Developing Sustainable Park Systems in Oregon

A Component of the 2013-2017 Oregon Statewide Comprehensive Outdoor Recreation Plan

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Nature
HISTORY
Discovery

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INTRODUCTION

The Oregon Parks and Recreation Department (ORPD) is a strong proponent of sustainable parks, sometimes called Green Parks. The overall goal of Sustainable Parks is to promote the use of sustainable practices, maximize the useful life of buildings and park facilities, and enhance the natural environment. This chapter aims to provide State and local park and recreation providers with a better understanding of sustainability practices and ways to create Sustainable Parks. An assessment tool to help parks and recreation providers evaluate the current level of sustainable practices is included in this chapter. The assessment tool (Sustainable Park and Recreation Practices Scorecard) will also assist in establishing a state-wide baseline and track future improvements.

Inclusion of sustainable features and practices in parks and recreation projects can assist communities in obtaining grant funding. OPRD is revising grant program evaluation criteria to emphasize sustainability for Land Acquisition, New Facility Development, Major Rehabilitation, and Trail Projects. These new sustainability criteria will award applicants additional points for the use of sustainable design, practices, and elements. A well-designed parks and recreation project utilizing sustainable design, elements, or practices would likely receive the maximum points under the new evaluation criteria.

Grant recipients throughout Oregon are already incorporating sustainable elements into projects. Some examples include installation of green roofs on buildings, use of pervious surfaces for parking lots and trails that allow water to percolate through the surface; and the installation of rain gardens to treat storm water onsite, irrigation controls adjusted for rainfall, and automatic lighting controls to minimize electricity use.

This chapter further discusses sustainability resources as follows:

- An initial discussion on sustainability, sustainable parks, and examples of sustainability within local and state parks.
- A vision for sustainable parks in Oregon including recommended goals, objectives, and strategies to achieve sustainability.
- Recommended ORPD grant evaluation criteria to further improve and support sustainability design and practices.
- A set of recommended steps for local agencies to establish and monitor their own sustainable performance improvement system.
- A Sustainable Park and Recreation Practices Self-Assessment Score Card.
- A Sustainable Guidelines Checklist for incorporating sustainable practices in design, construction and maintenance of park projects.
- A listing of sustainable practices web-based resources.

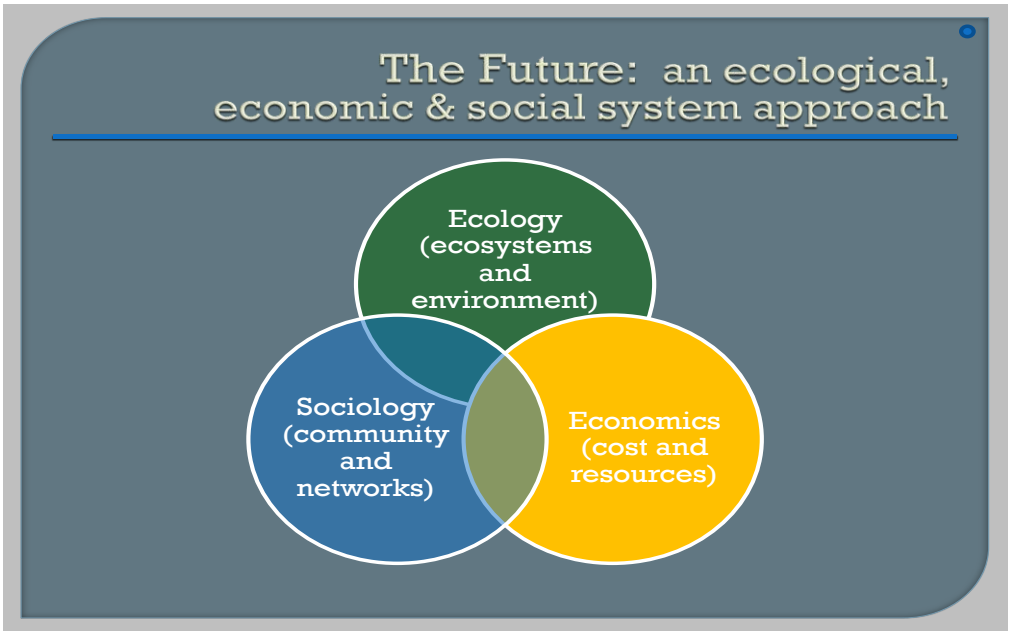
WHAT IS SUSTAINABILITY?

In recent years, the concept of sustainability has been emerging due to significant concerns regarding the unintended social, environmental, and economic consequences of population and economic growth and the consumption of our natural resources. The 1987 United Nations (U.N.) World Commission on Environment and Development's (WCED) report, "Our Common Future", defines sustainability as "meeting the needs of the present without compromising the ability of future generations to meet their own needs."

More recently the U.S. Environmental Protection Agency (EPA) stated that sustainability is based on a simple principle:

> *Everything that we need for our survival and well-being depends, either directly or indirectly, on our natural environment. Sustainability creates and maintains the conditions under which humans and nature can exist in productive harmony, that permit fulfilling the social, economic and other requirements of present and future generations.*

Typically, any discussion of the concept of sustainability begins with more traditional ecological concerns and issues. Any comprehensive discussion on sustainability must also include social and economic considerations. This model is typically described as a three-legged stool (see Figure below). Sustainable design and practices not only promote environmental responsibility, but also enhance our communities and address management and costs associated with resources.



WHAT IS A SUSTAINABLE PARK?

The concept of sustainability involves a commitment to environmental, economic, and social practices that enhance a community's quality of life and promote responsible management of resources. Most importantly, a commitment to sustainability requires us to think about the impact of our actions on future generations. Why should parks and recreation providers care about sustainability practices and Sustainable Parks? Within the field of parks and recreation, a commitment to sustainable management practices provides an opportunity to address many of our most pressing challenges, such as ensuring the design and construction of parks is balanced with long-term maintenance requirements, enhancing community living, and reducing consumption of resources.

Sustainable Parks are designed, constructed and operated to address issues facing the community and surrounding region, such as stormwater management or improving air quality by promoting alternative transportation, reducing motor vehicle trips, and even planting trees. New aesthetic forms emerge for parks when based on sustainable development concepts, starting with initial consideration of the surrounding landscape around the park (Cranz, "Defining the Sustainable Park: A Fifth Model for Urban Parks", Landscape Journal, 23:2-04). Sustainable Parks can significantly decrease water use by reducing irrigation needs through the use of rain gardens and recycled water. Sustainable (Green) buildings typically save up to 60% in annual energy costs when compared to conventional building designs. Building operational costs are also substantially lower. Studies have also shown substantial increases in employee productivity (2-16%) in sustainable Green buildings designed with careful consideration to natural lighting and improved air circulation.

Planning, designing, constructing, and operating Sustainable Parks often includes the following elements:

- Minimizing environmental impacts from the onset through sensitive siting of a park within the landscape and careful consideration of the various uses within the park boundaries
- Protecting and enhancing habitat areas
- Educating the public about the value of natural resource stewardship
- Incorporating rain water reuse, grey water for irrigation, efficient irrigation systems, etc.
- Recycling waste products and striving to limit waste as much as possible
- Minimizing pollution impacts resulting from park features and user activities
- Utilizing Green building techniques (e.g., solar power, natural lighting) to reduce energy costs
- Promoting alternative forms of transportation (e.g., greenways, bike trails, safe routes to schools)
- Reducing maintenance and operations costs
- Involving the public as partners, customers, volunteers, participants, stakeholders, etc.
- Encouraging partnerships with various organizations

For State and local park providers within the State of Oregon, sustainability is, quite literally, the nature of the business. Parks, recreational facilities, and open space areas contribute to a better quality of life for our residents today and for future generations. The following is a summary of sustainable practices (social, economic and environment) which could be used within parks, recreational facilities and open space areas throughout communities within our state.

SOCIAL SUSTAINABILITY

Parks serve as valuable places for shared social activity and public interaction. For a community to enjoy a high quality of life and be sustainable, the basic needs of all residents must be met. A socially sustainable community must have the ability to build and maintain park facilities serving residents of all ages, abilities, and economic status. Social sustainability practices involve outreach to address the needs of the community, including underserved populations.

SOCIAL SUSTAINABILITY BENEFITS

Promote Public Health

- Increases and improves physical activity
- Reduces obesity and overweight levels within the population
- Improves public health through interactions with nature
- Promotes healthier food choices by encouraging the development of community gardens

Promote Equity

- Provides complete and livable communities through access and use of open space and parks for recreation and physical activity
- Encourages partnerships with other entities and fosters community support
- Balances and improves access to recreation and nature opportunities
- Enhances cultural and educational experiences
- Increases employment opportunities
- Improves air, soil, and water quality throughout the community

The WCED's definition of sustainable development includes meeting the needs of the present without compromising the ability of future generations to meet their own needs. Sustainability should involve all individuals within a community, not just those that can afford the cost of meeting of their own needs. Access to food, water, medical attention, justice, government, education, and housing are all considered basic human rights. Inequity creates social, environmental and economic instability which are counter to the sustainability process.

Examples of social sustainability strategies in parks and recreation include the following:

Education and Outreach

- Provide sustainability training for public park employees.

- Provide opportunities for the public to learn about park sustainability and natural resource protection.
- Provide demonstration gardens of native plantings within local parks.

Social Interaction with the Natural Environment

- Provide outdoor spaces designed and operated to encourage social interaction.
- Enhance the public's physical, mental, and social well-being by providing opportunities to interact with nature.
- Create volunteer opportunities for the public to be directly involved in the protection, maintenance, and enhancement of natural and open space areas.
- Provide public access to parks, recreational facilities and open space areas for all members of the community.
- Promote ecological values among Oregon residents through public education and interpretation of park and open space features.

Public Health

- Provide Community Gardens for local residents to grow edible food products and interact with other local residents.
- Provide edible landscape demonstration gardens within parks.
- Provide facilities and programs to encourage physical fitness and reduce the obesity rate among Oregon residents.

ECONOMIC SUSTAINABILITY

Economic sustainability within the field of parks and recreation is less about deficits, national debt, and debt-to-gross domestic product (GDP) ratios. Instead it is more about ensuring a government agency's capacity to maintain public infrastructure and continue to achieve its public purposes. Economic sustainability involves government spending and its impact on the economy as a whole, including the private sector and the local

ECONOMIC SUSTAINABILITY BENEFITS

Strengthen the Economy

- Improved tax base through property value increases by protecting open space and the development of parks
- Reduces health-related expenses for individuals
- Provides job opportunities in agriculture/open space maintenance
- Reduces ongoing operation and maintenance costs
- Reduces living costs to the individual and family through community gardens and local activities.
- Promotes responsible tourism to support local communities and state-wide economy

community. The public purpose of governmental agencies is to aim to produce positive value, minimize certain negative consequences, and completely avoid those negative consequences that are entirely unacceptable.

Ensuring the economic sustainability of parks and recreation agencies avoids unacceptable negative consequences and assures the continuation of the agencies public purposes.

Examples of economic sustainability strategies within parks and recreational include the following:

Park Development

- Prior to the start of construction determine annual operational costs and sources of funding for new or expanded projects.
- Incorporate sustainable practices into the design of new or renovated projects to limit resource use and reduce on-going maintenance and operation costs.

Fiscal Practices

- Ensure that funding for long-term maintenance and operations does not exceed costs of services.
- Evaluate the cost-benefit impact of sustainable practices and continue to set new benchmarks.

ENVIRONMENTAL SUSTAINABILITY

Environmental sustainability promotes the efficient and responsible use and management of resources to provide long-term benefits to communities. To achieve environmental sustainability, the rate of renewable resource harvest, pollution, and non-renewable resource depletion must be reduced to the point of being sustainable over the long term.

A Sustainable Park should, to the fullest extent possible, function within the ecosystem and its processes rather than separately. Healthy ecosystems provide direct benefits to communities which surround and rely on these ecosystems. Examples include water purification, clean air, groundwater recharge, food production, and viewsheds.

Examples of environmental sustainability strategies within parks and recreational include the following:

Air Quality

- Reduce carbon emissions in equipment and vehicles.
- Increase bike trail access for communities and provide safe routes to schools and parks.
- Provide transportation alternatives to motor vehicles.
- Increase plantings of trees within appropriate areas to improve air quality.

Air and Water Quality Benefits

Improve Air Quality
- Improves ozone levels
- Reduces particulate matter
- Increases use of non-motorized transportation and/or public transportation

Improve Water Quality
- Recharges ground water
- Reduces pollutant stormwater runoff

Erosion and Sediment Control

- Prevent damage from erosion and siltation through stormwater management and well-designed trails and park roads.
- Develop a soil management plan and conduct regular soil testing.

Habitat Enhancement and Restoration

- Ensure park and recreation facilities and uses do not harm adjacent natural areas and sensitive habitats.
- Reduce vulnerability to damage from flooding, storm surge, wildfire, and drought by reducing development of hazard prone areas.
- Develop an Integrated Pest Management program to reduce the use of chemicals and to ensure proper use/disposal of chemicals.

Native Plants

- Develop a program to remove non-native invasive vegetation within sensitive habitats, natural areas and open space.
- Develop programs to encourage private open space enhancements.
- Develop an urban tree and forest management program.

Natural Resource Benefits

Protect Natural Resources
- Increases acreage of protected and/or conserved lands
- Reduces acreage of habitat negatively affected by development
- Provides habitat restoration opportunities
- Improves air quality through natural filtration of trees and foliage
- Increases use of green waste on site instead of transporting to landfills
- Regulates local temperature and reduction of heat islands through shading and evapotranspiration, and
- Reduces vulnerability to damage from flooding, storm surge, wildfire, and drought

Recycling

- Conduct on-site green waste/composting of park materials.
- Recycle appropriate park waste.
- Provide public recycling containers at all developed park and recreation facilities.

Renewable Energy

- Replace or renovate obsolete energy or resource-inefficient infrastructure within park and recreation facilities.
- Develop demonstration projects that highlight alternative energy sources and/or reduction in resource use.
- Utilize solar roof top collecting panels.
- Utilize wind generating equipment.

Urban Design, Land Use, Green Building and Construction

- Sensitively site new parks and facilities to protect ecosystems and sensitive habitat areas.
- Locate new parks at in-fill locations within communities.
- Set a standard of LEED Silver certification for all new and renovated buildings.
- Incorporate sustainable design principles in renovated and new construction, such as:
    - Ground water recharge
    - Solar power sources
    - Composting or low-flow restrooms
    - Low-water vegetation
    - Sustainable and recycled products
    - Energy efficient materials and processes
    - Local products

Utility Reduction

- Utilize right-sizing strategies for vehicles and equipment.
- Track water, electricity, natural gas use within buildings and other facilities.

Benefits of Utility & Water Conservation

Reduce Vehicle Use and Fuel Consumption

- Increases use of non-motorized transit
- Reduces the reliance on carbon-based fuels

Promote Water Conservation

- Reduces water need and irrigation use

Promote Energy Efficiency

- Reduces energy consumption through reduced demands on water, power and carbon based fuels

- Track fuel use for vehicles and equipment.
- Track water use through centrally controlled irrigation systems.
- Where appropriate, use treated water for irrigation of developed landscapes.
- Establish benchmarks for reduced use of utilities and fuel for vehicles
- Increase paperless electronic document storage in administrative work.
- Expand use of LED lighting.

Water Resources and Flood Protection

- Design parks to provide storm water retention.
- Partner with local flood control entities to contribute to large-scale flood protection efforts.
- Develop bioswales within and adjacent to parks.
- Use pervious surfaces, where appropriate, for parking areas, walkways and other public spaces.
- Design and install centrally located irrigation systems in all new parks.
- Use recycled water for landscape irrigation where feasible.
- Reduce turf within developed parks.

A VISION FOR A SUSTAINABLE PARK SYSTEM IN OREGON

VISION, MISSION, GOALS AND OBJECTIVES

The vision, mission, goals and objectives, provide the framework for the SCORP's sustainability plan. These statements are not set in stone, and may be refined or changed over time to ensure they continue to meet current community needs. Each of the three goals and associated objectives include a number of strategies or tactics for creating a sustainable park system. These are not state mandates, but rather items for recreation providers to consider for local implementation.

Mission Statement

Oregon ***Sustainable Parks*** are designed, developed and operated to promote a sustainable future meeting the needs of today without compromising and by balancing the economic, social and ecological needs of future residents.

Sustainable Parks will:

- Support a stable and diverse economy
- Protect and enhance the quality of the air, water, land and other natural resources
- Protect and enhance native vegetation, habitat areas, fish and wildlife
- Create opportunities for enhanced social benefits
- Build community
- Promote stewardship and educate the public about sustainability
- Result in more cost-effective park management practices
- Ensure longevity of parks and recreation facilities

Vision

Oregon's parks, public places, natural areas, and open spaces give life and beauty to our state. These essential assets connect people to the natural environment, community, and to themselves. While Oregon's residents treasure and care for this legacy, they are dedicated to ensuring resources are utilized with fiscal, social, and environmental responsibility, building on the past to provide for future generations.

Goals and Objectives

Goal 1—Ensure sustainable development that uses natural resources both efficiently and responsibly providing long-term benefits.

A. Reduce Energy Demand

- Establish baseline standards, objectives, and metrics for measurement to track and reduce the net consumption of electric energy and non-renewable heating fuels (e.g., oil, natural gas, and propane).

- Replace and use equipment and fixtures with the latest efficiency technology.

- Adopt new modern standards for structures to assure they are as energy efficient as possible. This could include LEED standards of Silver or higher for renovations and Gold or higher for new construction.

- Increase education and training of public employees to improve the understanding and acceptance of actions necessary to reduce energy use.

- Replace and/or renovate obsolete energy or resource-inefficient infrastructure.

B. Increase Conversion to Renewable Energy Sources

- Establish baseline standards, objectives, and metrics for measurement of purchase and/or production of an increased percentage of energy use from renewable sources.

- Evaluate conversion to renewable energy sources within existing park sites and use of renewable materials for new park developments. Examples of renewable energy sources include biofuels, wind energy, tidal energy, and solar energy.

- Coordinate with local utilities to explore partnerships in the development of renewable energy sources within park sites consistent with adopted resource management policies.

C. Improve Vehicle Efficiencies and Reduce Vehicle Use

- Establish baseline standards, objectives, and metrics for measurement to increase fuel economy, reduce trip mileage, and increase percentage of hybrids, plug-in and alternative fuel vehicles.

- Conduct an evaluation of energy consumption of fleet vehicles. This evaluation should review and establish baselines and objectives for the following:
    - Increasing fuel efficiency;
    - Increasing the number of hybrids, plug-in or alternative fuel vehicles;
    - Right-sizing of vehicles;
    - Reducing maintenance routes and the potential staging of vehicles, and;
    - Increasing overall use of public transportation.

D. Reduce Water Use and Increase Plantings of Native Species

- Establish baseline standards, objectives, and metrics for measurement of water consumption to increase conservation, recycling and use of treated water.

- Conduct an evaluation of water use and track historical and on-going consumption of water at parks and facilities. This evaluation should include landscaping, restrooms, aquatic facilities and other water uses.

- Develop and adopt a native plant policy. The policy should set minimum percent of native species (80% or greater) that will be used in new and renovations of existing landscaping.

- Evaluate and seek opportunities for the increased use of rain gardens, collection of on-site water for irrigation purposes, and increased use of bioswales for the collection of run-off and stormwater.

- Coordinate with local water treatment facilities to evaluate the use of recycled waste water for irrigation of park landscaping.

E. Improve Waste Management and Increase Utilization of On-site Composting

- Establish baseline standards, objectives, and metrics for measurement of solid waste sent to landfills, historical, current tonnage, and amount of materials recycled.

- Develop a recycling program that includes recycling containers at all park and recreation locations as well as a public education program to encourage public recycling.

- Evaluate opportunities to increase use of compostable materials within landscaped areas (e.g., increased use of leaf mulch, chips, and other waste materials).

F. Improve the Natural Environment and Habitat

- Conduct an evaluation of open space areas, natural areas and parklands to ensure that park and recreation uses are compatible with biosystems and sensitive habitat.

- Develop a forest management program to ensure the sustainability of native forest and associated landscapes. The program should include a plan for the reduction/removal of non-native plants and an on-going maintenance plan for locations treated.

- Add trees and develop a system to track tree maintenance, tree loss or gain.

- Consider the adoption of new technologies and design principles to reduce the developed footprint and dependence on irrigation, fertilization, chemical weed control, and energy consumptive maintenance activities (e.g., mowing, trimming, and blowing).

- Develop and adopt an Integrated Pest Management (IPM) policy on the use of toxic substances in parks and agency facilities, provide appropriate training to all staff that handle toxic substances, and where appropriate use an IPM-approach to managing noxious/invasive weeds in all parklands and facilities.

- Establish baseline standards of historical application of chemicals and set objectives to reduce application of chemicals in parklands and facilities.

G. Reduction of Material Resources and Purchasing of Environmentally Preferred Products

- Evaluate and consider the purchase of cleaning and other maintenance-related products that are non-toxic and biodegradable.

- Move towards the purchase of one hundred percent recycled copy and printing paper.

- Evaluate and consider use of paints with low amounts of volatile organic compounds.

H. Sustainable Building Practices and Materials

- Mandate that buildings over 5,000 square feet should be designed and/or retrofitted to meet green building standards. New construction should be designed and constructed to LEED Gold level or higher and renovations to LEED Silver or higher.

- Increase the use of pervious surfaces to improve water recharge and reduce stormwater flows, for walkways, parking areas and other traditional hardscapes.

- Adopt Low Impact Design (LID) guidelines to minimize a site's develop footprint and encourage re-use, and where appropriate, removal of existing structures and other impervious surfaces. Also adapt these LID guidelines for development of recreational landscapes in parks.

- Research and incorporate sustainable green techniques and materials into capital projects and/or operations and maintenance practices.

I. Measuring and Monitoring

- Establish baseline standards, objectives, and metrics for measurement of current practices including but not limited to:
    - Energy usage
    - Conversion to renewable resources
    - Water consumption
    - Waste to landfill
    - Recycling
    - Fuel usage including miles driven

- Continue tracking of recycling levels, waste disposal tonnage, and consumption of electricity, water, and vehicle fuel in all parklands and facilities.

- Develop a "Green Parks" program to incentivize and recognize sustainability-related performance of parks and recreation staff and volunteers to promote awareness of sustainability practices.

J. Communication, Education, Interpretation

- Develop interpretive methodology, programs, funding strategies, and partnerships to instill a sustainability ethic in park visitors and Oregon residents. This could include interpretive signage to educate, promote awareness, and create opportunities for volunteerism within parks for the public to be directly involved in the protection and enhancement of the park system.

- Provide sustainability-related interpretation to the public at all staffed facilities, on agency's websites, and through other public information campaigns. Also include sustainability training at ranger in-service trainings and in the Stewardship Certification Program.

Goal 2--Sustainable Communities – Improve Neighborhood and Community Livability; Develop a Vibrant and Equitable Society, and a Healthy Environment.

A. Improve Neighborhood and Community Livability

- Evaluate the current service level of parks, recreational facilities and open space areas and increase, if necessary, the ratio of park land to City population, particularly in underserved neighborhoods.

- Develop, maintain, and improve access to public spaces that encourage and develop social interaction.

- Urban Park and Recreation agencies should establish a "Nature in the City" program to increase "wildness" within the parks system and expand human access to intimacy with nature.

- Evaluate, design and, if necessary, retrofit parks and recreational facilities to provide bicycle and pedestrian linkages with other public spaces including schools.

- Promote gardening within public spaces through the development of a community garden program and encourage the purchase of locally produced foods.

B. Improve Health and Wellness

- Evaluate the current level of educational/recreational opportunities and programs on health, nutrition and gardening and increase level to meet the needs of Oregon residents.

- Work towards the improvement of the health of Oregon residents through access to a diverse mix of wellness activities, education, and healthy foods.

- To encourage health and fitness and to reduce obesity levels among Oregon residents, agencies should expand opportunities, programs, and activities which provide opportunities for outdoor physical fitness.

- Develop demonstration gardens at selected parks to encourage and demonstrate the concept of edible landscapes.

C. Improve and Expand Public Involvement

- Develop volunteer opportunities so that the public can be involved in the protection, maintenance, and enhancement of the natural and open space areas of Oregon parks.

- To expand public involvement and support, recreation providers are encouraged to seek opportunities for direct and open communication among the Oregon residents and colleagues.

- Public officials should develop research on sustainability practices and communicate these findings in a manner easily understood by the public.

- Develop programs such as Forest Stewards to educate, train and involve the public to become directly involved in the protection of parkland and open space areas.

Goal 3—Develop Financially Sustainable Parks, Open Space Areas and Recreational Facilities

A. Ensure Long-Term Maintenance of Parks

- Develop administrative, fiscal, programmatic resources, and financial forecasting to ensure on-going, long-term maintenance and management of publically owned parklands and facilities.

- Plan for sustainable site maintenance prior to the development of new or renovated sites.

- Recognize and document sustainability efforts already in use and share accomplishments, cost savings, and the degree of public involvement with public officials and Oregon residents.

- Support existing private programs dedicated to the care of park systems and encourage creation where appropriate of other private park foundations or open space enhancement programs.

SUSTAINABLE PARK EXAMPLES

OREGON PARKS AND RECREATION DEPARTMENT

With environmental issues such as climate change and the need for sustainability emerging as central environmental issues of our time, the OPRD is taking a leadership role in demonstrating "green technologies." State Parks are ideally suited to showcase planning, design and implementation of sustainability practices and features.

OPRD incorporates sustainability practices in an environmentally responsible and resource-efficient manner throughout a building's life-cycle, from siting to design, construction, operation, maintenance, renovation, and demolition. OPRD also incorporates sustainability practices in park planning, park improvement projects, and management of natural resources. This section showcases a few of the sustainability practices OPRD uses in site engineering, design, construction and rehabilitation of existing park facilities.

Examples of Sustainability Practices

- Repurpose and recycle materials as a park agency. Require contractors to repurpose and recycle where feasible. As an example, recycled Alaskan yellow cedar, an extremely rot-resistant wood suitable for coastal climates, was used to reconstruct windows in a building located on the coast.

Sustainability in Oregon State Parks
Tumalo and Pilot Butte State Parks

OPRD is launching an ambitious effort to develop "Model Sustainable Parks" which implement sustainable practices that can be monitored, evaluated and replicated in other Oregon State Parks. Sustainable practices include efforts to reduce waste, eliminate hazardous substances, achieve climate neutrality, and enhance ecosystem functions. This endeavor will provide a unique laboratory for OPRD to test sustainability practices in both new and established parks in terms of start-up cost, maintenance expenses, reduction of resource use and cost savings

Two state parks in Central Oregon, **Tumalo State Park** and **Pilot Butte State Scenic Viewpoint,** have been selected as test sites. The Oregon State Parks Trust is spearheading the fundraising effort through a "Sustainable Parks" campaign which seeks to raise $325,750 over two years for the following sustainability projects.

- Upgrade an irrigation system for water conservation.
- Develop and implement comprehensive recycling programs.
- Install solar efficient upgrades (e.g. meeting hall, yurts, picnic shelter).
- Develop interpretive exhibits and programs about sustainability.

- Preserve and repurpose buildings, including historic structures, as interpretive centers, museums, offices, maintenance buildings, etc. The over 300 historic buildings under OPRD stewardship continue to demonstrate the low "embodied energy" which was a notable feature when built using local labor, fuels/power, materials, etc.
- Design innovative recreation sites and waste management systems unique to the location and need. For example, where a site had no space for a drainfield, a system recycles wastewater for on-site irrigation, minimizing demands on the local aquifer.
- Provide a full-service recycling center for park users at large overnight recreation facilities and bin-recycling at smaller parks.
- Harvest and mill timber for construction lumber where appropriate and available.

Park Restroom Building

OPRD has the unique opportunity to design and construct buildings embracing sustainability principles due to the large number of its restroom facilities which have exceeded their lifecycle. New facilities incorporating sustainability practices and features are better able to address park user and operational needs. Each new restroom building incorporates the following practices.

Practice	Sustainability Outcome
Construct the building from structural wall brick that serves as both the final interior and exterior wall finish.	Reduces need for additional finish materials, which costs less, limits VOCs, and reduces the overall project carbon dioxide emissions.
Use metal roofing.	Long-lasting, low maintenance, recyclable material that often contains recycled materials itself and reduces the need for dimensional lumber.
Install radiant ceiling heat panels (versus forced air) and thermostats.	Increases efficiency and reduces electrical costs.
Exceed building code requirements for insulation.	
Use products with recycled content, or that are themselves recyclable or recycled, such as toilet partitions, benches, HDPE piping, and paint.	Reduces sourcing associated impacts and waste.
Use energy efficient fixtures, such as low-flow fixtures (toilets, faucets, etc.); lighting (e.g., CFL or florescent); photo-cell and/or motion-activated switches and fans; and high-efficiency water heater (>90+ rating).	Protects and conserves water, reduces waste water and energy use, and improves indoor environmental quality.

Practice	Sustainability Outcome
Install skylights.	Provides natural lighting and passive ventilation, and improves indoor environmental quality.
Use of photovoltaic (PV) solar panels where a cost analysis shows a return on investment within a reasonable timeframe.	Reduces the environmental impact of the building by generating its own power.

Crissey Field

Crissey Field is a 4,500-square-foot welcome center located on the California-Oregon border. This $2.4 million building showcases a number of sustainable practices aimed at reducing environmental impacts. Sustainability features include:

- Geothermal radiant floor heat
- Solar panels to generate electricity
- Solar water heater
- Passive ventilation
- Carpet made with 40 percent post-industrial recycled nylon
- Low- or no-flow fixture plumbing fixtures (e.g., toilet, waterless urinals, etc.)
- Bioswale for storm water run-off
- Pipes made of recycled plastic
- Low VOC (volatile organic compound) paints
- Concrete pigment stains made from recycled materials

The solar panels are anticipated to produce more electrical power than will be needed by the facility. The excess power will feed back into the Brookings area electrical grid, with OPRD receiving credit on its bill for the electricity from Coos-Curry Electric Cooperative, Inc. This credit will help heat and light the building when demand exceeds electricity production. With a geothermal radiant floor heating and cooling system, natural lighting and a solar water heater, the building is designed to use less electricity than most structures its size.

The center's countertops will likely attract the most visitor attention. Produced from trees less than 20 miles away, the countertops were cut from raw, seasoned myrtlewood planks.

LOCAL PARK AND RECREATION PROVIDERS IN OREGON

In addition to OPRD's sustainability efforts, there are numerous examples of new park development featuring sustainable practices undertaken by local park and recreation providers throughout the State of Oregon. The following five examples are just a small sample of the excellent work that is currently underway.

TALKING WATER GARDENS

Talking Water Gardens, located in the City of Albany (owned and operated by the city), is the nation's first public/private constructed wetland, featuring a series of hydrological features within the 50-acre site. The constructed wetland, fed by secondary level treated wastewater from the Albany-Millersburg Water Reclamation Facility and treated effluent from metal manufacturer ATI Wah Chang, is designed to replicate natural water purification processes. The design of the landscaping and the waterfalls was completed by Hoichi Kurisu of Kurisu International.

The project is primarily aimed at reducing the water temperature of the treated water, especially during the warmer months before flowing into the local watershed. It is anticipated the water temperature will be reduced by as much as five degrees during the month of August. Talking Water Gardens will provide removal of an estimated 4,000 pounds of nitrogen and 40 pounds of phosphorus daily. The natural purification at work in this wetlands environment includes uptake and filtering by plants, microbial conversion, volatilization, adsorption, and deposition. Aerobic and anaerobic biological processes in wetlands neutralize and capture most of the dissolved nutrients and elements from the water, resulting in the discharge of cleaner water.

Talking Water Gardens design includes:

- 37 acres of wetland cells, one to five feet deep, containing extensive stands of emergent vegetation and open-water habitat areas.
- Waterfalls and weirs to provide aeration, mixing, and sound (thus, the namesake Talking Water) Inflow points are designed as rock waterfalls varying in height from a one-foot drop to cascades of 15 feet in height. In many cases, the natural topography is used to provide aeration and mixing by waterfalls to enrich the oxygen content in the water and enhance plant and organism growth that will consume the nutrients. One waterfall flows over the foundation of a prior mill site.
- Plantings of floating wetlands vegetation, wildflowers, marsh plants, scrubs and trees help to prevent erosion and reduce water temperature by providing shade in the wetland cells. Plants were selected to provide an aesthetically pleasing and varied natural environment, which enhances biodiversity and wildlife habitat.
- Interpretive displays along trails explain the hydrological forces at work within the wetlands which naturally improves the water quality of the wastewater and effluent before it is returned to nearby streams.

Sustainable Parking Lot--Oregon Garden

A sustainable parking lot at the Oregon Garden, located in Silverton, utilizes landscaping along the upper parking lots to filter pollutants from parking lot runoff. The new landscape features primarily Mediterranean and other drought-tolerant trees, shrubs, perennials, and grasses to minimize the use of water, fertilizer, and on-going maintenance. Data is being collected by Sustainable Plant Resources and Outreach (SPROUT) on flowering and growth, cold-hardiness, and the overall landscape worthiness of the individual plant species. Following the establishment year, data will be collected to compare these characteristics for non-irrigated versus occasionally irrigated sections of the landscape.

The climate conditions of western Oregon result in significant summer drought stress on landscape plants used in the Willamette Valley, with most landscapes requiring irrigation for best performance or even survival. Landscapes installed in parking lots or other streetscapes are often subject to additional stresses due to poor soil conditions and the excess heat load from the paved surfaces surrounding landscaped areas. Mediterranean plants are well-adapted to summer drought and poor soil conditions typical of urban Oregon. Plants such as strawberry tree (*Arbutus unedo*), rockrose (*Cistus* spp.), California lilac (*Ceanothus* spp.) and lauristinus (*Viburnum tinus*) are now being grown in Oregon. Most Mediterranean plants are still rarely cultivated in Oregon and rarely used where they would be best adapted, such as in streetscapes.

Signage and brochures at the Oregon Garden's sustainable parking lot landscape site explain the purpose of the research and its methodology. The individual plant species are also labeled.

East Thornton Lake Natural Area

In November 2010, the City of Albany acquired a 27-acre property in north Albany. The acquisition was supported with a grant from the OPRD-administered Local Government Grant Program. The City intends to establish the East Thornton Lake Natural Area (ETLNA) and develop the Kalapuya Interpretive Center. East Thornton Lake Natural Area will be a place to discover native plants and wildlife which are disappearing from the Willamette Valley and already absent from most urbanized areas. Visitors will experience a recovering oak savanna on the only natural lake within Albany's limits, a remnant of the Willamette River's ever-changing path through this region. Trails, a pavilion, and a nature-based playground will teach children about the history of the relationships between nature and humans, for both the Kalapuya Native-American people and European settlers.

- Public Access / Park
- Priority Habitat 1 –Freshwater aquatic beds / Freshwater emergent marshes
- Priority Habitat 2 –Riparian forest and shrub
- Priority Habitat 3 –Western Oregon upland prairie and oak savanna (to be restored)
- Priority Habitat 4 –Wooded riparian habitat restoration
- Property Boundary

Oregon Hills Park

The concept of sustainability is very important to the City of Medford, both to ensure the longevity of facilities and to promote environmental stewardship among city residents. The Oregon Hills Park master planning process included three well attended public meetings. During these meetings, several planning options were evaluated and reviewed. The Medford Parks and Recreation Commission also held additional public meetings and recommended the adoption of a final master plan which included Sustainable Park design principles and natural play elements. These recommendations included:

- The development of a 100-year storm water detention facility for storm water collection and flood control.
- Use of bioswales to divert runoff to a detention pond for groundwater recharge. Runoff from the roof and concrete surfaces will be directed into a trickle way flowing to a detention pond.
- Photo voltaic panels located on the picnic shelter roof will feed into a solar net metering system. A solar water pre-heater will be installed on the restroom roof to provide heated water for the restroom facility.
- A "water buckets" play system will include a water recycling/filtration system.
- The project will evaluate existing site conditions, including soils, ecosystems, solar exposures, and other factors to ensure long-term native species planting success and habitat restoration. A botanist will also identify existing native vegetation on site and identify how native plant species can be integrated into the project's landscape plan.
- Wood from a redwood tree that recently died will be used for the base of a proposed tree house and an ADA bridge to the tree house.
- Turf will be minimized. An approximately 0.7 acre area within the core of the 3-acre Natural Play area will be planted with native grasses, flowers and herbs These native plantings will attract insects, birds, other wildlife while providing a place for children to explore.

Graham Oaks Nature Park

Graham Oaks Nature Park, in the City of Wilsonville, features sustainable design and construction elements including pervious pavement, solar panels, an “ecoroof,” and local stonework. The pervious pavement in the parking lot addresses stormwater and removes pollutants. The solar panels on the restroom feed into the City of Wilsonville's electric grid. Columbia River Gorge basalt stone was used for stonework on the plazas and overlooks.

Other sustainable features include:

- Interpretative sign posts were made by a local artist using recycled steel. The wood used for the trellis structures is certified by the Forest Stewardship Council as sustainably harvested.

- Columns on the picnic shelter were built with Columbia River Gorge basalt. The shelter's “ecoroof” is designed to absorb stormwater.

- Native ornamental plantings from Metro Portland’s Native Plant Center were used for landscaping along walkways at the Gateway Plaza. Until established, the plants are nurtured by a water-efficient irrigation system.

- A pedestrian bridge crossing Arrowhead Creek was reused from another park site.

- The low-impact parking lot design incorporates pervious pavement and stormwater swales planted with native trees, shrubs, grasses and wildflowers to improve water quality.

- The park was built using low-impact, environmentally appropriate, locally produced materials, such as the restroom (a pre-fab kit from Roseburg) and the “ecoroof” on the picnic shelter (from Baker City).

SUSTAINABILITY RECOMMENDATIONS FOR OPRD ADMINISTERED GRANT PROGRAMS

OPRD will modify existing sustainability criteria for the OPRD-administered Land and Water Conservation Fund (LWCF) grant program and consider using them in other OPRD-administered grant programs. Separate sustainability evaluation criteria are proposed for Land Acquisition, New Facility Development, and Major Rehabilitation projects. Since trail projects have unique design considerations, a separate set of sustainability criteria are included for evaluating trail project proposals

Land Acquisition—Three (3) points will be awarded for each sustainable land acquisition practice up to a maximum of fifteen (15) points. Eligible sustainable practices include:

- Project protects and enhances floodplain functions.
- Land is purchased to prevent or reduce erosion, sedimentation, and/or to improve water quality.
- Land is purchased to protect or restore damaged ecosystems.
- Land is purchased to protect or enhance identified sensitive or endangered species.
- Land is purchased to protect cultural and/or scenic byways.
- Project will involve the removal of non-native invasive species from the site.
- Project will create a diverse set of recreational experiences which are currently unavailable in the local area—addresses an identified unmet need.
- Access to the project site is easily available by foot (1/2 mile), non-motorized vehicles, or public transportation.
- Project will reduce current costs to the public and/or result in an increase in property values.

New Facility Development—Three (3) points will be awarded for each sustainable new facility development practice up to a maximum of fifteen (15) points. Separate criteria are included for development projects and activity based projects. Eligible sustainable practices include:

Development Projects

- Project protects endangered species, restore habitat, and maximize open space.
- Careful site selection so that new park sites protect existing ecosystems and sensitive habitat areas and utilize in-fills for new developed park locations.
- Project maintains water features, including shorelines and riparian areas to conserve water and other resources.
- Project uses water efficient landscaping and use of native species.
- Project increases the number of native trees.

- Project increases conversion to renewable energy sources
- Project includes the use of solar energy sources for exterior lighting, parking lots, restrooms, etc.
- Project includes the use of a centrally controlled irrigation system.
- Project utilizes recycled water for landscape irrigation.
- Project provides public recycling containers at all developed park and recreation facilities.
- Project involves the control and management of invasive plants found on the site.
- Project is designed to restore damaged ecosystems.
- Project incorporates passive solar heating, daylighting, and natural cooling.
- Project includes gray water collection for landscaping irrigation.
- Project is designed for storm water retention and/or includes partnering with local flood control entities so that the project is designed to contribute to large-scale flood protection efforts.
- Project includes the use of bioswales to handle storm run-off.
- New buildings are a minimum LEED Silver.
- Project involves the use of impervious surfaces.

Activity Based Projects

- Project will provide new access for the public to recreate in sensitive natural/preserved areas using boardwalks, trails, fishing piers, platforms, etc.
- Project will create a diverse set of recreational experiences which are currently unavailable in the local area—addresses an identified unmet need.
- Project will increase public awareness of the benefits of natural/preserved areas with interpretive signs, educational brochures/posters, etc.
- Project includes a Community Garden for local residents to grow edible food products and interact with other local residents.
- Project includes an edible landscape demonstration garden within site.
- Project is designed to encourage physical fitness and reduce the obesity rate among Oregon residents.
- Project will increase equitable distribution of park and recreation facilities and provide for an unmet need.
- Project will provide recreational opportunities for underserved populations.

Major Rehabilitation—Three (3) points will be awarded for each sustainable practice up to a maximum of fifteen (15) points. Separate criteria are included for development projects and activity based projects. Eligible sustainable practices include:

Development Projects

- Project increases conversion to renewable energy sources.
- Project includes the use of solar energy sources for exterior lighting, parking lots, restrooms, etc.

- Project reduces energy demand for the park site.
- Project reduces water use and increases plantings of native species.
- Project includes the use of a centrally controlled irrigation system.
- Project utilizes recycled water for landscape irrigation.
- Project provides public recycling containers at all developed park and recreation facilities.
- Project involves the control and management of invasive plants found on the site.
- Project increases the number of native trees.
- Project is designed to restore damaged ecosystems.
- Project incorporates passive solar heating, daylighting, and natural cooling.
- Project includes gray water collection for landscaping irrigation.
- Project includes the use of bioswales and is designed for storm water retention and/or includes partnering with local flood control entities so that the project is designed to contribute to large-scale flood protection efforts.
- Project includes the use of redeveloped buildings that are a minimum LEED Silver.
- Project involves an appropriate use of pervious or impervious surfaces.

Activity Based Projects

- Project will provide new access for the public to recreate in sensitive natural/preserved areas using boardwalks, trails, fishing piers, platforms, etc.
- Project will increase public awareness of the benefits of natural/preserved areas with interpretive signs, educational brochures/posters, etc.
- Project will increase equitable distribution of park and recreation facilities and provide for an unmet need.
- Project provides the opportunity to enhance physical, mental, and social well-being as a result of interaction with nature.
- Project includes development of interactive areas such as a community garden, natural play area, or other such facility, for local residents to grow edible food products and interact with other local residents.
- Project includes edible landscape demonstration gardens within site.
- Project is designed to encourage physical fitness and reduce the obesity rate among Oregon residents.
- Project will create a diverse set of recreational experiences which are currently unavailable in the local area—addresses an identified unmet need.

Trails—Three (3) points will be awarded for each sustainable practice up to a maximum of fifteen (15) points. The trail project will result in a well-designed, managed and sustainable trail or trail system. The applicant should provide description of intent, strategies, documentation of results, and long-term

management plans. Separate criteria are included for development projects and activity based projects. Eligible sustainable practices include:

Development Projects

- Trail project involves an appropriate use of pervious or impervious surfaces.
- Trail will require less maintenance through sound construction techniques and using materials designed for long term self-sustaining use and by using on-site materials as much as possible. This may include alignment using natural topography, hydrologic techniques, and proper slope of and around the trail.
- Trail design and alignment to reduce water runoff and water retention on the trail tread.

Activity Based Projects

- Trail is designed for alternative transportation including bicycle storage, changing rooms and plug-in facilities for electric vehicles.
- Trail route will improve linkages to and between Federal trail systems, neighborhood, community and regional trails, community parks and other public facilities, scenic overlooks, historical sites, rivers/lakes, local communities and/or promote safe routes to schools.
- Project includes the development of a portion of a regionally significant trail which is part of a larger trail system and has the benefit of increased economic activity through recreational concessions.
- Project will provide new access for the public to recreate in sensitive natural/preserved areas using boardwalks, trails, fishing piers, platforms, etc.
- Project will increase public awareness of the benefits of natural/preserved areas with interpretive signs, educational brochures/posters, etc.
- A trail project that includes the development of multi-use trails. The applicant must identify which of the trail user groups included will be allowed to use the trail.

SUSTAINABILITY PERFORMANCE IMPROVEMENT SYSTEM

For any large-scale sustainability effort to be successful, it must begin locally. Local park and recreation providers and other land management organizations have multiple roles with regards to sustainability—convener, manager, cheerleader, advocate, implementer, and keeper of the vision. Public and private recreation providers must balance the pragmatic with the philosophical, the practical with the ideal, and the tangible with the intangible. Most of all, these organizations must show by their actions how to lead by example, set the pace for change, create the momentum for innovation and demonstrate the benefits of sustainable practices.

Sustainability efforts will not succeed without a dedicated park staff committed to change, leading programs, creating collaborations, and communicating the benefits of sustainable practices. More importantly, sustainability will not succeed without park providers setting benchmarks, goals, objectives and continual reevaluation of sustainable practices.

The Sustainable Performance Improvement System recommended in this document is designed to guide park and recreation agencies in the development and implementation of a sustainability program and to increase transparency and accountability for the park provider's sustainable activities. This recommended plan of action is designed to guide specific sustainability efforts, yet also allow for creativity in developing new strategies. Recommended actions for parks and recreation providers to implement a successful sustainability program include:

- Create civic engagement across all sectors of the public through engagement and collaboration.
- Emphasize action over analysis. Because of the strong sense of urgency, it is important to create a process that includes action-oriented strategies, recognizing that there is time for ongoing research and continued benchmarking.
- Act in the short-term while thinking in the long-term. Just as the problems developed over a long period of time, park and recreation providers will not create sustainable facilities overnight.
- Maintain flexibility in order to adapt to changing conditions. Sustainability actions must continually evolve. There should be a system in place to establish baselines, evaluate the effectiveness of sustainability practices, and improve practices as needed.
- Create momentum for change by supporting both grassroots innovations. These strategies offer opportunities for quick wins as well as the chance to set in motion fundamental public sector structural and policy changes.

Step One--Conduct a Self-Assessment

The Sustainable Park and Recreation Practices Score Card Self-Assessment (found in Appendix A), is a means by which park and recreation providers can evaluate their current level of sustainability practices and identify areas to improve in design, construction, and operational policies. The Self-Assessment

provides the opportunity for park and recreation providers to track changes in sustainability practices overtime and to bring about further modifications in design, construction, operational policies, and practices which promote sustainable practices.

Step Two--Identify Indicators

Indicators are instruments for understanding, communicating, and evaluating sustainable practices. If available for different years, the data can be aggregated to time series, creating indicators to identify trends. Indicators consist of "key data", representing the state of an environmental, economic or social condition. Establishing indicators for sustainability will enable progress reporting and continuous improvement. Examples of indicators include:

- Water use
- Access to recreational and nature opportunities
- Electricity used
- Tons of garbage, recycleables, etc.
- Acreage of native vegetation/habitat areas protected
- Acreage of turf and high irrigation demand landscaped areas
- Trees planted and protected in parklands and open space

Step Three--Establish a Baseline

A baseline establishes the point from which measurements can be made. The sustainability baseline and performance measurement system should be designed to be accomplished using data that is easily generated through existing processes

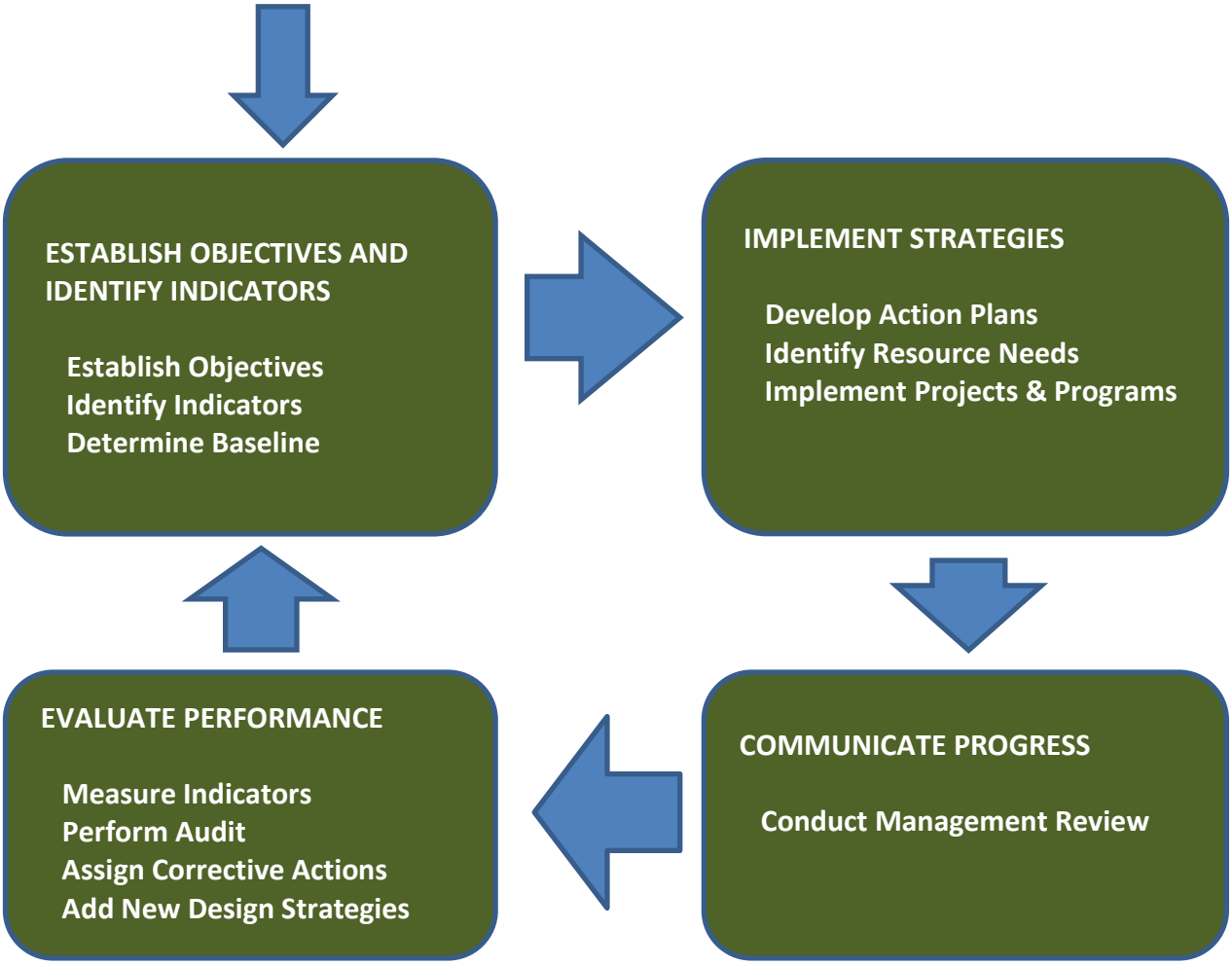
Step Four--Evaluate Progress

The effectiveness of a sustainability practice can be evaluated by measuring and tracking indicators, as compared to the baseline. It is helpful to set benchmarks for achieving sustainability goals. For example, a goal may be to reduce irrigation water use by 30% over a five-year period. A benchmark for water use could be established annually, i.e. an annual reduction of 10% from baseline, to assist the park manager in evaluating their progress.

Step Five--Adding New Sustainable Design Strategies

The Sustainable Guidelines Checklist (found in Appendix B), was adapted from recommendations provided by The Sustainable Sites Initiative, Leadership in Energy and Environmental Design (LEED), and the Green Building Pages. Use of this checklist will assist communities with incorporating sustainable practices in design, construction, and maintenance of park projects. A list of other sustainable practices web-based resources is included in Appendix C.

THE ONGOING PROCESS OF A SUSTAINABILITY PERFORMANCE IMPROVEMENT SYSTEM



APPENDIX A

SELF ASSESSMENT
SUSTAINABLE PARK AND RECREATION PRACTICES SCORE CARD

This is a self-evaluation tool for use by park and recreation providers in Oregon. Please look over each category and determine who within your organization would best be able to answer the questions related to that category. Some questions are repeated in different sections. All questions require a simple "YES" or "NO" response. All "YES" responses score the amount of points indicated at the end of the question. A "NO" response scores no points on that question.

SUSTAINABLE PRACTICES SCORE CARD – ADMINISTRATION & FINANCE

Question #	Yes	No	Points
1 Does your agency have a board/commission approved sustainable practices policy or set of guidelines that helps it become more environmentally responsible? **(2 points)**			
2 Do all full-time staff members receive an orientation to your agency's sustainable policy? **(1 point)**			
3 Does your agency offer at a minimum annual training and reinforcement of the policy or guidelines? **(1 point)**			
4 Do staff members participate in an agency sustainable practices committee and/or are there designated and trained staff members to review, update and/or enforce environmental policy? **(2 points)**			
5 Has your agency dedicated funds in its operations and/or capital budgets to support achievement of environmental goals (e.g., recycling, energy audits, natural area acquisition, landscape restoration, environmentally friendly purchasing, etc.) for the past three years? **(2 points)**			
6 Has your agency applied for grant funds for environmental initiatives (e.g., recycling, environmental education, natural area restoration, alternative fuel use)? **(1 point)**			

7 Are audit procedures in place to evaluate positive enduring effects and to examine the costs of environmental impacts, as well as costs and efficiency, of various plans and programs following implementation? **(1 point)**			
8 Does your agency try to purchase products and services using E.P.A.'s Environmentally Preferred Products (EPP) program, Green seal.org or a similar set of guidelines to assist you in the purchase of environmentally preferred products and services? **(1 point)**			
9 Has your agency developed a purchasing list of environmentally friendly products? **(1 point)**			
10 Does your agency participate in collaborative environmental efforts with other public or private organizations? **(1 point)**			
11 Does your agency track utility use (water, electric, gas, etc.) on a regular and on-going basis comparing month to month and prior year use patterns? **(1 point)**			

TOTAL POINTS _____/14

SUSTAINABLE PRACTICES SCORE CARD – FACILITY MANAGEMENT & MAINTENANCE

Question #	**YES**	**NO**	**POINTS**
1 Does your agency provide opportunities for staff and patrons to recycle waste products in office areas, classrooms, and public areas, including lobbies, facilities, campgrounds, etc.? **(1 point)**			
2 Are recycling containers visible, well-marked and easy to locate? **(1 point)**			
3 Are staff and the public encouraged to recycle via policies, training and memoranda? **(1 point)**			
4 Does your agency make conscious efforts within all departments to purchase products made from recycled and recyclable content? **(1 point)**			

5 Does your agency encourage the use of electronic communication as a means of conserving paper and reducing travel costs? **(1 point)**			
6 Are outside concessionaries required by contract to minimize the use of disposable products and provide recycling for patrons? **(1 point)**			
7 Does your agency seek to avoid the use of chlorine-bleached paper for printing needs? **(1 point)**			
8 Do restrooms and locker rooms have water saving devices such as low-flow showers and toilets, motion activated faucets and/or motion activated hand dryers rather than paper towels? **(1 point)**			
9 Does your agency conduct energy audits? **(1 point)**			
10 Does your agency use energy-efficient lighting (fluorescent, compact fluorescent, motion-activated lighting in restrooms)? **(1 point)**			
11 Does or has your agency included energy efficiency as a specification when purchasing or replacing major appliances? **(1 point)**			
12 Are hot water heaters and hot water pipes insulated? **(1 point)**			
13 Do facility HVAC systems include energy savings features such as minimum/maximum settings designated to reduce use during down time, interior air recycling, regular cleaning and efficiency inspections, etc.? **(1 point)**			
14 Does your agency promote the use of environment friendly, low-toxicity and/or fragrance-free cleaning products? **(1 point)**			
15 Does your agency seek to minimize the use of petroleum-based cleaners, solvents and inks? **(1 point)**			
16 Does your agency seek to purchase office supplies, carpeting and furniture with low VOCs (volatile organic compounds) as a way to improve and protect indoor air quality? **(1 point)**			

17 Do any agency facilities make use of alternative energy systems to provide energy and/or conserve energy, such as passive or active solar systems, wind energy, or geothermal energy? **(1 point)**			

TOTAL POINTS _____/17

SUSTAINABLE PRACTICES SCORE CARD – FLEET MAINTENANCE

Question #	YES	NO	POINTS
1 Does your agency perform regular engine tune-ups and scheduled maintenance of motorized vehicle fleets? **(1 point)**			
2 Does your agency properly dispose of all vehicle fluids and engine parts? **(1 point)**			
3 Does your agency properly use, store, and dispose of hazardous materials according to material safety data sheets and/or manufacturers labels? **(1 point)**			
4 Does your agency have a safety policy and training procedure in place regarding the handling of hazardous materials? **(1 point)**			
5 Does your agency provide the proper work environment with appropriate ventilation and safety gear for employees when handling hazardous materials? **(1 point)**			
6 Does your agency have a program to reduce water consumption and energy use (e.g., fuel for vehicles, equipment, electricity and gas for heating)? **(1 point)**			
7 Has your agency recently applied for grants that promote and provide the means for the use of clean energy (e.g., bio-diesel, E-85, LPG, etc.)? **(1 point)**			
8 As part of your equipment asset replacement program, has your agency replaced or does your agency have plans to replace vehicles with alternative fuel, hybrid vehicles, and/or electric vehicles? **(1 point)**			

9 Does your agency limit the use and refueling of, or not use at all, gas powered equipment and vehicles during ozone action days? **(1 point)**			
10 Has your agency performed a vehicle audit to ensure the right-sizing of park maintenance vehicles? **(1 point)**			

TOTAL POINTS _____/10

SUSTAINABLE PRACTICES SCORE CARD – PLANNING & OPEN SPACE PRESERVATION

Question #	YES	NO	POINTS
1 Does your agency seek to identify and acquire remnant grasslands, wetlands, streams, rivers, floodplains, greenways, etc., in order to protect/provide habitats for flora and fauna and/or to prevent erosion, sedimentation and/or to improve water quality? **(1 point)**			
2 Does your agency provide access for the public to recreate in sensitive natural/preserved areas using boardwalks, trails, fishing piers, platforms, etc.? **(1 point)**			
3 Does your agency increase public awareness of the benefits of natural/preserved areas with interpretive signs, educational brochures/posters and programs? **(2 points)**			
4 Does your agency create/maintain working relationships with other municipalities, land conservations and private landowners to ensure community-supported protection of open spaces? **(1 point)**			
5 Is your agency committed to incorporating best management practices when designing park property including the use of native landscaping, rain gardens, bio-swales, etc.? **(1 point)**			
6 Has your agency recently applied for grants that improve water quality and bank stabilization in wetlands, ponds, streams, etc.? **(1 point)**			

7 Does your agency partner with other organizations and/or local developers in order to provide information to prospective home buyers on best practices for living around natural areas or man-made water detention sites? **(1 point)**			
8 Does your agency's planning department and natural resource maintenance staff work together on site plans for traditional parks and facilities landscapes? **(1 point)**			
9 Does your agency determine annual operations and maintenance costs and identify long-term source of funding prior to the initiation of new park construction projects? **(2 points)**			
10 Does your agency follow guidelines and performance benchmarks for development as detailed by the Sustainable Site Initiative? (www.sustainablesites.org/) **(1 point)**			
11 Has your agency developed Sustainable Park Design Guidelines for new construction projects? Guidelines should include a "checklist" as a part of the design plan review process for new construction projects**. (1 point)**			
12 Has your agency analyzed the feasibility of implementing solar energy sources in park designs for exterior lighting, parking lots, restrooms, etc.? **(1 point)**			
13 Has your agency implemented any small-scale renewable energy demonstration projects and/or solar lighting projects? **(1 point)**			
14 Does your agency encourage site development that is accessible by pedestrians and bicyclists and near public transit to reduce pollution and improve human health? **(1 point)**			
15 Has your agency developed a policy that requires LEED Silver certification on all new buildings? **(1 point)**			
16 Does your agency partner with local flood control/stormwater entities to contribute to flood protection efforts and groundwater recharge? **(1 point)**			
17 Does your agency design and install centrally located irrigation systems in all new parks and/or renovations of existing sites? **(1 point)**			

18 Does your agency design where possible, for the utilization of impervious surfaces and a reduced overall use of turf? **(1 point)**			

TOTAL POINTS _____/20

SUSTAINABLE PRACTICES SCORE CARD – PARKS & NATURAL RESOURCES MANAGEMENT

Question #	YES	NO	POINTS
1 Does your agency's operating budget contain regular funding for natural resource management? **(1 point)**			
2 Does your agency have a maintenance and management plan in place for natural areas that utilizes best environmental practices for improving natural areas, exotic species control and increasing biodiversity? **(2 points)**			
3 Does your agency try to reduce the use of fertilizers and pesticides in parks by using drought and disease-resistant native plant species and eliminating mowing in some areas? **(1 point)**			
4 Does your agency provide a no-mow buffer of native vegetation around water bodies to reduce erosion and non-point pollution? **(1 point)**			
5 Does your agency practice soil and landscape management techniques to control exotic species establishment? **(1 point)**			
6 Is landscaping around facilities designed with energy conservation in mind (e.g., windbreaks, and/or shade trees along south exposures, and/or drought tolerant native plants)? **(1 point)**			
7 Does your agency plant trees, shrubs and evergreens in strategic locations in and around paved areas to provide shade and wind buffers? **(1 point)**			
8 Does your agency have a native plant policy that details, identifies, and requires the planting of acceptable plant species? **(1 point)**			

9 Does your agency have an integrated pest management program to reduce the use of pesticides within parks? **(1 point)**			
10 Does your agency use alternative and/or biological pest control practices in place of traditional chemical solutions (e.g., use of purple loosestrife, beetles, dormant oils, etc.)? **(1 point)**			
11 Has your agency recently applied for grants that improve water quality and bank stabilization in wetlands, ponds, and streams? **(1 point)**			
12 Does your agency distribute educational pamphlets or have interpretative signs in place at parks that explain natural resource management practices? **(2 points)**			
13 Does your agency use grassland or woodland restoration or bio-swales to reduce maintenance costs, control erosion or promote wildlife habitat? **(1 point)**			
14 Does your agency have demonstration areas landscaped with native plants within golf courses or other more traditional park landscapes? **(1 point)**			
15 Does your agency incorporate native planting schemes into the landscape of your offices, parks and facilities? **(1 point)**			
16 Is your agency responsible to private landowner activities that impact your natural area management (encroachment, dumping, private waterway ownership, etc.)? **(1 point)**			
17 Has your agency developed a green waste/composting benchmark and established this as a park maintenance standard? **(1 point)**			
18 Has your agency developed and implemented an urban tree and forest management and development plan? **(1 point)**			
19 Has your agency implemented a program for the removal of non-natives from natural and open space areas including long-term maintenance of the site? **(1 point)**			

20 Does your agency have or sponsor a community garden or P-Patch program to educate the public on how to garden and grow their own food? **(1 point)**			
21 Does your agency utilize recycled water for landscape irrigation? (1 point)			
22 Has your agency developed a soil management plan with regular soil testing which includes at a minimum soil texture, infiltration rate, pH, soluble salts and sodium? **(1 point)**			
23 Does your agency ensure that park and recreation uses adjacent to natural areas, open space and/or sensitive habitat are compatible? **(1 point)**			

TOTAL POINTS _____/25

SUSTAINABLE PRACTICES SCORE CARD – PROGRAMMING

Question #	**YES**	**NO**	**POINTS**
1 Does your agency own and operate a nature center? If not, does your agency provide regular nature education or nature interpretive programming for residents within its parks or facilities? **(1 point)**			
2 Does your agency partner with local groups to provide specific programming (e.g., Audubon Society, local garden clubs, Master Gardeners, etc.)? **(2 points)**			
3 Does your agency provide programs for the public regarding environmental lifestyle choices/environmental living (e.g. native or organic gardening, living lightly, composting, etc.)? **(1 point)**			
4 Are educational programs, pamphlets, news articles or cable television utilized to inform residents and homeowner associations of alternative landscape options? **(1 point)**			
5 Do staff members plan projects and purchase supplies using written environmental criteria that might include minimal packaging, recycled and recyclable content, made from renewable resources, etc.? (**1 point)**			

6 Does your agency provide recycling for facility rentals, special events and outside vendors? **(1 point)**			
7 Does your agency have and/or support a volunteer program to aid in land management and/or environmental education? **(1 point)**			
8 Are program staff provided training and encouragement from supervisors in energy and resource conservation (thermostat settings, lights, recycling, etc.)? **(1 point)**			
9 Has your agency recently applied for grants to fund environmental programs or interpretative initiatives? **(1 point)**			
10 Do public or special events provide opportunities for vendor and public participation in recycling efforts? **(1 point)**			
11 Does your agency clearly communicate its energy conservation program to public officials, staff, and park/facility patrons? **(2 points)**			
12 Does your agency promote volunteerism within parks to create opportunities for the public to be directly involved in the protection, maintenance, and enhancement of parks, natural areas and open spaces? **(1 point)**			

TOTAL POINTS _____/14

GRAND TOTAL POINTS _____/100

APPENDIX B

SUSTAINABLE GUIDELINES CHECKLIST

This is a checklist outlining optimal sustainable design strategies for Sustainable Parks. This checklist was adapted from recommendations provided by The Sustainable Sites Initiative, Leadership in Energy and Environmental Design (LEED), and the Green Building Pages. The checklist is organized into five sections: Design, Site Issues, Materials/Landscaping, Equipment, and Jobsite and Operational Practices. Use of this checklist will assist communities with incorporating sustainable practices in design, construction, and maintenance of park projects. Not every item will be suitable to a specific project or community. Instead, it is intended to provide an overall range of opportunities which may be incorporated and utilized.

DESIGN

xx	**DESIGN SUSTAINABILITY RECOMMENDATION/GUIDELINE**
	If possible, select brownfields or greyfields for development.
	Protect endangered species, restore habitat, and maximize open space.
	Design for alternative transportation including bicycle storage, changing rooms and plug-in facilities for electric vehicles.
	Maintain water features, including shorelines and riparian areas to conserve water and other resources.
	Consider all issues regarding the lifecycle of materials in order to ensure most appropriate and least damaging selection and design.
	Design using high levels of insulation, high-performance windows, and tight construction.
	Design buildings and park features to incorporate and use renewable energy.
	Incorporate passive solar heating, day lighting, and natural cooling.
	Consider solar water heating and photovoltaics, or design buildings for future panel installation.
	Ensure the detail design of appliances and energy sources results in a reduction in the building's operational energy impact across all seasons.
	Design water efficient, low maintenance landscaping.
	Design landscaping first utilizing native plants and then considering other appropriate drought resistant species.
	Evaluate the feasibility of gray water collection and use for landscape irrigation.
	Consider rooftop water catchment for outdoor watering should be considered in many regions.

	Design to encourage and permit the collection of recyclables.
	Make provisions for storage and processing of recyclables: recycling bins near the kitchen, undersink door mounted bucket with lid for compostable food waste, etc.
	Reduce light pollution.
	Make the structure adaptable to other uses, and choose materials and components that can be reused or recycled.
	Avoid potential health hazards: radon, mold, pesticides.
	Design insect-resistant detailing that will require minimal use of pesticides.
	Encourage working from home to reduce commuting. Consider home office needs with layout and wiring.

SITE ISSUES

xx	**DESIGN SUSTAINABILITY RECOMMENDATION/GUIDELINE**
	Early in the siting process carry out a careful site evaluation: solar access, soils, vegetation, important natural areas, etc.
	Limit development on soils designated as prime farmland.
	Provide for erosion and sedimentation control during all phases of the project.
	Manage stormwater on site and provide responsible on-site water management.
	Protect floodplain functions.
	Control and manage known invasive plants found on site.
	Create a soil management plan that incorporates the conservation or restoration of appropriate plant biomass on the site.
	Building reuse—Consider renovation of older buildings.
	Select sites that encourage non-motorized transportation and use of public transit.
	Consider the impact on the local community. Selection of park and recreation facilities within existing communities should be a high priority to encourage community cohesive and equitability.
	Encourage in-fill and mixed-use development.
	Leave the most pristine areas untouched, and look for areas that have been previously damaged to build on.
	Seek to restore damaged ecosystems.
	Minimize automobile dependence and locate park and recreation facilities to provide access to public transportation, bicycle paths, and walking access to basic services. Provide for site accessibility, safety, and wayfinding.
	Locate park buildings to minimize environmental impact.
	Cluster buildings or build attached units to preserve open space and wildlife habitats, avoid especially sensitive areas including wetlands, and keep roads and service lines short.

	Provide responsible on-site water management
	Situate buildings to benefit existing vegetation to maximize views of vegetation and quiet outdoor spaces.
	Provide outdoor spaces for social interaction and opportunities for outdoor physical activity.

MATERIALS AND LANDSCAPING

xx	**DESIGN SUSTAINABILITY RECOMMENDATION/GUIDELINE**
	Avoid ozone depleting chemicals in mechanical equipment and insulation.
	Utilize water-efficient landscaping.
	Use vegetation to minimize building heat and cooling requirements.
	Use durable products and building materials which have a record of longer life and reduced maintenance costs.
	Where possible, select building materials that will require little maintenance (painting, retreatment, waterproofing, etc.), or whose maintenance will have minimal environmental impact.
	Where possible purchase locally produced building materials.
	To reduce transportation costs and energy use and pollution generation first look to purchase locally or state-wide rather than materials and products imported to your area.
	Use building products made from recycled materials.
	Where appropriate, to reduce landfill pressure and save natural resources, use salvaged materials: lumber, millwork, certain plumbing fixtures, and hardware. Make sure these materials are safe, and don't sacrifice energy efficiency or water efficiency.
	Avoid materials that will off gas pollutants such as solvent based finishes, adhesives, carpeting, particle board, and many other building products that release formaldehyde and volatile organic compounds into the air.
	Use lumber from independently certified well-managed forests. Avoid lumber products produced from old growth timber when acceptable alternative exist. Such as engineered wood which can be substituted for old growth Douglas fir.
	Minimize use of pressure treated lumber.
	Use detailing that will prevent soil contact and rot and where possible, use alternatives such as recycled plastic lumber.
	Minimize packaging waste and avoid excessive packaging, such as plastic-wrapped plumbing fixtures or fasteners not available in bulk.

EQUIPMENT

xx	DESIGN SUSTAINABILITY RECOMMENDATION/GUIDELINE
	Install high efficiency heating and cooling equipment.
	Install equipment with minimal risk of combustion gas spillage, such as sealed combustion appliances.
	Install high efficiency lights and appliances.
	Install water efficient equipment including low-flow toilets and water free urinals.
	Water conserving toilets, showerheads, and faucet aerators not only reduce water use, they also reduce demand on septic systems or sewage treatment plants. Reducing hot water use also saves energy.
	Install mechanical ventilation equipment.
	Mechanical ventilation is usually required to ensure safe, healthy indoor air. Heat recovery ventilators are preferred in cold climates because of energy savings, but simpler, less expensive exhaust only ventilation systems are also adequate.

JOBSITE AND OPERATIONAL PRACTICES

xx	DESIGN SUSTAINABILITY RECOMMENDATION/GUIDELINE
	Protect trees and topsoil during site work by fencing of the drip line around them.
	Avoid use of pesticides and other chemicals that may leach into the groundwater.
	Minimize job site waste.
	Reduce waste and simplify sorting. Set up clearly marked bins or trash cans for different types of usable waste (wood scraps for kindling, sawdust for compost, etc.).
	Find out where different materials can be taken for recycling, and educate workers about recycling procedures. Donate salvaged materials to low-income housing projects, theater groups, etc.
	Make your office as energy efficient as possible, purchase energy efficient vehicles; arrange carpools to job site, and schedule site visits and errands to minimize unnecessary driving. In your office, purchase recycled office paper and supplies and recycle office paper waste.
	Make education of sustainability practices part of your daily practice.
	Use the design and construction process to educate clients, employees, subcontractors, and the general public about environmental impacts of buildings and how these impacts can be minimized.
	Reduce emissions and promote the use of fuel-efficient vehicles.
	Recycle organic matter generated during site operations and maintenance.

APPENDIX C

SUSTAINABLE PRACTICES RESOURCES

This is a listing of other sustainable practices web-based resources for use by Oregon's park and recreation providers.

National Park Service's Guidelines on Sustainable Principles of Sustainable Design
http://www.nps.gov/dsc/workflows/dssustain.htm

Building Green
http://www.buildinggreen.com/

Puget Sound Partnership's Information on Low Impact Development
http://www.psparchives.com/our_work/stormwater/lid.htm

Sustainable Sites Initiative
http://www.sustainablesites.org/

American Society of Landscape Architects
http://www.asla.org/

Building Green
http://www.buildinggreen.com/

Renewable Energy World
http://www.renewableenergyworld.com/rea/home

Sightline Daily
http://daily.sightline.org/

U.S. Green Building Council
http://www.usgbc.org/

Smart Growth America
http://www.smartgrowthamerica.org/sc-tech-assistance

Green Building Pages
http://www.greenbuildingpages.com/checklist/checklist_jobsite.html