

Using a Resilience Strategy to Address the Social Effects of Climate Change

Prepared for The City of Madison



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Research Question

How does climate change threaten resilience in Madison, specifically for frontline and vulnerable populations, and what steps should city leaders, the Sustainable Madison Committee (SMC), and other stakeholders take?

What is Resilience?



Ability to anticipate, prepare for, and respond to extreme climate events



Framework that focuses on individuals and neighborhood preparedness



Aims to minimize social, economic, and environmental disruption

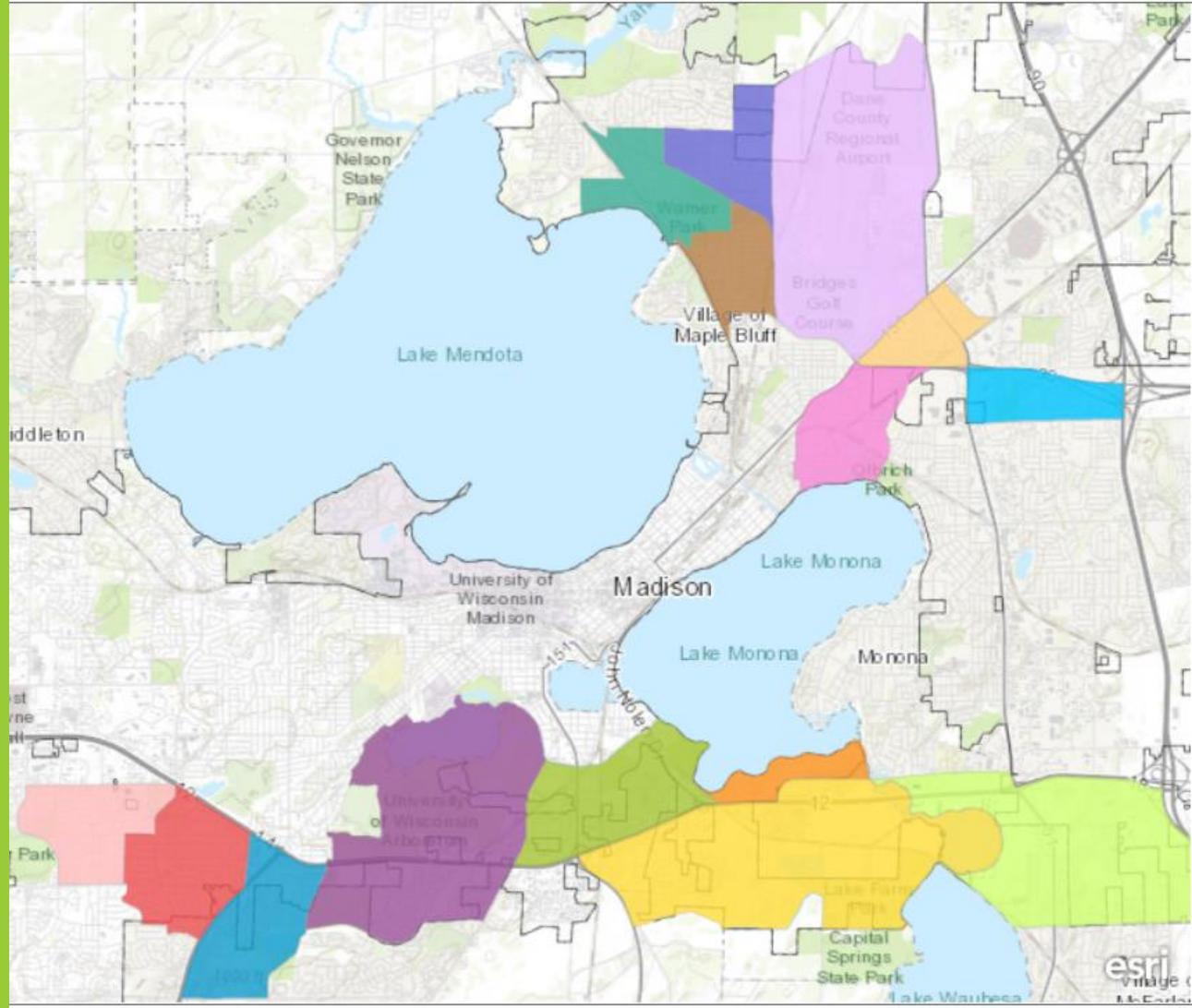
Vulnerable and Frontline Populations

Vulnerable Populations: Physically vulnerable populations (older adults, young children, people with disabilities, etc.)

Frontline Populations: Populations who experience the effects of climate change first and experience disproportionate effects from climate change events.

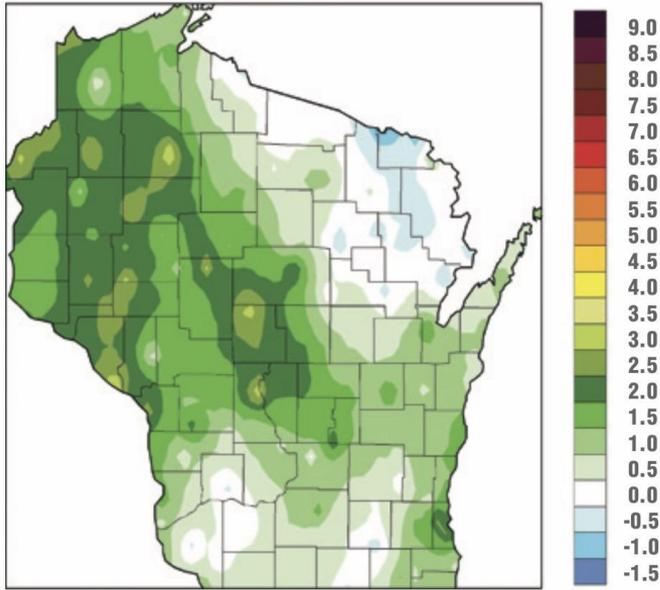
Frontline Populations in Madison

- Renters
- Families
- More likely dependent on public transportation
- Diverse
- Have low median incomes between \$34,500 (renters) and \$50,000 (homeowners)

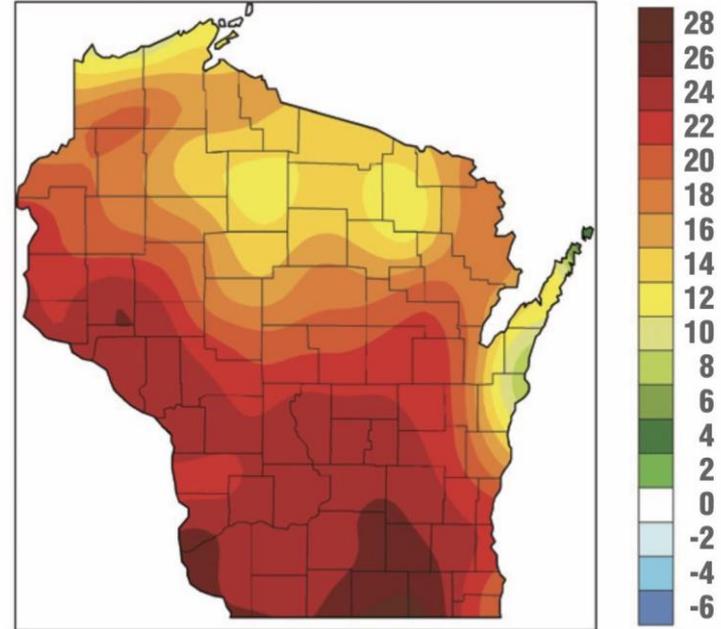


Madison's Changing Climate: **Temperature**

**CHANGE IN ANNUAL AVERAGE TEMPERATURE (°F)
FROM 1950 TO 2006**

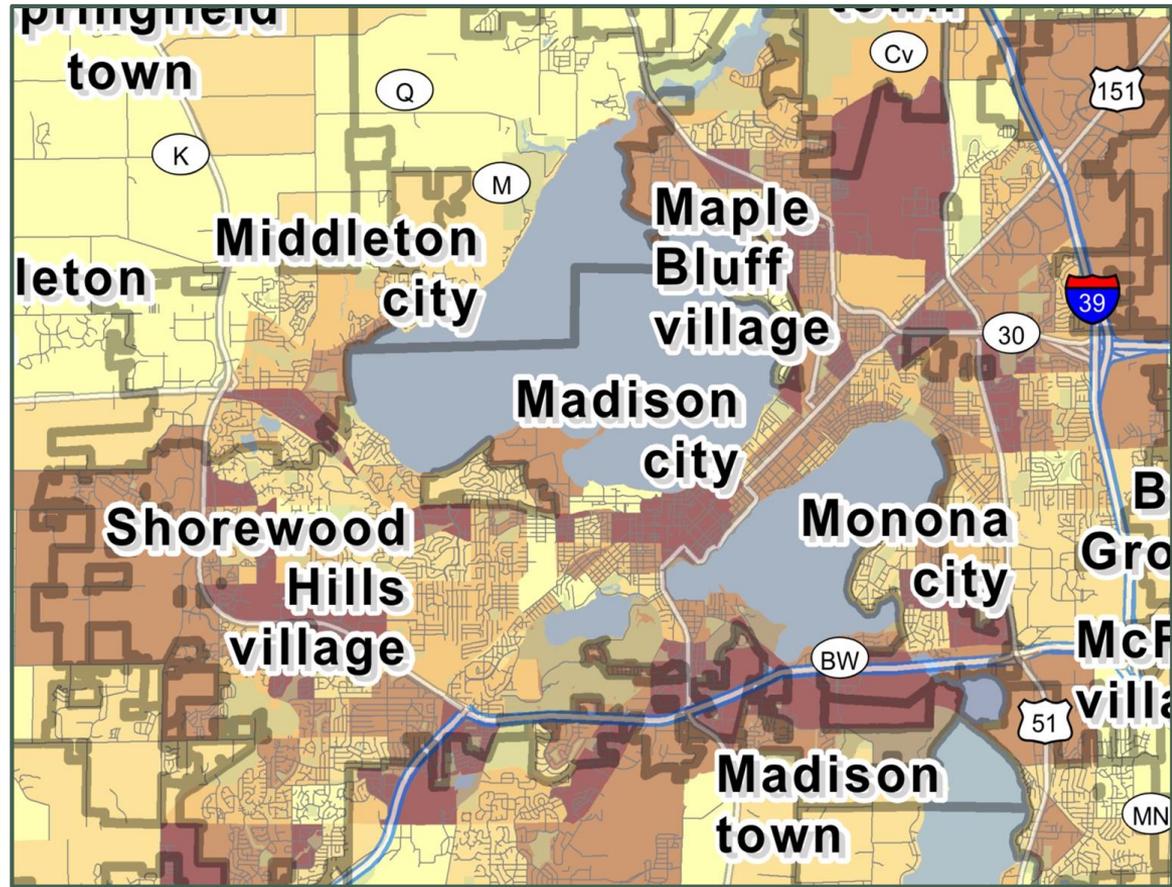
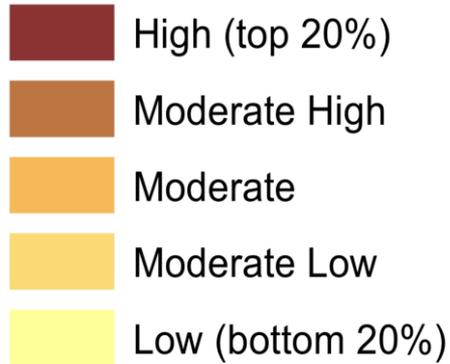


**PROJECTED CHANGE IN THE FREQUENCY OF 90°F DAYS
PER YEAR FROM 1980 TO 2055**



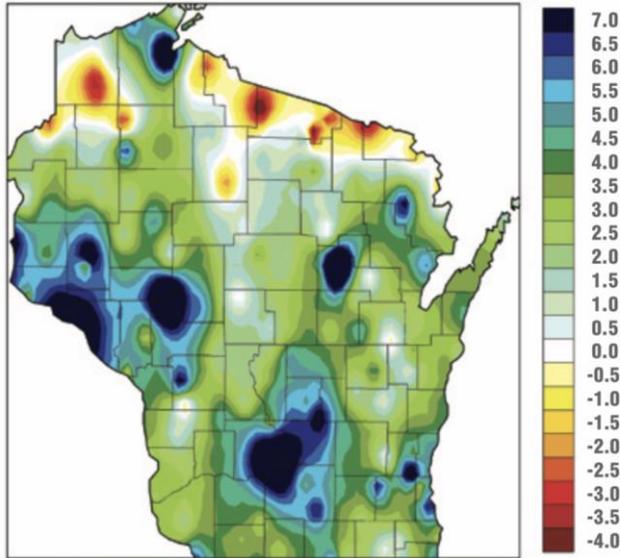
Uneven Heat Impacts

Dane County Heat Vulnerability

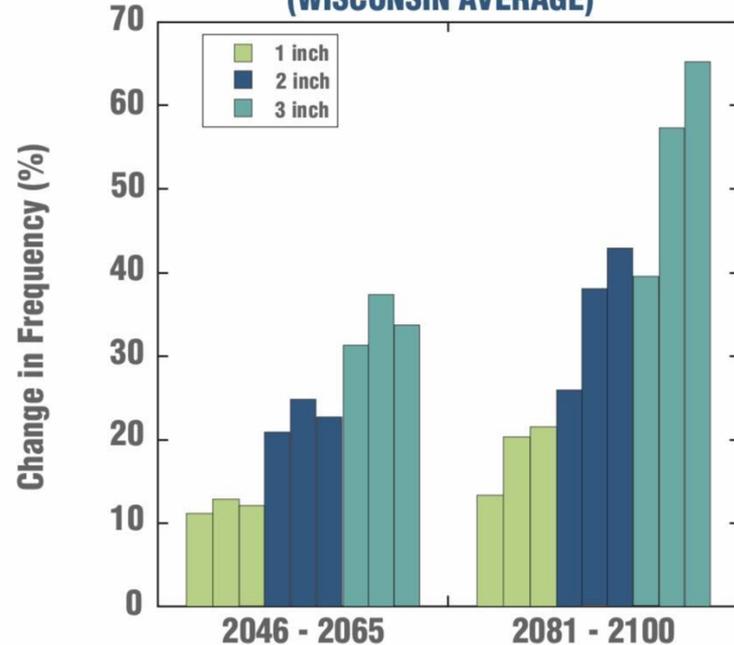


Madison's Changing Climate: Precipitation

**CHANGE IN ANNUAL AVERAGE PRECIPITATION
(INCHES) FROM 1950 TO 2006**



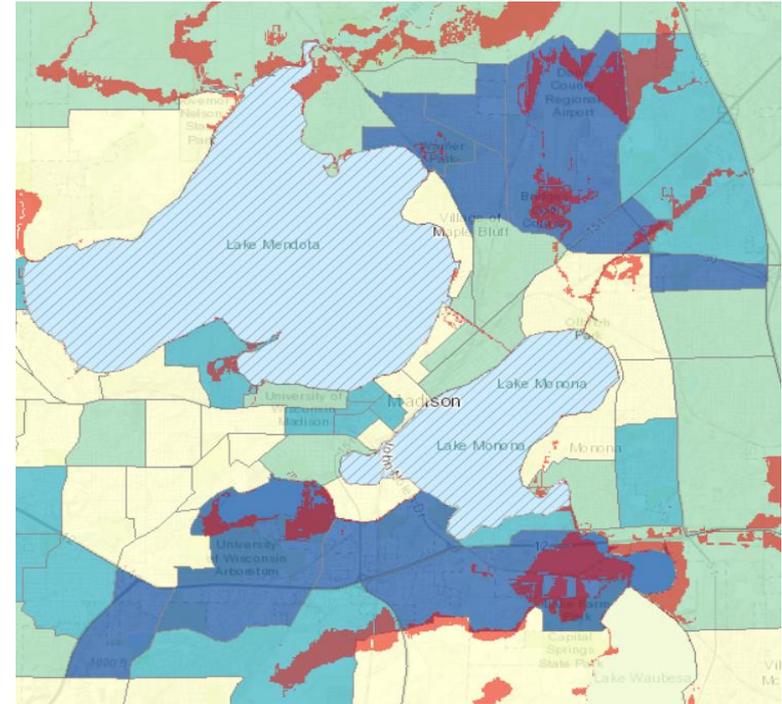
**CHANGE IN HEAVY PRECIPITATION DAYS
(WISCONSIN AVERAGE)**



Flooding Impacts

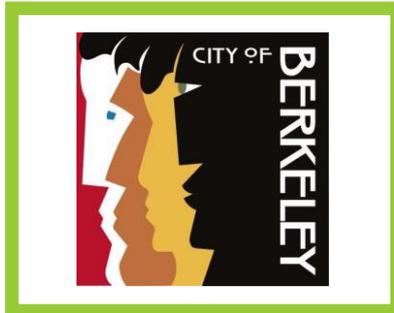
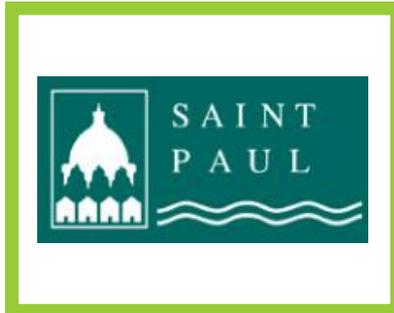
- Housing
 - Geographical vulnerabilities
 - Evacuation and financial challenges
 - Inadequate housing maintenance
- Health
 - Increased exposure to long-term health risks

City of Madison Flood Map



- FEMA flood risk layer
- Most socially vulnerable

What is a Resilience Strategy?



- Background on resilience strategies
 - A living document that is meant to trigger action, investment and support within city government based on the needs of individuals and neighborhoods.
 - Engages a broad range of stakeholders, identifies a city's unique resilience priorities, and results in an actionable set of initiatives.
 - Rockefeller Foundation's 100 Resilient Cities
- Case Studies & selection criteria

Resilience Strategy Planning

Phase One: agenda-setting and public outreach

- Identify key challenge areas to be addressed in resilience strategy



Phase Two: strategy component formation

- Goal
- Initiatives
 - Actions: should include lead, partners, and launch timeframe

Lessons from Case Studies

- Community engagement
- Building support
 - City leaders → Planning
 - Community → Implementation
 - Chief Resilience Officer

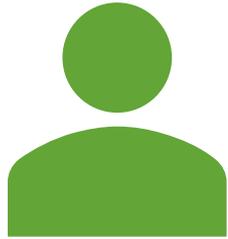


Key Considerations

- Madison's strengths and challenges
- Planning Considerations
 - Staffing
 - Program Costs
 - Political Context
 - Intergovernmental Constraints



Recommendations to Mayor & Common Council



Hire a Chief Resilience Officer



Develop a climate adaptation
and resilience task force

Recommendations to City Departments

 Target 2023 for strategy completion

 Establish strategies to identify specific subsets of vulnerable populations

 Leverage non-profit service providers more efficiently

 Develop an equity-based climate risk assessment tool

 Consult with surrounding communities about a regional strategy

 Develop Neighborhood Disaster Preparedness Liaisons

Recommendations to SMC



Set accountability measures for a climate resilience strategy



Build a culture and understanding of resilience



Conduct stakeholder mapping



Assist the City of Madison with housing quality and energy efficiency improvements

Conclusion

A resilience strategy is a natural fit for the challenges from climate change Madison is likely to experience in the upcoming decades. Investing in a resilience strategy now can advance an **equitable**, **healthy**, **adaptable**, and **sustainable** future for all Madison residents, but especially for the vulnerable and those on the frontlines of climate change.

