

Waukesha County Sustainability Plan 2010 – 2014



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POLICY STATEMENT

Waukesha County seeks, in a fiscally prudent manner, to attain and maintain a place of leadership in environmental stewardship and sustainability at our facilities, in our operations and in the larger community of which we are a part.

INTRODUCTION

In 2008, Waukesha County developed a comprehensive sustainability plan for operations. Based on our knowledge, this was one of the first sustainability plans by a county unit of government in the state. The intention of the plan was to guide energy efficiency and conservation projects within county government for 3 years. The plan focused on five core areas including:

- Building Design and Operation
- Grounds and Site Management
- Land Use and Environment
- Purchasing and Employees
- Transportation
- Sustainable Initiatives

Wisconsin Energy Independent Communities Program

In 2010, Waukesha County received a 25x25 Energy Independent Communities grant from the Wisconsin Office of Energy Independence (OEI). Joining 22 other Wisconsin communities, including the City of Oconomowoc, enabled Waukesha County to continue its sustainability planning efforts. The Wisconsin Office of Energy Independence administers energy programs to assist Wisconsin to profitably and sustainably promote energy efficiency and renewable energy resources. The goal of the Wisconsin Energy Independent Community Partnership administered by the OEI is to effectively increase energy independent assessments for Wisconsin communities. Currently, there are many communities across the State of Wisconsin interested in implementing and adopting renewable energy and energy-efficient projects. This program assists communities that could be potential pilots or models for completing an energy independence assessment, allowing the community to then move forward with energy efficiency and/or renewable energy projects. The objectives of the Wisconsin Energy Independent Community Partnership are to:

- Increase the use of energy conservation, energy efficiency, renewable energy and renewable fuels by 25% by 2025 across the State of Wisconsin.
- Increase and promote public awareness regarding the benefits of increased energy conservation, energy efficiency, and renewable energy use by counties and municipalities around the state. These benefits include and are not exclusive to clean air and water, intelligent land management, rural and urban economic development, as well as state and national energy independence.

Federal Policy and Energy Technology

Much of the state-level energy effort springs from federal policy. It is a key motivator in promoting technology for energy efficiency, conservation, and renewable energy. In December 2007, President George W. Bush signed into law the Energy Independence and Security Act. Key provisions include:

- Energy security
 - Increase the Corporate Average Fuel Economy, (CAFE) standard. Automakers are required to boost fleet-wide gas mileage to 35 mpg by 2020. This applies to all passenger automobiles, including light trucks.
 - Require vehicle technology and transportation electrification. This includes incentives for the development of plug-in hybrids.
 - It requires new conservation requirements for federal vehicle fleets. Taxpayer funding for increased production of biofuels. The total amount of biofuels added to gasoline is required to increase to 36 billion gallons by 2022, from 4.7 billion gallons in 2007. The Energy Act further specifies that 21 billion gallons of the 2022 total must be derived from non-cornstarch products (e.g. sugar or cellulose).
- Energy savings
 - Revised standards for appliances and lighting
 - It requires roughly 25% greater efficiency for light bulbs, phased in from 2012 through 2014. This effectively bans the sale of most current incandescent light bulbs. Various specialty bulbs, including appliance bulbs, colored lights, and 3-way bulbs, are exempt from these requirements.
 - Requires roughly 200% greater efficiency for light bulbs, or similar energy savings, by 2020
 - New initiatives for promoting conservation in buildings and industry
 - Requires all lighting in Federal buildings to use Energy Star products
 - New standards and grants for promoting efficiency in government and public institutions. New and renovated federal buildings must reduce fossil fuel use by 55% (from 2003 levels) by 2010, and 80% by 2020. All new federal buildings must be carbon-neutral by 2030.
- Taxpayer funding of research and development of solar energy, geothermal energy, and marine and hydrokinetic renewable energy technologies
- Green jobs - creation of a training program for "Energy efficiency and renewable energy workers"
- Energy transportation and infrastructure. New initiatives for highway, sea and railroad infrastructure. Creation of the Office of Climate Change and Environment in the Department of Transportation.
- Smart grid - modernization of the electricity grid to improve reliability and efficiency.

Future Energy Markets

In 2007, Argonne National Laboratory in Chicago developed a research model called All Molecular Industry Growth Assessment (AMIGA). This economic model explores driving

forces and critical uncertainties affecting U.S. Energy markets to 2050. This model predicts four scenarios for U.S. Energy to 2050. One of the scenarios focused on technology driving the market.

In this scenario, the United States reshapes the domestic energy sector. Engineering and technology advances in energy efficiency development brings business leaders, government officials, and U.S. consumers together in a united effort. Private investment by U.S. companies along with adoption by U.S. consumers leads to new technologies becoming accepted and widely commercialized.

By focusing policy on technology development for energy efficiency, conservation, and renewable energy, Argonne National Laboratory concluded that the U.S. would:

- Enhance diversity in energy supply
- Decrease dependence on foreign oil
- Improve U.S. energy security
- Increase efficiency in all energy-intensive sectors of the economy through the introduction of conservation measures and advanced technologies
- Accelerate capital stock turnover especially in the electricity and transportation sectors
- Sustain economic growth

Sustainability Plan Focus

The formulation of a Sustainability Plan for Waukesha County is based on our commitment to comply with all relevant federal and state environmental laws and regulations and go beyond compliance by integrating the values of sustainability, stewardship, and resource conservation into our activities and services. We will make decisions to improve the long-term quality and regenerative capacity of the environmental, social, and economic systems that support Waukesha County activities and needs. We will engage in pollution prevention activities, develop, and promote practices that maximize beneficial effects and minimize harmful effects of operations and activities on the surrounding environment. We are committed to assessment of the environmental impacts associated with our activities and services, and we will develop and track measures of our progress. We also hope that our efforts will serve as a model for local government units, businesses, and non-profits in Waukesha County in both energy conservation and development of new clean energy technologies.

BACKGROUND

What does Sustainability mean?

When we talk about “Sustainability” in this plan, we mean conducting the planning, execution and operation of our County government in ways that “meet the needs of the present without compromising the ability of future generations to meet their own needs.”(World Commission on Environment and Development, Our Common Future, 1987)

What we are already doing that is Sustainable?

Departments in their own ways and on their own schedules have been thinking and acting “sustainably” for some time. They have already identified and implemented those energy efficiency and waste reduction projects that have saved money and quickly recouped any investment made. For the most part, they have picked the “low-hanging” fruit. Here are just a few examples of current practice.

The Building Operations Division of the Department of Public Works has implemented many energy-saving upgrades to building systems. Central Fleet completed an extensive review of its policies, procedures and operations, and implemented waste reduction recommendations. Engineering Services has replaced bulb-type traffic signals with LED displays saving energy. For the past 15 years, the Department of Public Works has used recycled asphalt and other reclamation techniques when repaving or rebuilding its highways. The Waukesha County Airport used environmentally friendly “fly ash” and recycled asphalt in its runway reconstruction project.

The Department of Parks and Land Use uses Trex® lumber, a recycled content synthetic wood product, for their boardwalks and floating piers. They have designed, produced and installed recycled plastic “way finding” signage within each park. A majority of the construction and demolition debris associated with the recent Retzer Nature Center addition was recycled. Parks currently has electronic equipment that ensures accurate dispensing of chemicals to alleviate over application. They have also switched to phosphorus-free fertilizer to minimize the detrimental effects of phosphorus on soils and surface waters. The Park System plans its development to preserve 80% of each major park in natural conditions. Use areas comprise the remaining 20% of each major park.

Our current janitorial cleaning services vendor, CleanPower, uses environmentally friendly cleaning products and is Leadership in Energy and Environmental Design (LEED) certified.

What are the challenges to becoming more Sustainable?

The core goals of local government, transparency, lower costs and simplification may make us risk-averse and resistant to changes in practices that seem to work well. We have been proactive in giving departments purchasing choices that are environmentally friendly, but have not set countywide goals or targets to encourage and track their performance in buying these products.

In New Construction or Remodeling

When we consider sustainable buildings, higher construction costs, short-term budget considerations and lengthy payback periods are the principle perceived barriers to building green. Several studies indicate that “going green” can add two to three percent to construction and design costs, most of which is incurred during the architectural and engineering phases. However, the same studies suggest that savings in energy and operating costs can provide returns that recoup the added costs several times over. An analysis of 33 LEED registered projects in 2003 concluded that green concepts could achieve operational savings of more than \$1 million over 20 years for a 100,000 square-foot building.

In Purchasing Green Products

Some sustainable initiatives do have a higher upfront cost. Selecting, based solely on the lowest bid, hampers our ability to consider other factors in purchasing decisions. The obvious solution is to base these decisions on total life-cycle cost analysis (LCC). This analysis includes the cost of tracking materials that are more hazardous as well as their disposal costs. Unfortunately, it is often difficult or costly to evaluate LCC at the time of purchase so this tool may only be useful for very large contracts.

In Buying and Using Vehicles and Fuel

Waukesha County departments have sole decision-making authority for vehicle purchases. Our current vehicle replacement contracts offer departments choices that include low emission and hybrid vehicles. In the past, departments have avoided choosing them because the selection of available models was limited and standard vehicles were more versatile in their particular applications.

In the past, the market for alternative fuel vehicles looked promising because standard vehicles did not meet the emission requirements of the 1990 Clean Air Act. Today, most vehicle manufacturers have re-engineered traditional gasoline/diesel engines to meet these emission standards. During this period, Waukesha County investigated compressed natural gas CNG as an alternative fuel. Lack of adequate infrastructure to supply this fuel locally and the ease of meeting emission standards without it made CNG less attractive as an alternative fuel choice. Moving to hybrid and flex-fuel (gasoline or ethanol blend, e.g., E85) vehicles would mean moving beyond baseline compliance and toward energy independence. The Fleet Maintenance Division has evaluated this option and shelved it for the present. E85 is not readily available in Southeastern Wisconsin. The return on investment for hybrid vehicles is about twelve years, well beyond the typical working life of our fleet vehicles. In addition, our fleet consists mostly of trucks and there are few hybrid truck models on the market. BioDiesel is the most feasible alternative fuel for Waukesha County, but it will cost more to adapt the fleet and buy this fuel from a single source vendor.

The constant tension government faces is the need to encourage market forces to provide more environmentally friendly options using its purchase power while at the same time responsibly managing costs.

Lessons learned...finding a way forward...

When we talk about moving toward a more Sustainable Waukesha County we are really saying that we want to work together across departmental lines to do the business of government in a way that pays attention to the long view, which includes the environment, cultural and social resources as well as the bottom line. Making this change countywide will require resources and commitment. Just in the exercise of developing this plan, team members have recognized the need for education, communication and coordination resources that go beyond the capabilities of our individual teams.

Studies have shown that the key components of a successful County sustainability plan are:

- A policy statement committing the County to sustainable principles and goals;
- The importance of at least one “program champion,” who may be a manager, technical staff, or an elected official;
- Active staff involvement in plan development, to ensure staff buy-in;
- Ongoing education and marketing/communication efforts aimed at staff, elected officials and the public regarding plan implementation and performance tracking;
- The availability of easy-to-use tools and information resources;
- Initial and periodic re-training on the requirements and tools; and finally
- Ongoing political commitment, administrative support and periodic progress reviews by decision makers.

Baseline Data

As part of the preparation of the Year 2010 – 2014 Waukesha County Sustainability Plan, energy consumption data was collected for the years 2003 to 2009. For benchmarking purposes, energy consumption data from years 2007, 2008 and 2009 were averaged. Benchmark energy consumption levels are:

Electricity -	15,849,414	kWh
Natural Gas -	638,491	Therms
Unleaded Gasoline -	209,313	Gallons
Diesel Fuel-	204,591	Gallons

SUSTAINABILITY PLAN ELEMENTS

Specific sustainability goals and targets have been developed by interdepartmental staff teams, representing the Department of Public Works, Department of Administration, and the Department of Parks and Land Use, and are organized along the following categories:

- **Building Design**
- **Facilities Management/Building Operations**
- **Grounds and Site Management**
- **Transportation**
- **Environment**
- **Purchasing**
- **Employees**

Building Design

Buildings account for 40% of the nation’s total energy consumption. Waukesha County builds, owns and operates a wide variety of buildings and facilities including offices, jails, park shelters, maintenance buildings, and an airport. A “green” or sustainable building is one designed, built, renovated, operated or reused in an ecological and resource-efficient manner. Such buildings enhance occupant health, boost productivity, use energy, water and other resources more efficiently and reduce their overall impact on the environment.

From the outset, it is important to establish a vision that embraces sustainability principles and an integrated design approach. That means understanding how an entire building management system will help us operate our buildings more efficiently, rather than evaluating individual pieces. We will consider a full range of design and operations matters, from conceptualization through siting, construction, operation, remodeling and eventual deconstruction for reuse elsewhere.

The most advanced and well-known green benchmarks that have been developed for building design, construction and facility management, the Leadership in Energy and Environmental Design Green Building Rating System (LEED), was established by the U.S. Green Building Council in 1999. We will strive to meet these benchmarks in selected building projects and existing buildings.

Objective 1.1 Introduce LEED Design Concepts

Introduce Sustainable energy saving and LEED “Green” design concepts in programming, design and construction of County building projects over the next three years.

Objective Owner – Departments of Public Works and Parks and Land Use

Initiative/Action

1. Incorporate design principles into planned new construction and remodeling projects such as the Health and Human Services Building.

Facility Management / Building Operations

Facility Management practices can improve building performance by reducing the negative impact of buildings on occupants and on the environment. Creating healthier buildings results in:

- A work environment where there is improved indoor air quality, employee morale and productivity as well as reduced absenteeism;
- A building with an increased asset value that is less costly to operate; and
- Conservation of natural resources such as natural gas, oil, coal and water.

Objective 2.1 Implement LEED-EB Policies for Waukesha County Buildings

The U.S. Green Building Council has established LEED (Leadership in Energy & Environmental Design) certification standards for new and existing buildings to be certified. Develop and implement practices, policies and procedures that improve existing building performance and pursue LEED-EB certification.

Based upon a facility's qualifying points, there are four levels of LEED certification: Platinum 64-85 points, Gold 48-63 points, Silver 40-47 points and Certified 32-39 points. Existing facilities can earn certification points in the categories of:

- Sustainable Sites (includes landscape management, storm water management, alternative transportation and light pollution reduction) 12 points,
- Water Efficiency (includes performance measurement, plumbing fixture efficiency, water efficient landscaping and cooling tower water management) 10 points,
- Energy & Atmosphere (includes energy efficiency management & performance, refrigerant management, building commissioning, performance measurement, renewable energy and emissions reduction reporting) 30 points,
- Materials & Resources (includes sustainable purchasing and solid waste management) 14 points,
- Indoor Environmental Quality (includes outdoor air introduction and exhaust systems, tobacco smoke control, IAQ best management practices, occupant comfort and green cleaning) 19 points, and
- Innovation in Operations (includes innovation in operations, LEED accredited professional, documenting sustainable building cost impacts) 7 points.

Objective Owner – Administration, Public Works and Parks and Land Use Departments

Initiative/Action

1. Obtain LEED Professional Accreditation.
2. Evaluate County facilities to determine which facilities have the best potential to earn certification and apply for LEED-EB certification.
3. Install sub metering equipment for water, gas and electricity in selected facilities.

4. Collect and substantiate documentation on the various categories and sub-categories on the LEED-EB Checklist.
5. Develop, monitor and/or implement policies and procedures to meet LEED-EB standards and qualify for points.
6. Complete application and submit to the USGBC.

Performance Measure

Pursue a LEED-EB certification for a selected Waukesha County facility.

Objective 2.2 Retro-commissioning of County Facilities

The purpose of retro-commissioning of facilities is to achieve gas, electric demand and energy savings. Savings are realized through the systematic evaluation of facility systems and implementation of cost-effective measures to improve facility operations.

Objective Owner – Departments of Public Works and Parks and Land Use

Initiative/Action

1. Evaluate the operation and control sequencing of the energy management systems (EMS) in County facilities to identify opportunities and develop recommendations to improve system performance.
2. Implement appropriate system modifications and projects identified in the EMS evaluation that can be completed with existing budget or project resources.
3. Develop projects identified in the EMS evaluation with favorable Return on Investments (ROI's) to be incorporated in future years Capital or Building Improvement Plan budgets.
4. Rebalancing of HVAC systems. Over time, there are many reasons why air distribution systems deviate from design parameters. Test HVAC system air flows, compare to design specifications and adjust as necessary.
5. Replace existing inefficient light fixtures with high efficiency fixtures.
6. Install occupancy sensors in areas and rooms that have sporadic occupancy.
7. Upgrade the burners on a number of our boilers.
8. Install motion detection faucets and flush assemblies in our facilities.
9. Install low/no flow water closets in our facilities.
10. Replacement and installation of insulation and weather stripping.
11. Solar hot water at the Justice Center.
12. Geothermal at the Retzer Nature Center and proposed Health and Human Services building.
13. Replacement of low efficiency doors and windows.

Performance Measure

In a selected group of buildings, reduce combined electric and natural gas consumption by 20%. Demonstrate a 5 to 10% reduction in aggregate annual water consumption.

Grounds and Site Management

Pesticides, herbicides, and synthetic fertilizers accumulate in natural systems, water supplies, soil, food, animals, and humans. Landscape design and maintenance of parks and open spaces should consider alternative approaches to reduce consumptive water use and pest control alternatives that can help reduce toxicity in ecosystems, water, and food.

Objective 3.1 Reduce Mowed Turf on Highway Medians and Roadsides

Create highway median and roadside horticultural plantings to replace grassy areas. This will reduce the amount of mowing required for medians thus reducing fuel consumption and exhaust emissions while also reducing the maintenance costs for the mowing equipment.

Objective Owner - Public Works - Highway Operations Division and Parks and Land Use

Initiative/Action

1. Study and select appropriate sites.
2. Study and select appropriate plantings.
3. Remove selected grass areas.
4. Install selected plantings.
5. Maintain selected plantings.
6. Complete fiscal evaluations.

Performance Measure

Cost to maintain selected median is 90% less than control sections. Median maintenance cost (2007) is \$2,200/acre/year. Reduce maintenance cost on selected medians by 90%.

Objective 3.2 Reduce Mowed Turf in Parks

- Reduce lawn mower fuel consumption by reducing acres of currently mowed turf and replace with more naturalized plantings or tall grass areas. This will reduce exhaust emissions and equipment maintenance costs while providing improved wildlife habitat.

Objective Owner - Parks and Land Use (Public Works - Highway Operations Division)

Initiative/Action

1. Study and select appropriate sites within the Park System as part of the park master planning process.
2. Develop management/planting plan for new un-mowed areas for weed control and/or introduction of native grasses and forbs.
3. Educate/Promote the Mowing Reduction Plan internally and externally.
4. Mark new un-mowed areas at selected sites.
5. Stop mowing indicated areas.
6. Enact new management (and/or species introduction) prescribed for the newly un-mowed areas.

7. Monitor success of transition areas (weed control and/or species introduction).
8. Evaluate fiscal impact on annual fuel consumption (from mowing).

Performance Measure

A 10% reduction of acreage mowed.

Objective 3.3 Use Native Plants and Xeri-scaping

Continue to use native species in naturalized planting plans instead of horticultural or non-native species in formal (higher maintenance) plantings while exploring more opportunities for xeri-scaping (landscaping with slow-growing, drought tolerant plants to conserve water and reduce mowings) in new or replacement plantings within all developed areas of the park and County facilities.

Objective Owner - Parks and Land Use

Initiative/Action

1. Continued use native trees and shrubs (or their cultivars) within the Park System, including those plants offered through the Legacy Forest Program.
2. The Park System is committed to planting only grasses and forbs from within our ecosystem region at Retzer Nature Center and in other non-developed areas of parkland. This policy protects local sources of the plant seed collected and sold by Retzer Nature Center from non-native species contamination.
3. Continue to use of rain gardens utilizing native plant species that tolerate the fluctuating conditions for alternative on-site storm water management to increase infiltration.

Performance Measure

Through use of native plantings, eliminate daily watering and maintenance.

Objective 3.4 Improve Storm Water Management Practices

Improve storm water management practices at all County facilities to reduce runoff, increase infiltration/evapotranspiration, improve water quality and protect the adjacent natural resources.

Objective Owner - Parks and Land Use, Public Works

Initiative/Action

1. Continue to develop rain gardens adjacent to structures from which clean rainwater flows from roof.
2. Moor Downs Golf Course contains wet areas, which currently inhibit play. Design and develop a plan to encourage infiltration and evapotranspiration of water.
3. Continue installing facility modifications to contain and properly treat runoff from the salt storage areas of the highway operations substations.

4. Explore using permeable pavement and disconnecting impervious surfaces in the Park System Pavement Management Plan.

Performance Measure

Reduce storm water runoff from impervious areas at County facilities, which adversely affect water quality. Achieve a reduction of 80% of the sediment load carried in runoff on an average annual basis as compared with no sediment or erosion controls.

Objective 3.5 Pursue SITE and Green Tier Certifications

Pursue SITE and Green Tier Certifications for exterior site design and construction for Waukesha County facilities. Investment in the development of a new SITE certification standard may prove as model to community and assist in future sustainable site development.

Objective Owner - Parks and Land Use

Initiative/Action

1. Designate a site to submit as a pilot study of the SITE certification process.
2. Obtain SITE certification for the pilot location.
3. Study each site during development to incorporate design elements and management practices outlined in the SITE certification.

Performance Measure

Complete the SITE certification process on a pilot project.

Objective 3.6 Reduce Salt Use

Reduce in the amount salt used to de-ice pavement at the Government Center and park facilities to reduce costs and the impact of dissolved chlorides on the environment.

Objective Owner - Parks and Land Use

Initiative/Action

1. Explore alternatives to traditional granular road salt.
2. Study use of sand only within the parks.
3. Educate internally/externally on bare pavement expectations.

Performance Measure

Determine the average amount of salt used in a “normal” snow event and reduce that amount by 10% on roads, 10% on parking lots, and 10% on sidewalks and stairs.

Transportation

Pollution produced by fossil-fuel burning vehicles is responsible for public health problems that decrease quality of life and impose significant financial costs on individuals and the community as a whole. The County's transportation and mobility policies should address how to move residents, employees, visitors, as well as materials and goods to, from, and within the community in a more sustainable manner. Such policies call for including transportation practices that reduce emissions of carbon dioxide (CO₂) and other greenhouse gasses; practices that reduce the use and waste of fossil fuels by providing alternative modes of transportation; and practices that minimize the environmental impacts, health hazards and costs of transportation.

Roundabouts

Traffic in Waukesha County continues to increase at about 3% per year, countywide. This leads to greater inefficiencies on the roadway system especially at the intersections. These inefficiencies increase the amount of time, called "delay" that a vehicle waits at an intersection and increases the number of accidents that occur at an intersection. Increased delay at intersections causes increased vehicle emissions and fuel consumption. In addition, more accidents have a direct public cost due to higher insurance rates and decreased productivity due to injuries and vehicle repairs.

Objective 4.1 Evaluate the Appropriateness of and Install Roundabouts at Selected Intersections

Objective Owner - Public Works, Highway Operations Division, Engineering Staff

Performance Measure

- Cost to maintain selected intersection is 90% less than control sections. Signalized Intersection maintenance cost (2007) is \$3,500 per year, which includes electricity, and signal maintenance costs.
- The average delay at an intersection is 20% less than the baseline at the intersection prior to construction of a roundabout.
- The number of accidents occurring at the roundabout is 20% less than the baseline at the intersection prior to construction of a roundabout.

Traffic Signal Systems

As traffic in Waukesha County continues to increase, this leads to greater inefficiencies on the roadway system especially at the intersections along high-traffic corridors. Most of these corridors have existing traffic signals that work independently from each other. This causes traffic along the high-traffic corridor to stop and start at each intersection. These stops and starts and the increased delay at intersections cause increased vehicle emissions and fuel consumption.

Objective 4.2 Evaluate and Install Traffic Signal Timing Systems

Evaluate and install coordinated traffic signal timing systems at appropriate County intersections through high traffic corridors.

Objective Owner - Public Works, Highway Operations Division, Engineering Staff

Performance Measure

Reduce the vehicle delay along the mainline of the high traffic corridor by 20%. Existing baseline delay will be measured along the mainline of the high traffic corridor during initial traffic counts.

Storm Water Management

The widening and urbanizing of roadways often doubles the amount of impervious surface for a given section of roadway. In heavy rainfalls not only are storm water discharge rates increased but total suspended solids and other pollutants are washed off the roadway surface and transported to rivers and wetlands. As a result, the risk for increased flooding and environmental degradation of streams and wetlands is increased. The Department of Public Works has been using erosion control techniques and storm water facilities for many years to limit environmental damage from highway construction projects.

Objective 4.3 Provide Storm Water Best Management Practices on Highway Construction Projects

Objective Owner - DPW Engineering and Highway Engineering staff, PLU - Staff

Performance Measure

- Remove 80% of all Total Suspended Solids (TSS) in Best Management Practices.
- Peak discharge rates reduced to pre-construction condition or lower or, where applicable, meet Milwaukee Metropolitan Sewerage District volumetric design criteria.
- Remove at least 80% of Total Suspended Solids during construction, compared with uncontrolled condition.

Materials Recycling

Much of the asphaltic and concrete material under existing roads may be recycled when the roadway is rebuilt. Recycled asphaltic pavement (RAP) is used as aggregate in new asphalt or as base course. Recycled concrete is used as aggregate in new concrete or as base material.

Objective 4.4 Improve Use of Recycled Asphalt and Concrete in Paving and Road Construction

Objective Owner - Public Works, Highway Engineering and Highway Operations Divisions

Performance Measure

- Use up to 25% recycled asphaltic pavement (RAP) material in hot mixed asphalts.
- 60% of repaving program will use recycling techniques.
- Allow up to 100% of base course aggregates to be crushed concrete or milled asphalt.

Walk-able and Bike-able Communities

Bike paths and walkways have evolved beyond recreational uses. Many municipalities now plan their communities to include mixed-use developments so that residents can walk or bike to work or shops rather than drive. On the countywide level, both SEWRPC and Waukesha County have bike path plans. Some of these planned paths have been included in various PLU and DPW capital projects and DPW has worked with various communities to construct bike paths and sidewalks on County rights of way.

Objective 4.5 Provide Bike Paths and Walkways

Objective Owner - DPW Engineering and DPLU – Parks and Planning Staff

Initiative/Action

1. Examine Waukesha County/SEWRPC bicycle and pedestrian path plans to ensure they address bikeability/walkability needs as well as recreational needs.
2. Update the Waukesha County bicycle and pedestrian plan in cooperation with local municipalities.
3. Include designated bike path routes in Highway Capital Plan Projects.
4. Schedule capital projects for construction of Waukesha County planned bike path routes.
5. Work with municipalities to include planned bike paths, multi-use paths or walkways in Highway capital projects.

Performance Measure

- Increase non-recreational bike use by 5%
- Reduce vehicle trips in summer months by 1%

Salt Usage

In an average year, the Waukesha County Department of Public Works uses approximately 17,000 tons salt to de-ice the County highway system. The runoff resulting from salt use can be harmful to roadside vegetation as well as the rivers and streams that receive it. Salt is also a limited resource, therefore reducing salt usage is advantageous from an economic and environmental viewpoint. Waukesha County has already begun using some salt reduction techniques:

- Pre-wet systems – mixing water with the granular salt as it leaves the truck allows salt to stick to the roadway better and begins the melting process sooner
- Spraying brine (a salt/water solution) on roadways in anticipation of a storm, which retards snow sticking to the road

Objective 4.6 Reduce Salt Usage on Highways, Parking Lots and Walks

Objective Owner- Public Works, Highway Operations Division and Parks and Land Use

Initiative/Action

1. Investigate alternatives to salt use such as use of truck mounted pre-wet systems, brine solutions, sand / salt mixtures, calcium magnesium acetate, calcium chloride (at very low temperatures), and installation of heated sidewalks/stairways in very high foot traffic areas.
2. Reduce the spreader settings on all vehicles.
 - Study the effects of different spreader settings on roads.
 - Study the effects of different settings on sidewalks, stairs, and parking lots.
3. Use brine only as a de-icer.
4. Analyze preliminary results and make a recommendation.

Performance Measure

Determine the average amount of salt used in a “normal” snow event and reduce that amount by 10% on roadways.

Central Fleet

In 2001, Central Fleet completed an extensive review of policies, procedures, practices related to the operation of its facility. The review included ventilation, storage, handling of cleaning solvents and miscellaneous shop supplies. Outcomes of the review included changing parts cleaning machines to an aqueous/citrus based system rather than a solvent based one. Use of Oil-Dry has been discontinued and recycled rags are purchased for spill clean up in the facility. A thorough review and update of Material Safety Data Sheets (MSDS) resulted in the transition to citrus-based cleaning products and reduction in the variety of cleaners utilized in the operation.

Objective 4.7 Work to “Green” Central Fleet

Reduce hazardous waste generation and increase the use of “green” products within the vehicle maintenance operation.

Objective Owner - Public Works-Central Fleet, and Parks/Land Use-Environmental

Initiative/Action

1. Review the “best practices” of leading national repair facilities for their impact on sustainability. Adopt those practices that meet or exceed Central Fleet application or procedures.
2. Collaborate with vendors to keep informed on trends in green fleet products. The Central Fleet Staff is cognizant of the reduction in the hazardous footprint and generation of by-products.
3. Review the chemical product list used for “green compliance” as needed.
4. Annually train personnel on use of “green” products as needed.

Performance Measure

Maintain a “ZERO hazardous waste generated” compliance status within Central Fleet.

Objective 4.8 Evaluate Alternative Fuels and Vehicles

Study the potential use of alternative fuel and alternative fuel vehicles within Waukesha County where appropriate to meet user’s needs. New technology and renewed interest in reducing the human impact on the environment is guiding the manufacturers of fuel and equipment to explore options leading to lower emission vehicles and non-petroleum based fuels.

Objective Owner - Public Works-Central Fleet, Replacement Plan Committee, All Departments with WC owned/leased equipment

Initiative/Action

1. Study the availability of alternative fuels and vehicles that meet users’ needs.

2. Investigate Return on Investment (ROI) and availability of Bio-Fuel for use with all Waukesha County diesel vehicles.
3. Study the ROI for alternative fuels infrastructure and support systems.

Performance Measure

- Reduce gas and diesel fuel use by 10%.
- Use of alternative fuel will add no more than 5% to the total current operational cost.

Environmental Education

Safeguarding important lands, water, wetlands, soil, forests as natural ecosystems also helps to preserve the productivity and diversity of life upon which human life and well-being depends. We need to educate the public about our environment along with ways to responsibly use, protect and sustain it.

Groundwater is a major concern in Waukesha County and over-pumping is occurring in the Southeastern Wisconsin region. Water conservation initiatives along with infiltration practices and rain gardens are needed for a more balanced natural system. Educating the citizens for greater understanding of our water resources is a critical component to protecting and restoring them.

Reducing the amount of wastes and by-products reduces the likelihood of pollution while also reducing disposal problems and related costs for communities and businesses alike. Communities and businesses that make use of their own or each other's excess energy, water, and materials by-products can reduce or eliminate disposal and pollution problems and save, if not generate, significant revenues. Municipalities as well as the public need information and support to promote recycling and waste reduction.

Objective 5.1 Water Conservation and Awareness

Work to promote water conservation and awareness of groundwater issues through active participation in the Water Conservation Coalition.

Objective Owner - Land Resources Staff and County Executive

Performance Measure

Increase the number of businesses participating in self-assessment and the average water savings generated per business.

Objective 5.2 Rain Gardens

Promote the installation of rain gardens by homeowners, schools and other groups to reduce storm water runoff and provide more infiltration of water into the ground.

Objective Owner - Land Resources Division with support from Parks Division

Performance Measure

Install six rain gardens per year through the Graham Martin Foundation grant.

Objective 5.3 Waste Reduction and Recycling

Promote waste reduction and recycling to municipal staff and policy makers, businesses, schools, non-profit organizations, and the public.

Objective Owner – Recycling and Solid Waste Division

Initiative/Action

1. Monitor and fine-tune “Recycle More Challenge” and education campaign to reflect a consistent message and promotion.
2. Train municipal partners on the web-based tracking system so they can monitor recycling and solid waste tonnage trends themselves.
3. Work with participating municipalities to distribute additional blue bins, develop coordinated collection contracts, and identify local promotion partners and opportunities.
4. Work with DNR and Wisconsin Be SMART to develop and implement statewide “Recycle More Challenge”, based on recommendations from focus groups and research conducted in 2007.

Performance Measure

- Using year 2006 tons as a baseline (24,000 tons) increase the tons of materials recycled at the Waukesha County Recycling Facility by 5%.
- 98% of Waukesha County households participating in recycling programs.
- Divert a minimum of 35% of residential waste from going to landfills through recycling, waste recycling and yard waste management.

Objective 5.4 Develop Long-range Plan for Residential Recycling Collection and Processing

Objective Owner – Recycling and Solid Waste Division

Initiative/Action

1. Present findings and recommendations of the 2007 Recycling Facility/System Study to municipal partners and policy makers.
2. Facilitate decision-making.
3. Work with Cities of Milwaukee and Wauwatosa on possible regional RFP or RFI.
4. Develop timeframe and strategy for implementation.

Performance Measure

- Maintain recycling program cost per ton at a rate lower than landfill disposal cost.
- Maintain recycling program revenue above 120% of total recycling costs.

Purchasing

Sustainable or green purchasing is the purchase of “products and services [that] have a lesser or reduced effect on human health and the environment when compared to other products and services that serve the same purpose”. Sustainable purchasing, however, not only protects the environment; it also protects human health, conserves financial resources, and improves the overall quality of Waukesha County purchases. The benefits of sustainable purchasing to Waukesha County include improved ability to meet existing environmental goals, improved community and worker safety and health, reduced liabilities, and reduced disposal costs. County procurement policies can reflect the principles and concepts of sustainability. Indeed, governments can model the way for businesses and households.

Objective 6.1 Develop a Sustainable Purchasing Program Tailored to LEED Existing Building Certification

Implement a Sustainable Purchasing Program (SPP) specific to those policies, products and services lines that will earn the required points toward a LEED – Existing Building, Operation and Maintenance Certification. Participate with the Department of Public Works in selecting and documenting the performance of a pilot building or complex.

Objective Owner - Purchasing Group of the Sustainability Team and Department of Public Works

Initiative/Action

1. Implement sustainable purchasing for cleaning materials and products, disposable janitorial paper products and trash bags. Cleaning material and product purchases include building purchases for use by in-house staff or used by outsourced service providers.
2. Implement sustainable purchasing for janitorial equipment that maximizes effective reduction of building contaminants with minimum environmental impact.
3. Develop and implement sustainable purchasing policies covering at least office paper, office equipment, toner cartridges, furniture and furnishings and building materials for use on site and in the selected building.
4. Develop and implement sustainable purchasing policies that optimize the use of air quality compliant materials that at a minimum include the following product groups: paint and coatings, adhesives, sealants, carpet, composite panels, and agrifiber products. Applicable projects include upgrades, retrofits, renovations or modifications inside the building.
5. Establish and maintain a toxic material source reduction program to include a policy specifying that all future purchases of mercury-containing light bulbs will be made in such a way that the average mercury content of the light bulbs is less than the specified level in picograms per lumen hour.

Performance Measure

Implement LEED-EB O&M required sustainable purchasing policies, programs and measurement tools.

Objective 6.2 Develop a Sustainable Purchasing Program

Develop a Sustainable Purchasing Program (SPP) to purchase recycled content products, energy-efficient products and renewable energy technologies, alternative fuel vehicles and alternative fuels, bio-based products, environmentally preferable products and services (example: low-volatile organic content products), and non-ozone depleting substances.

Objective Owner - Purchasing Group of the Sustainability Team, Purchasing Division, County Executive and Department Heads

Initiative/Action

1. Develop an SPP Policy.
 - a. Establish policy for a SPP that is appropriate for the nature of Waukesha County's purchasing activities and reflective of the County's goals and objectives.
2. Develop an SPP Plan.
 - a. Establish and document a process to identify opportunities to procure green products and services.
 - b. Establish and document a process for setting, maintaining, and annually reviewing and updating objectives and targets for SPP performance.
 - c. Document the objectives, targets, and necessary action steps in a County-level plan for improving sustainable procurement performance.
3. Implement the Plan
 - a. Define roles and responsibilities for SPP implementation and ongoing operation.
 - b. Implement training for key staff and purchasers.
 - c. Implement internal and external communication programs.
 - d. Define SPP documentation requirements. For example, document the following:
 - i. Establish procedures to ensure SPP requirements are addressed in all procurement actions and at each appropriate stage of the procurement process.
 - ii. Establish procedures and approvals for justifications not to purchase green products.
 - iii. Establish automatic substitution procedures where appropriate and feasible.
4. Report Performance and Fix Problems
 - a. Establish a process for evaluation and reporting of SPP performance.
 - b. Measure performance based on Division, Department and County-level objectives and targets.

- c. Use established data tracking systems to measure performance.
 - d. Develop other measurement tools as necessary to meet County mission and management goals.
 - e. Annually report performance to the County Executive and/or County Board.
 - f. Incorporate SPP requirements into self assessments, compliance inspection protocols, and internal audit protocols.
 - g. Develop improvement procedures to address problems identified in assessments, inspections, and audits.
 - h. Conduct routine self-assessments of the effectiveness of SPP awareness training, the completeness and integrity of SPP performance data, and the overall SPP.
 - i. Evaluate the effectiveness of audit procedures, including implementation of improvement procedures.
 - j. Have Management Review the Program.
5. Establish procedures for routine (at least annual) senior management review of the effectiveness of the SPP.

Performance Measure

Employees

The day-to-day activities and choices of employees have a significant impact on the amount of resources used by an organization. The benefits of using resources wisely and reducing waste at work go beyond helping the environment. Reducing waste also cuts cost, improves efficiency and boosts public image. Education of and input from employees will be critical to the success of the Sustainability Plan.

Objective 7.1 Educate Employees for Sustainability in the Workplace

Develop and implement educational tools and training for employees to provide resources and opportunities for input on ways to improve the sustainability of operations in their office or department.

Objective Owner – All Departments

Initiative/Action

1. Develop and present a sustainability module for managers and supervisors as part of the Human Resources training series.
2. Encourage formation of employee teams to identify opportunities, develop strategies, and implement them within their own workplaces.
3. Investigate on-line sustainability training tools.
4. Promote sustainability initiatives and opportunities on Intranet.

Performance Measure

Objective 7.2 Reduce Office Paper Use

Objective Owner - All Departments

Initiative Action

1. Educate employees on methods of reduction, such as use computer (electronic files) rather than print, use e-mail whenever possible, set duplex on all printers, use 2nd chance paper for drafts & internal communications, print selectively, use shared electronic file folders.
 - a. Within each department, identify key staff with authority and knowledge of printers, set-up, paper use, filing system to determine best approach for implementing these methods.
 - b. Coordinate printer use and default settings with Information Technology (IT) and key office staff.
2. Develop & implement the use of electronic forms. This will require commitment of resources from each department and from IT.
 - a. Re-evaluate existing practices and procedures to reduce unnecessary hard copies such as multiple copies of invoices, multiple copies of applications of employment and resumes.

Performance Measure

Compare amount of paper purchased by department before and after implementation of paper reduction program.

Objective 7.3 Conserve Employee's Use of Energy and Water

Objective Owner - All Departments

Initiative/Action

1. Educate employees on methods of energy and water conservation such as turning off lights, office equipment and faucets when not in use.

Performance Measure

Compare the gross annual electrical and water consumption rates before and after implementation of the reduction program.

Objective 7.4 Research and Promote Alternate Modes of Transportation for Employees

Objective Owner - All Departments

Initiative/Action

Examine options:

1. Investigate telecommuting as a method of work.
2. Encourage carpooling; use GIS technology to coordinate.
3. Provide incentives to use alternate transportation.
4. Guaranteed ride home program.
5. Promote/expand subsidized bus passes.
6. Promote biking/walking to work through Wellness Committee.

Performance Measure

Use GIS technology to assist in measuring miles traveled, gasoline/oil used before and after initiatives. Utilize websites that measure amount of air pollution per automobile and measure the amount avoided due to alternate work/travel methods.

Additional Energy Conservation Efforts to Achieve 25 X 25 Goal

As mentioned previously in this Plan, in 2010, Waukesha County received a 25x25 Energy Independent Communities grant from the Wisconsin Office of Energy Independence (OEI). The objectives of the Wisconsin Energy Independent Community Partnership are to increase the use

of energy conservation, energy efficiency, renewable energy and renewable fuels by **25% by Year 2025** across the State of Wisconsin. In addition, the program seeks to increase and promote public awareness regarding the benefits of increased energy conservation, energy efficiency, and renewable energy use by counties and municipalities around the state. These benefits include and are not exclusive to clean air and water, intelligent land management, rural and urban economic development, as well as state and national energy independence. To achieve 25 x 25, Waukesha County established the following pathway. Steps were:

- Collected and analyzed 6 years of data to establish an energy consumption baseline
- Placed all data for buildings in Portfolio Manager
- Worked to integrate utility data into Portfolio Manager
- Enlisted Focus on Energy and other consultants to conduct building and facility energy audits
- Initial focus was on energy conservation projects that had sound Return on Investment (ROI).
- Recognized that implementing renewable energy projects that have a long ROI will be difficult without major external incentives
- Established an energy reduction goal for existing buildings and facilities at 19% from benchmark data
- Evaluated renewable alternatives
- Targeted gas and diesel use reduction (10%) through naturalizing landscapes
- Purchase of renewable energy blocks.

For further information of selected energy efficiency projects, please refer to the Waukesha County Baseline Tool.