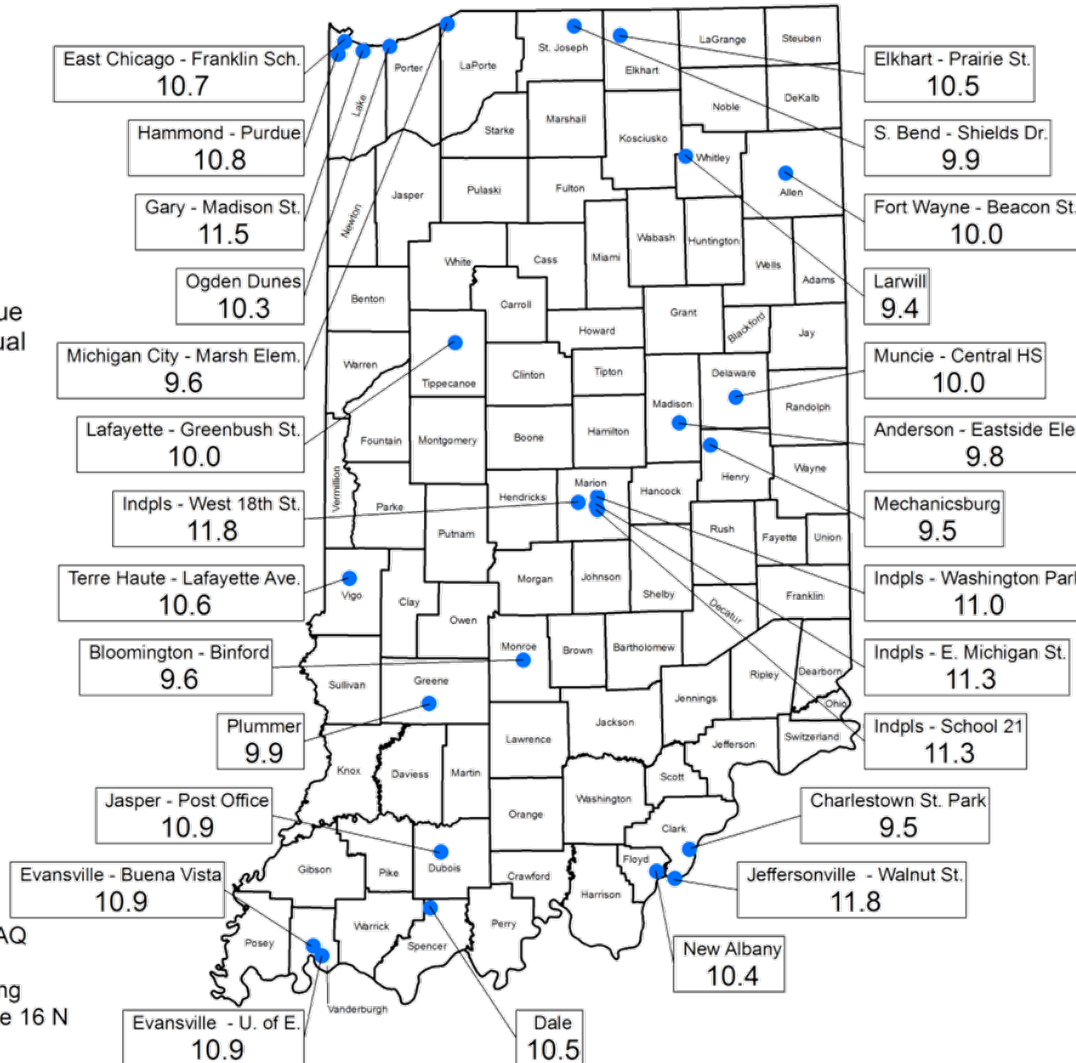
*2012:  
U.S. EPA  
Revised This  
Standard to  
12.0 µg/m<sup>3</sup>*

**Legend**

-  PM<sub>2.5</sub> Design Value Less Than or Equal to 12.0 µg/m<sup>3</sup>
-  Indiana County Borders



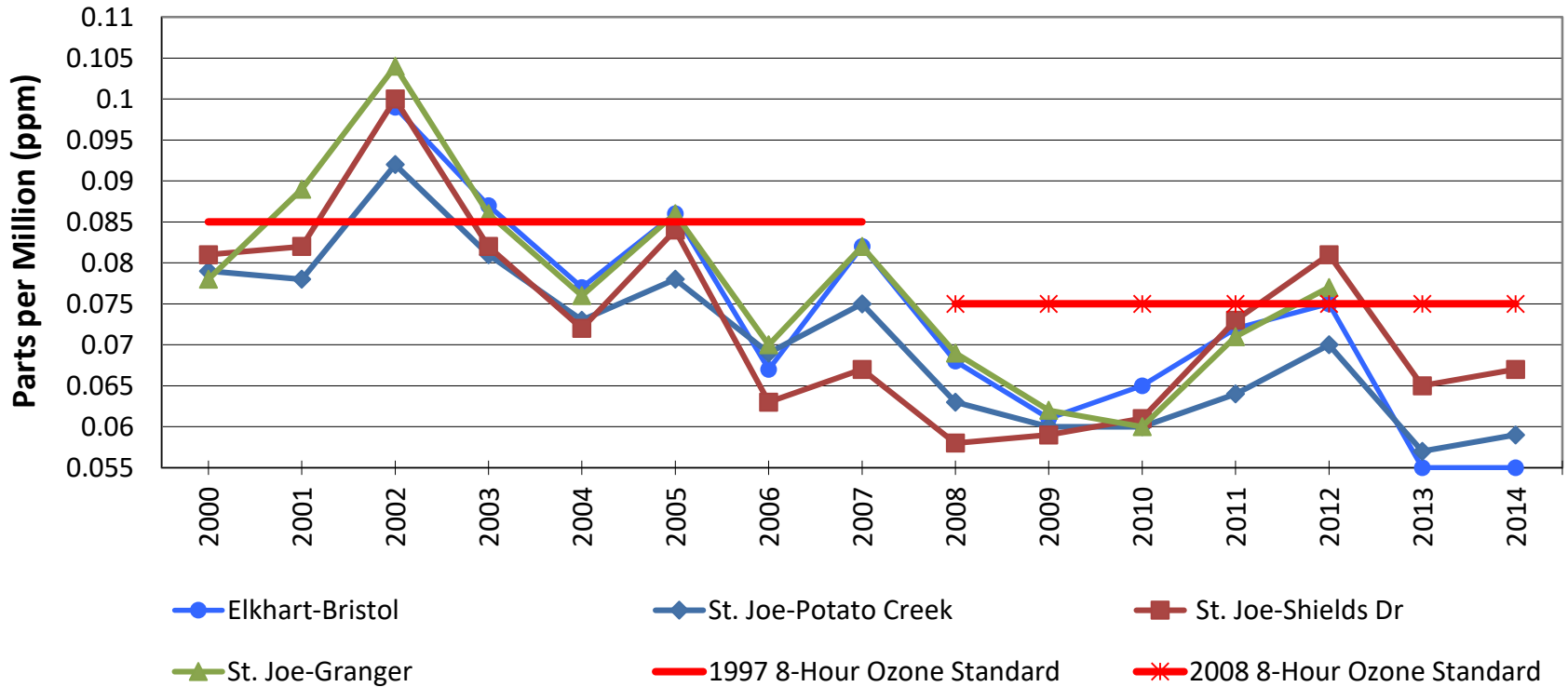
**Notes:**  
Posted Data Are in Units of Micrograms Per Cubic Meter (µg/m<sup>3</sup>)  
**Mapped By:** C. Mitchell, OAQ  
**Date:** 02/04/2015  
**Source:** IDEM, Air Monitoring  
**Map Projection:** UTM Zone 16 N  
**Map Datum:** NAD83





# Ozone

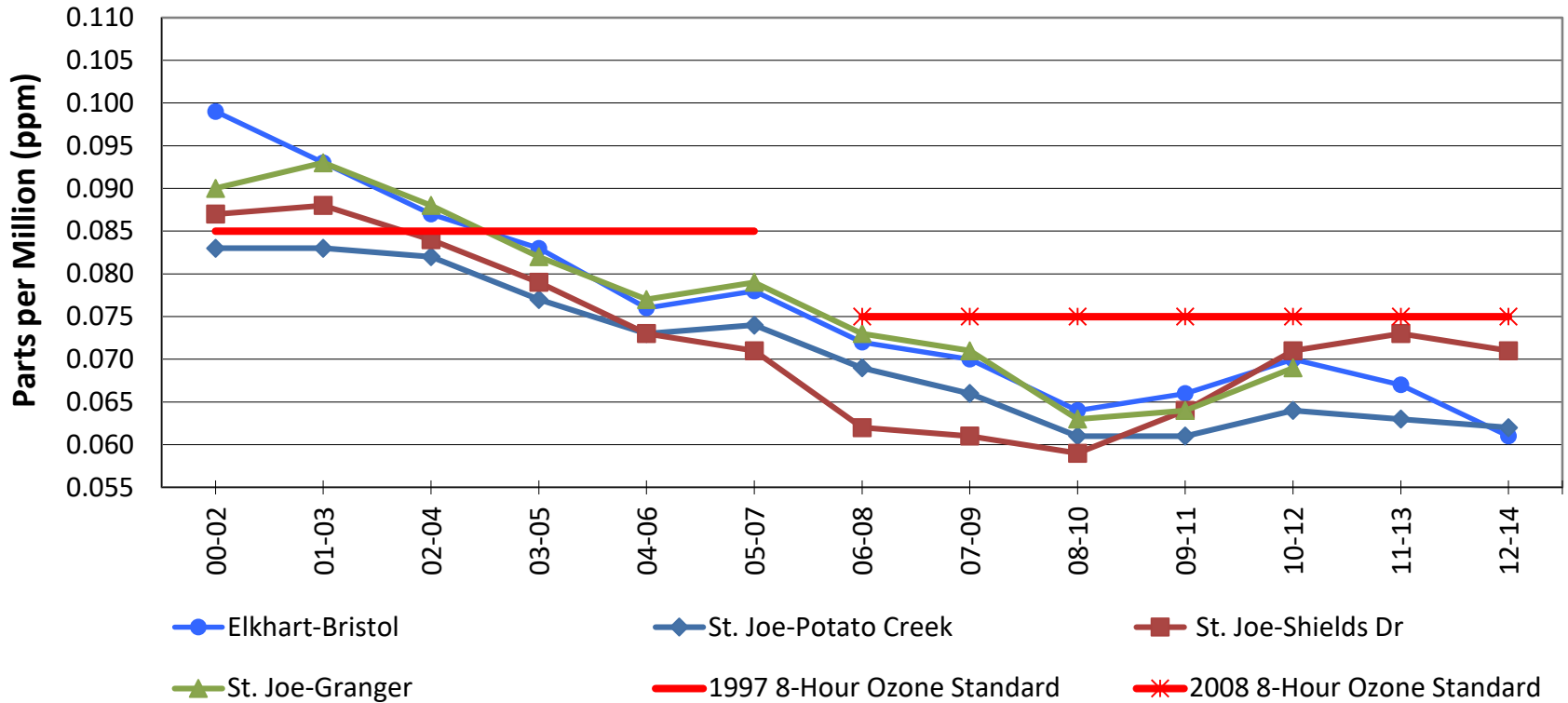
## Ozone 4th High Values Trend Chart North Central Indiana





# Ozone

## Ozone Design Values Trend Chart North Central Indiana

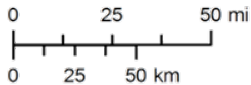




Office of Air Quality

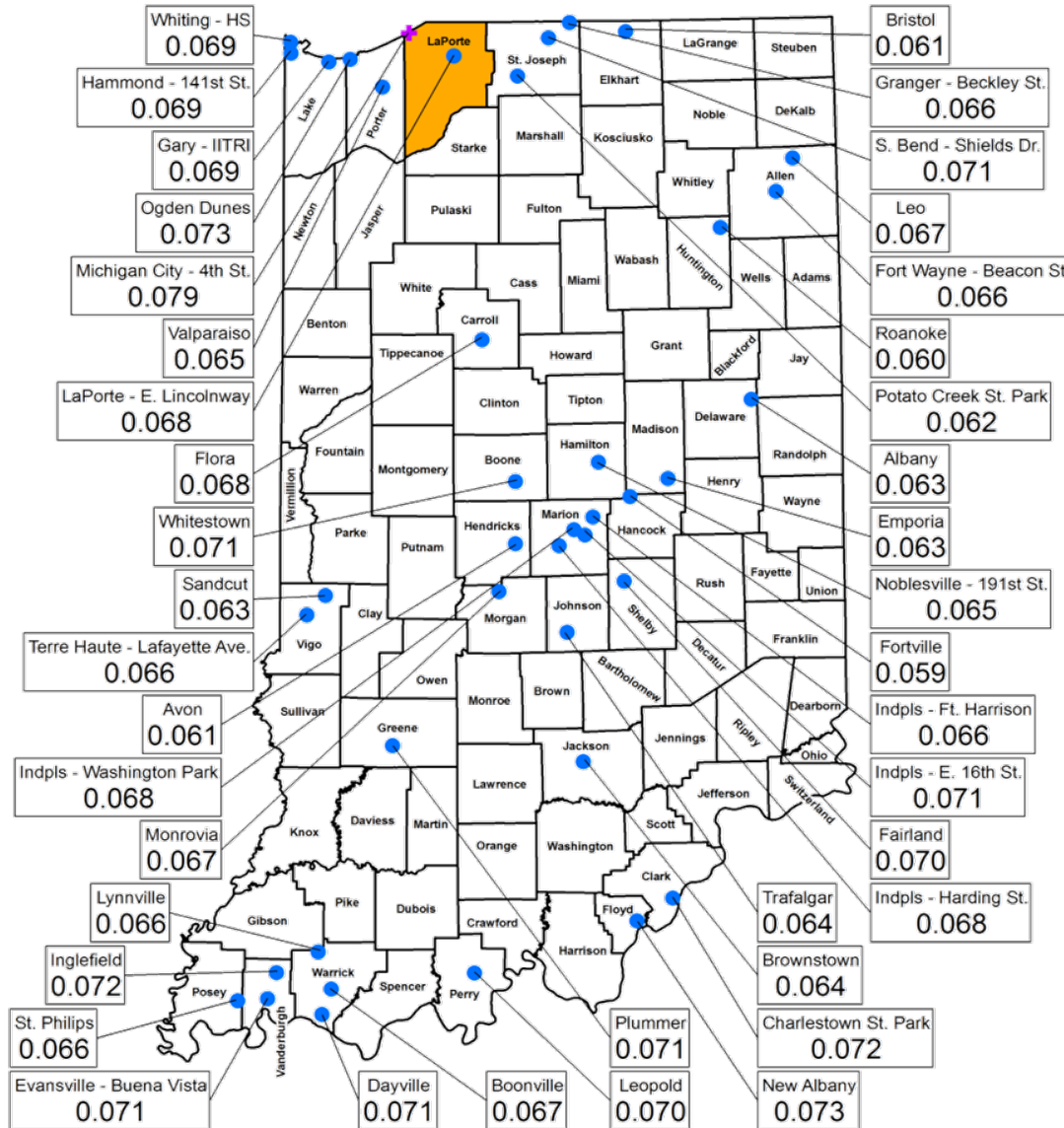
Legend

- Ozone Monitor With Design Value Less Than or Equal to 0.075 ppm
- Ozone Monitor With Design Value Greater Than 0.075 ppm
- County With Design Value Less Than or Equal to 0.075 ppm or No Data
- County With Design Value Greater Than 0.075 ppm



**Notes:**  
- Posted Data Are in Units of Parts per Million (ppm)  
- Posted Data Represent Ozone 8-Hour Average Design Values, 2012 - 2014

**Date:** 12/03/2014  
**Mapped By:** C. Mitchell, OAQ  
**Sources:** Office of Air Quality  
**Map Projection:** UTM Zone 16 N  
**Map Datum:** NAD83



**Ozone 8-Hour Design Values (3-Year Average 4<sup>th</sup> High Daily Maximum)**

**Based on 2012 - 2014 Monitoring Data**

*Standard set at 0.075 ppm*

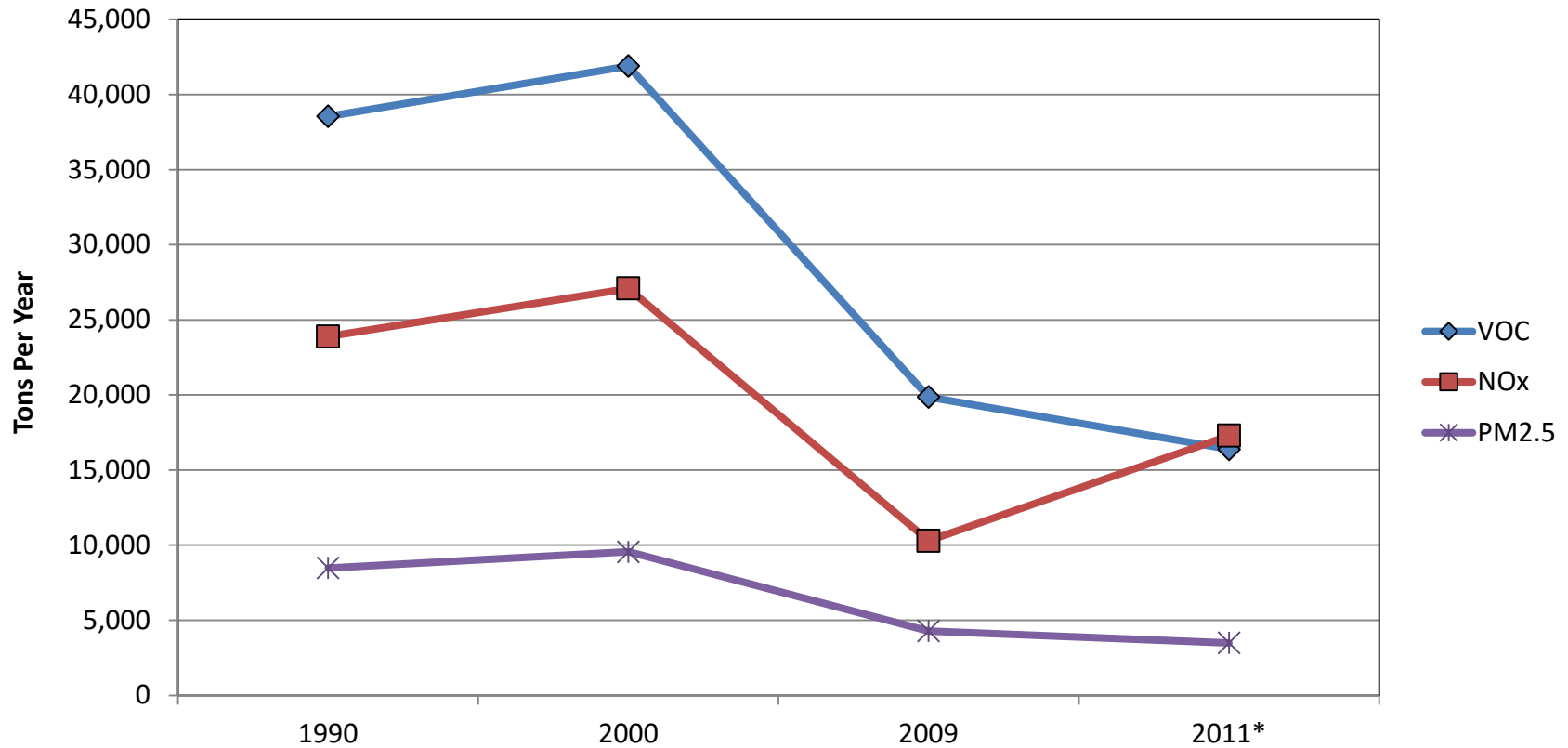




# Long-term emission trends:



## Emission Trends – Elkhart and St. Joseph Counties

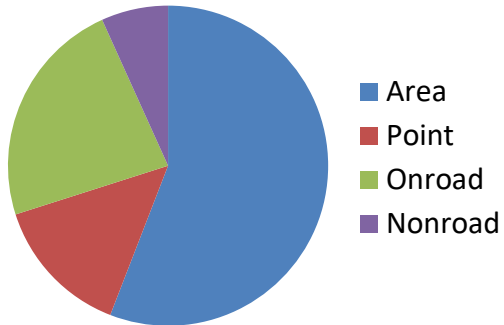


\*Emissions based on U.S. EPA's 2011 National Emissions Inventory (NEI) Version 2 released March 4, 2015 (subject to change).



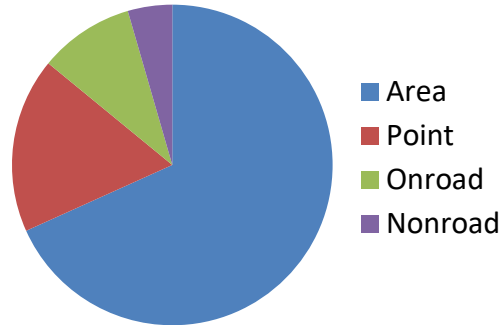
## VOC Emission Trends – Elkhart and St. Joseph Counties

**2000 VOC**



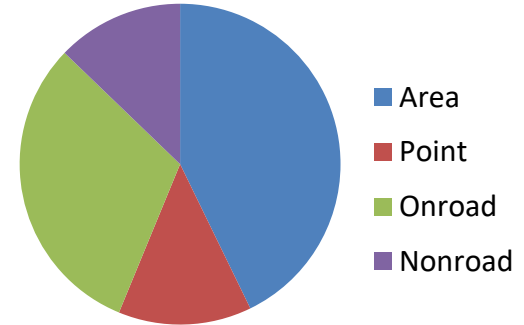
**Total VOC  
41,896**

**2009 VOC**



**Total VOC  
19,861**

**2011 VOC\***



**Total VOC  
16,390**

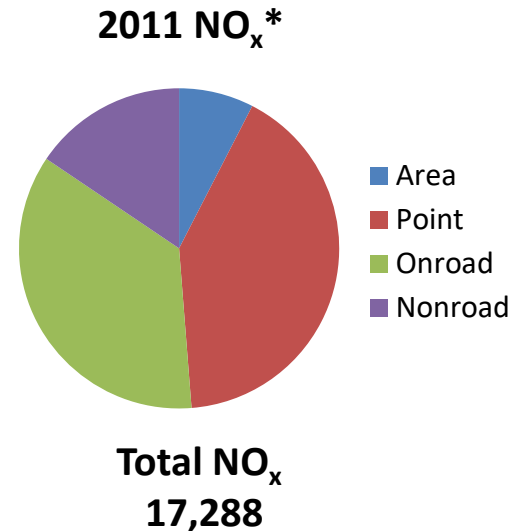
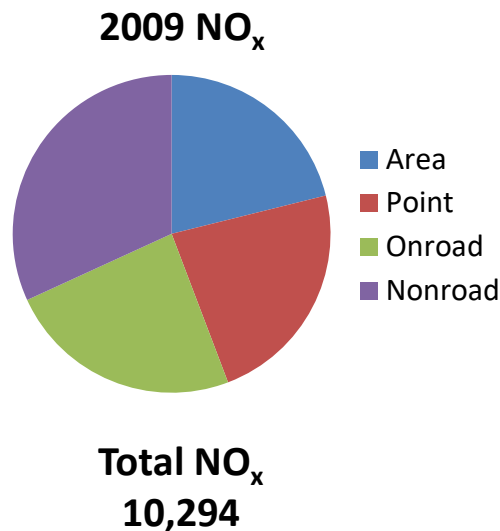
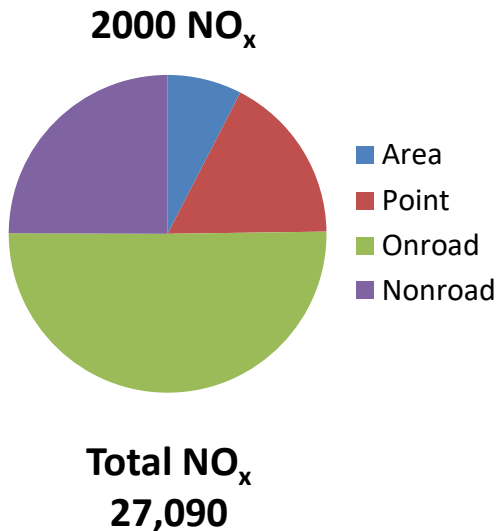
Values are in Tons Per Year.

\*Emissions based on U.S. EPA's 2011 National Emissions Inventory (NEI) Version 2 released March 4, 2015 (subject to change).





## NO<sub>x</sub> Emission Trends – Elkhart and St. Joseph Counties

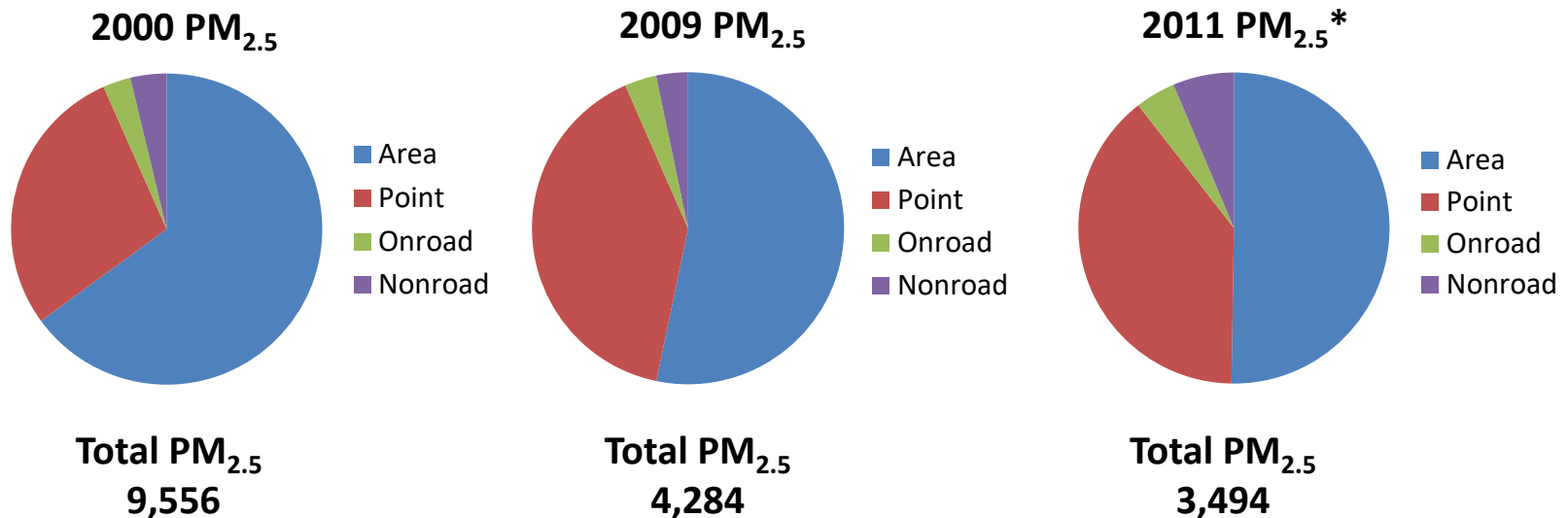


Values are in Tons Per Year.

\*Emissions based on U.S. EPA's 2011 National Emissions Inventory (NEI) Version 2 released March 4, 2015 (subject to change).



## PM<sub>2.5</sub> Emission Trends – Elkhart and St. Joseph Counties



Values are in Tons Per Year.

\*Emissions based on U.S. EPA's 2011 National Emissions Inventory (NEI) Version 2 released March 4, 2015 (subject to change).



# Current Schedule for Ongoing NAAQS Reviews

MILESTONE	POLLUTANT						
	NO <sub>2</sub> /SO <sub>2</sub> Secondary	PM	Ozone	Lead	NO <sub>2</sub> Primary	SO <sub>2</sub> Primary	CO
Notice of Proposed Rulemaking	May 2017	Jun 29, 2012	Dec 1, 2014	Dec 19, 2014	Nov 2016	Oct 2018	2016
Notice of Final Rulemaking	Feb 2018	Dec 14, 2012	Oct 1, 2015	2015?	Aug 2017	Jul 2019	2016

U.S. EPA strengthened the annual primary NAAQS to a level of 12 micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ ) and retained the existing secondary annual standard at a level of 15  $\mu\text{g}/\text{m}^3$  and primary and secondary 24-hour standards at a level of 35  $\mu\text{g}/\text{m}^3$ . The standards were finalized on January 15, 2013, and became effective on March 18, 2013.

U.S. EPA proposing to strengthen the 8-hour health standard to a level within a range of 0.065-0.070 parts per million (ppm). 19



# 8-Hour Ozone Area Designations


- On December 1, 2014, U.S. EPA proposed to strengthen the 8-hour ozone standard to a level within a range of 0.065 to 0.070 parts per million (ppm) and finalize the standard by no later than October 1, 2015.
- Initial state recommendations due one year after the standard is finalized.
- Final U.S. EPA designation recommendations made no later than two years after the standard is finalized.
- State implementation plans due to U.S. EPA three years after designations become effective.
- States are required to meet the standard within a range of three-to-twenty years based on the area's nonattainment designation classification under the standard.

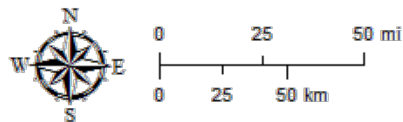


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### Potential Nonattainment Counties with Ozone Standard at 75 ppb

### Legend

 Potential Nonattainment County



**Note:** Based on 2012 - 2014 Ozone Monitoring Data

**Date:** 2/18/2015  
**Mapped By:** B. Callahan, OAQ  
**Source:** Office of Air Quality  
**Map Projection:** UTM Zone 16 N  
**Map Datum:** NAD83




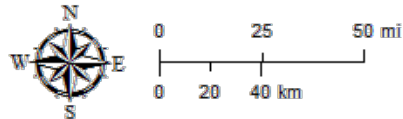


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### Potential Nonattainment Counties with Ozone Standard at 70 ppb

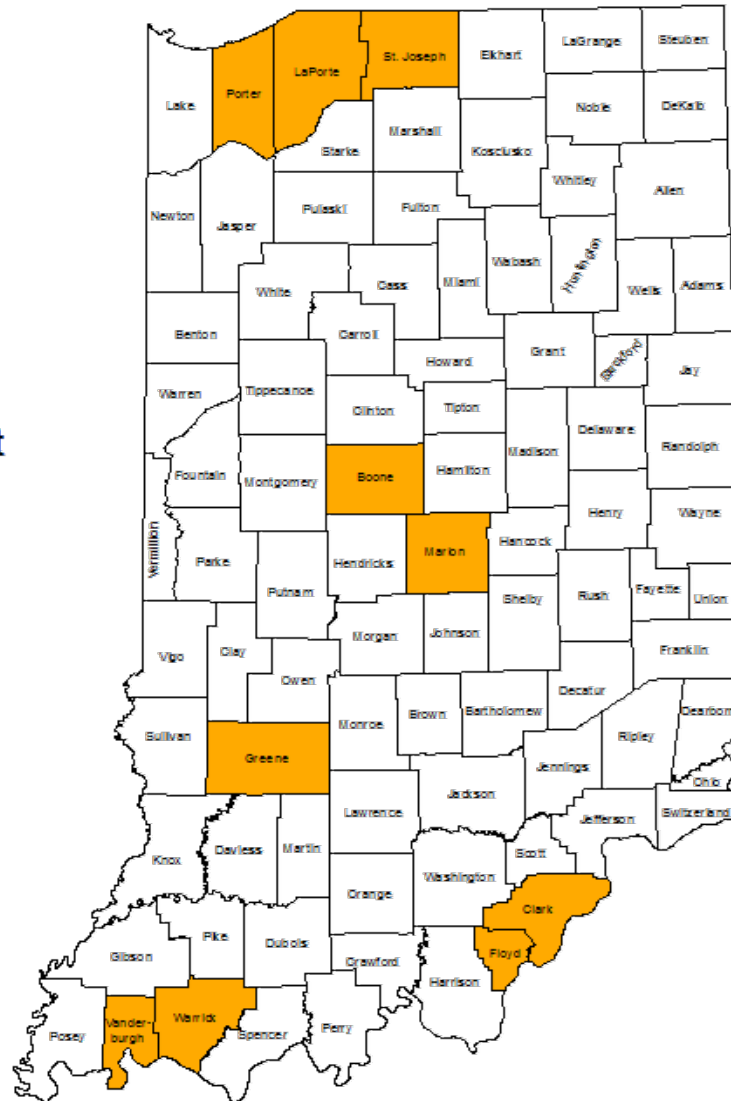
### Legend

 Potential Nonattainment County



**Note:** Based on 2012 - 2014 Ozone Monitoring Data

**Date:** 2/18/2015  
**Mapped By:** B. Callahan, OAQ  
**Source:** Office of Air Quality  
**Map Projection:** UTM Zone 16 N  
**Map Datum:** NAD83



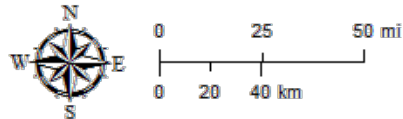


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### Potential Nonattainment Counties with Ozone Standard at 65 ppb

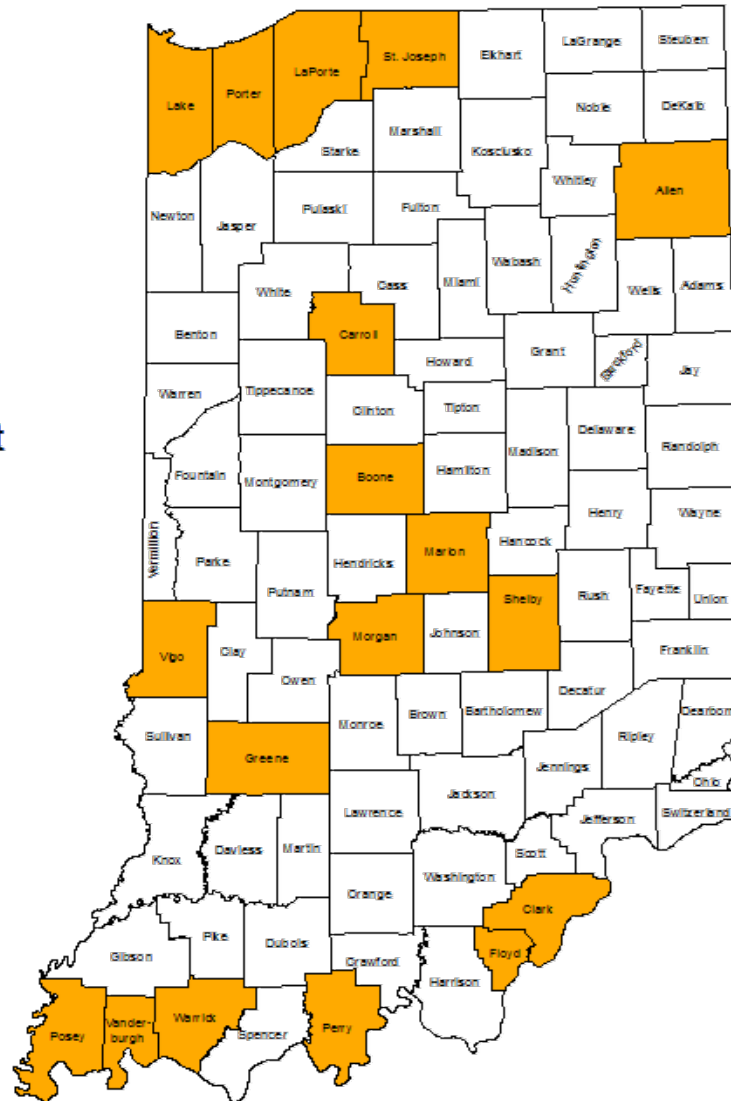
### Legend

 Potential Nonattainment County



**Note:** Based on 2012 - 2014 Ozone Monitoring Data

**Date:** 2/18/2015  
**Mapped By:** B. Callahan, OAQ  
**Source:** Office of Air Quality  
**Map Projection:** UTM Zone 16 N  
**Map Datum:** NAD83





# Effects of Designation

- In an area designated “attainment,” Prevention of Significant Deterioration (PSD) permitting program requirements apply to new or modified sources.
- Under the PSD program, sources must perform an air quality analysis and install “Best Available Control Technology,” or BACT.
- In an area designated “nonattainment,” nonattainment New Source Review (NSR) permitting program requirements apply to new or modified sources.
- Under the nonattainment NSR program, sources must also perform an air quality analysis and utilize the “Lowest Achievable Emission Rate,” or LAER, which is equal to or more stringent than BACT. In addition, sources must obtain “emission offsets,” that increase depending on the severity of the nonattainment area (i.e., for every ton emitted, there must be a minimum of 1.1 tons reduced from permitted sources within a marginal nonattainment area).
- Nonattainment areas are also subject to additional state requirements, which could include: vehicle emissions testing, a demonstration of transportation conformity, and/or a reasonable further progress demonstration.





## Conclusions:

- Monitored air quality values have been trending downward and will continue to improve into the future.
- The overall decrease in emissions in Elkhart and St. Joseph counties can be attributed to a variety of national, regional, statewide, and local controls and initiatives.