

# Chapter 7 - Resiliency



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# Resiliency

## Resiliency

In 2015, the Metropolitan Council adopted Thrive MSP 2040 as its new regional development plan, which includes seven policies to guide regional land use and development. One of these policies is *Building in Resilience: Promote sensitive land use and development patterns to contribute toward achieving Minnesota’s adopted greenhouse gas emission goals at the regional scale, and to develop local resiliency to the impacts of climate change*. The plan also recommends communities’ roles related to achieving this policy, which include:

- » Addressing climate change mitigation and adaptation;
- » Reducing water use, energy consumption, and greenhouse gas emissions;
- » Protect and enable the development of solar resources (cities are required to address as a goal, policy or strategy);
- » Consider the development or use of community solar gardens;
- » Address impacts to local economies, resources, and infrastructure systems;
- » Identify local cost-saving measures that could result in reducing waste, conserving water, and improving energy efficiency;
- » Participate in programs such as MN GreenStep Cities and the Regional Indicators Initiative.

Resiliency is an important topic in communities and the world today. Oftentimes resiliency is part of a discussion about climate change or weather events. Probably most common is the use of the term resiliency after a natural disaster. Conversations after an event turn to questions like how does a community “bounce back” and what efforts were taken to get the community “back to normal?” Although resiliency within our comprehensive plan isn’t necessarily an exercise in disaster planning, it does take on many of the same approaches to be forward thinking and thoughtful about the implications of policies. In the comprehensive plan, thinking about approaching community resiliency may best be described as “planning for resiliency.” Communities that plan for resiliency have a greater ability to successfully respond to both natural and human-created events.



# Minnetonka Resiliency Efforts

The city has been engaged in resiliency for a number of years. Most recently, the city participated in two larger and more prominent programs that study and implement resiliency.

- » University of Minnesota Resilient Communities Program – During 2012 and 2013, the city was city staff and stakeholders in the selected community, RCP helps to identify 15–30 projects that will advance local sustainability and resilience based on community-identified environmental, social, and economic issues and needs. RCP strategically connects each project with one or more courses at the University of Minnesota that can provide research or technical assistance to move the project forward.

<http://rcp.umn.edu/home/2012-2013-partner/>

<http://rcp.umn.edu/minnetonka-projects/>

- » Green Step Cities – In 2013, the city adopted a resolution to begin participation in the Minnesota Green Step Cities program. The program is a statewide voluntary challenge, assistance and recognition program to help cities achieve their sustainability and quality of life goals. During the four years of participation in the program, Minnetonka has achieved step 3 of the 5 step program.

[https://greenstep.pca.state.mn.us/cityInfo.cfm?ctu\\_code=2395350](https://greenstep.pca.state.mn.us/cityInfo.cfm?ctu_code=2395350)

- » Regional Indicators Initiative – This initiative measures annual performance metrics for 22 Minnesota cities (including Minnetonka) committed to increasing their overall efficiency and level of sustainability. The project collects data about energy, water, travel, waste which in turn, reflects the activities of the people who live, work, learn, travel, visit, and play within each city’s geographical boundaries.

<http://www.regionalindicatorsmn.com/>

In addition to these large programs, the city implements a number of sustainable practices in city facilities in an ongoing basis. All of these investments save the city money and reduce its carbon footprint. They include:

- » replacement to energy efficient fixtures
- » participation in Xcel Energy’s solar garden program
- » forward looking infrastructure replacement programs for water, storm and sanitary sewer systems
- » pavement management systems
- » organics collection
- » other energy conservation practices



Residents and businesses are also involved in many of the same efforts as the city for their homes and buildings. The city's website contains information on a number of ways to engage in energy conservation that are updated regularly.

## Solid Waste

Minnetonka has a role in helping Hennepin County reach its goal of recycling 75 percent of waste by 2030. The county's 2018 master plan demonstrates the county's commitment to conserving natural resources, protecting the environment and ensuring public health and safety. Curbside recycling and organics collection are available to Minnetonka residents. The city also offers special drops many times annually for residents as a free or low cost option to properly recycle or input household items in the proper waste stream. Continuing to educate residents, businesses, and institutions on the benefits of reducing waste, recycling, and composting will help the county reach its goal.

## Climate Resilience and Natural Resources

On January 17, 2018 the City of Minnetonka Comprehensive Plan Steering Committee participated in a three-hour workshop with the Freshwater Society. The workshop focused on building community resilience to local climate change impacts, with a specific focus on both natural and water resources. Workshop participants were asked to identify climate-related hazards and potential impacts within the Minnetonka, along with strategies and priorities for the city to focus on to increase resilience throughout the community. The top climate-related hazards and priority recommendations identified by these participants are contained within this report.

### Top climate hazards

Based on current and expected climatologic trends, the top four climate-related hazards identified by participants include:

#### Extreme Heat

Although not currently experiencing abnormal extreme heat events yet, Minnetonka is experiencing greater summer humidity in general, 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's State Climatology Office.

#### Intense Rainfall

An increase in large storm events is documented in Minnesota. Minnetonka experienced this during several intense rainfall events, including June, 2014, and the super storm of 1987. Duluth's staggering

2012 extreme rainfall event demonstrated the serious impacts of such storms. Back to back years of wet weather can also exacerbate high water level issues throughout the City.

## Severe Storms and Wind

Strong winds are on the increase as evidenced by the number of electrical lines brought down by falling branches or entire trees. The pattern of dangerous storms grows more uncertain with climate change. Tornado alley is predicted to eventually move north into Minnesota.

## Warming Low Temperatures

Minnetonka is currently experiencing an increase in winter nighttime low temperatures. Consequences include better survival of invasive species moving into the area, changes in plant and tree species that thrive in the city, and inconsistent conditions for winter recreational activities as snow and ice season shortens.

## Natural Resource Areas of Concern

Participants identified areas of vulnerability to our changing climate for both natural and water resources. Specific features that are considered at-risk for impacts both now and in the future include:

### Woodlands and Urban Canopy

Woodland protection – both existing, old growth forests and newly planted areas – is a top concern for the City of Minnetonka. Canopy cover and biodiversity among woodland species provides many benefits to the city, including habitat value, water resource protection, and shade. Increasing severe storms, wind, ice, and changes in temperatures will significantly impact the amount and types of trees that grow in the city.

### Water Resources – Lakes, Streams, Ponds, Wetlands, and Floodplain

Impacts of concern to water resources include declining lake water quality (chlorides, excess nutrients), loss of plant diversity and invasive species, impacts to fisheries, as well as wetland and floodplain loss and loss of flood storage capacity throughout the City.

### Native Habitat and Plant Biodiversity

Loss of tree canopy and vegetation from both natural and open areas (parks, trails) was identified as a significant concern, along with changes due to invasive species displacing native species. An increase in loss of vegetation also leads to more soil erosion, especially on steep slopes.

## Groundwater

Minnnetonka depends on groundwater for its drinking water supply. Protecting groundwater aquifers from both depletion and contamination (e.g. nitrates and chlorides) is of concern to the City.

## City-wide Strategies to Adapt

Participants identified specific strategies the City could adopt to reduce local climate vulnerabilities and maintain current strengths related to both natural and water resource features. These strategies encompass a breadth of policy considerations, planning needs, programmatic needs, and specific project implementation. City-wide strategies identified include:

### Restore, Maintain and Protect Native Habitats

Specific strategies include invasive species removal (e.g. buckthorn) to restore woodland areas, protecting wetland areas through vegetation maintenance (buffers) and education of landowners, controlling for invasive species (EAB, buckthorn), continuing tree sales and promote plantings, and reducing turf through native plantings in open spaces.

### Develop Management Plans

Developing management plans for preserving and protecting the City's natural and water resources is important and can supplement the City's existing plans. New plans could include:

- » Lake management plans
- » Woodland management plans
- » Invasive species rapid response plans

### Promote Green Infrastructure Principles and Practices

Green infrastructure – both large scale natural areas (wetlands, floodplains, forests) as well as constructed practices (raingardens and other infiltration practices) - are an important adaptation strategy for the City. Benefits include flood mitigation, water quality protection, increase in plant biodiversity and wildlife/pollinator habitat, and reduction in hard surfaces that generate runoff when it rains.

### Increase Plant Biodiversity

A higher diversity in vegetative cover provides the best protection from climate-related impacts to plants, such as intense storms, changing temperatures, increased length of growing season, and heightened risk of

invasive species. Removing current invasive species such as buckthorn, planting new diverse plant species (trees and herbaceous plants) that are climate-tolerant, reducing bare soil areas and erosion by planting deep-rooted plants are all important. Fundamentally, planting the 'right plant in the right place' is beneficial to the City.

## Educate Citizens and other Stakeholders

An educated citizenry is an important strategy for a community to increase climate resilience. The City should make sure that landowners are aware of issues pertaining to the City's natural and water resources, including chloride contamination of both surface and groundwater, the benefits of green infrastructure to water and habitat, the importance of increasing plant biodiversity and deep-rooted plants in both landscaped and woodland areas, the importance of invasive species management, and proper tree care management to maintain urban canopy are seen as important to the community.

## Going Forward

The area of resiliency and climate science continues to be rapidly evolving. Going forward, the city will likely have opportunities to be involved in programs and efforts that better prepare the city to address a more unknown future. Being open to exploring those opportunities to understand how we may prepare for uncertainties is important.

Links to additional information related to climate and resilience:

- » National Climate Resilience Toolkit: <https://toolkit.climate.gov/>
- » Climate Change in Minnesota:
  - Minnesota Pollution Control Agency  
<https://www.pca.state.mn.us/air/climate-change-minnesota>
  - Minnesota Department of Natural Resources  
[http://www.dnr.state.mn.us/climate/climate\\_change\\_info/index.html](http://www.dnr.state.mn.us/climate/climate_change_info/index.html)
  - Minnesota Department of Health  
<http://www.health.state.mn.us/divs/climatechange/>
  - Minnesota Environmental Quality Board  
<https://www.eqb.state.mn.us/content/climate-change>