

Environmental Stewardship

2001 - 2021



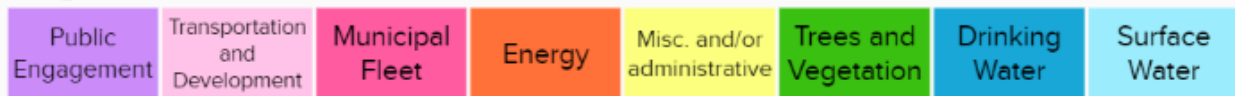
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Woodbury is firmly committed to the preservation, responsible use and enhancement of its environment, and recognizes that environmental health, economics and human well-being are interconnected and interdependent. To preserve our environment for future generations, the City will foster environmental stewardship through focused conservation, social responsibility and best management practices. As our local environment faces new challenges, the City will make appropriate investments in preservation, adaptation, mitigation and maintenance.

**2040 Comprehensive Plan Guiding Principle:
*Practice Environmental Stewardship***

In 2021, Woodbury city staff convened to evaluate the past twenty years of environmental stewardship. Together, we created an inventory of key accomplishments, events, projects, activities, programs, and policies, and placed these on a timeline along with significant milestones elsewhere in Minnesota and the United States. The work fell into seven categories, plus a miscellaneous catch-all:



Within these categories, staff highlighted regional, business, and community partnerships; awards; and grants. Influential events that prompted significant city response are indicated with diamond and circle tags. [See *Environmental Stewardship Timeline* attachment for details.]

Based on this annotated timeline, staff identified key turning points and defined the chapters between them.

Chapter 1: Open Space and Natural Resources, 1997 - 2006

During the early years of active development, the City completed a Natural Resources Inventory Report that provided a detailed description of the remaining major natural areas within Woodbury. This report is still used by the City in identifying higher quality natural areas for preservation when development occurs.

In 1997, the City established “Natural Environment” as one of seven factors critical to the success of Woodbury.

**Critical Success Factor:
NATURAL ENVIRONMENT**

The water quality of city lakes is maintained or improved. Contaminants are prevented from reaching the ground water. Natural areas are preserved in order to retain important plant communities, especially wetlands and tree stands, and to provide wildlife habitat. The city sets an example, not only through its policies and regulatory practices, but also through the conduct of its own operations.

In this early chapter, the primary focus of the city's efforts toward environmental stewardship were to acquire open space, preserve it for community access, and be good stewards of the land.

The success of the \$9 million Open Space Referendum in 2005 confirmed the popular support for this approach, and resulted in \$6 million worth of open space acquisition and athletic field expansion at then-Bielenberg Sports Center.

During this chapter, flooding and detection of PFAS (formerly known as PFCs) in the east metro prompted alarm and led, in part, to the next chapter in the City's Environmental Stewardship story. In October 2005, Woodbury received several inches of rain in a short period of time – an event equivalent to what we now consider an Atlas 14 100-year storm. While the city's storm drainage system performed well, certain areas did flood, damaging some homes and infrastructure. Following the 2005 flood and sinkhole, flood risk reduction and stormwater management became a consistent and significant public policy focus for a span of years. Much of the city's open space includes land dedicated to stormwater management, with the additional benefit of wildlife habitat.

Chapter 2: Sustainability, 2006 - 2017

In 2006, Council appointed a temporary Energy Conservation Task Force, which later became the three-year Sustainability Committee, a sub-committee of the Environmental Advisory Commission (EAC). This group recommended replacing the "Natural Environment" Critical Success Factor with "Sustainability," thus expanding the city's focus to include a broader variety of environmental goals. Over this period, largely due to the leadership of these advisory committees, as well as our emergence from a budget-friendly planning focus during the recession, the list of accomplishments varied across many focus areas, in particular public education, green building, and energy.

Based on the advisory group's recommendations, the city also hired a part-time sustainability specialist, adopted a formal resolution endorsing the U.S. Council of Mayors Climate Protection Agreement, and became a GreenStep City, with an annual progress report delivered to Council. The group researched topics and recommended best practices for Woodbury. They shared information with others at booths at the Community Expo and Woodbury Days, hosted

GREENSTEP CITIES

In 2010, the League of Minnesota Cities (LMC), State of Minnesota, and several partner organizations launched the Greenstep Cities Challenge.

This program offers a menu of 29 best practices, with approximately 175 associated action steps, focused on cost savings and energy use reduction.

The best practices address five topics:

- Buildings and lighting
- Land use
- Transportation
- Environmental Management
- Resilient economic and community development

In 2013, Woodbury became a Minnesota Green Step City. Today, the city is at Step 5, having achieved 86 actions, reported performance metrics, and demonstrated improvement over time.

Woodbury is one of 144 cities participating in this program in Minnesota.

See website or *GreenStep Cities Progress Report* attachment for more details:

www.greenstep.pca.state.mn.us

sustainability, solar and landscape workshops, and sold rain barrels and compost bins, and hosted native plant sales at City Hall.

The 2030 Comprehensive Plan, adopted in 2012, for the first time included the guiding principle “make Woodbury sustainable,” with a corresponding implementation action item to “develop a climate action plan to serve as a guide as the city moves forward with its goal of reducing carbon emissions related to climate change.”

The “Sustainability Chapter” was characterized by a high level of public engagement, with significant city investment in resident education and high volunteer involvement at community events.

**Critical Success Factor:
SUSTAINABILITY**

Woodbury strives to be a sustainable community that promotes community health and wellness through the protection of the environment. The city assesses and improves its development practices, city and community energy use, and use of its natural resources in order to not use resources at the expense of future generations. The city's role is to establish and implement policies, guidelines, goals and strategic actions to protect air and water quality. preserve natural areas. conserve energy. and reduce waste.

Chapter 3: Potable Water

Of all municipal services, provision of potable water is one of the most vital. People depend on water for drinking, cooking, washing, carrying away wastes, and other domestic needs. Water supply systems must also meet requirements for public, commercial, and industrial activities. In all cases, the water must fulfill both quality and quantity requirements. Since Woodbury's beginnings, building-out and maintaining a water supply system; infrastructure for the collection, transmission, treatment, storage, and distribution of water for homes, commercial establishments, industry, and irrigation, as well as for such public needs such as firefighting and street flushing has been a vital concern and activity.

More recently, in 2014, Council recognized that in order to keep up with Woodbury's growth and align with Minnesota Department of Natural Resources (DNR) policies, our community needed to reduce the amount of water used per person. Council established “Sustainable Water Future” as the number one strategic priority, and established a goal of “flat total annual water usage by 2030.” To help advance that Initiative, the city prioritized irrigation efficiency, which is the greatest single factor in per capita water use.

When Strategic Initiative No. 1 began in 2015, the work focused primarily on water quantity. The goal was to show a concerted effort to reduce consumption, despite population growth. In 2017, Council renewed its commitment to the continuation of the Strategic Initiative, directing staff to expand their focus to quality and surface water. That same year, the first well was shut down due to concerns about PFAS contamination.

The emergence of PFAS in the aquifer and Woodbury's municipal water supply is the number one priority focus area at present. Staff continues to work diligently towards the 2019 Strategic Initiative to “ensure long term drinking water sustainability” and participate in statewide efforts to allocate settlement money to clean up drinking water contamination.

Chapter 4: Surface Water

A key part of our environmental stewardship efforts are focused on the management of stormwater runoff rates, volume control, and pollutant removals. Our efforts are a combination of mandated protections through Federal and State legislation, such as the Clean Water Act of 1972, which created the EPA's National Pollutant Discharge Elimination System (NPDES) and the State's Municipal Separate Storm Sewer System (MS4) permitting, and Watershed District rules and regulations.

Most of these federal, state, and watershed rules and regulations are directed towards downstream flood control, erosion control, and pollutant reduction loading. The City has furthered strengthened these goals with City Code, policies and studies with an increased focus on protecting groundwater and improving native landscapes and open spaces.

To meet our mandated obligations and community surface water environmental goals, Woodbury currently collects approximately \$2.4 million annually from a stormwater drainage utility to fund best management practices (BMP's) for pollution prevention and annual maintenance to infrastructure

In 2013, the National Oceanic and Atmospheric Administration (NOAA) updated estimates of size and frequency of storm events, known as Atlas 14. This update concluded that a "100-year event," which is a storm that has a 1% chance of occurring in any year, would inflict 7.4 inches of rain within a 24-hour time span. This is consistent with Woodbury's experience of larger rain events on a more frequent basis. Accordingly, a second Flood Risk Reduction Grant Program was created by the Woodbury City Council to assist residential property owners and reduce the probability of damage to flood prone structures within the community.

Over the past eight years, the city has worked hard to reduce a substantial amount of contaminants from reaching our lakes and water bodies and further the resilience of the stormwater infrastructure system to handle extreme weather events. ¹

¹ See attached infographic for more information about best management practices to improve water quality.

Next Chapters

At this point, the next chapters in Woodbury’s Environmental Stewardship story have yet to be written. Although it is listed as an implementation item in the 2040 Comp Plan, the City does not currently have a Council-approved vision nor documented Plan to address environmental stewardship, resilience, climate adaptation and mitigation, or energy.

If we look ahead in the seven categories from our timeline, here is what we know lies ahead:

Public Engagement

Public engagement was a core function of the EAC. When the EAC merged with the PNRC in 2014, staff took over some events. Since then, public outreach has been led by staff through the Green Times Newsletter, social media, and workshops on energy conservation and renewable energy, as well as through partnerships with other agencies like the watershed districts and Washington County Conservation District. The city is not staffed to carry out significant public engagement in this area.

In the spring of 2022, Council will receive results from the 2021 Community Survey, which includes a question on sustainable activities. Council has considered highlighting environmental stewardship in a listening session with residents in the spring of 2022.

Transportation and Development

Staff has identified new development as a high priority area for conservation endeavors. One particular concern is lawn and land management of new properties. Development areas need more natural landscapes and efficient irrigation.

Progress on the METRO Gold Line and a Bike and Pedestrian Plan promise some improved alternatives to single-passenger car commuting. Transportation contributes 28% of all greenhouse gas emissions, and personal vehicles make up more than half of that category. The key to reducing emissions through these trends is to ensure that all residents have access to a variety of attractive, affordable low carbon mobility options.

Municipal Fleet

The city is participating in Xcel energy’s Fleet Electrification Advisory Program, which will evaluate when vehicles in the fleet are good candidates for electrification. 8 vehicles are PHEV. Woodbury’s efforts to reduce emissions and fossil fuel dependence in the municipal fleet demonstrate regional leadership and economic efficiency.

Energy

Reducing energy use and emissions, particular from buildings, is a key BMP for Woodbury to explore. If the city does prioritize Environmental Stewardship in future chapters, the city may find opportunities in areas such as setting clear decarbonization goals, aggregating demand for renewables, promoting energy efficiency, and shifting more energy consumption to electricity (especially in transportation and heating). As noted in the timeline, city facilities have been designed with energy efficient innovations such as solar panels and geothermal heating/cooling. Cities may not require stricter codes than the State.

The state will not fund all sustainable upgrades; these may be worth city investment in this critical infrastructure.

Trees and Vegetation

The changing environment is a great risk to the city’s green infrastructure and open spaces. Maintaining vegetation buffers around stormwater ponds and responding to EAB will continue to be significant bodies of work. Future threats of invasive terrestrial pest will increase this workload while potentially decreasing the quality of city open spaces.

An update to the 2011 Urban Forestry Plan will be completed in 2022. Preliminary results show that the overall urban canopy has grown across the city, but considerable impacts of Ash tree removal (past and future) will greatly impact the city’s ability to meet goals unless additional resources are dedicated to planting, preservation, and maintenance.

The city continues to experiment with native and prairie landscapes, improving the environment for pollinator sand reducing irrigation.

Potable Water

A clean, sustainable supply of drinking water continues to be the city’s top priority. Staff and public representatives from Woodbury will continue to lead and engage in efforts to ensure this prime concern is achieved.

Water efficiency will also continue to be a function of this effort, as less water used will result in less energy and operation costs incurred by the settlement dollars and greenhouse gas emissions.

Surface Water

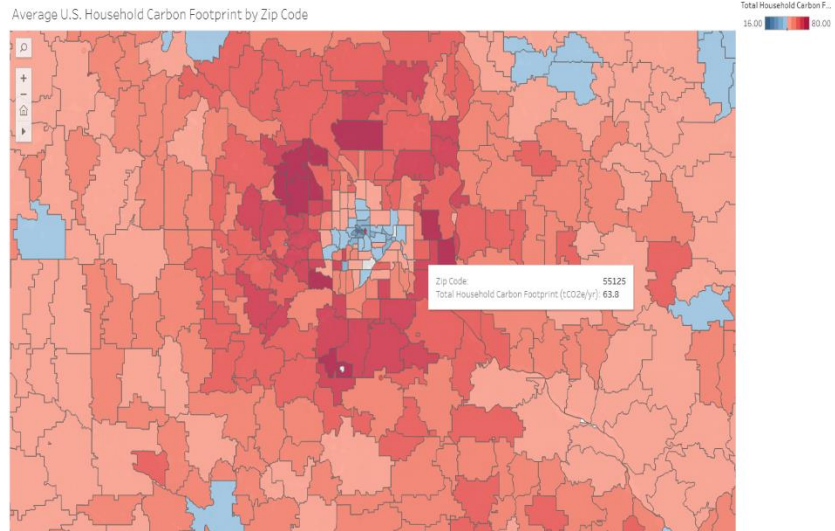
As large storm events continue to grow more frequent, improving the resilience of surface water management infrastructure will be a key body of work to directly help protect structures. While in depth analysis has been completed with the information available to date, continued investment and reinvestment are needed. Future analysis will need to be completed based on information released on a regional scale.

Environmental Stewardship Context

In our efforts to consider the question of Environmental Stewardship next steps, it is important to consider related local, national and international information as context.

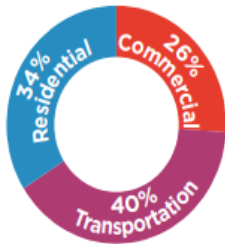
Suburban Context

In the United States, suburbs account for 1/2 of all household greenhouse gas emissions, even though they house less than half the population. Households in suburbs produce up to twice the average carbon footprint per household. This variation is largely due to the difference in average household income, vehicle ownership, and home size. Utilities, housing, and private transport are among the biggest sources of greenhouse gas emissions in cities.



Source: UC Berkeley CoolClimate Network, [Average Annual Household Carbon Footprint \(2013\)](#).

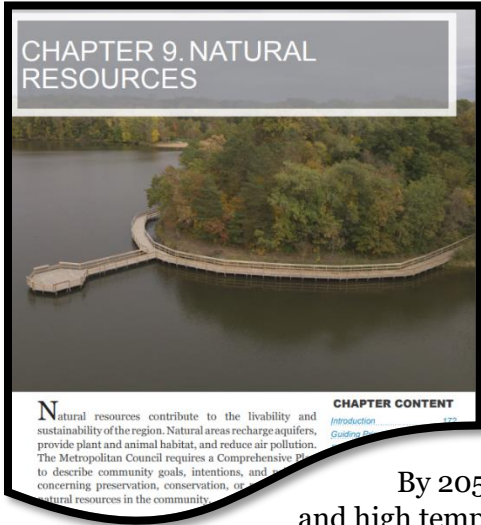
Figure 9-1. Greenhouse Gas Breakdown (Tons of CO₂ - City of Woodbury



Data Sources: 2014 Regional Indicators Initiative Report and Xcel Energy Community Energy Reports

The University of Berkeley calculates the household carbon footprint in Woodbury’s 55125 zip code at 63.8 metric tons CO₂e/year. The typical US household produces 48 metric tons.

As Woodbury continues to grow and develop, the City may want to explore identifying best practices to understand the current reality. If so, it would be recommended to engage sustainability professionals to utilize toolkits, assessments, and best practices to develop a plan that best fits our community.



Planning Context

The 2040 Woodbury Comprehensive Plan notes that “in the last decade, Minnesota State climatologists have found significant evidence of the following trends occurring in our state:

- Changes in temperatures (winters are becoming warmer with higher minimum temperatures)
- Changes in precipitation events (rainfall coming from more frequent and larger rain events)

Current strategies to address changing climate include the strategies of mitigation, adaptation, and resilience.”

By 2050, Woodbury’s average low temperature will shift up 6.7°F and high temperatures will rise by 5.7°F. Temperatures in Woodbury will be warmer every month of the year; as the Minnesota Department of Natural Resources (DNR) notes, this is the difference between a white winter and a wet, icy winter.

The Federal Emergency Management Agency (FEMA) identifies more frequent, more intense, and longer lasting heat waves as the top climate change risk in Washington County. According to the Sixth Assessment Report from the U.N. Intergovernmental Panel on Climate Change (IPCC), intense heatwaves will become significantly hotter and more frequent; in a worst case scenario, formerly “once per 50 year” deadly heatwaves will become an annual event. June 2021 was the hottest June on record across the U.S.; July was the hottest worldwide. Heat waves are the most deadly severe weather event in the United States.

The Minnesota DNR predicts a 13% increase in the size of the heaviest rainfall each year. Nationally, floods are the third-most frequent billion-dollar extreme weather event. Across the Midwest, states of experienced increased number of flood events in 2021 as a result of heavy rainfall over short periods of time that overwhelmed the local stormwater infrastructure.

Overall, there will be more and more extreme weather events. Even in the hyper-local, short-range timeline pieced together by staff for this report, the pendulum has swung back and forth from drought to flood.

Fiscal Context

Over the past twenty years, Woodbury has invested substantial time and resources responding to emerging issues such as Emerald Ash Borer, water contamination, drought, and changing weather patterns that stress our infrastructure. Severe storms, which are increasing in intensity and frequency, also have the potential to cause widespread and costly damage. In the past three years alone, Woodbury has spent more than \$1/2 million on flood risk reduction.

These expenses represent the cost of responding to crisis. However, Woodbury has also invested proactively. For example, the city has focused on adding renewable energy wherever possible. These efforts have become more affordable through market pressures and government programs and incentives. As of 2018, the City had subscribed to 7,194,770 kilowatt hours (kWh) of electricity from a Community Solar Garden (CSG), approved a CSG development within the city, and installed solar panels on Public Safety and a solar thermal system on HealthEast Sports Center. The city estimates \$3.5 million saved over the 25 year contract period. The city has invested in geothermal energy systems at its Public Safety Building, HealthEast Sports Center, and City Hall. Woodbury’s community partnerships and investment in solar panels have positioned the city to benefit from one of the cheapest sources of energy in the world.



The city also leads the way in fleet electrification. Woodbury purchased its first hybrid fleet vehicle in 2004 and now has 8 plug-in hybrid electric vehicles (PHEV). City leaders and staff are working around the clock to harness innovative technologies to ensure clean drinking water now and into the future.

**Critical Success Factor:
ENVIRONMENTAL STEWARDSHIP**

Understanding that environmental health, economics and human well-being are interconnected and interdependent, Woodbury is committed to the responsible use and protection of all resources. To preserve our environment for future generations, the City will foster environmental stewardship through focused conservation, social responsibility and best management practices

Social Context

The social consequences of environmental instability are felt more intensely by marginalized groups. Extreme weather events – from floods to heatwaves to droughts - impact already-vulnerable communities disproportionately worse. Low income residents and people of color tend to have less ability to recover from the impacts of damaging storms, and experience more severe health outcomes from inhospitable

temperatures, power outages, and smoke from wildfires.

In Woodbury’s “Environmental Stewardship” Critical Success Factor, the link between this topic and human well-being was intentional.

Conclusion

In the 2030 and 2040 Comprehensive Plans, produced through a combination of professional expertise, leadership values, and robust community engagement process, and through the 2018 Critical Success Factor statement adoption, Woodbury declared a firm commitment to environmental stewardship. The city recognized that environmental health, economics, and human well-being are interconnected and interdependent. These documents established a goal to complete a new plan to guide preservation, adaptation, mitigation and maintenance.

Over the past twenty years, even in the absence of a singular environmental strategy, the city has made remarkable progress to preserve and enhance the natural environment in this community.

However, as we grow, change and urbanize, there are a lot of competing issues for the City of Woodbury's time, attention and finances. The upcoming council retreat is a great opportunity where the City Council can consider your priorities and vision for the next chapter of environmental stewardship in the context of other competing areas of interest.

Without a clear new direction, environmental stewardship will:

- Continue to compete for resources and attention
- Miss opportunities to act efficiently, effectively, and to the community's usual high standards for service
- Other cities may surpass our leadership and out-compete us for resources such as grants and awards;
- Extreme weather events and other environmental hazards will divert resources, causing the city to spend more on reactive response than proactive action.

Hopefully this compendium of information will help the City Council and public see much of our history related to Environmental Stewardship and facilitate a robust discussion on the direction of the City Council going forward.