



Wisconsin's *Climate Ready Communities*

<https://fyi.uwex.edu/climate/>

Situation

Our climate is changing. A lifetime of predictable weather is giving way to uncertain conditions and more frequent extreme events. Wisconsin's communities can no longer plan on future climate being like the past, and while many are beginning to factor climate change into their planning, many others are ill prepared for even today's extreme weather.

Response

Cooperative Extension's educational support for our communities must include both raising awareness that the risks from climate are changing, and providing support for communities as they build resilience to meet the challenges of climate risks. The *Climate Ready Communities* initiative aims to build local capacity for achieving that resilience.

Attributes of a *Climate Ready Community*

Climate Awareness - *Climate Ready Community* leaders, municipal staff, local educators and others will understand:

- Concepts underlying the science of climate change;
- Evidence for Wisconsin's changing climate;
- Projections of future climate conditions;
- Change in risk from extreme weather caused by the change in climate.

Vulnerability Assessment - *Climate Ready Communities* will have evaluated the vulnerability and resiliency of government, social systems and municipal infrastructure to changing risks from:

- Extreme heat
- Drought
- Heavy rainfall
- Warm winters
- Windstorms

Adaptation Capacity - *Climate Ready Communities* will have identified and put in place measures to reduce risk from extreme weather. Communities will have integrated climate change into long term planning and development.

Climate Stakeholders

Unlike weather, changing climate is an effect that unfolds over long periods of time. Consequently, climate stakeholders are likely to be found in roles where long term planning and management decisions are common. Some examples include:

- Land use planners
- Municipal water and wastewater utility operators
- Public health officials
- Emergency response coordinators
- Forestry and natural resource managers
- Economic development leaders

The key to effectively engaging these stakeholders is to identify the climate risks and adaptation strategies that are relevant to their management role, and to understand the time frame of their planning activities in the context of climate change.

Climate Risk - Adaptation Strategies

Extreme Heat -

Vulnerable populations such as the elderly and ailing have difficulty coping with high temperatures and humidity – Identify vulnerable community members. Maintain communication to assess risk. Provide public cooling shelters. Increase the urban tree canopy to provide shading.

High heat and humidity can affect the worker safety and efficiency and quality of work done outdoors. – Establish work rules to offset work during a heat wave from the hottest periods of the day to cooler hours.

High heat and humidity will increase HVAC loads that can lead to brownouts and high energy costs. – Optimize building insulation and cooling equipment. Establish guidelines for closing buildings/services due to excessive cooling demand. Design new buildings to manage extreme heat events.

More hot sunny days can lead to increased ozone air pollution. – Work with local businesses and residents to minimize VOC emissions. Make sure that municipal maintenance supplies and chemicals are low-VOC. Restrict vehicle fueling operations to evening hours.

Long hot spells encourage the use of beaches and pools. – Ensure that facilities are available to handle increased numbers of users.

Extension's role

Work with local health departments to develop heat response plans.

<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1448486/>

Work with local units of government to improve air quality.

<http://fyi.uwex.edu/healthyair/>

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Drought -

Drought can threaten municipal drinking water sources. – Municipalities should know the extent of groundwater recharge zones, and projections for availability of surface water supplies.

Long dry spells can lead to increased water usage. – Municipal water supplies should be sized to adequately meet peak demand. Water conservation measures should be implemented to reduce water wastage. Competition for water supply by agricultural and private wells should be controlled.

Low base flows in stream and rivers can lead to violations of wastewater discharge permits. – POTWs should develop contingency plans for waste water disposal during low flow periods.

Lake usage can be affected as water levels fall. - Recreational access to lakes (e.g. ramps and piers) should anticipate low water levels. Commercial access to harbors may require dredging and modification of docking facilities.

Extension's role

Provide current drought information and access to UW-Specialists.

<http://fyi.uwex.edu/drought2012/>

Work with local water and waste water utilities to develop drought response plans.

<http://www.horsleywitten.com/workshopplanner/index.html>

Heavy Rainfall -

Intense rainfall can cause flash flooding in streets and neighborhoods. – Adopt most current runoff management design statistics. Conduct rainfall modeling to identify areas susceptible to flooding. Reduce the amount of impervious area in watersheds. Design streets and other surface conveyances to handle large runoff flows.

More rainfall in late winter and spring can lead to flooding along rivers. – Evaluate potential for flooding above the FEMA 100 year level. Assess potential for: Loss of emergency access; Threat to hazardous materials; Vulnerability of civil infrastructure.

Municipal stormwater BMPs can be overwhelmed by high water levels and heavy runoff. – Design of BMPs should accommodate extreme flows and prolonged inundation.

Heavy rainfall can lead to inflow and infiltration (I&I) to sanitary sewers, causing system leakage and treatment plant overflows. – Harden sanitary systems to prevent I&I. Create temporary storage upstream of treatment plants. Develop contingency plans for sanitizing drinking water systems contaminated by sewage. Provide backup power to lift stations and pumps.

Intense rainfall can lead to erosion that can destabilize lake bluffs and roadways. – Identify areas of potential failure and take preventative measures.

Lake usage during high water can lead to bank erosion and home flooding. – Anticipate conditions when recreational boating should be curtailed.

Extension's role

Work with local water and waste water utilities to identify high water vulnerabilities.

<http://www.horsleywitten.com/workshopplanner/index.html>

Work with local emergency response committees to develop flood safety and response plans.

http://www.water.ca.gov/floodsafe/docs/SampleFloodSafetyPlan-DraftMarch_2011.pdf

Warm Winters -

Warmer winters increase the probability of ice storms causing power outages and downed trees. – Emergency response plans for winter including shelters, power restoration, debris removal.

Warmer more humid winter conditions are favorable for fine particle air pollution. – Control emissions from agricultural and bioenergy activities that contribute to PM2.5.

Increased winter groundwater recharge can lead to groundwater flooding. – Identify soils subject to flooding and zone to prevent development.

More freeze thaw cycles and freezing rain lead to roadway icing. – Develop ice management and removal plans that minimize chloride impacts to surface and groundwater.

Extension's role

Work with local emergency response committees and local citizens to develop winter emergency plans.

<http://emergencymanagement.wi.gov/mitigation/planning.asp#resources>

<http://www.ready.gov/winter-weather/>

Windstorms -

Tornadoes and straight-line winds cause power outages, downed trees and destruction. – Develop emergency response plans and contingencies commensurate to the potential damage.

Winds over the Great Lakes can threaten harbor infrastructure and lakeshore development. – Evaluate breakwaters, piers and other structures for storm integrity. Develop shoreline buffers and wetlands.

Extension's role

Work with local emergency response committees and local citizens to develop windstorm emergency plans.

<http://emergencymanagement.wi.gov/mitigation/planning.asp#resources>

Work with local government to identify coastal infrastructure vulnerabilities.

<http://www.seagrants.wisc.edu/home/Topics/CoastalCommunities.aspx>

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