



Asthma and Air Pollution in Detroit:

The Issue and Action Steps for Decision Makers

What is air pollution?

Air pollution occurs when gasses, dust, and smoke change the atmosphere, making the air harmful for humans and animals to breathe.¹ Many air pollutants come from industrial sources, diesel trucks, and other vehicles that use fossil fuels.



Detroit has a lot of industry next to residential areas: People living in those areas can be exposed to high levels of air pollutants.² These include:

- Particulate matter: microscopic solids or liquids found in air;³
- Diesel exhaust: pollutants caused by burning fossil fuels;
- Ozone: a gas created from other pollutants;⁴
- Nitrogen oxides: a group of gases produced from burning fossil fuels;⁵
- Sulfur dioxide: acidic gas produced from burning fossil fuels.⁴

How is air pollution related to asthma in Detroit?

Exposure to air pollution can increase the risk of developing asthma or worsen asthma symptoms.²¹ Due to high levels of air pollution, Detroit residents experience:

- More healthcare and emergency department visits;¹¹
- Frequent absences from work and school;⁹
- Higher healthcare costs due to the higher prevalence of asthma and worse asthma symptoms.⁶

In 2024, Detroit was ranked 3rd in the country for most challenging places to live with asthma.⁷

From 2017-2019, about **16%** of **Detroit** adults had asthma.

For adults in the state of Michigan, this number is about 11%.⁸

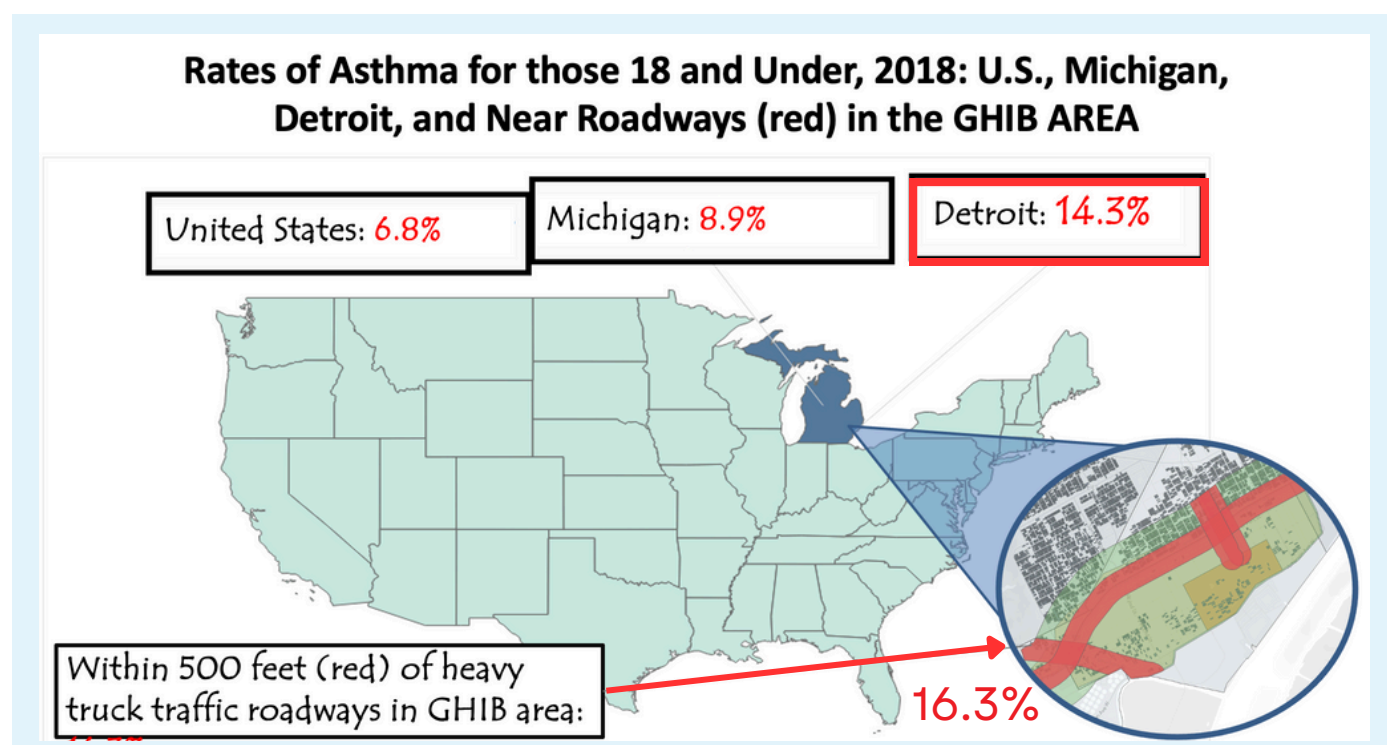




How does air pollution impact children in Detroit?

The map below shows two things:

- 14.3% of young people under 18 in Detroit had asthma in 2018. This is much higher than young people in Michigan (8.9%) or the United States (6.8%).
- Asthma is more common for those living near heavy truck traffic. For instance, 16.3% of children living within 500 feet of roads with heavy truck traffic near the Gordie Howe International Bridge experienced asthma.¹⁹



Does asthma affect everyone equally?

No. Communities with high numbers of low income and individuals of color are more likely to be exposed to higher levels of air pollution and experience harmful health impacts. This is because individuals who identify as a person of color or who are low income are more likely to live in areas with high levels of air pollution.¹²

Additionally, infants, young children, people over the age of 65, and those with pre-existing conditions (e.g. heart and lung disease) experience more severe harmful health outcomes than healthy younger adults when they are exposed to air pollution.¹²



How can we use policies to mitigate air pollution?

Federal, state, and local policies define the amount of pollutants that are allowed to be released into the air. The federal Clean Air Act has significantly reduced overall air pollution since it was passed in 1970. Emissions of common air pollutants have dropped by 77% since 1970.²⁰



Michigan decision makers must continue to create and enforce policies that address cumulative (the sum total) exposure to pollutants and improve quality of life for vulnerable populations.

Action steps for *state and local* decision makers

1. Strongly enforce existing regulations related to air pollution.
2. Require monitoring information to be widely shared with residents and environmental leaders.
3. Before policies, plans, and programs are implemented...
 - ✓ Require health impact assessments (HIAs) to examine health impacts of proposed policies and plans. HIAs can direct attention to underserved groups.
 - ✓ Require cumulative impact assessments (CIAs) that mandate the state of Michigan to deny air quality permits or set permit conditions for facilities that disproportionately impact vulnerable communities.
 - ✓ Require evaluation of policies and planning decisions to assess their effectiveness in moving toward more evenly distributed health outcomes.



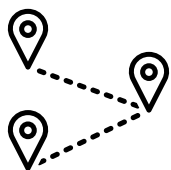
Action steps *state* decision makers can take to reduce asthma among Michigan residents:

1. Require heavy duty vehicles under contract in Michigan to replace engines and install pollution control devices. Make state and federal funds available for this.
2. Create a permanent resolution declaring May Asthma and Allergy Awareness Month in the state of Michigan. Nationally, September is Asthma Peak Month. This is because of the number of asthma triggers that cause more asthma attacks, ED visits, and hospital stays in this month than any other during the year.





6 Action Steps for *Municipal* Decision Makers:



1. Continue to expand monitoring for polluters like point sources (i.e., factories) and mobile sources (i.e., cars and trucks). Monitoring allows the public to access information about pollution levels and track changes over time.⁶



2. Prevent diesel truck traffic in residential communities. For example, designate specific truck routes that avoid residential areas and areas with sensitive populations, such as schools and health care facilities.



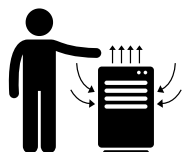
3. Enforce the “Ordinance to Regulate Fugitive Dust Emissions.” “Fugitive dust” is a collection of very small particles that don’t pass through a stack or duct needed to control the flow of pollution.



4. Create city-wide renewable energy goals and remove obstacles to make renewable energy more affordable and accessible. For example, consider a Mandatory Green Building Ordinance¹³. This requires all city-owned facilities to have a Leadership in Energy and Environmental Design (LEED) certification.



5. Start a “green building points system,” which provides incentives for companies to use sustainable materials in new residential and commercial construction projects. See Boston, Massachusetts's “E+ Green Building Program”: <https://tinyurl.com/4ycxtabp>¹⁴



6. Require school programs to monitor indoor air quality, install filters, and do preventive HVAC maintenance. Using filters in all Detroit schools could prevent worsening symptoms of asthma for more than 14,000 students.⁶

Where can I learn more?

1. Visit:



linktr.ee/airpollutionresources

Or

2. Scan:

Scan the QR code here:



Please see http://mleead.umich.edu/Coec_Fact_Sheets.php for the citations included in this factsheet.

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Asthma and Air Pollution

The M-LEEd Center's Community Engagement Core (CEC) increases awareness and understanding of environmental health research.

Stakeholder Advocacy Board members include:

- Community Health and Social Services
- The Detroit Health Department
- Detroit Hispanic Development Corporation
- Detroiters Working for Environmental Justice
- Eastside Community Network
- Ecology Center
- Henry Ford Health System
- Michigan Environmental Justice Coalition
- We the People of Detroit

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Air pollution increases the risk of getting asthma, and worsens asthma among those who have it. Detroit residents experience high rates of asthma and exacerbations of asthma linked to poor air quality. These lead to increased healthcare and emergency department visits, school and work absenteeism, and higher health care costs. Policies that reduce environmental pollutants are critical to reduce asthma and its effects on the health of Detroit residents.¹

The prevalence of current asthma among Detroit adults is 46% higher than in Michigan as a whole.² In 2017-2019, 16.2% of adults and 14.6% of children in Detroit had asthma.² People living in Detroit are exposed to elevated levels of outdoor air pollutants, including particulate matter, diesel exhaust, ozone, nitrogen oxides, and sulfur dioxide. These pollutants come from many different sources, including steel mills, power plants, coking plants, and other industrial emitters, as well as diesel trucks, and other vehicles. Exposure to air pollutants (particulate matter, ozone, sulfur dioxide and nitrogen oxides) from local and regional sources has substantial impacts on the health of residents of Detroit and neighboring cities. Within the Detroit urban area alone, this causes a monetized impact of \$6.5 billion.^{1 3}

Currently, Wayne County does not meet the National Air Ambient Quality Standards (NAAQS) for sulfur dioxide or for ozone.⁴ Ozone exposure exacerbates asthma, and brief periods of exposure to sulfur dioxide can lead to asthma exacerbation and other serious health concerns.⁵

Asthma disproportionately impacts lower socioeconomic groups and minority communities. These communities are exposed to higher levels of air pollutants, in addition to other health stressors, while also having access to fewer resources with which to reduce the harmful health effects of air pollution. Such cumulative effects result in heavier health burdens on low-income communities and communities of color.⁶

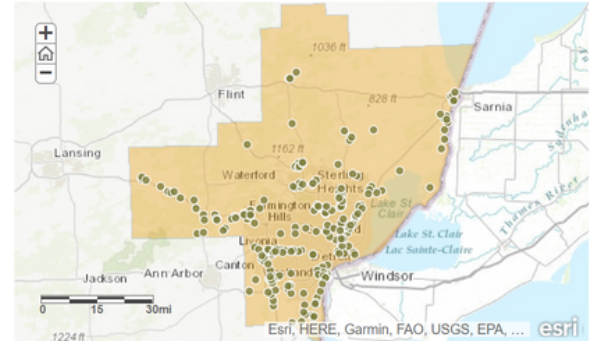




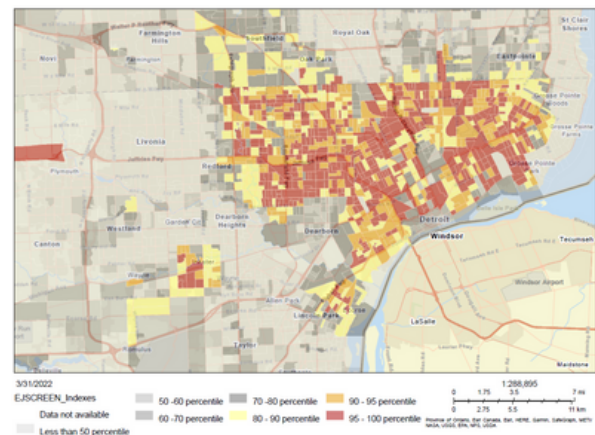
Policy Recommendations

- Increase monitoring, inspection, and enforcement for point sources (e.g., facilities releasing air pollutants) and mobile sources (e.g., trucks, cars) of air pollutants. Monitoring and inspection provide more accurate information on emission and concentration of air pollutants, and help assure more effective enforcement of regulations.¹
- Expand diesel retrofit programs and fleet and engine replacements by requiring heavy duty vehicles contracted in Michigan using state or federal funds to be equipped with modern pollution control devices. A similar law enacted in Rhode Island in 2010, along with adherence to the state's anti-idling law and use of clean burning ultra-low sulfur diesel fuel lowered emissions in that state by 20-90%.¹
- Increase use of renewable energy sources by establishing renewable energy goals, removing regulatory barriers to renewable energy, and increasing financial feasibility.¹ For example, West Hollywood, CA has a Mandatory Green Building Ordinance requiring that city owned facilities be certified as LEED buildings and new developments meet the city's green building point system.⁷
- Require health impact assessment (HIA) and cumulative impact and risk assessments (CIAs, CRIs) in air quality planning and permitting procedures so that public health and safety for vulnerable populations are appropriately considered.¹ A recent study by the EPA found that focusing on reducing air pollutants in areas where there are more vulnerable populations (e.g., high poverty, high asthma incidence) helped to improve air quality and resulted in substantial health benefits among vulnerable populations.⁸
- Require indoor air quality, filter and preventive maintenance programs in schools. Using filters in all Detroit schools could reduce cases of student asthma exacerbation by more than 14,000.¹

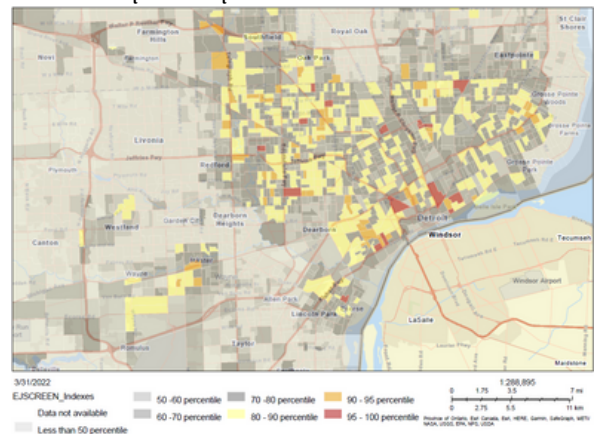
Toxic Release Inventory Facilities in Detroit Metro Area (DMA)⁹



EJ Screen Demographic Index:
% Low-Income x % Minority per
Census Block in DMA¹⁰



EJ Screen PM 2.5 Index:
PM 2.5 Annual Avg (µg/m3) x Demographic Index x
Population per Census Block in DMA¹⁰



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The University of Michigan Lifestage Environmental Exposures and Disease Center (M-LEED) Community Engagement Core (CEC) promotes collaboration among UM environmental health researchers and communities to advance knowledge of environmental health issues that affect community members in Detroit and Southeast Michigan. Support for this collaboration was provided by R01ES022616 from the National Institute of Environmental Health Sciences, National Institutes of Health, and the Fred A. and Barbara M. Erb Family Foundation. Additional support was provided by grant P30ES017885.



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