

City of Kalamazoo Climate Action Plan Framework

In collaboration with Michigan State University School of Planning, Design, and Construction

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Abstract and Scope

The City of Kalamazoo residents called for a Climate Action Plan (CAP) through community input in their recent 2017 Strategic Vision and later master plan, Imagine Kalamazoo 2025. To address this, the City worked with the Michigan State University (MSU) School of Planning Design and Construction (SPDC) Practicum team to build a CAP framework and base with which the city could move forward in developing their final CAP. This framework is a starting place for the city to begin to reduce its carbon emissions and vulnerability to climate change.

This work involved background research on best practices in climate action planning including case studies of other communities taking action; an assessment of Kalamazoo's climate vulnerability, vulnerable populations, and existing climate action; discussions with experts, city staff, and key community partners and City staff on Kalamazoo's current situation and climate planning goals; and an analysis of data surrounding Kalamazoo's socioeconomic profile, buildings, and local food sectors. Our framework includes climate models, city data, CAP best practices, and case studies of successful CAP projects from other municipalities that can usefully be applied to Kalamazoo.

Methodology

- ✓ Gather climate planning best practices and case studies
- ✓ Conduct site visit
- ✓ Gather data on existing conditions
- ✓ Interview City of Kalamazoo planning staff
- ✓ Interviews with related specialists and stakeholders
- ✓ Develop report

Group Members

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Current Situation

Climate Changes

Kalamazoo has experienced changes to its recorded climate in the past 60 years including increased average temperatures and precipitation. Experts at the Great Lakes Integrated Sciences and Assessments (GLISA), a division of NOAA, predict future changes for the Southwest Lower Michigan Region to include:

- Increased spring, summer, fall and annual precipitation
- Increased extreme precipitation events
- Increased overall annual temperature
- Increased number of days over 90°F
- Warmer winters
- Longer frost-free growing season

Implications

These changes will affect:

- Health - increased precipitation increases the likelihood of flooding events, leading to mold in homes, limited road access, and death.
- Infrastructure – pavement and energy systems can be compromised under increased weather extreme pressures.
- Economy – power outages, storm damage, and recovery costs can affect city, business, and resident stability and spending

Local Food

Local food systems both impact and are impacted by climate change. Kalamazoo has an active local food network and existing programs, including Kalamazoo Valley Community College (KVCC) and MSU Extension. Our assessment found that:

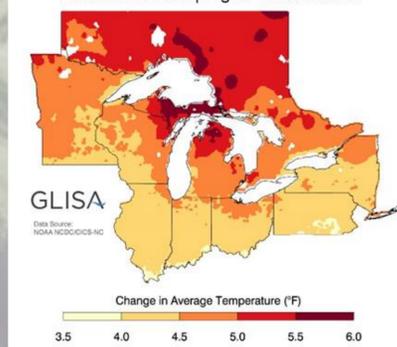
- Areas of opportunity exist for supporting community gardens, especially in the north and southeast areas of the city.
- Low income households are in need of increased access to supermarkets, presenting a market opportunity.
- The floodplain presents a challenge to the community with opportunities to address it. For example, parcel reclamation for public space, community gardens, or agri-hoods.
- Maintaining momentum in food programs will help the city meet climate change action goals in the near and distant future.

Buildings

Buildings and climate change impact one another through emissions and can lead to city and resident vulnerability. Our assessment found that:

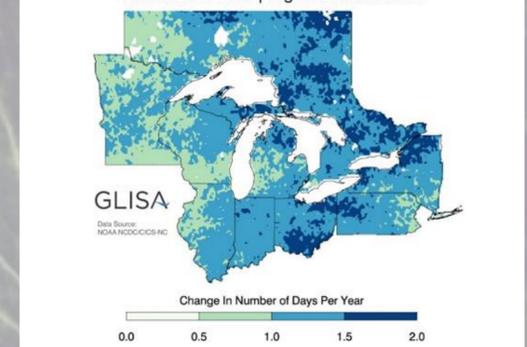
- Kalamazoo has a large stock of old housing, an indicator of low energy efficiency and vulnerability to climate impacts
- Relatively high amount of buildings with high numbers of units per structure is an asset for increased energy efficiency
- Natural gas is commonly used to heat homes, acting as an area of opportunity for reducing emissions if renewables were to be used instead

Projected Change in Average Temperature
Period: 2041-2070 | Higher Emissions: A2



Projected Change in Average Temperature for the Great Lakes Region between 2041 and 2070. Kalamazoo is expected to see an average annual temperature increase of 4.5°F to 5°F.

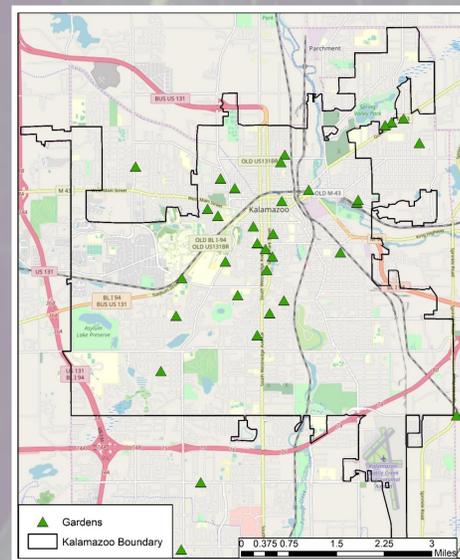
Projected Change in Number of Heavy Precipitation Days
Period: 2041-2070 | Higher Emissions: A2



Projected Change in the Number Heavy Precipitation Days for the Great Lakes Region between 2041-2070. Kalamazoo is expected to see an increase of 0.5 to 1 day per year in days with heavy precipitation.

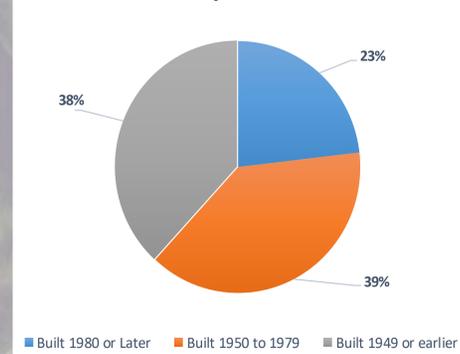
Kalamazoo's Sensitive Populations

Some underlying social factors amplify the negative impacts of climate change on particular residents, and are in need more focused adaptation attention. In Kalamazoo, these include minority populations, people in poverty, rental tenants, children (<5 years), elderly (>65 years), those in older and less maintained housing, and those without access to community service centers.



Community gardens registered with Common Ground, a community garden support organization in Kalamazoo

Percentage of Building Construction by Era for the City of Kalamazoo, MI



Percentage of existing buildings in the City of Kalamazoo by significant building era

Recommendations

Climate Action Planning:

- Complete a Greenhouse Gas Inventory
- Complete a Vulnerability Assessment
- Complete a Climate Action Plan including:
 - Determine community leadership
 - Engage the community
 - Set goals and select actions
 - Obtain resources for implementing actions
 - Take actions
 - Track and report progress

Local Food:

- Education campaigns for plant-based consumption
- Urban agriculture support and education
- County land bank parcel preservation
- Establishing "healthy food zoning requirements" and land reclamation

Buildings:

- Incentivize owners of older buildings to invest in energy efficient upgrades such as new insulation and appliances Encourage multifamily structures as an alternative to old single family homes as rentals
- Implement green roofs and street trees to reduce the heat island effect
- Transition from natural gas to renewable energy fuel sources
- Continue to financially assist Kalamazoo's affordable housing and incentivize homeownership in single-family homes
- Ensure building safety

Conclusion

The City of Kalamazoo faces numerous challenges in addressing emissions and reducing residents' vulnerability to climate change. At the same time, there is much for the city to build upon including existing local food networks and high density housing. At the moment, the community conversation around climate change is active as residents are calling upon the city to take action. With active and engaged residents, and city priorities of Environmental Responsibility and Shared Prosperity (as mentioned in the City's 2017 Strategic Vision), now is the time to take action to reduce emissions and enhance resilience in the community for the present and the future.



Kalamazoo residents engaged in building community resilience and enhancing Kalamazoo's local food system by preparing a community garden.