Climate, the Environment & Health Legislative Forum

September 19, 2023 12:00pm - 1:30pm
Mackinac Room - Anderson House Office Building,
5th Floor, Lansing, Michigan

Hear about research and recommendations on Michigan's most pressing climate issues!

- **Climate Change and Water Affordability**
  - Elizabeth A. Mack PhD-Michigan State University
- **Cumulative Impact and Climate Change**
  - Devon Payne-Sturges DrPH-University of Maryland
- **Heat, Housing and Weatherization**
  - Carina Gronlund PhD-University of Michigan
- **Climate Change, Wildfires and Air Quality**
  - Stuart Batterman PhD-University of Michigan

For more information, visit the M-LEEaD Website

http://bit.ly/3QuZjQ1

Sponsored by:
Representative Abraham Aiyash & Representative Greg Markkanen
Michigan Center on Lifestage Environmental Exposures and Disease (M-LEEaD)

SCHOOL OF PUBLIC HEALTH
LIFESTAGE ENVIRONMENTAL EXPOSURES AND DISEASE CENTER
UNIVERSITY OF MICHIGAN

Panelist

Steps Towards Affordable Water: A Policy Agenda

Elizabeth Mack PhD, MA - Michigan State University

Professor Geography, Environment, and Spatial Sciences

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Cumulative Risks, Impacts, & Solutions: Prescriptions for Improving Community Environmental Health

Devon Payne-Sturges DrPH, MPH - University of Maryland

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"Inside"-er Tips for Adapting to and Mitigating Climate Change by Weatherizing Homes

Carina J. Gronlund PhD, MPH - University of Michigan

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Climate, the Environment & Health Legislative Forum

Agenda

12:00-12:05 Welcome Remarks

- Laprisha Berry Daniels, MPH, MSW
- Amy Schulz, PhD, MPH, MSW

12:05-12:15 Opening Comments

- Representative Abraham Aiyash
- Representative Greg Markkanen

12:15 *Steps Towards Affordable Water: A Policy Agenda*

- Elizabeth Mack, PhD, MA

12:25 *Cumulative Risks, Impacts, & Solutions: Prescriptions for Improving Community Environmental Health*

- Devon Payne-Sturges, DrPH, MPH

12:35 *"Inside"-er Tips for Adapting to and Mitigating Climate Change by Weatherizing Homes*

- *Carina Gronlund, PhD, MPH*

12:45 *Wildfire Preparedness and Response and Public Health*

- Stuart Batterman, PhD

12:55-1:15 Q&A

1:15-1:30 Closing Remarks & Next Steps

- Laprisha Berry Daniels, MPH, MSW
- Amy Schulz, PhD, MPH, MSW

WATER SERVICE AFFORDABILITY IN MICHIGAN: A STATEWIDE ASSESSMENT

All Michiganders need available and affordable, safe and sustainable drinking water and sanitation services.

Water infrastructure is essential for meeting and managing basic human needs. Public health begins and ends with clean and available water. People must have access to safe drinking water to survive and access to sanitation to prevent disease. Excess water from flooding can cause extensive direct and indirect harms.

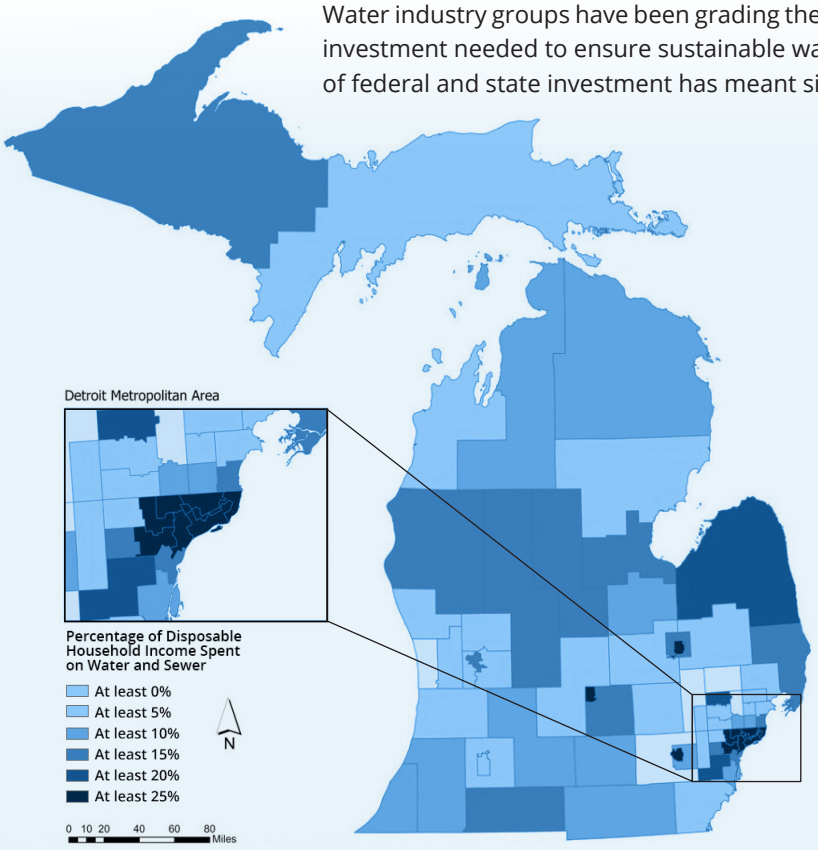
OVERVIEW OF TECHNICAL REPORT

This assessment examines the current state of affordability of water services (drinking water, wastewater, and stormwater) across the state of Michigan. The report presents quantitative analyses that are drawn from public source data. These are complemented by perspectives, insights, and personal experiences with water rates, bills, and utility management, gleaned from conversations with frontline community groups, water utilities, and state agency personnel. We use this important contextual information to offer key considerations for policymakers developing solutions to the identified challenges.

In many communities, inability to pay means the utility shuts off water service at individual homes, resulting in a lack of drinking water and basic sanitation at the household level. If an entire community struggles to afford water infrastructure maintenance and renewal, the community may never receive the quality, reliable water service—for delivery and collection—that it needs to thrive.

Water industry groups have been grading the condition of water infrastructure and quantifying the investment needed to ensure sustainable water systems for some time, noting that the reduction of federal and state investment has meant significant increases to water rates.

Policy discussions on water infrastructure funding often occur separately from discussions about affordability, with disparate outcomes. The COVID-19 pandemic and federal infrastructure funding present a new urgency and opportunity to address these issues holistically.



Source: Integrated Public Use Microdata Series from the American Community Survey and Census of Household Expenditures

Affordability Ratio for the Most Vulnerable 10% of Households

This map of Michigan shows Public Use Microdata Areas (PUMAs), which are geographies of 100,000 people. The colors on the map represent the affordability ratio (percentage of household disposable income spent on water and sewer services) for each PUMA.

As the map shows, challenges with water/sewer service affordability affect people throughout Michigan, across geography and demographics. The challenges affect households statewide—whether residents live in cities, suburbs, or rural areas—and the magnitude of the affordability problem has been increasing.

DEFINITIONS

To make progress on water affordability, it is important to have a shared definition of what **affordability** means. We use the term *affordability* to consider the issue at two key levels:

Household-level affordability refers to a household's ability to pay for its water and sewer services **without undue economic hardship**, such as sacrificing other essential goods and services, e.g., health care, food, insurance, for access to water.

Community-level affordability relates to the community's ability to afford water and sewer utility facilities and their operation and maintenance costs so that it delivers **consistent and reliable water services** compliant with applicable health and environment laws and regulations.

Access to water means there is enough **clean and safe water for household use**, that the home has the necessary infrastructure to both receive fresh water and remove wastewater to protect human life and the environment.

Sources: *Raucher et al., 2019; Center for Water Security and Cooperation, 2021*

MICHIGAN'S INDIGENOUS PEOPLE AND WATER SERVICE

In Michigan, over 130,000 people identify as American Indian or Alaska Native fully or in combination with another race (2018 Census).

Many Native Americans in Michigan find water service costs equally challenging to afford as their non-native neighbors. Although many Tribal members receive affordable or free water service from their Tribes, Tribal members who live within reservation boundaries but receive water service from a non-Tribal community water supply are fully responsible for paying their own water service bill. Other Native Americans, whether belonging to a federally recognized Tribe or not, who live in communities across the state and receive water from a municipal water supply, or who live in homes where water comes from a private well and waste flows to a private septic system, are also responsible for their own water costs. In these cases, similar to non-natives in this report, the socioeconomic status of the household is a strong indicator of the ability to afford the water bill.

ASSESSMENT OVERVIEW

All stakeholders interviewed agreed on the following concepts:

All Michiganders need available and affordable, safe and sustainable drinking water and sanitation services.

Economic stability is a necessity, and it requires appropriate supplementation from state and federal entities.

- At the household level, economic stability provides for health, family stability, and human dignity.
- At the water-utility level, economic stability provides for technical, managerial, and financial capacity.

When a household is unable to pay its water bills (i.e., the water is shut off), there are impacts to the household (damage to health, family, and dignity), the water utility (operational costs and unreliable revenue), and society (public health and collective well-being).

The way forward requires negotiating multiple, competing, and often divisive narratives that are deeply rooted in the lived experience of various communities.

In understanding that poverty, race, politics, and local finance present challenges that have evolved differently in each community, great care will be necessary to ensure that these unique challenges do not divert attention from attaining the collective needs identified above.

The variety of challenges cannot be used as an excuse to delay or avoid a policy response to this emergency.

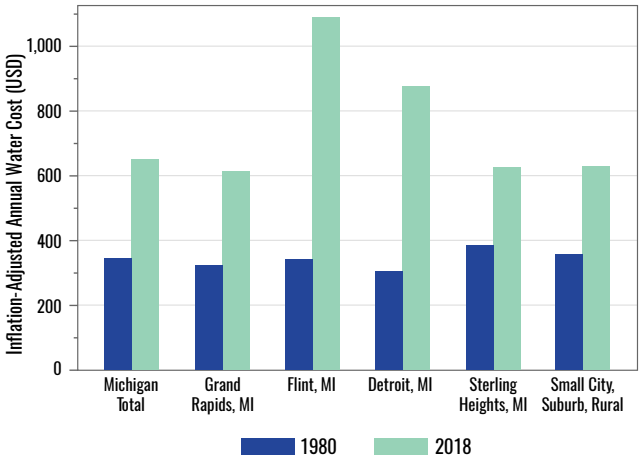
2015–2035 Estimated Shortfall in Michigan Utility Infrastructure Funding (Billions of USD)

The EPA and AWWA have completed extensive needs assessments in the last decade. The shortfall listed here sums these assessments, less the capital infrastructure spending in the Census of Governments. This estimated shortfall may be low, as utilities often do not know their 20-year needs when responding to surveys.

NEED	
EPA: Drinking Water Treatment	$4.702B
AWWA: Distribution	$22.116B
EPA: Clean Water	$2.144B
Michigan Lead Service Line Replacement Costs	$1.732B
SPENDING	
COG Data	**$10.856B**
20-YEAR SHORTFALL	**$19.838B**

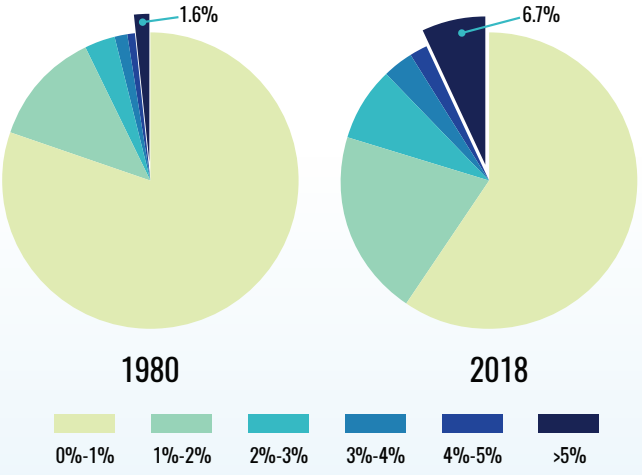
Inflation-Adjusted Annual Water Bills in 1980 and 2018

Average inflation-adjusted water costs have roughly doubled for the state as a whole since 1980. As the graph below shows, small cities, suburbs, and rural areas follow that average, while large urban areas (Detroit, Flint, etc.) have seen a much sharper rise. So, while water costs have increased across the state, the issue is exacerbated in urban areas.



Percentage of Income Directed to Water and Sewer Costs in 1980 and 2018

The graph below shows that inflation-adjusted water cost burdens were much higher in 2018 than they were in 1980. The percentage of consumers paying more than 5% of their income for water and sewer services has risen from 1.6% to 6.7%—more than a four-fold increase. That trend continues across all remaining categories except for those paying less than 1% of their income on water services, showing that rising costs have negatively impacted a substantial portion of Michigan's population.



RECOMMENDATIONS

There is no one-size-fits-all or one-time fix to Michigan's water affordability challenges. A successful solution package that can effectively and sustainably address water and sewer affordability must be sensitive to community history and community-lived experience because poverty, race, politics, and local finance present challenges that have evolved differently in each community.

We encourage policymakers, state legislators, water utilities, and community members to work together to develop a solution package that will do the following:

1. Address household capacity to pay for water and sewer services in each of the following scenarios.
   - Households with water service arrearages
     - » Consider one-time debt forgiveness
   - Households in long-term poverty
     - » Consider discounted or income-based water and sewer services
   - Households with short-term economic challenges
     - » Consider emergency funds
   - Households with private wells and septic systems
     - » Consider low-cost loans or grants to support major private well and septic repairs
   - Households in economically vulnerable communities
     - » Consider tailored programs for these stakeholders
2. Prohibit water shutoffs for economically vulnerable households.
3. Address gaps in utility technical, managerial, engagement, and financial capacity statewide. In addition, provide mechanisms that direct funding, expertise, and capacity to the utilities and communities with the least financial stability.
4. Address the lack of comparable utility-level financial data (e.g., arrearages, utility debt), infrastructure data (e.g., asset management plans, inventories), and maintenance data (e.g., water shutoffs, water main repairs) statewide.
5. Require water utilities to implement meaningful and significant community engagement in water and sewer system planning and decision-making, including data transparency, full participation, mutual understanding, inclusive solutions, and shared responsibility for engagement.
6. Embrace a state role with adequate authority and resources for oversight that ensures public health protection, water quality regulation (existing and future), and appropriate water rates and provides technical, managerial, and financial support for water utilities.

AFFORDABILITY BENCHMARKS AND COSTS

It is difficult to select a specific price point, or water rate, above which water is considered unaffordable. However, there are several benchmarks that researchers or organizations consider unaffordable. The United Nations Department of Economic and Social Affairs defined unaffordable water service as requiring 5% or more of household income. The Philadelphia Water Department's Income-Based Water Assistance Program (IWRAP) determines water affordability by water bill, income, and poverty. The affordability ratio (AR) calculates a water share (ratio of cost of water to household income) that subtracts essential expenses from household income. We use an affordability benchmark of 10%.

Threshold	Percentage of Households	Annual Cost of Subsidizing
United Nations 5% Benchmark	6.59%	$78.3 million
Income-Based Water Assistance Program (IWRAP)	10.28%	$95.5 million
Affordability Ratio (AR) 10% Benchmark	10.75%	$145.99 million

FACES OF AFFORDABILITY

Almost all households struggling with water costs share two common characteristics: they fall below the poverty line and their water costs are above average. This infographic categorizes the four household types that bear the burden of high water share in Michigan. These are the households called out above.

24%

Younger singles with high water share (average age 33) spend on average **$610/year** on water and sewer services—**10.6% of their total annual income** (average $5,768). They live **alone in cities and suburbs.** 33% own their homes and 67% rent.

40% White | 54% Black | 6% Other

22%

Younger families with high water share (average age 40) spend on average **$1,088/year** on water and sewer services—**8.5% of their total annual income** (average $12,833). They live in **multiple-person households across all areas of Michigan.** 39% own their homes and 61% rent.

46% White | 38% Black | 16% Other

10%

People with high water costs (average age 58) spend on average **$2,462/year** on water and sewer services—**9.0% of their total annual income** (average $27,365). They live **alone in cities and suburbs.** 26% own their homes and 74% rent.

49% White | 39% Black | 12% Other

44%

Older residents with high water share (average age 66) spend on average **$725/year** on water and sewer services—**8.7% of their total annual income** (average $8,350). They live in **one- and two-person households across all areas of Michigan.** 25% own their homes and 75% rent.

68% White | 26% Black | 6% Other

PROJECT TEAM

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This project was managed by the University of Michigan Water Center, in partnership with Michigan State University Extension and Safe Water Engineering, with support from the C.S. Mott Foundation.

We offer sincere thanks to the dozens of interviewees who offered their time and expertise for this research.

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For more information on the project and to download the technical report, please visit the website at https://myumi.ch/miH2O.

Cover photo by 13727445 on Pixabay

WATER CENTER UNIVERSITY OF MICHIGAN | MICHIGAN STATE UNIVERSITY Extension | Safe Water Engineering | CHARLES STEWART MOTT FOUNDATION

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AFFORDABLE WATER FOR ALL MICHIGANDERS

Michigan residents pay more for water than they can afford. Drinking water, wastewater, and stormwater costs have gone up steadily in recent years. The average cost of **water** across Michigan has **increased nearly 200% since 1980, with some communities increasing more than 300%.** Water bills are affordable when customers can consistently pay their bills without taking away money from other key expenses, such as food, housing, and electricity. Yet in Michigan, **low-income households are paying up to 25%** of their income on water bills.

In light of these alarming trends, Moonshot Missions was commissioned to assess solutions for this growing crisis. Moonshot examined possible affordability programs in six Michigan communities of various sizes, locations, and income distributions. The key finding in all of the communities studied was that some form of **affordability plan is possible that benefits households without significantly impacting utilities' revenue requirements or other ratepayers.** According to Draining: The Economic Impact of America's Hidden Water Crisis, a report by DigDeep, creating a water affordability program could also create nearly $200 billion of economic value over the next 50 years.

Water assistance programs help customers to pay their water bills.

VS

Water affordability programs lower cost of water, so bills are lower.

How can Michigan's Decision-Makers Make Water Affordable for All?

- Require water systems to apply a tiered water rate based on gross household income for low-income customers 135%, 150%, and 200% of the federal poverty line so everyone pays a bill they can afford
- Provide a simple way to verify a customer qualifies for a water affordability program and at what tiered rate
- Limit the circumstances in which a utility may shut off a customer's water service
- Provide protections for tenants who may be unable to pay their water bill or whose landlord is struggling to pay the water bill
- Provide protections for certain customers who are unable to afford their water bill from water shutoffs, procedures for notifying customers when water shutoffs will occur, and processes for which low income customers can appeal a decision
- Provide a process for customers to receive forgiveness of their water debt.

TOGETHER WE CAN CREATE A THRIVING, PROSPEROUS MICHIGAN WHERE EVERYONE WANTS TO LIVE, WORK, AND PLAY.

Scan the QR code to read the economic feasibility study: Water Affordability Analyses for Six Michigan Communities

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WATER EQUALS LIFE

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Household Flooding in Michigan

Highlights from a report by Healthy Urban Waters & their partners*

How flooding happens

Flooding can be caused by excess rain, overflowing rivers, and shortcomings of wastewater infrastructure. Older Michigan cities like Detroit often have combined sewer systems, which means that overflows and flooding caused by excessive rain can contain untreated sewage.

43% of 4,667 Detroit households surveyed between 2012-2020 reported household flooding.

Renters are 1.7x more likely to report household flooding

The impacts of flooding

- Missed school & work
- Having to leave ones home
- Recovery costs (e.g., health care, home repair, trash removal, or mold removal)
- Injuries or death (e.g., from electrocution or drowning)
- Respiratory issues due to mold or other microbes
- Stomach or intestinal issues
- Skin rashes
- Eye irritation
- Psychological distress

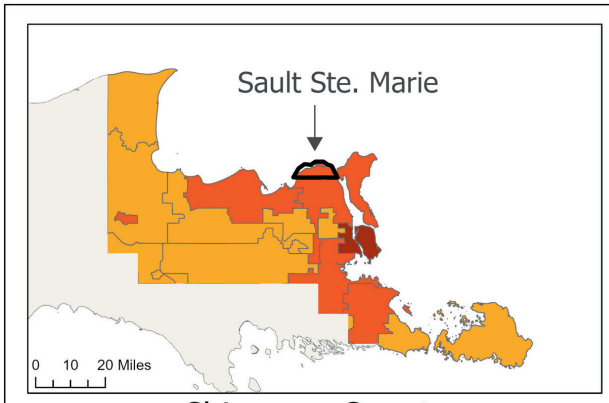
> ...I got this feeling of 'Okay, it happened. We're sorry. This is why it happened. Okay, fill out this paperwork and go about your day.' Until a person lives there and knows what it is like to smell raw sewage or knows what it's like to slip and fall and break a bone and be lying in raw sewage, you can kind of disconnect from those stories and be like okay, just do this and get your money back. But it's much more than just money that's needed to mitigate the situation. It's just, what are you doing to prevent it? Because you can't pay me for the stress I feel every time I see a heavy rain happen. There's no paying for that.
>
> – Detroit Resident

A family piles soaked, ruined belongings pulled from their flooded basement at the end of their driveway.
(CBS News; Marlene Beck Mohan)

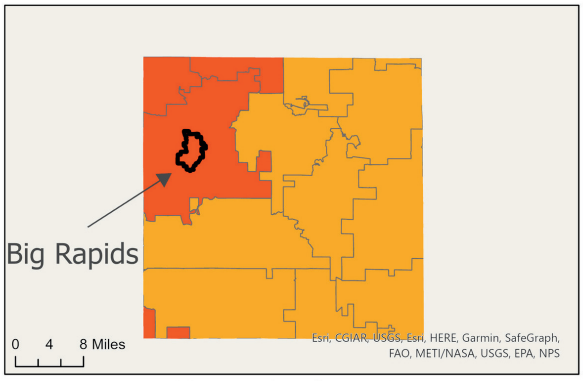
Preparing for future flooding

Over the next 25 years, rain events in the Midwest are expected to become more frequent, more severe, and last longer than in previous years. As weather events make existing health inequities worse, we can expect increasing challenges to health equity as our climate changes. Our most vulnerable neighbors are likely to be impacted the most by flooding. See the next page for recommendations to prevent flooding and protect communities.

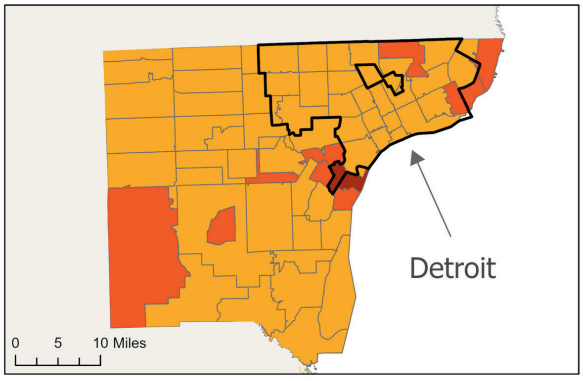
This map shows the average Flood Factor Risk score in zip codes across Michigan. The Flood Factor Risk score is the risk of a property flooding at least once over the course of a 30-year mortgage.



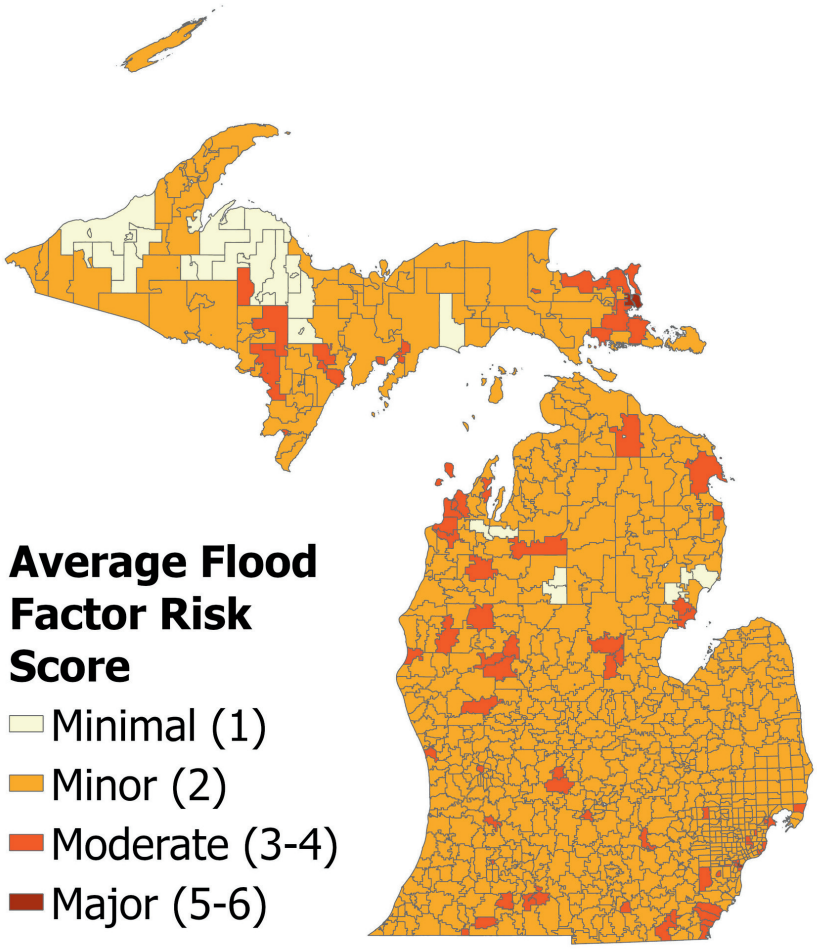
Chippewa County



Mecosta County



Wayne County



How Can Decision Makers Improve Preparation and Response to Flooding?

1. Fund major infrastructure updates

Government agencies and regional authorities should prioritize funding for new infrastructure to control rainwater and flooding.

2. Maintain vacant lots & flood-prone areas

Unmaintained lots can contribute to flooding if not properly cared for. The city should be responsible for taking care of vacant lots, especially lots which may be making flooding worse.

3. Streamline the process for flood related claims & ensure equity in settlements

Submitting a claim to Detroit Water and Sewerage Department for flood damage can be difficult to navigate. The process should be easier and compensation should be distributed quickly and equitably.

4. Address remaining research & policy questions

In order to put solutions in place which are good for the community, long lasting, and equitable, the city needs to invest in research to find the specific causes and effects of flooding in different neighborhoods.

5. Hold landlords accountable for flood prevention & response

Landlords need to be responsible for basic household maintenance and flooding prevention on their properties.

6. Develop grants and technical assistance programs to support household flood related maintenance

Flood related maintenance can be costly and unaffordable for many people. Grants and assistance programs would make it easier to put these protections in place.

***Read the full report at https://huw.wayne.edu/learning-center/detroit_flood_report_2021.pdf**

Highlights compiled by The University of Michigan Lifestage Environmental Exposures and Disease Center (M-LEEaD) Community Engagement Core (CEC), supported by grant P30ES017885 from the NIEHS. The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institutes of Health.

Cumulative Impact

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 Department of Public Health
- 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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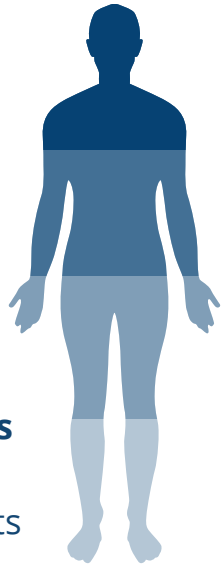
What is Cumulative Impact?

Cumulative impact is a model for understanding multiple environmental exposures, social and economic conditions, and personal risk factors that may increase someone's likelihood of experiencing harm. For example, having an existing health condition and being exposed to air pollution. The combined effect of these factors is called **cumulative impact.**

Exposure to multiple pollutants
e.g.: traffic pollution, closeness to toxic waste sites, workplace exposures, lead in water.

Psychological stressors
e.g.: chronic stress, adverse childhood events (ACEs).



Pre-existing health conditions and biological factors
e.g.: diabetes, genetic factors, autoimmune disease.

Social and economic vulnerabilities
e.g.: limited access to health care, poverty, water affordability

By examining these factors together, we can get a clearer picture of the total impacts on public health. Cumulative impact is a useful tool for understanding why some groups may be more vulnerable to harmful effects from environmental exposures.

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Support for this research was provided by grant P30ES017885 from the National Institute of Environmental Health Sciences, National Institutes of Health.

Last revised 05/2023

Why is cumulative impact useful?

1. It can **more fully assess the health impacts** associated with polluting facilities and their emissions for the residents of surrounding communities.
2. It can **direct resources to communities** that experience higher cumulative impact to reduce their exposures and health risks
3. It can **inform policies and planning decisions** in order to promote the health of residents experiencing high impact.
4. It can **identify** places with higher health impacts and address medical care costs associated with decision-making.

How can I use legislative impact to inform my decisions?

1. Use cumulative impact data to inform decisions on new infrastructure and **limit new pollution sources** in communities that already experience high cumulative impact.
2. **Intervene and invest in communities** experiencing high cumulative risk. For example, fitting air filtration systems in homes or schools that are close to sources of air pollution.
3. **Advocate for better monitoring** to provide a more accurate picture of the risks and impacts in a community.
4. **Require rigorous, independent health impact assessments** before issuing new or renewed permits for emission of pollutants

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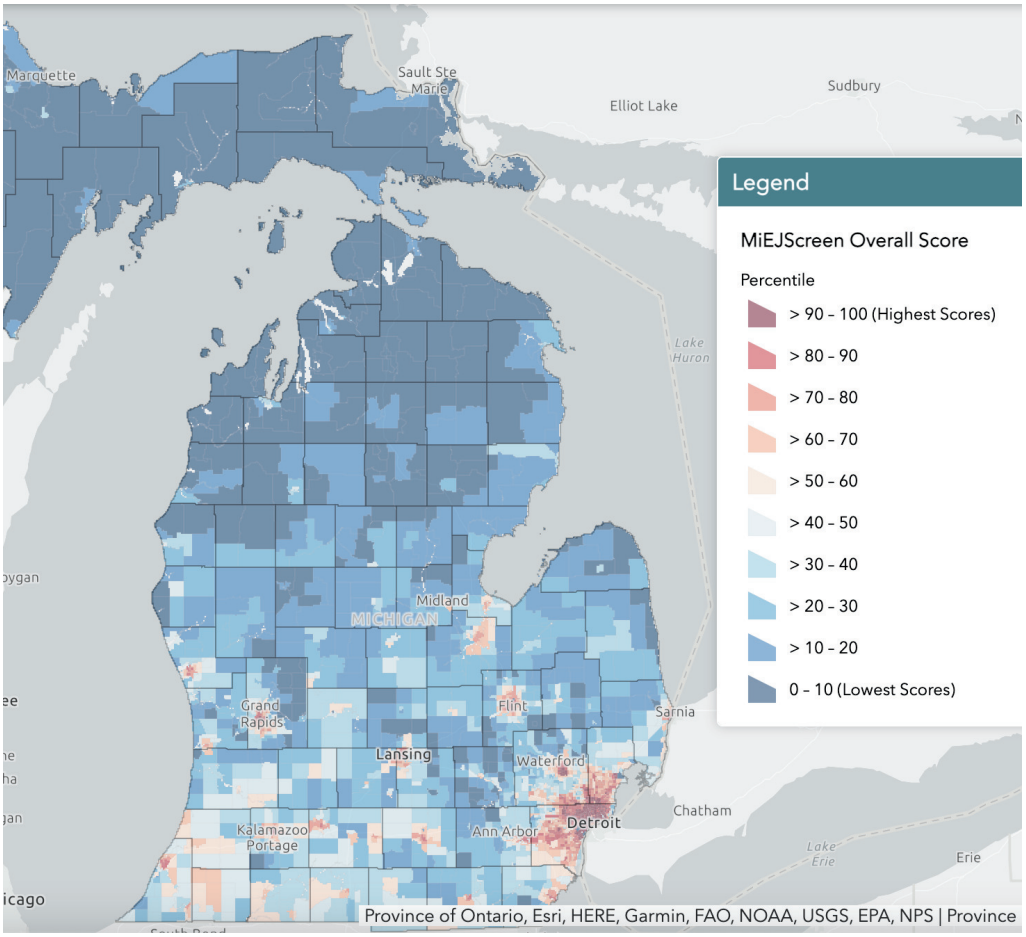
Last revised 06/2023

MiEJ Screen

The MiEJ Screen is a draft online tool created by the Department of Environment, Great Lakes, and Energy. This scoring system is an example of cumulative impact metric, as its uses multiple factors to identify communities most impacted by environmental exposures.



What factors are considered in MiEJ's overall score?

- Environmental Effects
- Sensitive Populations
- Socioeconomic factors
- Environmental exposures

Please see http://mleead.umich.edu/Coec_Fact_Sheets.php for the citations included in this factsheet. The University of Michigan Lifestage Environmental Exposures and Disease Center (M-LEEaD) 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. The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institutes of Health.

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Last revised 06/2023

Policy Suggestions for Home Weatherization Programs

What is weatherization and why is it important?

Weatherization refers to the process of upgrading homes to improve their energy efficiency and resilience against climate events. Weatherization programs in the U.S. help low income households reduce the amount of energy their homes use, which lowers energy bills and can improve overall health. Such programs are important to reduce the huge energy burdens faced by about one in three Americans.

How can decision makers support weatherization assistance programs (WAPs)?

The Inflation Reduction Act provides new funding to reduce energy and move towards cleaner power sources for existing homes. State-level decision makers can take advantage of this opportunity to improve state WAP efforts.

1 Increase WAP outreach and simplify the WAP application process.

WAP utilization reports estimate that only about 2 out of every 1000 eligible homes complete weatherization. Ensuring WAPs are promoted in eligible communities and creating a transparent and straightforward application process can increase program enrollment.

2 Diversify eligibility criteria for WAP Programs.

To ensure the most vulnerable populations are identified, WAP programs could consider including criteria such as higher levels of financial hardship, lack of essential resources, or health. Programs could collaborate with public health entities to identify households most in need.

3 Create weatherization solutions for renters.

WAPs typically target homeowners, yet about 33% of Americans are renters. Policymakers should also promote solutions that ensure weatherization options are available to renters.

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Last revised 08/2023

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
- Green Door Initiative
- Henry Ford Health System
- MDHHS
- Michigan Environmental Justice Coalition
- Sierra Club
- We the People of Detroit

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How can weatherization help with climate change?

In Michigan, climate change is causing changes in seasonal patterns, and extreme weather events are expected to increase in the coming years. Weatherized homes are one solution to help individuals protect themselves from the increasing temperature extremes due to climate change. Weatherized homes are better equipped to withstand temperature changes that come with more extreme weather patterns. Additionally, weatherized homes reduce burdens on energy grids, which is especially important during periods of high energy usage, such as high heat events.

Benefits of weatherization

Health benefits

- Reduced asthma and Chronic Obstructive Pulmonary Disorder (COPD) symptoms.
- Reduced heat stress
- Fewer arthritis symptoms.
- Improvements in general health.
- Reduced psychological distress.

Non-health benefits

- Utility companies save money by reducing energy shutoff frequency and emergency services use.
- Households save money on energy costs.
- Societal and environmental benefits from the reduced emissions of weatherized homes.

Please see http://mleead.umich.edu/Coec_Fact_Sheets.php for the citations included in this factsheet.
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LIFESTAGE ENVIRONMENTAL EXPOSURES AND DISEASE CENTER
UNIVERSITY OF MICHIGAN

Last revised 05/2023

Factsheet June 2023

Energy Equity in Michigan:

The Issue and Action Steps for Industry and Community Members

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

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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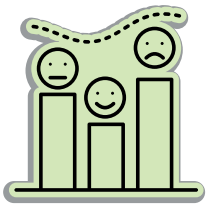
What is Energy Equity?

Energy Equity means that the benefits of energy, as well as the costs and pollution created by our energy system, are distributed fairly. Currently, the health costs and pollution from energy systems are concentrated in low-income, rural or black, indigenous, and people of color (BIPOC) communities. Energy equity would mean:

- Fair access to clean energy
- Fair access to climate action and clean energy programs
- Addressing health harms BIPOC communities have experienced from fossil fuel energy production.[1 7–10]

Why is energy equity important?



Easy and affordable access to clean energy helps us all to live safe and comfortable lives. Currently, most energy in Michigan comes from fossil fuels such as coal, gasoline and methane (fracked or "natural" gas).[2]

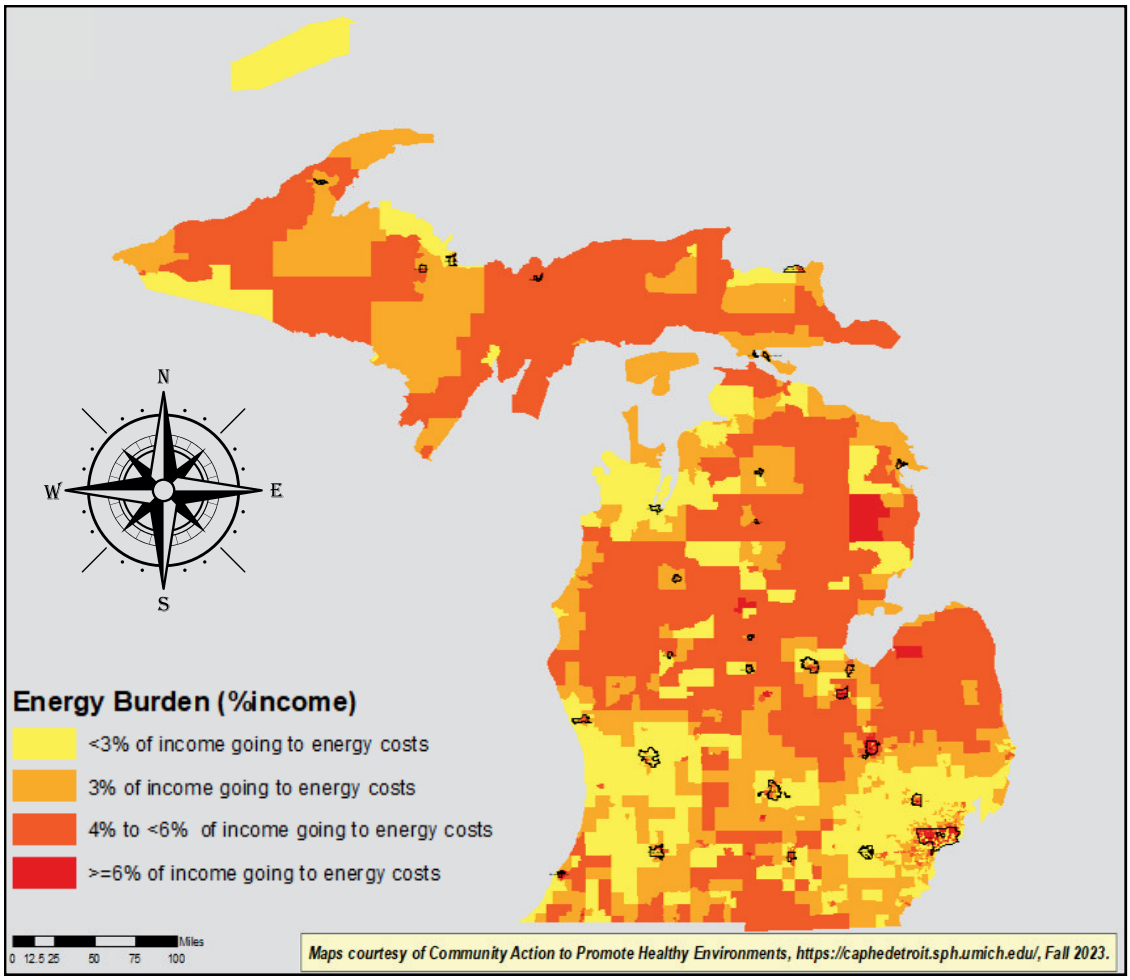
Pollutants are released in the process of creating energy from fossil fuels. This is harmful to the environment and people's health.

Communities located near power plants and storage facilities are exposed to higher levels of these pollutants and experience worse health outcomes as a result. The same communities pay a larger part of their income to cover their energy expenses (See the maps below for more detail).[3 11 12] We refer to this as energy burden. Energy equity assures that pollutants and other costs of energy production do not disproportionately fall on those who benefit the least from the energy produced.

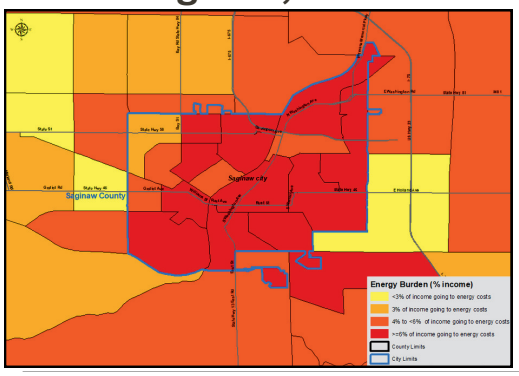
What does energy burden look like in Michigan?

These maps show the energy burden in census tracts across Michigan. Energy burden is defined as the percentage of a household's income that is used to pay for energy. Tracts with higher energy burden are in dark red, and those with lesser burden are yellow.

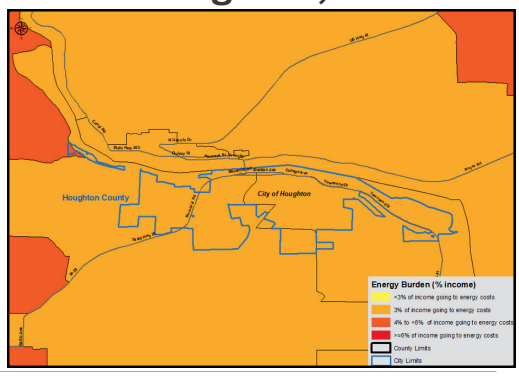
High energy burden is defined as being 6% or more of a household's income. Based data from the EPA's Low-Income Energy Affordability Data Tool, the national average energy burden for low-income households is 8.6% - 3 times higher than for non-low income households. In Michigan, almost half of all census tracts have an energy burden of 10% or more, with some tracts in Wayne County having an energy burden of 36%.



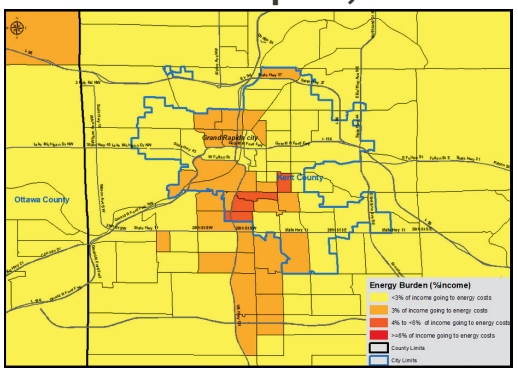
Saginaw, MI



Houghton, MI



Grand Rapids, MI



Data source: Low-Income Energy Affordability Data (LEAD) Tool (https://www.energy.gov/eere/slsc/maps/lead-tool) and (https://lead.openei.org/assets/docs/LEAD-Tool-Methodology.pdf)
Model used: Federal Poverty Level (FPL) - The Federal Poverty Level is a measure of income used by the U.S. government to determine who is eligible for subsidies, programs, and benefits.
Variables included in the model: Building Age, Heating Fuel Type and Building Type (Housing data comes from the U.S. Census Bureau's American Community Survey 2018)

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How do we move toward Energy Equity?

Utility companies are expanding to meet the needs of a growing population. In Michigan, utility companies must submit an Integrated Resource Plan (IRP) to the Michigan Public Service Commission (MPSC) for approval. IRPs describe the utility companies' energy production plans. Utility companies are not currently required to include an assessment of health impacts in a proposed IRP.

One way to reduce the negative health outcomes associated with energy production is to require utility companies to include a health impact assessment (HIA) as part of the IRP. Doing so would help the MPSC make more informed decisions about the impacts of utility plans on health, and help protect overburdened communities from additional health risks. [3]

What pollutants come from fossil fuels and what are the health effects?

Coal	Fracked ("natural") gas	Petroleum
Health Effects: Skin, heart, brain, blood and lung diseases, and different cancers. [15]	Health effects: Irritation of throat, eyes, skin, and lungs; cough, asthma, lung fibrosis, heart attack, stroke. [16] [17]	Health Effects: Respiratory issues (e.g. asthma, bronchitis), skin irritations, nausea, eye problems, headaches, birth defects, and cancer. [17] [18]
Pollutants: Mercury, lead, sulfur dioxide, nitrogen oxides, particulates, and various other heavy metals. [4]	Pollutants: Methane, carbon monoxide, nitrogen oxides, formaldehyde, ammonia, and fine particulate matter. [5]	Pollutants: Carbon monoxide, nitrogen oxides, particulate matter, unburned hydrocarbons, and carbon dioxide. [6]

What can decision makers do to advance energy equity?

- Expand on the efforts of the Michigan Public Service Commission to conduct an environmental justice and health impact analysis as part of Integrated Resource Planning (IRP) so the potential community impacts of utility investment decisions are more fully considered. [19]
- Limit energy burden from powering and heating homes to not more than 6 percent of annual income for low-income households: [19]
  - Increase affordability of utility services through expanded "Percent of Income Pilot Programs" and through minimum allocation levels for utility investment in low-income energy efficiency programs. [19]
  - Direct additional funding to the Michigan Utility Consumer Representation Fund (UCPF) to provide resources to intervenors in MPSC proceedings who represent the interests of low-income communities. [19]
- Advocate for utility companies to provide fair outage compensation for families throughout Michigan experiencing power outages to pay for spoiled food, medicine, generators, and hotel accommodations. [20]
- Support permanent moratorium on power shutoffs. [20]
- Ban investor-owned utilities from using customers' money for lobbying and campaign contributions. [20]
- Ensure Michiganders receive the millions of dollars in funding from the federal government such as those available through the Inflation Reduction Act for energy efficiency home upgrades, rooftop solar, home battery modules, electric appliances, etc. [20]

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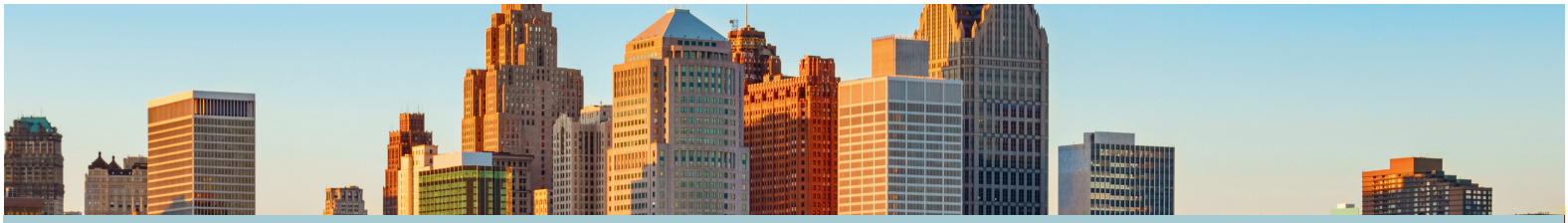

Climate Action for Health Equity in Michigan:
Updates and Suggestions for Decision Makers and Residents

How does climate change affect health equity in Michigan?

Climate change affects all of us. Some communities experience greater impacts than others. Addressing the impacts for those who are most affected by climate change is crucial for achieving health equity and climate justice.

Here are some ways climate change impacts Michigan residents:

As heatwaves become more common, people without access to air conditioning are at risk of heat-related illness and death. This is especially true for older adults, people with chronic conditions, and people who work outdoors. [6] [13]

As extreme precipitation becomes more frequent, the risk of flooding, flood-related illness, stress, and death increases. Flooding in the U.S. is more likely to affect low-income communities and communities of color. [6] [7]

As temperatures increase, air pollution gets worse. Many low-income communities and communities of color are in areas with high levels of air pollution. They already experience high rates of asthma, heart disease, and other chronic diseases. These conditions will get worse with increased air pollution. [6] [8]

Extreme weather events can create major issues with transportation, food access, and power outages. Detroit communities already struggling with limited access to these services are likely to be hardest hit. [9] [10] [11] [12]

What can decision makers do?

- Learn about climate change and its health risks. Take action to reduce harmful effects of climate change.
- Support legislation to reduce adverse effects of climate change. This includes funding to protect those who are most vulnerable.
- Increase monitoring of climate-related health outcomes, such as heat-related hospital stays, injury or death from extreme weather events, and asthma-related outcomes and take action to respond to increases.
- Work closely with planners and public health professionals to assess health impacts of land use decisions that may affect urban heat islands, air quality, and storm water management. Assure that results inform land use decisions to protect public health.

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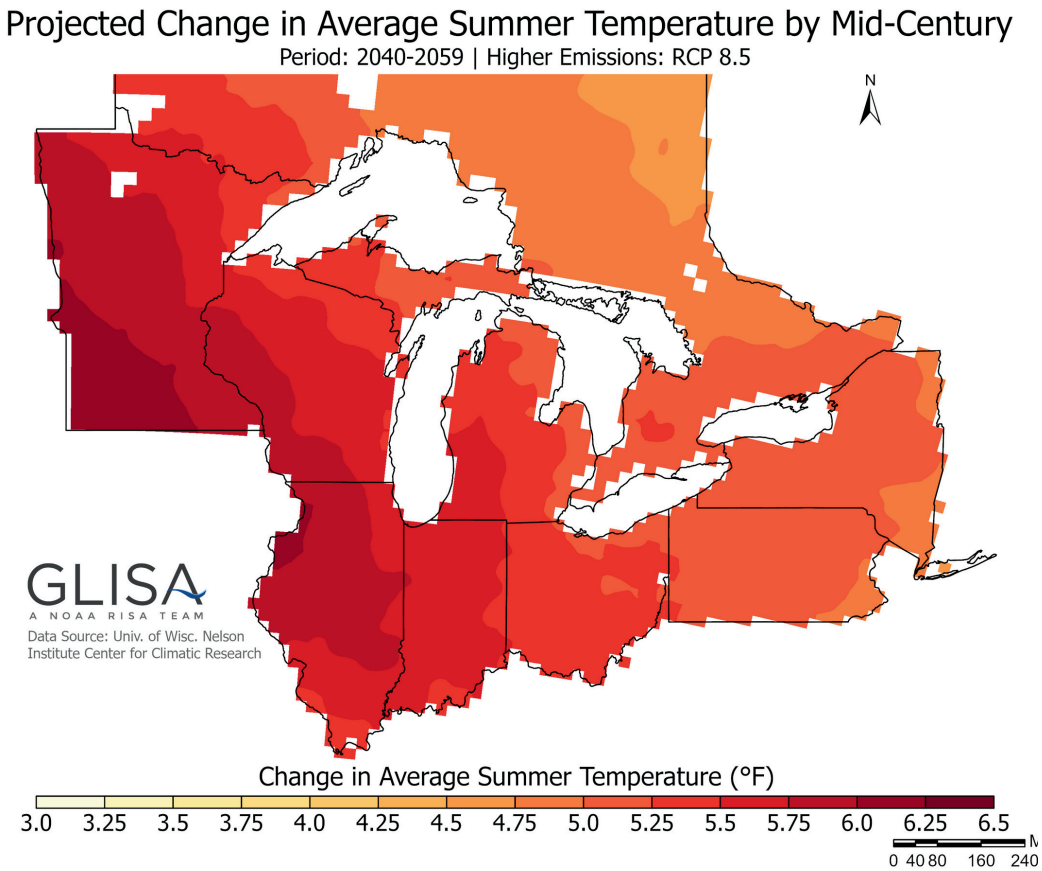
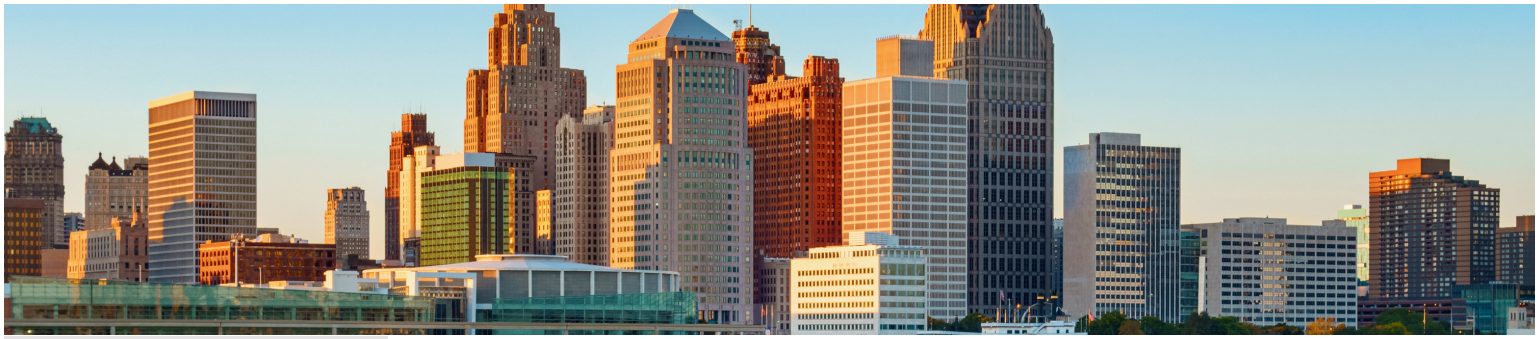
How is Climate Change Impacting the Great Lakes Region?

Temperatures are rising globally. In Michigan, this means:

- Heat waves are more frequent. In the next 50 years, summers in Michigan may feel like current-day Arkansas. For example, Detroit could experience as many as 65 days per summer with high temperatures above 90°F, a large increase over the current average of just 13 days per summer.[1] [2]
- Extreme rainfall events are more frequent, especially in winter and spring. Frequency and intensity of severe storms will likely continue to increase.[1] [2]
- Alongside these extreme events, it may be drier overall with increasing periods of drought. [3]



Michigan summers could be about 5.0°F warmer by 2050. [14]



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- Sierra Club
- We the People of Detroit

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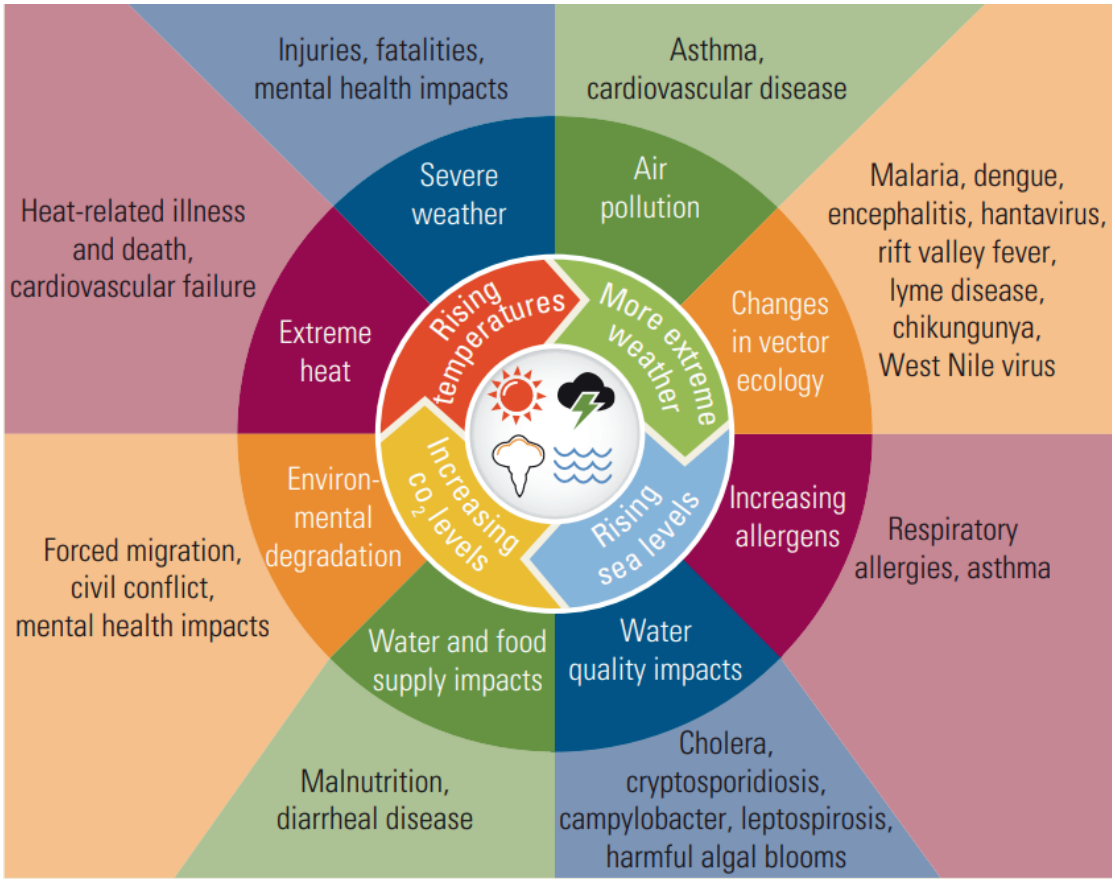
What health impacts of climate change can we expect?

Health risks are projected to increase this century under all future emissions scenarios (predicted amount of greenhouse gases). [5]



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Climate Change, Extreme Precipitation, and Health

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Why is climate change important to public health?

Climate change is altering weather and climate patterns. These changes could affect human health in direct and indirect ways, sometimes severely.[3] [5] Climate change is one of the most serious public health threats facing us today (The American Public Health Association, World Health Organization)[1] [2]. Increases in heavy rainfall events cause stormwater overflows and flooding. Health effects include breathing and digestion problems.

What can decision makers do to prevent climate change and the effects of extreme precipitation on health?

Here are some steps decision makers can take to prevent stormwater overflow and water pollution in your neighborhood:

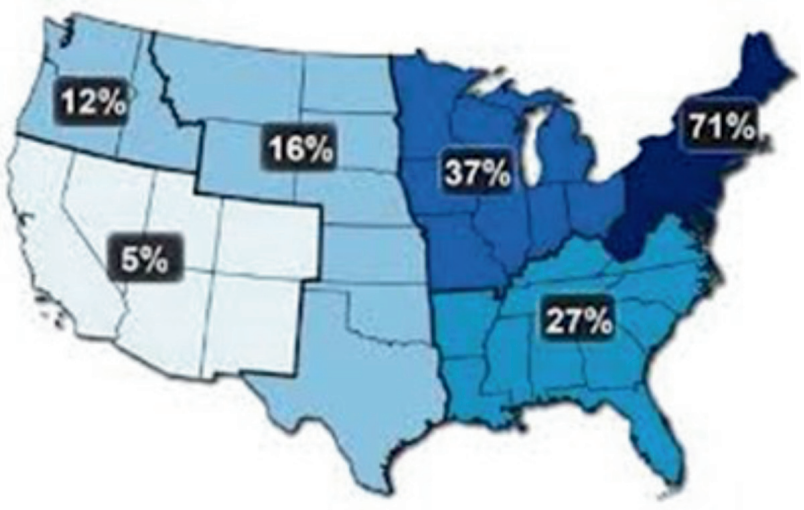
- Encourage reductions in the amount of surfaces that do not absorb water (e.g.,cement, asphalt). Not only do those surfaces increase runoff during heavy rain events, they also capture heat, creating "heat islands" that make extreme heat events worse.
- Local, state and federal decision makers can reduce climate change by, for example, encouraging clean energy and reducing use of fossil fuels.
- Advocate for improvements in waste and sanitary sewage systems to be able to handle larger volumes of water.
- Encourage and fund land uses that absorb excess water, and prevent runoff during extreme rainfall events. This can include encouraging the use of rain gardens, retention ponds, and green space that absorbs rainwater.

How is climate change & extreme precipitation impacting Michigan?

- Extreme rainfall events are becoming more frequent, especially in winter and spring; however, overall the region will be drier with increasing periods of drought.
- Frequency and intensity of all types of severe storms will likely continue to increase.
- Rising temperatures and more extreme heat events cause increased evaporation. This, in turn, causes more extreme rainfall events.

The Midwest has seen a 31% increase in the heaviest (top 1%) of rainfall events from 1958 to 2007.

Source: Great Lakes Integrated Sciences Assessments (GLISA)



Example from Midland::

On May 19, 2020, the Edenville and Sanford Dams, which are part of a four-dam system near Midland, failed. The failures forced the evacuation of thousands of residents and created catastrophic flooding and property losses. The two other dams on the same river system, the Smallwood and Secord dams, were damaged. The dams were unable to manage water flows that resulted when storms dropped as much as eight inches of rain over 48 hours in parts of Northeast Michigan. [16]

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What precipitation-related health effects can we expect for Michigan?

Mold:
Mold is likely to grow in houses that have been flooded. Exposure to mold can lead to asthma or cardiovascular diseases.[4]

Asthma:
Household flooding may lead to increased mold. Mold exposure is likely to trigger asthma symptoms and make them worse.

Respiratory Diseases:
Exposure to water-borne illnesses, such as Legionella, may increase.[4]

Toxins from Harmful Algal Blooms (HAB):
Increased extreme rain events cause nutrients to run off into the Detroit River and Lake Erie. These increased nutrients lead to Harmful Algal Blooms (HABs), which can contaminate drinking water supplies. HABs produce toxins, which when ingested can result in sickness, even death.[4]

Diseases from raw sewage:
In extreme rain events, storm water drains can become blocked. This causes an overflow of raw sewage. This can cause people to be exposed to multiple bacteria in the raw sewage.[6]

Source: greatlakes.org

Combined Sewer Overflows (CSO), in the event of extreme rainfall, can overflow, sending raw sewage to a river or lake.

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Climate Change, Extreme Heat, and Health

Why is climate change important to public health?

Climate change is altering weather and climate patterns which could affect human health in direct and indirect ways, sometimes severely.[3] [5] Climate change is one of the most serious public health threats facing us today according to the American Public Health Association and World Health Organization.[1] [2]

What can decision makers do to mitigate the effects of extreme heat?

- Work with other decision makers to reduce climate change. It is imperative that we reduce emissions as quickly as possible and simultaneously prepare for the changes we cannot prevent. [17]
- Engage all state agencies in determining how environmental justice screening tools can assist them in designing better information gathering, outreach, engagement, and decision-making processes to reduce existing and future impacts to residents (this includes permitting decisions). [17]
- Expand on the efforts of the Michigan Public Service Commission to conduct an environmental justice and health impact analysis as part of Integrated Resource Planning (IRP) so the potential community impacts of utility investment decisions are more fully considered.[17]
- Elevate community health impacts and equitable access to infrastructure in energy planning and investment decisions. Continue to develop and refine innovative rate designs to incent behaviors that advance clean energy goals.[17]
- Protect and manage Michigan's natural and working lands to store and sequester carbon and offer additional benefits including limiting water runoff pollution, providing habitats that support biodiversity, and reducing the impacts on Michigan communities from more frequent and intense flooding, extreme heat, and other effects of climate change. [17]

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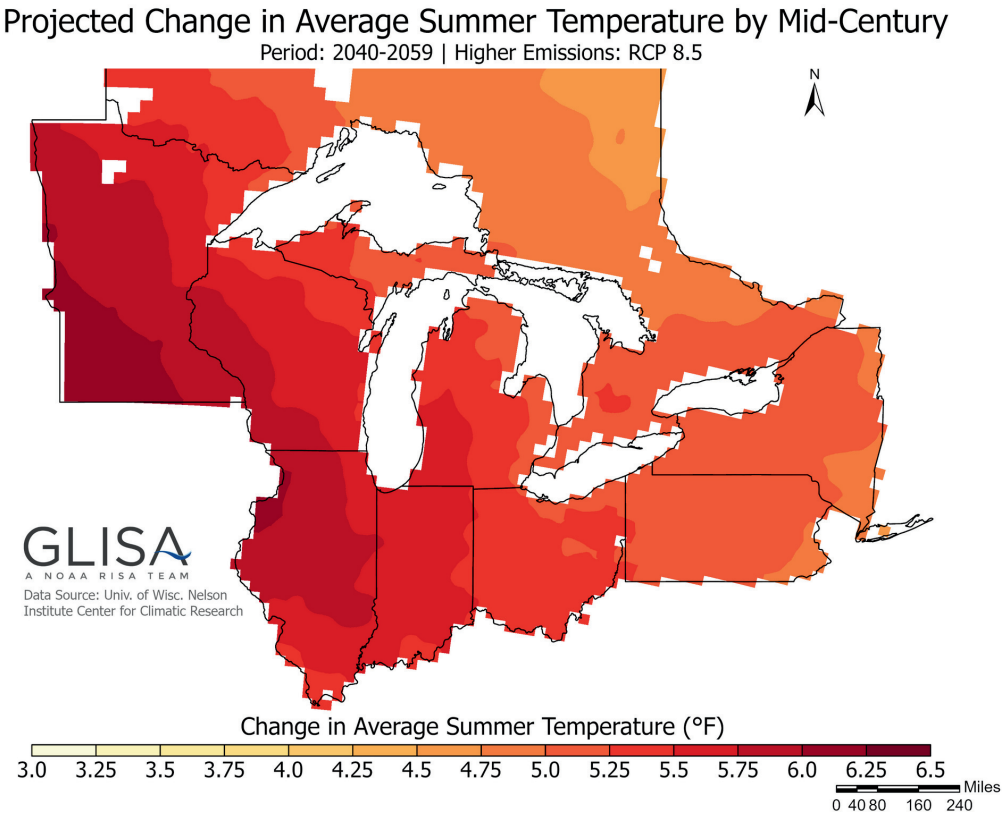
How are climate change & extreme heat impacting Michigan?

Temperatures are rising and heat waves are becoming more frequent. As the map below shows, the change in average summer temperature across the Great Lakes area could increase by 3-6 degrees Fahrenheit.[2]



In southeast Michigan there are many 'urban heat islands' — areas with significantly warmer temperatures due to buildings and hard surfaces. Green infrastructure can help address this challenge, along with greenhouse gas emissions and stormwater management, through redevelopment of vacant land.[5]

What heat-related health effects can we expect for Michigan?

Extreme heat will lead to increased hospitalizations due to heat exhaustion and heatstroke, wildlife loss from habitat changes, and increased levels of mosquito and tick populations that carry diseases like West Nile Virus and Lyme Disease.[17]

Health conditions that increase vulnerability to heat include:

- Cardiovascular Disease (CVD): CVD affects the heart and blood vessels. The body regulates temperature by widening and narrowing blood vessels to adjust blood flow. When people have CVD, their bodies may have difficulty responding to extreme heat.[10]
- Kidney Disease: Kidneys filter blood and control blood pressure, which is necessary for regulating body temperature. As a result, those with kidney disease are more vulnerable to the effects of extreme heat.[10]
- Asthma: Asthma affects both children and adults, making it difficult to breathe.[9] Asthma is made worse with increasing temperatures. The Michigan 2012-2014 asthma hospital rate was 12.54 per 10,000 people.[7]

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Wildfires

Wildfires: An Overview

Wildfires are unplanned fires that burn in forests and other areas. They are caused by human activity and natural events. The smoke and byproducts of wildfires can travel long distances and affect large populations. Due to land and forest management practices, and climate-induced changes, the risk of wildfires in North America is increasing.

What can decision makers do to reduce wildfires and their negative effects?

Taking preventative measures in Michigan can reduce the increased health risk of wildfires due to climate change. Additionally, solutions that focus on cleaning hazardous air can protect against smoke from wildfires outside of the state.

1 Promote safe indoor environments and spaces (ie. clean cooling centers)

Ensure there are appropriate air filters, ventilation systems, cooling systems, and weatherization (to seal gaps and improve efficiency) in homes and buildings. This is especially important in schools, senior homes, and other buildings with vulnerable populations. Provide financial support for low income communities to create safe indoor spaces. Develop and adopt a certification system to verify safety and performance.

2 Disseminate enhanced wildfire smoke forecasts and health alerts

Provide community-specific forecasts for wildfire smoke: state where, when, how long, and how bad the health effects of smoke are expected to be. Recommend and disseminate appropriate responses to reduce exposure, coordinating with various public health and environmental entities.

3 Reduce carbon and other greenhouse gas emissions

Greenhouse gas emissions are directly linked to climate change. The continued emissions of these pollutants contribute to weather and temperature extremes, which increase wildfire severity and frequency. Take action to reduce major sources of greenhouse gas emissions.

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Why is it important to prevent wildfires and mitigate the effects of wildfire smoke?

1 Wildfires contribute to climate change

Wildfires emit greenhouse gasses, which directly contribute to climate change. Additionally, the reduction in forests as a result of wildfires reduce an area's ability to absorb carbon and mitigate climate change.

2 Wildfires can reduce water quality

Wildfires can increase the amount of sediments and toxins in fresh water sources, contaminating drinking water.

3 Wildfires create hazardous air

Fine particles from wildfire smoke can cause or worsen many respiratory and heat conditions. Wildfires also create volatile organic compounds, which are a precursor for ozone, another pollutant harmful to human health.

What are some health risks of wildfire smoke?

- Decreased lung function
- Coughing and wheezing
- Lung inflammation
- Bronchitis
- Worsening of asthma and other respiratory diseases
- Worsening heart disease
- Eye irritation

Who is most vulnerable to wildfire smoke?

- People with lung and heart disease
- Pregnant individuals
- Older adults
- Infants and young children

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Ozone & Air Quality

What is Ozone and where does it come from?

Ozone is a colorless and odorless gas that contributes to poor air quality and has serious health effects. It occurs both naturally and as a product of human made pollution.

Ground level ozone is created by a reaction between:

- Volatile Organic Compounds (VOCs)
- Nitrogen Oxides (NOx)
- Sunlight

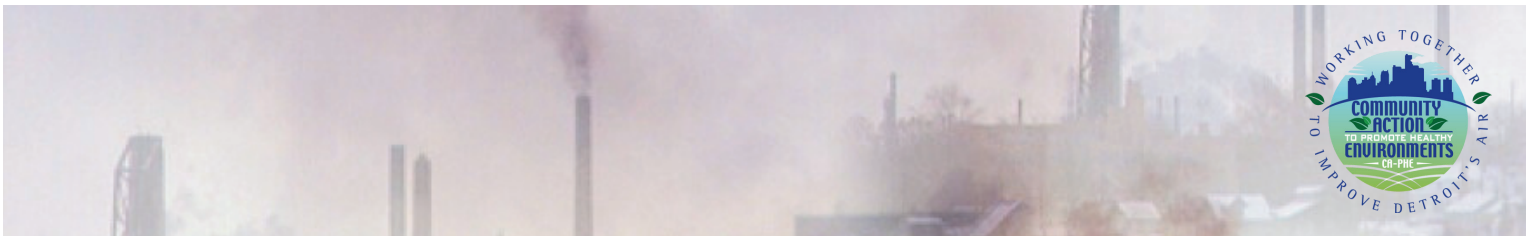
Sources of VOCs and NOx include:

- Industrial facilites
- Chemical solvents
- Vehicle gas vapors
- Power plants

How can Michigan decision makers reduce ozone levels?

The Great Lakes area is prone to high levels of ozone because of lake and land breezes. There are currently three areas in West Michigan which do not meet ozone air quality standards. These actions can help reduce ozone levels:

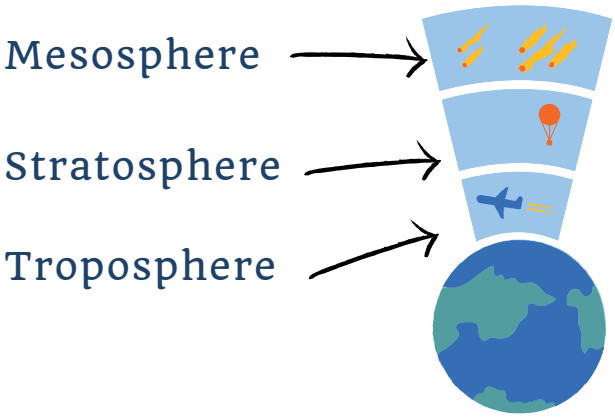
1. Incrementally reduce high-emitting polluting vehicles.
2. Upgrade poorly controlled emission sources such as power plants and major boilers, or phase them out.
3. Increase transit options using efficient buses, bus rapid transit and trains, which also have the benefit of reducing traffic congestion.
4. Require facilities to reduce VOC emissions by making process changes or implementing air pollution control technologies.



When is Ozone beneficial? When is it harmful?

Ozone in the Stratosphere

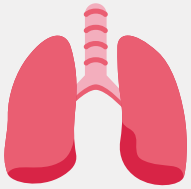
Ozone in this layer is natural and absorbs harmful sun rays. Human made chemicals can break down ozone in this layer, leaving us exposed to rays from the sun. This is commonly referred to as the "ozone hole".



Ozone in the Troposphere

This is the layer in which we live and breathe in. Ozone in the troposphere, also known as ground level ozone, is created through reactions of manmade and naturally occurring pollutants. It can decrease visibility and cause serious health effects. Excess ozone from this layer does not travel to other layers.

What are some of the health risks of ozone exposure?



- Difficulty breathing
- Lung-related emergency room visits
- Asthma
- Chronic obstructive pulmonary disorder (COPD)

- Premature birth and smaller babies at birth
- Brain damage and other birth defects
- High blood pressure during pregnancy

Who is most likely to be affected?

- People who are active outdoors
- Older adults
- Outdoor workers
- People with asthma or other pre-existing conditions
- Children

How is ozone measured?

The ozone "design value" indicates the presence of ozone in the air to determine whether ozone levels are below the National Ambient Air Quality Standard (NAAQS). Ozone design values are determined by averaging readings on ozone monitors over long periods of time.

As wildfires increase, they are likely to influence the ozone design value.

Air Quality Action Days for Ozone

Ozone action days are days when the levels of ozone are higher than what is considered healthy for certain groups. Areas with ozone design values below the NAAQS can still have Ozone Action Days.

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CAPHE Project Partners

- Community Action Against Asthma
- Community Member-at-Large Theresa Landrum
- Detroit Community - Academic Urban Research Center
- Detroit Health Department
- Detroit Hispanic Development Cooperation
- Detroiters Working for Environmental Justice
- Green Door Initiative
- Healthy Environment Partnership
- Michigan Department of Environment, Great Lakes, and Energy (EGLE)
- Sierra Club
- Southwest Detroit Community Benefits Coalition
- Southwest Detroit Environmental Vision
- University of Michigan School of Public Health, Michigan Medicine, & Taubman College of Architecture and Urban Planning
- University of Michigan, Dearborn
- University of Detroit Mercy School of Law

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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.

Last revised 05/2023

Relevant Environmental Planning and Legislation in Michigan

MI Healthy Climate Plan

https://mhcp-egle.hub.arcgis.com/

The MI Healthy Climate Plan lays out a pathway for Michigan to reach 100% carbon neutrality by 2050 to avert the worst impacts of the climate crisis, create good-paying jobs, and build a healthier and more prosperous, equitable, and sustainable Michigan for all Michiganders.

Mitigate the worst impacts of climate change

Spur economic development and create good-paying jobs

Protect and improve the health of Michiganders

Position Michigan as a leader in climate action

Protect our natural resources and wildlife

Make Michigan energy independent

Address environmental injustices

Legislation Containing Language Relevant to Climate Change, Environment and Public Health

Legislation Relating to Water

- **SB 0025** contains language about **water utilities, public utilities, consumer services and creates a human right to water.**
  - Sponsor: Rosemary Bayer (District 13)
- **SB 0088** contains language about **water supply, water quality and standards, child health, and installations of filtration systems in child care centers.**
  - Sponsor: Sylvia A. Santana (District 2)
- **SB 0089** contains language about **water supply, water quality and standards, child health, and clean drinking water in schools and child care centers.**
  - Sponsor: John Cherry (District 27)
- **HB 4340** contains language about **water supply, water quality and standards, child health, and installations of filtration systems in child care centers.**
  - Sponsor: Curtis VanderWall (District 102)
- **HB 4341** contains language about **water supply, water quality and standards, child health, and clean drinking water in schools and child care centers.**
  - Sponsor: Ranjeev Puri (District 24)
- **HB 4342** contains language about **water supply, water quality and standards, child health, and installations of filtration systems in child care centers.**
  - Sponsor: Cynthia Neeley (District 70)
- **HB 4382** contains language about **drains and water management districts, chapter 22 of the drain code.**
  - Sponsor: Christine Morse (District 40)
- **HB 4383** contains language about **drains and water management districts, chapter 22 of the drain code.**
  - Sponsor: Curtis VanderWall (District 102)

Legislation Relating to Cumulative Impact

- **SB 0026** contains language about **environmental protection, air pollution, funding, EGLE, and utilizing civil and administrative fines to benefit communities affected by pollution.**
  - Sponsor: Stephanie Chang (District 3)

- **HB 4760** contains language about the **Michigan Public Service Commission to consider climate factors, affordability and equity in its decision-making, and require utilities to abide by those decisions.**
  - Sponsor: Laurie Pohutsky (District 17)

- **HB 4761** contains language about **prioritizing low-income communities to benefit from energy efficiency programming.**
  - Sponsor: Abraham Aiyash (District 9)

Legislation Relating to Air Quality

- **HB 4759** contains language about **alternative energy sources, public electric utilities, renewable energy standards, and increasing and establishing a carbon-free energy standard.**
  - Sponsor: Betsy Coffia (District 103)

- **SB 0271** contains language about **alternative energy sources and mandating 100% renewable energy sources by 2035.**
  - Sponsor: Erika Geiss (District 1)

- **SB 0274** contains language about **to create a strategic plan relating to greenhouse gas emissions reductions for new construction.**
  - Sponsor: Sue Shink (District 14)

- **SB 0275** contains language about **environmental protection, air pollution, EGLE, alternative energy sources, and low carbon fuel standards.**
  - Sponsor: Sam Singh (District 28)

- **SB 0276** contains language about **public utilities and phasing out certain coal fires electricity generating power plants by 2030.**
  - Sponsor: Rosemary Bayer (District 13)

Legislation Relating to Housing

- **HB 4840** contains language about **alternative energy sources, and providing grants for residential customers who install electric generators and storage systems.**
  - Sponsor: Donavan McKinney (District 14)
- **SB 0153** contains language about **alternative energy sources and providing for the establishment of community solar facilities.**
  - Sponsor: Jeff Irwin (District 15)
- **SB 0273** contains language about **alternative energy sources, requiring participation in the energy waste reduction program by municipally owned utilities and co-ops and setting specific targets for all electric providers.**
  - Sponsor: Sam Singh (District 28)
- **HB 4840** contains language about **alternative energy sources and providing for grants for residential customers who install electric generators and storage systems..**
  - Sponsor: Donavan McKinney (District 14)
- **SB 0129** contains language about **economic development, tax increment financing, the brownfield redevelopment authority, allowing certain housing activities, and modifying tax capture revenues.**
  - Sponsor: Sam Singh (District 28)
- **SB 0293** contains language about **modifying the housing and community development fund.**
  - Sponsor: Kristen McDonald Rive (District 35)
- **SB 0041** contains language about **construction and prohibiting local government from enacting ordinances prohibiting the use of energy-efficient appliances in new or existing residential buildings.**
  - Sponsor: Michele Hoitenga (District 36)

Legislation Relating to Housing (continued)

- HB 4465 contains language about **energy and providing energy efficiency funding for repairs to moisture management measures of residential buildings.**
  - Sponsor: John Roth (District 104)

- **SB 0302** contains language about **alternative energy sources and a property assessed clean energy program, and requiring new construction energy projects to exceed uniform energy code standards.**
  - Sponsor: Darrin Camilleri (District 4)

- **SB 0303** contains language about **including environmental hazard and new construction projects and agricultural and multifamily property in property assessed clean energy programs.**
  - Sponsor: Kristen McDonald Rivet (District 35)

- **SB 0206** contains language about **housing discrimination and prohibiting housing discrimination based on source of income.**
  - Sponsor: Rosemary Bayer (District 13)

- **SB 0207** contains language about **housing discrimination and prohibiting housing discrimination based on source of income.**
  - Sponsor: Jeff Irwin (District 15)

- **HB 4062** contains language about **housing discrimination and prohibiting housing discrimination based on source of income.**
  - Sponsor: Jennifer Conlin (District 48)

- **HB 4063** contains language about **housing discrimination and prohibiting housing discrimination based on source of income.**
  - Sponsor: Jason Morgan (District 23)

Legislation Relating to Climate Change

- **HB 4839** contains language about **creating a program for alternative energy sources; distributed generation, storage, and aggregation.**
  - Sponsor: Jenn Hill (District 109)
- **HB 4840** contains language about **grants for residential customers who install electric. generators and storage systems.**
  - Sponsor: Donavan McKinney (District 14)
- **HB 4228** contains language about **eliminating caps on alternative energy source generation.**
  - Sponsor: Gregory Markkanen (District 110)
- **SB 0153** contains language about **providing for the establishment of community solar farms.**
  - Sponsor: Jeff Irwin (District 15)
- **SB 0271** contains language about **a mandate for using 100% of renewable energy sources by 2035.**
  - Sponsor: Erika Geiss (District 1)
- **SB 0272** contains language about **to consider factors like climate, health, equity and affordability when evaluating the integrated resource plans of electrical utilities.**
  - Sponsor: Sue Shink (District 14)
- **SB 0273** contains language about **setting specific targets for all electric providers and energy waste reduction program by municipally owned utilities and co-ops**
  - Sponsor: Sam Singh (District 28)
- **SB 0274** contains language **to create a strategic plan relating to greenhouse gas emissions reductions for new construction.**
  - Sponsor: Sue Shink (District 14)

Legislation Relating to Climate Change (Continued)

- **SB 0275** contains language about **a new low-carbon fuel standard.**
  - Sponsor: Sam Singh (District 28)
- **SB 0276** contains language about **a phaseout of certain coal-fired electricity-generating plants; provide for by 2030.**
  - Sponsor: Rosemary Bayer (District 13)
- **SB 0277** contains language about **a policy for farmers to rent land for commercial solar operations.**
  - Sponsor: Kristen McDonald Rivet (District 35)
- **SB 0447** contains language about **a corporate income tax credits for use of sustainable aviation fuel.**
  - Sponsor: Sam Singh (District 28)
- **HB 4759** contains language about **increasing the renewable energy standard and establishing a carbon-free energy standard.**
  - Sponsor: Betsy Coffia (District 103)
- **HB 4760** contains language about **the Michigan Public Service Commission to consider climate factors, affordability and equity in its decision-making, and require utilities to abide by those decisions.**
  - Sponsor: Laurie Pohutsky (District 17)
- **HB 4761** contains language about **prioritizing low-income communities to benefit from energy efficiency programming.**
  - Sponsor: Abraham Aiyash (District 9)

Legislation Relating to Environmental Protection

- **SB 0382** contains language about **requiring state agencies to create and implement language access plans for individuals with limited English proficiency.**
  - Sponsor: Stephanie Chang (District 3)

- **SB 0383** contains language about **requiring state agencies to create and implement language access plans for individuals with limited English proficiency.**
  - Sponsor: Mary Cavanagh (District 6)

- **HB 4359** contains language about **pollution prevention and repealing act 2016 PA 389 (MCL 445.591 – 445.593) which preempts local regulation plastic bags and other containers.**
  - Sponsor: Felicia Brabec (District 33)

- **HB 4325** contains language about **environmental protection and criminal penalties and civil fines for unlawful dumping of garbage.**
  - Sponsor: Helena Scott (District 7)

- **HB 4720** contains language about **requiring state agencies to create and implement language access plans for individuals with limited English proficiency.**
  - Sponsor: Ranjeev Puri (District 24)

- **HB 4721** contains language about **requiring state agencies to create and implement for individuals with limited English proficiency.**
  - Sponsor: John Fitzgerald (District 83)