



Asthma and Air Pollution

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

Stakeholder Advocacy Board members include:

- Community Health and Social Services
- 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

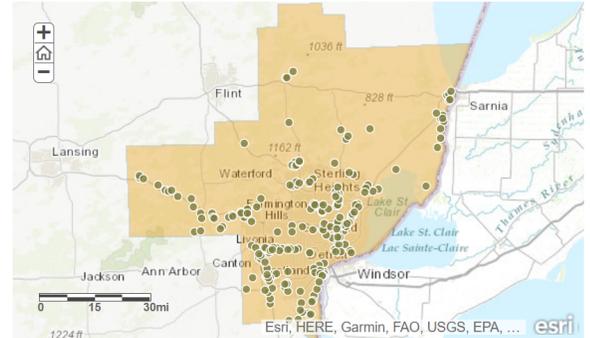




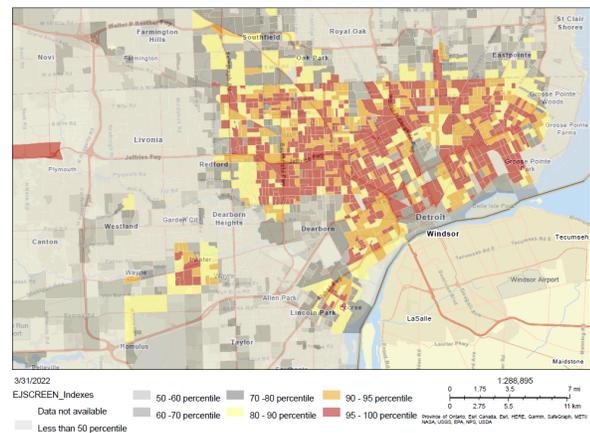
Policy Recommendations

- 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

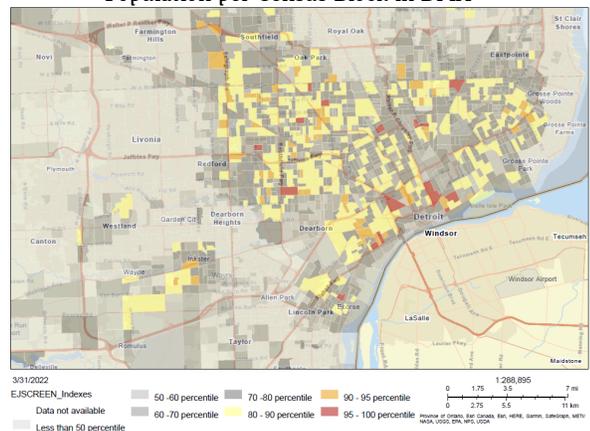
Toxic Release Inventory Facilities in Detroit Metro Area (DMA)⁹



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



EJ Screen PM 2.5 Index: PM 2.5 Annual Avg ($\mu\text{g}/\text{m}^3$) x Demographic Index x Population per Census Block in DMA¹⁰



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

The University of Michigan Lifestage Environmental Exposures and Disease Center (M-LEEED) 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 research was provided by grant P30ES017885 from the National Institute of Environmental Health Sciences, National Institutes of Health. The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institutes of Health.