

Municipal Problem Statement Worksheet

Sept. 2021

- Use this worksheet to develop a problem statement for your municipality.
- Use a separate worksheet for each problem statement.
- **By TH Sept. 23**, submit all *problem statement worksheets* in MS WORD format to mclellan@countyofdane.com and husen.sara@countyofdane.com .

Municipality	City of Madison
Natural Hazard	Multiple Hazards from Climate Change Impacts
Describe conditions associated with this hazard and identify where and when problem(s) occur	
<i>Describe what happens</i>	Climate change is and will continue to increase the frequency, severity, and duration of natural hazards, including but not limited to flooding, extreme heat, and severe storms.
<i>Location(s)</i>	Climate change is impacting all of Madison, with some areas facing greater exposure or vulnerability to various climate change impacts, including flooding, extreme heat, severe storm events.
<i>Time frame associated with the occurrence</i>	The duration of impact from these hazards varies from days to weeks.
Describe the risks from this hazard to persons, facilities, finances, and ancillary activities	
<i>Impacts on persons</i>	Climate change impacts, including flooding, extreme heat, and severe storms among other hazards, lead to acute and severe illness, exacerbate existing medical conditions, and lead to death. In addition, we know that some residents are more vulnerable to these negative consequences, including people with disabilities; people with chronic health conditions including cardiovascular disease, respiratory disease, and diabetes; people living in areas experiencing urban heat island effect; BIPOC communities; people with low incomes or a lack of access to cooling technology; children and the elderly. In addition, these events can lead to property damage and destruction, displacement of residents, and severe disruptions in people’s ability to go to work and school. And compounding hazards can create unanticipated and compounding risks.

Municipality	City of Madison
Natural Hazard	Multiple Hazards from Climate Change Impacts
<i>Impacts on facilities (include locations as appropriate)</i>	These events can lead to damage, increased maintenance needs, and even destruction of both public and private facilities. Some use, structural, and locational characteristics make some facilities more vulnerable than others. And compounding hazards can create unanticipated and compounding risks. These events can lead to strain on health care and other emergency facilities due to increased medical emergencies. They can also result in the inability of residents to access emergency services when power, communication, and transportation services are disrupted.
<i>Financial impacts</i>	Negative health outcomes and mortality, dangerous working conditions, and impacts to power, communication, and transportation services all have costly impacts to local residents and the economy. The City and local service providers also face increase costs for system repairs and emergency response.
<i>Secondary / ancillary impacts</i>	
Identify what a desired outcome looks like	
<ul style="list-style-type: none"> • City of Madison has clear information on the community vulnerability and risk to the multiple hazards presented by climate change and a set of strategies for improving the resilience of city residents and facilities to extreme heat events. • Successful application of equitable, community-driven climate resilience strategies will avoid, minimize, and mitigate the impacts of climate change and provide City operations and residents with the information, tools, and resource they need to be resilient to these multiple hazards. 	
Describe why it is import to address this problem	
It is critical to proactively prepare and adapt to climate change impacts for three reasons. First, extreme weather events including flooding, extreme heat, and severe storms are hazardous to life and property, and they are becoming more severe and frequent in the Madison region due to climate change. Second, climate change impacts disproportionately affect our most vulnerable residents, leading to disparities based on race, income, disability status, and age. And finally, proactive adaptation solutions to avoid, minimize, and mitigate the impacts of climate change are less costly over time and less disruptive to the lives and livelihoods of City residents than disaster response efforts. This work is essential for creating a resilient and equitable community where all of our residents can thrive now and in the future.	

Municipal Mitigation Strategy Worksheet

Sept. 2021

- Use this worksheet to develop a mitigation strategy for your municipality.
- Use a separate worksheet for each mitigation strategy.
- **By TH Oct. 21**, submit all *mitigation strategy worksheets* in MS WORD format to mclellan@countyofdane.com and husen.sara@countyofdane.com .

Municipality	City of Madison	
Mitigation Strategy Name	Improving Resilience to Extreme Heat Events	
Mitigation strategy goal		
<i>Highlight the applicable strategic category</i>	Prevention	Natural Resource Protection
	Property Protection	Critical Facilities Protection
	Public Education & Awareness	Structural Project
<i>Describe the overall improvements to the community including the purpose for and the desired outcome from implementing this strategy</i>	Purpose: Characterize risk and vulnerabilities to climate change impacts, develop and apply a plan to equitably improve climate resilience of people, infrastructure, and natural systems in the City of Madison. Desired outcome: Through the successful application of equitable, community-driven solutions, the City of Madison operations and residents will be prepared for and experience minimal disruption from a changing climate. The impacts of climate change will no longer disproportionately impact our most vulnerable residents.	
Define the steps to achieving this mitigation strategy		
1. Conduct GIS and social analyses as well as community outreach to understand and map community vulnerability to a full suite of climate change impacts and create maps that communicate risk. <ol style="list-style-type: none"> <i>Responsible Party</i> – City of Madison in partnership with researchers at the University of Wisconsin at Madison and others <i>Funding source</i> – City of Madison budget plus grant assistance if available. <i>Completion date</i> – Q4 2023 or earlier 		

Municipality	City of Madison
Mitigation Strategy Name	Improving Resilience to Extreme Heat Events
	<p>2. Engage the community to identify needs and develop solutions that will improve climate resilience, with a particular focus on equitable solutions that improve the capacity and resilience of sensitive and vulnerable populations.</p> <ul style="list-style-type: none"> a. <i>Responsible Party</i> – City of Madison in partnership with researchers at the University of Wisconsin at Madison and community organizations b. <i>Funding source</i> – City of Madison budget plus grant assistance. c. <i>Completion date</i> – Q4 2025 or earlier
	<p>3. Apply solutions identified to improve climate resilience and provide City operations and residents with the information, tools, and resource they need to prepare for and adapt to a changing climate.</p> <ul style="list-style-type: none"> a. <i>Responsible Party</i> – City of Madison in partnership with community organizations b. <i>Funding source</i> – City of Madison budget plus grant assistance. c. <i>Completion date</i> – 2025 and beyond as funding sources become available
	<p>4.</p> <ul style="list-style-type: none"> a. <i>Responsible Party</i> – b. <i>Funding source</i> – c. <i>Completion date</i> –
	<p>5.</p> <ul style="list-style-type: none"> a. <i>Responsible Party</i> – b. <i>Funding source</i> – c. <i>Completion date</i> –

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Municipality	City of Madison
Natural Hazard	Extreme Heat
Describe conditions associated with this hazard and identify where and when problem(s) occur	
<i>Describe what happens</i>	Extreme heat events are periods of high heat and humidity with temperatures above 90 degrees. The number of extreme heat events in the Madison has been increasing since the 1950's. Due to climate change, the extreme heat events are expected to become more severe and more frequent in our region. According to climate projections by the Wisconsin Initiative on Climate Change Impacts at the University of Wisconsin at Madison, the number of extreme heat events in our region is expected to triple by the middle of this century.
<i>Location(s)</i>	Extreme heat impacts all of Madison, and we know that some areas experience higher temperatures due to urban heat island effect, where the build environment, land cover, and other factors cause even higher temperatures than surrounding areas.
<i>Time frame associated with the occurrence</i>	Extreme heat events last from a few days to weeks and can occur multiple times per year.
Describe the risks from this hazard to persons, facilities, finances, and ancillary activities	
<i>Impacts on persons</i>	Extreme heat events are more deadly than any other type of severe weather in the US. Extreme heat can lead to acute and severe illness, exacerbate existing medical conditions, and lead to death. In addition, we know that some residents are more vulnerable and/or sensitive to extreme heat events, including people with disabilities; people with chronic health conditions including cardiovascular disease, respiratory disease, and diabetes; people living in areas experiencing urban heat island effect; BIPOC communities; people with low incomes or a lack of access to cooling technology; children and the elderly.

Municipality		City of Madison
Natural Hazard		Extreme Heat
<i>Impacts on facilities (include locations as appropriate)</i>	Extreme heat can lead to strain on health care facilities due to increased medical emergencies and heat-related disease. Extreme heat can also lead to power outages, roads buckling, and dangerous expansion of train tracks.	
<i>Financial impacts</i>	Negative health outcomes and mortality, dangerous working conditions, and impacts to road and rail all have costly impacts to local residents and the economy. The City and local service providers also face increase costs for road, rail, and electrical system repairs.	
<i>Secondary / ancillary impacts</i>		
Identify what a desired outcome looks like		
<ul style="list-style-type: none"> • City of Madison has clear information on the location of urban heat islands and populations most sensitive to extreme heat events. The City has worked with the community to identify and apply a range of equitable solutions to improve the resilience of city residents and facilities to extreme heat events. • These solutions may include changes in the built environment and land cover to minimize urban heat island effects, expanding access to places to cool off or cooling technology, public health and equity initiatives to reduce risk and increase preparedness, and integrating heat resilience into ongoing City policies, programs, and plans. • Successful application of equitable, community-driven solutions will minimize or eliminate urban heat island effect and provide City operations and residents with the information, tools, and resource they need to be resilient during extreme heat events. 		
Describe why it is import to address this problem		
<p>It is important to address extreme heat events for two reasons. First, they are the most deadly type of severe weather in the US, and they are becoming more severe and frequent in the Madison region due to climate change. Second, the extreme heat events disproportionately impact our most vulnerable residents, leading to disparities based on race, income, disability status, and age. Therefore, addressing extreme heat is critical to creating a resilient and equitable community where all of our residents can thrive.</p>		

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Municipality		City of Madison	
Mitigation Strategy Name		Improving Resilience to Extreme Heat Events	
Mitigation strategy goal			
<i>Highlight the applicable strategic category</i>	Prevention	Natural Resource Protection	
	Property Protection	Critical Facilities Protection	
	Public Education & Awareness	Structural Project	
<i>Describe the overall improvements to the community including the purpose for and the desired outcome from implementing this strategy</i>	<p>Purpose: Characterize risk and vulnerabilities to extreme heat events, develop and apply a Heat Resilience Action Plan to equitably avoid, minimize, and mitigate the impacts of these events in the City of Madison.</p> <p>Desired outcome: Through the successful application of equitable, community-driven solutions, the City of Madison will minimize or eliminate urban heat island effect and negative health outcomes and death from extreme heat events. City of Madison operations and residents have the information, tools, and resource they need to be resilient during extreme heat events. Extreme heat events no longer disproportionately impact our most vulnerable residents.</p>		
Define the steps to achieving this mitigation strategy			
<ol style="list-style-type: none"> 1. Conduct analysis to create maps that identify and visualize air and surface temperatures in Madison, where urban heat islands occur, and the location of populations most sensitive or vulnerable to extreme heat events. <ol style="list-style-type: none"> a. <i>Responsible Party</i> – City of Madison in partnership with researchers at the University of Wisconsin at Madison b. <i>Funding source</i> – City of Madison budget plus grant assistance if available. c. <i>Completion date</i> – Q4 2022 or earlier 			

Municipality	City of Madison
Mitigation Strategy Name	Improving Resilience to Extreme Heat Events
	<p>2. Engage the community to understand current heat resilience practices, identify needs, and develop solutions that will improve heat resilience that result in a Heat Resilience Action Plan, with a particular focus on equitable solutions that providing heat island mitigation and adaptation for sensitive and vulnerable populations.</p> <ul style="list-style-type: none"> a. <i>Responsible Party</i> – City of Madison in partnership with researchers at the University of Wisconsin at Madison and community organizations b. <i>Funding source</i> – City of Madison budget plus grant assistance. c. <i>Completion date</i> – Q3 2023 or earlier
	<p>3. Apply solutions identified in the Heat Resilience Action Plan to minimize or eliminate urban heat island effect and provide City operations and residents with the information, tools, and resource they need to be resilient during extreme heat events.</p> <ul style="list-style-type: none"> a. <i>Responsible Party</i> – City of Madison in partnership with community organizations b. <i>Funding source</i> – City of Madison budget plus grant assistance. c. <i>Completion date</i> – Q4 2023 and beyond
	<p>4.</p> <ul style="list-style-type: none"> a. <i>Responsible Party</i> – b. <i>Funding source</i> – c. <i>Completion date</i> –
	<p>5.</p> <ul style="list-style-type: none"> a. <i>Responsible Party</i> – b. <i>Funding source</i> – c. <i>Completion date</i> –