

City of Austin Comprehensive Planning

Existing Conditions: Vulnerable Populations

Resilience

Resilient communities prepare for, adapt to, and thrive in the face of abrupt environmental changes, while increasing the use of clean energy sources and enhancing local grid infrastructure to limit risk and accelerate recover from disaster, now and into the future. Climate hazards that are anticipated to worsen include extreme weather events, intense precipitation, extended heatwaves, poor air quality, and an increase in vector-borne diseases. Damage to property, environment, and people may result from these events. City governments work to ensure the health and safety of their residents. In consideration of climate change, local authorities can take action to ensure that residents are prepared for such events, particularly those who are most vulnerable.

The GreenStep Cities program guides cities to help them achieve their sustainability goals using a suite of 29 Best Practices; the City of Austin is a Step 3 GreenStep City, demonstrating leadership in sustainability efforts. In 2016, GSC introduced Best Practice 29 (BP 29), which is the first best practice to focus on climate resilience. Within BP 29, there is particular emphasis on supporting vulnerable populations. Using BP 29 as a starting point, a vulnerability assessment has been conducted to support Austin's comprehensive planning efforts as well as broader sustainability goals.

Vulnerable populations include groups of people who may have similar characteristics in common that can make them more vulnerable to a climate hazard. Vulnerabilities may be situational, where a given characteristic puts people more at risk in the context of a specific hazard (e.g. respiratory illness during poor air quality). Other vulnerabilities are temporary, meaning a person or persons may be at greater risk to a hazard because of an impermanent status (e.g. children during a heatwave). Understanding the populations at risk in a city can help local leaders assess where resources need to be directed in preparation for and during various events.

This assessment uses U.S. Census data (2010-2014 American Community Survey 5-year Estimates), and the Minnesota Department of Health's Climate Change Vulnerability Assessment to help define vulnerable populations and identify degree of risk to various climate hazards within the City of Austin, Minnesota.

Vulnerable Populations

Vulnerable populations are people who share characteristics that make them particularly susceptible to different hazards. As the climate changes, the risk of a hazardous event occurring increases, which in-turn escalates the risk for vulnerable populations. Those who are most at risk to different events may include the elderly, low-income residents, people with disabilities, immigrants, and people with respiratory illnesses, among others. The following describes the common characteristics that increase the likelihood of being impacted by different hazards.



People who have existing **health conditions** (e.g. asthma, diabetes, etc.), are at greater risk during extreme weather events. For instance, people who have asthma are at greater risk for health complications during poor air quality events. The most recent data from the Minnesota Department of Health show that 67 people were hospitalized for asthma between 2011 and 2013. The age-adjusted rate of asthma hospitalizations is 5.6 people per 10,000; lower

than the state-wide rate of 6.1. Approximately 25% of hospitalization were of children under 18; and 17% were older than 65.¹

In general, the **older population** includes people who are over the age of 65. Of course, the health of individuals varies from one person to another and some may be more vulnerable than others. Vulnerability of elderly residents increases with aging, for those who live alone, and for those without air conditioning, or access to transportation. Hazards that may put highly vulnerable elderly residents at the most risk include heatwaves, power outages (particularly during a heatwave, or for anyone who depends on medical equipment that needs electricity), poor air quality, and flooding events.

Austin's Elderly Population: 17.8% over 65; 10% over 75.
Minnesota's Elderly Population: 13.6% over 65; 6.3% over 75

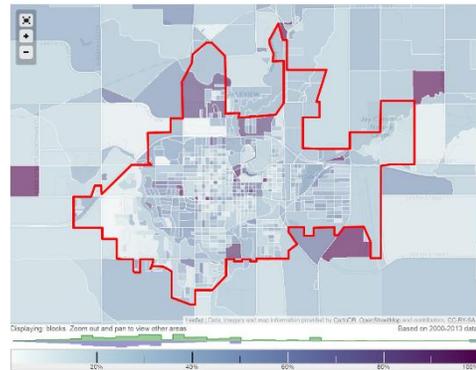


Figure 1 Households with people 65 and older (%). Source: City-Data.com/city/Austin-Minnesota.html

The map at the right illustrates where the highest concentrations of households with people 65 years and older.

Low-income residents often have less access to resources that can support them during extreme weather events. Further, housing quality may be inadequate to withstand the impacts of extreme weather events. For example, low-income residents often lack air conditioning and/or may have difficulty paying for increased electricity consumption during prolonged heat events.

Individuals below poverty level in Austin: 18%
Individuals below poverty level in Minnesota: 11.5%

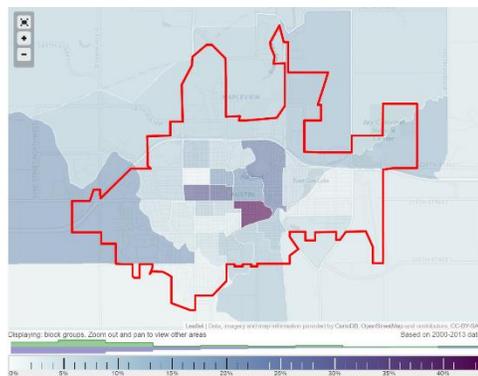


Figure 2 Residents with income below the poverty level (%). Source: City-Data.com/city/Austin-Minnesota.html

The map at the right illustrates where the highest concentrations of people living in poverty in Austin.

Immigrants may face language barriers or cultural isolation that could increase challenges during extreme weather events. Emergency response, evacuation information, or other forms of aid may only be provided in English, making it difficult for those with limited English to get necessary information or support.

Percent of individuals born outside of the U.S. (Austin): 10.5% (8.5% speak English less than very well)
Percent of individuals born outside of the U.S. (Minnesota): 7.6% (4.3% speak English less than very well)

People with physical or mental illnesses may need additional assistance in an extreme event as they may be unable to evacuate or take care of themselves. People who are socially isolated or live alone are particularly vulnerable as they may not have anyone who will check on them in the case of an emergency.

Percent of Austin residents under 65 who have a disability: 8.3%
Percent of Minnesota residents under 65 who have a disability: 7.0%

¹ <https://apps.health.state.mn.us/mndata/webmap/asthma.html>

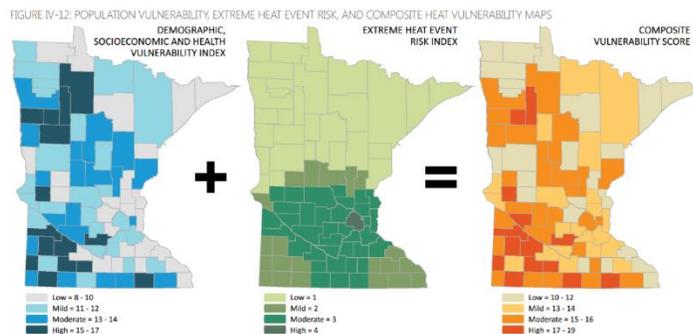
Climate Hazards

The Minnesota Department of Health (MDH) conducted the Minnesota Climate Change Vulnerability Assessment² in 2015, to assess the population vulnerabilities for the following climate hazards: extreme heat events, air pollution, vector-borne diseases, flooding and flash flooding, and drought. MDH created a composite vulnerability score for each hazard at the county-level, which gives each county a sense of how vulnerable its residents are to various climate hazards. Using this assessment along with U.S. Census data and the CDC's Social Vulnerability Index, a summary of Austin's vulnerable residents and the level of risk during climate events has been completed and is detailed below.

Extreme Heat

Prolonged heatwaves can be dangerous for anyone, but are especially hazardous for those with medical issues, the elderly, and people with limited or no access to air conditioning. Older adults have the highest rates of heat-related illnesses and deaths, which can be exacerbated if that individual lives alone and/or is low-income with little or no access to air conditioning. The composite vulnerability score for Mower County included the following variables: income, age, older adults living alone, persons of color, and outdoor workers.

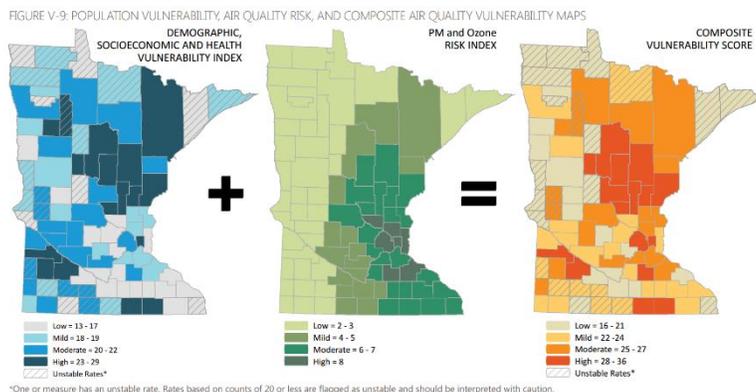
Mower County Risk Index: High = 17-19



Air Pollution:

In Minnesota, the air quality is generally good. However there are days when smoke from distant wildfire, pollen, or high ozone levels may cause officials to issue poor air quality alerts. Individuals with respiratory illnesses, older adults, young children, and populations (often low-income, people of color) who live near environmental hazards (highways, power plants, etc.) are most at vulnerable the negative health impacts of poor air quality.

Mower County Risk Index: High = 28-36



² <http://www.health.state.mn.us/divs/climatechange/docs/mnclimvulnreport.pdf>

Vector-Borne Disease:

Diseases that are transmitted to humans and animals by ticks, mosquitoes, or other insects (i.e. vectors) are vector-borne diseases. The most prominent vector-borne diseases in Minnesota are Lyme disease, human anaplasmosis, and West Nile. With climate change, both the season for ticks and mosquitoes is lengthening, and their territories are expanding. Mower County is not currently a high-risk area for vector-borne diseases, however it is worth paying attention to the spread and increase of these types of insects.

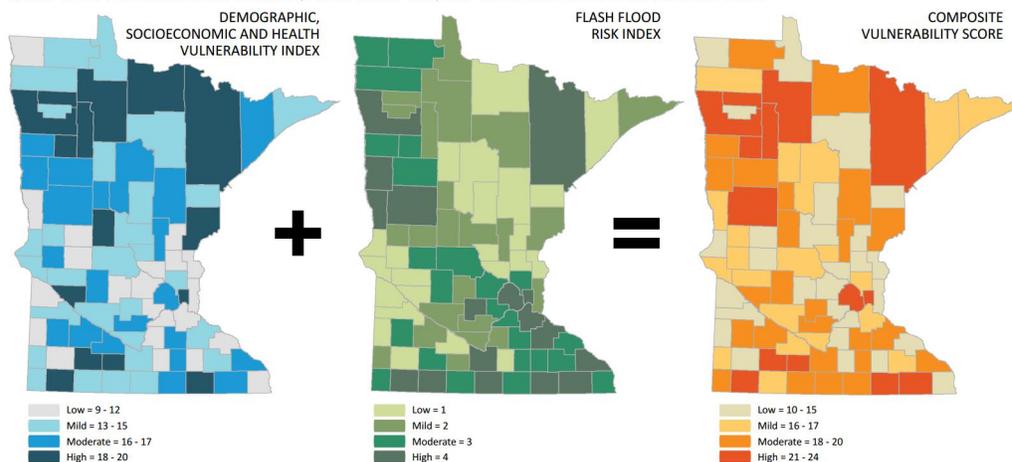
Mower County Risk Index: Low

Flooding & Flash Flooding:

Flooding and flash flooding is expected to increase in most parts of the states as heavy precipitation events are becoming more frequent. Populations who are vulnerable to flooding include those with limited mobility (elderly, disabled persons, those without access to transportation), people living in substandard housing, those who are not proficient in English, and people with limited economic resources. The MDH composite flood vulnerability includes the following variables: 1) Households with no vehicle, 2) mobile housing units, 3) older adults living alone, 4) families with children living in poverty, 5) persons of color, and 6) limited English proficiency.

Mower County Risk Index: High = 21-24

FIGURE VII-12: POPULATION VULNERABILITY, FLASH FLOOD RISK, AND COMPOSITE FLOOD VULNERABILITY MAPS



Drought:

Drought is harder to predict than temperature or rainfall, it also has varying effects that can make it difficult to determine how people will be impacted during drought. Extreme droughts may result in dust from fields can be kicked up by strong winds posing, which may decrease air quality and impact individuals with respiratory illnesses. Further, drought, both local and global, may impact food prices making it difficult for low-income families to afford food. Generally, Mower County is less likely to be directly impacted by drought, however, given the social and demographic vulnerabilities, there should be an awareness of health and economic stresses if drought occurs over an extended period of time.

Mower County tends to have a higher composite vulnerability score than most Minnesota Counties for several of the hazards. While this assessment was conducted at the county level, it is important to note that 63% of Mower County Residents live in Austin. The Center for Disease Control uses U.S. census data at the zip code level to inform its

Social Vulnerability Index (SVI) Tool.³ This tool allows users to enter a zip code to get a more granular view of social vulnerability. The SVI also suggests that Austin the most vulnerable residents in Mower County reside in Austin.

The table below summarizes the risks for vulnerable populations for a given event.

Population Vulnerability Summary Table – Austin, MN

Vulnerable Population	Percent of Population	Extreme Heat	Air Pollution	Vector-Borne Disease	Flooding	Drought
Elderly (over 65 years old)	17.8%	High	High	Low	High	Moderate
Living Below Poverty	18%	High	High	Low	High	Moderate
Immigrant Families	10.5%	High	High	Low	High	Moderate
Physical Disability	8.3%	Moderate	Moderate	Low	High	Moderate
Respiratory Illness	Unknown	High	High	Low	Moderate*	Moderate

*Individuals with respiratory may be more vulnerable to the growth of mold following a flood event.

³ <http://svi.cdc.gov/map.aspx?txtzipcode=55912&btnzipcode=Submit>