CITY OF STAPLES

ENERGY & ENVIRONMENT PLAN

An addendum to the 2018 comprehensive plan

A collaborative deliverable from the Community of Staples, MN

August 2021

The City of Staples, with community input, has developed a plan of action to reduce energy costs and ensure environmental responsibility and energy security.

R5DC
REGION FIVE
Development Commission

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ACKNOWLEDGEMENTS

The Staples Energy & Environment Action Work Plan results from significant efforts already underway in the City. This plan is the result of input and participation from city staff, Energy & Environment Planning Team members, the community-at-large, and external partners. The entire planning process was conducted during the coronavirus pandemic, with all meetings conducted online.

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INTRODUCTION

Cities throughout the nation, big and small, conduct comprehensive planning to steer community development. It is an essential process that helps guide the evolution of our municipalities. However, as municipal challenges and needs change over time, so too must the comprehensive planning process. Today, energy resilience, climate adaptation, and environmental health are becoming key considerations in city planning.

The Energy and Environment Addendum to the Staples Comprehensive Plan is intended to support the Staples community in identifying energy resilience and environmental conditions, challenges and concerns, while also charting a plan of action to address those concerns. Staples is among a growing number of municipalities intentionally integrating energy and environmental resilience into their comprehensive plans. This document has been generated with the intent to support sustainable development of the Staples community.

A team comprised of dedicated members of the Staples community began work on this Energy and Environment Plan in 2020. This work plan was generated in order to provide and prioritize clear, actionable steps and support the City in its efforts to protect the area's natural beauty, prepare for extreme weather events, reduce energy consumption for the City and its residents, and meet other needs as identified by the team and the community-at-large.

The Energy & Environment Plan is divided into the following segments:

1) Proposed Energy and Environment Workplan
2) Community Survey Highlights
3) Community Goals and Action Steps
4) An Energy and Environment Baseline Analysis
5) Resources and Supporting Documentation

The Staples Planning Team served to identify and prioritize goals and projects. This plan leveraged existing community and county-level efforts such as the Staples Comprehensive Plan Update 2018, Todd and Wadena County Hazard Mitigation Plans, and others.

FIVE-YEAR ENERGY & ENVIRONMENT WORK PLAN

The community was invited to be a part of the discussion to develop an energy and environment plan for the City. The public was invited to join the Energy & Environment Planning Team (Team) and identify community goals and priority projects to ensure energy and environmental resilience going forward. Based on the results of a community survey, the Team developed specific energy and environment related goals for the next five years.

Based on the stated community goals, the Team identified possible projects to be completed in 2021 with existing funding opportunities and resources. Projects were prioritized based on the extent to which they align with the goals identified in the Staples Comprehensive Plan: 1) supports a healthier and fun place to live, work and play and encourages people to stay in the Staples community; 2) saves time and/or money, and 3) is reasonably easy to accomplish.

The team identified six projects for implementation in 2021. They are listed below in order of scoring by the Team, and in direct consideration of community survey results. The City of Staples and partners will work to implement the outlined projects at little to no cost to the City. Costs associated with two identified projects will be covered by a grant from the Minnesota Pollution Control Agency.

2021 Projects:

A. Once per year, the City, Central Lakes College, and the high school will collaborate to explore the CLC Staples campus and demonstrate energy/environment projects the College has deployed.
   a. Cost: minimal
   b. Several hours of City staff time.

B. Minimize the risk of household hazardous waste contamination in 10 households per year by ensuring drop-off and other details are included in the new resident packet when signing up for utilities.
   a. Cost: minimal
   b. Modest printing cost.

C. Work with Todd and Wadena Counties to offer a household hazardous waste drop-off day in Staples once per year, coinciding with the annual garbage pick-up day organized by the City.
   a. Cost: minimal
   b. Several hours of City Staff time.

D. Work with Todd and Wadena Counties to expand household hazardous waste drop-off sites, ensuring residents know where they are located and when they are open.
   a. Cost: minimal
   b. Several hours of City Staff time.

E. Replace City outdoor lighting and ensure all new outdoor lighting is LED, converting at minimum 10% each year.
   a. Cost: approximately $8000
   b. Covered by MPCA grant.

F. Create notices for residents to know where to go/what to do with household hazardous waste, including refrigerator magnets to be placed in with utility bills.
   a. Cost: approximately $2000
   b. Covered by MPCA grant.

SURVEY HIGHLIGHTS

The community was invited to complete a survey about environment and energy conditions and priorities. The full survey results can be found at the end of the document.

Highlights include the following:

Survey respondents indicated support for **energy efficiency efforts** (82%), but half of respondents never heard of energy efficiency incentives available through Staples Water & Light.

Survey respondents indicated support for **alternative modes of transportation** (81%), but few residents utilize these currently, for example, only 4.5% of residents walked to work.

Survey respondents indicated broad support for **energy efficiency and renewables** informational workshops, and 67% of survey respondents indicated support for expanding the percentage of renewables in the City's energy generation mix.

A majority of Staples Environment and Energy survey respondents (82%) expressed an interest in **installing energy efficient improvements** in their home or business if it offered a reasonable rate of return, while 50% of respondents had **never heard of available incentives** through their local utility. A majority of respondents (67%) would support more solar if Staples Water and Light decided to invest in it. Almost half of respondents indicated that they are concerned about power outages that last more than 24 hours (48%).

Out of seven Energy and Environment goals identified and prioritized through the planning process, three are concerning energy matters. The goal ranked fourth is "**Reduce citywide energy consumption by 10% over the next 5 years.**" Six specific action steps were identified to help realize this goal.

The goal ranked sixth through the planning process is **"Expand the percentage of renewables in the generation mix to include greater solar generation. Increase to cover 1% of total annual citywide electricity consumption by 2025, by installing approximately 400kW DC of solar."** There are four specific action steps were identified to help realize this goal.

The goal ranked seventh through the planning process is "**Prevent or mitigate the negative impacts of power grid failure caused by tornado, straight line winds, or other cause.**" There are three specific action steps were identified to help realize this goal. A majority of respondents to the Staples Energy and Environment Survey indicated that they agree or strongly agree that alternative modes of transportation, such as walking and biking, are important (81%). A minority of respondents to the survey believe that severe heat (12%), drought (15%), or flooding (15%) represent emergency threats to Staples within the next five years.

Out of seven City of Staples Energy and Environment goals identified and prioritized through the planning process, the fifth goal is to "Expand the use of alternative modes of transportation, including walking, biking, and electric vehicles." There are two action steps identified to address this goal.

SURVEY HIGHLIGHTS

About 32% of respondents to the Staples Energy and Environment Survey indicated that drinking water quality might pose an emergency threat to Staples within the next five years, and only 12% of respondents were concerned that water availability might be an issue. 100% of survey respondents agree or strongly agree that Staples' drinking water is high quality. A majority of respondents indicated that they agree or strongly agree that surface water quality is clean, accessible and enjoyable in and around Staples (54%).

Out of seven City of Staples Energy and Environment goals identified and prioritized through the planning process, the second ranked goal is to "Maintain or improve surface and drinking water quality." There are nine identified action steps to help realize this goal.

A significant majority (79%) of respondents to the Staples Energy and Environment Survey indicated that household hazardous waste is difficult to dispose of. A majority of respondents recycle (69%). Those who did not recycle, or sometimes recycle, indicated they considered it a hassle or wasn't readily accessible. If the city offered a weekly municipal pick-up for compost, 58% of respondents indicated they would separate food waste.

Out of seven City of Staples Energy and Environment goals identified and prioritized through the planning process, the third ranked goal is to "Reduce solid waste and increase recycling." There are two related action steps to help realize this goal. Household hazardous waste is also addressed with multiple action steps under the goal ranked second, "Maintain or improve surface and drinking water quality."

Respondents to the Staples Energy and Environment Survey indicated that they agree or strongly agree that the City has quality parks (67%), and 50% indicated that they agree or strongly agree that the City offers excellent recreational opportunities. Almost half of respondents (49%) agreed or strongly agreed that it would be nice if the City had more trees and other greenery around town.

COMMUNITY IDENTIFIED ENERGY & ENVIRONMENT GOALS

Seven total goals were identified by the Team and through the survey results. What follows are the goals in order of priority and their associated Action Steps. Action Steps have a numerical ranking relative to their rated importance relative to all Action Steps, and that ranking is reflected in the parenthetical at the end of each Action Step. Any repeated numbers reflect a tie.

GOAL 1. Retain or increase population by encouraging youth to stay in Staples by highlighting energy/environment employment opportunities.

a. ACTION STEP: Once per year, the City of Staples, Central Lakes College, and the high school will consider collaborating to explore the Staples campus and demonstrate energy/environment projects the College has deployed. (1)
b. ACTION STEP: City of Staples considers working with the high school and local industry to demonstrate future energy & environment employment opportunities to students at least once each year. (6)

GOAL 2. Maintain or improve surface and drinking water quality.

a. ACTION STEP: Consider minimizing the risk of household hazardous waste contamination in at about 10 households per year by considering drop-off and other details be included in the new resident packet when signing up for utilities, and by considering the inclusion of information about it in the bi-annual newsletters. (2)
b. ACTION STEP: Consider working with Todd and Wadena Counties to offer household hazardous waste drop-off day in Staples once per year, at the same time as the annual waste day coordinated by the City. (3)
c. ACTION STEP: Consider working with Todd and Wadena Counties to expand household hazardous waste drop-off sites, ensuring residents know where they are located and when they are open. (4)
d. ACTION STEP: Consider creating signage for residents to know how to properly dispose of household hazardous waste, through informational magnets to be sent along with utility bills. (5)
e. ACTION STEP: Consider reducing stormwater runoff by possibly adding rain gardens, increasing tree plantings and other landscaping in town. (11)
f. ACTION STEP: Consider ordinances that would protect Staples' clean drinking water from being sold to other communities. (11)
g. ACTION STEP: Consider completing the wellhead protection plan update. (12)
h. ACTION STEP: Work with Counties to consider transition to salt brine road applications instead of hard salt. (17)
i. ACTION STEP: Consider developing improved stormwater treatment for railroad runoff by working with water quality experts. (18)

GOAL 3. Reduce solid waste and increase recycling.

a. ACTION STEP: Considering conducting outreach and education, providing opportunities for community members to learn more about recycling and household hazardous waste through workshops. [8]
b. ACTION STEP: Explore options and consider developing and implementing best practices for adding a municipal compost site. [9]

GOAL 4. Reduce citywide energy consumption by 10% over the next 5 years.

a. ACTION STEP: Consider replacing City outdoor lighting and all new outdoor lighting is LED [5]
b. ACTION STEP: Consider conducting energy efficiency outreach to low-income residents, assisting households in getting Weatherization services through the relevant community action agency. [9]
c. ACTION STEP: Consider setting up collaboration between MERC and Staples area mobile home park(s) for free weatherization programs benefiting residents. [10]
d. ACTION STEP: Consider conducting energy efficiency outreach to the community-at-large, achieving energy efficiency improvements in collaboration with businesses and homeowners. [13]
e. ACTION STEP: Consider conducting energy efficiency outreach to industrial customers. Achieve energy efficiency improvements in collaboration with industrial customer. [14]
f. ACTION STEP: Staples Power & Light will consider working with both electricity provider (MRES) and natural gas provider (MERC) to conduct energy audits on City buildings. The City will consider following resultant recommendations, focusing on those with the quickest return on investment first. [16]

GOAL 5. Expand the use of alternative modes of transportation, including walking, biking, and electric vehicles.

a. ACTION STEP: Consider installing an EV charging station within the City limits. [9]
b. ACTION STEP: Consider making the City more walkable/bikeable, including by sidewalk clearing in the winter. (15)

GOAL 6. Expand the percentage of renewables in the generation mix to include greater solar generation.

a. ACTION STEP: Consider conducting outreach and education for community members to learn more about solar energy through workshops offered. [6]
b. ACTION STEP: Consider procuring proposals on community solar projects to gauge community ability to support. Determine whether or not the City will proceed with community solar. [15]
c. ACTION STEP: Once priority projects are understood, consider collaborating with others to achieve grant funding, investments, or other means of covering the up-front cost to deploy solar. [15]
d. ACTION STEP: Procure additional proposals on non-community solar renewables projects and determine which projects align with the City's priorities on cost, ownerships, and generation levels. [17]

GOAL 7. Prevent or mitigate the negative impacts of power grid failure caused by tornado, straight line winds, or other cause.

a. ACTION STEP: Consider conducting outreach to help citizens understand available services in the event of power outage by adding an information note in utility billing. [7]
b. ACTION STEP: Consider deploying solar energy system with battery back-up for emergency services.[14]
c. ACTION STEP: Consider burying power lines in the City. [19]

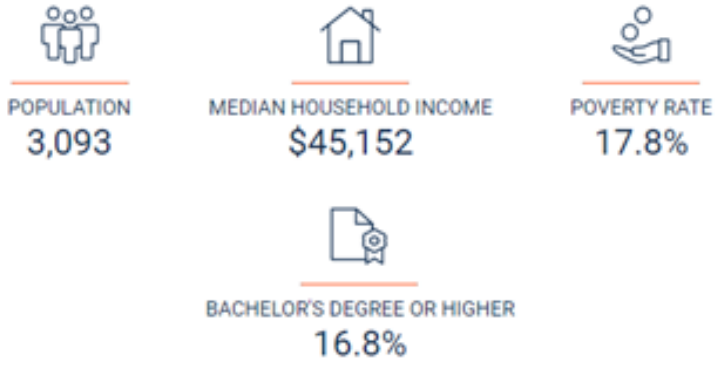
STAPLES TODAY: AN ENERGY & ENVIRONMENT BASELINE SUMMARY

In the process of facilitating the community conversation and facilitating broad input on this plan, much was learned about the current condition of key energy and environment indicators. In an effort to better inform the ongoing conversation and to help benchmark progress, a baseline summary is being provided. General baseline analyses are offered for demographics, economics, energy, and water.

DEMOGRAPHIC & ECONOMIC INDICATORS

Staples is a small city in North-Central Minnesota in both Todd and Wadena Counties with about 3,000 residents. The City is home to a large hospital, a lively arts community, a regional school system as well as a community college campus, an industrial zone hosting multiple manufacturing businesses, and many other features, including ample outdoor opportunities.

- DEED reported a total of 2,177 jobs in the city limits during Q1 of 2020, with a total of 122 firms. [1]
- Owner-occupied units comprise 809 out of 1,271 housing units (64%) [4]
- The median value of owner-occupied units was $92,900 [5]
- There are 1,430 total housing units, 475 of which were built before 1950, 598 of which were built between 1950-1980, 258 of which were built between 1980 and 2000, 101 of which were built after 2000 [4]
- The average annual wages in Todd and Wadena Counties were $40,732 and $38,452 respectively in 2018. [8]
- Unemployment rates are higher in the region than the Minnesota overall rate since 2000, typically hovering around 2 percentage points higher.
- Local poverty rates are also higher. 264 (35%) out of 755 families in Staples are eligible for Energy Assistance and Weatherization services. [6] [7]
- From 2010 to 2018, the region's labor force actually shrank, averaging a reduction of 174 workers per year.



ENERGY, ENVIRONMENT & REGIONAL ECONOMIC DRIVERS

Agriculture is not as significant a regional industry compared to other parts of Greater Minnesota. Still, the market value of agricultural products sold in Todd and Wadena Counties was $232,305,000 in 2017.

The health care and social assistance industry employs the greatest number of workers in the region. Manufacturing, educational services, public administration, and construction are also important area industries, comprising 33.5% of total jobs. Todd and Wadena Counties both lost population slightly between 2010 to 2018. [1]

Of all clean energy sector jobs in Minnesota, the largest sector is energy efficiency (76.2%), representing 47,114 jobs statewide. Nearly 13% of clean energy jobs are in renewable energy, representing 7,920 jobs statewide. The clean energy sector in Minnesota has been growing significantly, at a faster rate than overall statewide job growth, and was projected to grow 7% in 2020. These jobs are located throughout the State, with one in three clean energy jobs located in Greater Minnesota mostly small businesses. The Minnesota State campuses within the Staples community are leaders among the Minnesota State System with several clean energy projects providing lower cost energy to the College.[9] Those systems were installed with local labor.

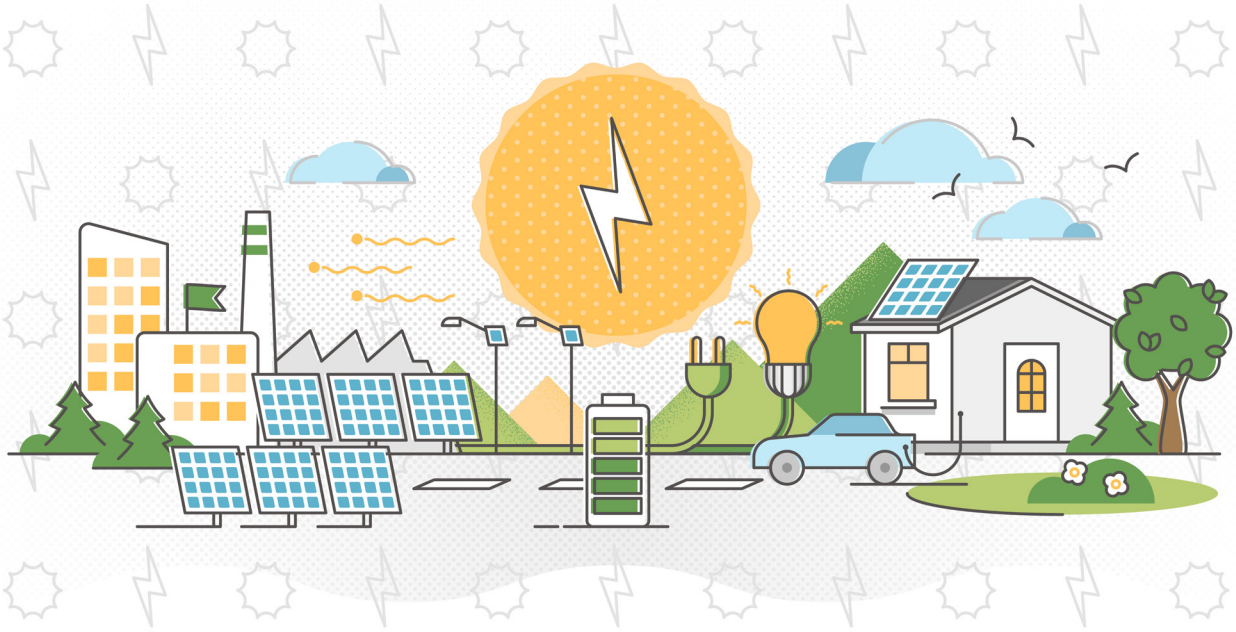
HEAT AND POWER FOR THE STAPLES COMMUNITY

Energy is consumed for electricity, heat, and transportation. Understanding how and where it is used can help target energy consumption reduction efforts to those areas where it will be most impactful. Consuming energy wisely through energy efficiency and conservation measures helps to save the City money and minimizes related environmental concerns. [12]

In recognizing the importance of energy efficiency, the State of Minnesota requires electric and natural gas utilities each year to invest at least 1.5 percent and 0.5 percent respectively of their gross operating revenues on Conservation Improvement Programs (CIP). Energy efficiency incentives through CIP are offered by all the electric and gas utilities that serve Staples.

Most of the City of Staples is served with electricity, water, and sewer services by the municipal utility, Staples Water & Light. Todd-Wadena Electric Cooperative also serves a portion of the territory within the City's boundaries, and the municipal utility serves a portion of Highway 10 on the west side of the city that is outside of the City's boundary.

Staples Water & Light doesn't generate electricity; it purchases electricity from Missouri River Energy Services (MRES). [15] The electricity generation mix of MRES includes coal, hydropower, wind, nuclear, natural gas. Of the City's annual electricity needs, coal covers the largest percentage, over one-third. However, renewable sources include hydro, comprising 25%, and wind, making up 19% of the total. [16]



ELECTRICITY CONSUMPTION AND CONSEQUENCES

For the purposes of this work plan, total electricity consumed within the City of Staples included only that provided through Staples Water & Light.

- Electricity consumption reported by the entire Staples Water & Light grid in 2019 was 25,370MWh [17].
- The largest consumer class was Industrial, which is the smallest consumer class for the U.S. overall [18], but the largest for Minnesota as a whole. [11]
- The City of Staples itself, including all of the city buildings, consumed 1,082 MWh of electricity in 2019 [15], accounting for 4.3% of the total.
- The greenhouse gas emissions from one year's electricity for the City of Staples are equivalent to what would be emitted by taking 100 round-trips to the moon in an average passenger vehicle. [20]
- Carbon dioxide emissions due to electricity generation covering consumption needs in the City of Staples account for 99.8% of the total emissions in pounds per megawatt-hour.
- However, there are also Nitrous Oxide, Sulphur Dioxide, Methane, and Nitrous Oxide emissions associated with electricity generation in our region. [21]
- Total CO2 equivalent emissions specific to the Staples generation mix amount to 19,746 tons annually.

KEEPING THE CITY WARM

Natural gas is the most common primary home heating fuel in Staples, serving 77% of the homes. Electricity and fuel oil make up the balance. A handful of homes use wood heat. [24] Minnesota Energy Resources (MERC) supplies natural gas within the City of Staples. [15] Consumption for all customers within the 56479 zip code amounted to

- 2,276,597.8 therms each year, averaging 2018 and 2019. [25]
- 12,045 metric tons of CO2 equivalent released into the atmosphere every year. [20]
- Energy efficiency incentives for reducing natural gas consumption are available through Minnesota Energy Resources, with rebates for homes and businesses, from air sealing, heating systems, to water heaters, and more. [26]

While residential customers consumed a greater aggregate amount of natural gas compared to the other customer types, natural gas consumed by each large commercial/industrial customer was almost 13 times greater than that of the average residential customer.

ENERGY BURDEN & ENERGY SECURITY

Energy is consumed for electricity, heat, and transportation. Understanding how and where it is used can help target energy consumption reduction efforts to those areas where it will be most impactful. Consuming energy wisely through energy efficiency and conservation measures helps to save the City money and minimizes related environmental concerns. [12]

In recognizing the importance of energy efficiency, the State of Minnesota requires electric and natural gas utilities each year to invest at least 1.5 percent and 0.5 percent respectively of their gross operating revenues on Conservation Improvement Programs (CIP). Energy efficiency incentives through CIP are offered by all the electric and gas utilities that serve Staples.

Most of the City of Staples is served with electricity, water, and sewer services by the municipal utility, Staples Water & Light. Todd-Wadena Electric Cooperative also serves a portion of the territory within the City's boundaries, and the municipal utility serves a portion of Highway 10 on the west side of the city that is outside of the City's boundary.

Staples Water & Light doesn't generate electricity; it purchases electricity from Missouri River Energy Services (MRES) [15]. The electricity generation mix of MRES includes coal, hydropower, wind, nuclear, natural gas. Of the City's annual electricity needs, coal covers the largest percentage, over one-third. However, renewable sources include hydro, comprising 25%, and wind, making up 19% of the total. [16]

Energy burden is the percentage of total income a household spends on energy costs. Low-income households typically suffer three times the energy burden than other households. While energy burden for non-low-income households is about 3%, for low-income households it can be up to 30%. [27] Fortunately, there are programs that seek to address this disparity through energy efficiency measures and by helping cover heating costs of high energy burdened low-income households. These programs, the Weatherization and Low-Income Home Energy Assistance Programs (LIHEAP), are available to eligible households at no cost through local Community Action agencies in Minnesota. [28] [29]

- As previously mentioned, 35% of Staples households are eligible.
- Services provided through Todd County Health and Human Services (Energy Assistance, Todd County residents), Tri-County Community Action (Weatherization, Todd County residents), or Mahube-OTWA Community Action Partnership (Energy Assistance and Weatherization, Wadena County residents) based in Wadena.

Renewable Energy Resources

Average annual solar radiation levels in Staples are about 4.6 Peak Sun Hours, slightly higher than the average of 4.53 peak sun hours for the State as a whole. [30]

In Staples, the annual average wind speed is 6.0m/s at a height of 80 meters, the average height for a commercial wind turbine [33]. Sites with average annual wind speeds of 6.5m/s or greater at 80m are generally considered commercially viable [34], so a wind turbine located in Staples would yield less power than a site with greater wind resource. [35]

TRANSPORTATION

One-fifth of 2016 Minnesota greenhouse gas emissions resulted from surface transportation, with another 6% resulting from aviation, rail, marine, and military.[37] The State of Minnesota is actively working to reduce transportation-related emissions, with a goal of 80% reductions in emissions from 2007 levels by 2050. [37]

The energy and environment considerations regarding transportation characteristics in the Staples community are:

- Highway 10, which bisects the City of Staples to the east and west, combined with State Highway 210, has average daily traffic between 10,950 and 14,250 vehicles. [38]
- Average daily vehicle miles traveled in Staples are 40,918.
- Annual total vehicle miles are 14,934,991. [39]
- Estimated total emissions from surface transportation in Staples is 6,034 metric tons of carbon dioxide. [39] [41]

Commuting characteristics

- 80% of commuters who live in Staples drove alone to their place of employment
- 13% carpooled
- 4.5% walked to work
- 1.3% worked at home,
- 1.1% took a taxi, motorcycle or other means
- 0.3% took public transportation.
- 35.2% of Staples residents took less than 10 minutes' travel time to work,
- 15.4% took 10 – 14 minutes,
- 13.5% took 35 – 44 minutes
- 20.3 minutes is the mean travel time to work [42]

OTHER EMISSIONS

Besides vehicle emissions discussed earlier, there are also emissions caused by burning within the city limits. These were calculated based solely on the number of burn permits issued within the City limits annually, averaged over the last 10 years.

- The total number of permits issued averaged 5 permits per year. [43]
- Associated emissions assumed 4,707 pounds of CO2 emissions per cord.
- One cord equivalent burnt per permit. [44] [45]

CLIMATE PROJECTIONS

Future climate projections can be helpful in long-term planning. The nearest city used for standard modeling is Minneapolis. The future 2050 climate of Minneapolis is projected to be like that of current-day Kansas City, with:

- an increase in annual temperature of 3.5oC,
- an increase of 5.7 oC in the warmest month, and
- an increase of 5.9 oC in the coldest month, and [46]
- a growing zone change from 4 to Zone 6. [47]

Temperatures have been measured at Staples Wildlife Management Area since 1895, and have shown about a 5oF increase as reflected by the trend line in the chart below. [48]

The University of Minnesota has undertaken climate modeling, and they project that Staples will get warmer and wetter in the future, with more extreme weather events. These include an increase in the total number of days projected to be over 95oF annually, as well as an increased likelihood of extreme precipitation events. [49] According to the U.S. Environmental Protection Agency, "Floods are becoming more frequent, and ice cover on lakes is forming later and melting sooner.... Over the last half century, average annual precipitation in most of the Midwest has increased by 5 to 10 percent. But rainfall during the four wettest days of the year has increased about 35 percent. ... Higher temperatures and heavier storms could harm water quality in Minnesota's lakes and rivers." [50]

WATER

Water is a precious resource which is often taken for granted, especially in the Land of 10,000 Lakes where it seems like the resource is limitless. Not only do we need water for drinking, it is also required for agriculture, manufacturing, and more. Conservation of water helps reduce costs and also preserves this precious resource for future generations.

DRINKING WATER

About 78% of households within the City limits are served by City water, with a new water treatment plant completed in 2004.[38] Staples' drinking water comes from two groundwater wells originating from glacial deposits, 72 and 84 feet deep each. A third City well is available for emergency use. The Minnesota Department of Health collaborates with municipalities all over the State in annual testing of the municipal water supplies. Results of those tests can be found on the MDH website as well as the City's website. Staples water exceeded safe drinking water standards for public health. [51]

Treatment of the City of Staples' water supply includes disinfection, fluoridation, iron/manganese sequestration, and softening. All Staples groundwater sources are considered vulnerable by the Minnesota Department of Health, meaning that pollution and water can move from the land surface into the groundwater easily. [52] One of the City wells is located adjacent to the railroad, which represents a potential problem in case of a rail accident with hazardous freight. Staples is working with the Minnesota Department of Health to complete an updated source water protection plan to address these types of issues. [52]

CITY SURFACE WATER

As reflected in the 2018 Staples Comprehensive Plan, the City of Staples is part of the Crow Wing River Watershed, which covers approximately 1,946 square miles between 9 counties. Crow Wing River, Hayden Creek, Hayden Lake, Dower Lake and others in and around Staples are part of this watershed.

Flood risk is minimal in Staples with Hayden Creek to the east of the City being the only surface water risk for periodic flooding. Wetland areas also exist to the west of the city, but when heavy rains occur, typically the water expands northward, avoiding the City. [38]

Existing drainage patterns are defined largely by the Crow Wing River, which runs just north and east of the city, and Hayden Creek. Stormwater drains to the east and northeast toward Hayden Creek starting at the railroad line. On the south side, stormwater drains easterly towards Hayden Lake and surrounding wetlands. Numerous wetlands are located within the city limits. These areas are abundant with wildlife and provide opportunities for recreation. [38]

Hayden Lake is eutrophic, with high nutrient levels. The 10-year average of summer samples show high phosphorus levels in Hayden Lake at 108 ppb, while the expected value would be 49-61 for lakes in the region. [53] There are not currently any Aquatic Invasive Species in Staples area lakes on the DNR's list, although there is faucet snail and zebra mussel in the Crow Wing River and tributaries. [54]

WASTE

SEWAGE

The Municipal Utility provides sanitary sewer service.

- Service provided 1,047 homes and businesses in the City.
- The City serves over 80% of all households.
- The City operates and maintains six lift stations. [38]
- A new wastewater treatment plant is under construction.
  - Expected to go into service in August 2021.
  - Designed to treat an Average Dry Weather flow of 290,000 gallons per day.
  - Designed to treat an Average West Weather flow of 680,000 gallons per day.
  - Designed to handle a Peak Hourly Wet Weather flow of 1,900,000 gallons per day. [15]
  - Relative to the former wastewater treatment plant could treat an average of 250,000 gallons per day and a peak demand of 400,000 gallons per day. [38]

GARBAGE AND RECYCLING

In a study of MN garbage composition in 2013, the Minnesota Pollution Control Agency found that organics comprised 31% of garbage, 18% of which is yard waste. Composting these organic materials locally saves money by reducing garbage costs, can create a valuable soil additive that improves fertility, conserves landfill space and reduces methane emissions. [55]

The City of Staples does not have an ordinance specifically for backyard composting, but in Ordinance No. 501, Section 9.2, declares "The exposed accumulation of decayed or unwholesome food or vegetable matter, except compost piles which are kept in such a manner as not to create a nuisance, offensive odors or offensive sight to neighbors." [56] Model ordinances for backyard composting sites can be found in Appendix G.

There is a yard waste drop off site located in Staples at the Wastewater treatment plant. In addition to the Browerville solid waste transfer station, in Todd County there is a brush/compost site located in Eagle Bend, 36515 165th Ave. [57]

There is one solid waste transfer station in Todd County, located on Highway 71 South in Browerville. It accepts solid waste generated within its borders from both licensed haulers and self-hauling individuals during regular business hours. Demolition debris, compost, and recycling are also accepted at the facility during regular business hours. Household hazardous waste is open on a seasonal basis from May 1st through September 30th, and waste drop-off is at no charge. [58]

There is one solid waste transfer station in Wadena County, located north of Wadena which accepts solid waste generated within its borders, including compost. The County Recycling Center is located west of Wadena, and each township and municipality has a recycling location to which its residents can drop off recyclable items for monthly pickup. [59] Wadena County recycling bins closest to Staples are located in Thomastown Township near the Central Lakes College Campus. [60] The demolition landfill is located behind the transfer station.

Household hazardous waste can be disposed of at the Wadena County transfer station, at no charge except for some fluorescent bulbs. Wadena County also offers household hazardous waste pick-up a couple of times each year during the summer, typically in Aldridge and Sebeka. [61]

LAND AND FOOD

The City of Staples is practicing forest management in several tracts, and adopted an Urban Forestry and Beautification Plan in 1993. [38] Besides the Crow Wing River corridor, the Staples area has two other large wildlife areas, Staples Wildlife Management Area, and Hayden Lake. Both of these areas are managed by the MN Department of Natural Resources and cover over 2,000 acres total. In addition to these two areas, there are several other area tracts of wildlife land managed by state and federal agencies. [38]

An estimate of tree cover was conducted for the City in 2020 using the iTree online platform. This estimate showed:

- 34.6% tree coverage for the City or 1,036 acres of tree coverage.
- At 2 tons of CO2 equivalent sequestered per acre per year, [62] these City trees currently sequester 2,072 tons of CO2 equivalent annually.
- Additional benefits include removing nitrogen dioxide, ozone, sulfur dioxide, and particulate matter from the air.

The City of Staples has a low proportion of impervious surfaces, only an estimated 4.7% within the city limits. The greater the amount of impervious surface in an area, the more quickly urban stormwater runoff washes chemicals (oil, gasoline, salts) and garbage from roadways and parking lots into waterways. Trees act like mini-reservoirs, intercepting rain on leaves, branches and bark, increasing infiltration and storing rainwater in the roots, and reducing soil erosion by slowing rainfall before it hits the dirt. For example, one 10-inch diameter white ash will intercept 1,241 gallons of stormwater runoff in a year. Trees can also increase property value and reduce cooling costs. [63]

FOOD SECURITY AND LOCAL FOODS

Local foods production in Staples is supported through the Farmer's Market held every Thursday at the Lakewood Hospital in the afternoons during the summer.[65] There is no community garden located in the Staples community as of this writing, however Central Lakes College Agriculture and Energy Center includes about 2,000 acres of research and crop production as well as agricultural educational opportunities. Access to local foods is accessible to more community members through programs like Sprout MN's subsidized Community Supported Agriculture (CSA) program [66], as well as the Staples Area Food Shelf [67]. The subsidized CSA program delivers local foods and recipes to veterans and low-income community members in the region, including in Staples.

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