



# Ozaukee County Energy & Sustainability Plan

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# Executive Summary

The *Ozaukee County Energy and Sustainability Plan* outlines a collection of strategies for county government operations and facilities in an effort to promote economic and environmental stewardship and to improve the quality of life for Ozaukee County's current and future residents. This initiative has been guided by the Ozaukee County Energy Action Team, a group of county department heads and staff from Finance, Highway, Land and Water Management, Maintenance, Planning and Parks, Transit, and UW-Extension, representatives from We Energies and Focus on Energy, Ozaukee County Supervisor Jennifer Rothstein, and County Administrator Tom Meaux.

The plan includes six areas of focus: energy, water, waste, transportation, sustainable design, and education and awareness. Key goals of the plan include:

## **Energy**

Reduce energy use associated with county government operations.

## **Water**

Promote water conservation and stormwater best management practices.

## **Waste**

Promote the reduction, reuse, and recycling of resources as an alternative to landfill-bound waste.

## **Transportation**

Explore opportunities for reducing fuel usage by county government vehicles.

## **Sustainable Design**

Promote the use of energy incentives and LEED standards in new construction, renovations, and equipment replacement.

## **Education and Awareness**

Increase knowledge and awareness among county employees and the public on sustainability and energy saving programs and practices.

# Introduction

Ozaukee County is committed to economic and environmental stewardship to improve the quality of life for its current and future residents. This is reflected in the abundance of high quality and diverse natural resources present throughout the County as well as in the County's commitment to responsibly providing government services and resources.

One of only a few Wisconsin counties fortunate to be located along Lake Michigan, Ozaukee County has a unique connection to the Great Lakes and water resources. In addition, given the County's impressive network of parks and open spaces, innovative Fish Passage Program, and a variety of additional environmental programs and initiatives, it's only natural that conservation and resource use figure considerably into the County's long-term plans and strategies. For instance, Ozaukee County has established several energy and conservation goals through the adoption of *A Multi-Jurisdictional Comprehensive Plan for Ozaukee County: 2035*, covering areas such as energy efficiency, renewable energy, and sustainable development, among others.



*Lion's Den Gorge Nature Preserve*

In terms of Ozaukee County government facilities and operations, energy conservation and sustainability are not new concepts. Individual county departments have taken significant steps to implement energy efficiency projects that have reduced operating costs and improved the efficiency of county buildings and facilities.



However, for the most part these efforts have not been coordinated on a countywide basis until now. The *Ozaukee County Energy and Sustainability Plan* represents a coordinated effort initiated by the Ozaukee County Board of Supervisors, County Administration, and the County's Energy Action Team to increase and prioritize energy and sustainability initiatives in the county.

This work is consistent with recent county government trends across the US. In a national survey of counties, approximately 70% of respondents indicated that they were currently implementing sustainability strategies. Not only are counties addressing energy and sustainability issues, they are also seeing real results. County sustainability strategies have been reported to "reduce costs of running county government, promote partnerships with the private sector, provide services for county residents, and enhance citizen participation in government."<sup>1</sup>

<sup>1</sup>NACO. County Sustainability Strategies (2010)



# Approach

Ozaukee County has utilized US EPA's *ENERGY STAR Guidelines for Energy Management* as a framework for developing an energy and sustainability plan for county government. The guidelines provide a proven strategy for identifying and implementing energy and sustainability projects and practices. The following is a summary of the County's progress in executing this approach over the last two years.

## Step 1: Make a Commitment

The initial interest in exploring long-range energy and sustainability strategies began in the fall of 2013 in meetings of the Natural Resources Committee. Although many county departments were involved in implementing energy and sustainability projects, there was a desire for the County to approach energy and sustainability in a more coordinated and intentional manner.

In June of 2014, the Ozaukee County Board of Supervisors passed Resolution 14-16 establishing an Ozaukee County Energy Action Team, charged with:

- Assessing historical and current energy use associated with county government operations;
- Evaluating and recommending energy goals, practices, and policies; and
- Developing a plan of action to implement energy-related projects and initiatives

Shortly after the resolution was passed, the Energy Action Team was formed. The team includes county department heads and staff from Finance, Highway, Land and Water Management, Maintenance, Planning and Parks, Transit, and UW-Extension, representatives from We Energies and Focus on Energy, Ozaukee County Supervisor Jennifer Rothstein, and County Administrator Tom Meaux. Over the last year and a half, the team has met regularly to advance the county's energy initiatives.

## Step 2: Assess Performance

Before moving ahead on specific strategies and plans, the team first reviewed the County's existing work to conserve energy and promote

## Energy Management Planning Process



Source: US EPA, *ENERGY STAR Guidelines for Energy Management*

sustainability. That work provided a strong foundation on which to build.

In addition, the Energy Action Team spent significant time and resources researching best practices, reviewing plans from nearby counties and municipalities, and analyzing county energy data and usage trends. Using the EPA EnergyStar Portfolio Manager tool, the team gathered and tracked energy data, established baselines for energy use for 2013 and 2014, and benchmarked facilities using EnergyStar scores to assess performance.

Furthermore, during 2015 We Energies worked with building superintendents and UW-Extension to perform energy audits of the Lasata Care Center, Justice Center, Highway Department, and Administration Building. The energy audits provided a thorough analysis of building performance, a breakdown of energy by end use (heating, lighting, hot water, etc.), and offered specific recommendations in the form of Energy Conservation Measures that identified project costs, potential incentives, and estimated savings.

### Step 3: Set Goals

After assessing the County's energy performance, the Energy Action Team turned to potential goals, projects, and policies for the County. It quickly became clear that energy played a role in a wide range of county operations. In fact, the team identified six key areas of focus: energy (primary focus), water, waste, transportation, sustainable design, and education and awareness. As an initial step in the planning process, the team designed a policy statement to capture the overarching purpose of the team's work and crafted goal statements for each of the six focus areas.

#### **Policy Statement**

*Ozaukee County is committed to economic and environmental stewardship to improve the quality of life for its current and future residents and will strive to be a role model in the development and operation of sustainable and energy efficient county government facilities and programs.*

#### **Goal Statements**

**Energy:** Reduce energy use associated with county government operations.

**Water:** Promote water conservation and stormwater best management practices.

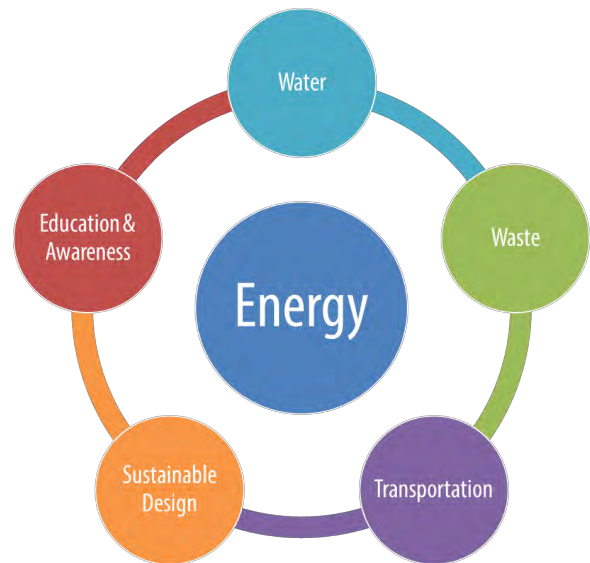
**Waste:** Promote the reduction, reuse, and recycling of resources as an alternative to landfill-bound waste.

**Transportation:** Explore opportunities for reducing fuel usage by county government vehicles.

**Sustainable Design:** Promote the use of energy incentives and LEED standards in new construction, renovations, and equipment replacement.

**Education and Awareness:** Increase knowledge and awareness among county employees and the public on sustainability and energy saving programs and practices.

### Energy Action Team Scope



### Step 4: Create Action Plan

This document represents the product of the Energy Action Team's planning process—an energy and sustainability action plan. In addition to goals, the plan identifies more specific objectives and projects with information on the status, timeframe, and lead department responsible for implementation.

### Step 5: Implement Action Plan

Taking advantage of its current momentum, the Energy Action Team plans to implement many of the projects identified in the plan within the next one to three years and will continue to identify new potential projects in the process as opportunities arise.

### Step 6: Evaluate Progress

Along the way, the team will continue to use the EPA EnergyStar Portfolio Manager and other tools to measure results, review progress, and evaluate what went as planned and what did not.

### Step 7: Recognize Achievements

Finally, a critical part of the planning process will be to recognize our achievements. This work would not be possible without the time, expertise, and resources provided by many people and it is important to acknowledge the County's successes.

# ENERGY



## Overview

“Communities need reliable sources of affordable energy. With rising fuel prices and growing concerns about the impacts of fossil-fuel power generation, sustainable energy solutions have never been more important, especially at the municipal level. Energy based on fossil fuels, whether for electricity, heating or transportation, results in air pollution. Fossil fuel consumption causes both chemical and particulate air pollution, better known as smog. Ozone and acid rain can be problems too, depending on local conditions. The burning of fossil fuels contributes more than 80 percent of total annual U.S. greenhouse gases.

Improving energy efficiency and adding renewable energy sources can help communities reduce air pollution while reducing the output of greenhouse gases. In turn, reduced air pollution can improve public health and lower energy costs.”<sup>2</sup>

<sup>2</sup>US EPA. Planning for a Sustainable Future: A Guide for Local Governments (2009)

## *Why Energy Matters*

*“Improving the energy efficiency of municipal facilities and operations is a cost-effective strategy to help stimulate the economy, create jobs, expand markets for energy-efficient technologies, and reduce emissions of air pollutants and greenhouse gases (GHGs).*

*Local governments can also lead by example through improving energy efficiency in their own operations, motivating the private sector and other stakeholders to follow suit. ”*

US Environmental Protection Agency  
Energy Efficiency in Local Government  
Operations (2011)



## County Energy Use

Ozaukee County operates a variety of facilities including a jail, courthouse, senior living campus, administration center, transit services building, golf courses, and highway department facilities, among others. To operate, these facilities require energy in the form of electricity and natural gas, which is provided to the county by We Energies and Cedarburg Light and Water. In total, the county has approximately 75 electricity and natural gas accounts.

In 2014, Ozaukee County used approximately 7.2 billion kilowatt hours (kWh) of electricity and 478,000 therms of natural gas for its facilities and operations at a total cost of about \$1.16 million. Although energy cost is important, there are also significant environmental costs to using electricity and natural gas.

The County's electricity and natural gas use resulted in approximately 7,600 metric tons of Carbon Dioxide (CO<sub>2</sub>) equivalent emissions in 2014. According to EPA's Greenhouse Gas Equivalencies Calculator it would take 6,200 acres of forest one year to capture that much CO<sub>2</sub> from the atmosphere.

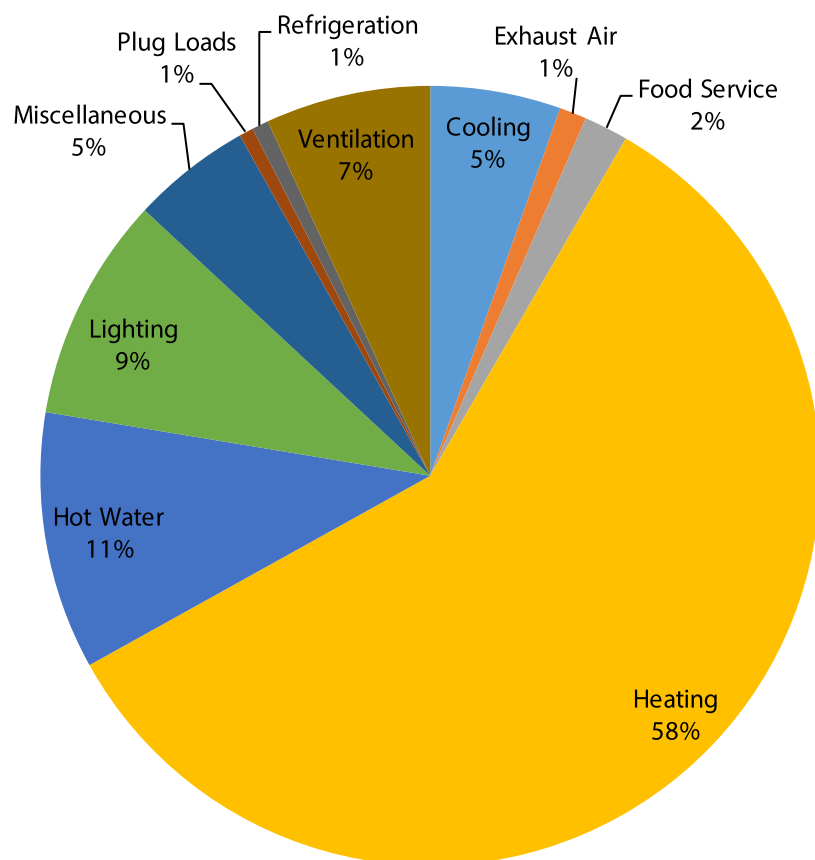
To find out more specifically where the energy is being used, the Energy Action Team enlisted the help of We Energies to perform assessments or energy audits at four of the County's largest facilities: the Justice Center, Administration Building, Lasata Care Center, and Highway Department's Spring Street buildings. The results of the energy audits

found that among the County's major facilities, heating accounts for the largest portion of the energy use at 58%, shown in the figure below. Hot water accounts for the second largest portion at 11% and lighting comes in third at 9%. This information has been helpful as the Energy Action Team works to identify and prioritize potential energy saving projects to implement.

## County Energy Use Trends

Although Ozaukee County's annual electricity and natural gas use provides useful information about the County's energy consumption, it can also be helpful to look at trends over time. To do this, the Energy Action Team has used an online energy management and tracking tool called EPA EnergyStar Portfolio Manager.

Energy End Use for Ozaukee County's Major Facilities



Source: We Energies

### Weather Normalized Energy Use Intensity

Facility	2004	2013	Change
Justice Center	193.5 kBtu/ft <sup>2</sup>	146.9 kBtu/ft <sup>2</sup>	↓ 24%
Lasata Care Center	135.8 kBtu/ft <sup>2</sup>	118.7 kBtu/ft <sup>2</sup>	↓ 13%
Administration Building	123.5 kBtu/ft <sup>2</sup>	96.1 kBtu/ft <sup>2</sup>	↓ 22%

### Annual Energy Costs

Facility	2004	2013	Change
Justice Center	\$2.27 per ft <sup>2</sup>	\$2.42 per ft <sup>2</sup>	↑ 7%
Lasata Care Center	\$1.26 per ft <sup>2</sup>	\$1.65 per ft <sup>2</sup>	↑ 31%
Administration Building	\$1.54 per ft <sup>2</sup>	\$1.56 per ft <sup>2</sup>	↑ 2%

Looking at energy use and cost over a ten year period from 2004 to 2013, as shown in the tables above, the County's progress in implementing energy saving projects is evident. Overall, energy use intensity at the Justice Center, Lasata Care Center, and Administration Building has decreased over the last ten years, with the greatest decreases occurring at the Justice Center (24%) and Administration Building (22%). However, over the same time period, energy costs have increased. As a result, despite the County's significant investments in energy efficiency over the last ten years, rising energy costs continue to cause an increase in energy spending.

### Recent Efforts

Over the last few years, the Justice Center and Administration Building have undergone significant building retrofits and lighting upgrades to improve energy efficiency. Many of these retrofits were funded in part through a Wisconsin Energy Efficiency and Conservation Block Grant award and/or Focus on Energy Incentives.

#### *Heating, Ventilation & Air Conditioning*

Significant retrofits to the HVAC systems at both the Justice Center and Administration Building have

occurred within the last five years. At the Justice Center, boiler system upgrades, HVAC control upgrades, the replacement of A/C chillers, and the addition of a heat recovery unit are some of the major energy efficiency upgrades that have been performed in recent years. At the Administration Building, the facility's chiller, air handling units, steam boiler, and chilled water and cooling tower pumps have been replaced with more efficient equipment. In addition, variable frequency drives have been installed to further reduce energy consumption.

#### *Lighting*

Common lighting replacements at county government facilities include:

- Incandescent light bulbs have been replaced with compact fluorescent lamps (CFLs).
- T12 fluorescent lighting and ballasts have been replaced with T8 fluorescent lighting. Reflectors have been installed where applicable for improved energy efficiency.
- LED exit lights are widely used at county facilities and traffic signal lights have been replaced with LED displays.
- Occupancy sensors and timers are used at some county facilities to reduce lighting costs.

## Action Plan

Goal: Reduce energy use associated with county government operations.

### Objective 1:

Increase the energy efficiency of county government facilities.

Project: Identify and implement energy saving projects at county facilities.

Status	In Progress
Timeframe	Ongoing
Lead	Facilities Management

**2016:** Implement \$114,500 in energy efficient lighting replacements at the Justice Center and Highway Department buildings.

### Objective 2:

Encourage the use of alternative energy sources.

Source: Ozaukee County Comprehensive Plan

Project: Evaluate renewable energy opportunities at county facilities.

Status	In Progress
Timeframe	Ongoing
Lead	Transit Services

**2015:** Installation of solar panels on Transit Services Building.

# WATER



## Overview

“Community prosperity relies on continuous access to clean water, from reliable drinking water supplies to clean waters that support recreation and viable commercial and sport fishing industries...”

The most common approach is to address the need for water resource sustainability through a targeted water strategy. However, many communities also address water resource concerns through land use planning and other smart growth policies with a goal of conserving valuable water resources.

What is common to all localities is the ongoing potential for improvements in local water use efficiency and water resource protection. Water resources can be protected and conserved through a variety of strategies involving: efficient use of municipal supplies; on-site collection, water recycling and treatment; wastewater treatment system improvements; and the reduction of non-point source pollution of local watersheds and aquifers.”<sup>3</sup>

<sup>3</sup>US EPA. Planning for a Sustainable Future: A Guide for Local Governments (2009)

## Why Water Matters

*“Over the past 10 years, the costs of water and wastewater services have risen at a rate well above the consumer price index. Facility managers can expect these and other utility costs to continue to increase in order to offset the costs of replacing aging water supply systems.”*

*The business benefits of implementing water-efficiency measures within commercial and institutional facilities include reducing operating costs and creating more sustainable practices.”*

US Environmental Protection Agency  
Best Management Practices for Commercial and  
Institutional Facilities (2011)



## County Water Use

Ozaukee County operates several water intensive facilities, including the Justice Center, which contains the county jail, and the Lasata Care Center, a 140-bed skilled care nursing home. Because the facilities house individuals on a 24/7 basis, they consume far more water than a typical office building. In 2013 the Justice Center used nearly 7.7 million gallons of water, while the Lasata Care Center used 5.5 million gallons.

## Recent Water Conservation Efforts

Because the Justice Center and Lasata Care Center are the two largest water users among County government facilities, it is not surprising that the facilities also have led the way in adopting water conservation and efficiency measures.

### *Justice Center*

Often times, saving energy and saving water go hand in hand. The installation of new HVAC equipment in the Radio and Telephone rooms of the Justice Center has significantly reduced water consumption at the facility. The improvements resulted in a reduction of hundreds of thousands of gallons of water and thousands of dollars of cost savings for each two-month water billing cycle.

### *Lasata Senior Living Campus*

The Lasata Senior Living Campus has taken several steps to conserve water at its facilities. For example, public urinals at Lasata Care Center and Lasata Crossings have been converted to automatic flush units to save water. In addition, at Lasata Heights, water faucets in the lobby bathrooms have been replaced with automatic units and washing machines have been replaced with EnergyStar models.

## Green Infrastructure

Areas with impervious surfaces can contribute to nonpoint source pollution during rain events. Stormwater runoff from roof tops, parking lots and roads picks up pollution that ends up in local waterways, affecting the health and aesthetics of freshwater resources. Green infrastructure projects

such as green roofs and rain gardens can offer a low cost and more natural alternative to managing stormwater pollutants and volumes.

## Recent Stormwater Management Efforts

### *Highway Construction Projects*

The Highway Department incorporates best management practices for erosion control and stormwater management on its construction projects.

### *Rain Gardens*

Ozaukee County has a rain garden demonstration site located on the west side of the Administration Building. The rain garden is designed to control stormwater runoff with native plants that tolerate wet conditions. The rain garden requires no fertilizing, watering, or spraying and only minimal mulching and weeding and helps to decrease erosion, filter out pollutants, and recharge groundwater.



*Ozaukee County Rain Garden Demonstration Site*

In addition to the rain garden demonstration site on the County grounds, the Ozaukee County Land and Water Management Department received a grant from the Fund for Lake Michigan which reimburses property owners in Ozaukee County up to \$750 for each rain garden installed in the Milwaukee River watershed.

## Action Plan

Goal: Promote water conservation and stormwater best management practices.

### Objective 1:

Explore opportunities for water efficiency and conservation in county government facilities and operations.

Project: Track water usage at county government facilities.

Status	Partially Started
Timeframe	2016
Lead	UW-Extension

Project: Research best practices in local government water conservation efforts.

Status	Not Started
Timeframe	2016
Lead	UW-Extension

### Objective 2:

Promote the implementation of green infrastructure and stormwater management projects.

Project: Provide funding for homeowner rain garden installations.

Status	In Progress
Timeframe	2015-2016
Lead	Land & Water Mgmt.

Project: Install a demonstration “green roof” to manage stormwater at a county facility.

Status	Not Started
Timeframe	TBD
Lead	Planning & Parks



Photo Credit: US EPA

## Overview

"According to EPA statistics for 2006, the average person in the U.S. generated 4.6 pounds of waste per day and recycled 1.5 pounds. The energy saved by recycling is the equivalent of more than 10 billion gallons of gasoline per year. Yet, the two most common management strategies for municipal garbage are to construct local landfills to dispose of solid waste or to transport the waste to other communities...

Wherever your trash goes, a comprehensive sustainability plan should have the goal of reducing the amount of trash that enters the waste stream. Solutions include programs to encourage recycling and reusing materials, increasing composting of organic waste and turning waste into usable energy. More and more communities are looking at their waste stream as a potential source of energy."<sup>4</sup>

<sup>4</sup>US EPA. Planning for a Sustainable Future: A Guide for Local Governments (2009)

## Why Waste Matters

*"The use and flow of resources or materials through communities is one of the central themes to sustainability. The policies and practices adopted by businesses and local units of government can impact whether these materials are disposed of as wastes, returned to use through recycling, or returned to the earth through composting..."*

*The solid waste hierarchy, which prioritizes approaches to managing materials both prior to and after disposal, is a useful guide in the decision making process when setting priorities and gauging one practice versus another."*

*UW-Extension  
Toward a Sustainable Community: A Toolkit for  
Local Government Volume 2 (2013)*



The US EPA has created a four-tiered waste management hierarchy that prioritizes waste management options from most preferred to least preferred. Source reduction and reuse ranks as the most preferred options, while treatment and disposal ranks as the least preferred.



Source: US EPA

## Recent Waste Reduction Efforts

The Lasata Senior Living Campus has implemented several strategies to reduce waste at its facilities. For instance, tenants at Lasata Heights bring their own "take home" containers to the dining room to take home leftovers, reducing the quantity of food waste at the facility. In addition, mercury thermometers and mercury-containing blood pressure cuffs are no longer in use at the Lasata Care Center which reduces the risks and waste disposal requirements associated with mercury-containing products.

## Recent Waste Reuse Efforts

The Highway Department incorporates the reuse of a variety of materials in its operations, including the reuse of used oil, asphalt pavement millings, and slag. Drain oil and a waste oil burner are used to heat the vehicle garage at its Waubeka shop. In addition, the department provides drain oil tanks for the public to use at its Port Washington and Waubeka shops. The Highway Department also blends asphalt pavement millings with gravel to reuse as road gravel.

Boiler slag from Charter Steel and the Manitowoc Power Plant are used to mix with gravel to use as shoulder gravel. Slag is also used in seal coating of road pavements to extend pavement life. Large slag is used for sub base stabilization in construction projects.

All landscape materials including flowers, shrubs, and other materials at the Lasata Senior Living Campus are composted or chipped and used as mulch.

## Recent Waste Recycling Efforts

Paper, cardboard, glass, plastic, and aluminum are recycled at county facilities including the Administration Center, Justice Center, and Lasata Senior Living Campus. Some light bulbs are recycled as well. Furthermore, printer cartridges and electronic waste such as computers and printers are recycled through the County's Information Technology Department. In addition, the Highway Department collects scrap metals, such as old culverts, I-Beams, and Flex Beams for recycling.

## Print Management

Ozaukee County is currently working to manage the costs associated with printing and copying countywide, which includes toners, cartridges, maintenance, and other hard costs. A recent review was done to inventory print devices at county facilities. The review found that the Administration Center has 1.01 print devices per employee and the Justice Center has 3.03 print devices per employee.

To address this issue, the County plans to implement a print management solution which is expected to save an estimated \$90,000 annually once the solution is fully implemented. The project is likely to reduce unnecessary purchases associated with printing, including the printers themselves as well as toners and cartridges.



## Action Plan

Goal: Promote the reduction, reuse, and recycling of resources as an alternative to land-fill-bound waste.

### Objective 1:

Encourage the efficient use of resources in county government operations.

**Project:** Implement a print management solution for county printing needs.

Status	In Progress
Timeframe	2015-2016
Lead	Information Tech.

### Objective 2:

Support green purchasing and the use of sustainable practices when buying products and services.

**Project:** Evaluate opportunities to adopt green purchasing practices and protocol.

Status	Not Started
Timeframe	Long-term
Lead	TBD

# TRANSPORTATION



## Overview

From plowing snow-filled roads to ensuring that Shared-Ride Taxi passengers reach their destinations in a timely manner, vehicles play an important role in providing Ozaukee County government services. However, the economic and environmental impacts of county vehicle use are considerable.

In 2013, Ozaukee County's vehicle fleet used approximately 177,500 gallons of gasoline and 141,000 gallons of diesel fuel at a cost of roughly \$943,000. Using EPA's Simple Greenhouse Gas Emissions Calculator, the County's 2013 gasoline and diesel fuel usage resulted in roughly 3,000 metric tons of Carbon Dioxide (CO<sub>2</sub>) equivalent emissions.

Recently Ozaukee Transit has taken steps to reduce fuel usage associated with county government vehicles. For instance, hybrid vehicles are now being incorporated into the Shared-Ride Taxi fleet. The use of hybrid vehicles has helped to reduce the amount of gasoline required to operate the vehicles, as well as the resulting emissions.

## Why Transportation Matters

*"The transportation sector is a major source of greenhouse gas emissions (GHGs) in the United States. An estimated 29 percent of national GHGs are directly attributable to transportation—and in some regions the proportion is even higher. Transportation is also the fastest-growing source of GHGs in the U.S., accounting for 47 percent of the net increase in total U.S. emissions since 1990.*

*Transportation sources of GHG emissions include cars and light trucks, heavy trucks and buses, nonroad recreational vehicles (such as dirt bikes and snowmobiles), farm and construction machines, lawn and garden equipment, marine engines, aircraft, and locomotives."*

US Environmental Protection Agency  
State and Local Climate and Energy Program:  
Transportation

## Action Plan

Goal: Explore opportunities for reducing fuel usage by county government vehicles.

### Objective 1:

Evaluate the use of alternative fuel vehicles.

Project: Incorporate hybrid vehicles into the Shared-Ride Taxi fleet.

Status	In Progress
Timeframe	2015-2016
Lead	Transit Services

Project: Give preference to hybrid or alternative fuel vehicles when purchasing or replacing county vehicles unless public safety prevents consideration.

Status	Not Started
Timeframe	Long-term
Lead	Finance Dept.

### Objective 2:

Expand and enhance alternative modes of transportation.

Source: Ozaukee County Comprehensive Plan

Project: Enhance and promote the Ozaukee Interurban Trail as an alternative transportation option.

Status	In Progress
Timeframe	Ongoing
Lead	Planning & Parks

Project: Increase Ozaukee Shared-Ride Taxi hours of operation.

Status	Planning
Timeframe	2016
Lead	Transit Services

# SUSTAINABLE DESIGN



## Overview

“Environmentally sound building is central to local sustainability. Each building material has its own history of energy and water use, raw material extraction and possibly even environmental pollution. The selection of environmentally sound recycled and raw materials can substantially reduce both on-site and off-site environmental impacts of construction.

The U.S. Green Building Council estimates that the construction of buildings currently accounts for 30 percent of all raw materials used in the U.S. A 1996 study, found that disposal of used building materials comprises 60 percent of non-industrial U.S. waste...

A recent boom in green building has brought with it a wealth of new resources. Green building products, services and information are more accessible than ever before. The cost of green building has become cheaper too.”<sup>5</sup>

<sup>5</sup>US EPA. Planning for a Sustainable Future: A Guide for Local Governments (2009)

## Why Sustainable Design Matters

*“The process of designing, developing, and inhabiting the built environment has a profound influence on a community’s economy, environment, and quality of life. In the United States, buildings account for approximately 36 percent of total energy consumption, 30 percent of greenhouse gas emissions, 13 percent of water use and approximately 170 million tons per year of construction and demolition (C&D) debris...”*

*Sustainable design for the built environment challenges local officials, planners, developers, and architects to examine the connections between their buildings, the environment, and their communities.”*

US Environmental Protection Agency  
Sustainable Design and Green Building Toolkit  
for Local Governments (2013)





*Interurban Trail Pocket Park*

## Recent Sustainable Design Efforts

### New Construction

The design phase of a new construction project presents an optimal time to incorporate sustainable design principles. One of the most prominent examples of sustainable design among Ozaukee County facilities is the Transit Services building.

Constructed in 2012, the building includes a variety of energy efficiency and stormwater management components that were incorporated into the facility's design. The construction included the following sustainability features:

- Materials re-use
- Recycled materials
- Water efficient fixtures
- Low or no emitting products
- Sustainable methods for storm water management
- Daylighting

During the demolition of the former Modern Equipment building at the site, an effort was made to reuse and recycle building materials from the former structure. Overall, 285 tons of steel were recycled, 8,100 tons of concrete were crushed and used on site, and only six percent of building materials from the former facility were sent to a landfill for disposal. In fact, even the Modern Equipment crane structure was adaptively reused to

define the space of the Interurban Trail Pocket Park and incorporate the industrial history of the property into the design.

The construction of the Transit Services building incorporated a variety of natural lighting and energy efficiency aspects. In addition, native and non-invasive landscaping was used around the facility, which requires little or no irrigation or maintenance and a bio-retention area was created for stormwater management.

### Building Renovations

In addition to new construction projects, building renovation projects provide an ideal time to consider energy and sustainability design principles and practices. Ozaukee County is currently in the process of completing a \$10 million renovation of the Lasata Care Center.



*Renovation work at the Lasata Care Center*

The 48 year-old facility will be outfitted with a variety of updated equipment including new, more efficient boilers and energy efficient lighting. Not only will these improvements enhance the quality of life for Care Center residents, they will also improve the operation and performance of the county's facilities for decades to come.

## Action Plan

Goal: Promote the use of energy incentives and LEED standards in new construction, renovations, and equipment replacement.

### Objective 1:

Design new County buildings in accordance with LEED Green Building standards.

Source: Ozaukee County Comprehensive Plan

### Objective 2:

Consider energy and sustainability factors in renovation projects and equipment replacement.

Project: Evaluate options for adopting policies and/or protocol regarding LEED Green Building principles and new construction.

Status	Not Started
Timeframe	Long-term
Lead	TBD

Project: Evaluate options for adopting policies and/or protocol to maximize energy incentives and encourage the purchase of energy efficient equipment.

Status	Not Started
Timeframe	Long-term
Lead	TBD

# EDUCATION & AWARENESS



Photo Credit: [intelfreepress/flickr](#)

## Overview

Energy, water, waste, transportation, and sustainable design are issues that impact nearly every aspect of our lives. Whether its purchasing a new kitchen appliance, choosing whether to take public transportation to work, or turning the lights out when leaving a room, our choices and behavior impact how much energy and resources we collectively consume as a community.

As a result, while many of the objectives of this plan focus on county government operations and facilities, the Energy Action Team is also interested in engaging the broader community on energy and sustainability issues. A primary focus of this effort is geared towards increasing knowledge and awareness among county employees and Ozaukee County residents on sustainability and energy saving programs and practices. This involves providing energy and sustainability resources to county employees and the public as well as using county energy and sustainability projects as an educational opportunity for county employees and the public.

## Why Education & Awareness Matters

*"A better understanding of energy can:*

- *Lead to more informed decisions*
- *Improve the security of a nation*
- *Promote economic development*
- *Lead to sustainable energy use*
- *Reduce environmental risks and negative impacts*
- *Help individuals and organizations save money*

*Without a basic understanding of energy, energy sources, generation, use, and conservation strategies, individuals and communities cannot make informed decisions on topics ranging from smart energy use at home and consumer choices to national and international energy policy."*

US Department of Energy  
Energy Literacy: Principles and Fundamental  
Concepts for Energy Education (2014)

## Action Plan

Goal: Increase knowledge and awareness among county employees and the public on sustainability and energy saving programs and practices.

### Objective 1:

Provide energy and sustainability resources to county employees and the public.

Project: Coordinate with local municipalities, utilities, Focus on Energy, and other organizations to ensure local energy and sustainability resources are accessible and well known.

Status	In Progress
Timeframe	2016
Lead	UW-Extension

### Objective 2:

Use county energy and sustainability projects as an opportunity for education and outreach.

Project: Publicize county energy and sustainability projects and identify ways to engage county employees and the public.

Status	Not Started
Timeframe	2016
Lead	UW-Extension



# Appendix

The following resources were used in the development of the plan.

Focus on Energy. Commercial Practical Energy Management (2013)

National Association of Counties. County Sustainability Strategies (2010)

US Department of Energy. Energy Literacy: Principles and Fundamental Concepts for Energy Education (2014)

US EPA. Best Management Practices for Commercial and Institutional Facilities (2012)

US EPA. Energy Efficiency in Local Government Operations (2011)

US EPA. Guidelines for Energy Management (2013)

US EPA. Planning for a Sustainable Future: A Guide for Local Governments (2009)

US EPA. Sustainable Design and Green Building Toolkit for Local Governments (2013)

UW-Extension. Municipal Energy Planning: An Energy Efficiency Workbook (2009)

UW-Extension. Toward a Sustainable Community: A Toolkit for Local Government (2007)

UW-Extension. Toward a Sustainable Community: A Toolkit for Local Government, Volume 2 (2013)

WI DNR. Recycling and Waste Reduction: A Guide for the Workplace (2011)

WPPI Energy. Energy Management Planning & Implementation: How-to Guide for Municipal Facilities (2008)

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