Climate Action & Adaptation Plan

City of Minnetonka

April 2024

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Executive Summary

What is the Climate Action & Adaptation Plan?

1. **A snapshot of Minnetonka's current state related to climate action and adaptation.**
2. **Goals and targets for increasing the community's efforts to reduce greenhouse gas emissions and adapt to climate change.**
3. **Concrete action steps for individuals, businesses, and city government to meet those goals.**

Existing Conditions

To understand where the community is going and to set measurable, actionable goals, it is important to understand current conditions. The Existing Conditions Report, summarized in this document and included in its entirety in the Appendix, provides this foundation. It explores demographics and land use, climate hazards and vulnerabilities, an inventory of residential, business, and city greenhouse gas emissions, and an overview of climate polices, programs, and plans.

Community Feedback

During this planning process, the City sought input from Minnetonka residents, visitors, and business owners. A total of around 850 people participated in focus groups, a public open house, pop-up events, and an online survey. A summary is provided in the document, with complete meeting notes and data in the Appendix. The majority of respondents supported climate action, with particular support for protecting Minnetonka's natural resources while using public dollars responsibly.

Goals & Targets

Minnetonka aims to reduce community-wide greenhouse gas emissions by 63% per person by 2030 from 2018 levels and achieve net zero emissions by 2050. Greenhouse gases are generated from the energy used in homes and businesses, industries, and vehicles – as well as by waste as it decomposes. Emissions will need to be reduced across each of these sectors and it will take a community-driven effort to achieve our ambitious goals. Implementing measures to decrease emissions from our buildings, transportation, and waste streams will have added benefits of improved indoor and outdoor air quality, as well as saving money on utility and fuel bills.

The city also has a vision to strengthen community resilience by preserving natural resources, strengthening community connections, and preparing our infrastructure to withstand climatic changes and extreme weather events. Achieving this vision will require supporting ecological adaptation, fostering a culture of collaboration and support among residents and neighboring communities, and integrating climate into public infrastructure decisions.

Greenhouse Gas Reduction Scenario

To achieve the greenhouse gas emissions goals, significant shifts are needed in the area of building electrification and efficiency, using clean sources of electricity, reducing and electrifying vehicle trips, and cutting waste. These shifts are supported by public policies and market trends in the state and region, but also require local action.

Strategies & Actions

Local action is critical for meeting Minnetonka's greenhouse gas reduction goals, as well as for becoming more resilient to the changes that are already occurring. The recommended strategies and actions for Minnetonka are structured by audience (*residents, business owners, city government*) and provide resources and recommendations so that everyone can take action toward achieving a climate-friendly and climate-ready Minnetonka. Summaries and individual checklists are included to support personalized action plans.

Introduction

Photo by Jim Magnuson

In the fall of 2022, the City of Minnetonka's Sustainability Commission recommended the creation of a climate action and adaptation plan to serve as a **comprehensive guide for how the community can reduce greenhouse gas emissions and adapt to a changing climate**. Globally and locally, there is growing urgency to slow the growth of greenhouse gases and transition away from fossil fuels. As warming has already contributed to climate and ecological changes, there is also an **urgent need to adapt our communities and strengthen resilience**.

In 2023, Minnetonka saw its **third consecutive year of drought**, experienced **33 days over 90 degrees F**, and was alerted to a **record number of poor air quality days**. These types of events can be expected to increase as the global temperature continues to rise. Around the world, the average annual temperature broke records as the warmest since record-keeping began in 1850. If left unchecked, rising greenhouse gas emissions will contribute to further increases in the global temperature, causing more changes to our climate.

At stake is the health of our cherished natural resources and ecosystems, the well-being of vulnerable residents, our ability to engage in outdoor recreational activities, and the strength of our infrastructure. As extreme weather events become more common, there will be greater impact on our community. In response, Minnetonka is committed to doing our part to reduce greenhouse gas emissions and to ensure our community is ready to withstand expected changes.

This plan outlines specific strategies and actions for residents and businesses and identifies the potential for city-led policies and programs to help meet the community's goals. This plan does not start from scratch, but rather builds upon the many ongoing policies, plans, and programs that are aimed at improving the city's sustainability and quality of life. This plan also leverages the existing and expected state and federal resources that are available to support the clean energy transition.

In the face of pressing climate challenges, Minnetonka is embracing its role in helping to shape a sustainable and resilient future. The increasing impacts of extreme weather events and prolonged climatic stressors underscore the need for collective action — within and beyond our community. This plan represents a community-driven dedication to achieving these goals and supporting global efforts to curb greenhouse gas emissions. Together, we can build a future that reflects our shared values and leaves a lasting legacy for generations to come.

Vision, Guiding Principles, & Strategic Priorities

This plan was developed in the context of Minnetonka's vision, which states that Minnetonka is an inclusive community committed to excellence where all residents, workers and visitors are welcome in a beautiful, sustainable place, supported by quality, dependable city services.

It is further guided by four principles including:

- **We earnestly commit to a beautiful, sustainable and healthy environment as a vital part of a stable, prosperous and thriving community.**
- **We responsibly deliver excellent public services and provide affordable opportunities to ensure access to all we serve.**
- **We ethically uphold community trust through proactive, inclusive public engagement, transparent communications, and the careful stewardship of our financial, natural, and capital assets.**
- **We nimbly lead our city into the future by anticipating community needs, pursuing innovation and adoption of new technologies, and forging collaborative partnerships with all sectors of society.**

The city has also identified six strategic priorities:

1. **Financial strength and operational excellence**
2. **Safe and healthy community**
3. **Sustainable and natural environment**
4. **Livable and well-planned development**
5. **Infrastructure and asset management**
6. **Community inclusiveness**

These strategic priorities reinforce the need to prepare the city to adapt to changes in weather patterns and to responsibly reduce emissions by transitioning away from fossil fuels.

Existing Conditions Summary

An Existing Conditions Report was prepared to support the development of Minnetonka's Climate Action and Adaptation Plan by assessing existing initiatives that contribute to climate mitigation and adaptation efforts, documenting current greenhouse gas emissions, and identifying opportunities to expand climate actions. While this section of the plan summarizes key findings, additional detail and graphics can be accessed via the complete "Existing Conditions Report" in the Appendix of this document.

Figure 1 Housing Type

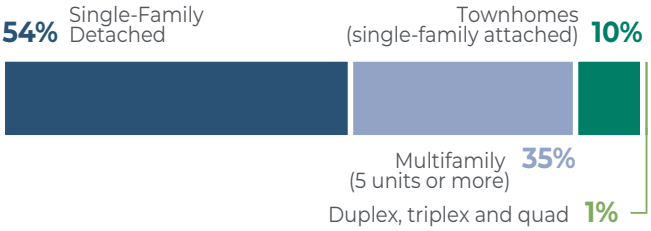


Figure 2 Commuting: Means of Transportation

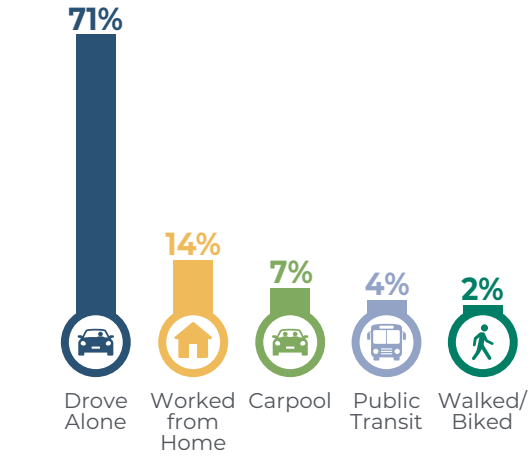
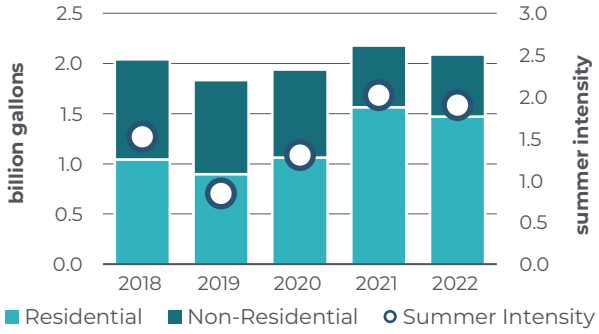


Figure 3 Water Use



Community Profile

The City of Minnetonka is home to more than 53,000 people. Some key takeaways related to climate vulnerability and action include:

- The population is wealthier than the State of Minnesota as a whole, with a lower poverty rate, making the community less vulnerable to climate impacts. The average energy burden (*the percentage of income used to pay gas and electric bills*) is 1%, which is less than the State average and considered low by Federal standards. However, about 900 households in Minnetonka are estimated to have a severely high energy burden of 10% or more.
- Half of Minnetonka's 28 square miles of land area is used for low-density housing, and most of those are owner-occupied single-family homes (*Figure 1*). In 2019, the average Minnetonka home used almost 20% more energy than the regional average. Parks and undeveloped open spaces make up the next largest land area. Multi-family housing, commercial areas, and roadways make up most of the rest.
- In 2021 71% of residents commuted to work by driving alone, which is a reduction from prior years as more people are working from home (*Figure 2*).
- Homes use more water than businesses in Minnetonka. Home water use varies based on weather conditions, with more used for irrigation during hot, dry summers (*Figure 3*). Minnetonka businesses have reduced their water use over the past five years.

Climate Hazards

As global temperatures rise, we can expect to see continued changes in weather events and ecosystems in regions throughout the world. Minnesota is among the **fastest warming regions in the United States** and is already seeing the effects of climate change. In Minnetonka, we can expect:

- **Hotter Summers:** more days above 90°F, more prolonged heat events
- **Warming Winters:** more freeze/thaw cycles, more icy conditions with more winter rain
- **Heavy Precipitation:** more heavy rain events
- **Drought:** potential for dry periods

These changes can lead to unsafe outdoor temperatures, poor air quality, flash flooding, and low water levels. They will impact the health and safety of residents and workers, alter ecosystems, affect recreational activities like fishing and winter sports, and cause damage to infrastructure.

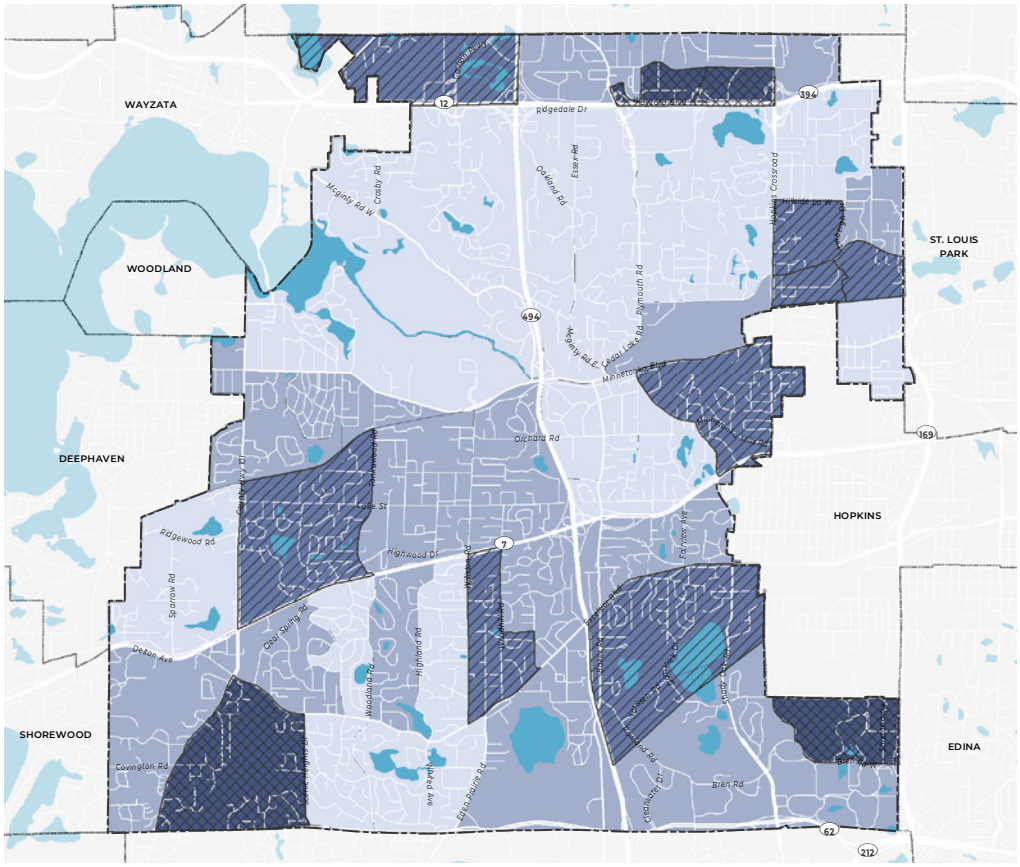
Vulnerability Assessment

In 2023, the city contracted Barr Engineering to conduct a vulnerability analysis to determine how it will be impacted by changes in the climate. The analysis mapped existing population vulnerabilities and current environmental conditions that could increase the community's vulnerability to current and future hazards. The analysis mapped locations related to the following vulnerabilities:

- **Population vulnerability:** Populations who tend to be more vulnerable to climate hazards include, but are not limited to, adults 65 and older – especially those living alone, Black and Indigenous populations, households with lower incomes, people with mental or physical disabilities, people with language barriers, and children under 5. Figure 4 includes a complete breakdown of analyzed demographics and shows where more vulnerable populations are concentrated in Minnetonka.
- **Land cover:** Minnetonka's 58% tree canopy coverage helps keep the city cool. However, several areas with limited vegetation and a lot of pavement and dark rooftops are vulnerable to high temperatures on hot days. Figure 5 shows how these areas overlap with vulnerable populations.
- **Building age:** People living in homes with minimal insulation and significant air leakage are more vulnerable to both extreme heat and extreme cold, especially when their energy supply is interrupted. Two-thirds of Minnetonka homes and many of its commercial buildings were built before Minnesota implemented an energy code for new construction and major renovations in 1976 (*Figure 6*).
- **Air pollution:** The major sources of air pollution, which can cause respiratory illnesses like asthma and chronic obstructive pulmonary disease, come from vehicle travel on I-394 and I-494, which intersect at the northern boundary of the city.
- **Flood susceptibility:** Much of the community is at some risk from flooding that would occur during a 100-year rain event, though not all flood prone areas shown on the map impact buildings or life/safety (*Figure 7*). Refer to the city's flood risk mapping (**www.minnetonkamn.gov/government/departments/public-works/engineering/water-resource-management/flood-risk-mapping**) for further information regarding your property's potential flood risk. There are several locations where vulnerable populations are also at risk for localized flooding

As part of this assessment, City staff were asked to share input where they saw the greatest vulnerabilities and strengths. They particularly noted the impact of flooding on utilities, transportation systems, and public buildings. Public safety during emergencies is a concern, especially among residents with lower incomes and elderly residents who are the most vulnerable. Impacts to the natural environment, especially trees and water bodies, were a key area of focus due to their prevalence in Minnetonka and importance to residents' quality of life.

Figure 4 Population Vulnerability



Key

- Highest Vulnerability Populations
- Medium-High Vulnerability Populations
- Medium-Low Vulnerability Populations
- Lowest Vulnerability Populations
- Water Bodies
- Municipal Boundaries

Vulnerability analysis based on five demographic characteristics:

1. ***Socioeconomic Status*** *(Cost Burdened Households, Family Income as percentage of AMI, Public Assistance or SNAP benefits, No High School Diploma)*
2. ***Household Composition*** *(Population 65 and Older, Population under 18, Single Parent Household)*
3. ***Health*** *(People with no Health Insurance, COPD Hospitalizations, Household with Any Disability)*
4. ***Ancestry*** *(People of Color, Limited English Proficiency, Population Foreign Born)*
5. ***Housing Infrastructure and Transportation*** *(Commuting via Public Transit, Population Density, Household with No Vehicle, Household with No Broadband)*

Date Source: Barr Engineering, U.S. Decennial Census; City of Minnetonka Climate Vulnerability Assessment, 2023

Map created by LHB

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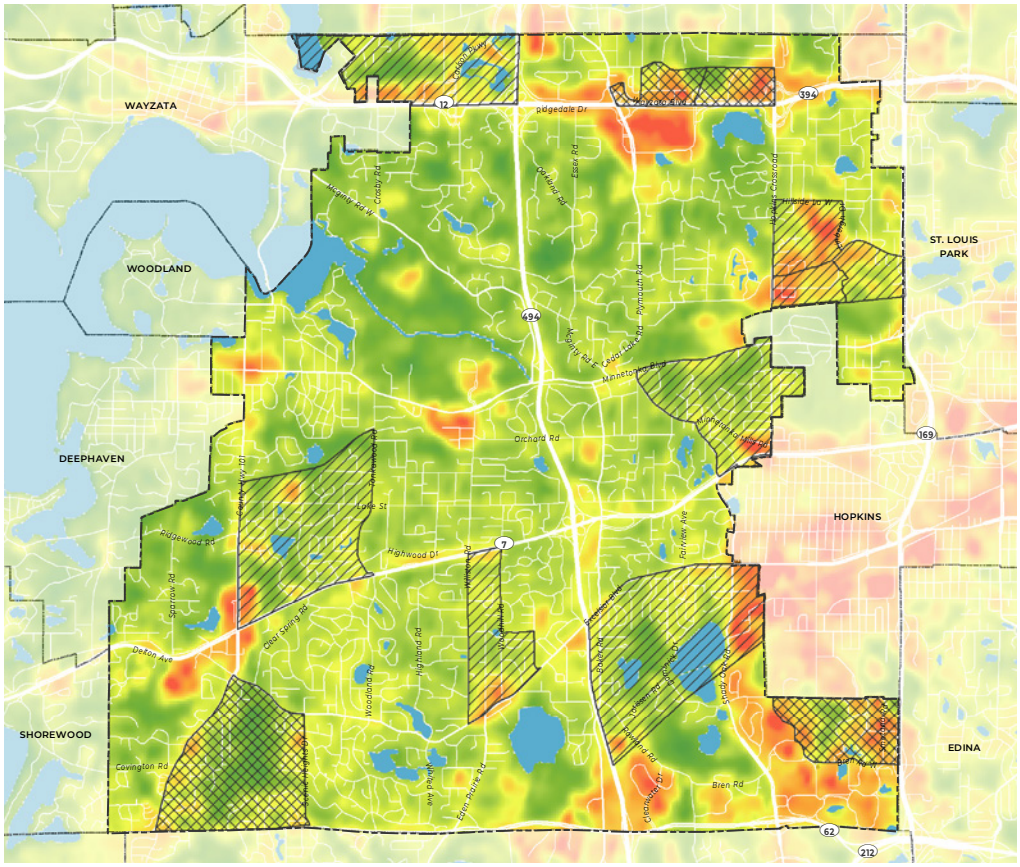
Figure 5 Land Surface Temperature



Key

- High Land Surface Temperature (125°F)
- Low Land Surface Temperature (74°F)
- Highest Vulnerability Populations
- Medium-High Vulnerability Populations
- Water Bodies
- Municipal Boundaries

Land Surface Temperature satellite image taken at noon on July 22, 2016. Air temperature at MSP was 90°F

Data Source: Barr Engineering, Metropolitan Council, 2016; City of Minnetonka Climate Change Vulnerability Assessment, 2023

Map created by LHB

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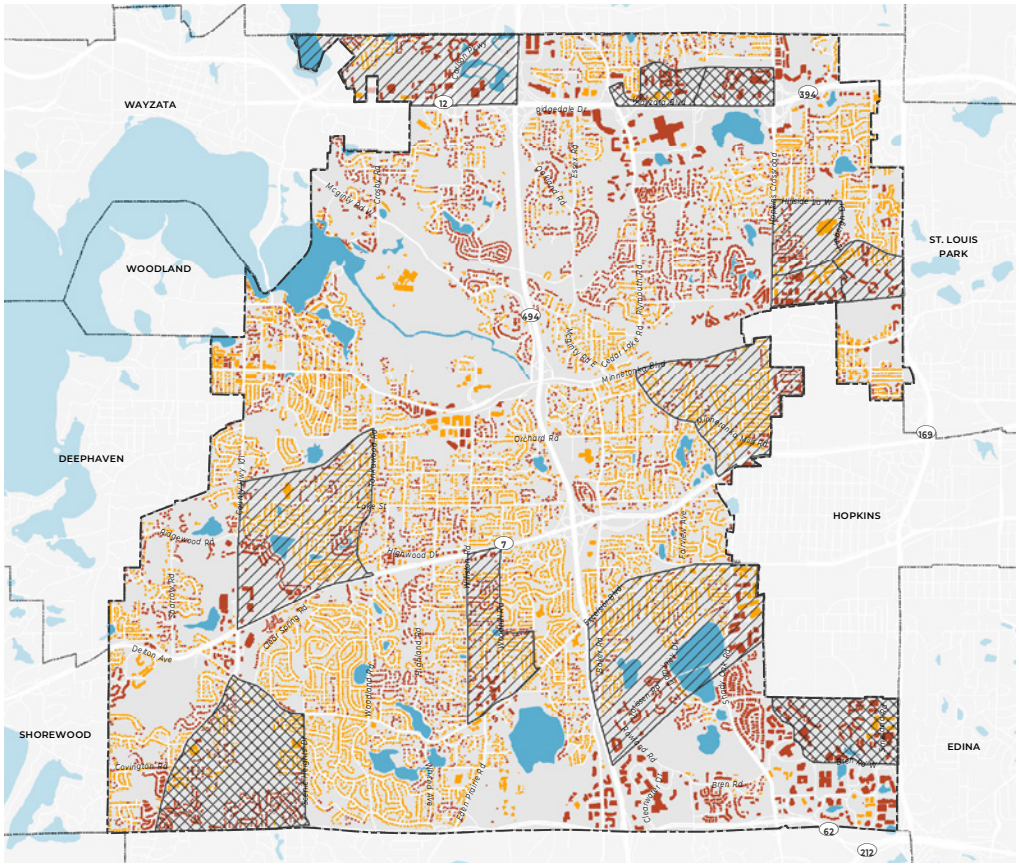
Figure 6 Building Age



Key

- Buildings Constructed Before 1976
- Buildings Constructed After 1976
- Water Bodies
- Highest Vulnerability Populations
- Medium-High Vulnerability Populations
- Municipal Boundaries

Data Source: Barr Engineering, City of Minnetonka Climate Change Vulnerability Assessment, 2023

Map created by LHB

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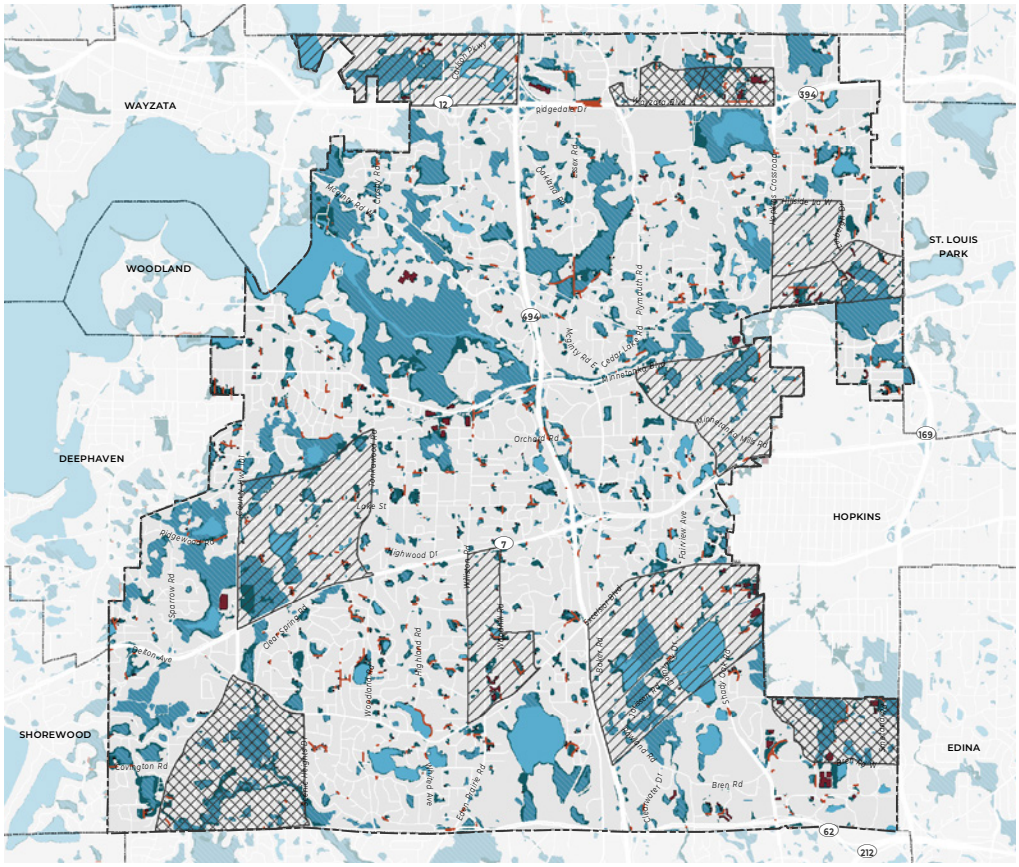
Figure 7 Flood Susceptibility



Key

- Road Impacted by 100-Year Flood Events
- Building Impacted by 100-Year Flood Events
- 1% Probability Flood Inundation (Atlas 14)*
- Wetland (NWI)
- Water Bodies
- Highest Vulnerability Populations
- Medium-High Vulnerability Populations
- Municipal Boundaries

** The flood inundation represents level pool inundation for the 1% probability (100-year) critical storm event. The data set does not include representation of flood elevations along stream corridors.*

Data Source: Atlas 14 Modeling, City of Minnetonka Climate Change Vulnerability Assessment, 2023

Map created by LHB

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Community-Wide Greenhouse Gas Inventory

In 2021, over 615,000 metric tons of carbon dioxide equivalents (CO_2e) were emitted due to activities occurring within Minnetonka. Over half of the community's greenhouse gas footprint is from the energy used in buildings. These emissions are split relatively evenly between the residential sector and the commercial/industrial sector, and emissions from electricity are equivalent to emissions from heating fuels such as gas, propane, and fuel oils.[1] An additional 44% of emissions were from vehicles traveling within the city's geographic boundaries, and the remaining 2% were from managing waste generated within the community (*Figure 8*).

Community-wide emissions have decreased by 32% since 2007, with reductions in every sector (*Figure 9 & Figure 10*):

+ **Emissions from energy used in buildings** dropped by 41%, with reductions in both commercial/industrial emissions and residential emissions.
  - Electricity emissions dropped by 58% due to a combination of improved electricity efficiency and using cleaner sources for electricity generation.
  - Emissions from heating fuels were about the same in 2021 as in 2007 but vary significantly from year to year based on the weather (*Figure 11*).
+ **Vehicle travel emissions** dropped by 18% – in part because of cleaner vehicles, but primarily due to the shift in travel patterns caused by the COVID-19 pandemic. The extent to which these reductions will be sustained remains to be seen. [2]
+ **Waste emissions** dropped by 18% due to reductions in waste generated.

As electricity emissions have dropped – especially in the commercial/industrial sector – emissions from vehicle travel and heating fuels – especially in homes – have become increasingly significant contributors to community-wide emissions.

Figure 8 Minnetonka 2021 greenhouse gas breakdown by activity, fuel type, and sector. (*Data source: Regional Indicators Initiative*)

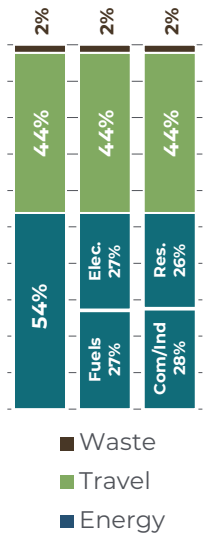
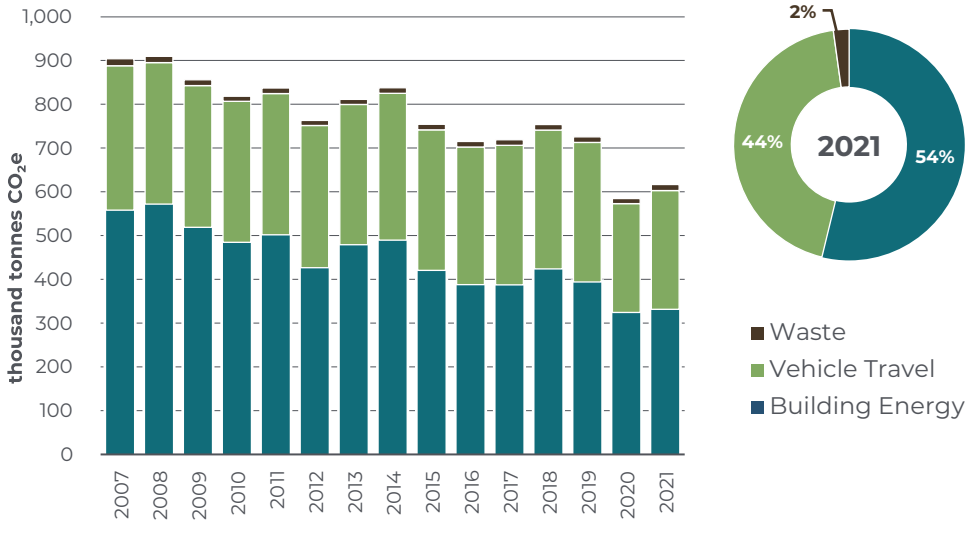


Figure 9 Minnetonka greenhouse gas emissions by activity from 2007-2021 (*left*) and 2021 breakdown by activity (*right*). (*Data source: Regional Indicators Initiative*)



1 *This plan uses the term "gas" rather than "natural gas" in order to drop some of its connotations as inherently climate-friendly. The gas we use for heating is a fossil fuel comprised primarily of methane – which is a potent greenhouse gas.*

2 *Note, transportation greenhouse gas emissions for this report are calculated by using data that tracks any vehicle that drives within the City of Minnetonka boundaries, including pass through traffic. As a city with multiple major highways and regional attractions (e.g. Ridgedale Shopping Center), there are vehicles trips counted that are not associated with people that live or work in Minnetonka.*

While tracking all vehicles trips within the city's boundary is a common data practice, It should be noted that the City of Minnetonka has limited ability to alter vehicular patterns and even less ability to alter vehicle trips that begin and end outside of the city's boundaries.

Figure 10 Minnetonka greenhouse gas emissions trends from 2007-2021 by activity. Percentages show the change in emissions from 2007 to 2021. (*Data source: Regional Indicators Initiative*)

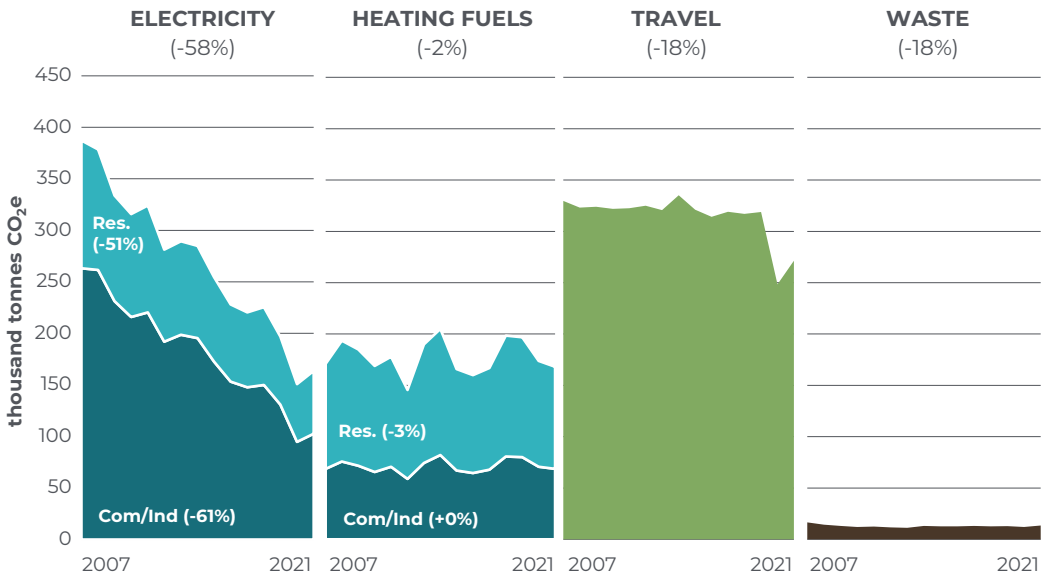


Figure 11 Minnetonka energy use by fuel type and sector from 2007-2021. Heating degree day (*HDD*) data is also shown to highlight the impacts of weather on heating fuels like fossil gas, propane, and fuel oil. Degree days represent the difference between the daily average temperature and 65 degrees Fahrenheit, so HDD is a measure of how cold it was in a given year. (*Data source: Regional Indicators Initiative*)

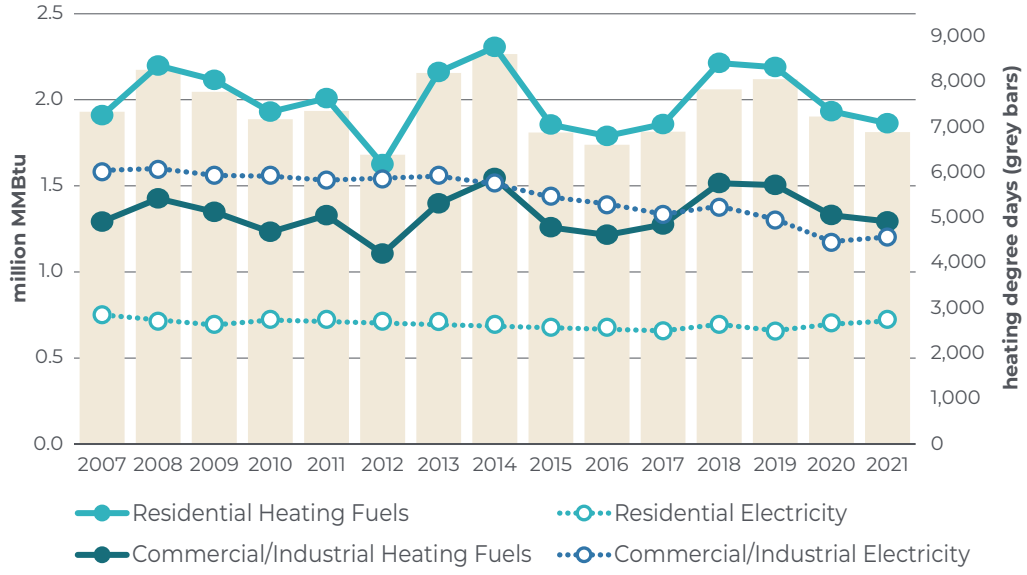


Figure 12 Minnetonka clean electricity contributions for 2020. (*Data source: Xcel Energy Community Energy Report and Certified Renewable Percentage Calculator*)

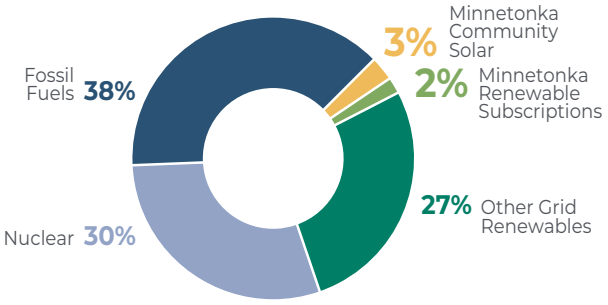


Figure 13 City operations greenhouse gas emissions by activity for 2022

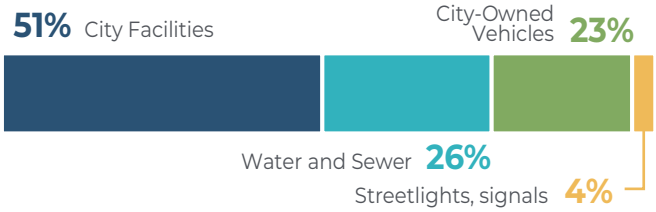


Figure 14 City operations greenhouse gas emissions by energy type

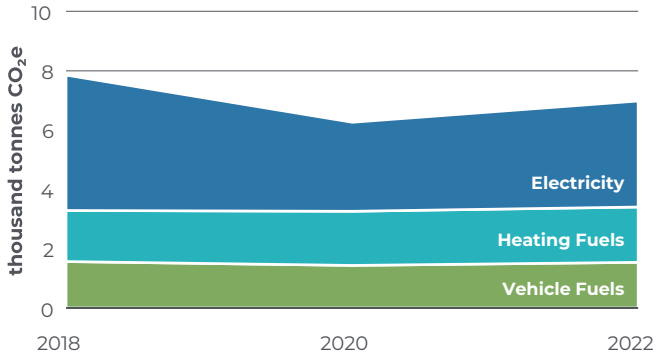
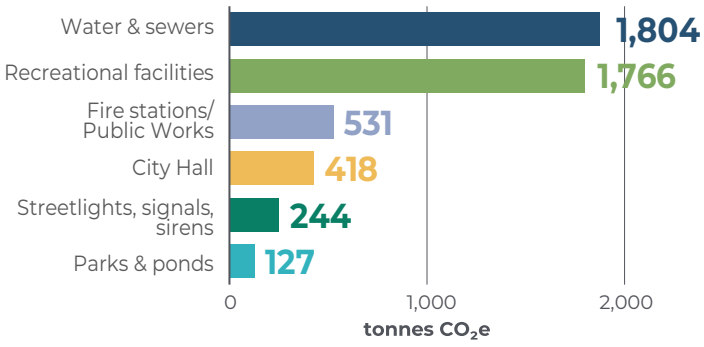


Figure 15 City operations greenhouse gas emissions from non-travel energy use by facility type for 2022



Local Renewable Energy

Minnetonka residents and businesses are contributing to the clean energy transition by investing in renewable electricity generation. In 2020, 5% of the community's electricity use was enrolled in utility clean energy programs (*Figure 12*). This includes on-site solar participating in the Solar*Rewards program (*less than 1% of the community's total electricity*), community solar subscriptions – including for 85% of the electricity used for city operations – and other renewable electricity subscriptions through Windsource and Renewable*Connect. When the impact of this local investment is combined with the state-mandated renewable portfolio standard and Xcel Energy's electricity generation mix, 33% of Minnetonka's electricity use is estimated to be from renewable sources and 62% is estimated to be from carbon-free sources (*which also includes nuclear*).[3]

City Operations Greenhouse Gas Inventory

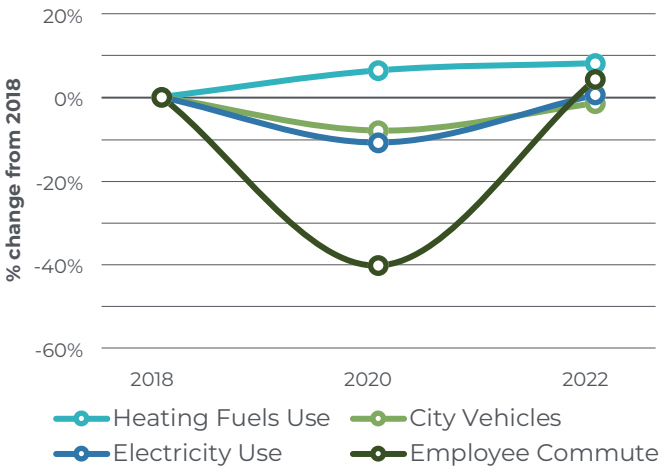
About 1% of the community's greenhouse gas emissions are from city operations. In 2022, approximately 6,800 metric tons of CO2e were emitted due to the energy used in city facilities, water systems, and vehicles (*Figure 13*), and an additional 1,000 metric tons were emitted due to indirect (*Scope 3*) activities such as employee commutes.

Key findings from a greenhouse gas inventory of city operations for the years 2018, 2020, and 2022 include:

- Emissions from city operations decreased by 13% from 2018 to 2022, primarily due to cleaner electricity provided by Xcel Energy (*Figure 14*).
- Together, the city's water system and recreational facilities generate over two-thirds of the total emissions from non-travel energy use (*Figure 15*).
- The city used about the same amount of energy for operations in 2022 as it did in 2018, with savings in some facilities – such as City Hall – offset by increases in other facilities (*Figure 16*).

*3 This does not account for the impacts of on-site solar that is not participating in Solar*Rewards, nor the purchase of renewable energy certificates (RECs) outside of the utility programs.*

Figure 16 City operations trends from 2018-2022



- There was a significant reduction in emissions from employee commutes in 2020 due to teleworking. Although some employees continue to telework one or more days a week, 2022 emissions were actually higher than pre-pandemic levels due to longer average commutes (*also shown in Figure 16*).

While city operations are the direct cause of only a small percentage of the community's total greenhouse gas emissions, the city has the greatest control over them. Reducing these emissions will save energy and public funds and serve as crucial demonstrations of the city's commitment and leadership, spurring action throughout Minnetonka.

Opportunities

Based on the findings from the existing conditions assessment, opportunities for targeted action were identified for both:

- **Adaptation/Resilience:** improving the ability of Minnetonka's people, natural systems, and built infrastructure to withstand severe weather events and adapt to the changing climate
- **Mitigation:** reducing the community's greenhouse gas emissions to limit its contributions to additional climate change

These opportunities were used to inform engagement efforts and to develop strategies and actions for the plan.

Climate Policies, Programs, & Plans

The City of Minnetonka has a strong track record of sustainability, natural resource protection, and climate action. Existing policies, programs, and plans were reviewed to identify what the city is already doing to impact greenhouse gas emissions and strengthen resilience. These initiatives serve as the foundation to continue and expand efforts across city departments as well as highlight where there are opportunities to add new policies and programs. The Existing Conditions Report includes the complete inventory of "Climate Policies, Programs, Plans" including:

- 2040 Comprehensive Plan
- Parks, Open Space, and Trail (POST) System Plan
- Natural Resources Master Plan
- Strategic Profile
- Water Resource Management Plan
- Capital Improvement Program
- Energy Action Plan
- Minnesota GreenStep Cities
- Emergency Management Plan
- Hennepin County Multi-Jurisdictional Hazard Mitigation Plan
- Water Efficiency Rebate Program
- Watering Restrictions

Community Feedback

The City of Minnetonka held several in-person and online engagement events across the Summer and Fall of 2023 to get community input on how climate action should be integrated throughout the city over the coming years.

In total, we received feedback from **around 850 participants**. To reach respondents, the City sent out three newsletters to almost 9,400 email subscribers, posted twice in the Minnetonka Memo which is sent to all residents, and posted three times on social media. Self-reported demographic input indicated that participants represented a similar age and race percentage as that of the entire City of Minnetonka. The following pages contain summaries of the in person and online engagement. See the "Community Feedback" section of the Appendix for more feedback.

In-Person Event Summary

Participants in these events were asked to provide input on what climate actions the City of Minnetonka should prioritize, as well as what their personal willingness was to take action regarding climate. Overall, the **70 in-person participants** responded positively, indicating they would support climate action through their own finances, time, and habits. Their top priority for the city was to protect Minnetonka's natural resources, followed by reducing carbon emissions and improving the quality of life for residents.

Focus Groups

Three Focus Group Meetings were held with select groups who represented unique viewpoints on the project process:

- Social service organizations, such as local food shelf, school district, and religious representatives, met to provide insight into how this plan could impact folks they serve. They noted that high utility costs are a concern and accessible education is important and suggest this plan incorporate renters, improved transportation, and food waste/ access considerations.
- Local volunteers, primarily from the Friends of Minnetonka Parks, noted the impact on plant and animal communities and the need to get more residents involved in things like converting lawn to native plant communities. The impact of drought and development on tree loss and increased runoff, as well as reduced wildlife sightings were of particular concern.
- Various business owners and property managers talked about their current best practices and where they see opportunity to do more. They noted that budget and lack of financing are particularly important barriers to making change happen more quickly.

In-person event participants used dots to vote on climate action willingness & priorities

Public Open House

A public open house was held in September of 2023. Nearly 30 people participated in the open house exercises. The majority supported climate action and virtually all support adaptation to deal with storm events, heat, waste management, and impacts to Minnetonka's natural resources.

Those who supported climate action especially supported solar and increased use of electric vehicles, but those who opposed it particularly felt that these shifts were detrimental for economic or geopolitical reasons. There was strong support from nearly all participants for changes such as adaptive planting of native and drought resistant species, climate-resilient infrastructure, assisting homeowners with making their houses more efficient, reducing waste hauling, composting, and public outreach.

Pop-Up Events

Three pop-up events were held over the summer of 2023 to meet people where they are, and engaged almost 40 participants. With the majority of responses from the open house and online survey representing the viewpoints of white homeowners, pop-up events were focused on gaining input from renter and BIPOC populations.

Two of the pop-up events were held at local apartment buildings (*Crown Ridge Apartments and The Preserve at Shady Oak*) to capture more input from Minnetonka's renter populations. A third pop-up event was held in conjunction with the City's "Everything Electric" event. Overall sentiment matched what was expressed during the public open house.

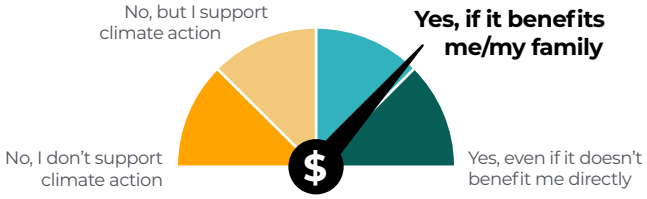
> **"Love all the action already being taken—it's time to be BOLD**

> **"Although I care very much about the environment and protection of our resources, I don't believe there is an immediate concern.**

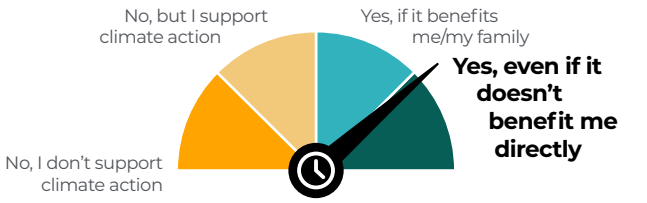
> **"Education is a first step. Keep the topic at the forefront and keep reminding folks that many people making one small change = big change.**

In-Person Feedback Summary

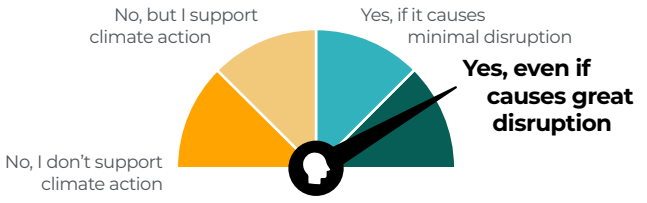
Willingness to **spend personal finances***



Willingness to **spend personal time***

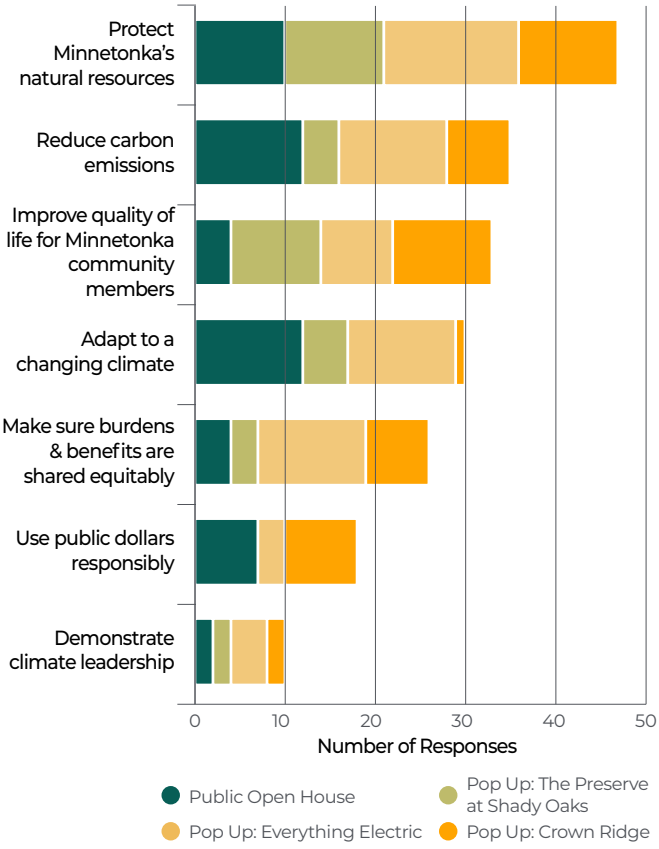


Willingness to **change personal habits***



*central dial marker shows weighted average of responses

Community priorities for Minnetonka climate work



Online Survey Summary

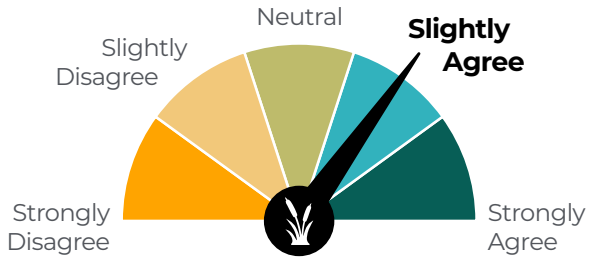
An online survey was held between August and September of 2023. The online survey was promoted at apartment buildings (*The Preserve at Shady Oak, Crown Ridge, and Minnetonka Heights Apartments*), Williston Fitness Center, Shady Oak Beach, Ridgedale Library, and the Minnetonka Farmer's Market. The survey was received enthusiastically, gathering the opinions of **775 online respondents**. Two hundred people were reached by city staff across various survey promotion events.

Overall, respondents generally expressed positivity and curiosity toward taking individual action and supporting city-led initiatives related to reducing greenhouse gas emissions and adapting to a changing climate.

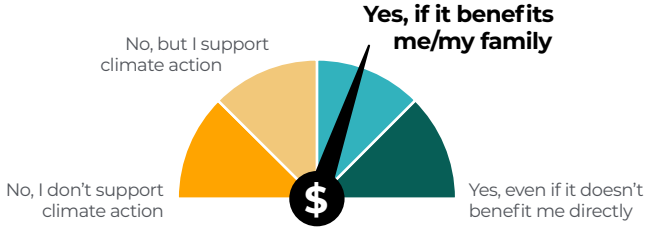
Of respondents who left comments, around 15% were opposed to the city taking climate action of any kind and expressed that tax payer dollars should not be used for this effort. The remaining 85% expressed support for city government taking steps to address climate change.

Online Feedback Summary

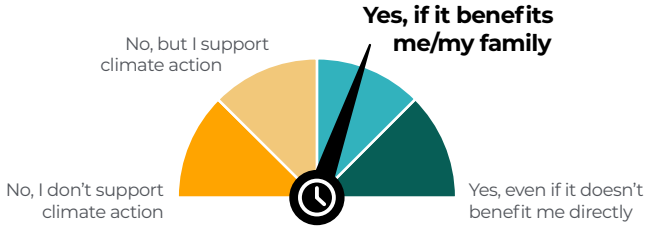
Minnetonka should set **ambitious goals** for greenhouse gas emissions reduction*



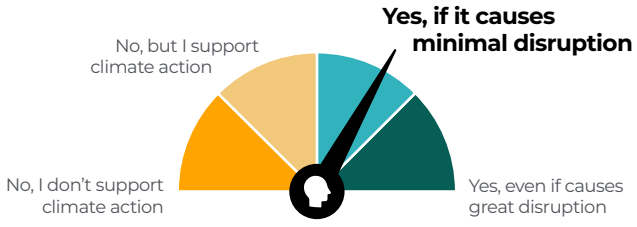
Willingness to **spend personal finances***



Willingness to **spend personal time***

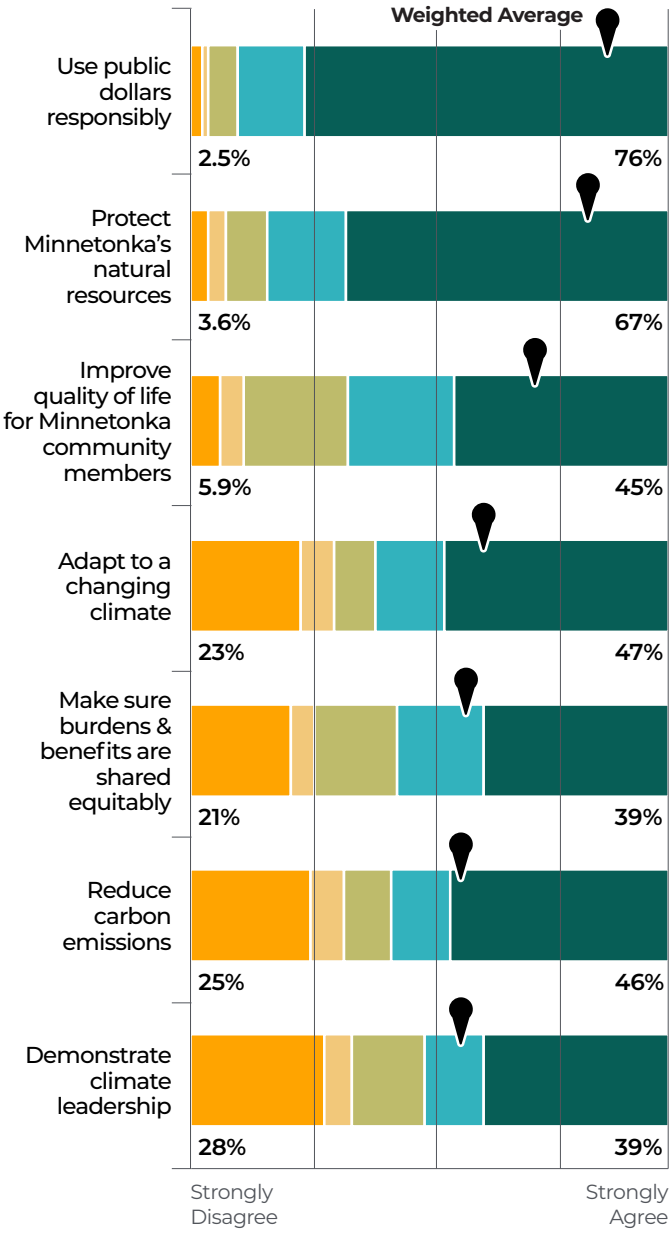


Willingness to **change personal habits***



*central dial marker shows weighted average of responses

Community priorities for Minnetonka climate work



Climate change impacts & weather conditions
respondents are most concerned about

- **Prolonged drought/drought conditions affecting waterbodies**
- **Poor air quality & its impacts on health**
- **Extreme heat events & their impacts on health**
- **Severe weather events**

Respondents would like to see the **City prioritize the following strategies:**

Built Infrastructure Priorities

1. Increase **use of trees & vegetation** to help manage rainwater & reduce urban heat
2. Use **pavement options that are permeable** & reduce urban heat
3. Ensure roads, pipes, bridges, & culverts **can handle future weather**

Social Wellbeing Priorities

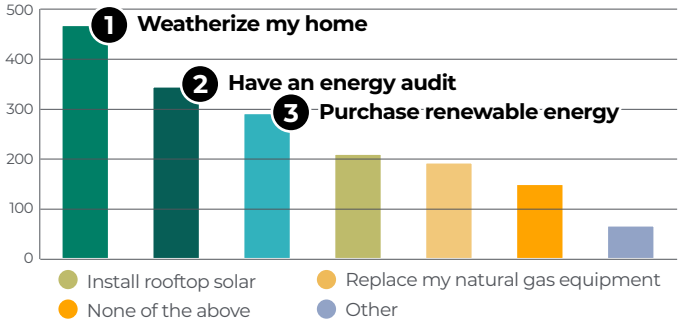
1. Meet **people's basic needs** (local food sources, housing, cooling options, etc.)
2. City **emergency response preparedness**
3. **Equitable benefits & outcomes** (economic, health, access)

Natural System Priorities

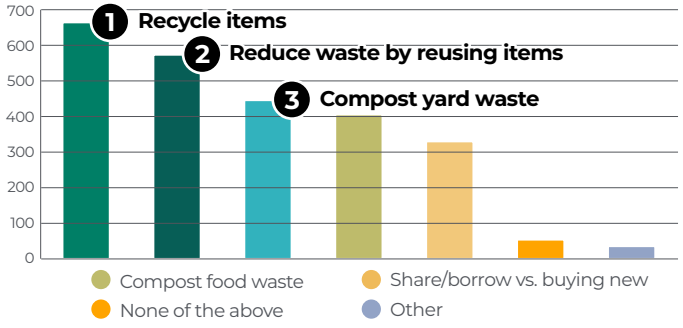
1. **Protect & manage water resources**
2. **Protect & restore plant & animal habitats**
3. Maintain & improve **health of natural areas** as conditions change **/ Replace traditonal turf grass** with diverse & pollinator friendly plantings

Respondents **have done, would do, or would like to learn more about** the following actions:

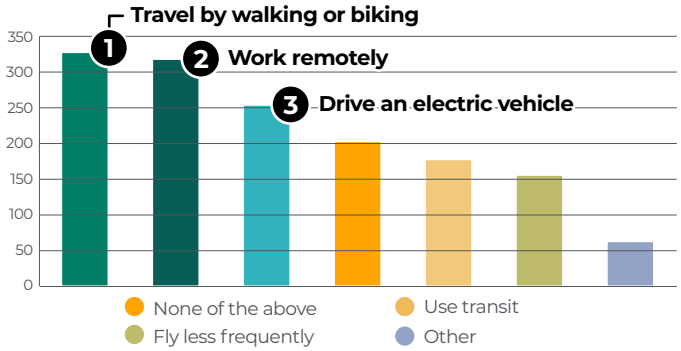
Actions related to **home energy**



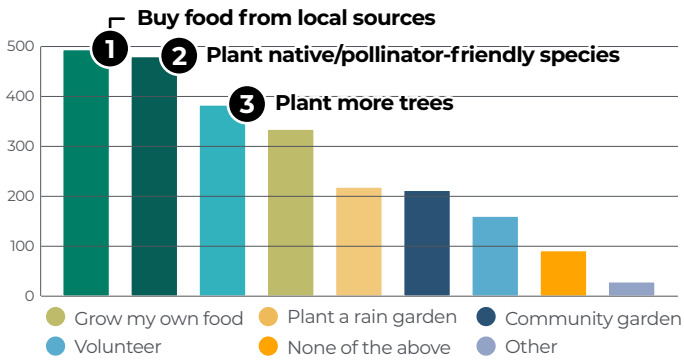
Actions related to **waste**



Actions related to **transit**



Actions related to **plants & food**



Goals & Targets

Photo by Jeff Larson

Resilience/Adaption Vision

The city has a vision to **strengthen community resilience by preserving natural resources, strengthening community connections, and preparing our infrastructure to withstand climatic changes and extreme weather events**. Achieving this vision will require supporting ecological adaptation, fostering a culture of collaboration and support among residents and neighboring communities, and integrating climate into public infrastructure decisions.

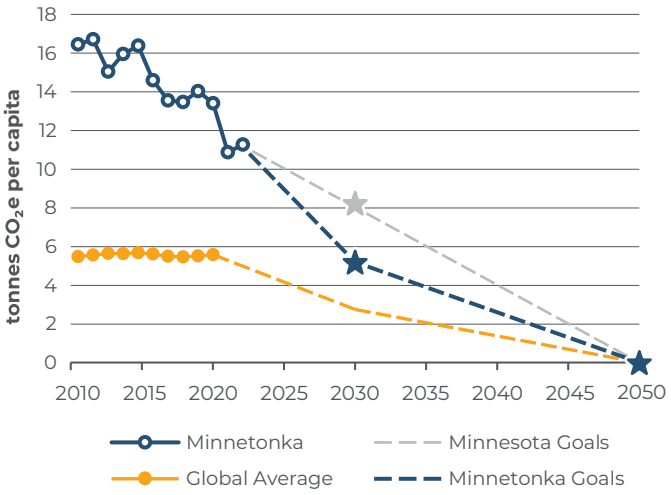
Greenhouse Gas Reduction Goals

Minnetonka aims to **reduce community-wide greenhouse gas emissions by 63%** per person by 2030 from 2018 levels and **achieve net zero greenhouse gas emissions by 2050**.[1]

Science-Based, Fair-Share

These science-based, fair-share goals were developed based on guidance from Minnetonka's Sustainability Commission, input from community members, and discussions with city staff. The goals are rooted in the need to keep the average global temperature rise below 1.5°C to avoid major risks to social, economic, and environmental safety, security, and well-being.[2] A global framework was used to calculate Minnetonka's fair share of the remaining global carbon budget – acknowledging that more highly-developed communities have a greater opportunity and responsibility for reducing emissions.[3]

Figure 17 Greenhouse gas reduction goals



Supporting Statewide Goals

Minnesota cities have been reducing their greenhouse gas emissions faster than the state as a whole.[4] This is due to faster progress in areas like renewable energy and building efficiency – which are accounted for in city inventories – than in sectors like food production, which often occurs outside of city limits. To meet our statewide goals of a 50% reduction by 2030 from 2010 levels and net zero greenhouse gas emissions by 2050, cities will need to meet these goals faster. Minnetonka's goal of a 63% reduction in per capita emissions by 2030 will help keep the state on track.

Climate Leadership + Partnership

Minnetonka's 2030 goal is among the most ambitious of the twenty Minnesota communities that have set comprehensive, community-wide greenhouse gas reduction goals.[5] This positions the community as a leader in the state and shows its commitment to near-term, meaningful action. But Minnetonka cannot achieve these goals alone. It will take statewide policy changes, regional partnerships, and economy-wide transformation. Minnetonka's 2050 target year for net zero emissions matches state, national, and global goals, reflecting the timeline expected to be needed for these transformations.

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1 These goals reference community-wide emissions calculated through the Regional Indicators Initiative following the U.S. Community Protocol. Minnetonka uses the same definition of net zero greenhouse gas emissions as the state: either no greenhouse gases are emitted or annual anthropogenic greenhouse gas emissions to the atmosphere are balanced by removals.

*2 In 2018, the Intergovernmental Panel on Climate Change (IPCC) published a **special report** that describes the devastating impacts of an average global temperature rise of more than 1.5°C above pre-industrial temperatures and shares potential pathways for reducing greenhouse gas emissions enough to stay under this threshold. In general, these pathways require global emissions to be cut in half from 2010 levels by 2030 and reach net-zero around 2050.*

*3 The World Wildlife Fund's **One Planet City Challenge** (OPCC) defines a methodology for setting emissions reduction targets that account for the fair allocation principles of equality, responsibility, and capacity. This methodology adapts the 2030 global science-based targets for individual communities by accounting for differences in socio-economic development. Using the Human Development Index (HDI) – a measure that combines national-scale metrics about human health, education, and standard of living – this methodology results in 2030 goals ranging from a 25% to a 65% reduction in per capita emissions from a 2018 baseline. The reduction goal for communities in the United States is 63%.*

*4 Regional Indicators Initiative, **"Making Sense of the Numbers"***

*5 Minnesota Pollution Control Agency, **"Minnesota Sustainability Index,"** accessed October 2023.*

This scenario shows Minnetonka achieving the following by 2030:

- All new buildings are all-electric and as energy efficient as possible.
- One out of every four existing buildings have undergone an energy-efficient retrofit and switched to electricity for space and water heating.
- 80% of the community's electricity is from carbon-free sources.
- One out of every three vehicle trips have been eliminated.
- One out of every five cars on the road are electric vehicles.
- Each person has cut their waste by 1.2 pounds per day and three-quarters of waste is recycled or composted.

By 2050:

- No fossil fuels are used in buildings, vehicles, or industrial processes.
- All electricity is carbon free.
- 90% of waste is recycled or composted.

Greenhouse Gas Reduction Scenario

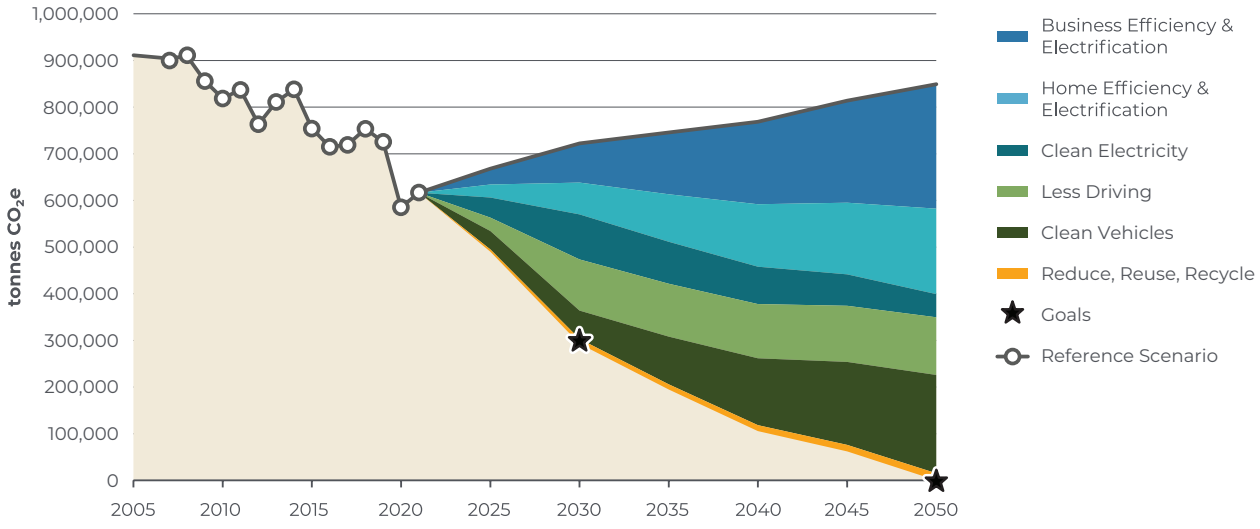
Achieving Minnetonka's greenhouse gas reduction goals will require rapid reductions in all sectors, through a combination of conservation/efficiency, clean energy, and carbon removals. Figure 18 shows one potential scenario. The white dots show historic emissions and the dark line at the top that extends to 2050 shows a reference scenario where the city grows in population and jobs, but everything else stays the same as in 2021. Each of the colored wedges show a reduction from this reference scenario that add up to meet the city's goals (*the black stars*).

Existing Policies & Market Trends

This vision for the future will require transformative change. Fortunately, Minnetonka is not taking on this challenge alone. Public policy and private investment continue to move us in the right direction. Several of key policies that will be moving the needle include:

- The new commercial building energy code pathway for the state, which will maximize energy efficiency by 2036.
- Minnesota's energy conservation requirements for utilities to reduce their electricity sales by 1.75% and gas sales by 1% each year.
- The requirement for all electricity sold in Minnesota to be carbon free by 2040.

Figure 18 Greenhouse gas reduction scenario



- The requirement for highway expansion projects to also include elements that support the state's goal to reduce vehicle travel by 20% per person by 2050.
- Cleaner vehicles due to both federal fuel economy standards and increased support for electric vehicles.

Local Action

Minnetonka can help these policies reach their full potential by ensuring full compliance with new building energy codes for construction projects, pursuing utility-funded energy conservation and electrification projects in Minnetonka, investing in local renewable energy and energy storage to support the system-wide transition, and identifying opportunities for local vehicle travel reduction projects that can be used to offset highway expansion projects.

These existing government policies – in combination with other market trends – are estimated to enable up to a 45% reduction in emissions per person by 2030 (*from 2018 levels*) and a 77% reduction by 2050. Additional local action is required to reach the City's goals (*see Figure 19*).

To get the rest of the way to Minnetonka's goals, the community will need to focus on three key areas:

Existing building efficiency and electrification: making homes and commercial buildings more energy-efficient and switching out gas equipment for electric at a faster rate than currently targeted by State policy.[6]

Vehicle travel reduction: reducing dependence on cars.

Electric vehicle adoption: supporting the faster adoption of electric vehicles.

The following section of this plan – Strategies and Actions – includes more detail on how to make a difference in these areas and identifies technical and financial resources that support this work.

Figure 19 Local action needed to meet greenhouse gas goals

Renewable energy – Photo by Thinapob - stock.adobe.com

6 *Less than 30% of the greenhouse gas reductions needed from buildings is expected to occur in new buildings. Significant work will be needed to reduce greenhouse gases in existing buildings.*

Strategies & Actions

As Minnetonka looks to achieve its greenhouse gas reduction goals and to adapt to a changing climate, it will require a concerted effort by residents, business owners, and the city. This section outlines a range of strategies and actions that will help to reduce greenhouse gas emissions across sectors as well as build climate resilience.

Strategies are the levers that can be pulled to achieve desired outcomes. For example, strategies to reduce emissions from buildings include using less energy (*conservation/efficiency*), using cleaner energy (*from renewable energy sources*), and switching from gas appliances to those that use clean electricity. Actions describe specific steps that can be taken within each strategy to move toward climate-friendly outcomes.

For more information and updates, follow the city's website: **Climate Action and Adaptation Plan | City of Minnetonka, MN (minnetonkamn.gov)**.

How To Navigate This Section

This section provides strategies and actions organized so that each audience (*residents, business owners, and the city government*) has clear direction on what they can do to reduce emissions and strengthen resilience. Links to external resources are underlined and blue, and connect users to more information, examples, and funding opportunities. Various relevant quotes that were pulled from this project's community engagement events and surveys have been sprinkled throughout this section and are identified by the bright orange box as shown below.

At the end of each audience's comprehensive list of strategies and actions, a summary has been included that can be pulled out from this document as standalone reference sheet.

For residents and business owners, these summaries include the full list of strategies and actions which are keyed by type (*financial investment, behavioral change, or time commitment*) and impact level (*from low to high*). Users can choose which actions are relevant or feasible for their situation, and add them to their "Personalized Action Checklist" based on their desired time frame.

For city staff, strategies and actions have been organized into a table that identifies each action's impact level and required resources. The table also includes examples and funding opportunities for each strategy.

"Relevant quote pulled from community engagement!

Climate-Friendly Homes

Climate-friendly homes have well-insulated walls and roofs to reduce the need for heating and cooling. They incorporate sustainable building materials, use energy-efficient appliances, and maximize water conservation. They are powered by clean energy and promote waste reduction. Outside, residents and multi-family property managers can improve resilience with landscaping that supports a wide range of plants and animals, minimizes water use, and effectively manages rainwater. Residents of climate-friendly homes have access to multiple transportation options that reduce their reliance on single-occupancy vehicles.

As this plan is implemented, the City of Minnetonka will take care to ensure programs don't inadvertently harm vulnerable populations. For example, in some cases switching appliances from gas to electric may increase utility bills. Any increase in cost could be offset by providing additional incentives, rate adjustments, and/or increasing access to income-qualified clean energy programs. This section provides strategies, actions, and resources that Minnetonka homeowners, renters, and property managers can use as they work to reduce their climate footprint and improve the safety and maintainability of their homes as the climate changes.

Home Emissions

Over a quarter of Minnetonka's emissions are from household energy use. The community's homes use nearly 20% more energy than the regional average and are very weather-dependent. The emissions come from the gas used for space and water heating as well as cooking, and the electricity used to run appliances and lighting. Emissions from homes have dropped by 29% since 2007, driven by modest reductions in electricity use paired with significantly cleaner electricity being supplied by the grid. Backed by a new state law, the electric grid continues to get cleaner and will be completely free of greenhouse gas emissions by 2040. Participating in renewable energy programs can help support this transition.

Unlike electricity, Minnetonka homes are not using less gas than they were in 2007 and gas use varies widely based on the weather. Burning gas is not getting cleaner and also releases other pollutants – in addition to greenhouse gases – that can cause health problems. Reducing emissions from home energy use can help positively impact the climate, lower energy bills, improve health, and ensure safety and comfort even when the energy supply is temporarily cut off due to severe weather.

The primary strategies to reduce emissions in homes are to 1) use less energy through efficiency and conservation, 2) move from gas-fueled appliances to electric, and 3) participate in clean energy.

Energy Efficiency/Conservation

The most cost-effective strategy to reduce emissions is to simply use less energy. This can be done by insulating walls and roofs, updating old appliances to higher efficiency technologies, turning off appliances that are not in use, using smart appliances and thermostats to conserve energy, and replacing light bulbs with high-efficiency LEDs.

- **Get a Home Energy Audit.** Energy professionals provide **in-home visits** to assess and recommend energy improvements that may include air sealing and insulation, more efficient appliances and lighting, as well as other energy improvements. They can provide a detailed plan, offer a list of qualified contractors, share financing options, and help navigate rebates and tax incentives.
- **Weatherize your home.** Home weatherization includes taking steps to improve the air sealing and insulation of your home. A properly weatherized home reduces energy costs, improves comfort and health, and reduces vulnerability to power outages and extreme weather.
- **Upgrade appliances to higher efficiency models.** When updating appliances, look for the ENERGY STAR label to ensure efficient performance and save money on annual energy use.
- **Replace incandescent light bulbs with LEDs.** LED technology has changed home lighting. Residents can find lights with broad color temperatures, wide ranges of brightness, and smart features while using less than 10% of the energy it takes to operate a 100W bulb.

Air source heat pump – Photo by Nancy Pauwels - stock.adobe.com

Induction stovetop – Photo by ©WavebreakMediaMicro - stock.adobe.com

- **Install smart thermostats.** Smart thermostats automatically adjust heating and cooling based on which spaces are occupied and the level of moisture in the air. They can also be controlled remotely to ensure your home is comfortable when you arrive.
- **Install low-flow shower heads and faucets.** Using less water not only preserves our water resources, but also reduces emissions by using less energy to treat, move, and heat the water.
- **Hang dry laundry.** Drying laundry on a line or rack will help reduce energy use and contribute to longer-lasting clothes.
- **Use your windows.** Open windows on comfortable days, rather than running air conditioning. On very hot days, close blinds on windows facing the sun. Close curtains and blinds on very cold days to reduce drafts. Upgrade to more efficient windows if yours are old.

Utility rebates from **Xcel Energy** and **CenterPoint Energy** are available for many of these actions.

Electrification

Many homes in Minnetonka use gas furnaces and boilers, water heaters, clothes dryers, and cooking ranges. These appliances generate greenhouse gas emissions through the combustion of gas as well as the escaped methane from gas pipes and connections. In addition to emitting greenhouse gases, gas appliances create other pollutants that contribute to unhealthy indoor air quality and pose safety risks from leaks. Switching to electric appliances will reduce emissions and improve home safety.

- **Upgrade electric panel.** Switching to all electric appliances may require more capacity than is currently available from a home's electric panel. Upgrading to smart panels can help increase capacity and reduce energy use through better load management.
- **Replace gas heating equipment with a cold climate air-source heat pump.** Air-source heat pumps that are designed for cold climates can provide both heating and cooling by efficiently transferring heat between outdoor and indoor air. Technology for air-source heat pumps is rapidly advancing and options are available both for homes that have existing ducts to distribute conditioned air as well as for homes without ducts, such as those heated with a boiler. A good resource to learn more about heat pumps and find an installer is the **Minnesota Air Source Heat Pump Collaborative**.
- **Replace gas heating equipment with ground-source heat pump.** Ground-source heat pumps can heat, cool, and supply hot water to a home by transferring heat to or from the ground, which stays about 55 degrees F throughout the year. This technology can reduce energy bills up to 65% compared to traditional HVAC units. Learn more about this technology from the **U.S. Department of Energy**.
- **Install an electric clothes dryer.** Electric clothes dryers can help reduce emissions by switching to a cleaner energy source than gas and using energy more efficiently. Look for **ENERGY STAR** models.
- **Replace gas range with induction.** Induction ranges are powered by electricity and provide greater control over temperatures, faster boiling, and better energy efficiency than gas stoves. They

also eliminate the health and safety concerns from carbon monoxide and other harmful pollutants that are released into the air when gas is burned. Compared to electric coils, induction ranges are easy to clean and are safer – only heating the cookware rather than the surface of the stove top.

- **Replace gas water heater with a heat pump water heater.** Electric heat pump water heaters are more efficient than other options and – when paired with a smart meter – can be programmed to use energy when it is cleaner and less expensive to generate.
- **Switch to electric outdoor equipment.** Using electric equipment for yard maintenance (*snow blower, lawn mower, etc.*) reduces noise, air, and soil pollution while using a cleaner source of energy.
- **Choose electric recreational equipment.** Connecting with nature and experiencing the great outdoors has a climate footprint. Choosing electric boats, ATVs, snowmobiles, and other outdoor recreational equipment helps protect the natural resources they are used to experience by reducing noise and air pollution and using cleaner energy sources.

State and federal incentives are available for many of these technologies. Residents who earn 150% or less of the area median income (*less than approximately $168,000 for a family of four in 2023*) are eligible for rebates of up to 50% of the cost of the equipment. Residents who earn less than 80% of area median income (*less than approximately $89,000 for a family of four in 2023*) are eligible for rebates up to 100% of the cost of the equipment. These rebates are available for all renters and homeowners of all housing types.

Tax credits are also available for many of these technologies, regardless of income. These incentives will be available until 2033. More information can be found on **Rewiring America's website**. Specific recommendations for renters can be found on the same site and additional tips are available from the **Citizens Utility Board**.

The Minnesota State Legislature established funds to complement the federal tax and rebates for energy efficient technologies. Follow **this site** for program updates.

> **"Would like to see more charging stations and more electric cars/lawnmowers/ leaf blowers. This will cut down on noise as well.**

> **"How can the City help me with the IRA** [Inflation Reduction Act] **credits & rebates?**

Clean Energy

In the 2023 legislative session, the State of Minnesota established a requirement for energy utilities to provide **100% carbon free electricity by 2040**. This goal can be achieved on a faster scale as more consumers participate in the clean energy transition. There are several ways to access clean energy and save money on utility bills.

- **Install rooftop solar.** For homes with a good access to solar — where trees or other obstructions do not block the sun — rooftop solar can be a great way to meet your electricity needs with clean energy while saving money. **Tax incentives** are available for up to 30% of system costs through 2033. Xcel Energy also offers a production incentive through its **Solar*Rewards program**, which also includes an up-front incentive for income-qualified residents that will cover much of the cost of a new system.
- **Subscribe to community solar gardens.** Minnetonka is a heavily wooded community, which means rooftop solar is not a good option for many residents. For homeowners who do not have a good solar resource and residents who do not own their home, community solar gardens are an alternative to rooftop solar. Minnesota has changed its community solar garden rules to make it easier for residents to **subscribe to a solar garden**.
- **Participate in green power purchase programs.** Xcel Energy offers **Renewable*Connect Flex** for residents to support new utility-scale renewable energy.

Travel Emissions

Transportation makes up an increasingly large share of Minnetonka's emissions – 44% in 2021 – and the city has more vehicle traffic per resident than the regional average. These emissions are generated from tailpipes of cars, trucks, and other vehicles that use liquid fossil fuels (*e.g., gasoline, diesel*). Strategies to reduce emissions from travel include driving less and driving cleaner vehicles.

Drive less

The most effective strategy to reduce travel emissions is to drive less. Taking fewer trips and using low- or no-carbon methods to travel will help to reduce both emissions and pollutants that contribute to poor air and water quality. According to the **Metropolitan Council**, only 2% of Minnetonka's work commuting is done by walking or biking despite over 10% of commutes being within a 10-minute driving radius.

- **Choose biking and walking.** For shorter trips, consider biking or walking to destinations. For longer trips try electric bikes. Adding active transportation into your day can have many positive health benefits. Electric bikes are growing in popularity as an easy and fun alternative to driving. The State of Minnesota has a **rebate for electric bikes** that will be available until 2026.

> **"More walkability/bikeability. For most in Minnetonka, a car is the only option.**

> **"How can we have quick and easy public transportation around the city, so that we drive our own cars less.**

- **Join a walking or biking school bus.** Movements across the country are encouraging kids to bike or walk to school by providing safe, fun, and community-driven options. Parents and teachers can help organize kids to join together to form a "**walking school bus**" or a "**bike bus**" as they make their way to and from school.
- **Use transit.** Explore **transit options** for commuting to work and traveling to sporting events, restaurants, and other entertainment venues. The light rail extension will make trips into downtown Minneapolis more accessible for Minnetonka residents.
- **Reduce trips.** Carpooling, combining errands, and telecommuting can all help reduce the number of trips that are needed.

Drive cleaner

Traditional combustion vehicles not only emit greenhouse gases, but also generate particulates and other air pollutants. Using more efficient and cleaner vehicles can help reduce all pollutants, contributing to cleaner air and water.

- **Use efficient vehicles.** Personal vehicles have become larger, which requires more energy to drive. In addition to generating more emissions per mile, large vehicles are more dangerous to other road users like pedestrians and cyclists. Smaller, more efficient vehicles can help reduce emissions and take up less road space, creating a safer environment for all users.
- **Use electric vehicles.** Electric vehicles offer a cleaner alternative to traditional combustion vehicles. Ranges and charging infrastructure have expanded greatly in the past several years and these vehicles are now a viable option to reduce greenhouse gas emissions and other pollutants. **Federal tax incentives and rebates** are available for qualified electric vehicles and charging equipment.
- **Use zero emissions vehicles.** Electric vehicles are currently the leading technology for zero emissions vehicles. That could change as new technologies advance and become commercially available. **Vehicles that are currently considered zero emissions** include plug-in electric, plug-in hybrid electric, and hydrogen fuel cell cars.

Waste Emissions

Although waste management is only a small percentage of Minnetonka's total emissions, waste reduction strategies also help reduce upstream emissions and other environmental impacts that result from the production of household goods. Strategies to reduce emissions from household waste are to 1) consume less and source local goods, 2) reuse goods, and 3) recycle and compost.

Reduce

Much of the emissions from waste occurs before goods are purchased. Reducing the amount of waste generation requires changing our purchasing behaviors so that we buy fewer new goods and fewer single-use items that cannot be recycled.

- **Buy less.** Reduce consumption of unnecessary goods by considering the need for and on-going use of items before buying. Avoid single-use items.
- **Buy local.** Replacing purchases of goods that are produced far away with locally-made or -grown goods reduces emissions from unnecessary travel and supports the local economy.
- **Eat local.** When possible, choose locally-produced, sustainably farmed food (*or grow it yourself*) and choose plant-based foods more often.
- **Buy used or share.** Many items are disposed of before the end of their useful lives. Used items can be purchased through online marketplaces, garage sales, and thrift stores. Many communities have "buy-nothing" groups on social media pages where participants can post items they are looking for or what they are trying to give away.

Reuse Items

Many items are purchased and seldom used. By reusing items or allowing someone else to reuse those items, we can slow the waste stream and lessen new purchases.

- **Reuse or donate.** Items that are in good condition can be used multiple times or donated rather than disposing of them.
- **Repair.** Use programs like **Hennepin County's Fix-It Clinics** that offer guided assistance to fix small household appliances, clothing, electronics, mobile devices and more.

> **"If there were a community tool "library" that would enable us to check-out or use tools without buying.**

> **"I would like to see some options for organics and reduction in plastic's entering the waste stream for those of us who live in apartment and condo buildings.**

> **"I recycle/donate what I can, but I'd like to know how to dispose of items responsibly... Is there a better option than throwing them in the garbage?**

> **"Clear information regarding the technology Hennepin County is currently using for recycling -we're all confused!**

Recycle/Compost

Many items that are disposed of into the trash can be recycled, which avoids the emissions from burning this waste and enables the materials to be put back into the economy as a new item.

- **Use City and County recycling services.** Easy to recycle items like glass, aluminum, and unsoiled paper products can be recycled through city and commercial waste services. Organic waste can be dropped off at **city drop-off centers** to be composted. Learn more about what items can be recycled and what to do with hard-to-recycle items like hazardous waste through **Hennepin County**.

Pollinator-friendly plantings – Photo by USFWS

Protect habitat – Photo by Lawrence Baill

Volunteer to help improve open spaces – Photo by City of Minnetonka

Climate-Friendly Yards

Turf grass in lawns is the single largest irrigated crop in the United States, covering 40 million acres across the country. Re-thinking how all of this space is used, planted, and maintained can make a large impact. Traditional suburban yards are not only labor- and resource-intensive, they also contribute to polluted rainwater runoff while failing to provide any ecological value for humans and animals alike.

Implementing more climate-friendly practices in your yard can lessen long-term costs, enhance natural habitat, reduce chemical inputs and pollutants, effectively manage rainwater, store carbon, and beautify your landscape. There are budget and maintenance considerations to implementing non-traditional strategies, but financial and educational resources are available to help overcome barriers. Strategies to make your yard more climate-friendly include creating and protecting habitat and increasing drought tolerance.

Create & Protect Habitat

There are over 500 species of bees native to Minnesota alone, who – in combination with other pollinators like butterflies, moths, and certain birds – need native flowers to survive. Many actions can be taken in your yard to provide habitat and food to these essential species, while actually reducing the cost and labor needed to keep it looking healthy. You can start by applying to the Resilient Minnetonka program to find education, resources, and options for technical assistance, and funding **resources from the City of Minnetonka**. Here are some actions to consider:

- **Reduce lawn inputs.** Lawns provide valuable space for outdoor activities, but maintaining them requires significant time and inputs – including water, landscaping chemicals and fuel – that harm the natural environment. Property owners can reduce those impacts by using shade- and drought-tolerant fescue grasses and mowing to a height of three inches every two to three weeks. Less frequent mowing saves time and fuel while allowing grasses to build deeper root systems. Less irrigation is required and plants are healthier overall.

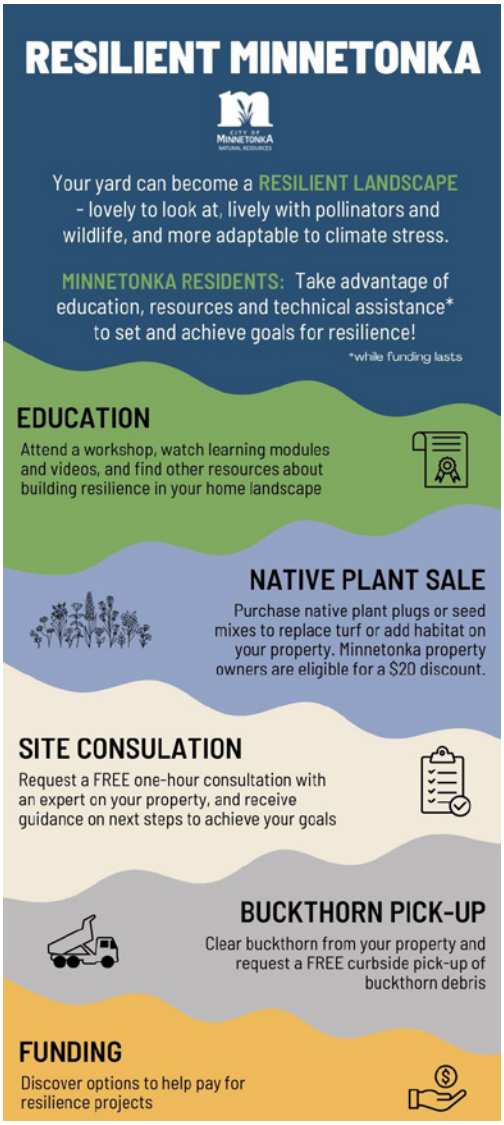
- **Choose alternatives to traditional turf grass.** Instead of having to frequently mow, irrigate, and fertilize a traditional turf grass yard, explore alternatives like native prairie or shade plantings, perennial ground covers, low-input turf, or bee lawn. Consider a goal of enhancing 30% of your property by planting one of these options. After these alternatives are established, the reduced maintenance needs will result in less energy consumption from power tools (*like lawn mowers*), less water consumption, and less rainwater runoff while providing important habitat for pollinators and an aesthetically pleasing yard.
- **Plant species that benefit pollinators.** Creating beds of native plants that pollinators love is a great way to establish habitat and is an action that can happen at multiple scales. According to Blue Thumb, a 10'x10' pocket planting can be enough to provide pollinator habitat, while a pollinator meadow is the most beneficial choice for diversity.
- **Establish a rain garden.** Rain gardens not only create pollinator habitat, but also help prevent rainwater that lands in your yard from running off of the property, capturing pollutants as it crosses paved streets and sidewalks before entering local lakes and streams. Instead, implementing a rain garden helps you keep that rainwater close to where it lands and allows it to slowly infiltrate straight into the ground. In addition to protecting water bodies from pollution, this also reduces the risk of flash flooding during a rainstorm.
- **Plant new trees and shrubs.** Trees and shrubs offer a multitude of benefits, including offering shade, providing habitat for animals, storing carbon, absorbing stormwater, and more. When planting new trees and shrubs, it is important to do so properly to ensure they start off strong and have a long, healthy life. Providing good soil conditions and keeping them watered during the growing season, particularly in the first two to three years of their lives, is very important for their survival. Take advantage of City resources on how to care for young trees and the annual tree and shrub sale.
- **Take care of existing trees.** Providing mulch around trees to maintain moisture and prevent weeds and pruning periodically to remove deadwood and improve airflow through the branches are both great ways to keep your trees healthy. If you have a healthy ash or elm tree on your property it is important to treat them for emerald ash borer or Dutch elm disease respectively.
- **Discuss alternatives with your landlord.** If you are a renter, it may still be possible to improve the landscape of your building. Ask if your landlord is open to discussing the strategies described above and the benefits for their long term maintenance costs, as well as climate adaptation. You may also ask if you could have space for a small vegetable garden, fruit trees, or other outdoor amenities you would enjoy.
- **Volunteer to help improve other open spaces.** For those without their own outdoor space, or anyone with additional time and willingness, there are several local organizations who help maintain public open spaces with projects like buckthorn removal, native seed collection, and planting activities. Consider organizations like Friends of Minnetonka Parks or Minnesota Water Stewards.

> **"I appreciate the tree sale in the spring. That is a great opportunity to add additional carbon eating species to my property.**

> **"More about the "how to" of planting a pollinator garden or a rain garden.**

> **"Resources for renters to participate in sustainable/ environmentally friendly practices**

> **“ More communication to residents about using water wisely & replacing turf grass with drought-resistant native grasses, plants, & trees.**



Increase Drought Tolerance

According to the United States Environmental Protection Agency (*EPA*), the largest water expenditure in a typical home is outdoor water use, and 50% of the water used for lawn/garden irrigation is wasted, in part, due to overwatering. Changing how we water lawns and using strategies that reduce water use in the first place to increase your home's drought tolerance can save homeowners both water and money.

- **Follow local watering guidelines/restrictions.** As the EPA states, timing is everything! It is important to know how much water your lawn and landscaping needs – and when this water is needed – before setting up irrigation practices. Most species only need one inch of water or less per week. The City of Minnetonka helps with this by outlining **lawn watering restrictions** that should be followed every year between May 1 and September 30. These strategies include avoiding watering midday and limiting days that watering can take place
- **Install WaterSense sprinkler heads and irrigation controllers.** **WaterSense labeled products** are EPA-certified, high-performing products that use at least 20% less water than older products. The City of Minnetonka offers **residents rebates** of up to $200 per item for installing more water-efficient products.
- **Install a rain barrel or cistern.** Building or installing a pre-made **rain barrel or cistern** is an easy way to capture and collect rainwater on your property, creating a free source of non-potable water. Collected rainwater is a great alternative to potable water and can be used for irrigation or other outdoor water uses.
- **Choose native/drought-tolerant species.** One of the easiest ways to reduce water waste is to **select plant species** that are already adapted to our local climate. Species native to Minnesota have deep roots that can break up compacted soil and allow for more water infiltration into the ground, also making them more tolerant to drought conditions.

Climate-Ready Home

As global temperatures rise, Minnetonka residents can expect more extremes in weather patterns. This can include drought, as in recent summers, as well as heavy precipitation events that lead to flooding. Prolonged heat events and extreme storms can threaten power systems and pose a risk to health and property. Preparing your home for such weather events can help increase community resilience.

- **Install a metal roof.** When replacing your roof consider a metal roof or other durable material that can stand up to hail and damaging winds. Metal roofs can also provide energy savings in the summer as compared to asphalt roofs due to their ability to reflect heat rather than absorb it.
- **Install a lightning rod.** Lightning strikes are an increasing cause of house fires in Minnetonka. Consider installing a lightning rod to help reduce the risk.
- **Prepare your yard for heavy rain.** Ensure that your yard slopes away from your house for at least 8-10 feet to help water move away from your foundation and protect your basement from flooding. If water remains an issue, consider installing draintile and/or a sump pump connected to back-up power.
- **Plant your yard in strategic ways.** Plant evergreen trees/shrubs along the northwest exposure of your home to protect it from winter winds and plant deciduous trees and shrubs along the southern exposure of your home to protect it from summer sun while allowing heat gain during winter months. Both strategies effectively reduce home energy costs.
- **Control mosquitoes and ticks.** Reduce the risk of mosquito and tick-borne illnesses by eliminating standing water on your property and regularly checking for ticks in warmer months.
- **Be prepared for fire.** Keep your hydrant clear of snow and landscaping for easy access—it can help to put a post next to the hydrant so it is easier to find after a big snow event. Keep landscape plants trimmed away from walls to prevent spread of fire.
- **Add back-up power.** During times of power outages, back-up power generators can help keep critical appliances operating. There is a growing number of options for battery back-up power from small power banks to whole-home systems. These power banks can be paired with solar energy systems to ensure clean power and an energy source that is available to recharge the battery. Portable power stations are good options for residents living in apartments.
- **Know your flood risk.** Heavy rains can cause localized flooding in areas throughout the community. Check **Minnetonka's Flood Risk Map** to determine how likely floods are where you live. Flood damage is not covered under standard homeowners' insurance. All Minnetonka residents are eligible to purchase flood insurance through **FEMA's Nation Flood Insurance Program** (*NFIP*). You might also consider a sewer backup rider on your insurance.
- **Eat local.** When possible, choose locally-produced, sustainably farmed food (*or grow it yourself*) and choose plant-based foods more often.
- **Get connected.** Opt-in to receive **emergency alerts** from the city via email and Reverse 911. Follow city social media channels to receive timely updates, especially during times of inclement weather, extreme heat, or poor air quality days.
- **Know your neighbors.** During times of disaster, neighbors can be a critical resource when emergency responders are overloaded. Knowing who may need additional assistance or who has supplies to help those in need can help save lives and ensure safe recovery for all residents.

Neighbors coming together at community event – Photo by City of Minnetonka

> **"Updating home electric to move away from natural gas, low mow/pollinator yard, solar powered home generators for power outages**

Climate-Friendly Homes Strategies & Actions

Financial Investment *Behavioral Change* *Time Commitment* *Impact Level Low (1) to High (3)*

Home Emissions

Energy Efficiency/Conservation

	Type	Impact
Get a Home Energy Audit	$	●○○
Weatherize your home	$	●●○
Upgrade appliances to higher efficiency models	$	●●●
Replace incandescent light bulbs with LEDs	$	●●○
Install smart thermostats	$	●●●
Install low-flow shower heads & faucets	$	●○○
Hang-dry laundry	B	●○○
Use your windows	B	●○○

Electrification

	Type	Impact
Upgrade electric panel	$	●○○
Replace gas heating equipment with a cold climate air-source heat pump	$	●●●
Replace gas heating equipment with ground-source heat pump	$	●●●
Install an electric clothes dryer	$	●○○
Replace gas range with induction	$	●●○
Replace gas water heater with a heat pump water heater	$	●●○
Switch to electric outdoor equipment (*snow blower, lawn mower, etc.*)	$	●●○
Choose electric recreational equipment (*boats, ATVs, snowmobiles, etc.*)	$	●●○

Clean Energy

	Type	Impact
Install rooftop solar	$	●●●
Subscribe to community solar gardens	$	●●●
Participate in green power purchase programs	$	●○○

Travel Emissions

Drive Less

	Type	Impact
Choose biking & walking	B	●●●
Join a walking or biking school bus	B	●○○
Use transit	B	●●●
Reduce trips	B	●●●

Drive Cleaner

	Type	Impact
Use efficient vehicles	$	●○○
Use electric vehicles	$	●●●
Use zero emissions vehicles	$	●●●

Waste Emissions

Reduce Consumption

	Type	Impact
Buy less	B	●●●
Buy local	B	●○○
Buy used or share	B	●●○

Reuse

	Type	Impact
Reuse or donate	T	●●○
Repair	T	●●○

Recycle/Compost

	Type	Impact
Use City and County recycling services	B	●●○

Climate-Friendly Yards

Create & Protect Habitat

	Type	Impact
Reduce lawn inputs	B	●●○
Choose alternatives to traditional turf grass	B	●●●
Plant pollinator-friendly species	$	●●●
Establish a rain garden	$	●●○
Plant new trees	$	●●●
Take care of existing trees	T	●●●
Volunteer to help improve other open spaces	T	●●○

Increase Drought Tolerance

	Type	Impact
Follow local watering guidelines/restrictions	B	●○○
Install WaterSense sprinkler heads & irrigation controllers	$	●○○
Install a rain barrel or cistern	$	●●○
Choose native/drought-tolerant species	B	●●●

Climate-Ready Home

	Type	Impact
Install a metal roof	$	●●●
Install a lightning rod	$	●○○
Prepare your yard for heavy rain	T	●●○
Plant your yard in strategic locations	B	●●○
Be prepared for fire	B	●●○
Add back-up power	$	●●●
Purchase flood insurance	$	●●○
Prepare when you leave the house	B	●○○
Eat local	B	●●○
Get connected	B	●●●
Know your neighbors	B	●●●

Climate-Friendly Homes Personalized Action Checklist

Print out this sheet and use the full action checklist to curate an action list of your own! Categorize your actions by time frame and check them off as you've completed them.

Short Term Actions (0-5 years)

- ○
- ○
- ○
- ○
- ○
- ○
- ○
- ○
- ○
- ○
- ○

Mid Term Actions (5-10 years)

- ○
- ○
- ○
- ○
- ○
- ○
- ○
- ○
- ○
- ○
- ○

Long Term Actions (10+ years)

- ○
- ○
- ○
- ○
- ○
- ○
- ○
- ○
- ○
- ○
- ○

Notes

For more resources & information, visit the Resilient Minnetonka website *(www.minnetonkamatters.com/resilient-minnetonka)*

$ Climate-Friendly Businesses

Businesses can become more climate friendly by prioritizing actions that reduce emissions and prepare for weather-related disruptions. Reducing emissions involves using less energy in buildings, switching to clean energy sources for buildings and vehicles, and sustainably managing consumption and waste. Businesses can enhance the resilience of their properties and the surrounding areas by reducing pavement, adding beneficial landscaping, and incorporating adaptive design during construction and remodeling projects. The following includes strategies, actions, and resources businesses can use to make their operations more climate friendly.

Building Emissions

Energy used in commercial, industrial, and institutional buildings accounts for 28% of community-wide greenhouse gas emissions in Minnetonka. While there is a wide variety of building types in these sectors, emissions generally come from the electricity used for cooling, ventilating, lighting, and powering equipment as well as from the gas used for space and water heating, cooking, and industrial processes. Emissions from these buildings have been cut nearly in half since 2007, driven by a large drop in emissions from electricity due to a combination of improved efficiency and cleaner sources for electricity generation.

The primary strategies to reduce emissions in businesses are to 1) use less energy through efficiency and conservation, 2) move from gas-fueled appliances to electric, and 3) participate in clean energy. Implementing these strategies can improve building performance and occupant comfort while reducing operating costs. Each strategy is described below with supporting actions.

Efficiency/Conservation

The most cost-effective strategy to reduce building emissions is to use less energy. This can be done by installing more efficient technology and equipment, as well as adding controls that can moderate energy use based on occupancy.

+ **Complete an energy assessment.** Energy assessments provide an analysis of energy use in commercial buildings and provide recommendations to improve building performance. An energy assessment will also help property managers and owners better understand project costs and savings, as well as provide information about the various incentives that are available. Get started on **Center for Energy and Environment's website**.

Proper insulation improves building efficiency – Photo by ©auremar - stock.adobe.com

Rooftop solar – Photo by Ryan Siemers - LHB

- **Benchmark building energy and water use.** Use free tools like **Energy Star Portfolio Manager** to track energy and water use, as well as associated emissions. Per state law, this will be required for all buildings greater than 100,000 square feet by June 2025 and for all buildings between 50,000-99,000 square feet by June 2026.
- **Incorporate efficiency into building design.** Use utility resources to design new buildings to maximize energy efficiency. **Tax incentives** are available for new energy efficient buildings.
- **Leverage financial incentives for improvements.** Many incentives are available through energy utilities, the federal government, and the Property Assessed Clean Energy Program. These incentives can help reduce costs through rebates, tax credits, and low-interest financing.
  - Incentives are available from **Xcel Energy** and **CenterPoint Energy**.
  - The Environmental Protection Agency (*EPA*) provides a tool through its **ENERGY STAR program** to evaluate financial decisions of efficiency improvement.
  - **Property Assessed Clean Energy** (*PACE*) is a financing tool that businesses can use to pay for energy efficiency improvements through property assessments using the savings from the project. Learn more about PACE and other energy efficiency and financing programs through the **business page on Minnetonka's website**.

Electrification

Where feasible, replacing equipment that uses gas with electric options will help reduce emissions from energy used and often contribute to improved air quality.

- **Install air-source heat pumps.** Owners of smaller properties can consider cold-climate air-source heat pumps for primary heating and cooling needs in existing buildings.
- **Install ground-source heat pumps.** **Ground-source heat pumps** are a high-efficiency technology that utilizes the heat from the ground to provide space heating and cooling. These are best for new developments or large-scale renovations.
- **Consider district energy systems.** Owners of multiple buildings that are near each other or developers constructing new developments should consider all-electric district energy options for heating and cooling multiple buildings from one source of energy. This has the benefit of sharing heat between buildings.
- **Install heat pump water heaters.** Electric heat pump water heaters use ambient heat to warm water using a refrigerant-based system. These units use less than half the energy of electric resistance models.

Clean energy

Supporting clean energy can help accelerate the transition to a carbon-free electric grid.

- **Install on-site solar energy systems.** Assess rooftop solar resource potential for on-site solar options. Consider adding energy storage for back-up power or peak shaving. **Tax credits** — starting at 30% of the project cost — are available for clean energy and storage through 2033.
- **Subscribe to a community solar garden.** **Community solar gardens** work like virtual rooftop installations and can be a great alternative for buildings that do not have a good solar resource.
- **Participate in virtual power purchase agreements (*VPPA*).** Property owners with large electric loads may be interested in exploring alternative clean energy purchasing structures like VPPAs. These are often complex financial agreements that allow businesses to support off-site clean energy projects by purchasing the energy generated without owning the physical assets. Learn more about clean energy procurement from **Clean Energy Buyers Association (CEBA)** and **Xcel Energy's Renewable*Connect**.

Travel Emissions

Travel emissions – from all vehicle travel within city boundaries – make up 44% of community-wide emissions. Commercial entities contribute to travel emissions via employee commutes, business travel, shipping and deliveries, and visitor trips. Emissions can be reduced from travel by 1) reducing trips from single-occupancy vehicles, 2) using more efficient vehicles, and 3) using electric vehicles. The following strategies can be used by Minnetonka businesses to help reduce overall travel emissions.

Commuting

Many people travel to work in single-occupancy vehicles contributing to climate change and air pollution. Reducing this type of commute can result in many benefits that range from less impact on climate change and air pollution, to reduced need for paved surfaces and more active lifestyles. Property managers of multi-family apartments and condominiums can employ many of the same strategies offered by employers to make climate-friendly transportation options more accessible to residents.

- **Provide bike amenities.** Employers and multi-family housing property managers can **support bike commuters** by adding bike storage that is secure, accessible, and protected from the elements, and providing outlets for securely charging electric bikes.
- **Implement a telework policy.** Where appropriate, encourage or enable employees to work remotely as often as possible.
- **Offer transit passes.** If near transit lines, offer free or subsidized transit passes as an employee benefit.
- **Incentivize carpooling.** Encourage or incentivize employees to carpool.
- **Install EV charging.** Employers and multi-family property managers can support electric vehicle adoption by providing electric vehicle charging stations. Install the electrical infrastructure to make it easy to add more stations as demand continues to grow. **Tax incentives** are available through 2033.

Visitor Travel

Visitors often arrive in single-occupancy vehicles. Providing additional options can help encourage visitors to use alternative transportation modes.

- **Add bike parking.** Add quality bike parking outside businesses to enable cyclists to have secure and convenient parking options. Include chargers for e-bikes.
- **Install EV charging.** Provide public electric vehicle charging stations in locations where visitors typically stay longer than two hours.

Company Fleets

Businesses with fleet vehicles have an opportunity to directly reduce their emissions – especially as vehicles are traded out over time.

- **Reduce idling.** Idling is harmful to public health, the environment, and an unnecessary expense. Implement a policy to help employees **reduce idling** in company vehicles.
- **Use efficient vehicles.** When purchasing new vehicles, opt for higher efficiency models and ensure the size is compatible with the use.
- **Electrify fleet.** Complete a fleet assessment to determine which vehicles can be replaced with electric models.

Waste Emissions

Managing solid waste only accounts for 2% of total community-wide emissions. However, this only includes emissions that occur once goods are disposed of and does not consider the impacts of producing and transporting those goods. Reducing emissions from waste involves 1) reducing consumption 2) reusing products, and 3) recycling/composting as much as possible.

Reduce

Reducing consumption will have the biggest impact on emissions that occur in the production and transport of goods. This means buying fewer single-use products in favor of multi-use alternatives.

- **Eliminate single-use plastics.** Trade out single use plastics for reusable, compostable, or recyclable alternatives.
- **Implement sustainable purchasing.** Develop and implement a sustainability policy that prioritizes waste reduction and considers the life cycle of large purchases.
- **Minimize food waste.** Donate edible food through a **local food shelf** or similar programs.
- **Buy in bulk.** Purchase commonly used items in bulk where possible to reduce packaging waste.

Reuse

Many items are disposed of prematurely when they could be reused or repurposed, keeping them out of the waste stream.

- **Donate.** Avoid disposing of goods that still have a useful life. Consider donating through local charities or online spaces.
- **Repair.** Before throwing away broken goods, try to have them repaired. These items might also make good candidates for donations where they can be repaired by someone else.
- **Salvage usable construction materials.** On large renovation projects, seek options to salvage building materials to donate or sell for reuse.

Participate in commercial composting – Photo by City of Minnetonka

Recycle/Compost

For remaining items, the best disposal option is to recycle goods and compost organic material.

- **Implement back-of-house sorting.** Ensure that waste is properly disposed of by sorting materials into the appropriate waste streams before collection.
- **Participate in commercial composting.** Use the **city's recycling drop off facility** for organic materials. Support efforts for commercial organics pick-up services.

Reducing waste can be a daunting task. Here are some tips to get started:

- **How to Implement a Zero Waste Strategy for Your Business**
- **EPA's Managing and Reducing Wastes Guide for Commercial Buildings**

Protect Minnetonka's water resources – Photo by Mary Brill

Manage water effectively – Photo by dbrus - stock.adobe.com

Climate-Friendly Property

Private property makes up most of the land in Minnetonka. Leveraging improvements in these areas is crucial to reducing negative impacts like the urban heat island effect, loss of habitat, and so on. Changes can also increase the resilience of businesses in times of shock or increased risk. Some key actions include:

Create & Protect Habitat

Replacing pavement and turf grass with more diverse plantings can significantly increase habitat for a variety of species, while reducing carbon-intensive maintenance (*along with a host of other benefits*).

- **Reduce pavement.** Evaluate parking and driveway needs and eliminate unnecessary pavement. Consider replacing the remaining pavement with permeable and/or lighter colored pavement options to reduce storm water runoff and reflect heat.
- **Incorporate beneficial plantings.** Replace turf grass with native and hardy adapted plant species that provide more habitat value, help infiltrate stormwater, and take fewer inputs of water and fossil fuels. Get a free site consultation and other resources from the City of Minnetonka via Resilient Minnetonka and other resources.
- **Place your plantings strategically.** Plant evergreen trees/shrubs along the northwest exposure of your building to protect it from winter winds and plant deciduous trees and shrubs along the southern exposure of your building to protect it from summer sun while allowing heat gain during winter months. Both strategies effectively reduce building energy costs.
- **Plant new trees.** When planting new trees, it is important to do so properly to ensure they start off strong and have a long, healthy life. Keeping them watered during the growing season, particularly in the first 2-3 years of their lives, is very important for their survival. Take advantage of city resources on **how to care for young trees** and the **annual tree and shrub sale**.
- **Take care of existing trees.** Providing mulch around a tree to maintain moisture and prevent weeds and pruning periodically to remove deadwood and improve airflow through the branches are both great ways to **keep your trees healthy**. If you have a healthy ash or elm tree on your property it is important to treat them for **emerald ash borer** or **Dutch elm disease** respectively.

Increase Drought Tolerance

Managing water efficiently and effectively can reduce the risk of flooding, lower irrigation costs, and improve the functionality of properties.

- **Install green infrastructure.** Capture water running off roofs and paved surfaces in rain gardens, bioswales, and similar systems that reduce runoff and flooding and create beautiful and functional site features.
- **Follow local watering guidelines/restrictions.** As the EPA states, timing is everything! It is important to know exactly how much water your property needs and when before setting up irrigation practices. Most species only need one inch of water or less per week. The City of Minnetonka helps with this by outlining **lawn watering restrictions** that should be followed every year between May 1 and September 30. These strategies include avoiding watering midday and limiting days that watering can take place.
- **Install WaterSense sprinkler heads and irrigation controllers.** **WaterSense products** are EPA-certified, high-performing products that use at least 20 percent less water than older products.
- **Install a rain barrel or cistern.** Building or installing a pre-made **rain barrel or cistern** is an easy way to capture and collect rainwater on your property, creating a free source of non-potable water. Collected rainwater is a great alternative to potable water and can be used for irrigation or other outdoor water uses.
- **Install climate-friendly roofs.** Traditional asphalt roofs generate excess ambient heat and are designed to shed water. Adding a white membrane can significantly reduce surrounding ambient air temperatures while keeping the building cooler. Green roofs can help manage stormwater, provide habitat, and create a pleasant space for gathering. Blue roofs are designed to capture and utilize stormwater.

Climate-Ready Businesses

Poor air quality days, power outages, and extreme weather can all disrupt daily activities. As these events become more likely, it is important to take steps to ensure businesses are prepared.

- **Install back-up power.** Power outages can be costly for many businesses, especially for goods that need refrigeration. Adding back up power (*e.g., batteries*), can help save money by keeping essential equipment running during outages. For large energy users, batteries can have the additional advantage of shaving peak energy demand.
- **Prepare for shelter-in-place.** Have a plan for employees and visitors to shelter in place in case of severe weather.
- **Offer shelter.** Consider providing shelter to those who may be stranded or displaced due to severe weather and/or long-term power outages.
- **Opt-in for emergency notifications.** The city offers a Reverse 911 service in case of a community emergency or severe weather.
- **Communicate closures.** Use social media or other tools to alert potential customers of closures due to weather to prevent unnecessary or unsafe trips.

Climate-Friendly Businesses Strategies & Actions

Financial Investment *Behavioral Change* *Time Commitment* *Impact Level Low (1) to High (3)*

Building Emissions

Energy Efficiency/Conservation

	Type	Impact
Complete an energy assessment	$	● ○ ○
Benchmark building energy and water use	⏱	● ○ ○
Incorporate efficiency into building design	$	● ● ●
Leverage financial incentives for improvements	$	● ● ●

Electrification

Install air-source heat pumps	$	● ● ●
Install ground-source heat pumps	$	● ● ●
Consider district energy systems	$	● ● ●
Install heat pump water heaters	$	● ● ○

Clean Energy

Install on-site solar energy systems	$	● ● ●
Subscribe to community solar gardens	$	● ● ●
Participate in virtual power purchase agreements (*VPPA*)	$	● ● ○

Travel Emissions

Commuting

	Type	Impact
Provide bike amenities	$	● ● ●
Implement a telework policy	💡	● ● ○
Offer transit passes	$	● ● ●
Incentivize carpooling	$	● ● ○
Install EV charging	$	● ● ○

Visitor Travel

Add bike parking	$	● ● ○
Install EV charging	$	● ● ○

Company Fleets

Reduce idling	💡	● ● ○
Use efficient vehicles	$	● ● ○
Electrify fleet	$	● ● ●

Waste Emissions

Reduce

	Type	Impact
Eliminate single-use plastics	💡	● ● ●
Implement sustainable purchasing	💡	● ● ●
Minimize food waste	💡	● ● ●
Buy in bulk	💡	● ● ○

Reuse

Donate	⏱	● ● ○
Repair	⏱	● ● ○
Salvage usable construction materials	⏱	● ● ○

Recycle/Compost

Implement back-of-house sorting	💡	● ● ○
Participate in commercial composting	💡	● ● ○

Climate-Friendly Properties

Create & Protect Habitat

	Type	Impact
Reduce pavement	💡	● ● ●
Incorporate beneficial plantings	💡	● ● ●
Place your plantings strategically	$	● ● ○
Plant new trees	$	● ● ●
Take care of existing trees	⏱	● ● ●

Increase Drought Tolerance

Install green infrastructure	💡	● ● ●
Install WaterSense sprinkler heads & irrigation controllers	$	● ○ ○
Install a rain barrel or cistern	$	● ● ○
Follow local watering guidelines/restrictions	💡	● ○ ○
Install climate-friendly roofs	💡	● ● ●

Climate-Ready Businesses

	Type	Impact
Install back-up power	$	● ● ●
Prepare for shelter-in-place	$	● ● ○
Offer shelter	⏱	● ● ○
Opt-in for emergency notifications	💡	● ● ○
Communicate closures	💡	● ● ○

Climate-Friendly Businesses Personalized Action Checklist

Print out this sheet and use the full action checklist to curate an action list of your own! Categorize your actions by time frame and check them off as you've completed them.

Short Term Actions (0-5 years)

- ○
- ○
- ○
- ○
- ○
- ○
- ○
- ○
- ○
- ○
- ○

Mid Term Actions (5-10 years)

- ○
- ○
- ○
- ○
- ○
- ○
- ○
- ○
- ○
- ○
- ○

Long Term Actions (10+ years)

- ○
- ○
- ○
- ○
- ○
- ○
- ○
- ○
- ○
- ○
- ○

Notes

For more resources & information, visit the Resilient Minnetonka website *(www.minnetonkamatters.com/resilient-minnetonka)*

Landscape in front of Minnetonka Community Center – Photo by City of Minnetonka

OCTOBER 2023

MINNETONKA MEMO

A publication from the City of Minnetonka

You're invited to THE MARSH

When Barbara Benjamin first walked into The Marsh, she immediately felt a sense of balance – a place where body and mind could work together for overall health.

"The vibe that you get here is one of peace, calm, health," Benjamin said.

The City of Minnetonka opened The Marsh in May, after purchasing the facility from the YMCA of the North. The facility offers a variety of wellness programs, including fitness, aquatics and spa services.

"The community has really embraced The Marsh. We're pleased we can offer programs and accommodations that fit our 3,000 members' diverse needs," said Recreation Director Kelly O'Dea.

The Marsh offers a variety of membership options, including SilverSneakers and Renew Active – programs that are often free to senior members. You can also combine a membership with Williston Fitness Center to double your recreation opportunities.

Benjamin participates in a variety of programs, from tai chi and Pilates to Barre Fusion and Zumba. When her daughter-in-law was in labor, she spent time in the meditation tower waiting for the birth of her first grandchild. The Marsh, she said, offers a little of everything. "No matter what your gig you can find your spot because they offer heart-pumping stuff, the pool and the mind/body stuff, too."

Join us for these upcoming events:

Fall Pop Up Market
Friday, Oct. 13-Sunday, Oct. 15
This free, daily market will have local vendors showcasing their merchandise from 10 a.m.-4 p.m.

Marsh Open House
Saturday, Oct. 14
Stop by for a morning sampling of fitness classes from 9 a.m.-noon. Try a variety of 25-minute classes for free!

Historically, The Marsh has been known as a place of accommodation. Longtime member Jane Welch said instructors are great about offering modifications to help people of various abilities, creating a space for everyone. The heated therapy pool, for example, is a valuable resource for people with limited mobility to build strength.

The Marsh is also a place of community, where members get to know one another, said Welch, who often makes morning coffee and organized a fall literature series. O'Dea agreed.

"People know each other at The Marsh and feel a sense of belonging. We invite more community members to check it out and find their place at The Marsh."

Spa services available at The Marsh

The Marsh now offers limited spa services, including:

• Manicures and pedicures • Skincare • Massages

"Our spa services provide a space where you can go to relax your body and your mind."
Kristin Pimental, Marsh Manager

Learn more and book these services at **minnetonkamn.gov/spa**

Minnetonka Matters

We want to hear from you!

Share your ideas for the future of The Marsh and the city's indoor recreation facilities in our Community Facilities Survey now available at **minnetonkamatters.com**.

Monthly Minnetonka Memo

Climate-Friendly Minnetonka

In addition to actions being taken by individuals and businesses, the city can drive further reductions in greenhouse gas emissions and accelerate adaptation through city operations and functions. While the city operations only represent about 1% of total emissions, it is crucial that the city not only model best practices, but also equip community members with the resources that will enable further action. The primary tools available to city governments include:

- **Leadership through City Operations.** Reducing emissions across city operations and continuing to incorporate resilience into public infrastructure, natural resource projects, and city events.
- **Education and Engagement.** Continuing to equip residents and businesses with the information and tools needed to make climate-conscious decisions.
- **Incentives.** Offering financial or regulatory incentives to encourage climate-friendly practices.
- **Policies and Programs.** Developing policies, regulations, and programs that advance climate action.

This section focuses on these tools and various strategies that can be deployed to achieve the city's climate goals.

Leadership through City Operations

While city operations are the direct cause of only a small percentage (*less than 1%*) of the community's total greenhouse gas emissions, the city has the greatest control over them. Reducing these emissions and improving the resilience of the city's facilities and natural resources will save energy and public funds and serve as crucial demonstrations of the city's commitment and leadership, spurring action throughout Minnetonka. The city can also show its leadership by partnering with other entities to coordinate climate action across scales.

City Processes and Goals

Establishing internal teams, goals, budgets, and processes is critical for making progress toward the city's climate goals.

- **Create a climate leadership team across departments.** This team will be responsible for setting internal goals and targets, prioritizing actions, and reporting progress.
- **Establish greenhouse gas emissions reduction goals for city operations and track progress.** Set greenhouse gas reduction goals for city-owned facilities and vehicles that support the community-wide goals. Update the city operations greenhouse gas inventory every three years to evaluate progress and modify the planned strategies as needed.
- **Establish a resilience goal.** Identify what it means for the city to be resilient, what metrics are needed, and how to track progress toward achieving that goal.
- **Incorporate climate considerations into the city budget.** Add greenhouse gas reductions as a key measure in relevant city budget items.
- **Incorporate climate considerations into the city's Capital Improvement Plan.** Review and update the capital improvement plan to meet the city's climate goals.

Building Emissions

Over half of the emissions from city operations are from the energy used in city-owned buildings – with an additional 26% coming from the city's water and sewer systems. While the greenhouse gas inventory demonstrated the city's success in reducing these emissions over the past five years, there is potential for additional savings from energy efficiency and clean energy.

- **Require new city facilities to meet Minnesota's SB 2030 Energy Standard.** Ensure that new facilities are designed to generate minimal greenhouse gases from operational energy use by requiring compliance with Minnesota's SB 2030 program.
- **Ensure energy-efficient operations at city facilities.** Continue tracking monthly energy use to identify potential energy waste and implementing no- and low-cost measures to improve energy efficiency within the city's facilities and water system.
- **Invest in facility improvements that reduce energy consumption.** Continue to conduct energy assessments of the city's facilities and water systems and invest in improvements that reduce energy consumption.
- **Create a plan to electrify city-owned facilities by 2040.** Identify all fossil fuel equipment currently in use and establish a timeline for equipment replacement. Evaluate the potential for a centralized, all-electric heating and cooling system. Establish strategies to improve resilience, such as energy generation and storage at key facilities.
- **Continue to support renewable energy.** Support the statewide transition to carbon-free electricity by 2040 by continuing to participate in community solar programs and installing solar energy systems on city properties.

Fleet Emissions

Nearly a quarter of the emissions from city operations are from the city's vehicle fleet.

- **Create a decarbonization plan for city-owned vehicles and mobile equipment.** Based on the city's current fleet, vehicle requirements, route lengths, and service priorities, evaluate low-carbon alternatives for all fleet vehicles and mobile equipment (*such as mowers, snow removal equipment*). Establish criteria and a targeted timeline for switching over to these alternatives and plan for any additional infrastructure, training, and operational changes that may be needed.

Natural Resources

Considerable work is already underway or planned, as described in the **Natural Resource Management Plan (NRMP)**, and should be supported by this plan.

- **Reinforce and fund strategies developed in the NRMP, especially:**
  - Consider budget needs for increased invasive and pest species monitoring and management.
  - Model best practices on city-controlled land. This has started with park and city campus properties, but other city properties and street rights-of-way also present opportunity for improvement.
  - Invest in construction and maintenance of green infrastructure on both public and private property.

- Enhance communication and collaboration on sustainability initiatives between city departments.
- Continue to monitor and update natural resource inventories.
- Consider an Increased budget for inspection and maintenance of existing and proposed green infrastructure.

Resilience

The city can be a leader in resilience and emergency preparedness by evaluating existing infrastructure in consideration of projected climate changes, incorporating resilience into the design of new infrastructure projects, and prioritizing areas of the community that are at higher risk of climate hazards.

+ **Establish resilience hubs.** Improve the resilience of selected public buildings and facilities that could serve as resilience hubs during disruptive events. Community centers and/or park buildings could function as safe spaces during weather events, but they need back-up power and other modifications.
+ **Continue to improve emergency communication with the public.** Continue to promote city communication channels including the city's Emergency Notification Systems and social media handles.
+ **Ensure emergency preparedness for public events.** Establish and communicate criteria for event cancellation due to poor air quality, extreme heat, and inclement weather.
+ **Develop a response plan for large windfall events.** This likely involves partnerships and advanced planning. An example is this ReLeaf response plan from Cedar Rapids, Iowa.
+ **Perform welfare visits or calls.** Identify vulnerable residents and develop a plan to check on their wellbeing during extreme weather events like prolonged heat waves or storms that cause power outages.
+ **Plan for improving the waste streams for trees dying from disease or storms.** Research and partnerships are needed to ensure that wood waste is diverted for reuse, biochar, biologs, and other secondary uses.
+ **Continue to address flood planning.** Maintain the most up-to-date precipitation data and climate projection data to inform city infrastructure projects.
+ **Identify needs for first responder gear and training.** Ensure responders are prepared for extreme climate events and train for cross-departmental coordination during multiple emergencies.

> **"Coordination with the State, Hennepin County and other municipalities on climate strategies and action... when things get bad, we are all going to be affected.**

Multi-Jurisdictional Coordination

Many of the emissions and impacts of climate change will need to be addressed regionally and across jurisdictions within and beyond Minnetonka.

+ **Collaborate with school districts.** Schools are important public institutions that can take action that support city goals and actively engage students in solutions.
  - Collaborate with schools to create and implement Safe Routes to School plans.
  - Encourage schools to take advantage of the federal direct pay tax incentives for solar and the state's Solar for Schools grant program.
  - Engage students in volunteer and learning opportunities as part of plan implementation.
+ **Continue to partner with local, regional, and state entities.** Because much of Minnetonka's travel emissions can be attributed to people driving through the community on major highways, emissions goals cannot be achieved by the city alone.
  - Partner with surrounding communities to take advantage of new Active Transportation Funding that will be available through the Metropolitan Council and Hennepin County.
  - Work with the Metropolitan Council and other partners to support improved transit options such as enhanced bus shelters, increased route frequency, transit electrification, and last

mile options for new transit stations along the light rail corridor. **See the Coalition for Clean Transportation.**

+ **Partner with watershed districts.** Partner with the four watershed districts in Minnetonka to implement resilient green infrastructure, help residents and businesses employ best practices for sustainable landscaping, and promote grant opportunities as they become available.
+ **Continue to participate in Hennepin County's Disaster Recovery Collaborative.** Leverage this participation to prepare for and respond to disruptive events and support neighboring communities in times of need.

Education & Engagement

By equipping residents and businesses with the information and tools needed to make climate-conscious decisions, the city can help motivate and streamline local climate action.

+ **Host a website dedicated to climate action resources and updates.** Host a standalone website that provides up-to-date information and resources for climate action that can be taken by residents and business owners. This site can also provide information about climate-related events, recognition, and progress made by the city. Topics may include:
  - Residential and commercial efficiency, electrification, and clean energy resources
  - Online map of biking and walking networks in the community and surrounding area
  - Resources for vehicle electrification
  - Best practices for climate friendly landscape practices
  - Workshop and event dates and information
  - A progress bar to illustrate success
+ **Host informational workshops.** Many community members report a desire for more educational opportunities to learn what they can do to reduce emissions and adapt to climate change. Host workshops on the following topics:
  - Solar bulk buys, which can help reduce costs, streamline installation, and garner better warranties.
  - Ride and drive events, which can help people experience electric vehicles and bikes.
  - Native plantings and turf conversions, in partnership with local businesses.
  - Reuse and swap events (*e.g., sporting goods, clothing, etc.*)
  - Apartment composting methods and options.
+ **Include regular climate action news in the Minnetonka Memo and Thrive Minnetonka.** Utilize the city's communication channel to feature community members who have taken climate action and to provide information on available incentives and best practices. Share stories from the city's implementation of sustainability and resilience strategies to inform and inspire community action.
+ **Recruit more residents to sign up for city alerts.** Conduct an outreach campaign to sign up more residents for city emails, newsletters, social media, and Reverse 911 to receive timely updates.
+ **Create a business recognition program.** Launch an annual program that highlights businesses that are leading on climate mitigation and adaptation efforts.

> **"A one stop website to learn about Minnetonka's plan climate action, current initiatives underway by the city, and resources/links/tools for citizens all in one place.**

> **"Offer workshops and small grant opportunities for installation of solar panels**

> **"Curbside composting & especially supports to aid residents in condos or rental units for on site recycling & composting**

> **“ Give incentives to large companies to replace their large lawns with native grasses and pollinator plantings. No need for all the fertilizer and mowing!**

> **“ Provide incentives for solar and wind use such as credit toward a community class or tree and plant sales for everyone**

Incentives

Offering financial or regulatory incentives can help motivate climate-friendly practices action, whether they are unique to the city or additive to federal, state, and/or utility incentives.

- **Create commercial property depaving program.** Provide incentives for green infrastructure, tree planting, depaving and similar projects have multiple environmental benefits.
- **Continue to offer incentives to residents for climate-friendly yards.** Financial incentives can help residents choose landscaping that provides habitat and stormwater benefits. Incentives might include:
  - Pollinator and native plants as options through the city's **tree and shrub sales**
  - Free or reduced cost rain barrels, WaterSense sprinkler heads. See our **rebate program**.
- **Implement a green cost-share program.** Several cities in the west metro have cost-share programs for residents and businesses that are intended to reduce the upfront costs of efficient or electric appliances, clean energy, storage, and electric bikes.

Policies & Programs

Implementing policies, regulations, and programs that advance climate action can have a significant impact.

- **Build climate-friendly streets.** Evaluate street projects to identify opportunities to enhance resilience of existing infrastructure, add green infrastructure, and integrate multi-modal transportation options, such as bike and pedestrian infrastructure, dedicated bus lanes, and snow removal for these facilities.
- **Encourage biking and walking.** Continue implementation of bicycle and walking strategies included in the city's Comprehensive Plan and the Parks, Open Space, and Trail Systems Plan (*POST*); accelerate when funding and capacity allow.
- **Require sustainable developments.** Develop and adopt a **sustainable development policy** for new developments that receive city incentives.
- **Enforce energy code.** Continue to enforce energy code requirements for new buildings. Provide additional training and/or outside support for this as the codes require higher levels of efficiency.
- **Develop an EV-readiness plan.** Create a high-level EV-readiness plan for the city that identifies general locations and quantities to target priority locations for public and private charging.
- **Promote zero waste.** Support and promote initiatives included in Hennepin County's Zero Waste plan.
- **Modify land use and zoning.** Apply a climate lens to land use and zoning decisions that impact vehicle trips.
- **Incorporate sustainable purchasing.** Evaluate the outcomes of the city's sustainable purchasing policy and – if needed – make modifications to maximize impact.
- **Develop capital investment criteria.** Develop purchasing criteria for the city's capital investments that prioritize energy efficiency and electrification.
- **Apply planting guidelines.** Develop a policy and recommendations related to native, near-native, climate adapted, and migration assisted plants.

Encourage walking and biking – Photo by City of Minnetonka

> **"I believe the city needs more traffic calming, pedestrian and bike friendly areas, and higher density initiatives.**

> **"Encouraging people to take transit, walk, and bike only goes so far when the infrastructure is not there to support it.**

Climate-Friendly Minnetonka Actions

		Impact (1-5)	Resources Needed ($, $$, $$$)	Examples & Funding Opportunities
CITY PROCESSES & GOALS	Create a climate leadership team across departments	●●●●○	$○○	– Inflation Reduction Act (IRA) Neighborhood access and equity grant program funding – Urban and Community Forestry IRA Grants – Watch for state resilience grants through the MPCA – Watch for state climate planning and implementation grants through the MPC
	Establish greenhouse gas emissions reduction goals for city operations and track progress	●○○○○	$○○	
	Establish a resilience goal	●○○○○	$○○	
	Incorporate climate considerations into the city budget	●●●●●	$$○	
	Incorporate climate considerations into the city's Capital Improvement Plan	●●●●●	$$○	
BUILDING EMISSIONS	Require new city facilities to meet Minnesota's SB 2030 Energy Standard	●●○○○	$$○	– Department of Energy Buildings Upgrade Prize – IRA Neighborhood access and equity grant program funding – Xcel Energy Rebates – IRA rebates and tax incentives
	Ensure energy-efficient operations at city facilities	●●●○○	$$$	
	Invest in facility improvements that reduce energy consumption	●●●●○	$$$	
	Create a plan to electrify city-owned facilities by 2040	●●●○○	$○○	
	Continue to support renewable energy	●●○○○	$$$	
FLEET EMISSIONS	Create a decarbonization plan for city-owned vehicles and mobile equipment	●●●○○	$○○	
NATURAL RESOURCES	Consider budget needs for increased invasive and pest species monitoring and management	●●●●●	$○○	– Natural Resource Management Plan – Water Resources Management Plan
	Model best practices on city-controlled land	●●●●●	$$○	
	Invest in construction and maintenance of green infrastructure on both public and private property.	●●●●●	$$$	
	Enhance communication and collaboration on sustainability initiatives between city departments	●●●●●	$○○	
	Continue to monitor and update natural resource inventories	●●●●●	$○○	
	Consider an Increased budget for inspection and maintenance of existing and proposed green infrastructure	●●●●●	$$○	
RESILIENCE	Improve the resilience of selected public buildings and facilities that could serve as resilience hubs during disruptive events	●●●●○	$$○	– Minnetonka Emergency Notification System – Cedar Rapids' ReLeaf Response Plan
	Continue to improve emergency communication with the public	●●○○○	$○○	
	Ensure emergency preparedness for public events	●●○○○	$$○	
	Develop a response plan for large windfall events	●●●○○	$$○	
	Perform welfare visits or calls	●●●○○	$○○	
	Plan for improving the waste streams for trees dying from disease or storms	●○○○○	$○○	
	Continue to address flood planning	●●●○○	$○○	
	Identify needs for first responder gear and training	●○○○○	$○○	

	Climate-Friendly Minnetonka Actions	Impact (1-5)	Resources Needed ($, $$, $$$)	Examples & Funding Opportunities
MULTI-JURISDICTIONAL COORDINATION	Collaborate with schools to create and implement Safe Routes to Schools plans	●●●○○	$○○	– Solar for Schools grant program – Metropolitan Council Active Transportation Funding – Coalition for Clean Transportation
	Encourage schools to take advantage of federal direct pay tax incentives for solar and the state's Solar for Schools grant program	●●●○○	$○○	
	Engage students in volunteer and learning opportunities	●●○○○	$○○	
	Partner with surrounding communities to take advantage of Active Transportation Funding	●●●●○	$○○	
	Work with Metropolitan Council and other partners to support improved transit options	●●●●○	$○○	
	Partner with watershed districts	●●●○○	$○○	
	Continue to participate in Hennepin County's Disaster Recovery Collaborative	●○○○○	$○○	
EDUCATION & ENGAGEMENT	Host a website dedicated to climate action resources and updates	●●●○○	$$○	– Minnetonka Memo – Thrive Minnetonka
	Host informational workshops	●●○○○	$○○	
	Include regular climate action news in the Minnetonka Memo and Thrive Minnetonka	●●○○○	$○○	
	Recruit more residents to sign up for city alerts	●○○○○	$○○	
	Create a business recognition program	●●○○○	$○○	
INCENTIVES	Create a commercial property depaving program	●●●●○	$$○	– Depave St. Louis Park – Hopkins Climate Solutions Fund
	Continue to offer incentives to residents for climate-friendly yards	●●●○○	$$○	
	Implement a green cost-share program	●●●○○	$$○	
POLICIES & PROGRAMS	Build climate-friendly streets	●●●●●	$$$	– Minnesota Municipal Sustainable Building Policies Guide
	Encourage biking and walking	●●●○○	$○○	
	Require sustainable developments	●●●●○	$○○	
	Enforce energy code	●●○○○	$○○	
	Develop an EV-readiness plan	●●○○○	$○○	
	Promote zero waste	●●○○○	$○○	
	Modify land use and zoning	●●●●○	$○○	
	Incorporate sustainable purchasing	●●○○○	$$○	
	Develop capital investment criteria	●●○○○	$○○	
	Apply planting guidelines	●●●●●	$○○	

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Appendix

Existing Conditions Report

This section provides an overview of existing conditions in Minnetonka with a focus on key areas relevant to reducing greenhouse gas emissions and adapting to climate change. This includes a community profile, anticipated climate hazards and vulnerabilities, city operations and community-wide greenhouse gas (GHG) emissions, and a summary of relevant programs, policies, and projects.

Documenting existing conditions will help to provide information to stakeholders throughout the engagement process, helping to inform decision-making that will guide the development strategies and actions that will be included in the CAAP.

Community Profile

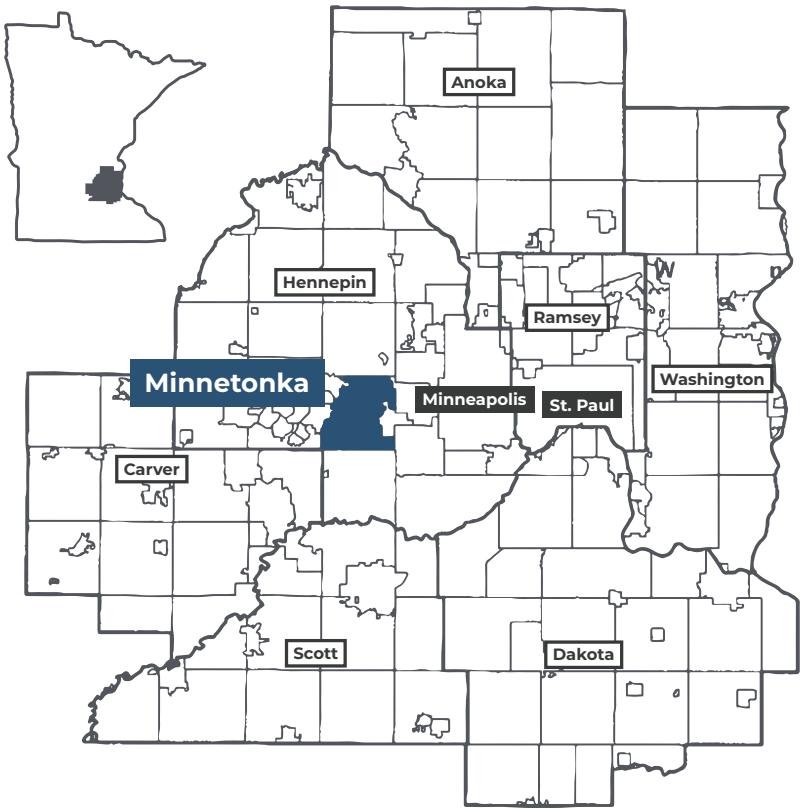
Minnetonka is a suburban community west of Minneapolis. The community is known for its natural landscape, top-ranked schools, recreation, and thriving businesses. The following details key characteristics that help describe the current make-up of the community. Information included in the community profile is useful to understand strengths and vulnerabilities in consideration of anticipated climate hazards.

Population

More than **53,000 people live in Minnetonka**. The majority of residents are white (*82.6%*), Asian residents make up 6.4% of the population, and Black residents are 4.9% of the total. Latinx and mixed-race residents represent 5.9%, with American Indian and Pacific Island making up less than 1%. Almost 21% of Minnetonka residents are age 65 and over, while 5.7% are under the age of five.

Data source: **Metropolitan Council Community Profile**

Figure 1 Community Context



Income

Minnetonka is generally an affluent community with a **median household income of $106,023**, which is greater than the State median income of $77,706. The **federal poverty rate is 4.5%**, which below the State poverty rate of 9.3%. Income is directly linked to the ability to pay utility bills. Energy burden is the percentage of income that is used to pay gas and electric bills. An energy burden of 6% or greater is considered a "high" energy burden; over 10% is considered "severe". The **overall energy burden in Minnetonka is 1%**, less than the State average of 2%. Among households in Minnetonka that earn less than 80% of area median income (*AMI*) – or less than $99,000 – the average energy burden is 3%. For households earning less than $30,000, the average energy burden is 10%, which is considered severe. Approximately 900 households in Minnetonka are likely to have severe energy burden.

Data source: **Low-Income Energy Affordability Data Tool**; **Metropolitan Council Community Profile**

Land

The area of **Minnetonka covers 28 square miles** or 17,901 acres. Half of the land is used for low-density (*1-4 units*) residential purposes; multi-family uses another 7%. Approximately 12% of land is used for parks and recreational purposes, while 4% is open water. Agricultural and undeveloped land is 11% of the total. The remaining land uses are divided among commercial, industrial, and institutional uses (*12%*) and major roadways use 4% of the land.

Data source: **Metropolitan Council Community Profile**

Figure 2 Population: Race & Ethnicity

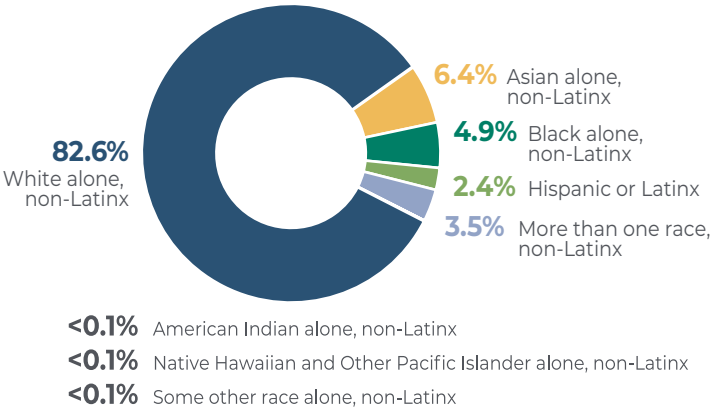


Figure 3 Population: Age Breakdown

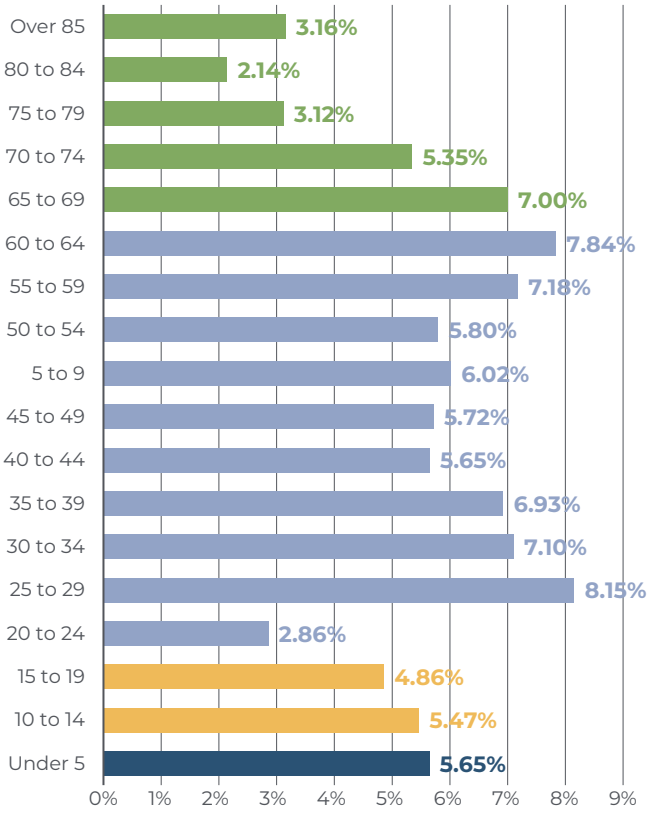
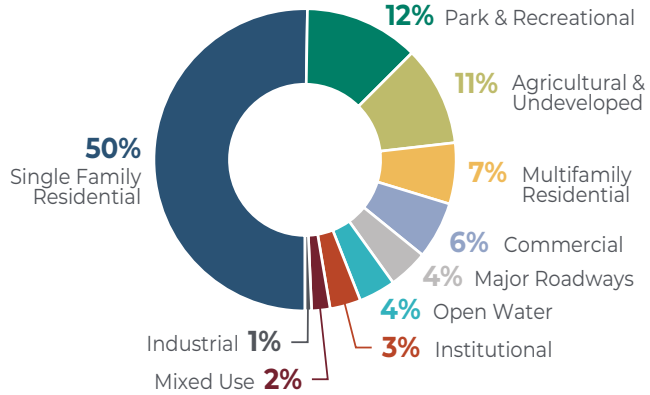


Figure 4 Existing Land Use (*2020*)



APPENDIX

Figure 5 Housing Type

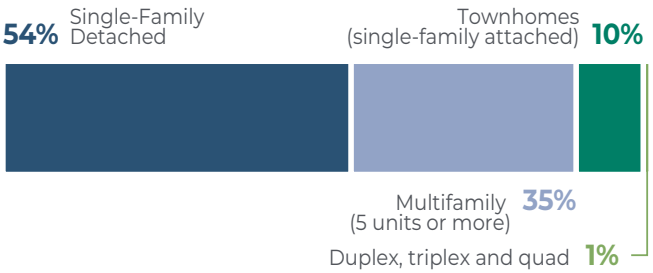


Figure 6 Commercial Building Count by Building Size & Type (*2020*)

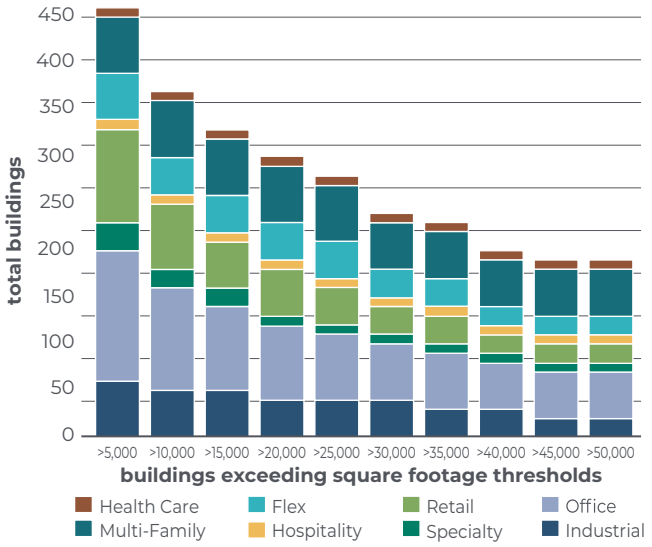
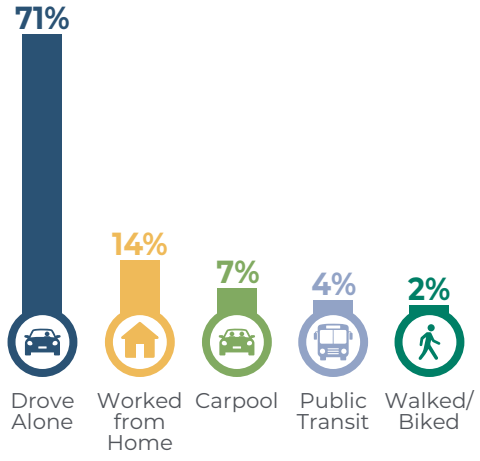


Figure 7 Commuting: Means of Transportation



Housing Characteristics

There are more than **25,000 households in Minnetonka**, a little more than half (*54%*) are single-family homes. Multi-family homes represent 35% of housing units, and townhomes, duplexes, triplexes, and four-unit homes make up the remaining. More than **two-thirds of the households are owner-occupied**, a little more than a quarter are renter-occupied, and less than 5% are vacant. In 2019, the average Minnetonka household used 119 million BTUs of energy – higher than the regional average of 100 million BTUs.

Data source: **Metropolitan Council Community Profile, Regional Indicators Initiative**

Commercial & Industrial

There are more than 450 commercial and industrial buildings withing the city. Approximately half of these buildings are office and retail spaces. The rest consists of multi-family, industrial, hospitality, and specialty uses. Minnesota passed a benchmarking law in 2023 where all **non-industrial commercial buildings over 50,000 square feet will be required to benchmark their energy use**. Building energy benchmarking is a tool to measure performance over time and compare to similar buildings, standards, or past performance. There are approximately 170 buildings that would be affected by this law in Minnetonka.

Data source: **National Renewable Energy Laboratory**

Commuting

The primary mode of transportation for Minnetonka residents is to drive alone. In 2021, 71% of residents drove alone, which is down from approximately 77% in prior years. Working from home increased from about 5% to 14% during this time, likely due to changes in work policies stemming from the COVID-19 pandemic. Public transportation has remained steady at about 5% since 2000, dropping to 4% in 2021. **Most commuters are less than 25 minutes from their place of work** with 32% driving to destinations that take more than 25 minutes.

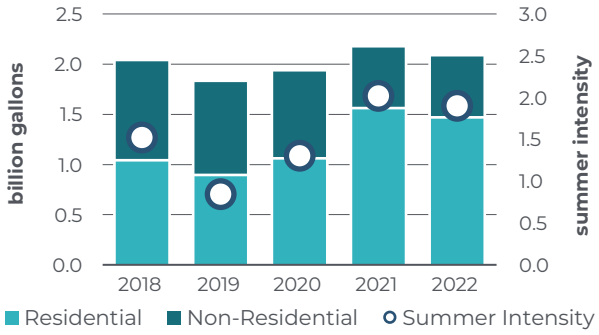
Data Source: **Metropolitan Council Community Profile**

Water Use

The majority of water used in Minnetonka is for residential uses (*Figure 8*). From 2018-2020, the average Minnetonka resident used 52 gallons of water per day – the same as the statewide average. However, much of the city's residential water is used for irrigation. With hotter and dryer summers, 2021-2022 residential water use increased to 77 gallons per resident per day. Water used by Minnetonka businesses, on the other hand, dropped by 39% between 2018 and 2022, and is not dependent on weather conditions.

Data source: City of Minnetonka, **Minnesota DNR**

Figure 8 Water Use



Climate Hazards

As global temperatures rise, we can expect to see continued changes in weather events and ecosystems in regions throughout the world. Minnesota is among the fastest warming regions in the United States and is already seeing the effects of climate change. In the Twin Cities area, we can expect winters to continue to warm, more and extended extreme heat events in the summer, increased precipitation, and prolonged droughts. These changes can impact the health and safety of residents and workers, alter ecosystems, and cause damage to infrastructure. The following examples highlight climate hazards already affecting Minnetonka and projections for anticipated changes.

Hot Summers

In Hennepin County, the mean high summer temperature (*Jun-Aug*) from 1980-1999 was 79.77° F. By mid-century, this is likely to increase to 83.85°F. We are already experiencing increasing temperatures and more hot days. At the end of the century, the mean high summer temperature is likely to range from 85.71°F to 88.55°F, depending on emissions scenarios. In addition, to a higher average temperature, the County will also experience more days with temperatures above 90°F (*Source:* **Minnesota Climate Explorer**, *Minnesota Department of Natural Resources*). Historically (*1981-2010*), the County has experienced fewer than ten days per year above 90°F. By mid-century, it is likely that number will increase to more than 25 days per year (*Source:* **University of Minnesota Climate Adaptation Partnership**, *three-month projections for June-August*).

Warmer temperatures can adversely affect human health, disrupt natural systems, and stress infrastructure, like roads and bridges. Extreme heat can also contribute to poor air quality and be exacerbated by urban heat island effect. Heat can also contribute to unstable air masses creating conditions for extreme weather.

Warming Winters

In Hennepin County, the mean low winter temperature (*Dec-Feb*) from 1980-1999 was 10.97° F. Low winter temperatures are currently increasing at a faster rate than summer warming. By mid-century, this is likely to increase to 14.61°F. At the end of the century, the mean low winter temperature is likely to range from 18.40°F to 23.79°F, depending on emissions scenarios (*Source:* **University of Minnesota Climate Adaptation Partnership**, *three-month projections for December - February*).

Warmer winter lows are impacting recreational activities with shorter and less ice coverage on lakes and more variable precipitation patterns. These changes will also disrupt natural systems, making it harder for native species to survive and creating conditions that allow for more invasive species. Infrastructure will be stressed with a greater frequency of freeze/thaw cycles.

Heavy participation in and around Lake Minnetonka has caused landslides (above) and flooding (below) – Photos by MPR

Heavy Precipitation

Climate change is contributing to increased precipitation in Minnesota. Historically (*1981-2010*), Hennepin County has experienced 6 days per year with more than 1 inch of precipitation, which will increase to 7 by mid-century. Summer precipitation may decrease by 5%, contributing to dry conditions (*Source:* **University of Minnesota Climate Adaptation Partnership**, *Climate Projections*).

Heavy rain events are now more common and more intense in Minnesota. There has been a dramatic increase in 1-inch and 3-inch events. There has also been an increase in large-area extreme rainstorms since 2000. It is likely that these heavy rains will continue to increase into the future (*Source:* **Minnesota DNR, Climate Trends**).

Heavy precipitation in the form of rain can lead to flash and basement flooding, damaging property and posing a risk to human health. Such rain events also contribute to water quality degradation from stormwater runoff. Heavy snow events will place a greater risk to load bearing capacity of buildings and structures and disrupt travel. Changes in precipitation can affect natural systems, altering habitats and ecosystems.

Drought

Minnesota is less likely to be impacted by drought, however with changes in precipitation patterns, there may be dry periods that contribute to drought in areas of the state. Recently, much of the state experienced extreme drought that contributed to wildfires in the north and water restrictions in the metro area. These conditions impact the flow of water bodies like the Minnehaha Creek and stress trees and other plant species that are not drought tolerant

Vulnerability Assessment

In 2023, the city contracted with Barr Engineering to assist with information needed for staff's vulnerability assessment, conducted to determine how Minnetonka will be impacted by changes in the climate. The analysis mapped existing population vulnerabilities and current environmental conditions that could contribute to increasing the community's vulnerability to current and future hazards.

Population Vulnerability

Populations who tend to be more vulnerable to climate hazards include adults 65 and older, especially those living alone, Black and Indigenous populations, households with lower incomes, people with mental or physical disabilities, people with language barriers, and children under 5. Using socioeconomic characteristics to determine vulnerability, the population of Minnetonka was mapped to identify where residents with the highest vulnerabilities are living.

Figure 9 illustrates a composite of population vulnerabilities throughout Minnetonka, shown by block group. Most residents have low to medium-low vulnerabilities. The residents with the highest vulnerabilities live in the three areas of the city represented by the dark blue and hash marks. This information is useful when looking at which areas of the city are most likely to be impacted by climate hazards.

Land Cover

Increased heat is exacerbated by land cover that absorbs and retains solar heat, increasing the surrounding ambient temperature. The land surface temperature map (*Figure 10*) demonstrates areas in Minnetonka that have temperatures higher than surrounding areas that have more vegetation. The areas where medium-high to high-vulnerability overlap with hotter surface temperatures are where residents who may be at greater risk to extreme heat events live. The land cover in these areas include heat generating surfaces, primarily from roads, parking lots, and asphalt rooftops. Heat abating land cover (*trees and vegetation*) is prevalent in much of Minnetonka as the city has a 58% tree canopy coverage.

Building Age

People living in homes with minimal insulation and significant air leakage are more vulnerable to both extreme heat and extreme cold, especially when their energy supply is interrupted. Figure 13 shows that two-thirds of the city's homes and many of its commercial buildings were constructed before 1976, which is when Minnesota first implemented an energy code for new construction and major renovations. While some of these buildings have been retrofitted to include better insulation and air sealing, there are likely many others that have not been weatherized.

Air Pollution

Air pollution is primarily generated from vehicle exhaust along arterial roads (*Figure 14*). The major sources of air pollution in Minnetonka come from vehicle travel on I-394 and I-494, which intersect at the northern boundary of the city. Air pollution can cause respiratory illnesses like asthma and chronic obstructive pulmonary disease (*COPD*), which worsen during extreme heat and poor air quality days. Residents who live near those corridors are most at risk from air pollution. Additionally, we can expect to see more poor air quality days from increasing wildfire activities.

Flood Susceptibility

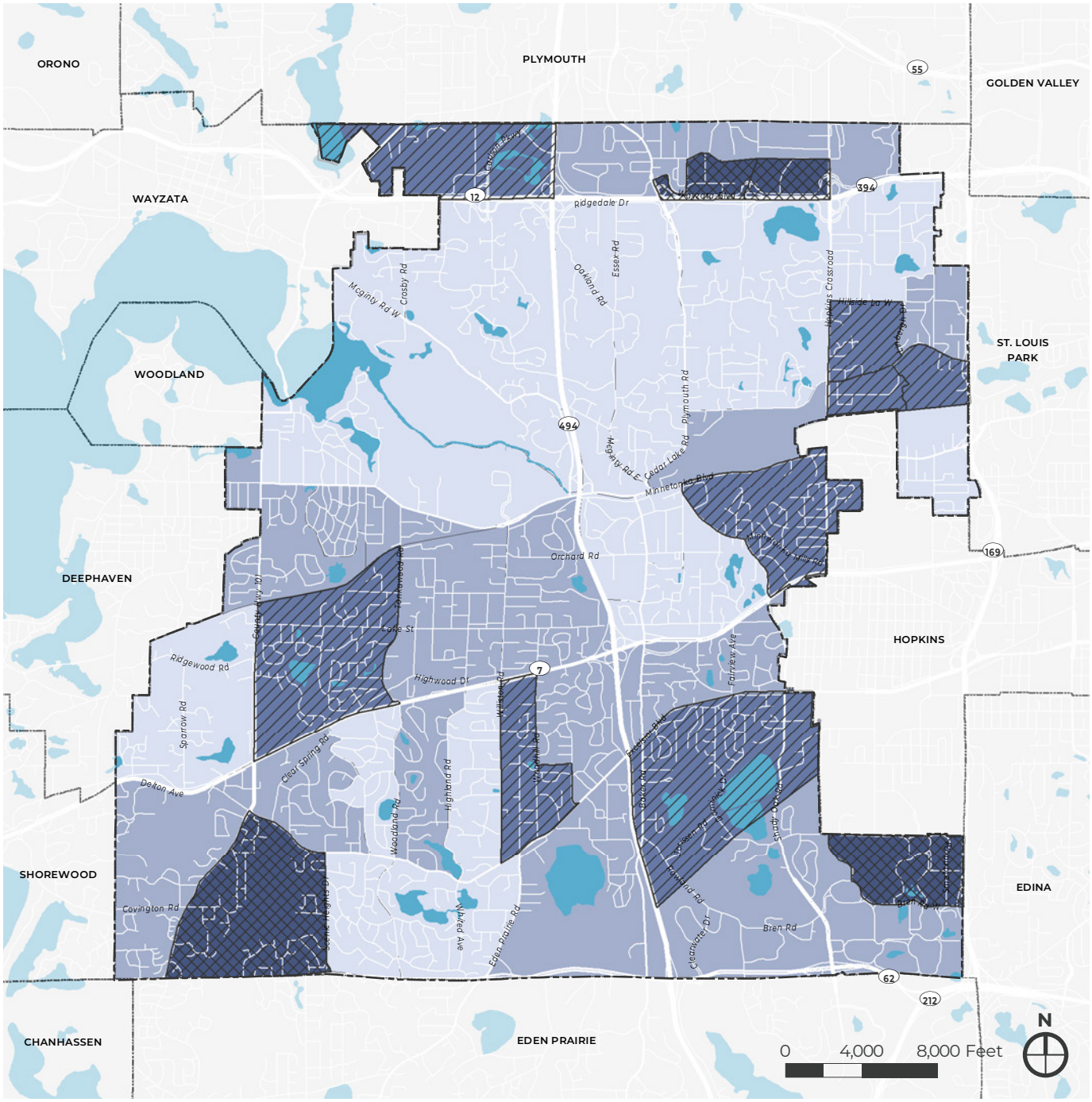
Finally, flooding can result from heavy rain events, causing damage to property and risking the health of residents. Much of the community is at some risk from flooding that would occur during a 100-year rain event. There are several locations where vulnerable populations are also at risk for localized flooding (*Figure 15*).

Staff Input on Climate Impacts

A vulnerability assessment was completed for the City. The assessment looked at vulnerabilities to various climate hazards across infrastructure, society, and the natural environment. As part of this assessment, City staff were asked to share input where they saw the greatest vulnerabilities and strengths. The following is a summary of the themes that emerged:

- **Built infrastructure:** primary concerns were for the impact flooding could have on utilities, transportation systems, and public buildings. Flooding can cause damage to buildings and infrastructure, leave behind debris, cause sewer back-ups, and contribute to higher insurance rates.
- **Societal:** Public safety during emergencies is a concern, especially among residents with lower incomes and elderly residents who are the most vulnerable. Power outages, interrupted food supplies, and limited access in and out of neighborhoods may be the most disruptive. Changes to weather patterns can disrupt recreational activities, such as winter events that depend on ice and snow, as well as summer events when there are poor air quality days or extreme heat waves.
- **Natural environment:** flooding, drought, and heat threaten natural resources, especially trees and water bodies. Because of the rich tree canopy, the City is particularly vulnerable to high wind events (*derechos, tornadoes*), pests, and disease. Hazards that threaten trees can have cascading impacts on habitat, cooling and shading, and increased costs for tree replacements. Higher temperatures can also impact water quality, causing more algal blooms and degradation of aquatic life.

Figure 9 Population Vulnerability



Key

- Highest Vulnerability Populations
- Medium-High Vulnerability Populations
- Medium-Low Vulnerability Populations
- Lowest Vulnerability Populations
- Water Bodies
- Municipal Boundaries

Vulnerability analysis based on five demographic characteristics:

1. Socioeconomic Status *(Cost Burdened Households, Family Income as percentage of AMI, Public Assistance or SNAP benefits, No High School Diploma)*

2. Household Composition *(Population 65 and Older, Population under 18, Single Parent Household)*

3. Health *(People with no Health Insurance, COPD Hospitalizations, Household with Any Disability)*

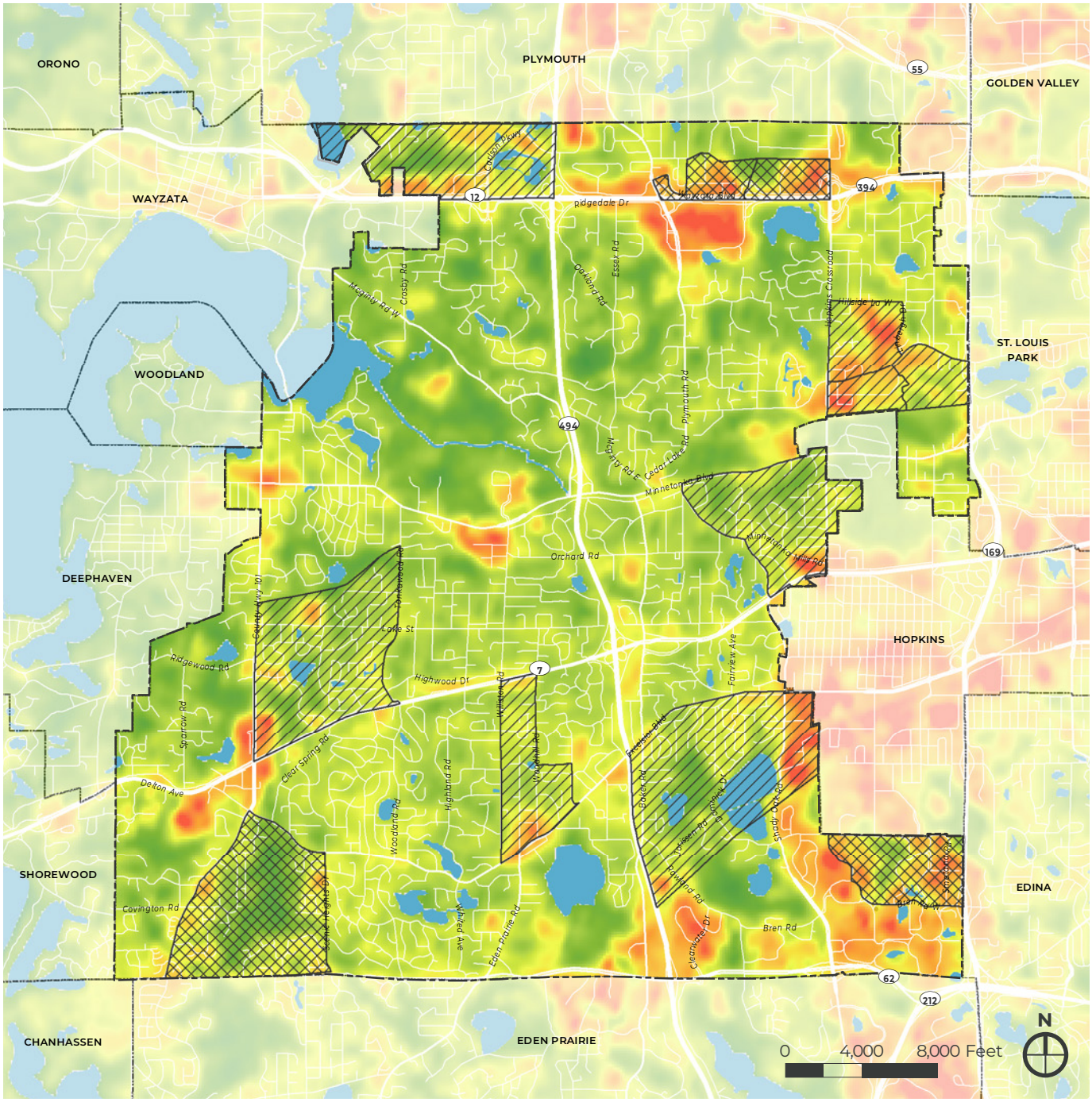
4. Ancestry *(People of Color, Limited English Proficiency, Population Foreign Born)*

5. Housing Infrastructure and Transportation *(Commuting via Public Transit, Population Density, Household with No Vehicle, Household with No Broadband)*

Date Source: Barr Engineering, U.S. Decennial Census; City of Minnetonka Climate Vulnerability Assessment, 2023

Map created by LHB

Figure 10 Land Surface Temperature



Key

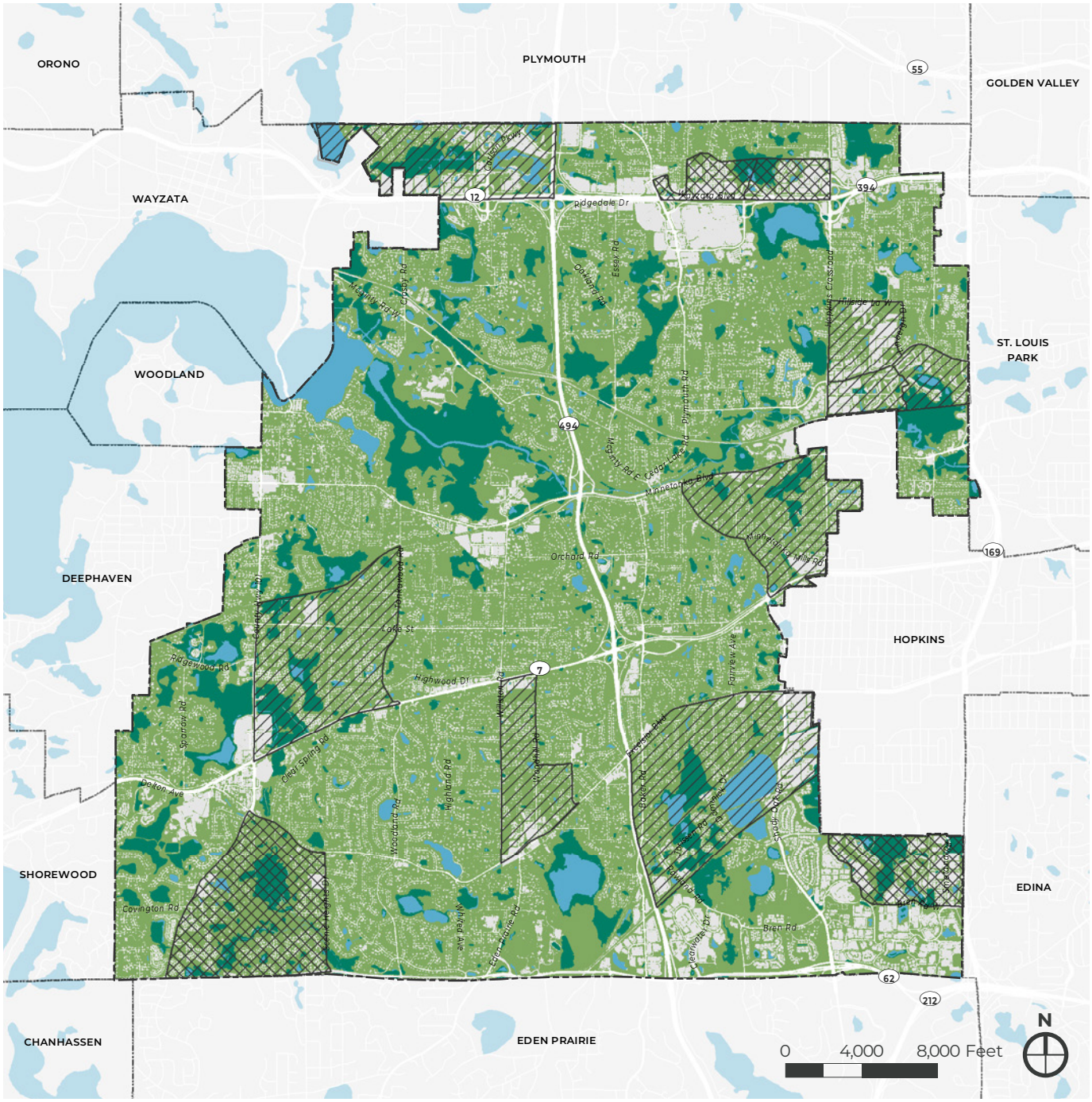
- High Land Surface Temperature (125°F)
- Low Land Surface Temperature (74°F)
- Highest Vulnerability Populations
- Medium-High Vulnerability Populations
- Water Bodies
- Municipal Boundaries

Land Surface Temperature satellite image taken at noon on July 22, 2016. Air temperature at MSP was 90°F

Data Source: Barr Engineering, Metropolitan Council, 2016; City of Minnetonka Climate Change Vulnerability Assessment, 2023

Map created by LHB

Figure 11 Heat Abating Land Cover



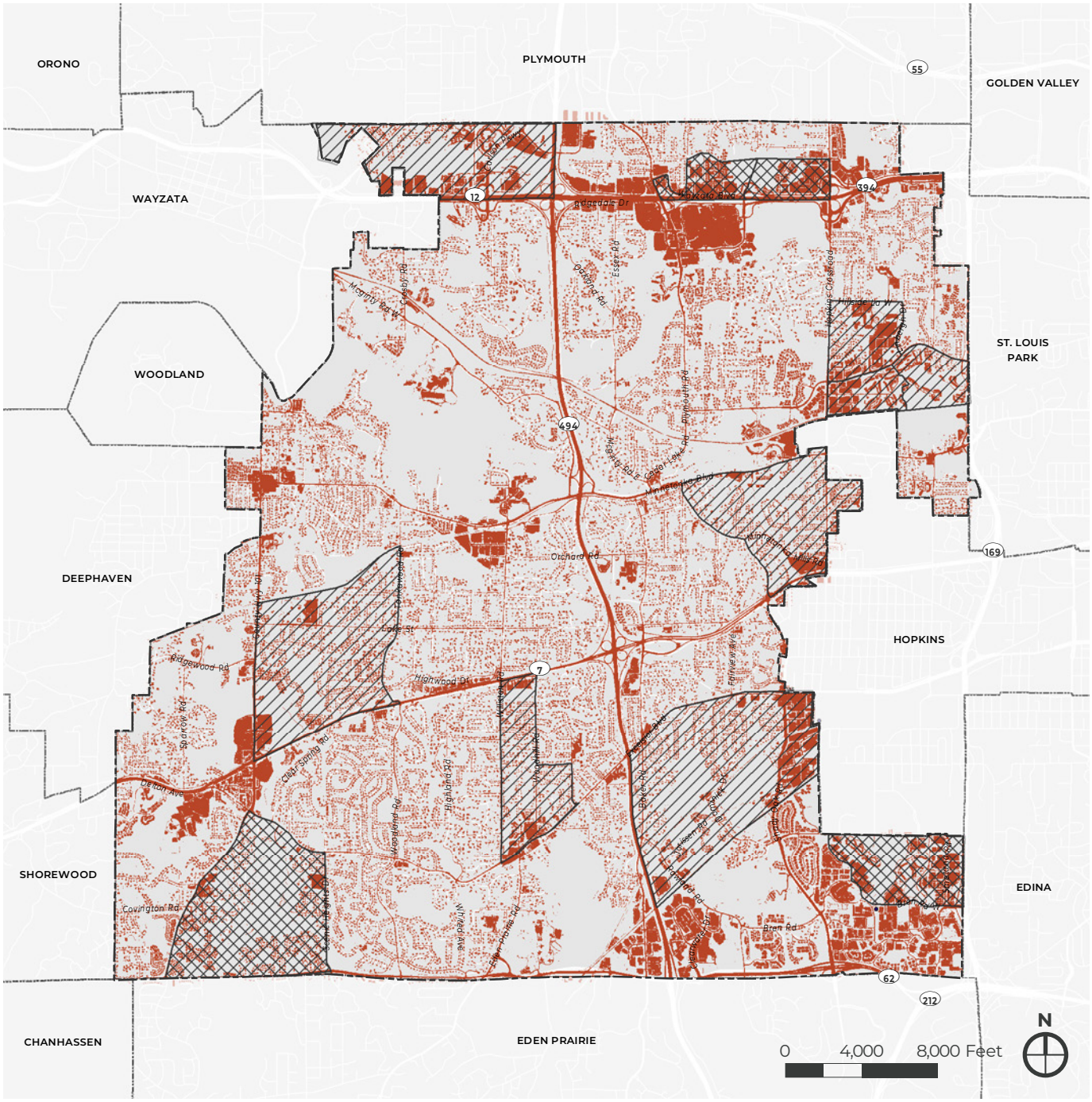
Key

- Tree Canopy/Shrubs/Grass
- Wetlands
- Lakes/Rivers/Ponds
- Highest Vulnerability Populations
- Medium-High Vulnerability Populations
- Municipal Boundaries

Data Source: Barr Engineering, University of Minnesota TCMA 1-Meter Land Cover Classification, 2015; City of Minnetonka Climate Change Vulnerability Assessment, 2023

Map created by LHB

Figure 12 Heat Generating Land Cover



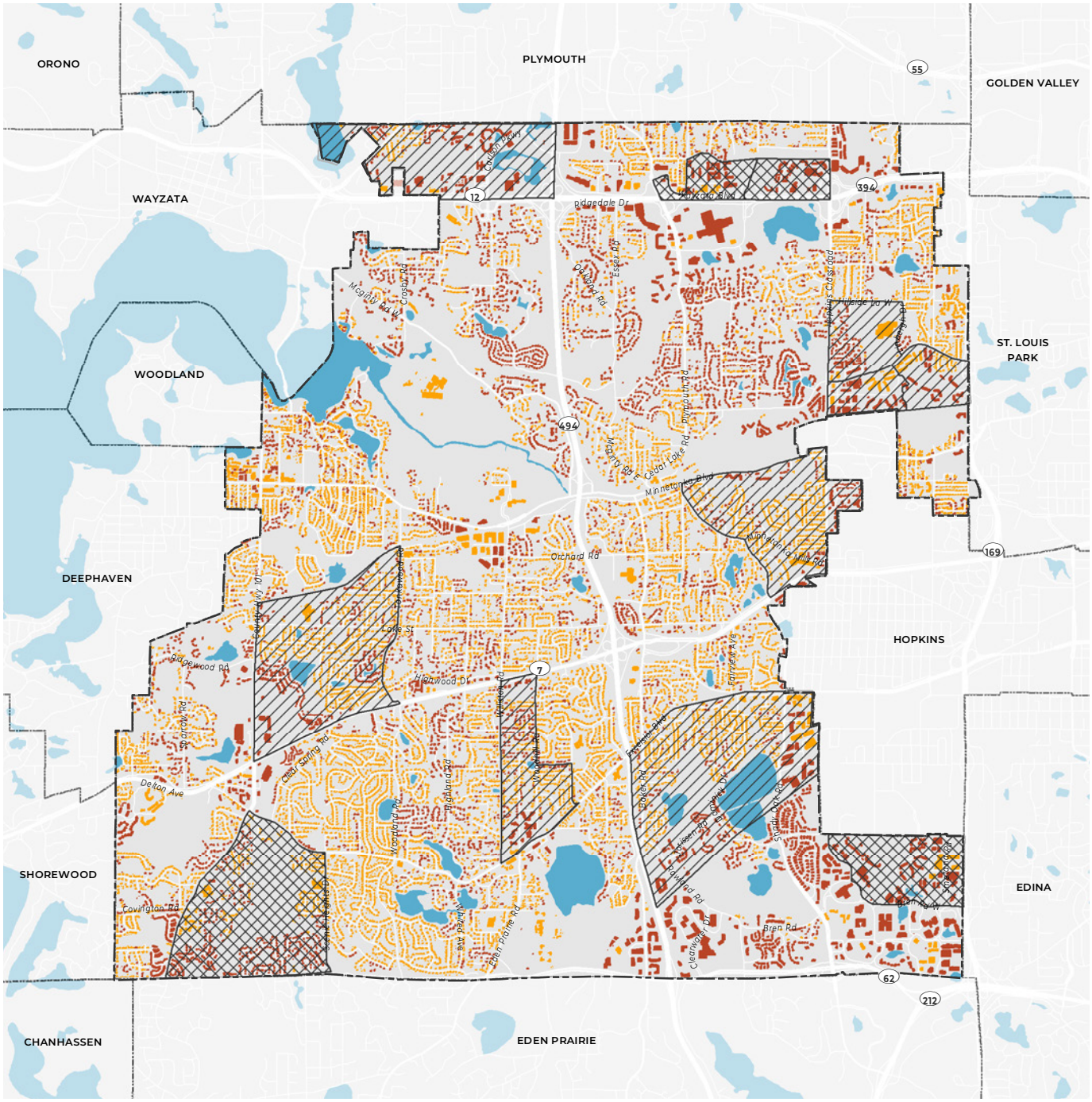
Key

- Impervious Surfaces (Pavement, Buildings, Bare Soil)
- Highest Vulnerability Populations
- Medium-High Vulnerability Populations
- Municipal Boundaries

Data Source: Barr Engineering, University of Minnesota TCMA 1-Meter Land Cover Classification, 2015; City of Minnetonka Climate Change Vulnerability Assessment, 2023

Map created by LHB

Figure 13 Building Age



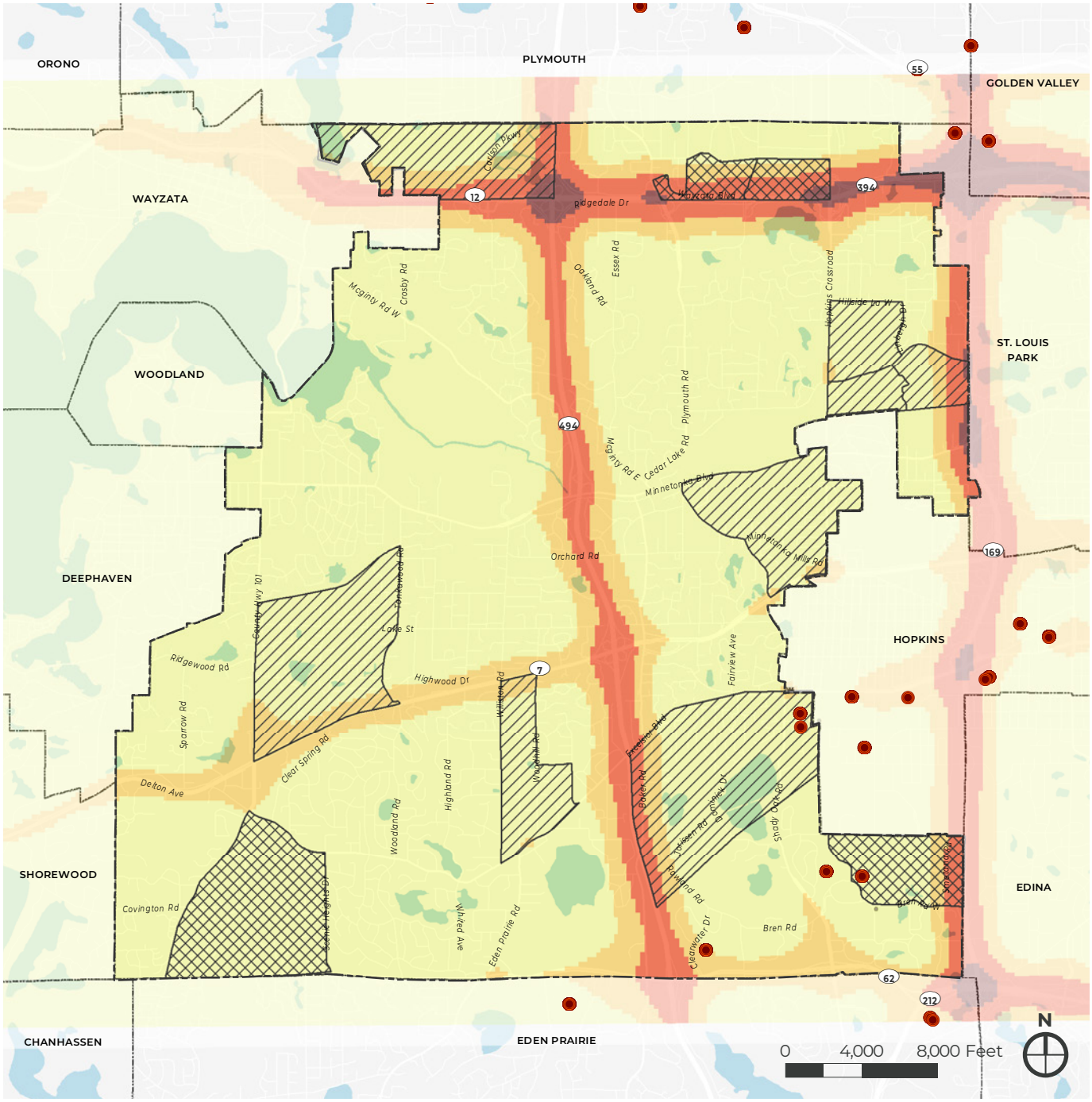
Key

- Buildings Constructed Before 1976
- Buildings Constructed After 1976
- Water Bodies
- Highest Vulnerability Populations
- Medium-High Vulnerability Populations
- Municipal Boundaries

Data Source: Barr Engineering, City of Minnetonka Climate Change Vulnerability Assessment, 2023

Map created by LHB

Figure 14 Pollution



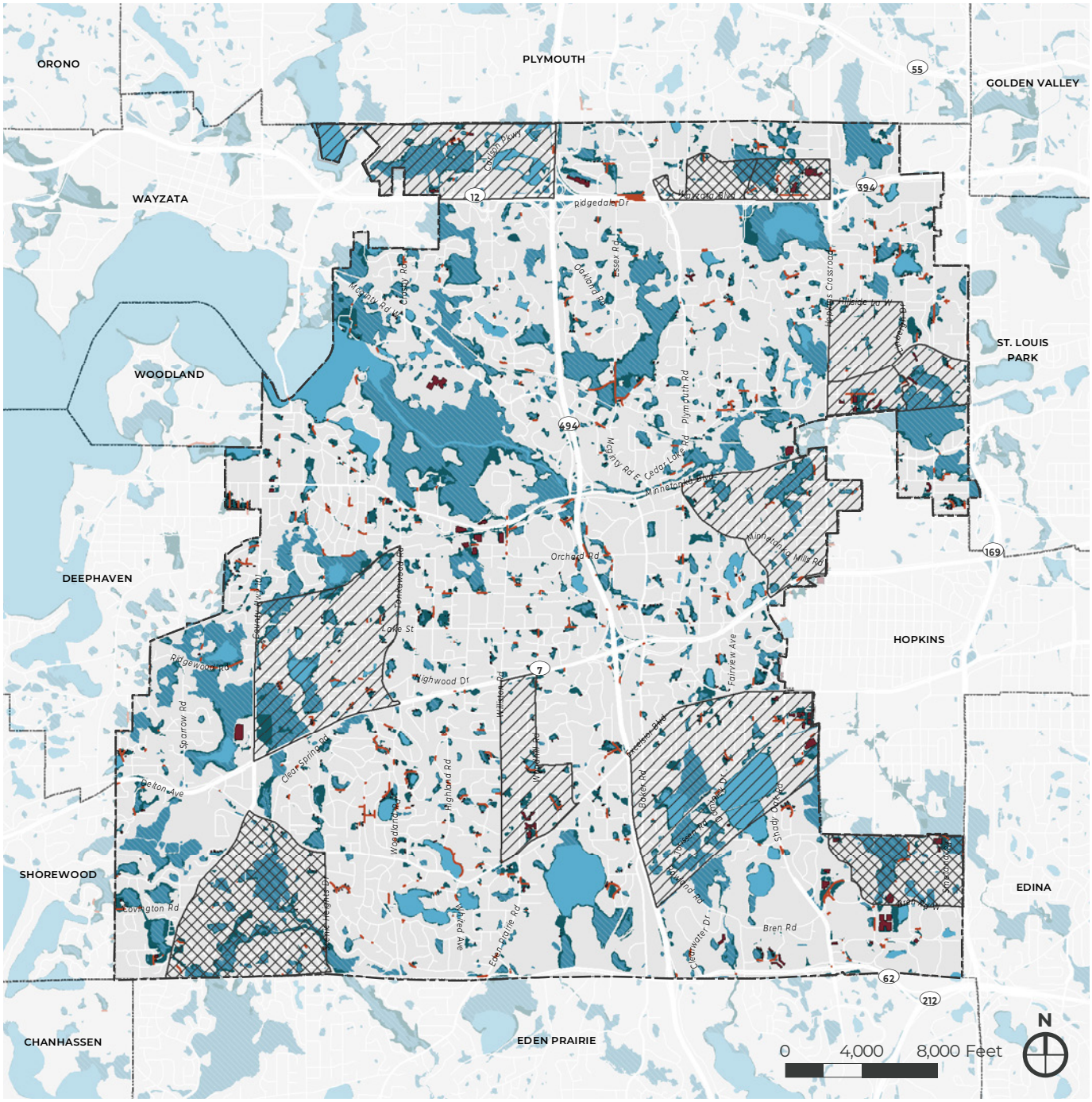
Key

- MPCA Point Source Pollution
- Highest Estimated Traffic Pollution
- Lowest Estimated Traffic Pollution
- Highest Vulnerability Populations
- Medium-High Vulnerability Populations
- Municipal Boundaries

Data Source: Barr Engineering, Minnesota Pollution Control Agency, 2020; City of Minnetonka Climate Change Vulnerability Assessment, 2023

Map created by LHB

Figure 15 Flood Susceptibility



Key

- Road Impacted by 100-Year Flood Events
- Building Impacted by 100-Year Flood Events
- 1% Probability Flood Inundation (Atlas 14)*
- Wetland (NWI)
- Water Bodies
- Highest Vulnerability Populations
- Medium-High Vulnerability Populations
- Municipal Boundaries

** The flood inundation represents level pool inundation for the 1% probability (100-year) critical storm event. The data set does not include representation of flood elevations along stream corridors.*

Data Source: Atlas 14 Modeling, City of Minnetonka Climate Change Vulnerability Assessment, 2023

Map created by LHB

Community-Wide GHG Inventory

In 2021, over 615,000 metric tons of carbon dioxide equivalents (*CO2e*) were emitted due to activities occurring within Minnetonka. Over half of the community's GHG footprint is from the energy used in buildings. These emissions are split relatively evenly between the residential sector and the commercial/industrial sector, and emissions from electricity are equivalent to emissions from heating fuels such as fossil gas, propane, and fuel oils[1]. An additional 44% of emissions were from vehicles traveling within the city's geographic boundaries, and the remaining 2% were from managing waste generated within the community (*Figure 16*).

Community-wide emissions have decreased by 32% since 2007, with reductions in every sector (*Figure 17 & Figure 18*):

+ **Emissions from energy used in buildings** dropped by 41%, with reductions in both commercial/industrial emissions and residential emissions.
  - Electricity emissions dropped by 58% due to a combination of improved electricity efficiency and using cleaner sources for electricity generation.
  - Emissions from heating fuels were about the same in 2021 as in 2007 but vary significantly from year to year based on the weather (*Figure 19*).
+ **Vehicle travel emissions** dropped by 18% – in part because of cleaner vehicles, but primarily due to the shift in travel patterns caused by the COVID-19 pandemic. The extent to which these reductions will be sustained remains to be seen. [2]
+ **Waste emissions** dropped by 18% due to reductions in waste generated.

As electricity emissions have dropped – especially in the commercial/industrial sector – emissions from vehicle travel and heating fuels – especially in homes – have become increasingly significant contributors to community-wide emissions.

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1 This plan uses the term "gas" rather than "natural gas" in order to drop some of its connotations as inherently climate-friendly. The gas we use for heating is a fossil fuel comprised primarily of methane – which is a potent greenhouse gas.

2 Note, transportation greenhouse gas emissions for this report are calculated by using data that tracks any vehicle that drives within the City of Minnetonka boundaries, including pass through traffic. As a city with multiple major highways and regional attractions (e.g. Ridgedale Shopping Center), there are vehicles trips counted that are not associated with people that live or work in Minnetonka. For instance, in 2021-2022, the City of Minnetonka hired a consultant to track the number of people who visit the city for at least 7 minutes (excluding people that live or work in Minnetonka). Over a 13 month study period, the city averaged 2.5 million visitors per month, which excluded pass through traffic. (source: City of Minnetonka, 2022 Visitor 360 Foundation Report)

While tracking all vehicles trips within the city's boundary is a common data practice, It should be noted that the City of Minnetonka has limited ability to alter vehicular patterns and even less ability to alter vehicle trips that begin and end outside of the city's boundaries.

Figure 16 Minnetonka 2021 GHG breakdown by activity, fuel type, and sector. (*Data source: Regional Indicators Initiative*)

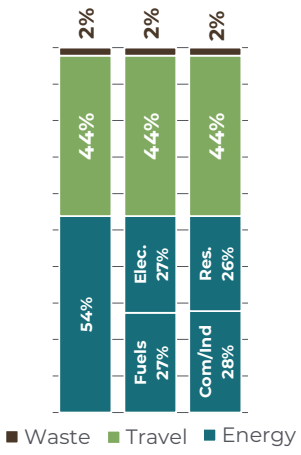


Figure 17 Minnetonka greenhouse gas emissions by activity from 2007-2021 (*left*) and 2021 breakdown by activity (*right*). (*Data source: Regional Indicators Initiative*)

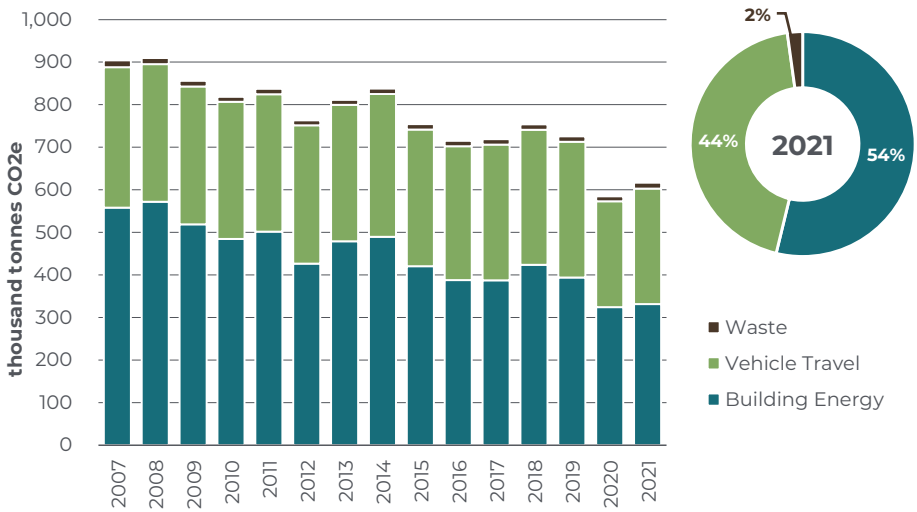


Figure 18 Minnetonka greenhouse gas emissions trends from 2007-2021 by activity. Percentages show the change in emissions from 2007 to 2021. (*Data source: Regional Indicators Initiative*)

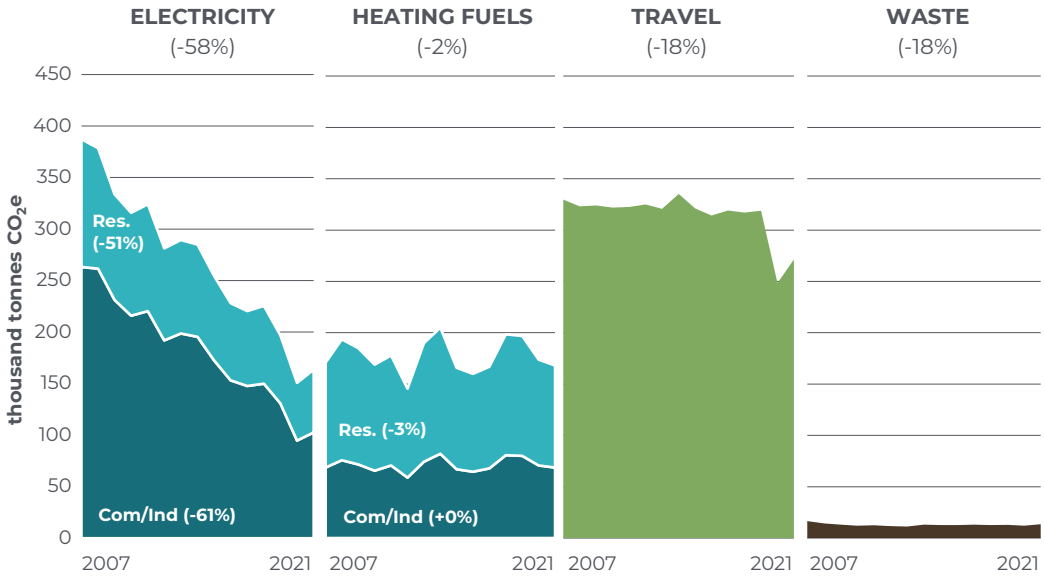


Figure 19 Minnetonka energy use by fuel type and sector from 2007-2021. Heating degree day (*HDD*) data is also shown to highlight the impacts of weather on heating fuels like fossil gas, propane, and fuel oil. Degree days represent the difference between the daily average temperature and 65 degrees Fahrenheit, so HDD is a measure of how cold it was in a given year. (*Data source: Regional Indicators Initiative*)

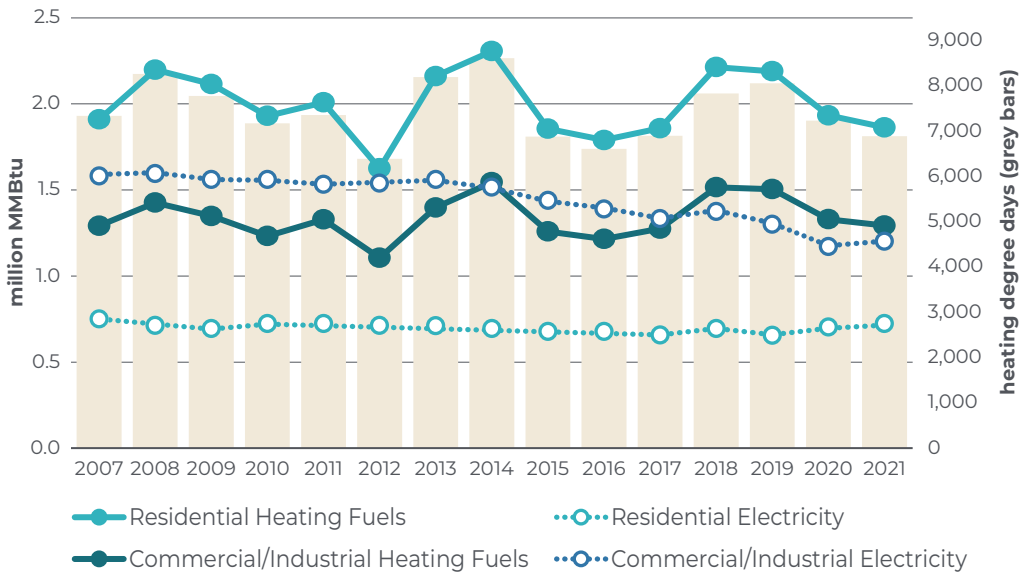
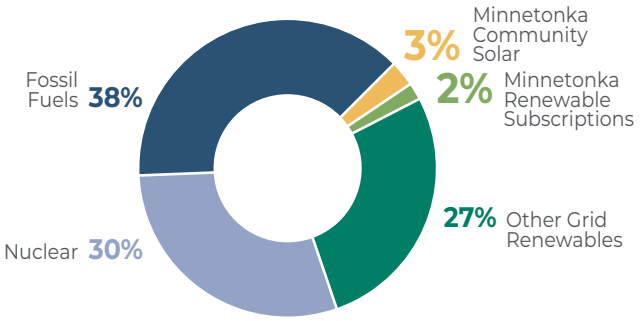


Figure 20 Minnetonka clean electricity contributions for 2020. (*Data source: Xcel Energy Community Energy Report and Certified Renewable Percentage Calculator*)



Local Renewable Energy

Minnetonka residents and businesses are contributing to the clean energy transition by investing in renewable electricity generation. In 2020, 5% of the community's electricity use was enrolled in utility clean energy programs (*Figure 20*). This includes on-site solar participating in the Solar*Rewards program (*less than 1% of the community's total electricity*), community solar subscriptions – including for 90% of the electricity used for city operations – and other renewable electricity subscriptions through Windsource and Renewable*Connect. When the impact of this local investment is combined with the state-mandated renewable portfolio standard and Xcel Energy's electricity generation mix, 33% of Minnetonka's electricity use is estimated to be from renewable sources and 62% is estimated to be from carbon-free sources (*which also includes nuclear*). This does not account for the impacts of on-site solar that is not participating in Solar*Rewards, nor the purchase of renewable energy certificates (*RECs*) outside of the utility programs.

City Operations GHG Inventory

About 1% of the community's GHG emissions are from city operations. In 2022, approximately 6,800 metric tons of CO2e were emitted due to the energy used in city facilities, water systems, and vehicles (*Figure 21*), and an additional 1,000 metric tons were emitted due to indirect (*Scope 3*) activities such as employee commutes.

Key findings from a GHG inventory of city operations for the years 2018, 2020, and 2022 include:

- Emissions from city operations decreased by 13% from 2018 to 2022, primarily due to cleaner electricity provided by Xcel Energy (*Figure 22*).
- Together, the city's water system and recreational facilities generate over two-thirds of the total emissions from non-travel energy use (*Figure 23*).
- The city used about the same amount of energy for operations in 2022 as it did in 2018, with savings in some facilities – such as City Hall – offset by increases in other facilities (*Figure 24*).
- There was a significant reduction in emissions from employee commutes in 2020 due to teleworking. Although some employees continue to telework one or more days a week, 2022 emissions were actually higher than pre-pandemic levels due to longer average commutes (*also shown in Figure 24*).

While city operations are the direct cause of only a small percentage of the community's total GHG emissions, the city has the greatest control over them. Reducing these emissions will save energy and public funds and serve as crucial demonstrations of the city's commitment and leadership, spurring action throughout Minnetonka.

Figure 21 City operations greenhouse gas emissions by activity for 2022

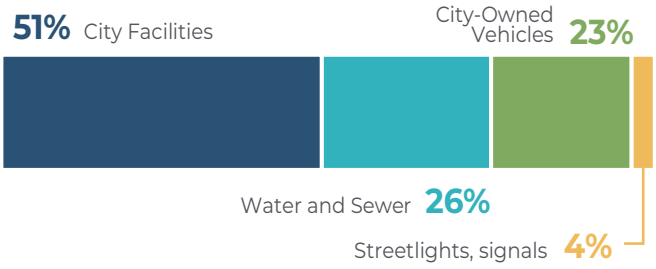


Figure 22 City operations greenhouse gas emissions by energy type

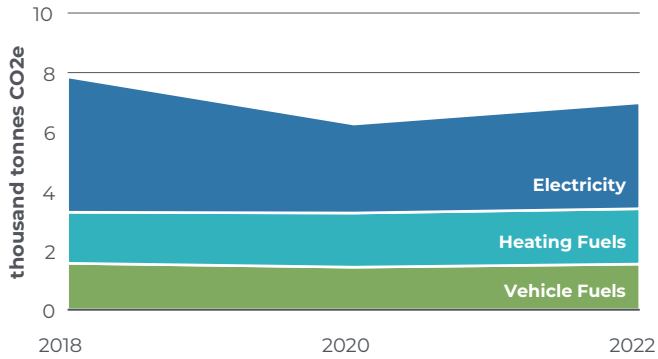


Figure 23 City operations greenhouse gas emissions from non-travel energy use by facility type for 2022

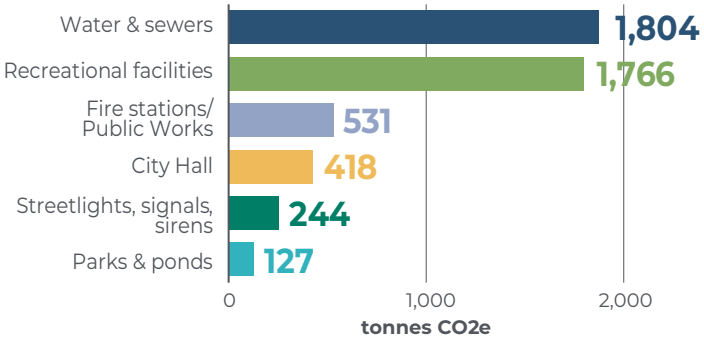
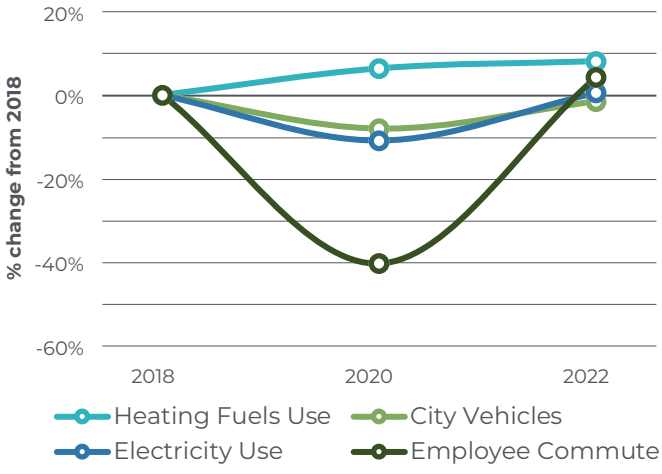


Figure 24 City operations trends from 2018-2022



Climate Policies, Programs, Plans

The following policies, programs, and plans were reviewed to inventory on-going efforts in the city to address adaptation and resilience to climate change and greenhouse gas emission mitigation.

Comprehensive Plan

Click here to learn more

Adaptation & Resilience

Parks and Trails Chapter

Goal to "foster resiliency of parks and open space to recover and adapt to climate change and extreme weather events"

Discussion of the importance of park conservation to support climate adaptation efforts (sponge parks, flood mitigation, cooling)

Policy 3 – A walkable/bikeable Minnetonka that will safely and comfortably connect people to parks, open space, and village centers, and build a culture of active living. Strategies:

+ Continue to implement and evaluate the **Minnetonka Trail Improvement Plan** (TIP)
+ Build off existing TIP to create an active transportation master plan
+ Continue to partner with peer agencies (...)
+ Invest in walkability and cycling as a means of economic development
+ Establish standards for bicycle and pedestrian facilities at community parks and village centers including but not limited to: racks, secure storage lockers, bicycle repair facilities, drinking fountains, and benches
+ Pursue designation as a bicycle friendly city through BikeMN
+ Continue to partner with Three Rivers Park District around planning, implementation and maintenance of regional bike trails that travel through Minnetonka
+ Identify consistent funding source to implement the trail improvement plan
+ Continue to work with partner agencies including (...)

Policy 5 – Resiliency of parks and open space to recover and adapt to climate change and extreme weather events. Strategies:

+ Continue to partner with the natural resources division to implement the **Natural Resources Management Plan** in park spaces
+ Foster partnerships and cooperation with peer agencies
+ Connect people to the benefits of nature and outdoors (...)
+ Use or specify native plant material for new plantings in parks and open spaces as appropriate
+ Increase emphasis on minimizing runoff volumes, through implementation of storm water best management practices and other environmental practices that are technically acceptable and financially feasible
+ Expand environmental education and recreation programs with partnerships in schools and the community
+ Design and install educational and interpretive signage in natural areas in a parks & open spaces
+ Promote diversity of species for new and refurbished plantings in parks
+ Align parks and open space planning efforts with the **City of Minnetonka 2040 Resource Management Plan**

Resilience Chapter

Identifies four climate related hazards: extreme heat, intense rainfall, severe storms and wind, and warming low temperatures

Natural resource areas of concern include

+ Woodlands and urban canopy
+ Water resources – lakes, streams, ponds, and floodplain
+ Native habitat and plant biodiversity
+ Groundwater

Strategies include

+ Restore, maintain, and protect native plantings
+ Develop management plans to preserve and protect natural and water resources
+ Promote green infrastructure principles and practice
+ Increase plant biodiversity
+ Educate citizens and other stakeholders

Water Resources and Wastewater Chapter

Comprehensive Plan

Click here to learn more

The city will continue to monitor the sanitary sewer system to identify points of infiltration and inflow (I/I).

The city will continue the infiltration and inflow program to eliminate points of I/I into the sanitary sewer system on public property, and require the elimination of inflow and infiltration on private property.

The city has also completed an initial education, inspection, and repair program to reduce the quantity of I/I. The program included:

+ Investigations including manhole inspections, roof and yard drain inspections on commercial properties, private property sump pump/foundation drain inspections, sanitary sewer pipe cleaning, and closed circuit television inspection (CCTV).
+ The completion of a sewer rehabilitation program that includes manhole lid replacement, manhole grouting, and sewer pipe lining.
+ Currently, home inspections are being conducted in all areas of the city. If an illegal discharge is found, the city offers a matching grant program to help homeowners pay for improvements necessary to disconnect roof leaders, foundation drains, and sump pumps from the sanitary sewer system.

Mitigation

Housing Chapter

Goal 3 – Provide a Range of Housing Choices. Strategies:

+ Promote the use of "green" technologies, sustainable buildings and design, and energy efficient products in new construction (appears again in Goal 2 and 4)

Transportation Chapter

Goal 1 – Provide a safe, convenient, effective, and integrated transportation system. Relevant strategies:

+ Provide and improve facilities for all users, encouraging safe design and mitigating accidents, especially with pedestrians and bicyclists, who are the most vulnerable users of the transportation system.

Goal 3 – Encourage the expansion of multimodal and transit services in the city to support resident and business transportation needs. Relevant strategies:

+ Promote public transit that serves all residents and provides special transit services for commuters in diverse populations
+ Regional transit initiatives such as bus rapid transit, light rail, and commuter rail
+ Create ways to improve connections within Minnetonka by providing an interconnected transit system and ways for those without a car to move around Minnetonka freely and easily
+ Promote telecommuting and flex scheduling to reduce traffic
+ Identify or develop additional park and ride lots
+ Utilize sound land use planning to promote multi-modal travel alternatives (...)

Goal 4 – Plan for trails and pedestrian ways as a transportation mode and provide a network of trails and pathway connections to schools, commercial areas, parks, activity centers, and access to transit services

Goal 5 – Recognize the interrelationship of land use and transportation, and anticipate impacts of the location and intensity of planned land uses on the transportation system

Multi-modal System Plan includes three major moves the city is making toward realizing its vision for a stronger multimodal system:

+ Planning for a connected pedestrian and bicycle system
+ Improve existing trail system and eliminating gaps
+ Connections to regional employment
+ Regional Bicycle Transportation Network

Land Use Chapter

Goal 6 – Resource Protection and Sustainable Practices

+ Application of sustainable principles in land planning (such as transit oriented design, low impact development, and active living design standards) are expected to reflect priorities for redevelopment and development.
+ Preservation of the views along established corridors, reflecting the character of existing development, natural system patterns, and the transportation network that connects them, will be maintained.

Parks, Open Space, and Trail (POST) Plan

Click here to learn more

Adaptation & Resilience

Relevant Guiding Principles

Advance Environmental Sustainability and Resiliency
+ Preserve, protect and restore natural resources by supporting environmental stewardship and conservation, while building long-term sustainability of the park system

Relevant Trends

Resiliency to climate change
+ Conservation and ecological restoration may become as important as recreation. New parks will be designed with resiliency in mind

Relevant Recommendations

Goal 1 – Promote sustainable design practices and build environmental resiliency into park systems to mitigate the effects of climate change
+ Increase biodiversity in parks and open spaces and utilize native plant species more adaptable to climate change
+ Explore ways to integrate green infrastructure into parks to manage stormwater runoff generated from rainfall
+ Consider ways to create multi-functional park spaces that incorporate environmental benefits including habitat, stormwater management, air quality, thermal heat island, etc.
+ Develop sustainability education campaigns to educate residents on the benefits of minimizing chemical use and reduced park maintenance in strategic areas that may have significant environmental value
+ Showcase sustainability best practices in the parks such as water and energy conservation practices, green infrastructure, native and pollinator plantings, etc. in highly visible locations accessible to the public
+ Raise awareness about sustainability and best practices through social media, educational programs, interpretive elements and marketing information
+ Develop a park resilience action plan as part of any city-wide efforts to efficiently adapt to climate change effects
+ Continue to engage and support volunteers and community groups to expand capabilities and encourage environmental stewardship

Goal 2 – Reduce negative impacts to Minnetonka's waterways and natural resources
+ Incorporate stormwater best practices (rain gardens, bio-swales, water retention, native landscaping and permeable paving) in park and facility design
+ Explore the use of permeable surfaces in the future design of parks and park facilities
+ Establish native vegetation buffers around wetlands, creeks, ponds and lakes on park land to filter stormwater runoff.
+ Incorporate natural stream bank erosion control methods
+ Continue to manage the use of chemical herbicides and pesticides to control weed and insect problems
+ Protect, preserve and restore high quality waterways and natural resources

Goal 3 – Balance the preservation of Minnetonka's natural resources with recreational programs and facilities
+ Create an equitable balance between the preservation of Minnetonka's natural resources with the development of recreational programs and facilities
+ Limit development in park preserves to improvements that support passive uses or address water quality and habitat
+ Prioritize the development of recreational programs and facilities in already developed areas of parks or low-quality natural areas
+ Balance natural resource protection with human use and access for recreation
+ Continue to protect, preserve and restore sensitive lands within the city's park preserves

Goal 4 – Promote sustainable maintenance practices
+ Utilize native plant materials to reduce maintenance and irrigation needs.
+ Continue to minimize the application of chemicals to turf to reduce leaching of chemicals into ground and surface water
+ Offer recycling programs/facilities in neighborhood, community, athletic and special use parks
+ Utilize integrated pest management strategies to control nuisance plants, weeds, insects, rodents, etc.
+ Explore options to implement a turf conversion program to transition underutilized turf areas to forest or other native ground cover
+ Continue to implement vegetation management practices to protect water quality
+ Design future parks and park improvements to include low maintenance, durable and recycled materials as much as possible

Mitigation

Goal 1 – Promote sustainable design practices and build environmental resiliency into park systems to mitigate the effects of climate change
+ Improve bicycle and pedestrian access to parks to encourage alternative modes of transportation to parks, thereby reducing greenhouse gas emissions, improving air quality and promoting healthy lifestyle choices
+ Use sustainable building practices when developing, expanding, or renovating park facilities
+ Improve energy efficiency when renovating or constructing new facilities

Natural Resources Master Plan

Click here to learn more

Adaptation & Resilience

Includes urban heat island map

Includes pre-settlement land cover of mostly oak savanna, not forested

Many sections of the plan include elements that support climate adaptation and resilience, climate change is specifically called out as an issue; opportunities from this plan are listed in the opportunities section of this report

Climate Adaptation Strategies:

+ Watch for changes and be prepared to address unwanted changes (e.g., invasive pests)
+ Reduce stress on natural resources through restoration and rejuvenation
+ Allow and facilitate species movement
+ Protect the health and wellbeing of Minnetonka citizens
+ Educate ourselves to encourage climate-friendly action on private property
+ Lead by development to show citizens how to address climate adaptation

Mitigation

"The Plan addresses climate adaptation and resilience, but not climate mitigation or reducing carbon footprint."

Strategic Profile

Click here to learn more

Adaptation & Resilience

Relevant Guiding Principles

We earnestly commit a beautiful, sustainable and healthy environment as a vital part of a stable prosperous and thriving community

We ethically uphold community trust through proactive, inclusive public engagement, transparent communications, and the careful stewardship of our financial, natural, and capital assets.

Relevant Strategic Priorities

Support long-term and short-term initiatives that lead to the protection and enhancement of our unique and natural environment while mitigating climate change impacts

+ Carefully balance growth and development with preservation efforts that protect the highly valued water and woodland resources of our community
+ Develop and implement long-term plans to mitigate threats to water quality, ecosystems, urban forests and the unique natural character of Minnetonka

Mitigation

Relevant Strategic Priorities

Support long-term and short-term initiatives that lead to the protection and enhancement of our unique and natural environment while mitigating climate change impacts

+ Take an active role in promoting energy and water conservation, sustainable operations and infrastructure, recycling and environmental stewardship.

Water Resource Management Plan

Click here to learn more

Adaptation & Resilience

Generally, this plan supports adaptation strategies though not always explicit. The plan does state the need to better "understand and address potential and future flood risks" in the development of a climate adaptation strategy.

Per the Plan: "The city is in the process of updating the hydrologic and hydraulic modeling city-wide to allow for the evaluation of the Atlas 14 design storm events, for both existing and proposed conditions. Once complete city-wide, the city will utilize the modeling results to evaluate areas of increased flood risk, develop a flood mitigation strategy and identify projects to help accommodate the anticipated increase in flooding."

Mitigation

This plan does not include mitigation efforts. However, wetland protection will be important to continue to naturally sequester carbon.

Capital Improvement Program

Click here to learn more

Adaptation & Resilience

Projects with sustainability features and natural resources stewardship are denoted with icons.

Park Habitat Stewardship Plan:

+ Costs associated with habitat restoration and maintenance activities required to restore and maintain biodiversity and high quality habitat in natural areas. Activities include site planning, invasive plant removal, site preparation, native seeding/planting, mowing, herbicide treatments, and prescribed burning. The following schedule constitutes Phase 1 of a 20-year restoration plan outlined in Appendix B of the NRMP. Funds will be used for restoration and maintenance activities that are guided by restoration priorities and target plant communities outlined in Appendix A of the 2021 Natural Resources Master Plan (NRMP), and any detailed habitat restoration and maintenance plans that have been developed for select parks. 2023: Purgatory Park, Hilloway Park 2024: Meadow Park, Orchard Park, Lake Rose Park 2025: Big Willow Park, Jidana Park, Green Circle Park 2026: Victoria-Evergreen Park, Kinsel Park

Forestry Preservation:

+ This program funds asset-related costs associated with the arrival of the Emerald Ash Borer (EAB) insect. In 2014, the city initiated the EAB Management Plan to begin to address the anticipated effects of EAB infestation. The city has hired additional staff to assist with the implementation of EAB management for both public and private trees. The first full year of the program was in 2015. Phase 2 of the EAB Management Plan began in 2019 after discovery of the EAB within the city boundary.

Community Forest Inventory Management Plan:

+ The 2021 Natural Resources Management Plan identifies the need for developing a community forest inventory and management plan to guide protection and enhancement efforts related to the city's community forest, which is a significant asset to the community. The city currently expends significant effort in forestry related initiatives, however developing a plan will ensure that resources and activities align with city goals related to the community forest. Developing a plan will involve completing a tree inventory for the city and using that information to inform management strategies, including arboriculture (tree care) needs, disease and pest management, woodland management, addressing tree equity concerns, replanting efforts, monitoring, and research. Development of the plan is expected to take one year.

Mitigation

Solar initiative – funding for solar on Public works and Public Safety facility roofs. Good match for federal direct pay incentives and state solar grants for public buildings

Energy Conservation & Sustainability Improvements:

+ This item provides for the upgrade of energy consuming equipment such as light fixtures, occupancy sensors, insulation, weather stripping, water heaters, water reduction device fixtures and similar equipment that will save energy and water resources. Projects are undertaken such that those deriving the shortest payback of investment are completed first as well as lighting that has reached the end of its useful life. 2023: Park shelter and restroom lighting 2024: Ice arena – hot water heaters and furnaces 2025: See Solar Initiative – Roof Projects page 2026: Refrigerant change out 2027: Conservation improvements

Trail Improvement Plan:

+ The Trail Improvement Plan is a multi-year plan created to enhance the city's trail and sidewalk system. New trails and walks added to the system provide safe and active connections between existing trails, parks, schools, and village centers. Staff will explore opportunities to include bike parking as part of trail expansion projects in village centers and at schools, as feasible and appropriate.

Energy Action Plan

Click here to learn more

Adaptation & Resilience

This plan does not include adaptation or resilience measures

Mitigation

Overarching Goals

Reduce energy-related greenhouse gas emissions in Minnetonka by 160,000 metric tons of CO2 before the end of 2030—equivalent to removing over 35,000 passenger vehicles from the road for one year.

Between initiation of this plan and the end of 2030, the cumulative impact of achieving our goal will result in a 41% reduction in greenhouse gas emissions compared to the three-year baseline

Short-Term Focus

Expand participation in conservation improvement programs offered by the energy utilities through outreach to multi-family and residential housing with energy efficiency and renewable energy improvements

The city will launch a solar program in 2025 to make it easier for residents/businesses to take advantage of the technology.

Medium and Long-Term Focus

Business outreach for energy efficiency and renewable energy improvements

Facilitate electric vehicle adoption

Minnesota GreenStep Cities

Click here to learn more

Adaptation & Resilience

Under BP29, the city identifies the County Hazard Mitigation plan as the main document to address climate hazards in the community. The city works with the county to coordinate emergency management and response. The American Red Cross is listed as the primary organization for emergency shelters.

Certified as a Tree City USA

Mitigation

Minnetonka is a Step-5 GreenStep City and has completed the following mitigation best practices

BP1 – Efficient Existing Public Buildings
- + Regular B3 updates
- + Efficiency upgrades to athletic facilities
- + Conservation improvements for city computers

BP2 – Efficient Private Buildings
- + Workshops and communications for commercial efficiency
- + Home energy squad visits
- + Tiered billing structure for water use

BP4 – Efficient Outdoor Lighting and Signals
- + All traffic signals converted to LED

BP 11 – Living and Complete Streets
- + Multi-modal transportation included in comprehensive plan
- + Traffic calming measures on Crosby Road – lane narrowing

BP 12 – Mobility Options
- + Bike trails are ¾ built out of a 40-mile loop trail corridor system

BP 13 – Efficient City Fleets
- + Right-sizing fleet and adding hybrids

BP 15 – Sustainable Purchasing
- + Adopted a sustainable purchasing policy in 2018
- + City is subscribed to a community solar garden

BP 18 – Parks and Trails
- + Parks, Open Space and Trail System Plan (POST) adoption

BP 22 – Sustainable Consumption and Waste
- + The city offers organics collection

BP 23 – Local Air Quality
- + Installation of six EV chargers

BP 26 – Renewable Energy
- + Allows solar as a permitted accessory use in all residential zoning districts
- + Offers PACE financing

Policies, Resolutions, Zoning, Permitting, Financing

Adaptation & Resilience

City Council adopted a **climate emergency declaration** (page 44) in April, 2022. The resolution includes the following commitments

+ Create/Implement a Climate Action and Adaptation Plan
+ Implement GreenStep Cities best practices related to energy, climate actions, climate adaptation and resilience, or other appropriate practices.
+ Implement innovative projects, programs, and public awareness through the city's capital improvement program, strategic profile, Sustainability Commission, and other efforts.
+ Collaborate with surrounding cities and local partners to identify and work together on larger, regional sustainability projects.
+ Position city with shovel-ready (or identified) projects to take advantage of state and federal climate action funding opportunities.
+ Use all available tools to ensure climate action in Minnetonka is equitable and just.

Solar

+ The city permits solar as an accessory use in all districts.
+ The city has a solar-specific **solar permit form**

Zoning:

+ The city considers planned unit developments (PUD) for projects that establish greater energy conservation through building and site design than would otherwise be achieved under non-PUD development.

Financing:

+ The city provides low-interest loans to residents to make repairs or energy efficiency improvements to their home. Low-interest financing is also available specifically for residential solar energy projects.

Emergency Management Plan

Full plan not available online – Click here to learn more

Adaptation & Resilience

Information is available to prepare for thunderstorms and tornadoes

Defers to federal resources for family disaster planning, flood safety, and winter weather

Mitigation

This plan does not include mitigation efforts.

Hennepin County Multi-Jurisdictional Hazard Mitigation Plan

Click here to learn more

Adaptation and Resilience

Climate adaptation considerations: Built the Hennepin West Mesonet, a network of remote sensors which provide highly-accurate, near real-time measurements of weather, soil, and water conditions. This data can be used to provide information that can be used to improve the understanding of climate variability, advancing public climate education, and supporting development of mitigation and/or adaptation measures for local communities.

Includes hazard assessment for climate change.

Includes adaptation strategies for the following categories:

+ Human development
+ Poverty alleviation
+ Livelihood security
+ Disaster Risk Management
+ Ecosystem management
+ Spatial or land-use planning
+ Structural/physical
+ Institutional
+ Social
+ Spheres of change (practical, political, personal)

Mitigation

Suggests reducing emissions to limited by reducing or preventing greenhouse gases. County has a **climate action plan** that is focused on reducing emissions.

Water Meter Reading Process

Adaptation & Resilience	Mitigation
The City currently uses a drive by read system. This requires staff to drive by every property to capture the monthly water use reading. The process typically takes 4 days per month to complete and only allows the city to track water use one time per month.	
In 2022/2023, the city is piloting 3 different automated meter reading (AMR) systems which transmit water use information 4-6 times per day.	
In 2024, the city will be begin a city-wide water meter replacement project to a new AMR system. These new meters will: + Reduce city vehicle miles driven; and + Enable users to track water use and identify potential leaks daily versus one time per month.	

Water Efficiency Rebate Program

Click here to learn more

Adaptation & Resilience	Mitigation
The City of Minnetonka (in collaboration with Riley Purgatory Bluff Creek, Metropolitan Council, and Clean Water Land and Legacy Amendment) offers rebates to residents and businesses to replace broken or obsolete irrigation equipment, clothes washers, and toilets with water efficient certified devices in 2022- 2024.	
Property owners who install WaterSense® certified smart controllers and sprinkler heads can apply to receive a rebate for 75 percent of the purchase cost up to $200 for each item.	

Watering Restrictions

Click here to learn more

Adaptation & Resilience	Mitigation
The city restricts lawn watering between May 1 and Sept. 30. + Properties are not allowed to water between 11 a.m. and 5 p.m. + Even addresses can only water on even-numbered days, odd addresses can only water on odd-numbered days. + Private water sources and wells can be used anytime but they must be registered with the city and have a yard sign.	

Wood Utilization Program

Adaptation & Resilience	Mitigation
In 2021, the City of Minnetonka purchased a saw mill to process logs removed as part of city projects and to slow the spread of invasive species (e.g. Emerald Ash Borer).	
The lumber collected in this program has been used for several city projects, including: + A gravel bed nursery; + Sustainable Minnetonka Awards; + Minnesota Shade Tree Advisory Council Awards; + A bench donated to the League of Minnesota Cities; + Decorative boards donated to the League of Minnesota Cities; and + A giant Jenga set used for city events.	
The city has partnered with master's program students at the Humphrey School of Public Affairs - University of Minnesota on two capstone projects: + Wood Utilization Program in Minnetonka (business plan); and + Canopy Expansion on School District Property.	
City staff have presented the program to the Minnesota Shade Tree Short Course.	
12 tons of carbon has been stored through the utilization of 59 logs; this is the equivalent amount of carbon dioxide emitted by two passenger vehicles according to the US EPA.	
Revenue generated to date from log sales, while currently small, will assist with the expenses associated with the city's recycling fund.	

Opportunities

After reviewing the city's policies, programs, and projects, opportunities for the city to more comprehensively address climate resilience and mitigation have been identified. These opportunities will be used to inform engagement efforts and to develop strategies and actions for the CAAP.

Adaptation/Resilience

Goal

Establish a resilience goal and targets to work toward across natural systems, built infrastructure, and population vulnerabilities.

Natural Systems

Minnetonka is rich in natural resources. Because of its high tree canopy coverage, it is particularly vulnerable to high wind events (*e.g., derechos, tornadoes*), climatic stresses (*e.g., drought, temperature extremes, heavy rain*), diseases, and pests. Water bodies are also vulnerable to warming temperatures, pests, and pollutants.

- Include opportunities identified in the Natural Resources Master Plan
- Implement proactive measures to prepare stresses and shocks
- Recovery plan in the case of severe canopy impact
- Carbon sequestration opportunities
- Green infrastructure opportunities
- Land preservation and conservation measures
- Sustainable yard and water conservation practices

Built Infrastructure

Built infrastructure (*roads, bridges, pipes, utilities*) can be susceptible to the shocks and stresses of climate hazards. There are opportunities to strengthen the resilience of built infrastructure through current practices and new process:

- Share vulnerability assessment of city-owned infrastructure and facilities.
- Incorporate and prioritize mitigation and resilience efforts into the capital improvement plan and implementation section of next comprehensive plan.
- Consideration of resilience construction standards.

Population Vulnerabilities

Residents can be vulnerable to various climate hazards including poor air quality, extreme heat, and storm events. Residents who tend to be the most vulnerable are those with lower incomes, the elderly, and children under five.

- Focus outreach efforts on working with community-based organizations that support vulnerable populations to better understand needs
  - ICA (**Intercongregation Communities Association**) – food, jobs, housing, community connectors
  - **Senior Community Services**
- Preparation for hazard response and recovery
- Increased communications regarding hazard
- Contingency planning for power outages during extreme temperature events
- Meeting basic needs of the most vulnerable (*food, living wage, affordable and healthy housing, affordable energy*)

Mitigation Opportunities

Since greenhouse gas emissions in Minnetonka primarily come from burning fossil fuels like fossil gas and motor fuels, mitigating – or reducing – these emissions requires reducing the use of fossil fuels. Mitigation strategies typically fall into one of three categories: using less (*e.g., efficiency*), using cleaner energy sources (*e.g., renewable electricity*), and/or removing carbon from the atmosphere through nature – or technology – based solutions (*e.g., trees*).

Goal

Establish an emissions reduction goal and targets to work toward.

City Operations

With most of the recent emissions reductions in city operations coming from the cleaner electricity grid, Minnetonka has a lot of potential to achieve additional reductions in city facilities, water systems, and vehicles, such as:

- Using B3 Benchmarking to identify energy efficiency and electrification opportunities for city buildings – this program has identified over

$100,000 of potential annual energy savings just from the Ice Arenas, Williston Fitness Center, and City Hall complex.

- Continuing to consider the transition of the city's light-duty vehicle fleet to electric vehicles and exploring low-carbon alternatives for diesel vehicles, which comprised about half of vehicle emissions in 2022. Continue to consider transitioning of major equipment (*e.g., snow blowers, mowers, other landscaping equipment*) to electric options as they are replaced. This transition would be based on the city's vehicle/equipment replacement schedule and availability of practical options that will maintain current city operations without a significant need for additional resources.
- Continuing to encourage the utilization of the city's telework policy.
- Continuing to support clean electricity. If the city would like to be able to claim the carbon-free attributes of clean energy investments, the renewable energy certificates must be retained by the city, which is typically not the case for community solar.
- Considering life cycle greenhouse gas emissions when sourcing materials, equipment, and products.

Commercial Buildings

While electricity use and emissions from Minnetonka's commercial, multifamily, industrial, and institutional buildings have decreased significantly since 2007, gas use and emissions have not. High-impact strategies to reduce these emissions include programs and policies that support:

- Replacing gas equipment with electric equipment, when viable
- Evaluating building systems and envelopes (*walls and roof*) to identify energy-saving retrofits or operational strategies.
- Establishing a sustainable building policy for development that utilize city incentives or planned unit development (*PUD*) approval

The city can strengthen the approach to business energy efficiency described in the **2022 Energy Action Plan Addendum** by connecting businesses – especially small businesses with limited staff capacity – to additional funding and financing opportunities from the Inflation Reduction Act and other government funding sources.

Homes

Over a quarter of Minnetonka's emissions are from household energy use. The community's homes use nearly 20% more energy than the regional average and are very weather-dependent, with the majority of emissions coming from gas use. Opportunities include:

- Weatherizing homes by adding insulation, high-performance windows, and air sealing
- Switching to electric equipment and appliances for space and water heating, cooking, laundry, and yard maintenance
- Incorporating energy efficiency and clean energy requirements into housing that receives city funding or planned unit development (*PUD*) approval
- Connecting homeowners with the expanding energy efficiency rebates and financing opportunities from the Inflation Reduction Act and other government funding sources

Transportation

Transportation makes up an increasingly large share of Minnetonka's emissions and the city has more vehicle traffic per resident than the regional average. According to the **Metropolitan Council**, only 2% of work commuting is done by walking or biking despite over 10% of commutes being within a 10-minute driving radius. Nearly a third of work commutes are longer than 25 minutes. Opportunities to reduce travel emissions include:

- Establishing vehicle miles reduction goals and considering land use policies that encourage alternative modes of transportation, calm traffic, and improve economic vitality of commercial and mixed-use corridors.
- Supporting remote work and/or closer live-work opportunities within the community
- Supporting walking and biking by prioritizing the strategies listed in the city's Comprehensive Plan (*Parks and Trails Chapter, Policy 3*), as well as considering the implementation of a complete green streets policy that prioritizes the non-

vehicular user experience, as allowable by public right-of-way and narrow streets, and supporting e-bike adoption.

- Considering the climate impact of increased capacity road projects
- Eliminating vehicle parking minimums
- Adding charging requirements to parking lots, as the state building code allows

Waste

Although waste management is only a small percentage of Minnetonka's total emissions, waste reduction strategies also help reduce upstream emissions and other environmental impacts occurring from the harvesting and manufacturing of food and products. In addition to continuing to support traditional recycling and residential organics recycling, opportunities include:

- Offering commercial composting
- Regulating to-go containers, plastic bags, single-use plastic, etc.
- Where possible, support initiatives found in Hennepin County's Zero Waste Plan (*when approved*)
- Promote deconstruction practices rather than the complete demolition of buildings

Sequestration

Carbon is naturally stored in trees, vegetation, and soil. There is an opportunity to look at parks and other natural spaces to quantify current and potential carbon storage. There is opportunity to look at parks and other natural spaces to quantify and enhance carbon storage potential.

Clean Energy

According to the **solar resource calculation** provided in the Metropolitan Council's Local Planning Handbook, Minnetonka has the capacity to generate 276,650 MWh of electricity each year by harvesting the sun hitting the community's rooftops. This equates to nearly half of the community's 2021 electricity use. Solar arrays can also be mounted directly to the ground or over parking, which greatly expands the total generation potential in Minnetonka. Due to the urban tree canopy, much of the generation potential occurs on large commercial or multifamily rooftops, large surface parking lots, and open spaces (*Figure 25*).

While legislation passed in 2023 requires all electricity sold in Minnesota to be carbon-free by 2040, Minnetonka can keep contributing to this clean energy transition by:

- Implementing the tactics described in the 2022 Energy Action Plan Addendum to encourage broader participation in renewable energy programs
- Offering financial incentives for local renewable energy systems, building upon the available federal and state resources
- Continuing to explore options outside of the community (*e.g., community solar, virtual power purchase agreements, etc.*) to reduce conflict with urban tree canopy

General

Engagement

- Add climate resources to city website and other communication channels
- Leverage outreach with financial incentives to residents and businesses
- Targeted outreach to residents and businesses that are high impact and residents who are most vulnerable
- Community partnerships and climate action buy-in
- Regional and multi-jurisdictional partnerships

Funding

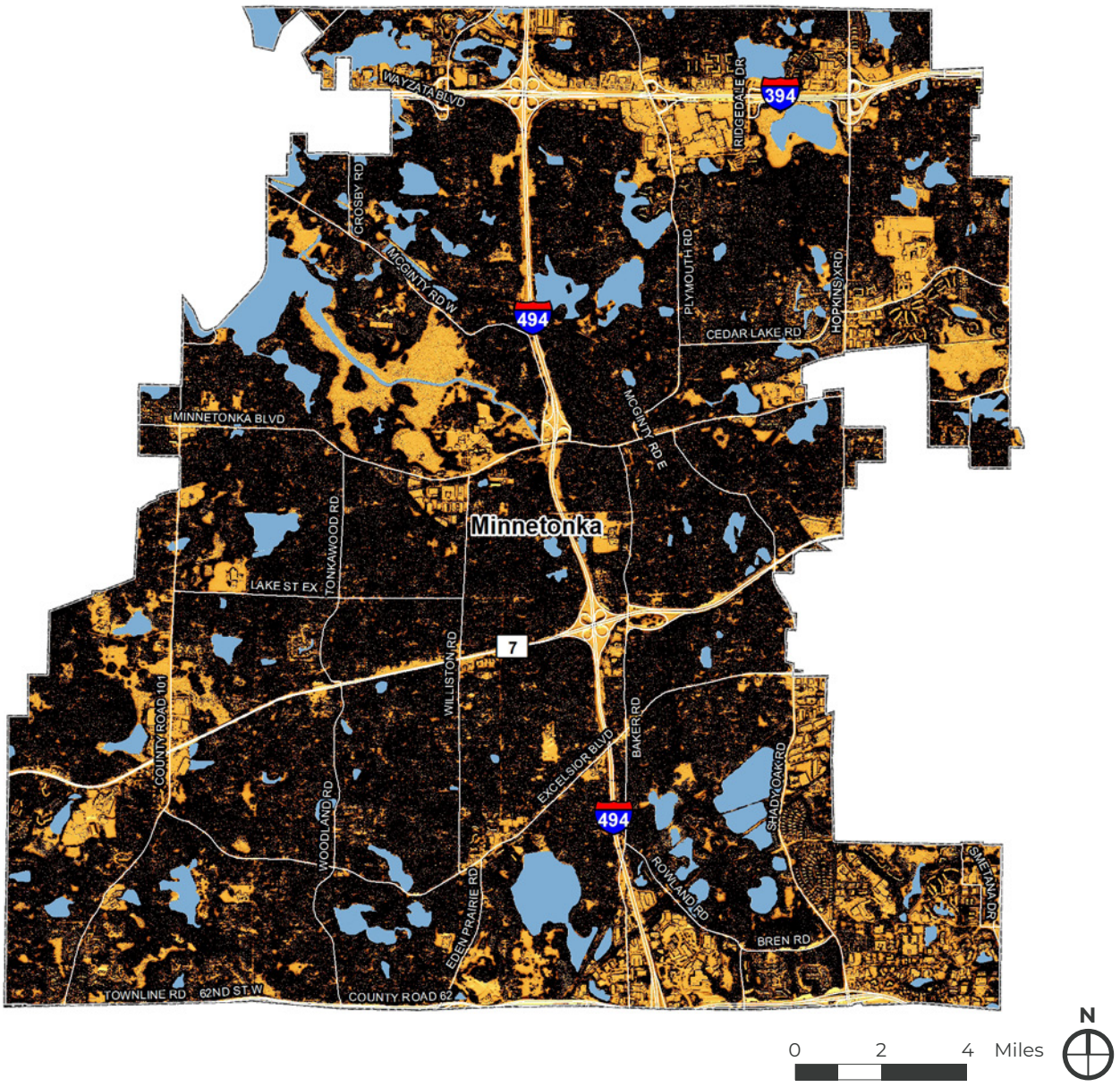
Implementation of the CAAP will require the use of existing funds as well as new sources. Opportunities to expand and leverage existing funding include:

- Federal funding from the Inflation Reduction Act: Home efficiency and electrification rebates; Investment tax credits for renewable energy; Grants; Green Bank financing
- State funding: MPCA Grants, state rebates and tax incentives, solar grants, etc.
- Establish dedicated city funding
- Add climate as a funding priority and integrate into the planning principles in the Capital Improvement Plan

Big ideas

Climate work will involve big, transformative ideas. Come up with 1-3 ideas for this plan.

Figure 25 Gross Solar Potential (*Watt-hours per Year*)



Key

High Gross Solar Potential (1,282,014)

Low Gross Solar Potential (900,001)

Solar Potential under 900,000 watt-hours per year

Wetlands & Open Water Features

County Boundaries

Municipal Boundaries

Source: Metropolitan Council; University of Minnesota U-Spatial Statewide Solar Raster

Community Feedback

In-Person Engagement

Engagement Boards

Attendees of in-person events were asked to review and weigh in on the following boards.

Existing Conditions

Follow this QR code to view the full existing conditions report!

Minnetonka and the Twin Cities region are already experiencing changes in weather patterns and ecosystems due to climate change. As temperatures rise, we can expect to see more of these changes.

Hotter Summers
- More days above 90°F
- More prolonged heat events
- Made worse by urban heat island effect

Heavy precipitation
- More heavy rain events

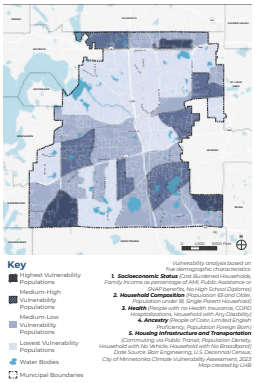
Warming Winters
- More freeze/thaw cycles
- More icy conditions with more winter rain

Drought
- Potential for drier summers

The following maps are from the City's 2023 Vulnerability Analysis:

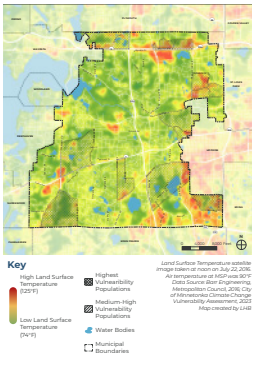
Population Vulnerability

Populations who tend to be **more vulnerable to climate hazards** fall into several categories described below. To have a **greater impact**, it will be most impactful to focus interventions in these areas.



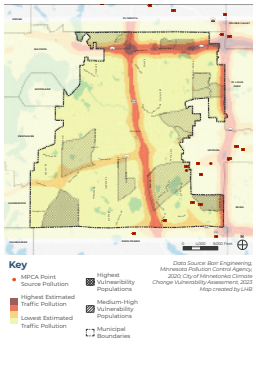
Land Surface Temperature

Pavement & buildings have a higher land surface temperature than areas with many trees & plants. The areas with **high land surface temperature tend to overlap areas with vulnerable populations**.



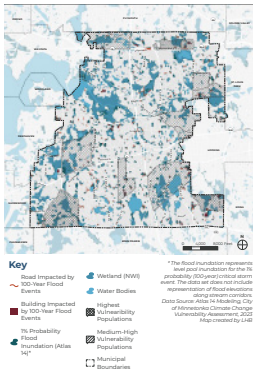
Pollution

The major sources of air pollution in Minnetonka come from **vehicle travel on I-394 and I-494**, which intersect at the northern boundary of the city.



Flood Susceptibility

Flooding can cause damage to property and risk the health of residents. Much of the **community is at some risk from flooding** that would occur during a 100-year rain event.



COMMUNITY ENGAGEMENT
221334 / Minnetonka Climate Action & Adaptation Plan
2 of 4
September 5, 2023
CITY OF MINNETONKA LHB

We Need Your Input!

What actions would you take to **reduce greenhouse gas emissions, improve resilience**, and/or **adapt to the changing climate**?

Follow this QR code to take our full online survey!

COMMUNITY ENGAGEMENT
221334 / Minnetonka Climate Action & Adaptation Plan
4 of 4
September 5, 2023
CITY OF MINNETONKA LHB

We Need Your Input!

Place a dot next to efforts that align with your values!

Follow this QR code to take our full online survey!

Identify the top three outcomes that should be prioritized for our community's climate work

- Reduce carbon emissions
- Adapt to a changing climate
- Improve the quality of life for Minnetonka community members
- Protect Minnetonka's natural resources (plants, animals, water bodies)
- Make sure burdens and benefits are shared equitably within the community
- Use public dollars responsibly
- Demonstrate climate leadership

Are you willing to use personal finances to support climate action in Minnetonka? *(please choose one)*

- **Yes** – if it will benefit me and/or my family in the near-term (such as through utility bill savings, less air pollutants in my house, or more comfortable household temperatures).
- **Yes** – including for strategies that may not have direct benefits for me or my family in the near term (such as paying a little extra to support renewable energy).
- **No** – I support climate action, but I cannot directly contribute at this time.
- **No** – I do not support climate action in Minnetonka.

Are you willing to spend time to support climate action in Minnetonka? *(please choose one)*

- **Yes** – if it will benefit me and/or my family in the near-term (such as participating in a free home energy audit).
- **Yes** – including for strategies that may not have direct benefits for me or my family in the near term (such as attending a block party to share information about local renewable energy options).
- **No** – I support climate action, but I cannot directly contribute at this time.
- **No** – I do not support climate action in Minnetonka.

Are you willing to change your personal habits to support climate action in Minnetonka? *(please choose one)*

- **Yes** – if it involves minimal disruption to my daily routine (such as hanging my clothes to dry rather than using a dryer).
- **Yes** – including changes that require greater disruption (such as biking to work).
- **No** – I support climate action, but I cannot change my personal habits at this time.
- **No** – I do not support climate action in Minnetonka.

COMMUNITY ENGAGEMENT
221334 / Minnetonka Climate Action & Adaptation Plan

3 of 4

September 5, 2023

CITY OF MINNETONKA LHB

We Need Your Input!

Place a dot next to efforts that align with your values!

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Identify the top three outcomes that should be prioritized for our community's climate work

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- Protect Minnetonka's natural resources (plants, animals, water bodies)
- Make sure burdens and benefits are shared equitably within the community
- Use public dollars responsibly
- Demonstrate climate leadership

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- **Yes** – including for strategies that may not have direct benefits for me or my family in the near term (such as paying a little extra to support renewable energy).
- **No** – I support climate action, but I cannot directly contribute at this time.
- **No** – I do not support climate action in Minnetonka.

Are you willing to spend time to support climate action in Minnetonka? *(please choose one)*

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- **Yes** – including for strategies that may not have direct benefits for me or my family in the near term (such as attending a block party to share information about local renewable energy options).
- **No** – I support climate action, but I cannot directly contribute at this time.
- **No** – I do not support climate action in Minnetonka.

Are you willing to change your personal habits to support climate action in Minnetonka? *(please choose one)*

- **Yes** – if it involves minimal disruption to my daily routine (such as hanging my clothes to dry rather than using a dryer).
- **Yes** – including changes that require greater disruption (such as biking to work).
- **No** – I support climate action, but I cannot change my personal habits at this time.
- **No** – I do not support climate action in Minnetonka.

COMMUNITY ENGAGEMENT
221334 / Minnetonka Climate Action & Adaptation Plan

3 of 4

September 5, 2023

CITY OF MINNETONKA LHB

PUBLIC OPEN HOUSE MEETING NOTES

Minnetonka Climate Action and Adaptation Plan

City of Minnetonka

September 14, 2023, Minnetonka Community Center

The City of Minnetonka hosted a public open house to invite the public to review existing conditions information and provide their input and ideas related to climate. About 28 people attended and participated in the exercises, which are transcribed below. The majority supported climate action (steps to reduce Minnetonka's greenhouse gas emissions) and virtually all support adaptation to deal with storm events, heat, waste management, and impacts to Minnetonka's natural resources.

Those who supported climate action especially supported solar and increased use of electric vehicles, but those who opposed it particularly felt that these shifts were detrimental for economic or geopolitical reasons. There was strong support from nearly all participants for changes such as adaptive planting of native and drought resistant species, resilient infrastructure, assisting homeowners with making their houses more efficient, reducing waste hauling, composting, and public outreach and education.

Below is a complete transcription of input and comments received at the meeting:

1. Identify the top three outcomes that should be prioritized for our community's climate work
   a. Reduce carbon emissions
      i. 12 votes
   b. Adapt to a changing climate
      i. 12 votes
   c. Improve the quality of life for Minnetonka community members
      i. 4 votes
   d. Protect Minnetonka's natural resources (plants, animals, water bodies)
      i. 10 votes
   e. Make sure burdens and benefits are shared equitably within the community
      i. 4 votes
   f. Use public dollars responsibly
      i. 7 votes
   g. Demonstrate climate leadership
      i. 2 votes
2. Are you willing to use personal finances to support climate action in Minnetonka? (please choose one)
   a. Yes – if it will benefit me and/or my family in the near-term (such as through utility bill savings, less air pollutants in my house, or more comfortable household temperatures).
      i. 5 votes
   b. Yes – including for strategies that may not have direct benefits for me or my family in the near term (such as paying a little extra to support renewable energy).
      i. 10 votes

   ii. There is a post-it attached to this option saying, “No utilities increases”.
c. No – I support climate action, but I cannot directly contribute at this time.
   i. 1 vote
d. No – I do not support climate action in Minnetonka.
   i. 3 votes

3. Are you willing to spend time to support climate action in Minnetonka? (please choose one)
   a. Yes – if it will benefit me and/or my family in the near-term (such as participating in a free home energy audit).
      i. 3 votes
   b. Yes – including for strategies that may not have direct benefits for me or my family in the near term (such as attending a block party to share information about local renewable energy options).
      i. 9 votes
   c. No – I support climate action, but I cannot directly contribute at this time.
      i. 1 vote
   d. No – I do not support climate action in Minnetonka.
      i. 2 votes

4. Are you willing to change your personal habits to support climate action in Minnetonka? (please choose one)
   a. Yes – if it involves minimal disruption to my daily routine (such as hanging my clothes to dry rather than using a dryer).
      i. 7 votes
   b. Yes – including changes that require greater disruption (such as biking to work).
      i. 7 votes
   c. No – I support climate action, but I cannot change my personal habits at this time.
      i. 2 votes
   d. No – I do not support climate action in Minnetonka.
      i. 2 votes

5. Buildings
   a. Block-scale new development with geothermal and solar and heat pumps – with incentives. Penalties and incentives for turf grass vs. sedge. Rain gardens to reduce basement flooding.
   b. Financially support or incentivize commercial buildings for energy or climate friendly investments. Ensure we don’t have city codes that prevent things like “natural yards”, rain garden areas, solar panels (or make them more difficult to implement).
   c. Occupancy data in real time – so to manage heating-cooling costs/NRG use. Water reclamation systems so non-potable water is retained to be reused. Improve HVAC systems to ensure pollutants are eliminated – improve indoor air quality.
   d. Make it financially rewarding to invest in solar farms. Make solar farming available to all and reasonable to invest. Insulate the Landing Shop. Put up more solar panels and use less natural gas to heat city buildings.
   e. Geo-thermal.
   f. Better insulation in the Landing Shop.
   g. Support multi-family home ownership – Minnetonka has a relatively low percentage. Makes for more efficient heating/cooling. Multi-family home ownership for lower income folks allow people to live closer

to their jobs as well – less emissions from traffic. Maintain high-standard building codes for heating/cooling/lighting for all types of buildings. Continue to offer incentives for weatherization.

h. Solar for city facilities. No gas at city facilities. More info for residents on heat pumps, induction stovetops.
i. How to handle historic buildings: Burwell House, Historic City Hall? Grants/credits for residents to install solar.
j. Install solar panels on all tall or commercial or city buildings. Improve building codes to meet high efficiency standards in insulation. Also make fire proofing required. Building codes should be updated to make homes more energy efficient, fireproof, and resistant to flooding and tornados. These are the natural disasters that are becoming more severe. Grants or assistance for low income homeowners to make improvements that will help their bottom line.

6. Transportation
   a. Make preference for hybrid instead of total electric. Total electric does not have infrastructure to meet a system demand. Our temps in MN is not conducive to batteries (life span capability to meet 100% charge). Really bad to say 2034 ALL electric. Impossible dream. Turn over fleets of vehicles based on fuel efficiency. Design right turn lanes on through streets to keep traffic moving.
   b. Use less fossil fuels. City fleet should be electric.
   c. Explore more opportunities for public transportation in Minnetonka.
   d. Keep other methods of propulsion in mind, not just electric. Batteries are destructive to the environment, people, etc. to produce. There are other ideas in the works such as hydrogen. Keep an open mind to change and new possibilities we don't know about yet.
   e. We need better/more public transportation in Minnetonka. IF we want to build and provide more subsidized housing and lower cost housing, those sites will need to have access to public transportation. K. Mattsson
   f. Idling vehicle policy/laws specific parking areas for any idling vehicles. Turn abouts to (arrow pointing up) walk and bike safety.
   g. We need less reliance on fossil fuels – City needs to increase the EV fleet. More mass transit – perhaps within Minnetonka for seniors that need to get to appointments/shopping. Bike paths - safety.
   h. Keep at the forefront of any brainstorming the physical limitations of much of the population that makes biking (the main idea I've seen) not an option. Those with disabilities need to be equally considered. Invest in ideas other than just biking/walking, that can be adopted/implemented.
   i. Rules on the LRT trail that ensure safety for both bikers and pedestrians. There are so many e-bikes now that people are riding very fast and threading the needle between people passing in opposite directions. We need clear guidelines on how to share the trail safely.
   j. Add to charging station infrastructure.
   k. Plant tree islands in parking lots.
   l. Save old trees in drought. Plant native trees resistant to drought.
   m. Increase the number of charging stations for electric cars. With the large number of people commuting to Minnetonka to work, pay attention to traffic patterns, encourage (incentivize) carpooling and work-from-home options.
   n. Also, encourage working flex schedules.
   o. Support bike traffic by creating safer ways to share the streets.
   p. LRT to the SW. Change culture away from car travel (independence): newsletters, talk about this-coordinated. Transit. Carpooling/transit for job centers (large buildings along 494) mixed-use development.

q. Improve traffic flows to reduce vehicle idling at traffic lights – 1. Change lights to red/amber flashing at night/evening/early morning. 2. Install roundabouts at intersections and remove lights. (They do not have the complex designs/installations as some towns are guilty of building!)
r. Increase public transport especially to connect to light rail.

7. Energy and Water Systems
   a. Try to keep the conversations "balanced" and do not allow climate activists to intimidate others.
   b. Improve/increase use of "grey water" for flushing toilets and irrigation. Encourage use of driveways and other 'hard surfaces' which allow water absorption – porous, gravel, etc.
   c. 1. Climate has been changing for the history of the earth. 2. Minnetonka will not be able to prevent climate changes! A. It's ok to prepare for weather disasters. B. It's ok to prepare for infrastructure damage. C. It's ok to weather disasters. D. Let's not waste money on solar. All we would do is enrich China. E. DO NOT CONVERT OUR vehicles to electric! F. Do not convert our buildings to solar energy. G. Homes: weatherizing homes sounds great. Let's subsidize that. H. Remote work: forget it. We need not promote remote work. It is not effective. I. Clean energy: Do not support China by purchasing solar panels. Do not waste money trying to affect climate. We cannot do it!
   d. Understand how to better use rainwater for gardens. Rainwater/rain gardens. Better communications for water restrictions. What strategies can be reasonably used for grey water – watering yards, gardens, etc. Information on tree watering during drought.
   e. Need to pursue ways to encourage Minnetonka private businesses to install solar. Encouragement could include providing list of rebate opportunities and/or grant opportunities through federal and state programs. K. Mattson
   f. Turbines in the utility pipes. Mini wind turbines along the freeway to highways. Energy and water systems/utility/building?
   g. Take care (remove) sedimentation of ponds (from street sandings and runoff). Develop plan to install 96% and not gas furnaces in homes/small business especially for low-income families/seniors. Concern about lack of knowledge of use of electricity vs. fossil fuels. Elec cars (total electric) not hybrid have big charging problems (lack of infrastructure) yet government is setting limits of gas cars beyond 2035!
   h. We are moving too quickly into solar and wind are the only way to make energy. Will be making mistakes in the future. Keep more maintenance of Minnetonka infrastructure: water, sewage, roadways. Recognize that life requires pollutants. If no pollutants, the no life.
   i. More visible solar. Community solar. Solar on large commercial rooftops.

8. Waste
   a. Understand what to do with household products that are replaced by new purchases. Can the city provide easier service than taking products to Hennepin County transfer station? Establish a regular "fixit clinic" session for Minnetonka residence. Weekly drop-off.
   b. Explore composting for multi-family buildings – apt., cooperatives, senior housing, etc. (on-site)
   c. I just saw a newer compost bin that you dump in top and it composts in the middle – no need to tend it and it comes out compost at the bottom. I saw this on sale at Costco, but it's a bit pricey. If people had these, there'd be no need to drive using gas to go to city works to compost. I know in the past compost bins and rain barrels have been available through the city. Use your yard waste at your house – use locally.
   d. If a solo garbage hauler isn't possible, could we limit it to two?
   e. Make proper disposal/recycling of bulky items (like appliances) more convenient and economical. Open the recycling facility to yard and brush disposal on a regular basis. Make composting available to

everyone in Minnetonka. Encourage use of durable food containers in restaurants and grocery stores. Too much single-use plastic but restaurants and grocery stores do not promote reusable containers. Educate consumers – much of what goes into our recycling bins is NOT recycled because of lack of markets and cost is not feasible. Help consumers make better choices before purchasing instead of assuming all plastics, for example, are recyclable.

f. Take back programs for recyclable items that don't get recycled.
g. Increasing composting drop boxes. Incentives to get waste management companies to pickup compostable materials. More education in Minnetonka newsletters. Drop boxes for plastic bags just like Cub Foods has at their entrance! Get businesses to compost and recycle more. Stop sale of single use plastic bags in Minnetonka. Do more to stop using plastics – or only allow #1,2, and 5 in Minnetonka.
h. We need ONE waste company in Minnetonka, say, suburban waste for example. It would save damage to roads, duplication of services, excessive fuel consumption. There is NOTHING positive in that. AND, Hopkins does leaf pickup for all residents. K. Mattason
i. Composting! Suburban waste services. Excellent garbage service. 1-3 at most garbage haulers.
j. Have one waste hauling company for the City. Understand the advantage of composting over garbage disposal use. Has Minnetonka considered weekly city-wide leaf pickup? Rake leaves into street for pickup. Hopkins and Mankato are two cities that support this.
k. Hennepin County zero waste table. One trash hauler – less frequent pick-up/smaller bins. Recycling education. Accountability for composting/recycling haulers. Stop using Republic. Composting for multifamily. HERC – pollution for nearby residents. Buy less/used (residents). Electronic recycling (no more nickel mines in northern MN).
l. Make supplier/manufacturer responsible for packaging. Either take it back to recycle or make it compostable. Food waste from restaurants haunts me. Is there some way to make it available to people or use it in some way? Eliminate single use plastics.

9. Natural Spaces
   a. Educate homeowners and businesses on how planting different greenspaces can bring temperatures down. Educate/shame businesses who water properties at wrong times of the day, water concrete, etc. – watering irresponsibly.
   b. Reduce use of gasoline-powered landscape machinery – educate on just how polluting they are (more than cars and trucks). Encourage use of alternative landscaping than just grass – bee lawns for e.g. – reduce mowing/leaf blowing and watering. Plant wild/prairie scaping in medians and roadsides – reduce mowing, improve corridors for pollinators.
   c. Be forward thinking – 1. Plant natives that require less water and benefit the rest of habitat. 2. Decrease use of fossil fuels by not moving – especially in native areas. 3. Improve water retention and semipermeable parking, more raingardens. 4. Encourage residents to (arrow pointing down) hardscape, retain native trees, (arrow pointing up) raingardens.
   d. Dust pollution near major roadways – I cannot keep my windows open due to transportation traffic. No mow fescues. Meadow flowers. Bee lawns. Creeping Thyme. Minnehaha Falls Landscape Inc. Native plantings for lakeshore clean water. Invasive removal. Examine tree canopy for human/animal cooling areas. Less/fewer lawns of ryegrass, more fescue! More thyme! Fewer algal blooms – no nitrogen.
   e. Ensure that there are enough natural areas for wildlife passage. Protect natural areas from pollution (trash, runoff, etc.) continue replacing non-native with native plants. Protect natural water ways.
   f. Bring residents in to discuss their lawns and turning into bee lawns, etc. Panels and forums.
   g. Invest in maintaining the health of trees in our community – it's a worthwhile investment! Educate residents about our watershed and its importance. Many people seem oblivious to what it means for life.

Encourage growth of native plants that do not require the high levels of irrigation that drain our natural resources. Improve water retention by using alternatives surfaces for parking lots and other traditionally impermeable surfaces.

h. Wetland preservation/replacement. No turf grass on city properties (except for athletic fields, etc.) Add mini forests. Show life cycle cost savings of strategies like rain garden, turf replacement.

10. Other
    a. What is the best way to address climate in historic buildings/homes? Burwell House, Historic City Hall
    b. When you have opportunities to educate the public, involve our youth. This is about their future, and their enthusiasm and passion are contagious. Educate, educate, educate all of us about what's happening in Minnetonka. You are doing a great job. I appreciate the scope and substance of the draft plan – the map detail is great and well thought out.
    c. Seed changes in the culture – promote community, thinking beyond ourselves, be a good neighbor/person in general. What you put out, comes back to you tenfold. Do away with capitalist thinking. Do what's good for the people, culture.
    d. Are EVs climate friendly considering mining materials for batteries i.e. lithium? Disposal of batteries?
    e. An innovative climate and nature center at Purgatory Park would be a great way to educate and demonstrate to residents.
    f. I support climate nature center at Purgatory Park.
    g. Depaving:
        i. Is there a program to help with removing asphalt in parking lots? For example: Ridgedale's new park and St. Louis Park's program. See flyers attached. I live at Greenbrier Condos – 6 residential buildings – with a huge amount of parking lot facing Greenbriar Road. Carol Jarvis

Attachments: St. Louis Park flyers: Transform your parking lot with Depave SLP and Rainwater Rewards Program

c: LHB Project No. 221334

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LHB

EVERYTHING ELECTRIC POP-UP MEETING NOTES

Minnetonka Climate Action and Adaptation Plan

City of Minnetonka

September 5, 2023, Ridgedale Commons

1. Identify the top three outcomes that should be prioritized for our community's climate work
    a. Reduce carbon emissions
        i. 12 votes
    b. Adapt to a changing climate
        i. 12 votes
    c. Improve the quality of life for Minnetonka community members
        i. 8 votes
    d. Protect Minnetonka's natural resources (plants, animals, water bodies)
        i. 15 votes
    e. Make sure burdens and benefits are shared equitably within the community
        i. 12 votes
    f. Use public dollars responsibly
        i. 3 votes
    g. Demonstrate climate leadership
        i. 4 votes
2. Are you willing to use personal finances to support climate action in Minnetonka? (please choose one)
    a. Yes – if it will benefit me and/or my family in the near-term (such as through utility bill savings, less air pollutants in my house, or more comfortable household temperatures).
        i. 2 votes
    b. Yes – including for strategies that may not have direct benefits for me or my family in the near term (such as paying a little extra to support renewable energy).
        i. 14 votes
    c. No – I support climate action, but I cannot directly contribute at this time.
        i. 5 votes
    d. No – I do not support climate action in Minnetonka.
        i. 0 votes
3. Are you willing to spend time to support climate action in Minnetonka? (please choose one)
    a. Yes – if it will benefit me and/or my family in the near-term (such as participating in a free home energy audit).
        i. 8 votes
    b. Yes – including for strategies that may not have direct benefits for me or my family in the near term (such as attending a block party to share information about local renewable energy options).
        i. 12 votes
    c. No – I support climate action, but I cannot directly contribute at this time.
        i. 3 votes
    d. No – I do not support climate action in Minnetonka.
        i. 0 votes

4. Are you willing to change your personal habits to support climate action in Minnetonka? (please choose one)
    a. Yes – if it involves minimal disruption to my daily routine (such as hanging my clothes to dry rather than using a dryer).
        i. 12 votes
    b. Yes – including changes that require greater disruption (such as biking to work).
        i. 10 votes
    c. No – I support climate action, but I cannot change my personal habits at this time.
        i. 0 votes
    d. No – I do not support climate action in Minnetonka.
        i. 0 votes

c: LHB Project No. 221334

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THE PRESERVE AT SHADY OAK SURVEY

Minnetonka Climate Action and Adaptation Plan
City of Minnetonka

September 14, 2023, The Preserve at Shady Oak

1. Identify the top three outcomes that should be prioritized for our community's climate work
   a. Reduce carbon emissions
      i. 4 votes
   b. Adapt to a changing climate
      i. 5 votes
   c. Improve the quality of life for Minnetonka community members
      i. 10 votes
   d. Protect Minnetonka's natural resources (plants, animals, water bodies)
      i. 11 votes
   e. Make sure burdens and benefits are shared equitably within the community
      i. 3 votes
   f. Use public dollars responsibly
      i. 0 votes
   g. Demonstrate climate leadership
      i. 2 votes
2. Are you willing to use personal finances to support climate action in Minnetonka? (please choose one)
   a. Yes – if it will benefit me and/or my family in the near-term (such as through utility bill savings, less air pollutants in my house, or more comfortable household temperatures).
      i. 3 votes
   b. Yes – including for strategies that may not have direct benefits for me or my family in the near term (such as paying a little extra to support renewable energy).
      i. 2 votes
   c. No – I support climate action, but I cannot directly contribute at this time.
      i. 8 votes
   d. No – I do not support climate action in Minnetonka.
      i. 0 votes
3. Are you willing to spend time to support climate action in Minnetonka? (please choose one)
   a. Yes – if it will benefit me and/or my family in the near-term (such as participating in a free home energy audit).
      i. 1 vote
   b. Yes – including for strategies that may not have direct benefits for me or my family in the near term (such as attending a block party to share information about local renewable energy options).
      i. 3 votes
   c. No – I support climate action, but I cannot directly contribute at this time.
      i. 9 votes
   d. No – I do not support climate action in Minnetonka.
      i. 0 votes

4. Are you willing to change your personal habits to support climate action in Minnetonka? (please choose one)
    a. Yes – if it involves minimal disruption to my daily routine (such as hanging my clothes to dry rather than using a dryer).
        i. 0 votes
    b. Yes – including changes that require greater disruption (such as biking to work).
        i. 9 votes
    c. No – I support climate action, but I cannot change my personal habits at this time.
        i. 4 votes
    d. No – I do not support climate action in Minnetonka.
        i. 0 votes

c: LHB Project No. 221334

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CROWN RIDGE APARTMENTS

Minnetonka Climate Action and Adaptation Plan

City of Minnetonka

September 21, 2023, Crown Ridge Apartments

1. The perceived races of folks that completed the sticker survey at Crown Ridge Apartments: 14 Black/African American, 2 White.
2. Identify the top three outcomes that should be prioritized for our community's climate work
   a. Reduce carbon emissions
      i. 7 votes
   b. Adapt to a changing climate
      i. 1 vote
   c. Improve the quality of life for Minnetonka community members
      i. 11 votes
   d. Protect Minnetonka's natural resources (plants, animals, water bodies)
      i. 11 votes
   e. Make sure burdens and benefits are shared equitably within the community
      i. 7 votes
   f. Use public dollars responsibly
      i. 8 votes
   g. Demonstrate climate leadership
      i. 2 votes
3. Are you willing to use personal finances to support climate action in Minnetonka? (please choose one)
   a. Yes – if it will benefit me and/or my family in the near-term (such as through utility bill savings, less air pollutants in my house, or more comfortable household temperatures).
      i. 5 votes
   b. Yes – including for strategies that may not have direct benefits for me or my family in the near term (such as paying a little extra to support renewable energy).
      i. 1 vote
   c. No – I support climate action, but I cannot directly contribute at this time.
      i. 11 votes
   d. No – I do not support climate action in Minnetonka.
      i. 0 votes
4. Are you willing to spend time to support climate action in Minnetonka? (please choose one)
   a. Yes – if it will benefit me and/or my family in the near-term (such as participating in a free home energy audit).
      i. 11 votes
   b. Yes – including for strategies that may not have direct benefits for me or my family in the near term (such as attending a block party to share information about local renewable energy options).
      i. 2 votes

c. No – I support climate action, but I cannot directly contribute at this time.
    i. 3 votes
d. No – I do not support climate action in Minnetonka.
    i. 0 votes

5. Are you willing to change your personal habits to support climate action in Minnetonka? (please choose one)
    a. Yes – if it involves minimal disruption to my daily routine (such as hanging my clothes to dry rather than using a dryer).
        i. 12 votes
    b. Yes – including changes that require greater disruption (such as biking to work).
        i. 3 votes
    c. No – I support climate action, but I cannot change my personal habits at this time.
        i. 1 vote
    d. No – I do not support climate action in Minnetonka.
        i. 0 votes

c: LHB Project No. 221334

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MEETING MINUTES

Minnetonka Climate Action and Adaptation Plan
City of Minnetonka

November 8, 2023, Minnetonka Community Center

To: All Participants
From: LHB, Inc.
Re: Business Focus Group Meeting
Date Sent: December 5, 2023
Present:

NAME	ORGANIZATION / ROLE
Ryan Waldriff	Brookfield (Ridgedale Center)
Mary Jo Bailey	Bailey Properties
Tony Kuechle	Doran
Brian Turbeville	Wallace Carlson Printing
Jenny Mattiacci	Youngstedts
Jessie Jacobson	Tonkadale Greenhouse
Mike Brown	Tonkadale Greenhouse
Howard Pastor	Pastor Enterprises
Mike Sturdivant	Pastor Enterprises
Ross Hedlund	Frauenshuh
Jake Schaffer	Station Pizza

Meeting Summary

1. What is already being done:
    a. Tonkadale Greenhouse
        i. Invested in a new boiler to heat greenhouse; much more efficient replacement.
        ii. reuse and recycle as much as possible - replaced roof recently. Contacted UMN extension for ag recycle program that they utilize - brought old roof to them to recycle instead of throwing it out. Greenhouse container plastic recycling, encourage customers to bring plastic pots back. What they don't reuse they send to grow farm that recycles them.
        iii. Location is in the middle of a residential area - sustainability actions sometimes take up a lot of space that they don't have enough space to put (cardboard compactor, water reclamation pond).
    b. Utilized PACE to upgrade HVAC on a number of buildings, went to the highest level of efficiency, added led lights. PACE works better on commercial not residential.
    c. Work with Xcel on energy design assistance to increase efficiency for a lot of buildings; will use a white membrane on buildings.
    d. Give control back to tenants tends to work the best (when they're in charge of use);
    e. have done solar farms, most buildings should be solar ready.
    f. Typically build out buildings read for EV charging. Having a hard time getting transformers. Need to make sure they are sizing to a transformer that allows them to complete building. Have done shared electric vehicles, has not worked out well due to insurance and other hurdles.
    g. Stormwater management systems are not there and would be a good, effective strategy.

h. Educate customers on the products they sell and provide education on pollinators, best practices for landscaping, have partnered w/ city for monarch month and pollinator month. Only carry water-wise grass seed mixes. Seeds for bee lawns and prairies come with education, along w/ stormwater.
i. Employ locally as much as they can - short commutes.
j. Redevelopment of bank will cut energy costs by 60% will be a big cost saver, will incorporate stormwater. Reducing parking.
k. Nature preserve includes 7-acre wetland that serves the area well in high precipitation events. Need to get regional storm sewers to catch up.
l. Makes a world of difference when tenants are responsible for their own energy use.
m. Daylighting in buildings helps reduce energy.
n. Have been using Hennepin County organics since inception; 80% of waste that goes offsite is recycled or composted. Zoned industrial, 90% occupied.
o. People are more aware of indoor air quality.
p. Minnetonka is a PACE partner - would like to see projects in Minnetonka.
q. Would like to hear more about what is in IRA and IIJA to help businesses make improvements. 179D, ev tax incentives, etc.

2. Barriers:
   a. Lenders are always the last to get on board.
   b. Codes can be barriers. Used to be able to capture heat from wastewater, can't anymore.
   c. Budget barriers.
   d. Public transportation isn't always reliable for transportation for employees.
   e. SW line will be interesting to see how it moves people to jobs.
   f. Once an incentive or grant is established, how is it broadly communicated - surprised there hasn't been a PACE project in Minnetonka.
   g. Looking for leadership:
      i. What does the building code have to say about building size?
      ii. What is the city doing to reduce energy/emissions?
         1) City purchased old homes, partnering with Hennepin and better homes to deconstruct rather than demolish the homes before rebuilding.
   h. Public information campaign about what residents and buildings owners can do should be easily accessible. Seems like it would be effective.
      i. Case studies: Wayzata bay center is run off geothermal that runs through piling.
   i. Watershed districts are difficult to navigate, understanding rules and programs.

3. What are you willing to do:
   a. Want to create more interesting spaces for tenants out of parking spaces - would like better incentives with desire to create those spaces.
   b. See opportunities in branding and promoting doing good for the world. More people-based areas, not a sea of asphalt.
   c. Want to fix parking lot that runs off into the creek.
      i. When you know there is an issue, you can feel exposed when you start looking for a solution. How to avoid shame/reservation in doing the right thing when it exposes what you might be doing wrong.
   d. Paper over plastic; paper over the internet. Reduce internet wasted energy.

e. Electric heat - we'd like to, but it's more expensive. If they were the same price, everyone would use electric.
f. HUD 221 df - get mip reduction for being LEED certified. HUD Is the only one that does that. Don't see that benefit where renters are willing to pay more for a LEED certified buildings (except Denver).
g. How do we get food scraps from apartments to trash- need to figure out how to do that.
h. Hutchinson producer collects food scraps for compost for soil amendments.
i. MPLS banned drive-thrus and parking max; hurt certain types medical buildings that won't locate there.
j. Carba- incinerate carbón matter biochar

This constitutes my understanding of items discussed and decisions reached. If there are any omissions or discrepancies, please notify the author in writing.

Attachments: None

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NOTES – NATURAL RESOURCES FOCUS GROUP MEETING

Minnetonka Climate Action and Adaptation Plan (MCAAP)
City of Minnetonka

September 19, 2023, 6:30pm, Minnetonka Community Center

1. Project background and intro
2. Introductions: Please share your name, the organization you represent, and your interest in the topic of climate action and adaptation.
    a. Amy Grimm – resident of far east side, 27 years, kids went through schools, ignorant, interested resident
    b. Dennis – 10 years living in Minnetonka, retired NR management and education professor from Stevens Point, working with city actively on BMPs and other issues, this is the most critical issue
    c. Kimberly – 11 years resident, restored wetland on Lone Lake, care about environment
    d. Jerrold – Long time resident of Minnetonka Mills, Boards of Friends of Cullen Nature Preserve and Friends of MTKA Parks, supporter of SC and CAAP, climate is THE issue
    e. Angela – grew up here, live near Purgatory Park, Board of Cullen and Friends of Minnetonka Parks, volunteering, science-based view of climate and biodiversity
    f. Heather – 19 years resident, Board of Cullen and Parks, Minnetonka Climate Initiative, Pro background in NR, especially pollinator and ecological restoration, volunteer restoring parks natural areas
    g. Cindy – Friends of Minnetonka Parks, volunteer in Cullen and a lot of the parks, live closest to Purgatory, MN Master Naturalist, science background, need substantive action plan
    h. Karen – 43 years, involved with Friends of the parks, Citizens Climate Lobby
    i. Loren Gordon (City) - Planner
    j. Drew Ingvalson (City) - Associate Planner/Sustainability Coordinator
3. Discussion questions
    a. What impacts to natural resources are you currently observing in Minnetonka from changing weather patterns such as heat, severe storms, etc.? What impacts do you anticipate?
        i. Cullen veg surveys observing impacts of current drought; less successful seeding; oak savanna; hoping for carbon sequestration in deep roots and in trees.
        ii. Drought stress for trees – even the oaks showing stress (partially from very wet areas followed by two drought years); concern for tree canopy in decline; could we end up like Kansas.
        iii. Trees are needed for shading hardscape to reduce heat island effect.
        iv. Disease and introduced plant competition is impacting community forest; losing trees due to long term ecological degradation; systems aren't in resilient state for coming change.
        v. Losing trees to due to development – when those trees are lost to development, it is much hotter.
            1) Need education about not removing trees. They are a resource.
        vi. Development also effects water run-off – increasing quantity and rate.
        vii. Water usage is a concern. Need enforcement; no reuse or prioritization of using water for ecological purposes.
            1) People with wells should not be able to use unlimited water
        viii. Low water in ponds, fewer ducks, fewer turtles,

ix. Feels hotter and plants look stressed. Wind also feels intense.
x. Fewer toads and tree frogs (could that be mosquito pellets, too)
xi. Need to gather information about how things are changing (phenological records)
    1) Compare to 1988
xii. Fewer bees – especially the natives
xiii. Fewer foxes, pheasants, and other wildlife (except there are a lot of deer)

b. What, if anything, are you personally doing to deal with current or anticipated impacts to natural resources in the face of climate change?
    i. Planting strategically (bur oak instead of spruce)
    ii. Restoring areas with adaptive biodiversity.
    iii. Heat pumps
    iv. Hybrid or electric cars
    v. Energy audit
    vi. Energy from renewable resources
    vii. Compost collection through city's program
        1) Need to expand this program – especially collection – and make it easier
    viii. Pushing the city to reexamine how to change things (for example, restoring areas near road construction with native plantings and replanting trees)
    ix. Shift the status quo with education
    x. Renovation to insulate house
    xi. Turf conversion
    xii. Why aren't neighbors adopting? How can we influence effectively?
        1) There are no consequences for bad decisions.
c. Natural resources have been mentioned as a top priority by many respondents to our community engagement so far. What concerns or ideas are you hearing from friends and neighbors?
d. What strategies or approaches do you think we should consider for Minnetonka? Have you seen any strategies or approaches in other communities that we should consider here?
    i. Need to focus on businesses.
    ii. Change management – people here are the early adopters and it causes momentum; need influencers
    iii. Innovative Climate and Nature Center at Purgatory Park – net zero teaching building with demos and exhibits with a focus on the why
        1) Utilize red barn site
    iv. Need a clearing house of resources so people can easily adopt strategies
    v. Rid-well model makes it easy
    vi. Having curb pick-up for recycling caused it to be adopted
    vii. Minnetonka doesn't need to be the first or best – we just need to adopt what works
        1) Example is stormwater fee being equal on every property
        2) Could reduce stormwater fee if people adopt strategies
    viii. Information is not the same as education (four step process: audience, what to do, context, result)
    ix. Need to learn from other cities like St. Louis Park (like joining Electrify Everything)
        1) 80% of carbon comes from buildings and transportation
    x. Community outreach and education with tangible models, highlight early adopters (awards, tours, etc.)

xi. Push for more native installations
xii. Model new strategies
xiii. Make use of city's bully pulpit – be more
xiv. Require electric chargers for apartments

e. What would you like Minnetonka to prioritize as we plan for climate action and adaptation?
   i. More outreach and education
   ii. More enforcement – especially of new development
      1) Development vs. preservation is a key decision point
      2) Losing the city's final locations of natural areas
   iii. Tree protection
   iv. Turf conversion
   v. Need more management plans for parks
   vi. Funding for restoring natural areas to prepare for climate change
   vii. City should not plant new invasive species or turf
   viii. Address carbon from new buildings
   ix. Push businesses like Target to take bigger action
      1) Also push schools
f. Minnetonka has a Natural Resources Master Plan, and we want to reinforce but not recreate/duplicate its findings. Are there any concerns or opportunities related to climate that you think should be covered in more depth?
   i. Prepare natural areas for changing climate – need funding, not just volunteer-driven
   ii. Implementation
   iii. More info on climate resiliency related to NR – how to shift to understand why we shift to more open systems
      1) Tree communities are important to shade hardscapes
      2) Ecological health is also represented by prairies
   iv. Educational signs that are specific to the parks
   v. More integration with planning decisions – not just meeting the basic requirements so it is approved
   vi. Need to implement across all city divisions – staff training to incorporate more of the NRMP's findings and the why
   vii. Savanna is the pre-settlement ecological regime
   viii. Also consider Water Resources Plan and other city's plans
      1) Flood maps, wetlands, and related issues are very important for climate change
g. What resources do you need around these topics? Do you have any resources you can share?
   i. Funding (reprioritize budget, taxes, fee, line item for Climate/Sustainability in General Fund)
   ii. Accountability (financial and other)
h. Any other feedback on setting climate goals and prioritizing greenhouse gas emissions reduction and adaptation/resilience strategies for Minnetonka?
   i. Build solar, don't just buy renewables, to model positive change
   ii. Get city fleet transitioned to EV
      1) Minnetonka has two and considers them for all future purchases
      2) No idling
   iii. Staff at all levels should be early adapters and encourage them to think creatively and be proud of it

iv. Residents want to be partners, not feel like they're doing battle with city staff – the intent is good
v. Need the majority of residents to get on board and to assess if investments are working
vi. Home energy audit parties

4. Next steps

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NOTES – SERVICES FOCUS GROUP MEETING

Minnetonka Climate Action and Adaptation Plan (MCAAP)
City of Minnetonka

August 24, 2023, 11:30am, Minnetonka Community Center

1. Project background and intro provided by Drew
2. Introductions: Please share your name, the organization you represent, and your interest in the topic of climate action and adaptation.
    a. Cecile Bedor (Commonbond) – stewards of planet, impact on residents, sustainable materials
    b. Alondra Banuelos, The Preserve Apartments – 500 low-income multi-family housing for 500 families, looking for ideas and education for residents
    c. Jayson Palm, St. David's– solar panels, family in town
    d. Cari Lindberg, Minnetonka Family Collaborative (Minnetonka Public Schools) – serving students and families
    e. Tammy Stauffer, Community Action: Partnership of Hennepin County–very important for the low-income families she works with
    f. Jayce Alexander (City) - Senior Diversity, Equity, & Inclusion Coordinator; wants to see equity as a lens for this work
    g. Julie Wischnack (City) - Community Development Director
    h. Dan Narr,(ICA Food shelf) – food rescue program (waste divergence), energy assistance for residents
    i. Loren Gordon (City) - Planner
    j. Drew Ingvalson (City) - Associate Planner/Sustainability Coordinator
    k. Chris De Net, Ponds at Greenbrier Condominiums– reduce electric and water consumption (replacing grass with pollinator habitat), want kids involved, laboratory for change
    l. Nemat Janetkhan, Al-Amaan Center – large building owner, looking for improvements (solar panels), reduce cost of water (esp. irrigation)
    m. Eileen Anderson, All Saints Church – "Caring for Creation" group, large interest in community, personal interest
    n. Marilyn Connor, Bet Shalom Synagogue – obligation to care for the gift of Earth, Climate Justice committee, West Metro Climate Hub (puts on educational events)
3. Discussion questions
    a. What impacts are the people you represent currently experiencing from changing weather patterns such as heat, severe storms, etc.? What impacts do you anticipate?
        i. Utility costs skyrocketing (some residents pay those)
        ii. Technology evolving, but not fast enough and not at a good price point; what should we invest in and what new options are coming?
        iii. Food shelf is experiencing large numbers of people needing support (way over budget for food resources),
            1) Need gardens and greenhouses in community
            2) Increase in both demand and cost of food
        iv. Energy and rental costs also increasing for housing

v. More applications for energy assistance for Hennepin Co programs (but funding levels are going back to pre-COVID levels) – inflation also not helping
vi. When people can't afford AC, they go outside and sometimes conflicts arise (too little space on the property, there are no nearby parks (just parking lots)
vii. Need expert guidance on solar and similar tech
viii. Energy audit is free (and saving cost in long run) – Xcel and CenterPoint (they might even provide some replacements)
ix. Inflation is a key factor (example of rice price increase due to flooding in India)
x. Contributions to organizations are also going down due to inflation
xi. Change to LED lights to help with costs

b. Is your organization doing anything to deal with current or anticipated impacts?
   i. Solar panels
   ii. Audits (EnerChange for non-profits, multi-family building energy program)
   iii. Education programs
   iv. Plastic bag reduction (providing reusable bags)
   v. Organics composting at church (starting with preschool)
   vi. Incorporating climate justice into high school curriculum at synagogue
   vii. Food shelf is running more decentralized programs (embedding in local schools, caseworkers in schools, etc.) – also studying data in schools to see how programs are affecting outcomes
   viii. Analyzing new programs for seniors as well as immigrant and refugee communities
   ix. Infrastructure bill has rebates and need more information
   x. Personal action like reusing/donating stuff rather than throwing it away
c. What would you like Minnetonka to prioritize as we plan for climate action and adaptation?
   i. Policy or other support for donating and sharing stuff
   ii. Compost pick-up for commercial properties (individual households are easier but it's not a heavily used program)
      1) Extra support for this (and it's an entry point for other behaviors)
      2) Organized hauling
   iii. More education about recycling (things like not crushing cans)
      1) Household flyer
      2) Quarterly open house or webinar
      3) Make resources easily accessible (preferred vendors, etc.)
   iv. Work with counties to audit commercial buildings for dark roofs (is a grant available?)
   v. Giveaways like rain barrel or compost tumbler
   vi. Form a committee with an impact on this topic
   vii. Maintenance of asphalt driveways is problematic – alternatives like concrete or porous surfaces?
   viii. Feed Me Farms plants gardens on donated land and the food can be shared via CSA or food shelf – maybe the city could incentivize
   ix. Plastic bag collection already started at city – very popular (3800 lbs in 8 months)
   x. Work with retailers to eliminate plastic bags
   xi. Education about donating gross clothes to Goodwill
   xii. Education about chemicals for gardens
d. Have you seen any strategies or approaches in other communities that we should consider for Minnetonka?

i. Minneapolis compost program
ii. St. Louis Park's de-pave program
iii. Bloomington's transportation options

e. Any other feedback on setting climate goals and prioritizing greenhouse gas emissions reduction and adaptation/resilience strategies for Minnetonka?
   i. What is the role for someone who doesn't own a home? What incentives are available?
      1) 8000 rental units and 24,000 total units
   ii. Transportation services (need to get to Target, groceries, etc.)
   iii. More bike signage on streets (like Excelsior) – green striping, for example
   iv. Involve younger people in a Sustainability Group
   v. Ambassadors for the community
   vi. Respectful of food – reduce waste (especially kids)

4. Next steps
   a. Survey and flyer

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