



GOODHUE COUNTY MINNESOTA

TO EFFECTIVELY PROMOTE THE SAFETY, HEALTH, AND WELL-BEING OF OUR RESIDENTS

COMMITTEE OF THE WHOLE AGENDA
COUNTY BOARD ROOM
GOVERNMENT CENTER
RED WING, MN

AUGUST 17, 2021
8:15 A.M.

Sustainability Report

Documents:

[Sustainability Plan Proposal.pdf](#)



Goodhue County Facilities Maintenance

509 WEST 5TH STREET - RED WING, MN 55066 – 651.385.3208

TO: Goodhue County Board of Commissioners
FROM: Tim Redepenning, Facilities Maintenance Director
DATE: August 12, 2021
RE: Facilities Sustainability Study

Summary

Facilities Maintenance staff is continually faced with decisions that impact the integrity of our buildings, energy conservation, mechanical systems reliability and healthy staff environmental conditions. One common theme across the facilities industry is how routine facilities practices, purchases and decisions can have a positive or negative impact on our staff and environment.

Adopting sustainable practices can reduce risks and costs that may never have been on the radar in the past. Reviewing our operations to keep in step with societal expectations can help promote healthy communities and quality of life. Reducing reliance on utility providers can provide financial benefits and helps to avoid price volatility with energy and fuel prices. As our workforce changes, environmental awareness is more at the forefront so employee recruitment, retention and competitiveness are also things to consider.

The primary goal for the sustainability study was to look at current Facilities practices, identify the top five areas of change and provide an action plan to follow if a sustainability pilot program is pursued.

The County is fortunate to have Briggs Tople on board this summer. Briggs has provided a presentation on sustainability that includes his research, provides a breakdown of sustainability goals and proposes some steps for moving forward.

Thank you for your consideration.

Sincerely,

Tim Redepenning
Facilities Maintenance Director

Sustainability Plan Proposal

Briggs Tople & Tim Redepenning

August 2021

Case for Sustainability

- ▶ Reduce cost and risk
- ▶ Provide new services
- ▶ Enhancing economic development
- ▶ Talent recruitment and retention, business and resident attraction
- ▶ Staying competitive with other regions
- ▶ Healthy, safe communities with high quality of life

Overview

- ▶ Phase 1 (Reduce usage of harmful Chemicals)
 - ▶ Research and invest in new chemical based products that are Green Certified/more sustainable.
- ▶ Phase 2 (Lighting)
 - ▶ Replace old (incandescent and potential Mercury based) lighting fixtures with LED grade lighting fixtures
- ▶ Phase 3 (Lower reliability on one-time use products)
 - ▶ Replace one-time use functions such as plastic utensils in kitchens, individual packaging when buying products, paper towels in the bathrooms, etc.
- ▶ Phase 4 (Invest)
 - ▶ Research and invest in Electric Vehicles to slowly replace the Goodhue County Fleet Cars
- ▶ Phase 5 (Develop a renewable energy grid)
 - ▶ Research and create a strategic plan for instituting sustainable methods of powering facilities

Phase 1 - Reduce usage of harmful Chemicals

Why?

- ▶ Cleaning products are released to the environment during normal use through evaporation of volatile components and rinsing down the drain of residual product from cleaned surfaces, sponges, etc. Janitorial staff and others who perform cleaning can be exposed to concentrated cleaning products.
- ▶ Certain ingredients in cleaning products can present hazard concerns to exposed populations (e.g., skin and eye irritation in workers) or toxicity to aquatic species in waters receiving inadequately treated wastes (note that standard sewage treatment effectively reduces or removes most cleaning product constituents).

How?

- ▶ Utilize products that hold Ecolabels through lists created by the EPA
- ▶ Cleaning
 - ▶ [CLEANERS: Carpet, Glass, and Multipurpose](#)
 - ▶ [Floor Care](#)
 - ▶ [Hand Soap](#)
- ▶ Landscaping
 - ▶ [DEICER](#)

Phase 1 - Action Plan

- ▶ Create a scope of work plan with some of the following bullets accounted for:
 - ▶ October 2021
- ▶ Conduct an audit of current inventory of types of chemically based cleaning/landscaping products being used:
 - ▶ December 2021
- ▶ Consult with facility staff from various buildings and create a report to indicate the products being switched to by:
 - ▶ January 2022
- ▶ Begin the purchasing process by OR release an RFP by:
 - ▶ March 2022
- ▶ Have replaced 25% of all indicated chemically based cleaning/landscaping products by:
 - ▶ May 2022
- ▶ Have replaced 50% of all indicated chemically based cleaning/landscaping products by:
 - ▶ July 2022
- ▶ Have replaced 75% of all indicated chemically based cleaning/landscaping products by:
 - ▶ September 2022
- ▶ Have replaced 100% of all indicated chemically based cleaning/landscaping products by:
 - ▶ November 2022
- ▶ Create and present a report on environmental benefits, implementation, cost, and products replaced to the County Board by:
 - ▶ December 2022

Phase 2 - Lighting

Why?

- ▶ LED is a highly energy efficient lighting technology, and has the potential to fundamentally change the future of lighting in the United States. Residential LEDs -- especially ENERGY STAR rated products -- use at least 75% less energy, and last 25 times longer, than incandescent lighting.
- ▶ Widespread use of LED lighting has the greatest potential impact on energy savings in the United States. By 2027, widespread use of LEDs could save about 348 TWh (compared to no LED use) of electricity: This is the equivalent annual electrical output of 44 large electric power plants (1000 megawatts each), and a total savings of more than \$30 billion at today's electricity prices.
- ▶ Perhaps the most important environmental benefit of SSL is its potential to provide substantial energy savings (DOE, & OIDA, 2001; Tsao, 2002).³² The energy savings from SSL will reduce CO2 emissions, a significant contributor to global warming. As was shown earlier in Section III, the two SSL investment scenarios have the potential to deliver a 0.9% or 2.5% reduction from the EIA's projection of CO2 emissions in 2025.

How?

- ▶ Utilize the ENERGY STAR guide published by the EPA
- ▶ [LED Bulbs Made Easy](#)

Phase 2 - Lighting Action Plan

- ▶ Create a scope of work plan with some of the following bullets accounted for:
 - ▶ November 2021
- ▶ Conduct an audit of the current inventory of both LED and incandescent fixtures by:
 - ▶ January 2022
- ▶ Create a report on yearly savings by switching to LED fixtures by:
 - ▶ April 2022
- ▶ Consult with administrators and department heads on the tangibles of switching fixtures (campus wide) by:
 - ▶ July 2022
- ▶ Present the report on yearly savings to the County Board with hopes of approval of switching fixtures by:
 - ▶ December 2022
- ▶ Release RFP by:
 - ▶ January 2023
- ▶ Purchase all new LED fixtures by:
 - ▶ March 2023
- ▶ Have replaced 25% of all incandescent lighting fixtures to LED fixtures by:
 - ▶ May 2023
- ▶ Have replaced 50% of all incandescent lighting fixtures to LED fixtures by:
 - ▶ July 2023
- ▶ Have replaced 75% of all incandescent lighting fixtures to LED fixtures by:
 - ▶ September 2023
- ▶ Have replaced 100% of all incandescent lighting fixtures to LED fixtures by:
 - ▶ November 2023
- ▶ Create and present a report on environmental benefits, implementation, cost benefits and products replaced to the County Board by:
 - ▶ December 2023

Phase 3 - Lower reliability on one-time use products

Why?

- ▶ Single-use plastics are a glaring example of the problems with throwaway culture. Instead of investing in quality goods that will last, we often prioritize convenience over durability and consideration of long-term impacts. Our reliance on these plastics means we are accumulating waste at a staggering rate. We produce 300 million tons of plastic each year worldwide, half of which is for single-use items. That's nearly equivalent to the weight of the entire human population.
- ▶ Reducing plastic use is the most effective means of avoiding this waste (and the impacts linked to plastic production and use). Carrying reusable bags and bottles is one great way to avoid single-use plastics in our day-to-day lives; more on preventing plastic waste can be found below.

How?

- ▶ Utilize products that hold Ecolabels through lists created by the EPA
 - ▶ [TAKE-OUT SERVICE: Containers, Cutlery, Dishware](#)
 - ▶ [TOWELS - Paper](#)
 - ▶ [TOILET TISSUE](#)

Phase 3 - Lower reliability on one-time use products

Action Plan

- ▶ Create a scope of work plan with some of the following bullets accounted for:
 - ▶ April 2023
- ▶ Meet with department heads over the physical and mental logistics over lowering reliability on one-time use products by:
 - ▶ June 2023
- ▶ Issue a request from each department to have audited their one-time use products (such as plastic utensils in kitchens, paper towels in restrooms, etc.) by:
 - ▶ August 2023
- ▶ Create a report that indicates products that can be replaced, what products they can be replaced by, pricing of these products, and the environmental benefits by:
 - ▶ November 2023
- ▶ Request that departments begin to order all new products by:
 - ▶ December 2023
- ▶ Have 25% of identified one-time use products replaced by:
 - ▶ March 2024
- ▶ Have 50% of identified one-time use products replaced by:
 - ▶ May 2024
- ▶ Have 75% of identified one-time use products replaced by:
 - ▶ July 2024
- ▶ Have 100% of identified one-time use products replaced by:
 - ▶ September 2024
- ▶ Present the report on environmental benefits, implementation, and products replaced to the County Board by:
 - ▶ October 2024

Phase 4 - Invest in more sustainable fleet vehicles

Why?

- ▶ Emissions
- ▶ Hybrid and plug-in electric vehicles can have significant emissions benefits over conventional vehicles. HEV emissions benefits vary by vehicle model and type of hybrid power system. EVs produce zero tailpipe emissions, and PHEVs produce no tailpipe emissions when in all-electric mode.
- ▶ The life cycle emissions of an EV or PHEV depend on the sources of electricity used to charge it, which vary by region. In geographic areas that use relatively low-polluting energy sources for electricity production, plug-in vehicles typically have a life cycle emissions advantage over similar conventional vehicles running on gasoline or diesel. In regions that depend heavily on conventional electricity generation, PHEVs and EVs may not demonstrate a strong life cycle emissions benefit. Use the Electricity Sources and Emissions tool to compare life cycle emissions of individual vehicle models in a given location.
- ▶ Costs
- ▶ Although energy costs for hybrid and plug-in electric vehicles are generally lower than for similar conventional vehicles, purchase prices can be significantly higher. Prices are likely to equalize with conventional vehicles, as production volumes increase and battery technologies continue to mature. Also, initial costs can be offset by fuel cost savings, a federal tax credit, and state and utility incentives. The federal Qualified Plug-In Electric-Drive Motor Vehicle Tax Credit is available for PHEV and EV purchases from manufacturers that have not yet met certain thresholds of vehicle sales. It provides a tax credit of \$2,500 to \$7,500 for new purchases, with the amount determined by the size of the vehicle and capacity of its battery. Some states and utilities also offer incentives, which can be found in the Laws and Incentives database.

How?

- ▶ Utilize the US Department of Energy and EPA tool for comparing hybrid/EV model cars to current models
 - ▶ [Find and Compare Cars](#)

Phase 4 - Invest in more sustainable fleet vehicles

Action Plan

- ▶ Create a scope of work plan with some of the following bullets accounted for:
 - ▶ November 2024
- ▶ Run an audit on current inventory of cars in the fleet, specifications of the cars, and their environmental impact by:
 - ▶ January 2025
- ▶ Identify alternative/environmental friendly cars (such as electric and hybrid), their specifications, and their environmental impact by:
 - ▶ March 2025
- ▶ Establish a report to the County Board on the cost/environmental benefits, costs of replacement, tax credits/grants applicable, and timeline for implementation by:
 - ▶ May 2025
- ▶ Achieve approval from the County Board for the establishment of a phased timeline for replacing out current fleet vehicles by:
 - ▶ August 2025
- ▶ Receive funding for implementation of charging stations at locations of fleet vehicles by:
 - ▶ December 2025
- ▶ Begin yearly application for grants by:
 - ▶ February 2026
- ▶ Have first of charging stations implemented by:
 - ▶ August 2026
- ▶ Have replaced 25% of all non-electric/hybrid cars in the fleet with electric/hybrid by:
 - ▶ November 2026
- ▶ Have replaced 50% of all non-electric/hybrid cars in the fleet with electric/hybrid by:
 - ▶ November 2030
- ▶ Have replaced 75% of all non-electric/hybrid cars in the fleet with electric/hybrid by:
 - ▶ November 2034
- ▶ Have replaced 100% of all non-electric/hybrid cars in the fleet with electric/hybrid by:
 - ▶ November 2038

Phase 5 - Develop a renewable energy grid

Why?

- ▶ Reduce emissions of GHGs and other pollutants.
- ▶ Substituting renewable energy for conventional energy can substantially reduce emissions of GHGs and other pollutants that result from local government activities. Fossil fuel combustion for electricity generation accounts for 67 percent of the nation's sulfur oxides (SO_x) emissions, 23 percent of the nation's nitrogen oxides (NO_x) emissions, and 40 percent of the nation's carbon dioxide (CO₂) emissions, pollutants that can lead to smog and acid rain, and increase the risk of climate change (U.S. EPA, 2008). Many local governments have developed plans with goals for reducing GHG emissions resulting from government and community activities. By generating renewable energy on site, local governments are demonstrating to their constituents that they are striving to meet these goals (U.S. EPA, 2004).
- ▶ Hedge against financial risks.
- ▶ On-site renewable energy generation systems can reduce local government energy costs by decreasing exposure to fossil fuel price volatility, which can lead to higher prices for grid-based electricity. This allows local governments to better anticipate and plan for future energy expenditures (U.S. EPA, 2004; AWEA, 2007).

How?

- ▶ Utilize recommendations given by the EPA as given below and in [this manual](#)
 - ▶ [Generating renewable energy on-site](#) using a system or device at the location where the power is used (e.g., PV panels on a state building, geothermal heat pumps, biomass-fueled combined heat and power).
 - ▶ Purchasing green power through [renewable energy certificates \(RECs\)](#) - also known as green tags, green energy certificates, or tradable renewable certificates - that represent the technology and environmental attributes of electricity generated from renewable resources.
 - ▶ Purchasing renewable energy from an electric utility through a [green pricing or green marketing](#) program, where buyers pay a small premium in exchange for electricity generated locally from green power resources.

Phase 5 - Develop a renewable energy grid

Action Plan

- ▶ Create a scope of work plan with some of the following bullets accounted for:
 - ▶ October 2025
- ▶ Run an audit on the energy sources, and the amount of electrical input they give, of Goodhue County government facilities by:
 - ▶ December 2026
- ▶ Identify alternative, renewable solutions (solar electric and thermal, geothermal, wind, etc.), that can replace the power inputs of non-renewable energy sources by:
 - ▶ April 2027
- ▶ Establish a report to the County Board on the cost/environmental benefits, costs of replacement, tax credits applicable, and timeline for implementation by:
 - ▶ July 2027
- ▶ Achieve approval from the County Board for the establishment of the alternative/renewable solutions by:
 - ▶ December 2027
- ▶ Begin applying for grants by:
 - ▶ February 2027
- ▶ Release first RFP by:
 - ▶ August 2027
- ▶ Place first order for the new energy solution products and issue contracts for installation by:
 - ▶ November 2027
- ▶ Have replaced 5% of all non-renewable energy sources with renewable energy sources by:
 - ▶ August 2030
- ▶ Have replaced 10% of all non-renewable energy sources with renewable energy sources by:
 - ▶ August 2035
- ▶ Have replaced 15% of all non-renewable energy sources with renewable energy sources by:
 - ▶ August 2040
- ▶ Have replaced 20% of all non-renewable energy sources with renewable energy sources by:
 - ▶ August 2045

Questions? Suggestions?