



Climate & Demographics

POLICY BRIEF

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Introduction

Anthropogenic climate change, or change directly caused by people/human action, is altering historical weather patterns in regions around the globe. Although the location and unique features of the Great Lakes offer protection from certain impacts of a changing climate, such as rising sea levels, more extreme tropical storms, and severe drought, Michigan is not immune from its effects ([ELPC Report](#), [GLISA](#)). The effects of climate change will have widespread political, economic, and social consequences in Michigan and throughout the world.

Although climate change will have devastating impacts, it also opens opportunities for Michigan to benefit. The protection that Michigan's location and conditions offers from the most serious impacts of climate change could make it more appealing to those displaced by climate change or seeking refuge from its effects. While Michigan has in fact been labeled by some as a "climate haven," this isn't entirely accurate. It is not a foregone conclusion that people will migrate to Michigan to escape less comfortable regions of the United States. People want places to live that offer a high quality of life and need promising economic opportunities so they can realistically move there. Michigan's declining population and lackluster economic growth over the last several decades ([source](#)) would seem to indicate Michigan lacks these two key drivers of in-migration.

It would be more accurate to say that Michigan **can become** a climate haven, if the right steps and investments to reduce negative impacts and leverage potential opportunities are made now. Climate change has and will continue to impact daily living for Michigan residents, some more than others—especially those in urban and disinvested communities who may face more severe localized effects and/or lack access to resources. Understanding how these changes will uniquely impact Michigan is essential for mitigation and adaptation planning.

Climate resilience measures can be part of a broader solution to address quality of life and economic opportunity. Climate resilience, in this case, is defined as the combination of activities that reduces greenhouse gas (GHG) emissions and adapts systems and structures to climate change, all while intentionally protecting vulnerable communities and promoting sustainable, equitable economic development ([source](#)). Using existing tools and taking advantage of the state and federal governments' new focus on mitigating and adapting to climate change will be central to local climate resilience efforts.

How Michiganders Will Experience Climate Change

In the Great Lakes region, climactic shifts will influence several environmental conditions, including temperature, precipitation and frequency of extreme weather events, lake levels and ice coverage, and agricultural productivity ([ELPC Report](#), [GLISA](#)). Current land use patterns and habits, the state of existing infrastructure, and socioeconomic capacity will drive any region's ability to adapt to climate change ([GLISA report](#)). Some of the key ways Michiganders will experience these changes include:

- **Temperature**—According to Great Lakes Integrated Sciences + Assessments (GLISA), average temperatures in the Great Lakes region have already risen 2.3 °F since 1951. This increase is expected to climb 3 to 6 °F more by 2050 with winter temperatures escalating more quickly than temperatures in other seasons. Elevated temperatures in Michigan signify a lengthened growing season and more precipitation (snow or freezing rain). In summers, rising temperatures can lead to more heat waves, straining utilities, causing infrastructure to fail, presenting health risks—especially to vulnerable groups—and increasing the risk of heat-related deaths. ([GLISA-temperature](#), [ELPC Report](#)).
- **Precipitation and Flooding**—Precipitation and the frequency and intensity of severe rainstorms are also increasing. Until approximately 2050, predictions suggest that lake effect snowfall will increase. After that, more snowfall will turn into more winter rain. ([GLISA-precipitation](#)) The Upper Peninsula, for example, is expected to have 10 percent more rain and freezing rain in the winters (GLISA, Michigan Climate and Health Profile Report 2015). An increase in extreme weather events can make it difficult for communities to respond to storms while preparing for the next ones. Especially in urban areas, if stormwater systems are not prepared for high amounts of precipitation, flooding can cause significant property damage and harm residents' health. This is particularly true for the 33 cities across Michigan that still have Combined Sewer Overflow (CSO) systems, where runoff and wastewater all flow in one pipe. In 2020, a large storm caused flooding and CSO overflows in Detroit. Flooding in homes destroyed valuables and

caused mold to grow, causing physical, emotional, and financial distress for many people ([EGLE](#)).

- **Lake Levels/Ice Coverage/Algal Blooms** — Along with urban flooding concerns, fluctuating water levels in the Great Lakes is another way that climate change is impacting Michigan. GLISA predicts more variability in lake water levels in the future ([GLISA-lake levels](#)). Most recently, high water levels have caused significant and costly infrastructure damage. If water levels increase further and temperatures continue to fluctuate as predictions suggest, there will be less ice coverage on the Great Lakes. Climate change also impacts Michigan's bodies of water as warmer temperatures are a factor that lead to the formation of harmful algal blooms (HABs) that can have serious health effects and even cause death in some circumstances. ([EPA](#)).
- **Agriculture**—The food and agriculture industry brings in more than \$100 billion annually to Michigan's economy. Michigan ranks top in the nation for the production of asparagus, black and cranberry beans, cucumbers, tart cherries, Niagara grapes, and squash ([MDARD facts](#)), and parts of Michigan are an ideal climate for growing fruit-bearing trees and shrubs, such as apples and cherries. However, climate change brings warmer summers, milder winters, and higher risk of frost damage to fruit crops. This can lead to reduced, or even failed, fruit crops with widespread economic impacts ([source](#)). And while a longer growing season may provide some benefits to agriculture by increasing crop yields, climate change impacts from severe weather, pests, and pathogens may lead to a subsequent reduction in crop yields ([GLISA-agriculture](#)).

Climate Resilience as a Thriving Michigan Strategy

Climate resilience is a combination of mitigation and adaptation. In short, it's about taking steps to reduce our human contributions of greenhouse gas emissions and to manage the impacts of climate change that are already happening.

Major reductions in GHG emissions in Michigan will mostly be the result of state and federal governments acting to decarbonize the electric grid,

electrify buildings, abandon fossil fuels, fund resilient infrastructure, and regulate polluting industries. The State of Michigan released its first climate mitigation plan in 2022, the [MI Healthy Climate Plan](#), to address some of these actions. The sections of that plan include: (1) Commit to Environmental Justice and Pursue a Just Transition, (2) Clean the Electric Grid, (3) Electrify Vehicles and Increase Public Transit, (4) Repair and Decarbonize Homes and Businesses, (5) Drive Clean Innovation in Industry, and (6) Protect Michigan's Land and Water ([source](#)). This plan will shape policy and infrastructure investments for years to come.

Climate Resilience = “mitigation” and “adaptation”

Climate mitigation—actions that reduce the release of greenhouse gas (GHG) emissions from entering the atmosphere, preventing climate change from worsening.

Climate adaptation—actions that prepare people for the weather pattern changes happening now and to come.

[Responding to Climate Change, NASA](#)

The residents of Michigan communities play an important role as well. While many municipalities are already making progress on reducing their own operational GHG emissions, their larger impact will be supporting community-wide climate resiliency through local policy tools, planning and zoning, support for residents and businesses, local environmental protections, and making smart choices in community amenities and infrastructure investments.

And it just so happens that these measures not only address climate resiliency, but they also make for more thriving, prosperous places. As an example, municipalities that invest in walkability and multi-modal transportation (e.g., sidewalks, dense development, bike lanes, transit options) help mitigate climate change by reducing auto emissions. These same community amenities are in high demand for their quality-of-life value. A recent National Association of Realtor survey, for example, found that 60 percent of people would pay more to live in a walkable community. Walkability is especially a priority for younger generations, with 90 percent of millennials and Gen Z indicating that they would pay more to live in a walkable community. ([National Association of Realtors, 2023](#))

A 2022 poll of teenagers by 4H and Harris Poll found that 82% “expect to have to make future life decisions based on the state of the environment, including where I live, what kinds of jobs will be available, or if I will have children”. Only about 50% of these Gen Z respondents felt their communities were making a “meaningful effort to prevent environmental hazards to protect its citizens.”

[4H and The Harris Poll](#)

As noted at the start of this policy brief, Michigan’s population has been stagnant and getting older over the last several decades. Economic growth has been slow, as well. These trends will continue for the next 30 years if we do not take steps to invest in our communities. Ensuring a sustainable future for Michigan means making them more climate resilient and simultaneously more attractive for people to live, work, and play. If Michigan aims to retain and attract a larger share of young workers and families—which we must do as an increasingly aging state—then putting climate and environmental sustainability at the center of our community development efforts is critical.

Making Communities More Climate Resilient

What does it mean for a community to be climate resilient? The answer will vary by community, depending on geography, size, and community needs. One thing is clear: communities cannot think about climate and environmental sustainability as a separate or “extra” add-on responsibility. Sustainability must be embedded into municipalities’ core planning documents, and they must have staff and resources dedicated to the integration of climate resilience throughout municipal operations.

Municipalities should start (or continue) their journey down this path by auditing their operations, programs, and policies to identify areas to improve and invest. The Michigan Green Communities (MGC) program has an annual benchmarking challenge with recommended action items within the control of municipal/county governments that will lead to reduced GHG emissions, air and water protection, energy efficiency savings, positive health impacts, and more. Read more about the MGC Challenge and the support programs that MGC offers at www.migreencommunities.com.

While each community’s approach may vary, there are some common best practices for climate resiliency that Michigan communities should evaluate and adopt. These best practices fall into three main categories: (1) protecting and celebrating natural features, (2) deepening household- and community-level resilience, and (3) driving economic development through environmental resilience.

Protecting and Celebrating Natural Features Waterways

The natural features of communities are often central to their sense of place and enhance the quality of life for current and future residents. Protecting those natural features, particularly waterways and agricultural land, is key to maintaining that sense of place and remaining an attractive place to not only visit but remain in. As just one example of many in Michigan, Paddle Antrim hosts a major canoeing and kayaking event each September in the Chain of Lakes Water Trail in Antrim County, Michigan, in addition to year-round clean ups, events, grant programs, and educational programs. Fourteen different municipalities all border and own/maintain access sites along the Chain of Lakes. If the Chain of Lakes Water Trail were to become unsafe to recreate in, it could be detrimental to the local economy and discourage people from wanting to move to the area. Communities along waterways throughout Michigan should implement green infrastructure measurements and septic management efforts to ensure the health and safety of their valuable water resources and the viability of their local social and economic networks.

Community Forestry

Treating trees like the critical physical infrastructure they are is a strategy for investing in the future of Michigan communities. Trees have measurable monetary value and are critical infrastructure for communities ([source](#)). In more urbanized areas, they keep pollutants out of rivers, improve air quality, reduce the temperature on a hyper local level, contribute positively to mental health, improve road safety, and much more. Michigan’s vast and beautiful forest areas also provide substantial opportunities for local and tourist-based outdoor recreation such as hiking and camping—a potentially significant economic development asset for many communities in the state.

Municipalities can and should use the [i-Tree](#) tool to map their community tree canopy, assess the distribution of the canopy, begin to quantify the value of the trees, and set goals for improving the tree canopy. The Michigan Department of Natural Resources Urban and Community Forestry program has guidance and information on resources available to meet the needs of municipalities. More information can be found [here](#).

Agriculture

Agriculture is critical to Michigan's economy and local sense of place for many communities. As noted above, the climate predictions for Michigan's agriculture industry are mixed, including longer growing seasons but also more volatility and impacts from early frosts, wind, and other extreme weather events. If Michigan communities intend to sustain their local agricultural economy, we need to begin making some course corrections that will reduce climate impacts and improve resiliency. Hedging our bets by preserving farmland and adopting sustainable agriculture practices is a smart move to make now. This will help protect our state's valuable water resources, maintain access to local food, and help reduce GHG emissions and air quality impacts. Agriculture lands also play an important role in deployment of renewable energy needed to reduce fossil fuel usage. According to a Citizens Research Council report, "Assuming full in-state generation and a 50/50 wind/solar split, Michigan will need to install about 213 new wind turbines and 3,750 acres of solar panels each year between 2023 and 2030 to achieve renewable energy policy goals" ([source](#)). Renewables and agriculture can co-exist well and provide dual environmental and personal financial benefits for private property owners.

Deepening Household—and Community—Level Resilience Risk Assessment and Co-Created Equitable Solutions

When individuals and families can weather storms, heat waves, and other climate impacts with minimal intervention, the community becomes more resilient as healthcare and disaster recovery resources are freed up to help those in greatest need. "Informal" networks and ties—like those among neighbors—can sometimes more quickly address the short-term needs of people post-disaster. Local governments should begin to understand what types of weather-

related disasters they are most likely to experience by conducting vulnerability assessments. This will help communities make targeted investments in resiliency efforts like residential weatherization programs, community resilience hubs, air quality improvements, and housing resources for those most in need.

Local governments should also consider the health impacts of policies, programs, or projects they are undertaking. A health impact assessment (HIA) can help local governments identify who will potentially be impacted by these undertakings and how, so that appropriate measures can be taken to reduce negative impacts. A health impact assessment may also identify positive health outcomes and add further justification for pursuing a project that might otherwise meet resistance or budget constraints. The Michigan Climate Health Adaptation Program (MICHAP) through the Michigan Department of Health and Human Services (MDHHS) has resources available for communities to learn how to perform a health impact assessment. Visit [here](#) for more.

Key to deepening household- and community-level resilience is robust community engagement that opens the door to co-creating solutions with residents, particularly with residents who are the most vulnerable to the effects of climate change—seniors, people with disabilities, children, migrants, and others.

Energy Efficiency and Weatherization

The 2020 Bipartisan Infrastructure Law (BIL) has made millions of dollars available for energy efficiency and weatherization programs for residential properties, including rental properties. When households can reduce energy bills through efficiency improvements, they have more resources available for other necessities, or more disposable income to spend locally. And when households have places to live that are more resilient in heat waves and cold snaps, both their health and their budgets are better protected from the impacts of the more extreme weather patterns Michigan has been experiencing. The City of Ann Arbor, for example, is making multimillion dollar investments for its Bryant Neighborhood to achieve carbon neutrality. In the process, weatherization measures are saving residents hundreds of dollars a year in utility bills. In one case, a resident struggling to afford energy bills had their bill shrink from \$150 a month to \$30 a month ([source](#)).

Air Quality Improvements

When more and more climate-driven air quality issues arise from distinct events like wildfires, ensuring that the baseline air quality in your community is already at a healthy level will help protect the health of residents. As noted above, improving the tree canopy in your community can improve air quality, particularly by reducing ozone levels. Another major investment that communities can make is reducing traffic congestion by making investments and policy choices that expand public transit and multimodal transportation options (e.g., bike lanes, sidewalks, micro-transit), and coordinating with their neighbors, councils of governments (COGs), and the Michigan Department of Transportation to develop these networks.

Placemaking for Resilient Living Options and Thriving Local Economies

Local land use policies, including zoning, subdivision regulations, and street design, play a big role in a community's climate resilience, as well as in attracting and retaining residents and businesses. Planning and zoning with a placemaking focus provides opportunities for improving community resilience and everyday quality of life. Updating zoning to allow for a greater variety of homes, especially near traditional main streets, presents more opportunity for both younger households looking for an affordable first home, as well as older residents looking to downsize but stay in their neighborhoods. Narrowing streets and adding more infrastructure to support pedestrians and bicyclists not only offers residents these options for transportation and recreation, but also increases road safety, reduces stormwater runoff and heat island effects, and creates room for street trees and other streetscaping. The combination of enabling more compact development and reducing pavement area allows residents more choice in where and how they live, as well as reduces the environmental GHG impacts of their homes and transportation needs.

Improving infrastructure and increasing resiliency to intense storm events also removes disruptions business owners face, such as dealing with flooding, power outages, and other interruptions to their operations. While communities should avoid burdensome land use regulations, smart “redevelopment ready” policies and investments in critical infrastructure are steps municipalities can take to improve the business environment and ensure that local businesses aren't hindered by failing infrastructure and extreme climate events.

Contributing to the Circular Economy

According to the 2017 Governor's Recycling Council Report, each year Michigan spends \$1 billion to landfill approximately \$600 million worth of recyclable materials that could become new products ([source](#)). Manufacturers rely on clean, consistent feedstock from recycling streams. The Michigan legislature updated the state's materials management laws in 2022 to address the need to increase recycling and adopt a more comprehensive approach to materials management that includes “nontraditional” materials like organics.

All municipal and county governments can and should have a role in evaluating the needs and opportunities in their jurisdictions for waste reduction and increased recycling. Improving and implementing recycling and organics collection programs will cost more than traditional landfilling. But the potential for economic growth as a result and a reduction in pollution could be a boon for a more diversified, circular economy in Michigan. According to the Gap Analysis 2021 Update published by Next Cycle Michigan, if the state were to reach the target 45 percent recycling rate, it would lead to 138,000 new jobs in Michigan, \$9 billion in labor income, and \$34 billion in economic output. And the 7 million metric ton reduction in GHG emissions would be the equivalent of the emissions from just under 1.5 million passenger vehicles in one year or over 760,000 households ([Next Cycle](#)).

Another economic gardening activity that can be taken at the local level is adopting a local and sustainable purchasing policy. A policy like this prioritizes locally sourced and non-toxic products for local government operations. The City of Lansing has an environmental purchasing policy in place that accounts for factors like waste generation, potential pollutants, impacts on biodiversity, and more ([source](#)). Municipalities can consider partnering with or encouraging anchor institutions to assess current supply and service needs and to identify local companies that can fill them. As purchasers of local goods and services, anchor institutions can keep more wealth within the region, strengthening households and, hopefully, creating more jobs locally ([source](#)). And if local suppliers cannot be found to meet the needs of the anchor institutions, working with the local economic development agency can help address the workforce and supply gaps.

Green Infrastructure

Requiring adequate stormwater management in local zoning codes for development drives investment in green infrastructure by developers. Green infrastructure—features such as green or vegetated roofs and walls, stormwater infrastructure, rain gardens, permeable pavements and surfaces, cisterns, rainwater collection and reuse, native landscaping, and more—have benefits that go far beyond managing stormwater. As mentioned above, managing stormwater well means less intense flooding, and hopefully fewer closures and disruptions to residents and businesses. Green infrastructure is also attractive, providing additional trees and aesthetic landscaping in areas that are often otherwise stark concrete. These investments improve the look and character of streets, parking areas, and developments, making them more inviting spaces. Local government investments in green infrastructure should go above and beyond the zoning requirements for private developers. When evaluating solutions to local stormwater issues, communities should consider the holistic costs and benefits of both gray and green infrastructure. Ingham County has had overwhelming success in managing stormwater through green infrastructure. Rather than simply building pipelines to move untreated stormwater to waterways, they have made investments to capture and treat water onsite, creating local natural areas, trails and beautifully landscaped urban environments that have enhanced the county's sense of place and livability.

Conclusion

Current and future climate changes can be hard to plan for and may feel overwhelming for individuals and municipalities. While the impacts to Michigan from short- and long-term climate change are likely to be less disastrous than many other parts of the U.S., it still presents many challenges. And opportunities.

Michigan is home to more than 500 cities and villages—small and large. Each of these places has unique character, economic, natural, and social assets. Given our substantial resources—particularly water and undeveloped land—Michigan has a real opportunity to implement policies and investments that will make us more physically, socially, and financially resilient now and in the decades to come.

Municipalities are on the front lines of dealing with the negative impacts from climate change, such as flooding, health emergencies, utility disruptions, and more. Local leaders need to also be at the forefront of measures to reduce climate impacts and mitigate the effects of climate change.

While individuals can only reduce climate impacts in smaller ways and have little control over their future in the face of larger climactic shifts, municipalities can exert more influence on the future well-being of communities. Taking steps to safeguard our homes, businesses, neighborhoods, people, and way of life from the worst impacts of climate change through investments made today can simultaneously make Michigan a more attractive place for the people already living here and the ones we hope will come to make it home.

About the League

The Michigan Municipal League (the League) is the premier statewide association representing more than 500 full-service cities, villages, and urban townships. We are dedicated to making Michigan's communities better by thoughtfully innovating programs, energetically connecting ideas and people, actively serving members with resources and services, and passionately inspiring positive change for Michigan's greatest centers of potential: its communities.

And because every industry needs research and development (R&D) to grow and find new solutions, our Policy Research Labs team serves that role for Michigan's municipalities. Through a deep bench of expertise, including local government scientists and policy wonks, the Labs team does research on, tests, and develops innovative approaches to local governance and community vitality. Our work enables local leaders to engage in forward-thinking action on big or emerging issues. We focus on the latest trends in planning and community development with an eye on helping Michigan cities and villages become more economically, socially, and physically resilient and adaptable.

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