Extreme Heat

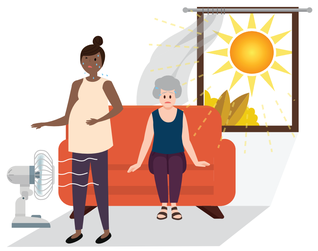
1. IDENTIFY THE CONTEXT

Rising global temperatures due to climate change means that Evanston will begin to experience more extreme heat events. By 2050 Evanston will experience 12—24 extreme heat days annually, 6 times the average between 1951—2014. Because of these extreme heat events, negative health impacts can occur as well as a decrease in overall air quality. Consecutive days of extreme heat mean there is no rest and recovery period for people, animals, plants and our infrastructure.

3. EXPERIENCE THE SYSTEM

HIGHER OZONE LEVELS

Ground-level ozone levels can reach unhealthy levels during the summer season because of the higher temperatures. Higher air temperatures speed up the chemical reactions between the air pollutants, Nitrogen oxides (NOx) and Volatile Organic Compounds (VOC's). Low winds and less rain stagnates the air allowing ozone to build up. High ozone levels can have detrimental health effects on residents including coughing, wheezing, reduced lung function, asthma attacks, heart attacks, strokes and may contribute to a shortened lifespan.

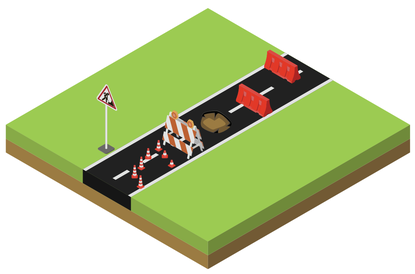


HEALTH IMPACTS AND SAFETY

Extreme heat events can be made even more dangerous if the temperatures do not cool off overnight. These extreme heat events can be particularly dangerous for at-risk groups such as youth, the elderly, pregnant individuals, outdoor workers, socially isolated people, and people without adequate cooling options, like the homeless. The chance of heat related illnesses such as heat cramps, heat strokes, and heat exhaustion increases significantly in these events and can affect those engaging in physical activity as well as those who are simply in spaces that are not properly cooled.

ENERGY CONSUMPTION

With more extreme heat events, the need for air conditioning and other cooling options is critical to staying safe. To keep people cool in extreme heat events, more energy will be needed to run air conditions to keep our homes, places of work, schools and businesses at a livable temperature. Power outages can occur with increased energy consumption during these events. Increased energy consumption, if from fossil fuels, would then release greenhouse gases into the atmosphere making the climate crisis worse.



INFRASTRUCTURE STRESS

With extreme heat events increasing in frequency and intensity, our infrastructure can be severely impacted. Sustained high temperatures can cause concrete to expand and crack, asphalt to melt, and the metal in train tracks to expand. This could limit resident abilities to run errands, check on friends and family during these events, and travel to cooling centers.

LANDSCAPE

Evanston's robust urban forest provides shade to residents and lowers surface temperatures. However, trees are not distributed evenly in Evanston. Additionally, some infrastructure in the City are made with materials such asphalt, concrete, and brick which trap heat. Areas with these materials and areas with less trees may suffer from the urban heat island effect.

2. DEFINITIONS

EXTREME HEAT EVENT

A period of 2-3 days or longer of a high heat index of 105 degrees.

INFRASTRUCTURE STRESS

Caused by a variety of impacts including climate hazards like extreme heat events and flooding which can damage and even break City infrastructure. Examples of infrastructure include water and sewage systems, roads, bridges, train tracks, and pavements.

HEAT ILLNESSES

Occur when a person is exposed to heat and humidity whether or not they are engaging in physical activities. The most common illnesses include heat cramps, heat exhaustion, and heat stroke.

COOLING CENTER

An existing community center that is air conditioned and opened to the public during extreme heat events.

URBAN CANOPY

Evanston maintains a public urban forest of approximately 30,000 trees.

URBAN HEAT ISLAND EFFECT

Occurs when urban regions experience warmer temperatures than their less developed surroundings. Evanston has areas that have lower percentages of green space and a considerable amount of structures, such as roofs and roads, built with dark materials that absorb and release heat.

HEAT INDEX

A measure of how hot it feels when relative humidity is factored in with the actual air temperature.

4. TAKE ACTION