

3

INFRASTRUCTURE

Primary impacts of concern to the built infrastructure in Bloomington include shortages of emergency power to critical facilities during emergency situations. There is also a concern about localized flooding, such as at the intersection of American Blvd and Knox Ave, and how to provide shelter for people during extreme weather events when they may be displaced from their homes.



Source: Spiel On Line

BLOOMINGTON IS PREPARING!

Making Adaptation Plans for Minnesota's Changing Climate

The City of Bloomington participated in a workshop series to identify opportunities to build resilience related to local climate change. Climate change is one of the greatest challenges facing society today. In Minnesota, there is a risk due to increases in extreme heat, extreme rainfall, higher summertime dew points, warmer winters, and the intensity of severe storms. Outcomes from the workshop series are being used to inform recommendations for building resilience. These recommendations will be included in the Bloomington Comprehensive Plan update, estimated for completion in 2018.



WORKSHOP RECOMMENDATIONS

Protecting Bloomington's Built Infrastructure:

- **Create an energy plan** — Work with energy providers to put the most vulnerable power utilities underground as redevelopment or street repairs occur. Maintain a dependable system of emergency power generation at City-owned facilities. Also, work to reduce energy consumption through conservation measures (education) and implementation of energy efficient equipment and appliances.
- **Continue working to address flooding in developed areas** — Reduce impervious surfaces such as parking lots, streets and roofs where possible, and capture run-off in rainwater gardens and other green infrastructure to reduce downstream accumulation and storm system backups.
- **Develop a communications plan on water use** — Educate the public on potable water conservation, especially lawn irrigation reduction.
- **Identify appropriate locations to serve as emergency shelters for public use during extreme situations** — Ensure sites have back-up generators. Also, use city hall and fire stations as emergency shelters. Equip them as necessary.



Moving Forward

Bloomington is beginning the planning process to adapt to Minnesota's changing climate and the adverse impacts that the community will experience. Proactive planning is the economically efficient route to climate adaptation, rather than reacting to the impacts of heat, storms, ice, and warm winters as they occur.



The purpose of the workshops was to build relationships across the community, create a shared knowledge base, and harvest potential strategies. They were intended to be the first of many community conversations to make Bloomington resilient in the face of climate change. This planning effort is being used to inform Bloomington's Comprehensive Plan.

Preparing for our Changing Climate



The Climate Adaptation Planning Process The workshop series walked Bloomington participants through the first three stages of climate planning, shown above. The workshop began the process of brainstorming strategies to address Bloomington's climate concerns to be incorporated into the City's 2018 Comprehensive Plan. Implementation and operation of solutions to follow.

WORKSHOP SPONSORS



Bloomington's Top Climate Hazards

Climate hazards are natural events or patterns related to climate change that can cause harm to people, infrastructure, and the environment. Workshop participants identified the following four hazards as the ones of most concern in Bloomington:



Drought

Climatologists point out that within Minnesota's normal range of weather extremes is the drought of the dustbowl days in the 1930s. Although there is no recent trend for drought (except for 2012), Bloomington can expect drought to occur again. Long-term predictions of greater than ten years show an increased likelihood of drought.



Extreme Heat

Although not currently experiencing abnormal heat events, Bloomington is experiencing greater summer humidity, which pushes up the heat index and makes it harder to cool off. Extreme heat is predicted for the not-too-distant future, according to Minnesota State Climatologist Dr. Kenneth Blumenfeld.



Ice Storms

Bloomington is currently experiencing an increase in winter nighttime low temperatures. In general winter temperatures are increasing and more often fluctuating around the freezing point. This results in more precipitation events occurring in the form of freezing rain and ice, leading to tree damage, power outages, and treacherous road conditions.



Extreme Precipitation

An increase in large storm events are documented in Minnesota. Bloomington experienced this issue in June of 2014. Duluth's staggering 2012 extreme precipitation event demonstrated the serious impacts of such storms.

Climate Impacts & Recommendations for Bloomington

Participants of the workshops focused on three sectors of the community and impacts from locally changing climate:

- 1 Impacts to Society
- 2 Impacts to the Environment
- 3 Impacts to Built Infrastructure

Participants listed strategies to address these impacts and set priorities for taking action. The top ranked priorities to bolster resilience are listed below.

SOCIETY

1

A primary concern is for impacts to vulnerable populations in Bloomington, such as the elderly, disadvantaged children, and the disabled in times of emergency. Maintaining access routes to hospitals and other emergency services and ensuring that medical facilities are staffed during emergency events are of critical concern.



Source: Milwaukee Community Journal

WORKSHOP RECOMMENDATIONS

Protecting Bloomington's People:

- **Utilize warning systems to alert people about extreme events** — Know where vulnerable populations reside so they can be located under extreme situations such as high heat. Empower block captains to look out for elderly and other vulnerable people in their communities.
- **Ensure that medical facilities are staffed and accessible during emergency events** — Investigate other cities' emergency procedures and continue the good work already underway.
- **Maintain and practice the City's Continuity of Operations Plan** — This is an effort within individual departments to ensure that their primary mission essential functions continue to be performed during a wide range of emergencies.
- **Leverage volunteer services in times of need** — Call on Meals on Wheels and other volunteer groups, such as faith-based organizations to identify and assist vulnerable populations during crisis events.



ENVIRONMENT

A primary impact of concern to the environment in Bloomington is aquifer drawdown as water demand increases during hot, dry periods. It is suggested that implementing rainwater gardens across the city, along with other forms of green infrastructure (such as a robust urban tree canopy) will allow for water to soak into the ground and recharge the aquifer, while trees help keep the city cool during hot summers. Also of concern are invasive plant and animal species, such as buckthorn and zebra mussels, because of their complete takeover of their habitat and elimination of biodiversity.

2



Healthy urban tree canopy

Invasive zebra mussels

WORKSHOP RECOMMENDATIONS

Protecting Bloomington's Natural Environment:

- **Educate citizens about aquifers** — Explain the issue of draw-down of local aquifers that supply drinking water. Encourage water conservation, especially reduce lawn irrigation. Consider implementing stormwater and grey water reuse systems where they make sense.
- **Identify slopes vulnerable to failure** — Collaborate with partners to identify slopes along the Minnesota River Valley that are vulnerable to failure. Create an action plan to protect people, structures and infrastructure in high risk areas.
- **Conduct public education on invasive species** — Partner with environmental agencies and NGOs to control the most destructive species. Leverage Richardson Nature Center and the Minnesota Valley National Wildlife Refuge as sources of information.
- **Inventory areas of potential wildfire** — Take preemptive measures such as controlled burns and underbrush cutting to reduce fire risk.

