

# Ambient Air Quality Standards in Michigan

## Particulate Matter and Ozone



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R5 AIR AND RADIATION DIVISION  
AIR PROGRAMS BRANCH

November 7<sup>th</sup>, 2024

# The NAAQS Lifecycle



## STANDARD SETTING

- Scientific Review of the Standard (*every 5 years*)
- EPA Proposes and Finalizes New Standard

## DESIGNATIONS

- State Recommendations for Area Designations (*1 year from promulgation*)
- EPA Proposes Initial Area Designations (*120 day letters*)
- Public Comment Period
- EPA Finalizes Area Designations (*2 years from promulgation*)

## IMPLEMENTATION

- States Submit Attainment Plans for Nonattainment Areas (SIPs)
- EPA Redesignates Areas to Attainment

# The New 2024 PM Standard

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# 2024 PM Standard

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- On February 7, 2024, EPA strengthened the National Ambient Air Quality Standards for Particulate Matter (“PM NAAQS”) to protect millions of Americans from harmful and costly health impacts, such as heart attacks and premature death.
- Particle or soot pollution is one of the most dangerous forms of air pollution, and an extensive body of science links it to a range of serious and sometimes deadly illnesses.
- After taking into consideration the available scientific evidence, advice from the Clean Air Scientific Advisory Committee (CASAC), and nearly 700,000 public comments, **EPA is strengthened the annual health-based standard for fine particles to 9.0 micrograms per cubic meter.**

# Area Designation Types

## Attainment

- An area that meets the primary or secondary standard for a NAAQS

## Nonattainment

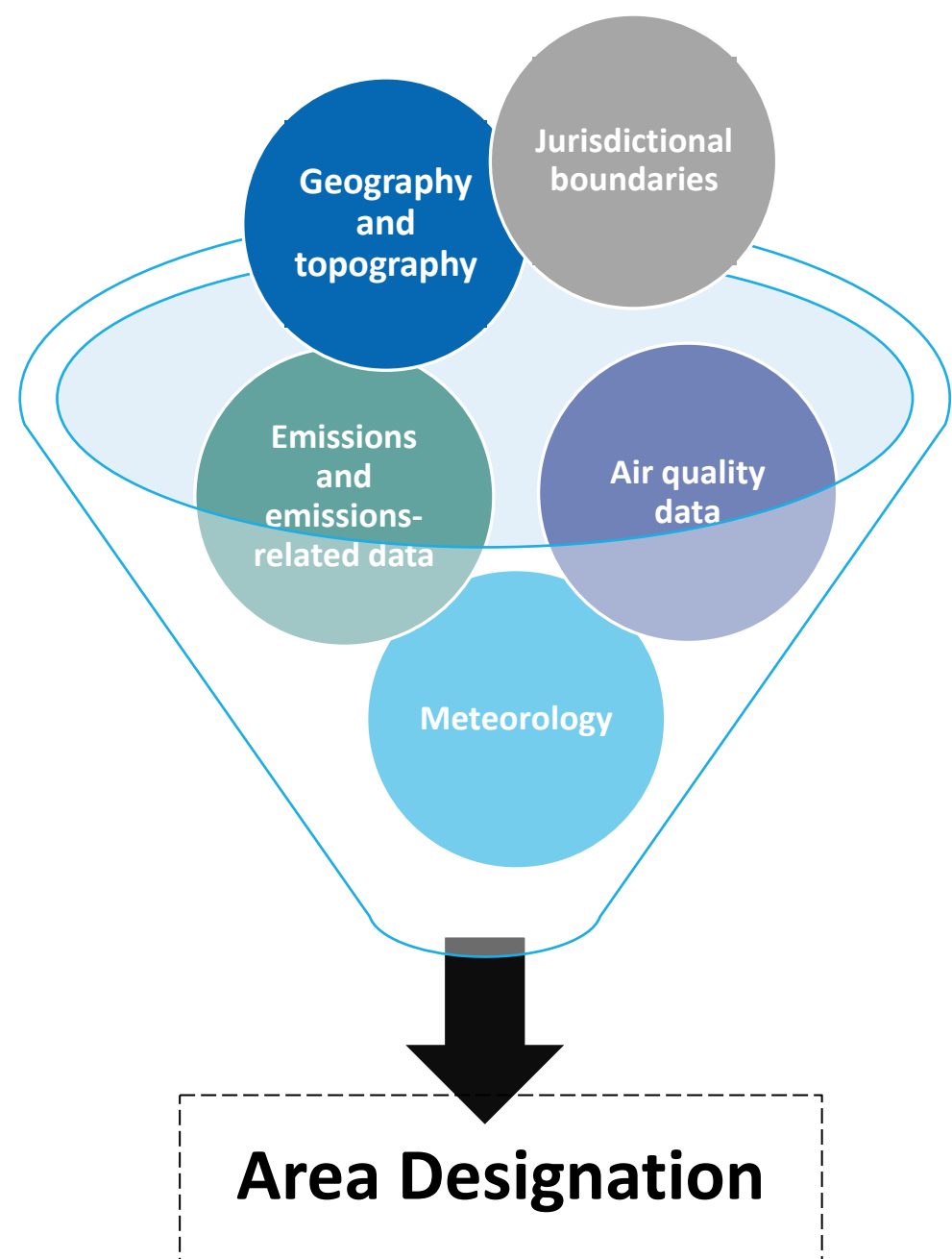
- An area that does not meet the primary or secondary standard for a NAAQS
- An area that contributes to air quality in a nearby area that does not meet the primary or secondary standard for a NAAQS

## Unclassifiable

- An area that cannot be classified on the basis of available information

# EPA's Five Factor Analysis for Determination of Area Designation

- Key details to consider
  - Generally, where there is a violating monitor, there is a nonattainment designation
  - SO<sub>2</sub> violations may be modeled or monitored




# 2024 PM<sub>2.5</sub> NAAQS Designations Schedule

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- **February 7, 2024:** EPA revises the primary annual standard for PM<sub>2.5</sub> from 12.0 to 9.0 micrograms per cubic meter
- **February 7, 2025:** State recommendations due
- **October 2025:** 120-day letters notifying states, then EPA proposes initial area designations
- Public comment period
- **February 6, 2026:** EPA finalizes area designations

# 2020-2022 PM<sub>2.5</sub> Design Values Compared to Prior Nonattainment Areas

Based on 2020-2022 monitoring data

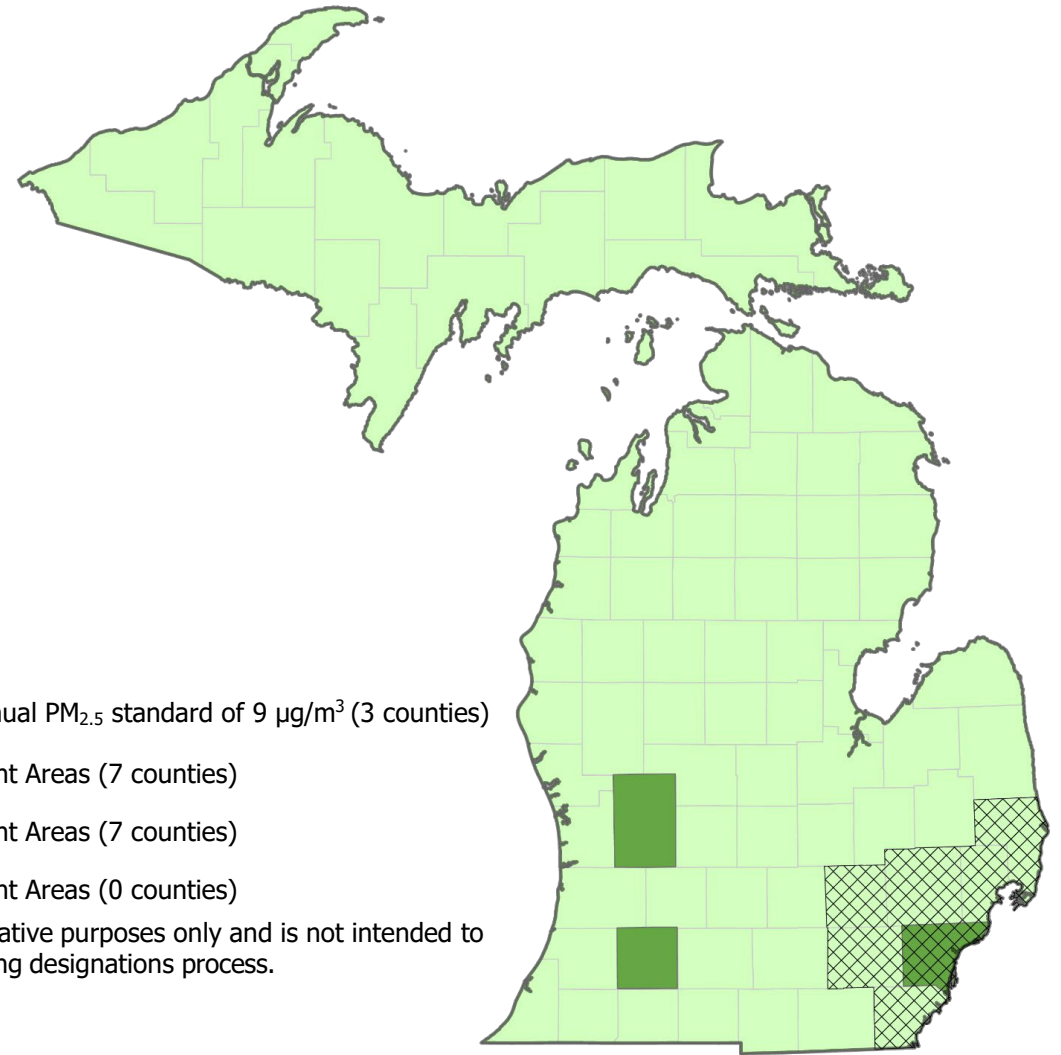
 Counties do not meet the annual PM<sub>2.5</sub> standard of 9 µg/m<sup>3</sup> (3 counties)

 PM<sub>2.5</sub> 1997 Std Nonattainment Areas (7 counties)

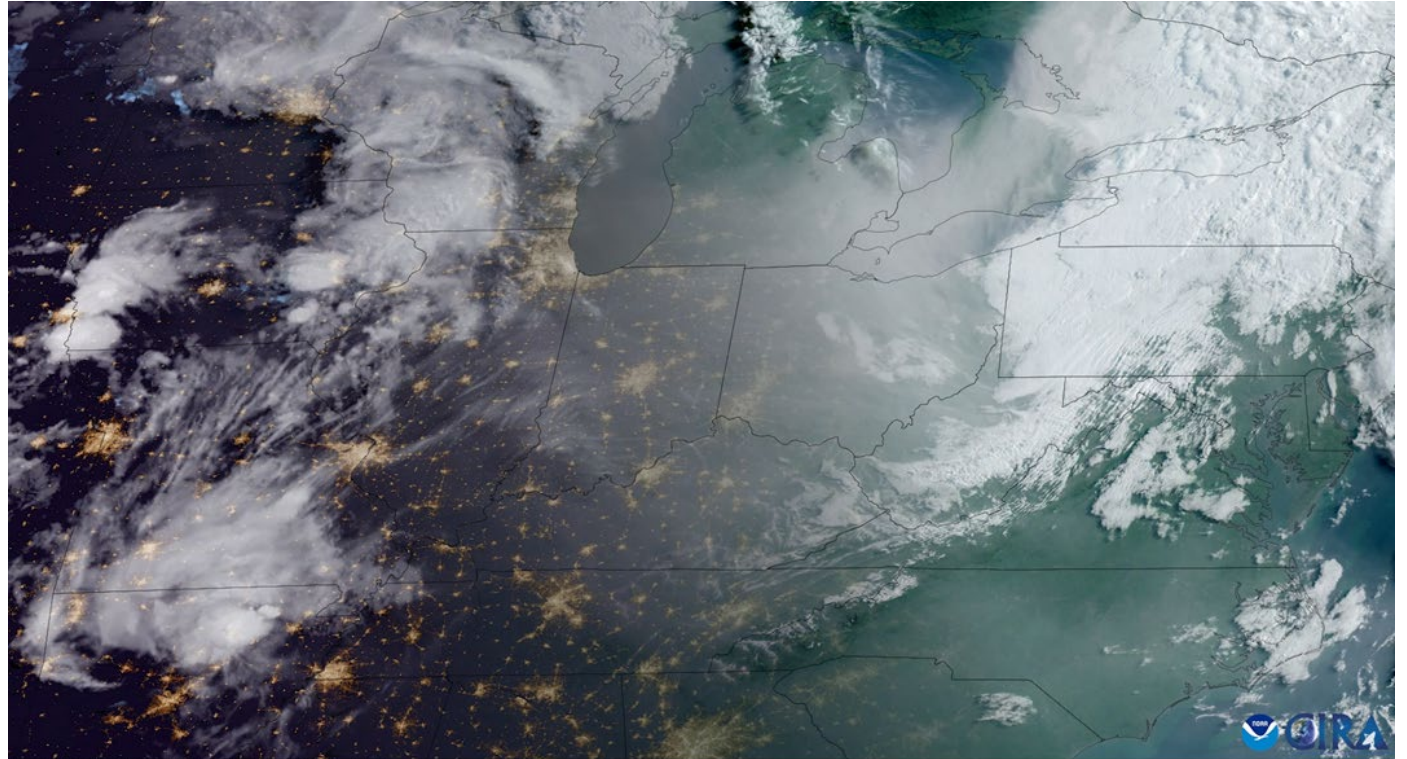
 PM<sub>2.5</sub> 2006 Std Nonattainment Areas (7 counties)

 PM<sub>2.5</sub> 2012 Std Nonattainment Areas (0 counties)

This information is provided for illustrative purposes only and is not intended to predict the outcome of any forthcoming designations process.

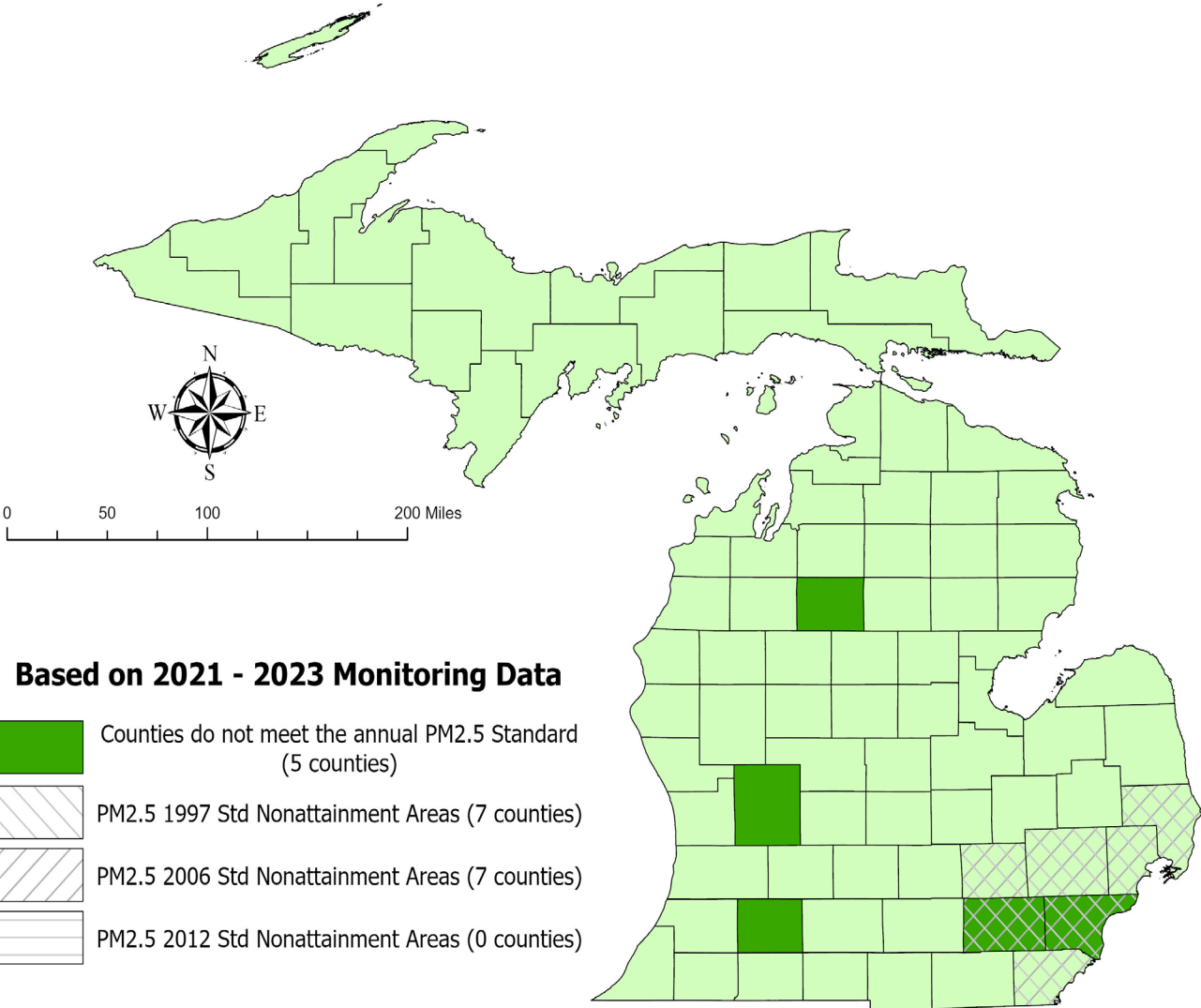


# Exceptional Event Smoke from the 2023 Canadian Wildfires



06-28-2023 | 11:31:17 UTC | GOES-16 | GeoColor

# 2021-2023 PM<sub>2.5</sub> Design Values Compared to Prior Nonattainment Areas



# Exceptional Event (EE) Rule

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- “Exceptional event” criteria described in Clean Air Act Section 319(b) and the implementing EPA Exceptional Events Rule
  - Clear causal relationship
  - Event is not reasonably controllable or preventable
  - Caused by human activity that is unlikely to recur at a location or a natural event
  - Determined by EPA via regulatory process to be an exceptional event
- EPA exceptional event regulations are located 40 CFR 50.1, 50.14, and 51.930
- Wildfire activity (exceptional events) observed across Region 5 states in 2023
  - States notify EPA of intent to submit exceptional events (EE) demonstrations by January 1, 2025
  - States submit EE demonstrations by February 1, 2025

# New Source Review (NSR) Permitting Program

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- NSR permitting requirements regulate construction of new and modified sources of air pollution
  - Requires industrial facilities to install modern pollution controls
  - Permits are enforceable, legal documents that outline how construction will meet emissions limits and include compliance oversight
- NSR Permitting Program effective date of revised standard: **May 6, 2024**
  - After this date, applicants for permits to construct a new major source or a major modification of an existing stationary source must demonstrate that facility emissions will not cause or contribute to a violation of the revised NAAQS.
- **Nonattainment New Source Review (NNSR)**
  - Ensures that air quality does not worsen in *Nonattainment Areas*
- **Prevention of Significant Deterioration (PSD)**
  - Ensures air quality is not significantly degraded in *Attainment Areas*

# Nonattainment Designation and Requirements

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- **18 months after Nonattainment designation:** States must submit Nonattainment Area SIPs that specify how the areas will attain the standard
  - Attainment Demonstration
  - Base Year and Projected Attainment Year Emissions Inventory
  - Control Measures: RACM/RACT
  - Reasonable Further Progress
  - Quantitative Milestones
  - Contingency Measures

# Redesignation Requirements

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- Outlined by Clean Air Act section 107(d)
- State requests redesignation of area to attainment
- After the following requirements are met, EPA redesignates area through notice-and-comment rulemaking:
  - EPA determines the area has attained the NAAQS
  - EPA fully approves the SIP under Clean Air Act section 110(k)
  - EPA determines the improvement in air quality is due to permanent and enforceable emissions reductions
  - The state has met all applicable requirements under Clean Air Act section 110 and Part D
  - EPA fully approves a maintenance plan and contingency measures under Clean Air Act section 175A

# 2015 Ozone Standard

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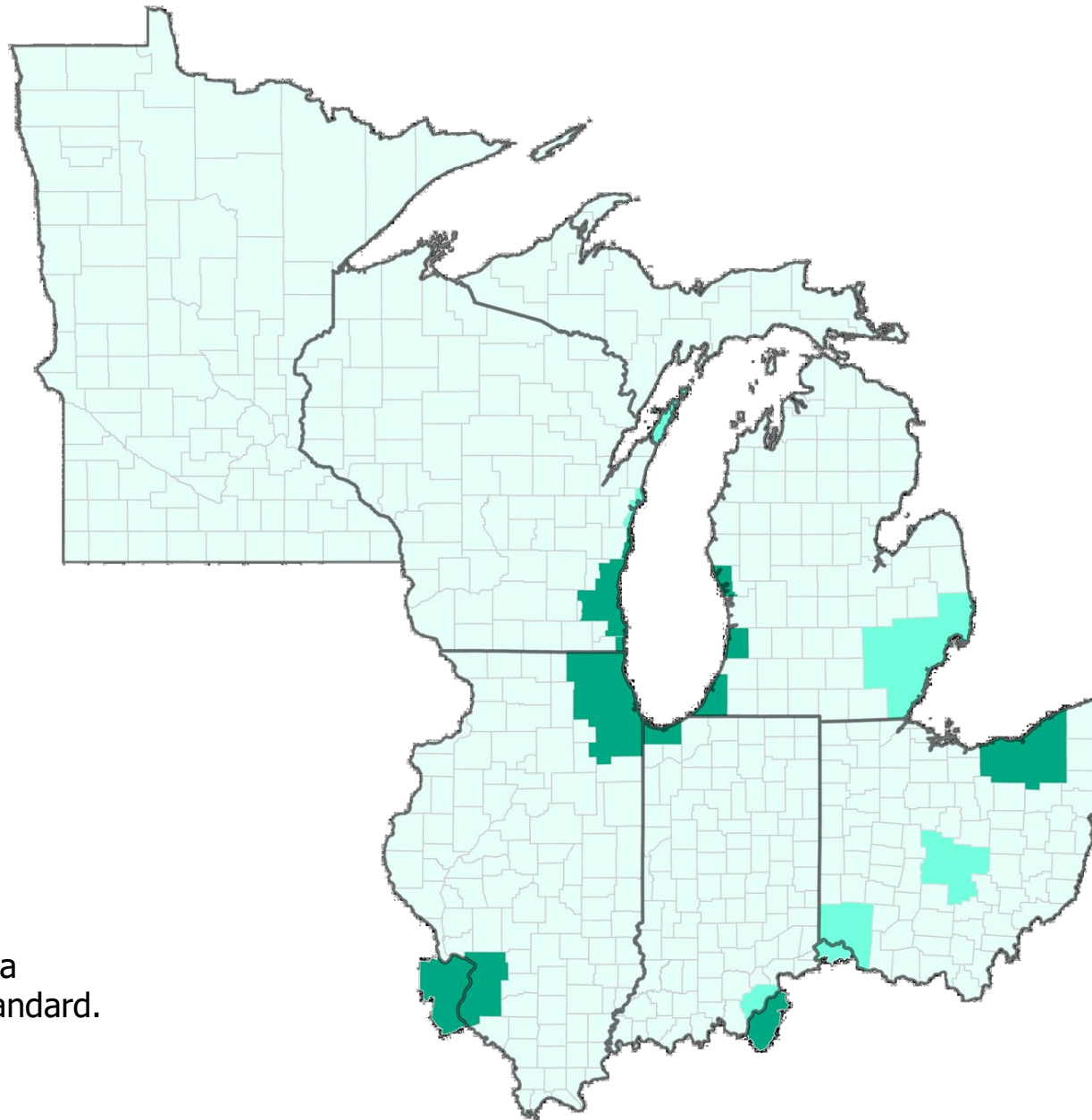
# 2015 Ozone Standard

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- On Oct 1<sup>st</sup>, 2015, EPA revised the primary and secondary 2008 National Ambient Air Quality Standards
- **EPA revised the ozone standard levels to 70 parts per billion (ppb)**
- The improved standard will improve public health protection, particularly for at-risk groups including children, older adults, people of all ages who have lung diseases such as asthma, and people who are active outdoors, especially outdoor workers

# Ozone 8-hour (2015 Standard) Designations

- Nonattainment
- Maintenance



Note: All Michigan nonattainment areas have a moderate classification for the 2015 ozone standard.

# Clean Air Act Required Measures Based on Ozone Nonattainment Area Classification

		NSR Offset Ratio	Major Source Threshold (tpy)
<b>EXTREME</b> (20 years to attain)	TRAFFIC CONGESTION CONTROLS (if appropriate)	1.5:1	10
	CLEAN FUELS REQUIREMENT FOR BOILERS		
<b>SEVERE</b> (15/17 years to attain) RFG applies in areas reclassified as Severe	PENALTY FEE PROGRAM FOR MAJOR SOURCES	1.3:1	25
	VMT GROWTH DEMONSTRATION (& TCMs if needed)		
	VMT REPORTING		
	NSR REQUIREMENTS FOR EXISTING SOURCE MODS		
<b>SERIOUS</b> (9 years to attain)	CLEAN FUELS PROGRAM OR SUBSTITUTE MEASURE FOR LARGER POP. AREAS	1.2:1	50
	MODELED DEMO OF ATTAINMENT		
	MILESTONE DEMONSTRATIONS and CONTINGENCY MEASURES FOR RFP		
	3% ANNUAL RFP UNTIL ATTAINMENT		
	ENHANCED I/M for larger population areas		
	CONTINGENCY MEASURES FOR FAILURE TO ATTAIN		
<b>MODERATE</b> (6 years to attain)	ENHANCED MONITORING PLAN	1.15:1	100
	BASIC VEHICLE I/M for larger population areas		
	15% VOC ROP or 15% VOC/NO <sub>x</sub> RFP (OVER 6 YEARS)		
	VOC/NO <sub>x</sub> RACT for MAJOR/CTG SOURCES		
<b>MARGINAL</b> (3 years to attain)	ATTAINMENT DEMONSTRATION	1.1:1	100
	EMISSIONS STATEMENTS		
	NONATTAINMENT NEW SOURCE REVIEW PROGRAM		
	BASELINE EMISSIONS INVENTORY (EI)		
	PERIODIC EMISSIONS INVENTORY UPDATES		

NOTE: Transportation and General Conformity apply in all ozone nonattainment areas.

# Additional Ozone Nonattainment Provisions

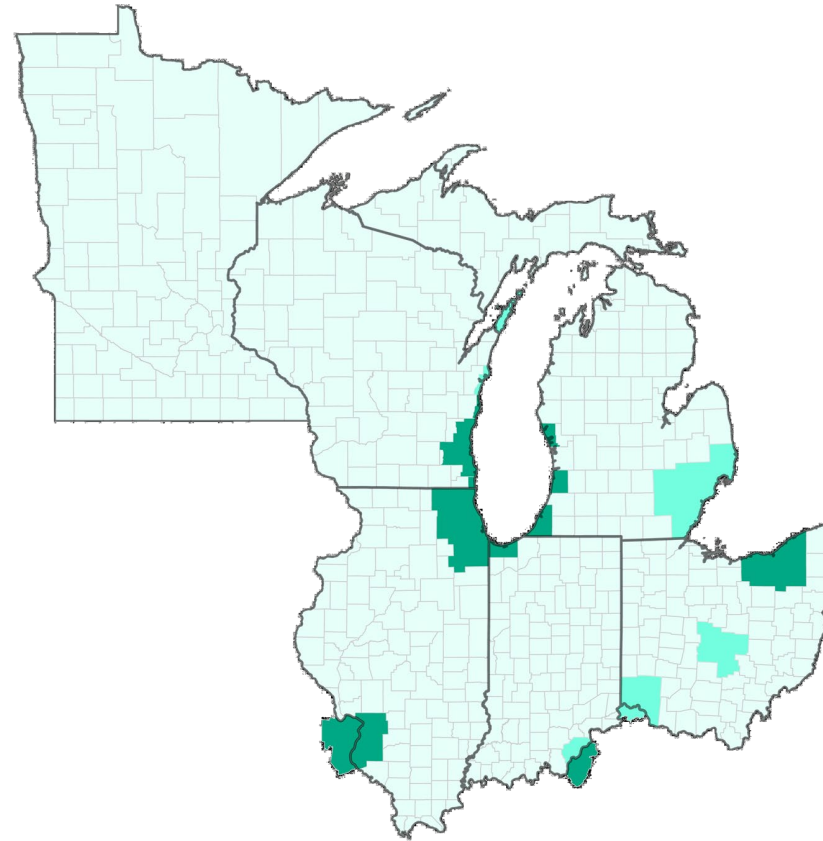
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- Clean Air Act Section 182 (Part D, subpart 2) adds specific requirements for ozone nonattainment areas in a layered fashion
- There are five classifications levels. Each area is assigned based on how much above the ozone standard the area is
  - Marginal, moderate, serious, severe, and extreme
- The applicability threshold for control requirements for stationary sources increases in stringency as classifications go from marginal to extreme

# Determination of Attainment by the Attainment Date

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- Moderate Areas under the 2015 ozone standard were required to attain by August 3, 2024, meaning they had to attain using 2021-2023 ozone data.
- EPA has six months to determine whether areas met their attainment date and reclassify or “bump up” the areas that did not meet to a higher classification.



# Detroit Redesignation for the 2015 Ozone Standard

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**May 19<sup>th</sup>, 2023 –**

EPA redesignated Detroit from nonattainment to attainment



**July 17<sup>th</sup>, 2023 –**

Redesignation action was challenged in the 6th Circuit U.S. Court of Appeals



**Current –**

All parties have filed briefs; oral arguments scheduled for December 12, 2024

# History of Michigan O3 and PM Redesignations

OZONE NAAQS		PM NAAQS	
<b>Allegan County</b>		<b>Grand Rapids</b>	
8-Hour Ozone (1997)	9/24/2010	8-Hour Ozone (1997)	5/16/2007
1-Hour Ozone (1979)	1/16/2001	1-Hour Ozone (1979)	6/21/1996
<b>Benzie County</b>		1-Hour Ozone (1979)	
8-Hour Ozone (1997)	5/16/2007		1/16/2001
<b>Benton Harbor</b>		<b>Huron County</b>	
8-Hour Ozone (1997)	5/16/2007	8-Hour Ozone (1997)	5/16/2007
<b>Cass County</b>		<b>Kalamazoo-Battle Creek</b>	
8-Hour Ozone (1997)	5/16/2007	8-Hour Ozone (1997)	5/16/2007
<b>Detroit</b>		<b>Lansing</b>	
8-Hour Ozone (2015)	5/19/2023	8-Hour Ozone (1997)	5/16/2007
8-Hour Ozone (1997)	6/29/2009	<b>Mason County</b>	
1-Hour Ozone (1979)	4/6/1995	8-Hour Ozone (1997)	5/16/2007
<b>Flint</b>		<b>Muskegon</b>	
8-Hour Ozone (1997)	5/16/2007	8-Hour Ozone (1997)	5/16/2007
1-Hour Ozone (1979)	1/16/2001	1-Hour Ozone (1979)	10/18/2000
		<b>Saginaw-Bay City-Midland</b>	
		1-Hour Ozone (1979)	1/16/2001
		<b>Detroit</b>	
		PM-2.5 (2006)	8/29/2013
		PM-2.5 (1997)	8/29/2013
		PM-10 (1987)	10/4/1996

# Thank you!

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