



CITY OF OSHKOSH  
SUSTAINABILITY PLAN

MAY 2012

# SUSTAINABLE OSHKOSH

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# EXECUTIVE SUMMARY

How did Oshkosh come to the point of writing a sustainability plan? Even though Oshkosh has been sustainable in some areas for years without labeling activities like infill development, historic preservation, tree programs, floodplain management, etc., in 2007, the Oshkosh Common Council signed the U.S. Mayors Climate Protection Agreement and re-instituted the disbanded Energy & Environmental Advisory Board (currently named the Sustainability Advisory Board) to advise the City Manager and Council on specific energy and environmental issues. In 2008, this board held its first meeting, the city joined the International Council for Local Environmental Initiatives (ICLEI) and plans began for the city's first sustainability plan.

## Planning Process

The Sustainability Plan Steering Committee was established in 2009 and the Planning Services Division of the Community Development Department was directed to guide the process. Planning Services assembled and chaired the Sustainability Plan Steering Committee with representatives from the community (citizens, Chamber of Commerce, Oshkosh Area School District, University of Wisconsin-Oshkosh, and Wisconsin Public Service), city boards (Landmarks Commission, Plan Commission, and Sustainability Advisory Board), common council and city departments (Community Development, Public Works, Administrative Services, Transportation, and Parks).

The Sustainability Plan Steering Committee modeled the organization of this document on the City of Eau Claire, Wisconsin's Comprehensive Plan Sustainability Chapter. Members also reviewed plans from other Wisconsin municipalities, including La Crosse, Green Bay, Middleton, Madison and Steven's Point, and were introduced to the Natural Step process and the American Planning Association Policy Guide on Planning for Sustainability. Ten chapters were drafted by one or more committee members and discussed over one or more meetings. The chapters cover the following topics:

- |  |   |
|--|---|
|  Energy                     |  Safe and Healthy Community  |
|  Local Food                 |  Land Use and Development    |
|  Environmental Conservation |  Transportation and Mobility |
|  Atmosphere                 |  Economic Development        |
|  Managed Waste              |  Government                  |

A draft of the document was reviewed by the Sustainability Advisory Board and by city staff. Recommended changes made by those groups were then reviewed by the Steering Committee and accepted, revised or declined to produce the August 2011 draft

document. This draft was approved by the Sustainability Advisory Board on June 6, 2011, and forwarded to the Common Council for a workshop discussion with the Steering Committee, Sustainability Advisory Board and Plan Commission on August 30, 2011. At that point, Council directed staff to solicit additional comments from the public and other advisory boards and to also consider how this plan could be reconciled with other City plans. During the month of December 2011, a public open house was held and the plan was reviewed by the Storm Water Utility Board, Chamber of Commerce Government Affairs Committee, Advisory Parks Board, Traffic Review Board, Board of Health, Landmarks Commission and the Transit Advisory Board. Comments from those meetings and the public were reviewed by the Steering Committee and accepted, revised or declined to produce the February 2012 document. This draft was then forwarded to the Council on March 13, 2012, for another workshop with the Steering Committee and Sustainability Advisory Board. At that meeting, the Council was comfortable with forwarding the document to the Plan Commission for a recommendation but stressed the importance of the development of an implementation plan for the action items. On April 3, 2012, the Plan Commission approved the Plan as an independent document instead of as an amendment to the Comprehensive Plan and also emphasized the importance of an implementation plan with a cost analysis for the action items. And finally, on May 22, 2012, the Council approved the Oshkosh Sustainability Plan.

### **Plan Format**

The format of each chapter begins with an introduction to provide definition for the issue and to give local context. An objective is stated, followed by sets of policy recommendations. Policies were chosen primarily for actions the city has within its power to carry out. But because this is a community plan, the city is not necessarily the only or best agent to carry out a recommended action. The committee tried to be clear when an action or leadership was expected to be a responsibility of another particular entity (such as the county, state, or an institution,) or group (such as individuals or businesses) and to be open when the potential actors are to be determined.

Recommendations were phrased as action statements, with recognition that they cover ranges of difficulty, expense, time required, and public concern. The recommendations are meant to stimulate innovation and provide guidance to decision makers. They are not precise prescriptions to solve problems, but as a group they do suggest priorities and potentially fruitful directions for the city and citizens.

### **Action Plan**

The last action of the Steering Committee was to work with City of Oshkosh staff to identify items that could provide the city with an Action Plan of specific short- to medium-term projects. Some of the projects were already planned or in progress, but clearly address recommendations in the plan. Other Action Plan items were selected to give the city some stretch goals to prove their ability to lead by example.

# INTRODUCTION

The sustainability plan for San Francisco begins with a challenging but honest question:




“Sustainability is a word you have to spell to people over the phone. How can there be a community plan based on a word that is not in common use?”

For the City of Oshkosh, the honest answer is not simple, and the path has not been direct. The city has hosted nearly two years of education, debate, staff development, and report drafting by a Sustainability Plan Steering Committee. City staff, citizens, organizational representatives and civic leaders came to the table with a mix of professional experience, common sense, questions, concerns, and enough goodwill to see the job to completion. They were at it long enough to break in new city planning staff, watch their founding board change its name, and most significantly, think about the future of the city during a time of great uncertainty about the direction of our planet, country, and state.

For the City of Oshkosh, the Comprehensive Plan is the place we list and integrate our best ideas and vision for the future. An early decision by the committee was that a community plan based on sustainability should make its first entry as an amendment to the Comprehensive Plan. This decision recognizes that the people of Oshkosh will need time to grasp ways that sustainable approaches will change their community, or in some cases, conserve their community. Ideally, the best sustainability ideas should simply become the way things are done in Oshkosh.

## Defining Sustainability

A first step in defining sustainability for a city is to decide what we want to sustain into the future. Here is the Steering Committee’s list of which aspects of Oshkosh are worth sustaining, or changing to become sustainable:

-  Energy production from renewable resources
-  Local food production, sales and consumption
-  The city's natural resources
-  A safe and healthy atmosphere
-  Responsibly managed waste facilities
-  A safe, healthy, engaged, and diverse community
-  Safe, efficient and environmentally sound transportation
-  A local economy that attracts new businesses and encourages existing businesses to balance profit, people, and planet
-  Development patterns and buildings that support these goals
-  Cost-effective, socially responsible and environmentally sound governmental practices to meet community needs.



This list captures the two elements common to most definitions of sustainability: balance and time. The balance is between three major elements of our world, especially cities. One is the *human population* and *society* they create. Another is the *economic system* that creates the wealth of goods and services to meet basic human needs, and can provide for our desires for leisure, recreation, and inspiration. The third is the *environment* supporting all life, providing goods and services that would burden our economy and lives if we had to replace them with artificial systems. This trio goes by many names: People-Profit-Planet, Triple Bottom Line or Societies-Economies-Ecosystems. Finally, the time element of sustainability is to come up with ways that this balance continues into the future for many generations. A short version combining balance and time is commonly phrased as:

***Sustainability is meeting the current environmental, social and economic needs of our community while ensuring the ability of future generations to meet their needs.***

The Steering Committee does not claim any powers to see the future, but past and current trends provide some guidance. Many recommendations of “sustainable” practices are attempts to slow or halt unsustainable practices--those that lack balance and those we don’t believe can be continued long into the future. Some of the recommendations we publish in 2012 may turn out not to be sustainable, but this plan was written with the faith that a safe, healthy, diverse, educated population supported by a stable economy and intact environment will find ways to fulfill our goals (and maybe find a simpler name for sustainability).

# GOAL AND OBJECTIVES

**Goal:** Improve the quality of life in Oshkosh by incorporating sustainability practices to meet the environmental, economic and social needs of the present without compromising the ability of future generations to meet their own needs.

## Objectives

**Energy:** Foster energy conservation and local energy production from renewable resources.

**Local Food:** Promote local food production, sales and consumption.

**Environmental Conservation:** Protect and enhance the city's natural resources.

**Atmosphere:** Provide a safe and healthy atmosphere for people, nature and the planet.

**Managing Waste:** Promote awareness, reduce initial consumption, promote reuse, increase recycling and reduce the amount of substances entering landfills.

**Safe and Healthy Community:** Promote healthy living, civic engagement, cultural and ethnic diversity; provide safety and protect citizens from disease.

**Land Use and Development:** Guide and promote sustainable city-wide development patterns and incorporate sustainable features into buildings and grounds.

**Transportation and Mobility:** Enhance and promote mobility alternatives to the automobile; design safe, efficient and environmentally sound transportation infrastructure; and connect to other local and regional networks.

**Economic Development:** Bolster the local economy by attracting sustainable businesses and green-collar jobs, and encouraging existing businesses to become more sustainable.

**Government:** Lead by example and foster sustainability policies and actions for cost-effective, socially responsible and environmentally sound governmental practices to meet community needs.

# ACTION PLAN FOR 2012

An action plan provides direction for accomplishing the objectives of the Sustainability Plan. For the 2012 Action Plan, the Sustainability Plan Steering Committee has selected policies for each objective. These are intended to be implemented in the short, medium and long term according to the order they are listed. The action items will be reviewed by the city's Sustainability Advisory Board, who will set targets, assign responsibilities, and prepare an annual report. The annual report will show progress not only of Action Plan items, but of the many other policies in the Sustainability Plan that may be guiding day to day activities. The Sustainability Advisory Board will also update the Action Plan annually with input from staff, City Council and citizens.

**Goal:** Improve the quality of life in the city of Oshkosh by incorporating sustainability practices to meet the environmental, economic and social needs of the present without compromising the ability of future generations to meet their own needs.

## Objectives and Policies

### *Energy: Foster energy conservation and local energy production from renewable resources*

1. Complete ICLEI Milestone 1.
2. Publicize accomplishments of the McKinstry Plan as they are implemented.
3. Investigate funding sources for energy conservation projects.
4. Consider installation of a solar project or a small wind turbine at a municipal facility.



### *Local Food: Promote local food production, sales and consumption.*

1. Identify one school to serve as an example for a small community garden project
2. Provide educational signage for existing community gardens.
3. Draft changes to the zoning ordinance to address community gardens as permitted or conditional land uses in all zoning districts.
4. Work with residents to identify and convert vacant or city-owned land for neighborhood food plots and gardens.

**Environmental Conservation: *Protect and enhance the city's natural resources.***

1. Continue to follow the Capital Improvement Program in implementing stormwater management plans to meet Clean Water Act standards.
2. Complete second phase of shoreland restoration project at Millers Bay.
3. Convert city-owned areas with annual plantings to perennial plants and plant native species when possible.
4. Create an ordinance regulating the application and sale of sealcoat products containing coal tar.



**Atmosphere: *Provide a safe and healthy atmosphere for people, nature and the planet.***

1. Work with the Council to approve a terrace tree ordinance.
2. Develop guidelines for citizens to petition for quiet zones, quiet seasons or quiet times in their neighborhoods.
3. Take ENERGY STAR challenge for communities, join ENERGY STAR and develop programs to engage community.

**Managing Waste: *Promote awareness, reduce initial consumption, promote reuse, increase recycling rates and reduce the amount of substances entering landfills.***

1. Create composting ordinance.
2. Explore partnership with the EPA WasteWise program.
3. Create incentives to promote zero-waste events.
4. Develop a plan to reduce waste (e.g., paper bags, plastic bottles, plastic bags, e-waste, Styrofoam) and encourage the use of biodegradables.
5. Develop cloth bag program.



**Safe and Healthy Community: *Promote healthy living, civic engagement, cultural and ethnic diversity; provide safety and protect citizens from disease.***

1. Continue to monitor results of beach testing program.
2. Continue to support park and recreational facilities that promote an active lifestyle.
3. Encourage local employers to meet criteria for Well Workplace designation.

**Land Use and Development: *Guide and promote sustainable city-wide development patterns and incorporate sustainable features into buildings.***

1. Continue investing for long-range revitalization of neighborhoods.
2. Collaborate with NeighborWorks and neighborhood associations on neighborhood clean-up days.
3. Design the new city garage to meet Leadership in Energy and Environmental Design (LEED) standards or similar program.
4. Create a collaborative inventory of existing vacant buildings, promote adaptive reuse and establish working committee for these items.

**Transportation and Mobility: *Enhance and promote mobility alternatives to the automobile; design safe, efficient and environmentally sound transportation infrastructure; and connect to other local and regional networks.***



1. Place a high priority on completion of the Riverwalk.
2. Continue bicycle lane striping and installation of bike route signs as recommended in the *Bicycle and Pedestrian Circulation Plan*.
3. Support implementation of connector and evening transit service.

**Economic Development: *Bolster the local economy by attracting sustainable businesses and green-collar jobs, and encouraging existing businesses to become more sustainable.***

1. Create a sustainable best practices document to hand out to event planners.
2. Encourage adoption of green building practices for new construction and renovation of existing businesses.
3. Create a “Buy Local” campaign to encourage residents to spend more locally and to educate them about the benefits of keeping their money in the Oshkosh area.

**Government: *Lead by example and foster sustainability policies and actions for cost-effective, socially responsible and environmentally sound governmental practices to meet community needs.***

1. Develop an environmentally-friendly and socially responsible purchasing policy.
2. Support a recommendation for a green or white roof for the proposed central garage project.

3. Create a demonstration site for a rainwater project and/or rain barrels at a city-owned facility.
4. Form a Green Team representing departments, designate a sustainability coordinator, and hire an intern to implement sustainability activities and promote public awareness
5. Develop a signage program for stormwater projects
6. Adopt a green building rating system for new municipal buildings, additions and renovations.



# ENERGY

Energy comes in various forms. Some sources are widely available and renewable such as the sun or wind. Other sources are less accessible, such as fossil fuels like coal, oil, natural gas or radioactive minerals that need to be extracted from the parts of the earth where they occur. Modern industrial societies use very large amounts of energy to heat and cool buildings, provide lighting, produce food, transport people and goods, run machines, and provide communications. The top energy sources for Wisconsin are oil (33%), coal (28%), natural gas (24%) and nuclear (7%), with several renewable sources providing the remaining 8%.

Cities need to import energy for their concentrated human populations. Transporting energy via roads, rail, ships, pipelines or wires takes energy, land and money and carries environmental risks. A more sustainable city would get more of its energy locally. The term “energy independence” has been coined to cover both import reduction and development of domestic energy sources. For a state like Wisconsin, which has no coal, oil, natural gas or uranium resources, energy independence is a call to develop state and local energy resources that build local economies. Wisconsin-based renewable energy resources include sun, wind, hydropower, geothermal, and biomass. All are renewable. Shifting away from fossil fuels has the significant benefits of avoiding pollution that negatively impacts health and increases greenhouse gases.



Energy conservation is a beneficial, achievable, and necessary step towards a sustainable energy system. On average, Americans and Canadians use about twice as much energy per person, and energy per dollar of economic activity, as competing industrialized countries. Our inefficient use of energy makes our way of life more expensive and more polluting. The technical means to improve energy efficiency is available and ranges from simple insulation to complex electronics. Ways to finance conservation improvements are also well known, and can be combined with government or private incentives and assistance. Considering economic, environmental, and social impacts, energy conservation investments are often more effective than expanding the energy infrastructure. Energy conservation should take top priority because the lowering of energy demand makes energy independence easier to achieve because local renewable

sources do not have to be as large, while energy cost savings can provide funds for further conservation improvements or new sources.

**Objective: Foster energy conservation and local energy production from renewable resources.**

**Policies**

**Buildings.** Encourage the wider use of ENERGY STAR and other sustainable-labeled building materials, appliances and electronics, e.g., programmable thermostats, lighting fixtures, low-emittance glazed windows, insulation, heating and cooling equipment, washers and dryers, water heaters, office equipment and refrigeration equipment. Set city purchasing policies for energy efficient devices and showcase results on city building performance. Promote government assistance programs to winterize houses and apartments for eligible homeowners and renters so that they are de-stigmatized and used to the maximum extent possible. Promote incentives and assistance for energy conservation projects such as Focus on Energy and Wisconsin Public Service. Promote methods for measuring performance (e.g. ENERGY STAR Portfolio Manager) or green building rating systems such as Leadership in Energy and Environmental Design (LEED) (see Land Use and Development section). Promote methods and best practices individuals can implement concerning responsible energy usage.

**Pooled Resources.** Explore collaborations that provide opportunities to use energy more efficiently, or to make use of waste energy. Apply “Industrial Ecology” approaches to help co-locate businesses, public facilities, or residential neighborhoods to make better use of waste heat or district heating and cooling plants like those found on the University of Wisconsin-Oshkosh campus. Share seasonal facilities, such as schools, parks, and tourist facilities, to maximize the time they can be in a low- or no-energy mode.

**Transportation.** Transportation is a large portion of energy use in most U.S. cities, surpassed only by buildings. Transportation recommendations are compiled elsewhere in this document (see Transportation and Mobility section), with many that will directly contribute to energy conservation. In general, the policies aim for a city less dependent on automobiles and more successful in providing energy efficient alternatives for public transit, walking, and biking.

**Outdoor Lighting.** The City of Oshkosh was an early adopter of high efficiency light-emitting diode (LED) lamps in traffic lights). Continue to upgrade outdoor lighting to high efficiency lamps, e.g., street lighting, parks, athletic fields, and Leach Amphitheatre. Consider efficiency standards for outdoor lighting ordinances for all new construction and existing building lighting retrofits.





**Renewable Energy.** Encourage and support development of renewable energy sources and increase the portion of imported energy from renewable sources. Ensure that



building codes allow for development of solar, wind, geothermal, and biomass energy sources, with guidelines to protect public safety and maintain community standards for aesthetics. Consider zoning modifications to coordinate and encourage siting for larger facilities, such as factory-scale digesters or “farms” of small wind turbines or solar panels. Encourage businesses and homeowners to work with Wisconsin Public Service, which sells and buys green power imported from wind, hydroelectric and biomass-fueled generators to increase the purchasing of renewable electricity. Fuels are also

imported to the city, with renewable sources including biofuels and wood. Increase the use of biofuels by encouraging use of flex-fuel vehicles in fleets, e.g., city, police, schools, and taxis. Raise awareness regarding burning wood for heat, especially that fireplaces and fire pits provide negligible heat with far larger pollution impacts and safety risks than safe and efficient stoves and furnaces meeting Environmental Protection Agency certification standards.

**Public and Business Awareness.** Partner for educational purposes with national and statewide groups (e.g. Focus on Energy, RENEW Wisconsin, ENERGY STAR, Energy Center of Wisconsin, Wisconsin Department of Natural Resources, Wisconsin Public Service, Environmental Protection Agency, Department of Housing and Urban Development) and organizations in the community that can provide leadership and resources (e.g. Winnebago County, ADVOCAP, Chamber of Commerce, University of Wisconsin-Oshkosh, Fox Valley Technical College, Oshkosh Area School District, East Central Wisconsin Regional Planning Commission, Oshkosh Housing Authority). Use the city’s sustainability website to provide materials that inform residents and businesses about energy conservation and renewable sources, payback times, site assessment, installation, regulations, and listings of energy tax credits or other forms of assistance available from the federal, state, and local governments, power companies and non-profits. Coordinate sales promotions for energy-related products. Use fairs and home shows to promote public understanding of current energy use and affordable first steps, such as light bulb changes and winterizing. Promote seasonal load control programs for residences and businesses that allow the utility to control large appliances and air conditioning systems. Develop demonstrations and tours of projects that help residents and businesses learn about successful strategies. Encourage, coordinate, and collaborate with the business community about energy savings via guaranteed performance contracts, life-cycle payback options, and other programs which lead to greater efficient use of energy.

## LOCAL FOOD

The local food movement is aimed at connecting consumers back to the land, providing fresh and nutritious food, protecting the environment and supporting the local economy. Locally grown food is considered sustainable because it reduces the need for processing, storing, shipping and retailing. This generally translates into reduced water use, pesticides, packaging, shipping waste, fuel usage and emissions. Urban support for local food efforts continues to grow. While Oshkosh has relatively few acres zoned agriculture within the city limits, the city's growth area, defined as the three mile extraterritorial plat review area, provides opportunities for agriculture. The East Central Wisconsin region also contains significant farmland. In addition, on a smaller scale, local residents have backyard gardens and the city and county provide acreage for community gardens. The city recently passed an ordinance allowing backyard chickens. The Farmers Market is popular, truck stands are prevalent and a group is working to form a local food co-op. Increasingly, locally grown food supports the regional economy and provides a healthy alternative to processed food.



**Objective: Promote local food production, sales and consumption.**

### Policies

**Farmland Preservation.** Support the preservation of agricultural lands in the city's extraterritorial growth area from premature conversion of prime farmland to non-agricultural uses. Work with private land owners and developers to provide conservation easements for long-term local food production. Explore the use of other agricultural and green space preservation programs, such as Purchase of Development Rights (PDR) and Transfer of Development Rights (TDR), as well as the use of conservation subdivisions. Additional policies in the City of Oshkosh 2005-2025 Comprehensive Plan also foster farmland preservation. These range from promoting urban infill and compact growth to restricting large-lot non-sewered subdivisions.

**Community Gardens.** Continue cooperative efforts with the University of Wisconsin-Extension and other agencies to provide land, education and various services for community gardens within the city. Continue offering temporary garden space at Riverside Cemetery. Seek areas in each of the quadrants of the city to establish more permanent locations.



**Neighborhood Gardens.** Work with residents to identify and convert vacant or non-developable city-owned lots for neighborhood food plots and gardens. Neighborhood gardens not only beautify and utilize unused or blighted property, but also encourage interaction and a sense of ownership in neighborhoods. Areas most likely to have available sites are located in the central city, especially in redevelopment districts. Explore the use of acquired

lands the City of Oshkosh Redevelopment Authority is land banking for future redevelopment, such as on Jefferson Street in the Near East Neighborhood, for interim neighborhood gardens. Utilizing land-banked sites reduces the city's costs to maintain these properties.

**Private and Institutional Gardens.** Encourage more private food plots and gardens on residential, business, industrial and institutional properties. Partner with University of Wisconsin-Extension, Fox Valley Technical College and other local organizations to prepare a brochure related to setting up an urban food plot within applicable city/county regulations.

**Sustainable Gardening.** Suggest that community, neighborhood, institutional and company gardens establish rules against artificial fertilizers and pesticides to protect people, water and wildlife. Partner with the University of Wisconsin-Extension and other groups to provide information to promote these rules and best practices through workshops, handouts and demonstrations. Work with the University of Wisconsin-Oshkosh to establish a demonstration community garden to illustrate sustainable practices and provide tours and educational opportunities for the community.



**Greenhouses.** Encourage local greenhouses to implement organic and environmentally sensitive methods. Consider working with greenhouses to donate starter plants for community food plots in mixed to low income neighborhoods. Greenhouses offer a boost to gardeners in Wisconsin's uncertain spring weather.

**Municipal Code Revisions.** Revise the zoning ordinance to address community gardens as permitted or conditional land uses in all zoning districts. Ensure the zoning ordinance facilitates establishment of greenhouses in residential as well as other districts. Review small animal ordinances for non-slaughter food production in residential and other districts. Examine stormwater regulations to ensure best practices for sediment retention and



setbacks applicable to community gardens. Consider regulations determining size and placement of compost areas.



**Farmer's Markets.** Continue to support the Oshkosh Farmers Market in downtown locations. Work with management to expand areas for stalls. Support establishment of neighborhood markets. Ensure that participation in markets is affordable and accessible.

**Temporary Food Stands.** Continue to support food sales from stands and trucks within current city, county and state regulations.

**Public Events.** Promote locally grown/produced goods at public events held in Oshkosh. Offer incentives to local producers such as discounted vendor licenses and permits. Give preferential placement to vendors selling local products. Promote use of biodegradable food service products at all public events.

**Grocery Stores.** Encourage access to local and healthy food. Support efforts and provide incentives to attract a downtown or university area grocery store. Work with groups who might be interested in establishing a food co-op.

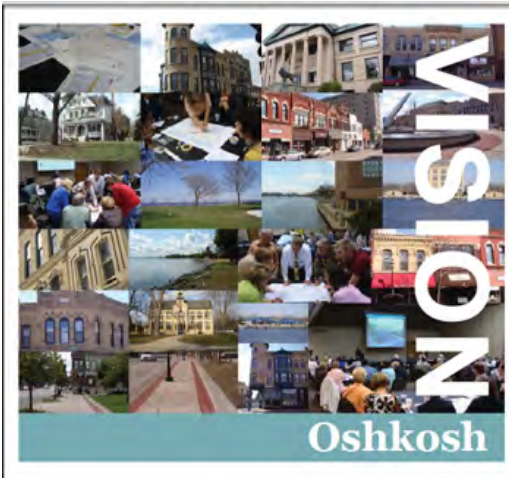
**Food Education.** Employ the city's sustainability website and media services to provide opportunities for citizens to learn about the importance of growing, preserving and buying local and organic food, local food safety, such as advisories on mercury in Winnebago fish, and reducing greenhouse gas emissions by eating lower on the food chain (vegetarian). Work to expand educational opportunities through the library, schools, University of Wisconsin-Extension, greenhouses, local media and other available educational outlets. Develop a best-practices brochure for composting.

# ENVIRONMENTAL CONSERVATION

The city's natural resources provide a variety of necessary functions. The watershed drains almost 12 percent of the state from two large rivers, the Fox and the Wolf, so water quality is affected by people and events far from Oshkosh. The Fox River carries effluent from the city's wastewater treatment plant. Lake Winnebago gives us our drinking water. The river and lakes receive our stormwater. Lakes Winnebago and Butte des Morts provide habitat for fish and other wildlife. Woodlands, marshes, open spaces and parks provide places for ground water recharge and purify water of pollutants. Trees of the urban forest remove by absorption other pollutants, such as carbon and sulfur dioxide, ozone, nitrogen oxides, and fine particulates from burning fossil fuels in buildings and vehicles. Urban wildlife habitat supports year-round resident and large populations of migratory birds. Urban birds, bats and insects control nuisance and disease-carrying pests.



We attempt to sustain these ecological functions in two ways, by federal or state regulation and by local choice. For example, the Winnebago lakes are classified as impaired waters by the Wisconsin DNR based on criteria in the Federal Clean Water Act.



To protect and improve them, the city is under federal regulation to manage stormwater and sewage treatment for pollution control. The city is also voluntarily addressing flooding issues. The city aims to improve its natural appearance and plant more trees as supported by the 2010 Vision Oshkosh community survey. Both the regulatory and voluntary options reflect what the nation, state and local community consider important. For example, in Oshkosh, with 22 miles of shoreline on a lake system totaling 166,000 acres, sustaining this system is considered critical. Not only does it provide ecological functions, it also has economic,

recreational and scenic benefits. Similarly, a more natural environment with more trees is perceived to have benefits other than sustainability. An attractive green city is an appealing place to call home and a place tourists want to visit.

## Objective: Protect and enhance the city's natural resources.

### Policies

#### Waterway Protection

**Stormwater Management and Flood Control.** Continue to implement stormwater management plans to reduce pollution and mitigate flooding. Continue to strive to meet the pollution abatement goals, such as reducing suspended solids, phosphorus, total maximum daily loads (TMDLs) and other substances of concern in our waterways. Continue to implement high priority measures to mitigate flooding, including construction of detention ponds, swales and vegetative buffers; voluntary acquisition of flood prone properties; and preparation of flood and stormwater detention studies. Prepare a plan to protect and enhance natural drainage ways, such as Sawyer Creek. Develop guidelines for structural solutions to ensure minimal disruption to neighborhoods. Include such actions as early resident involvement, projects in scale and aesthetically pleasing, attractive explanatory signage on site, and continued maintenance. Develop programs and incentives for citizens and businesses to install their own stormwater reduction measures, such as rain gardens and rain barrels. Continue to work with the Northeast Wisconsin Stormwater Consortium and other area groups to develop educational material to help citizens understand how their activities pollute our water and how they can prevent it.



**Impervious Surfaces.** Consider developing maximum impervious thresholds for all zoning districts based on total building and hard surface lot coverage. Promote use of subsurface drainage chambers, permeable pavers and pervious pavement on appropriate soils. Consider a program offering city stormwater utility rebate/credits for landowners exceeding requirements for on-site stormwater management. Consider a more precise assessment of stormwater utility fees and construction permit fees for new development and redevelopment based on impervious area, clarity and release rate. Continue efforts to reduce road width requirements.



**Pollution Control and Habitat Protection.** Consider adopting a municipal ordinance to restrict use of chemical fertilizers, herbicides, pesticides, cleaners, deicers, and other chemicals which pollute the soil and water. Demonstrate ecological and pollution-free methods on land and water sites under city management, e.g., parks, the golf course, harbors, waterways, and municipal building landscapes. Control nuisance aquatic plant

growth through an integrated management strategy utilizing mechanical harvesting and herbicides, if necessary. Where possible, restore native vegetative buffers on city shoreland to protect against polluted run-off, improve aquatic habitat, discourage geese and decrease algae growth. Work with the county for cost-sharing and distributing



educational material about buffers for private shoreland. Participate in programs aimed at prevention and control of invasive species. Continue to clean up brownfield sites and pursue cleanup of contaminated sediments in the Fox River to protect water resources. Conserve and protect natural areas, such as Picnic Point. Consider a ban on municipal, commercial, and residential use of coal tar based pavement sealcoat. It contains polycyclic aromatic hydrocarbons (PAHs), which are carcinogenic, mutagenic, and teratogenic, and have been proven to be

toxic to fish and other aquatic life, as well as a contributor to asthma and heart disease in humans. Encourage use of asphalt based pavement sealcoat instead. Periodically update local plans to remain eligible for DNR grants to help fund protective actions. With much of the phosphorus and sediment pollution coming from farmland upstream, consider supporting efforts to form a regional waterways management unit, such as a commission, to cooperatively address total maximum daily loads (TMDLs) and other future issues facing the watershed.

**Waterfront Development.** Update the riverfront and downtown plans with the environment in mind. Make public access a high priority. Revise the shoreline overlay district for consistency between the county and city. Protect sensitive areas and wetlands during development. Continue to enforce erosion and sediment control requirements at construction sites. Explore creating a center for lakes education in the downtown to attract visitors and promote the value of the resource.



**Citizen Safety.** Continue to test beach water at Menominee Park and post results for public viewing. Promote responsible recreational boat use on the water, regulating noise, speed, wake generation, and potential user conflicts. Develop a process for identifying and resolving water pollution issues.

### **Water Conservation**

**Water Efficiency.** Continue programs to help the city quickly identify and eliminate leaks in the public water supply system. Install low flow faucet aerators and toilets at municipal sites. Review city building codes to update standards for water conserving plumbing

fixtures. Review ordinances to ensure the city is able to address drought situations by curtailing and banning non-essential water uses. Offer innovative incentives for residential, commercial and industrial water conservation improvements, such as low-flow plumbing fixtures and other proven conservation measures.

**Citizen Education.** Offer education about how residents can reduce water usage by installing low flow shower heads, toilets, faucets and appliances. Provide other useful tips for cutting back on water usage and collecting water, such as rain barrels, in homes, businesses and yards. Include educational brochures with quarterly billings



### Natural Environment

**A More Natural Look.** Strengthen existing development codes and promote policies that place a greater value on developing an aesthetically pleasing natural environment throughout the city. Review ordinances and zoning to restrict or require redesign of activities detracting from green space and neighborhoods, such as billboards and other large signage, overhead utilities, oversized parking areas, and big box stores. Develop plans for particular areas of the city, such as gateways and the Highway 41 corridor, to emphasize a more natural look. Consider adding green spaces to infill developed areas. Design guidelines for land use next to existing and new parks. Promote conservancy areas. Prepare an inventory of natural features and create educational materials to help developers plan with nature in mind. Ensure inclusion of such features as sensitive areas, soils, and areas for possible reclamation. Continue the development of new park space in residential neighborhoods without access to neighborhood parks.

**Tree Planting and Retention.** Continue the aggressive urban forestry program on terraces and in city parks. Maintain the city's street tree inventory, municipal nursery and status as



a Tree City USA. Develop a five-year plan to continue the Taking Root program with the Oshkosh Area Community Foundation. Continue to promote the ReLeaf and Memorial Tree programs. Review tree ordinances to encourage a diversity of trees emphasizing native species. Modify codes to include tree retention and replacement during development. Consider developing landscaping requirements for two-family and single family housing. Consider an

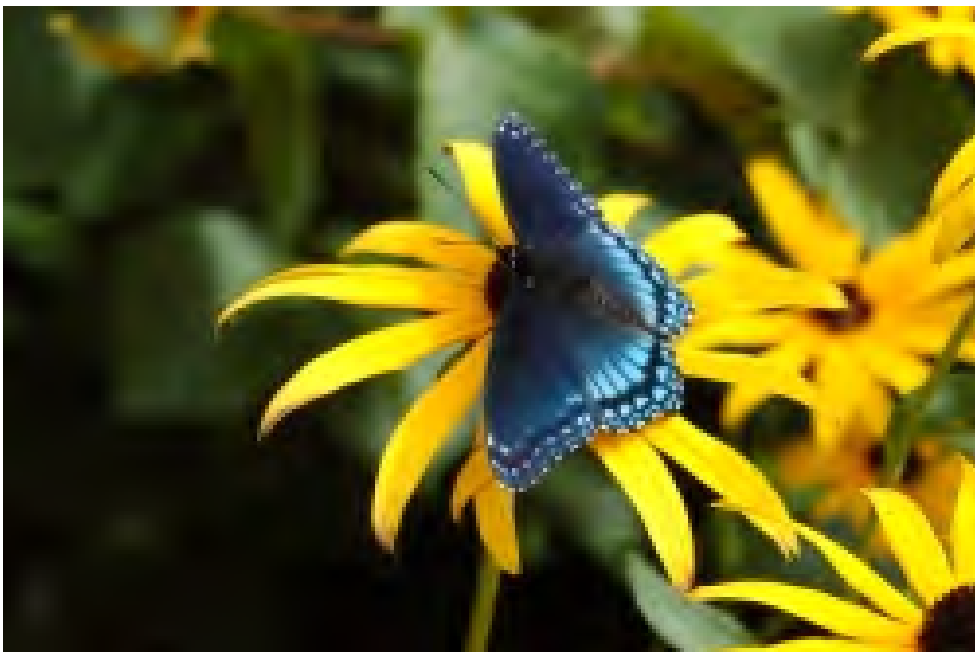
ordinance to plant terrace trees in all street reconstruction projects. Continue to enforce subdivision regulations requiring trees on terraces. Protect existing woodlands from encroachment. Prepare for threats, such as the emerald ash borer. Develop guidelines appropriate to urban areas to manage wildlife inhabiting wooded areas.



**Native Landscaping.** Review city weed and tree ordinances to ensure they do not discourage native landscaping. Develop an ordinance to guide native landscaping practices. Encourage more native plantings on sites to reduce irrigation, protect shorelines and provide natural beautification. Use native, perennial plantings instead of annual plants in city flower beds to reduce soil disturbance and decrease stormwater runoff. Restore natural areas where appropriate, including a demonstration site in Menominee Park. Add native species that require less maintenance to roadside seed mixes on arterials at the edge of the city and advise Wisconsin Department of Transportation to do the same in the new Highway 41 corridor. Control non-native invasive species in right-of-ways, parks and other public areas, especially where they are particularly aggressive, such as along frontage roads.

**Mowing Policies.** Decrease mowing on city-owned passive lands, such as park edges or in medians where possible. Consider no-maintenance low-growing native grasses to replace turf or when planting new turf.

**Citizen Assistance and Education.** Consider programs to help residents pay for “natural improvements”, such as burying utility lines or removing and replacing dead or unsafe trees on their property. Explore new incentives to encourage residents to plant more trees. Provide educational material to assist residents seeking more sustainable landscaping.



# ATMOSPHERE

The atmosphere includes the air we breathe, the sounds we hear, the odors we smell, the greenhouse gases that keep the planet habitable, weather systems that deliver water, and the high stratospheric ozone layer that protects us from harmful ultraviolet sunlight. People and cities can overload this atmosphere with pollutants, e.g., toxins, smog, allergens, noise, additional greenhouse gases, and ozone-depleting chemicals, that diminish our health, harm wildlife, damage agriculture and structures, lower property values, and present new risks from changing climate.

Atmospheric pollution creates local and distant problems. Local effects in and near Oshkosh include indoor air pollution as people spend most of their time indoors; noise pollution from vehicles, trains, construction equipment, power tools and other human activity; air pollution from factories, buildings and motorized vehicles and small engines; and air pollution carried in from other cities (e.g. acid and mercury pollution of local waters and fish from coal-fired plants). Climate change may also be impacting Oshkosh in subtle ways, as Wisconsin has seen warmer winters, more precipitation, longer growing seasons, and shorter lake ice seasons. Air pollution from Oshkosh also contributes to global climate changes stressing other parts of the world, particularly for societies less affluent and able to adjust, and ecosystems less resilient than ours. The City of Oshkosh recognized these issues with a 2007 resolution to approve the U.S. Mayors Climate Protection Agreement (Resolution 07-262) and a 2008 resolution to adopt the International Council for Local Environmental Initiatives (ICLEI) Five Milestones for Climate Mitigation (Resolution 08-295).



Air quality has been improving in Oshkosh. Wisconsin Department of Natural Resources publishes data online for an “Air Quality Index” based on ground-level ozone for Appleton and Fond du Lac (the closest sites to Oshkosh). For 2007-2009, about 90% of our days were ranked “Good” (the top category); with the other 10% reduced to “Moderate” level of health concern. Since 2003 we have not recorded any days that were “Unhealthy for Sensitive Individuals,” and 1988 was the last year we experienced “Unhealthy” days. There have also been major reductions in toxic air releases over the past 20 years of monitoring. The Environmental Protection Agency (EPA) Toxic Release Inventory (last updated in

2008) shows that industry releases about 50 tons of toxic materials to the atmosphere from their sites in the city. This is a major improvement over 128 tons in 1998 and 390 tons in 1988. Three companies accounted for 98% of the toxic air emissions, which were 65% ozone, 30% solvents, and less than 1% heavy metals.

Indoor air pollution has seen steady improvement as well. Public areas have been cleaner with tightening of rules on tobacco smoke in state buildings, followed by a citywide smoking ordinance, and the recent implementation of a state law. Workplace air quality has been improved by federal regulations and monitoring. Based on its geology, Winnebago County is listed by the EPA as “Moderate Potential” for harmful levels of radon, a naturally occurring, underground, radioactive toxin, with recommended testing of indoor spaces to determine if ventilation needs improvement.

**Objective: Provide a safe and healthy atmosphere for people, nature and planet.**

## Policies

**Air Quality Improvements.** Encourage local companies emitting air pollutants to continue to improve their pollution reduction practices and technology. Improve mass transit and non-motorized vehicle transportation options to reduce automobile-related pollution. Reduce vehicle idling by constructing more roundabout intersections in place of stop lights and signs and also consider traffic signals at bridge and rail crossings. When making infrastructure expansion and annexation decisions, the city should consider air pollution impacts of increased vehicle miles traveled in lower density suburban development. Review and maintain high standards and ordinances against odor-producing sites and activities. Review and maintain consideration of allergens from pollen in weed ordinances.



**Indoor Air Quality.** Review and enforce health ordinances and state and federal laws regarding indoor tobacco smoke, combustion products, molds, and radon. Discourage or ban use of paints, glues, caulks and other materials with high levels of volatile organic compounds (VOCs), flame retardants, hazardous cleaning products and other chemicals that may negatively impact air quality. Encourage purchase of indoor living plants in municipal buildings to reduce air pollution. Develop innovative programs to educate and assist homeowners, landlords and renters in resolving indoor air quality issues and preventing potential hazards.



**Noise Pollution.** Develop guidelines for citizens to petition for quiet zones, seasons, or times (e.g. Sunday mornings in warmer seasons). Review noise ordinances and their application with respect to sources, i.e., autos, motorcycles, trains and boats, and zoning or events. Educate people about regulations for private use of fireworks and explosives. Review whether parts of the city could benefit from noise-reducing barriers (e.g. along Highway 41).

**Greenhouse Gas Production.** Provide a city-wide audit of community greenhouse gas emissions. Set benchmarks and reduction goals, and develop a Climate Action Plan that will fulfill the U.S. Conference of Mayors Climate Protection Agreement that Oshkosh signed in 2007. Given that fossil fuel burning is the largest source of greenhouse gases, the city and its occupants should seek energy conservation improvements, build and purchase with energy efficiency in mind, and develop renewable energy options (see Energy chapter elsewhere in this document). Transportation is a large sector of the fossil fuel use, so recommendations listed above for air quality improvement (above, and in the Transportation chapter) and for local food that requires less transportation (see Food chapter) will also reduce greenhouse gas emissions. Landfills are also a major source of greenhouse gases, so waste reduction actions are also important (see Waste Management chapter). Cement production (burning limestone) is also a major contributor, so builders should be encouraged to re-use existing buildings, recycle building materials, or use other materials (see “sinks” below).

**Greenhouse Gas “Sinks”.** The dominant greenhouse gas produced by humans is carbon dioxide, which can be removed from the atmosphere by plants and stored as wood and in soils. Tree planting should be encouraged to maximize the urban forest cover. Encourage use of local plant materials (e.g. wood, straw, composites, bioplastics) in construction (e.g. by removing outdated restrictions in building codes). Topsoil erosion should be minimized during construction, landscaping and gardening.



**Public Awareness.** Inform the community about local and indoor air pollution issues, noise pollution, and how air pollution is contributing to global climate change. Include advice about how individuals can reduce their pollution contributions. Partner with other organizations or corporations committed to reducing their own pollution and greenhouse gas emissions (e.g. the University of Wisconsin-Oshkosh has a Climate Action Plan to replace or offset all their greenhouse gas emissions by 2025). Educate the public about air quality data available online from federal and state regulatory agencies, as well as any greenhouse gas inventories conducted by the city.

# MANAGING WASTE

The City of Oshkosh collects recyclable and solid waste materials, and disposes of them in partnership with Winnebago County. The county is a member of a tri-county agreement including Brown and Outagamie Counties. This 25-year agreement, begun in 2002, precludes a need for the city to deal with individual landfill issues. Our solid waste is



currently going into the Winnebago County landfill until approximately 2012 when it is anticipated it will be full, so waste will then go to the Outagamie County landfill until filled, and eventually Brown County will take its turn. While siting another landfill in the Oshkosh area may be a long way off, it is still critical to develop strategies to reduce the amount of landfilled waste. Single-stream recycling, adopted by the

city in October 2009, is already showing an increase in recycled items as well as cost savings with automated equipment. Materials collected from the blue recycling containers at each residence are transferred to the Tri-County Single-Stream Recycling Center in Outagamie County for sorting and sustainable redistribution.

While recycling is an important factor in a sustainable community, promoting the reduction of initial use and reuse of materials is equally important. Area residents and businesses have many options ranging from grinding masonry materials from demolished buildings for reuse in road construction projects, to utilizing resale and thrift stores for both donations and purchases, to composting yard waste to feed a family garden. As technology advances and new markets are created, we can expect to see a significant increase in options for waste reduction and uses of recovered materials. Currently prescriptions drugs can be disposed of at a drop-off box at the Oshkosh Police Department. Leaf waste is spread on farm fields. Information on proper disposal of hazardous waste and e-waste can be found on the city website.



**Objective: Promote awareness, reduce initial consumption, promote reuse, increase recycling rates, and reduce the amount of substances entering the landfills.**

## Policies

**Education.** Minimize waste creation by improving public understanding of source reduction as the most preferred method of waste management. Educate and promote



reduction, reuse, recycling, and recovery of waste materials. Provide information to increase consumer product awareness and environmentally preferable purchasing. Distribute updated information about proper disposal of hazardous waste, drugs, e-waste, and other banned items. Identify cost-saving benefits of waste reduction, as well as environmental gains.

**Waste Reduction.** Explore merits of a “Pay-As-You-Throw” policy for material disposal programs, evaluating either weight or volume of waste. The current unlimited volume set-outs encourage waste by failing to provide incentives for the reduction of waste. While weight is a better reflection of actual waste generated, it is considerably more expensive and difficult to implement than a volume-based system, and both methods reward those who act more sustainably. Support policy change for clear bags, to encourage all recyclable materials are properly recycled. Promote better institutional and business waste reduction and recycling programs. Encourage use of cloth shopping bags and other multi-trip containers. Explore a plastic bag reduction program. Promote alternatives to paper use.

**Recycling.** Consider recycling containers in public areas and at public events next to waste barrels. Encourage ‘away from home’ locations such as gas stations and convenience stores to also provide recycling containers. Explore the range of plastics to be recycled. Continuously review the municipal recycling program for updated methods or technologies to improve the system.

**Composting.** Provide education on setting up and maintaining compost bins at home, community gardens, and the workplace for organic waste (e.g. grass, leaves, brush, apples, garden debris). Promote use of monthly pickup collection and drop-off sites for community composting of leaves and other organic materials. Partner with the University of Wisconsin-Oshkosh Renewable Energy Facility biomass digester to convert community organic waste to electricity and heat. Explore the municipal collection of organic waste.



**Construction and Demolition Waste.** Provide information and incentives to promote recovery, reuse, and recycling of demolition debris and building scraps at construction sites through such programs as WasteCap.

**Consumer Reuse.** Encourage reuse of used furniture, clothing, household, building and decorating items through thrift stores, Freecycle.org, Habitat for Humanity ReStore, etc.



**Non-biodegradables.** Encourage use of cloth or reusable shopping bags. Educate retailers and shoppers about advantages of reusable bags, and promote reusable bag programs. Consider an ordinance that bans free plastic bags and foam containers. Educate the community about water bottle waste and high quality of city tap water. Promote sale of safe multi-use containers and encourage restaurants and retailers to provide means for customers to refill bottles with city water.

**Electronics.** Provide education regarding statewide collection and recycling system for consumer electronic devices, including banning from landfills or incineration effective September 2010. Promote diversion of e-waste to responsible recycling or disposal facilities. Encourage establishment of a local collection and disposal site. Work with retailers already collecting e-waste.

**Prescription and Over-the-Counter Drugs.** Continue to encourage and facilitate the collection and disposal of unwanted/excess prescription and over-the-counter drugs. Work with law enforcement to establish additional collection sites. Educate the public on the need to keep these items out of the wastewater and landfill systems.

**Hazardous Waste.** Promote the availability of the household hazardous material facility at the Winnebago County landfill. Remind residents on a regular basis that items such as tires, batteries, and waste oil should be taken to the landfill for proper disposal.

**Special Events.** Create a pilot project to make an established community event zero-waste by using products that are bio-based, recyclable, or compostable using glass, bio-plastics and paper products instead of plastic. Expand to include all community events. Create incentives to promote zero-waste events.

**Littering.** Encourage citizens/visitors to pick up litter in parks, public places, along waterways, during special events, and in the general community. Continue to encourage carry in, carry out. Continue to enforce littering laws.



# SAFE AND HEALTHY COMMUNITY

Food, water, shelter: the basic physiological components necessary for life. Security, health and well being: the basic safety needs of humans. Friendship, family and community: the basic social needs. Environmental, social and economic: the basics of sustainability. The City of Oshkosh: a community that strives both collectively and individually to meet basic needs in a sustainable fashion.



The City of Oshkosh has strong police, fire and ambulance, and health departments to provide public safety and support for its citizens. Winnebago County, the Wisconsin Department of Natural Resources and the U.S. Coast Guard provide boater safety on Lake Winnebago and the Fox River. Oshkosh provides excellent snow removal on city streets, and along with the county has a strong emergency management and first responder



network. The city has many medical, dental, rehabilitation, and assisted living/retirement centers, including Aurora Health Center and Mercy Medical Center, providing access to health care. From Little Oshkosh and Pollock Pool to the Oshkosh Seniors Center, there are many opportunities for recreation and socialization for all ages. Oshkosh is home to many parks located throughout the city, with Menominee Park on Lake Winnebago being the largest. Over 60 religious facilities are located in Oshkosh. Cultural and social venues are myriad, including Leach Amphitheater, the Oshkosh Public Library, the Oshkosh Public Museum, the Grand Opera House, the Paine Art Center, and the Experimental Aircraft Association (EAA) Museum. Oshkosh, Wisconsin's Event City, is home to a monthly downtown Gallery Walk, Waterfest, Irish Fest, Oktoberfest,

Winnebagoland Art Fair, Sawdust Days, and the Celebration of Lights. Home to not only the Oshkosh Area School District but also Fox Valley Technical College and the University of Wisconsin-Oshkosh plus several parochial schools, Oshkosh provides educational support at many levels. The Chamber of Commerce, Chamco, and the Oshkosh Convention and Visitors Bureau support both the social and economic bases of the city. All of these entities and many more make Oshkosh a strong community in which to live.



**Objective: Promote healthy living, civic engagement, cultural and ethnic diversity; provide safety and protect citizens from disease.**

## Policies

**Existing Programs.** Maintain well-staffed, trained, and equipped police and fire departments to provide public safety. Maintain a health department, either through the city or the county, to ensure safe food, water, and swimming. Maintain sufficient potable water, sewage treatment and stormwater capacity to support the population. Continue human services programs supported by the United Way and other agencies. Continue to support literacy and the arts, such as through the Public Library, the Public Museum, and Gallery Walk. Explore options for more partnerships with different community entities.



**Health and Urban Land Use.** Consider the direct and indirect impacts on overall quality of life of existing and new developments. Encourage infill of existing areas before creating additional residential/commercial zones. Encourage the location, size, layout, and density of new housing to promote sustainable lifestyles by mixing residential and retail areas with safe walking/biking paths, providing access to bus routes, and requiring adequate landscaping. Provide housing development that reduces isolation, fosters community spirit, and shares resources and includes socially cohesive components, such as tot lots and front porches. Provide housing near employment centers, including a diversity of occupants in terms of age, social, and cultural groups, while remaining affordable to a variety of income groups. Eliminate disproportionate environmental burdens and pollution in disadvantaged areas. Ensure all public facilities are compliant with the Americans with Disability Act of 1990 (ADA), with special attention to crosswalks and pedestrian signalization in high traffic areas. Ensure all sidewalks are properly cleared of snow.

**Healthy Living.** Continue to support the health and welfare of our citizens through programs such as the Committee on Aging, the Seniors Center, the Boys and Girls Club, Safe Routes to School (SRTS), healthcare screenings, mental health support, and free clinics. Promote community health within Oshkosh. Encourage the implementation of employer wellness programs and wellness partnerships between employers and community. Encourage local employers to meet criteria for Well City designation.



**Active Lifestyles.** Continue to support the many opportunities Oshkosh and the surrounding area providing for an active lifestyle. Continue to maintain athletic fields, courts, and playgrounds in our parks. Continue to support the Pollock Community Water Park. Encourage and support the efforts of the Seniors Center, YMCA, Oshkosh Area School District, University of Wisconsin-Oshkosh and various organizations in events such as the Tour de Titan and other walk/bike/run events. Expand Riverwalk and bike trails. Implement recommendations of the *City of Oshkosh Bicycle and Pedestrian Circulation Plan* to provide citizens with safer conditions for biking and walking. Encourage outdoor alternatives such as walking and biking for family togetherness. Encourage use of our available natural resources for water sports and events (e.g. Dragonboat Races and sailing regattas). Acquire additional acreage to create parkland in areas currently deficient in green space.

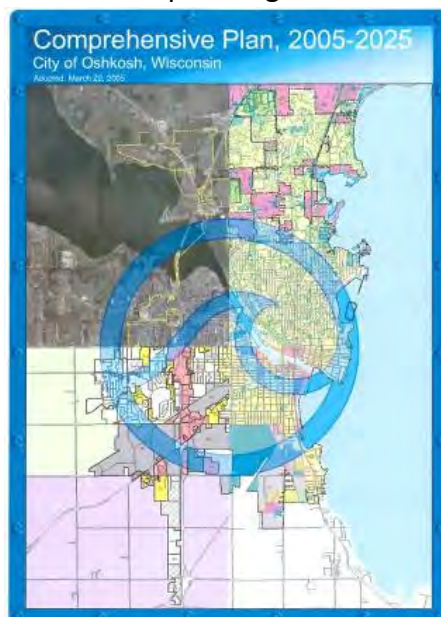


**Social Justice.** Continue to support the many agencies and programs that provide benefits to our citizens, such as Wisconsin Interfaith Needs Response, Meals on Wheels, Habitat for Humanity-Oshkosh, and the Oshkosh Area Community Food Pantry. Support the establishment of a warming shelter for the homeless. Encourage use of local thrift stores as a way to support sustainable living, both economically and through the principle of reduce, reuse, recycle. Encourage support of the Oshkosh Humane Society. Educate citizens on the personal benefits of giving one's time through the many volunteer opportunities in our community. Involve local residents in setting visions and developing plans for our community. Establish avenues for meaningful participation in decision-making for all citizens. Provide equal and affordable educational opportunities for all members of society. Promote job creation and retraining of those displaced in the short-term with a shift to a more sustainable economy.



# LAND USE AND DEVELOPMENT

The physical layout or land use of our communities is fundamental to sustainability. Over the past several decades, two main land use practices have converged to generate unsustainable trends in urban sprawl: (1) zoning that separates each type of land use discouraging mixed-use neighborhoods and isolating employment locations, shopping, services and housing from each other and (2) low density growth planning aimed at creating automobile access to increasing expanses of land. Community sustainability requires a transition from poorly-managed sprawl to Smart Growth planning. This entails land use practices that create and maintain efficient infrastructure, ensure close-knit neighborhoods, and preserve natural and agricultural systems. In Wisconsin, the Smart Growth law has begun to move communities in this direction. Smart Growth's vision is to promote denser settlement while providing mixed uses, open space and transportation choices-- the antithesis to sprawl. The 2005-2025 City of Oshkosh Comprehensive Plan complies with the Smart Growth law and reflects this vision.



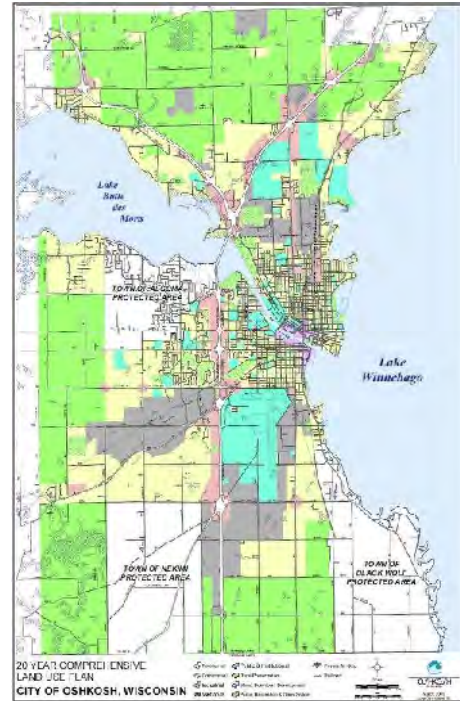
Sustainable development not only addresses the broad view of community land use, but also the detailed view of sustainable sites and buildings. Emphasis is on building with nature in mind, exemplified by the U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED) Green Building Rating System and the EPA's ENERGY STAR ratings for homes, appliances, and fixtures. LEED promotes a whole-building and neighborhood approach to sustainability. It recognizes performance in five key areas of human and environmental health: sustainable site development, water savings, energy efficiency, materials selection, and indoor environmental quality. Oshkosh is constructing LEED certified buildings, several of which are on the University of Wisconsin-Oshkosh campus and at least one commercial building, a recently built Kwik Trip on 20<sup>th</sup> Avenue. Green rating programs are showing up more frequently in communities across the country and have proven to be a reliable tool to standardize the language of "green" buildings. Housing, too, is being influenced by new sustainable ideas as developers begin to employ such concepts as "life-cycle" design.

**Objective: Guide and promote sustainable citywide development patterns and incorporate sustainable features into buildings**

## Policies

### Promote Sustainable Development Patterns

**Planning and Zoning.** Continue to employ and expand policies to provide more sustainable development patterns such as denser dwelling units per acre for single family development, while providing mixed-uses, open space and transportation choices. Continue to focus on revitalizing the downtown and central city area with mixed uses, adaptive reuse and historic preservation. Continue to negotiate boundary agreements with neighboring towns. Discourage the conversion of agricultural lands to urban development. Improve parking requirements by providing incentives to reduce parking. Broaden the range of impact, facility, and permit fees for new development. These and other policies discourage sprawl. Many are already incorporated in the Comprehensive Plan.



**Neighborhoods.** Continue neighborhood improvement strategies, striving for development patterns identified in the city's Traditional Neighborhood Development District—defined as a compact neighborhood with mixed uses and housing types. Explore LEED's Neighborhood Design Rating System to help plan for more compact and complete neighborhoods. By bridging together adjoining districts, neighborhoods can have a mix of amenities close by with walkable streets, affordable housing with multi-unit and single-family homes, public spaces and well-connected streets serving pedestrians, cyclists, transit riders and drivers. Encourage new neighborhood business districts near residential areas, scaled to be pedestrian friendly. Other considerations include location of schools, public safety infrastructure, green space and historic preservation.



**Mixed-Use Corridors.** Consider more defined mixed use plans and ordinances for high traffic corridors. Review standards for development in the Highway 41 Corridor Overlay District to address sustainability issues and to potentially allow for mixed-use development in the corridor. Consider similar overlay districts for the Highway 21 and Jackson Street corridors. Identify other high traffic corridors and offer incentives to help redevelop underutilized commercial buildings, strip centers, and parking lots. Assign first priority to commercial redevelopment areas already identified in the Comprehensive Plan. Continue to promote attractive transit-oriented, mixed-income

housing near new or alongside existing retail and office developments to reduce travel time to work and shopping areas.

### Encourage Green Building

**Life-Cycle Cost Analysis (LCCA).** Promote life-cycle cost analysis as a necessary component of designing a sustainable development. Provide educational materials to help developers and builders know how to assess the full range of social and environmental impacts of their projects so better choices can be made. Life-cycle costs take into account the full life of a building product or development—from its raw material production, manufacture, transport and actual use to its disposal. LCCA can be performed on large and small buildings or on isolated building systems. Proven methods to account for LCCA include the LEED Green Building Rating System or the International Organization for Standardization (ISO) 14000 Environmental Management Standard. Another useful tool is Return on Investment estimates, or cost-benefit analysis, before expanding infrastructure networks, i.e., streets, sewer, water, electricity or communications.



**Green Buildings.** Practice and promote sustainable building practices using the LEED program, ENERGY STAR, or a similar system. Consider requiring green building for all new city buildings and remodeling projects. The city can lead by example by establishing green building policies and goals, and creating a framework to implement them. Consider offering incentives for green buildings or requiring green buildings in Tax Increment Financing Districts.

**Buildings and Energy.** Partner with utility companies, ENERGY STAR, and others to offer energy efficiency education programs or incentives to improve energy use in buildings. Buildings account for 40% of energy consumed in the U.S. Strategies to reduce energy consumption are widely available on numerous websites, including the city's sustainability website.

**Cool Roofs.** Consider a green or white roof pilot project on a city building. Green roofs or living roofs typically have native grasses, flowers, shrubs and vegetation planted into a layer of soil over a waterproof membrane. Other common features include gravel paths, patios, irrigation systems and photovoltaic arrays. Green roofs absorb and clean rainwater, provide insulation, create habitat for wildlife, and help to lower urban air temperatures. White roofs are another option. White roofs are painted white or use a white membrane or tiles to reflect solar radiation off the roof, reducing the building's thermal load.



**Material Recovery.** Provide incentives to promote the recovery of all recyclable building materials Include not only construction waste from new building projects, but also what exists on site. Promote adaptive reuse and renovation of older buildings while retaining historic integrity. Many of these were made of stone and brick which are long-lasting, have a good fire rating, and contain thermal retention properties.

**Local Materials.** Promote the use of building materials and products found in the immediate area and surrounding region. Buying and using local quality building materials strengthens the local economy, creates local identity, and decreases out of the region transportation costs.

**Affordable and Fair Housing.** Work with public and private housing providers to offer a mix of housing types affordable to low and moderate income owners and renters. Continue to employ programs subsidizing owner and rental rehabilitation and first time homebuyers, such as the Community Development Block Grant Program (CDBG), the Home Rental Rehabilitation Program (HOME), Wisconsin Housing and Economic Development Authority (WHEDA) and local housing authority programs. Encourage life-cycle or adaptable design to help people live independently throughout their lives. This type of design includes fixed accessible features, such as wider doors and halls, open floor spaces and clear traffic patterns; and adaptable features, such as wall reinforcement for grabbers and removable base cabinets for future knee space. Continue to promote fair housing for all segments of the population.



# TRANSPORTATION AND MOBILITY

Sustainable transportation generally refers to enhancing alternatives to the automobile—transit, bicycling, walking and rail – to reduce pollution, conserve energy and decrease traffic congestion. It also implies attention to environmentally friendly infrastructure, alternative fuels and new transportation technologies. More and more communities around the country are incorporating these concepts into their transportation networks with increased support from state and federal funding. We see evidence of this in



Oshkosh. The transit system now owns four hybrid buses. Buses are now fitted with bike racks. Energy efficient measures for the transit facility were among those included in the city’s Energy Efficiency Community Block Grant (EECBG) application. The new Butte des Morts Bridge and overpasses on Highway 41 will have pedestrian and bicycle access. A concerted effort is being made to update the City of Oshkosh Bicycle and Pedestrian Plan. For growing communities, transportation is an important issue and the City of Oshkosh plays a critical role in guiding its direction.

**Objective: Enhance mobility alternatives to the automobile; design safe, efficient and environmentally sound transportation infrastructure; and connect to other local and regional networks.**

## Policies

### Public Transit

**Service Improvements.** Support and improve the Oshkosh Transit System. The system currently provides over a million rides annually and operates within walking distance of about 90 percent of the city. Update the community’s *Transit Development Program* on a five-year basis to reflect changing population, land use and economic conditions. Continue to incorporate transit into the development review process.



Focus on improving traveler information, comfort and convenience to attract local and visiting general public as well as the transit dependent. Explore other service options, such as van-pooling and shuttle type service. Provide incentives and flexibility for city employees and local businesses to use transit. Design marketing programs to attract the

general public.

**Capital Improvements.** Continue to replace older buses in the fleet with energy efficient vehicles. Provide bus shelters at all possible locations. Improve the existing transit station and plaza; coordinate plaza design with surrounding streetscaping and street furniture. Replace mechanical systems in public transit facilities with energy efficient models. Explore sustainable options when making repairs or remodeling facilities

**Regional Transit Authorities.** Support statewide efforts to permit transit agencies to create their own funding authorities to improve mass transit options.

**Intercity Bus Service.** Support efforts to expand intercity bus service linking our area to other areas throughout the state.



### Rail Transportation

**Freight Rail.** Promote and maintain efficient freight rail to serve the Oshkosh area. Every ton-mile of freight moving by rail instead of truck reduces greenhouse gas emissions by two-thirds or more. Maintain a rail transportation system that protects a rail corridor and reduces the number of conflict points. Coordinate spur lines with industrial park sites. Coordinate with Canadian National Railway and Wisconsin & Southern Railroad on their right-of-way needs for future expansion along existing rail lines.



**Passenger Rail.** Encourage establishment of passenger rail service in the Oshkosh area. Monitor implementation of Wisconsin Department of Transportation's Midwest High Speed Rail Initiative promoting reopening of a train line between Green Bay and Milwaukee through Appleton, Oshkosh and Fond du Lac.



## Bicycle and Pedestrian Facilities

**Planning.** Complete the *Oshkosh Bicycle and Pedestrian Circulation Plan*. Have it adopted by the City Council. Ensure inclusion of an implementation schedule and assignment of a



dedicated city committee to oversee implementation. This plan has had extensive public input and incorporates a broad range of policies affecting bike routes, bike parking, pedestrian ways, connectivity with transit and trails, funding, education and intergovernmental cooperation.

**Riverwalk.** Place a high priority on completion of the Riverwalk.

**Walkable Neighborhoods.** Assess neighborhoods for their walkability by determining what goods and services are within an easy and safe walk to allow residents and employees to meet their needs on a regular basis. Recommend improvements where there are deficiencies. Review zoning policies for their potential to allow mixed-use and compact development.

**Safe Routes to School.** Promote this program that encourages walking and biking to school.

## Streets and Highways

**Street Design and Maintenance.** Continue to promote and build infrastructure to serve a range of users—pedestrian, bicyclists, transit riders and automobiles. Incorporate



elements of green design when reconstructing or building new streets, e.g., LED street lighting, landscaping, native vegetation, wider terraces, narrower pavements, biodegradable paint and pedestrian amenities. Explore newer types of construction material and road design to reduce stormwater impacts or increase the lasting quality of a street. Continue an aggressive street cleaning program to protect water quality, maintain pavement, and reduce

the burden on the sewer system. Address polluted run-off issues related to salt usage and other methods of snow and ice removal. Develop a local erosion control ordinance and continue to enforce state-required erosion control practices during street construction.

**Traffic Signals.** Synchronize traffic signals with speed limits to avoid unnecessary stops and idling of cars. Consider roundabouts where feasible.

**Traffic Enforcement.** Encourage strict enforcement of speeding and other traffic laws to ensure streets are safe for all travelers—autos, pedestrians and bicyclists—and to reduce maintenance costs.



**Parking Facilities.** Consider bio-filters and other sustainability practices when rebuilding or developing parking facilities provided they compare favorably with longevity standards of traditional materials. Consider pervious material where clay subsoil does not inhibit drainage. Incorporate landscaping for aesthetics and stormwater control, LED lighting, bike racks and other items to conserve energy and protect the environment. Promote parking policies to encourage more efficient use of facilities.

**Trip Reduction Programs.** Employ integrated land use planning and sprawl reduction policies to make destinations more pedestrian, bicycle and transit friendly. Encourage rideshare programs and telecommuting. Continue to identify and encourage new locations for Park and Ride lots.

**Fossil Fuel Infrastructure Alternatives.** Consider provision of storage and access to bio-diesel or other alternative fuels for city vehicles. Explore incentives for businesses to provide access to alternative fuels, especially bio-diesel and its future fuel cousins. Explore the feasibility of adding infrastructure for future electric fueling/plug-in stations.

# ECONOMIC DEVELOPMENT

The numerous factors motivating individuals, companies, and governments to act and invest more sustainably are also creating demand for new "green" products, services and jobs. Oshkosh is increasingly showing signs of this "green economy." Not only are we seeing more corporate responsibility to society and the environment, but we are attracting green industries. These are industries working with the environment or involving environmentally friendly products or services. They make headlines because they differ from our traditional manufacturing and education, health and social service economic base. Oshkosh is now home to a manufacturer of small wind turbines, a promoter of small scale biofuel production, and a designer of high tech batteries using nanomaterials. We have builders constructing green buildings, and food vendors supporting sustainable agricultural practices.



The city is developing a strong social network to support less-fortunate residents, including innovative institutions providing an economic safety net through community funds, food banks, housing, re-use of donated materials, and services for women, children, and the homeless. We also have corporations proud to proclaim their sustainability. Aurora and Affinity medical facilities are two of the most vocal. International companies in our city, such as Wal-Mart and McDonalds, also are leaders in sustainability worldwide. Increasingly too, we see state supported programs like Focus on Energy helping businesses reduce their energy use. On the federal level, the 2007 Green Jobs Act authorized \$125 million to train workers for green-collar fields, with additional funding anticipated. In the face of such activities, equipping Oshkosh as a green business center makes good financial sense.

**Objective: Bolster the local economy by attracting sustainable businesses and green-collar jobs, and encouraging existing businesses to become more sustainable.**

## Policies

**Green Economic Planning.** Add clean technology to Oshkosh's targeted growth sectors. Identify products and sectors for a sustainability-related manufacturing and production niche in Oshkosh. Conduct a needs assessment of green job demand. Inventory existing job training programs and link them to information provided in the green jobs needs assessment. Work with the Oshkosh Area School District, University of Wisconsin-Oshkosh, Fox Valley Technical College, and University of Wisconsin-Extension to bring together partners to discuss developing ways to grow the green collar industry. Develop a strategy to secure available government and private funding to grow the industry. Analyze the potential for a "green" business incubator in the city.



**Green-Collar Jobs.** Promote, expand, and offer business incentives to attract green-collar companies. Support local green industries in their efforts to use special bonding or seek government funding if available. Establish creative financing strategies for local green business. Encourage adoption of green building practices for new construction and renovation.

**Attracting Green Businesses.** Work with the Chamber of Commerce, Chamco, Inc., and New North, Inc. to develop a marketing piece aimed at attracting industry within the sustainability sector. Highlight and market the city’s natural and infrastructure amenities attractive to green technology businesses. Encourage synergistic businesses to locate in Oshkosh. Encourage businesses that reduce dependence on fossil fuel, do not use toxic chemicals, and exceed clean air and clean water standards. Seek out businesses to use by-products of other processes or whose wastes can be used as raw materials for other industries. Encourage businesses that maintain natural terrain, drainage and vegetation, minimizing disruption of natural systems. Encourage businesses that reuse processed water or make use of solid waste for materials or energy production. Review zoning regulations to encourage home-based businesses in order to reduce travel needs. Encourage or seek out businesses, such as restaurants and shops that directly sell organic and/or sustainable products.

**Green Job Education.** Work with Oshkosh Area School District, Fox Valley Technical College and University of Wisconsin-Oshkosh to ramp up education, training and counseling for careers in sustainability. Provide opportunities for student interns to advance green practices in city departments.

**Buying Local.** Promote the buying of local and regional products to help strengthen our economy. Evaluate the potential for the creation of Buy Local promotional campaign similar to the State of Wisconsin’s “Something Special from Wisconsin” program. Educate residents about the importance and benefits of supporting local businesses. Increase local government purchasing of local products. Develop tools to connect local suppliers with businesses, consumers, and government. Promote the sale of local food and drinks at events. Encourage development of unique local shops to foster a distinct Oshkosh identity. Research and publish a local green business directory to include green-collar companies and companies with improved sustainability. Encourage local artists to work with businesses to display their products. Support businesses and non-profits offering products and services from people with disabilities, in local institutions or with other social needs.



**Travel Green Wisconsin.** Help the Oshkosh Convention and Visitors Bureau attract and expand business-related eco-tourism, such as those related to waterways, biking and other outdoor activities. Encourage businesses and facilitate the process to increase participation and certification in the Travel Green Wisconsin program, a voluntary program providing opportunities to be recognized as a green business. Create a sustainable best practices document to hand out to event planners. Work to attract sustainability-related conventions and events to Oshkosh.

**Triple Bottom Line.** Promote and educate institutions and businesses to measure their success not only by financial profit, but by environmental and social performance as well. Called “Triple Bottom Line” (the Planet or Natural Capital, People or Social Capital, and Profit or Economic Capital), this accounting approach has been endorsed by the United Nations and International Council for Local Environmental Initiatives (ICLEI) as a bona fide technique to measure corporate and governmental sustainability. Compile a list of companies in the region to show other companies the value of employing triple bottom line. Encourage local businesses to adopt sustainable accounting practices by leading by example and sharing the city’s successes. Work with all levels of educational institutions to develop a green business curriculum. Support the Public Library’s efforts to build resources regarding green business practice. Collaborate with the Chamber and local colleges to hold an annual conference to promote sustainability. Promote the Wisconsin Department of Natural Resources’ Green Tier program which supports environmentally innovative companies who go beyond compliance with minimum regulatory standards while improving their bottom line. Affinity Health Systems is a Green Tier 1 corporation.



**Low-Income Needs.** Continue to support programs for housing, transportation, education, work and social networks to improve the economic status of people in need. Continue to provide Community Development Block Grant funds to support social services. Work with service agencies to find the best possible locations and buildings. Help groups coordinate events for collecting donations, fundraising, enlisting volunteers, and educating the public about opportunities and services. Consider a consortium to apply for federal assistance for new opportunities, emergencies, disaster relief, faith-based initiatives, etc. Assist with efforts to provide a local warming shelter and ensure adequate facilities for the homeless. Promote the availability of food pantries, resale shops, transportation and human services at various outlets and on the city’s sustainability website.

**Consumer Education.** Encourage consumers to make the best purchasing decisions by providing information about what to look for when trying to make environmentally and socially responsible selections. Establish venues for disseminating information to consumers on environmental product labeling. Create partnerships with area businesses to assist in informing consumers on environmentally and socially responsible choices.

# GOVERNMENT

With almost five percent of the city's working population and more than two dozen city-owned buildings, the city has numerous opportunities to lead by example in sustainability efforts. This section provides sustainable policies and actions for city staff and departments to incorporate into daily operations and municipal projects. It also suggests administrative procedures to facilitate community actions. Some internal sustainability measures are already underway. A greenhouse gas (GHG) inventory for municipal buildings has been completed and reduction targets will be set as soon as the community portion of the GHG inventory is finished. City staff has been attending seminars and workshops to increase their knowledge of sustainable practices. Through the Sustainability Advisory Board (SAB), the city has created a sustainability website providing information on sustainable actions as well as a full range of available resources. A SAB subcommittee worked with city staff to prepare a flyer on water conservation included in water bills for all city residents. City departments have also implemented numerous other sustainable measures, such as use of biodegradable paint, increased use of LEDs and motion/occupancy sensors, improved traffic signal timing, and solar-powered pedestrian crossing flashers.



Through an Energy Efficiency Community Block Grant (EECBG), the City commissioned the McKinstry study to audit municipal buildings and create a plan for energy savings. Several Facility Improvement Measures (FIMs) have been identified and most will be implemented by December 2010, with remaining measures undertaken as funding becomes available. FIMs currently in progress include lighting and building envelope improvements at 14 municipal locations, water conservation at 10 locations, vending machine controls at 12 locations, direct digital controls at four locations, and high-efficiency motor implementation at the Oshkosh Public Museum and the Safety Building. The Oshkosh Public Library will be receiving a steam trap upgrade to reduce energy consumption by eliminating wasted steam.

**Objective: Lead by example and foster sustainability policies and actions for cost-effective, socially responsible and environmentally sound governmental practices to meet community needs.**

## Policies

**Administering Sustainability.** Seek the creation of a position responsible for coordination of sustainability activities to report to the City Manager. Incorporate sustainability responsibilities in job descriptions for relevant city staff. Form a green team of representatives from each department under direction of the Sustainability Coordinator to evaluate and implement internal sustainable actions. Suggest responsibility lies with the Sustainability Advisory Board to move the Sustainability Plan forward, provide information for the public, and review pertinent resolutions going before the Common Council. Continue to involve the public in sustainability activity through the website, online surveys, social networks, governmental meetings, and workshops. Review the Sustainability Plan annually. Present an update of how well the city is meeting sustainability targets at the State of the City event.



**Energy Management.** Continue to implement the McKinstry energy improvements, prioritized according to payback period. Require energy modeling as part of architectural design in all new public building construction to help determine the greatest efficiencies for energy conservation. Demonstrate a wind turbine or solar energy in a high traffic location to serve as a model for the community. Provide a biennial update of greenhouse gas inventories and monitor reductions. Develop an energy conservation policy for all city facilities and implement it through promotion, education, employee training, and action. Continue to develop policies to preserve and plant trees around city buildings and within and adjacent to city parking lots. Analyze the energy savings impact of a four day work week for buildings where public contact is not a major consideration.

**Green Building.** As fiscal resources permit, adopt the Leadership in Energy and Environmental Design (LEED) Green Building Rating System and ENERGY STAR label for new municipal buildings, additions and renovations. Consider adaptive reuse of existing buildings as first priority for expanded municipal space. Use local and recycled building materials when possible. Consider consolidation of departments with other units of government, such as a city/county health department, or public safety, to promote more efficient use of space and resources. Replace existing annual plantings at municipal facilities with perennial native species.



**Purchasing.** Develop a purchasing policy that incorporates preferences for sustainable purchasing. When possible, utilize Full Cost Accounting (FCA) to analyze all costs, advantages, and alternatives. Define 'cost' not just as the monetary cost, but also include social, environmental and life cycle costs. Use this process rather than relying solely on

the low bid process. Modify requests for proposals, specification and contract language to ensure sustainable energy procedures are an integral part of each project. Adopt purchasing policies for procuring equipment, computers and appliances that consider and promote energy savings (e.g. using ENERGY STAR procurement policies as guidelines). Include a policy with standards for worker safety, handling of chemicals, and alternative products and equipment. Use a refill purchasing policy, replacing consumables instead of stocking excess. Continue to use recycled paper wherever applicable. Encourage use of 100% post-consumer recycled content products. Continue to encourage use of electronic documents and email rather than generating paper copies. Continue to work with vendors to reduce packaging. Continue to buy local when possible. Eventually reduce or eliminate non-green products and cleaners. Continue to partner in shared purchasing ventures.



**Environmental Considerations.** Review and adopt recycling practices at all municipal facilities. Install low flow faucet aerators and high efficiency toilets in all municipal bathrooms to conserve water. Encourage use of city water, e.g., installation of bubblers, hydration stations, etc. Implement a fleet replacement program incorporating the use of hybrid, electric, flex-fuel and bio-fuel vehicles. Demonstrate environmentally safe landscaping practices by using natural fertilizers and no chemicals in areas surrounding city buildings. Reduce mowing wherever possible. Install rain barrels and rain gardens at city facilities to reduce runoff. Follow standardized environmental management procedures, such as International Organization for Standardization (ISO) 14001.

**Communication/Training.** Continue to raise awareness and provide training opportunities for city staff about sustainability practices. Explore ways to share facilities and services with other governmental entities—the school district, county, technical college and university. Develop mechanisms to communicate with surrounding cities and towns about sustainability efforts. Partner with the University of Oshkosh-Oshkosh and other local groups to maximize sharing of knowledge. Use local media on a regular basis to communicate sustainable activities the city is undertaking.

**Human Resources.** Hire and promote people with diverse backgrounds, experiences and perspectives. Adopt human resource management practices that support sustainability objectives, such as allowing “flex time” or telecommuting, or offering incentives for





use of public transit, biking, and ride-sharing. Continue to provide a wellness program and maintain efforts to become certified as a Well Workplace. Provide appropriate compensation for all city employees. Empower employees to think creatively, generate ideas, and share suggestions on municipal sustainability.

**Government Commitments.** Maintain membership in the International Council for Local Environmental Initiatives (ICLEI). Use ICLEI support to help the city assess greenhouse gas emissions from energy use, especially the 85% of our energy derived from fossil fuel. Fulfill the U.S. Conference of Mayors Climate Protection Agreement approved in 2007 (Resolution 07-262) and the ICLEI Five Milestones for Climate Mitigation approved in 2008 (Resolution 08-295) by developing a Climate Action Plan with goals to reduce greenhouse gas emissions matched with strategies for reducing the use of fossil fuels. Consider becoming a Wisconsin Energy Independent Community, which would mean adopting the State of Wisconsin’s goal of 25% renewable energy by the year 2025. Pursue additional beneficial commitments to a more sustainable community and maintain existing commitments, e.g., Tree City USA and Bird City Wisconsin.



# GLOSSARY

**25x25:** a rallying cry for renewable energy and a goal for America – to get 25 percent of our energy from renewable resources like wind, solar, and biofuels by the year 2025.

**adaptive reuse:** the process of using old structures for purposes other than those initially intended.

**alternative transportation:** in this document *alternative* (and/or sustainable) modes of transportation include transportation by public transit (bus or rail), bicycle, walking, or alternative fuel vehicles.

**American Planning Association (APA) Policy Guide on Planning for Sustainability:** an extensive set of sustainability policies for communities based on the four principles of the Natural Step framework.

**benchmark:** a standard by which something can be measured or judged; in this document, targets set for reduced greenhouse gas emissions.

**biodegradable:** capable of being decomposed by bacteria or other biological means

**biodigester:** a container in which methane, or biogas, is captured in the processing of organic material by anaerobic bacteria. The gas is often used for heating, lighting or cooking.

**biofilter:** a filter system using microorganisms to convert organic compounds of a pollutant to carbon dioxide, water and salts

**biofuel:** a fuel, such as wood, methane or ethanol, composed of or produced from biological raw materials.

**biomass:** plant material, vegetation, or agricultural waste used as a fuel or energy source.

**Bird City Wisconsin:** a designation by a partnership of state birding groups indicating a community has met certain criteria for making itself healthy for birds. Oshkosh was one of 15 communities designated early in 2011.

**brownfield:** abandoned, idled or under-used property where expansion or redevelopment is complicated by the presence or potential presence of environmental contamination.

**business incubator:** facility established to nurture young (startup) firms during their early months or years, usually providing affordable space, shared offices and services, hands-on management training, marketing support and often access to some form of financing.

**carbon footprint:** a measure of the amount of carbon dioxide released into the atmosphere by an entity, e.g. a country, company, household or individual, through day to day activities over a given period of time.

**climate action plan (CAP):** a customized roadmap to reduce global warming pollution by a target a city has identified. The CAP includes an implementation timeline for reduction measures, costs and financing mechanisms, assignments to city departments, and actions the city must implement to achieve its target. The inventory and quantification of existing climate protection measures helps guide a city to understand where it can get the greatest emissions reductions. The majority of measures in a CAP fall into energy management, transportation, waste reduction and land use categories.

**climate change:** any change in global temperatures and precipitation over time due to natural variability or to human activity. Present thinking is the Earth is getting warmer because of an accumulation of greenhouse gases in the lower atmosphere primarily attributed to combustion of fossil fuels and deforestation.

**community garden:** a garden cultivated by a group; in this document usually an area designated by the city or county where garden plots are rented to community members on an annual basis to plant vegetables and flowers.

**compost:** a mixture of decaying organic matter, as from food wastes, leaves or manure, used to improve soil structure and provide nutrients.

**conditional land use:** in a zoning district, a land use permitted with additional requirements tailored to the site.

**conservancy area:** an area protected from development because of special environmental characteristics

**cool, green or white roof:** an "environmentally friendly" roof intended to conserve energy by employing a white reflective or insulated coating, or being planted with vegetation.

**ecology:** the study of the relationship between living organisms and their environment

**energy conservation:** reduction in the amount of energy consumed through economy, elimination of waste, and rational use.

**energy independence:** generally means using less foreign oil, but also refers to areas off the grid and employing renewable energy sources such as wind or solar.

**ENERGY STAR:** a joint program of the U.S. Environmental Protection Agency and the U.S. Department of Energy designed to reduce greenhouse gas emissions and help businesses and consumers save money by making energy-efficient product choices.

**e-waste:** any refuse created by discarded electronic devices and components or substances involved in their manufacture or use.

**Facility Improvement Measures (FIMs):** standards to improve building and system performance, such as reducing electricity, water or natural gas usage.

**flexible-fuel vehicle (FFV) or dual-fuel vehicle or flex-fuel vehicle:** an alternative fuel vehicle with an internal combustion engine designed to run on more than one fuel, usually gasoline blended with either ethanol or methanol fuel, and both fuels are stored in a common tank.

**Focus on Energy:** a program for eligible Wisconsin residents and businesses to install cost effective, energy efficient and renewable energy projects. Focus information, resources and financial incentives help to implement projects that otherwise would not get completed or complete projects sooner than scheduled. Its efforts help Wisconsin residents and businesses manage rising energy costs, promote in-state economic development, protect the environment and control the state's growing demand for electricity and natural gas.

**food co-op:** a grocery store organized as a cooperative. Food cooperatives are usually consumers' cooperatives owned by their members. Food cooperatives follow the 7 Cooperative Principles (voluntary and open membership, democratic member control, member economic control, member economic participation, autonomy and independence, education, training and information, cooperation among cooperatives and concern for community) and typically offer natural foods.

**fossil fuels:** fuels formed by natural resources such as anaerobic decomposition of buried dead organisms. Fossil fuels include coal, petroleum, and natural gas. Fossil fuels are non-renewable resources because they take millions of years to form, and reserves are being depleted much faster than new ones are being made.

**Full Cost Accounting (FCA):** generally refers to the process of collecting and presenting information about environmental, social, and economic costs and benefits/advantages (collectively known as the "triple bottom line") for each proposed alternative when a

decision is necessary. It is a conventional method of cost accounting tracing direct costs and allocating indirect costs.

**geothermal energy:** thermal energy generated and stored in the earth. Thermal energy is energy that determines the temperature of matter. The Earth's geothermal energy originates from the original formation of the planet, from radioactive decay of minerals, from volcanic activity, and from solar energy absorbed at the surface. The geothermal gradient, which is the difference in temperature between the core of the planet and its surface, drives a continuous conduction of thermal energy in the form of heat from the core to the surface. Use of geothermal energy heating of buildings with ground source heat pumps has been steadily increasing.

**green:** in this document, *green* is shorthand to refer to any environmentally preferable product, activity, service or process.

**green power:** a subset of renewable energy representing renewable energy resources and technologies providing the highest environmental benefit. The EPA defines green power as electricity produced from solar, wind, geothermal, biogas, biomass, and low-impact small hydroelectric sources. Customers often buy green power to avoid negative environmental impacts and for its greenhouse gas reduction benefits.

**green or sustainable business:** an enterprise having little or no negative impact on the global or local environment, community, society, or economy; a business that strives to meet the triple bottom line.

**green team:** in this document, *green team* is used to describe a team of city department representatives chosen to lead sustainability initiatives for the City of Oshkosh.

**greenhouse gas (GHG):** natural and manmade gases in the earth's atmosphere allowing incoming solar radiation to pass through the atmosphere and warm the earth, while trapping radiant heat given off by the earth. The radiant heat absorbed by these gases heats the atmosphere. This is a natural process known as the "greenhouse effect" that keeps the earth habitable. The four primary greenhouse gases are carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), nitrous oxide (NO) and chlorofluorocarbons (CFCs). Since the onset of the industrial period, human activities have lead to sharp increases in the levels of GHGs in the atmosphere, enhancing the greenhouse effect and contributing to rising global temperatures.

**greenhouse gas inventory:** an audit of activities causing greenhouse gas emissions, such as electricity use, transportation and waste generation. The inventory provides baseline data for local governmental operations and community scale activities to help target projects and programs to reduce emissions.

**greenhouse gas reduction target:** a specific quantified emissions reduction goal, usually a percentage by which greenhouse gases will be reduced from base year levels by a chosen target year.

**greenhouse gas “sink”:** the physical site where carbon is stored, e.g., atmosphere, oceans, vegetation and soils and fossil fuel deposits.

**hybrid vehicle:** a vehicle using two or more distinct power sources to move the vehicle. The term most commonly refers to hybrid electric vehicles (HEVs), which combine an internal combustion engine and one or more electric motors.

**hydration station:** an indoor or outdoor site provided with drinking fountains, water coolers or other means to obtain drinking water.

**hydropower/hydraulic power or water power:** power derived from the force or energy of moving water, which may be harnessed for useful purposes. Prior to development of electric power, hydropower was used for irrigation and operation of various machines, such as watermills, textile machines, sawmills, dock cranes, and domestic lifts.

**International Council for Local Environmental Initiatives (ICLEI):** an association of over 1220 local government members who are committed to sustainable development. It provides technical consulting, training and information services to build capacity, share knowledge and support local government in the implementation of sustainable development at the local level.

**impervious surface:** mainly artificial structures--such as pavements (roads, sidewalks, driveways and parking lots) covered by impenetrable materials such as asphalt, concrete, brick, and stone--and rooftops. Soils compacted by urban development are also highly impervious.

**Industrial Ecology (IE):** the study of material and energy flows through industrial systems. The global industrial economy can be modeled as a network of industrial processes that extract resources from the earth and transform those resources into commodities which can be bought and sold to meet the needs of humanity. Industrial ecology seeks to quantify the material flows and document the industrial processes that make modern society function. Industrial ecologists are often concerned with the impacts that industrial activities have on the environment, with use of the planet's supply of natural resources, and with problems of waste disposal. Industrial ecology is a young but growing multidisciplinary field of research which combines aspects of engineering, economics, sociology, toxicology and the natural sciences.

**infill:** use of land within a built-up area for further construction, especially as part of a community redevelopment or growth management program or as part of smart growth. It focuses on the reuse and repositioning of obsolete or underutilized buildings and sites.

**invasive species:** non-native (or alien) to the ecosystem under consideration and whose introduction causes or is likely to cause economic or environmental harm or harm to human health. Invasive species can be plants, animals, and other organisms, e.g., microbes. Human actions are the primary means of invasive species introductions.

**International Organization for Standardization (ISO):** promotes the development and implementation of voluntary international standards, both for particular products and for environmental management issues.

**ISO 14000/14001:** a series of voluntary standards in the environmental field under development by ISO. Included in the ISO 14000 series are the ISO 14001 Environmental Management Standard and other standards in fields such as environmental auditing, environmental performance evaluation, environmental labeling, and life-cycle assessment. The EMS and auditing standards are now final. The others are in various stages of development.

**land banking:** the practice of acquiring land and holding it for future use.

**Leadership in Energy and Environmental Design (LEED):** a rating system developed by the United States Green Building Council (USGBC) that sets definitive standards for what constitutes a *green* or *environmentally preferable* building. The certification system is self-assessing and designed for rating new and existing commercial, institutional, and high-rise residential buildings. It evaluates environmental performance of the entire building over the building's life cycle. LEED certifications are awarded at various levels (certified, silver, gold, and platinum) according to a point-based scoring system.

**light-emitting diode (LED):** a semiconductor light source. LED bulbs draw considerably less power and are up to 90% more efficient than incandescent and halogen bulbs. They can last 10 or more years under normal usage.

**Life-Cycle Design:** a framework recognizing each step in product development from extraction of raw materials through final disposal of all residuals. It focuses on discovering and reducing environmental impacts.

**Life-Cycle Cost (LCC) or Life-Cycle Assessment (LCA, also known as life cycle analysis, ecobalance, and cradle-to-grave analysis):** a technique to assess environmental impacts associated with all the stages of a product's life from-cradle-to-grave, i.e., from raw material extraction through materials processing, manufacture, distribution, use, repair and maintenance, and disposal or recycling.

**McKinstry Study:** a study commissioned by the City of Oshkosh to audit municipal buildings and create a plan for energy savings.

**mixed-use development:** development which incorporates both residential and commercial uses.

**nanomaterials:** materials which have structured components smaller than one tenth of a micrometer in at least one dimension. Materials with one dimension in the nanoscale are layers, such as a thin films or surface coatings. Some of the features on computer chips are in this category.

**native vegetation:** plant species native to the northeastern Wisconsin bioregion, usually suited to their habitat and including all forms of vegetation, e.g., trees, bushes, grasses, forbs, etc.

**Natural Step, The:** a framework founded in Sweden, now worldwide, promoting sustainable communities through four principles: reduction of fossil fuel, reduction of chemicals, protection of natural eco-systems, and social justice. Wisconsin has 28 Natural Step or “eco” communities.

**organic:** of, relating to, or derived from living organisms. **Organic foods** are those produced using methods not involving modern synthetics such as pesticides and chemical fertilizers, not containing genetically modified organisms, and not processed using irradiation, industrial solvents, or chemical food additives.

**Pay-As-You-Throw policy:** substituting variable rate pricing for flat rates, meant to provide an incentive to households to divert an increased portion of its discards away from traditional disposal to recycling.

**payback:** the period of time elapsed before an investment is recouped

**Polycyclic Aromatic Hydrocarbon (PAHs):** a group of organic contaminants formed from incomplete combustion of hydrocarbons, such as coal and gasoline. PAHs are an environmental concern because they are toxic to aquatic life and because several are suspected human carcinogens. They are present in coal tar sealants often sprayed or painted on asphalt pavement to protect and beautify driveways, parking lots and other asphalt surfaces.

**potable water:** water suitable for drinking

**programmable thermostat:** a thermostat designed to adjust the temperature according to a series of programmed settings taking effect at different times of the day.



Programmable thermostats may also be called **setback thermostats** or **clock thermostats**.

**Purchase of Development Rights (PDR):** a strategy for protecting natural and farmland from development. Development rights are one of the many rights, such as mineral rights or timber rights that come with a parcel of land. When a landowner sells development rights, the right to develop or subdivide a parcel of land is permanently relinquished. The landowner retains all other rights, such as the right to farm or timber the property, and must continue to pay property taxes. Landowners often sell or make a charitable donation of development rights to land trusts, or local and state government agencies.

**radon:** a colorless, odorless, short-lived radioactive gas that can seep into homes and become a lung cancer risk.

**rain barrel:** a barrel used as a cistern to hold rainwater, often a component of a community's stormwater reduction strategy.

**rain garden:** a shallow (2"-18") depression, typically planted with colorful native plants, strategically located to collect, infiltrate and filter rain falling on hard surfaces like roofs, driveways, alleys, or streets to minimize negative impacts of excessive runoff from these surfaces on lakes and streams.

**Regional Transit Authority (RTA):** a legislatively created organization with the sole purpose of operating a transit system within a given jurisdiction, usually with the ability to tax and bond for operating and capital expenditures.

**RENEW Wisconsin:** a nonprofit organization promoting clean energy strategies for powering the State of Wisconsin economy in an environmentally responsible manner.

**renewable energy:** any naturally occurring, theoretically inexhaustible source of energy, e.g., biomass, solar, wind, tidal, wave, and hydroelectric power, not derived from fossil or nuclear fuel.

**roundabout:** a circular road structure where several roads meet, often replacing stop and go lights.

**Safe Routes to Schools (SRTS):** a program enabling community leaders, schools and parents across the United States to improve safety and encourage more children, including children with disabilities, to safely walk and bicycle to school. In the process, programs are working to reduce traffic congestion and improve health and the environment, making communities more livable for everyone

**seasonal load control:** a program in which utility companies offer a lower rate in return for having permission to turn off gas or electricity for short periods of time by remote control. This control allows the utility to reduce peak demand.

**single stream recycling:** a system in which all paper fibers and containers are mixed together in a collection truck, instead of being sorted into separate commodities (newspaper, cardboard, plastic, glass, etc.) by the resident and handled separately throughout the collection process. In single stream, both the collection and processing systems are designed to handle this fully commingled mixture of recyclables, with materials being separated for reuse at a materials recovery facility.

**smart growth:** community growth consciously seeking to avoid wastefulness and damage to the environment.

**solar energy:** radiant light and heat from the sun harnessed by humans using a range of ever-evolving technologies.

**stratospheric ozone layer:** atmospheric ozone relatively concentrated in the lower stratosphere in a layer between 9 and 18 miles above the Earth's surface. It plays a critical role for the biosphere by absorbing damaging ultraviolet radiation with wavelengths 320 nanometers and lower. Also known as **ozone layer**.

**subsurface drainage chamber:** the use of underground pipes and other fittings to direct the flow of water from unwanted places to another place.

**sustainable:** can mean slightly different things depending on the context in which it is used. In this document it means “use of a resource so the resource is not depleted or permanently damaged.” **Sustainability** is defined as “meeting present needs without compromising the ability of future generations to meet their needs.”(1987 U.N. Conference)

**Tax Incremental Financing District (TIF):** an economic development tool for Wisconsin, allowing a municipality to promote growth in a specific district by borrowing on the district's future growth in taxable property value. In Wisconsin, TIFs may be created for three types of projects: blight or environmental remediation, industrial development, and mixed-use development. Tax revenue from improvements in the district pay back debt until all project costs are repaid.

**telecommuting:** a work arrangement in which employees enjoy flexibility in working location and hours. The daily commute to a central work place is replaced by telecommunication links. Many work from home, while others utilize mobile telecommunications technology to work from coffee shops or other locations.

**total maximum daily load (TMDL):** a calculation of the maximum amount of a pollutant a water body can receive and still safely meet water quality standards.

**tot lots:** small parks or playgrounds usually located in an urban area.

**Transfer of Development Rights (TDR):** a tool used to manage land development. TDR is the exchange of zoning privileges from areas with low population needs, such as farmland, to areas of high population needs, such as downtown areas. These transfers allow for the preservation of open spaces and historic landmarks, while allowing urban areas to expand and increase in density.

**Travel Green Wisconsin:** a Wisconsin Department of Tourism program promoting smart, environmentally friendly business practices. The program is the first state-sponsored sustainable tourism certification program in the nation and has become a model for sustainable travel efforts across the nation.

**Tree City USA:** a program, sponsored by the Arbor Day Foundation in cooperation with the USDA Forest Service and the National Association of State Foresters, providing direction, technical assistance, public attention, and national recognition for urban and community forestry programs in thousands of towns and cities that more than 135 million Americans call home.

**Triple Bottom Line:** a method of "true cost accounting," which considers the impact of production and operating decisions in terms of ecological and social value, as well as economic value.

**U.S. Conference of Mayors Climate Protection Agreement:** participating cities commit to take the following three actions to meet or beat the Kyoto Protocol targets in their own communities; urge their state governments, and the federal government, to enact policies and programs to meet or beat the greenhouse gas emission reduction target suggested for the United States in the Kyoto Protocol -- 7% reduction from 1990 levels by 2012; and urge the U.S. Congress to pass the bipartisan greenhouse gas reduction legislation, which would establish a national emission trading system.

**urban growth boundary (UGB) or urban service area:** a regional boundary, set in an attempt to control urban sprawl by mandating the area inside the boundary be used for higher density urban development and the area outside be used for lower density development. An urban growth boundary circumscribes an entire urbanized area and is used by local governments as a guide to zoning and land use decisions.

**Vision Oshkosh 2010:** an A. Nelessen Associates report which identified and analyzed emerging trends and community issues, articulated core community values, developed a community vision based on communities' core values, established a vision action plan to

implement the vision, and defined a method to revisit and update the vision and action plan

**WasteCap Wisconsin:** a nonprofit, industry-supported 501(c) (3) organization providing waste reduction and recycling assistance to businesses. WasteCap assists and encourages companies to effectively drive costs out of their operations through improved solid waste management practices. Services are made possible through membership, sponsorship, and grants.

**watershed:** an area of land where all water beneath it or draining off it has a shared destination of river, lake or stream.

**Well City USA:** an initiative designed to engage entire business communities in improving the health and well-being of their workforce. Similar in approach to Well Workplace, the primary requirement for achieving a Well City USA designation is when a minimum of 20 employers who collectively employ at least 20% of the city's workforce become designated Well Workplaces within a three-year period. Each employer must complete WELCOA's Well Workplace Award application documenting their progress in developing and delivering their worksite wellness initiatives.

**Well Workplace:** a seven-step, benchmarking initiative by the Wellness Council of America (WELCOA) which gives organizations a roadmap to successfully build results-oriented wellness programs into their working environments while avoiding common pitfalls.

**wind energy:** the conversion of wind energy into a useful form of energy. Examples are using wind turbines for electricity, wind mills for mechanical power, wind pumps for pumping water or drainage, or sails to propel ships.

**Wisconsin Energy Independent Community:** a voluntary agreement between the State of Wisconsin and communities adopting the State's 25x25 goals (a rallying cry for renewable energy and a goal for America – to get 25 percent of our energy from renewable resources like wind, solar, and biofuels by the year 2025).

**zero waste:** reuse or recycling of all natural and man made materials back into nature or the marketplace rather than landfilling or similar disposal options for these materials.