



Portland Water Bureau Sustainability Action Plan

September 2008 Update

Introduction to 2008 Update

The Water Bureau prepared and approved a three year Sustainability Action Plan in 2007. In April 2008, the Bureau's Sustainability Coordinator resigned for family reasons. Without staff in this key position for five months, progress on implementing the plan was somewhat slowed. Our previous efforts to involve a larger number of Bureau staff in sustainability work paid off, however, and many projects continued moving forward. Highlights of FY 07-08 include the following:

- Sustainability Program staff completed a carbon footprint calculation and implemented improvements to recycling facilities downtown and at Interstate.*
- The Bureau's engineering group moved forward with designs for a solar facility at the Groundwater Pump Station.*
- Operations staff, with help from Asset Management, made improvements to energy efficiency in the Burlingame service area.*

We hired a new Sustainability Coordinator, Kim Dinan, in September. We've also developed carbon mitigation strategies based on the data provided by the footprint. We're moving forward guided by the direction in the 2007 plan with appropriate updates as described here.

Significant changes in the 2008 update include the following:

- Added summary of carbon footprint calculation and adopted a carbon mitigation strategy (strategy reflects actions identified in the 2007 plan)*
- Delayed some tasks to accommodate staffing limitations*

This 2008 update is a minor revision of the original 2007-2010 plan. New text, including results in each of the program areas, is shown in italics. A more significant revision of the action plan is anticipated in 2009.

*- Janet Senior
Manager, Sustainability Program*

Water Bureau's Sustainability Vision

The Water Bureau's Management Team adopted a Sustainability Vision in January 2004. Goals endorsed in the vision include the following:

- Reduce operating costs by purchasing materials that are durable and reusable. Consider the environmental and social costs of production, use and disposal of purchased materials.
- Change work processes as needed to make more efficient and cost-effective use of materials, equipment, and natural resources
- Improve health and safety for employees by reducing or eliminating use of, and exposure to, hazardous and toxic materials. Change work processes to reduce exposure to fossil fuel exhaust, noise, and other related hazards.
- Provide training, information and tools for employees to enable them to provide water services in a sustainable manner
- Provide efficient and effective means to recycle used materials and equipment, and enable use of alternative energy and efficient modes of transportation
- Support suitable habitat for fish and wildlife, and healthy ecosystems
- Encourage efficient use of water
- Encourage development of a set of sustainability goals with our regional partners

The bureau's sustainability programs are guided by the vision and by the variety of citywide sustainability mandates adopted by the City Council. These mandates are grouped in the following subject areas:

- global warming
- energy
- paper use
- procurement
- toxics reduction
- green building
- waste prevention and recycling
- "peak oil"

The Bureau is also guided by the 1994 Citywide Sustainability Principles, including the following four goals:

- Support a stable, diverse and equitable economy
- Protect the quality of the air, water, land and other natural resources
- Conserve native vegetation, fish, wildlife habitat and other ecosystems
- Minimize human impacts on ecosystems

Since adopting the 2004 vision, the bureau has made significant strides in sustainability, including:

- Purchasing 60,000 gallons of 99.99% biodiesel (B99) annually. The Portland Water Bureau has the largest fleet in the nation running B99.
- Using 100% recycled content paper for all copy and print orders
- Reducing use of toxic chemical products by more than 30% since 2005

The Water Bureau employs a full-time sustainability coordinator who works closely with staff throughout the bureau as well as with staff from the citywide Office of Sustainable Development. Learn more the bureau's current (2007) sustainability actions in Appendix A.

Other Related Water Bureau Programs

Many of the programs implemented by the Water Bureau on a daily basis are in the general category of "sustainable." This plan is focused, however, on specific high-leverage actions for the period of 2008-2010 and not on all continuing programs with sustainability benefits. Some of the ongoing programs and activities not covered in the Action Plan include the following:

- **Residential Water Conservation:** For more than 16 years, the Portland Water Bureau has provided water conservation programs for residential customers. The residential program uses education and outreach, complemented by rebate programs for targeted customers and pilot projects to test out new water conservation devices. Youth education programs include curriculum posted on our web, classroom visits with activities, and assembly programs. Water providers in the Portland metropolitan area and Metro work together, through the Regional Water Providers Consortium, to get shared conservation messages to all of our residential customers.
- **Business, Industry, & Government (BIG) Water Conservation:** The BIG program helps businesses and multifamily facilities reduce water use by diagnosing increases in water usage, finding inefficient or malfunctioning equipment, and helping to improve existing methods and processes. The primary objective of the program is to reduce water use, particularly during the summer season, using cost-effective, proven water-saving strategies.
- **Bull Run Watershed Protection:** The Bull Run watershed has been Portland's primary water supply since 1895. The more than 100 square mile area is closed to the public to protect drinking water quality. Commercial timber harvest is prohibited. No recreational uses are allowed. Careful attention is paid to protecting the forest ecosystem and preventing contamination of the water supply. Hydroelectric facilities installed at the water supply dams in the 1980s generate approx. 100 megawatts annually, as a byproduct of water system operation. Maintenance projects are scheduled to avoid impacts to wildlife such as northern spotted owls, bald eagle and common loons. More recent sustainability efforts have included installing solar power sources for water quality monitoring stations, and restoring historic log cabins at Bull Run Lake.
- **Bull Run Habitat Conservation Plan:** Since the listings of Lower Columbia River Chinook salmon and steelhead as threatened under the federal Endangered Species Act, the Portland Water Bureau has been working to modify the way we manage our water system operations on the Bull Run River. The Bull Run Habitat Conservation Plan is designed to improve water temperatures, river flows, and habitat conditions in the Bull Run and the Sandy rivers to benefit the threatened fish populations.

- **Groundwater Protection:** The Columbia South Shore Wellfield is the second largest water source in the State of Oregon. This groundwater resource is used as an emergency backup and also provides supplemental supply during the summer demand season. Water is drawn from 25 wells in four aquifers spread over an eleven square mile area. Portions of the protection are located in Portland, Gresham and Fairview; and each of these cities has adopted groundwater protection regulations. The regulations address use and storage of hazardous materials that pose a threat to groundwater. Educational programs are also provided.
- **Low-Income Programs:** Since 1995, the bureau has provided financial assistance to low-income families through the Water/Sewer Low Income Assistance Program. The goal of the program is to help low-income water/sewer customers facing financial hardship. The program consists of crisis assistance, bill discounts, fixture repairs, payment extensions, and interest/penalty write-offs.
- **HydroParks:** The HydroPark program converts suitable water system properties into neighborhood parks and greenspaces, increasing livability of the surrounding neighborhoods. HydroParks are equipped with sustainable features when possible, such as recycled benches and/or picnic tables, water conservation gardens, stormwater swales, and community gardens.
- **Employee Safety and Health:** The Water Bureau is the first city bureau to be honored for performance in preventing injury and illness with Safety and Health Recognition Program (SHARP) certification by the State of Oregon. The program involves a comprehensive audit and inspection of 56 safety program components.
- **Lead Hazard Reduction Program:** The Lead Hazard Reduction Program is an innovative effort to reduce not just on hazards from lead in water but all hazards posed by lead. In addition to water treatment and monitoring, the program provides education, outreach and testing in the Bull Run water supply service area. The program is implemented in coordination with state and local public health agencies.

More information about all of these programs is available on the Water Bureau website: www.portlandonline.com/water.

Sustainability Assessment

In June 2007, the Water Bureau conducted an assessment of the environmental impacts posed by water system operations. This screening level assessment focused on a targeted set of activities, which were selected based on the likelihood of impacts and the potential for making sustainability improvements during the term of this plan. Activities assessed included:

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|----------------------------------|-----------------------------------|
| • Building management | • Fleet |
| • Bull Run watershed maintenance | • Fountains operation/maintenance |
| • Carpenter shop | • Grounds maintenance |
| • Conduit O&M | • Groundwater operation |

- Locates
- Main installation
- Meters
- Office support
- Painting/pressure washing
- Pump stations/tanks
- Security
- Services/hydrants/valves/regulators
- Stores operations
- System leakage
- Tool room/Carpenter shop
- Treatment operations

Water Bureau staff worked with a local non-profit, Zero Waste Alliance, to conduct interviews with key staff involved in each of the targeted activities. The interviews were used to define what the activities involved, what resources were used, and what wastes and recyclable byproducts were produced. The full range of “life cycle” impacts was considered, including those involved in manufacture and disposal.

The assessment resulted in a matrix of High-Med-Low impact ratings. Activities with highest environmental impact included: vehicles, vehicle fuel, equipment fuel, electricity use (including non-renewable sources), chemical use, building energy (heating, cooling, and lighting), employee commute, water use, battery use, and infrastructure materials.

The bureau’s Action Plan addresses all of the high impact areas with the exception of equipment fuel. We see fewer opportunities to make improvements in equipment fuel in the near term, and have chosen to focus our staff resources on other priorities. We will continue to reassess priorities during the three year term of the plan.

Carbon Footprint Calculation

During the spring and summer of 2008, the Water Bureau collected relevant data and then calculated an initial estimate of the Bureau’s “carbon footprint.” We used methodologies of the Greenhouse Gas (GHG) Protocol, a widely recognized international accounting tool. The methodology converts data on natural gas, electricity, and fuel into estimates of the resulting carbon emissions. We recognize that this first estimate is not comprehensive because it does not include various emissions attributable to operation of the water system (e.g., employee commuting, purchased services such as solid waste collection, purchased material such as pipe and concrete, or contracted construction operations). It is, however, a very helpful first look at the water system’s role in the global climate change situation.

The calculation indicates that approximately 80 percent of the Bureau’s footprint results from electrical use. Most of the remaining 20 percent is due to fuel use for vehicles, equipment and air travel. A small portion (2%) is from natural gas, primarily used for heating. The Water Bureau generates approximately 20 percent of the City of Portland’s total carbon emissions due to these sources (electricity, natural gas, and fuel). The table below provides the 2007 summary data.

WB Energy Use and Related Emissions during 2007 Calendar Year		<i>Equivalent carbon emissions in metric tons (CO2e)</i>
<i>Electricity (kWh)</i>	<i>27,335,981</i>	<i>11,420</i>
<i>Natural Gas (therms)</i>	<i>65,914</i>	<i>350</i>
<i>Fleet Fuel – Ultra Low Sulfur Diesel (gallons)</i>	<i>69,315</i>	<i>720</i>
<i>Fleet Fuel – Biodiesel (gallons)</i>	<i>62,946</i>	<i>7</i>
<i>Fleet Fuel – Gasoline (gallons)</i>	<i>154,146</i>	<i>1,390</i>
<i>Employee Air Travel (air miles)</i>	<i>577,237</i>	<i>111</i>
<i>Total</i>		<i>13,998</i>

It is important to note that the amount of electricity used is variable year-to-year, driven - in particular - by the amount of groundwater pumped to help meet seasonal water demand.

The WB Management Team approved a carbon reduction strategy in September 2008. The strategy includes the following elements:

- Plan for the future budget implications of the citywide renewable power agreement*
- Plan for and address energy and carbon implications of facilities associated with LT2*
- Limit employee air travel as feasible (by promoting non-air alternatives)*
- Purchase green tags to offset air miles traveled by employees*
- Adopt purchase criteria for new passenger cars and light trucks*
- Institute greater use of shared vehicle pools and vehicle scheduling*
- Adopt a bureau policy to discourage unnecessary engine idling*
- Update fleet emissions reduction goal*

We will report back on these strategies in next year's update.

Sustainability Action Plan for 2008-2010

Based on the results of the assessment and the Bureau's experience to date with sustainability improvements, a set of Sustainability Actions were selected for the next three years, 2008-2010. Actions are grouped in the following categories:

- Energy*
- Transportation*
- Paper*
- Water*
- Toxics*
- Property Management*

In addition, the Bureau is hard at work institutionalizing sustainability into daily operations of the bureau. Two keys areas of this effort are:

- Asset Management
- Employee Education

Actions in each of these areas are described in the following tables along with related goals, annual targets, staff assignments, and supporting activities. Costs are indicated if the action might require new funding not in current budgets.

A schedule for implementation is also provided. Note that some of the actions are not planned until years 2 or 3, due to anticipated workload and/or budget constraints. The Bureau will do further feasibility analysis prior to implementing any new actions.

Energy

Goals:

- Reduce electrical use in bureau-occupied buildings by 10% from FY 06-07 baseline by July 2010
- Install renewable energy facilities at bureau facilities with minimum capacity of 100 KW by July 2010
- Purchase 100% of bureau's electrical load from wind power sources

Actions	Annual Targets	Staff	Related City Policy
<p>Renewable Energy – Install solar and wind power projects at bureau facilities</p> <p>Capital budget needs for FY 09-10: Range of \$250K for 100kW solar to \$1.3 million for 400kW Solar</p>	<p>Year 1 – Research</p> <p>Year 2 – Identify site potential</p> <p>Year 3 - Install up to 400 kW of renewable energy projects by July 2010</p>	<p>LEAD: WB Renewable Power Group</p>	<p>Global Warming Action Plan</p>
<p>Lamp Replacement - Replace incandescent lights at bureau facilities with compact fluorescent or other high efficiency (low mercury) lighting options</p>	<p>Year 1 – 50% replaced</p> <p>Year 2 – 100% replaced</p> <p>Year 3 – No further action planned</p>	<p>LEAD: Operations – Mike Popp</p> <p><u>Support:</u> Stewardship – Kim Dinan Stores – Craig Sautter</p>	<p>Global Warming Action Plan</p>
<p>Supporting Activities</p>			
<p>Energy Audits - Audit 10 bureau facilities and establish facility-specific energy reduction targets by July 2009</p>	<p>LEAD: Operations – Marc Crowder</p> <p><u>Support</u> Stewardship – Kim Dinan Asset Mgmt – Bryan Robinson Stores – Craig Sautter</p>	<p>Global Warming Action Plan</p>	
<p>Wind Power – Based on Citywide power purchasing agreement</p>	<p>LEAD: OSD – Dave Tooze</p>	<p>Global Warming Action Plan</p>	

2008 update on progress:

- *Solar facility for the groundwater pump station site has been designed. Negotiations with the third party private partner are in progress. Goal is to finish construction before the federal tax credits expire in December 2008. The facility is expected to generate approx. 260,000 kWh annually, which is equivalent to approx. 203 metric tons of CO². The Bureau is also planning to install a 20-30 kW capacity microhydro facility at Vernon Tank.*
- *Replacement of incandescent bulbs and fixtures is nearly complete at both downtown and Interstate facilities. We are evaluating the remaining replacement work to determine schedule/priorities.*
- *Initial planning for energy audits has occurred. Decision was made to collaborate with Asset Management staff to further focus this effort. Earlier AM analyses of energy use have already resulted in a significant operational energy savings at the Fulton-Carolina pump stations (741 gallons pumped per kWh decreased to 620 gallons/kWh).*
- *Negotiation of the citywide renewable power purchasing agreement is still in progress. Our 2008 carbon footprint analysis demonstrates that this purchase agreement will go a long way toward mitigating the Bureau's overall carbon footprint since 80% of our carbon emissions (for sources calculated to date) are related to electrical use.*

Transportation

Goals:

- Achieve carbon neutral status for transportation-related emission impacts
- Improve average overall WB fleet miles per gallon (MPG)* by 2 MPG by July 2010
 - Light duty vehicle (sedans, minivans, SUVs, ¾ ton pick-up trucks and smaller) - 2 MPG by July 2010
 - Large dump trucks (10 – 12 yard) – 1 MPG by July 2010
 - Heavy duty vehicles (service trucks, small dump trucks under 10 yard) -1 MPG by July 2010
 (* Average of all vehicles for all miles driven)
- Reduce miles driven for meetings

Actions	Annual Targets	Staff	Related City Policy
Fuel Efficiency – <ul style="list-style-type: none"> • Analyze fleet needs and opportunities for more efficient matching of fleet to needs • Develop and implement a vehicle idling policy (including exploring alternatives for truck cab heating and cooling) • Expand use of vehicle pools • Improve vehicle scheduling 	Year 1 – Collect baseline data, research existing fleet needs Year 2 – Improve fleet fuel efficiency by 1 MPG over FY 07-08 Year 3 – Improve fleet fuel efficiency by 2 MPG over FY 07-08	LEAD: WB Fleet – Tom Dufala <u>Support</u> Stewardship – Kim Dinan Construction – Charlie Smith Operations – Steve Schenk	Global Warming Action Plan
Biodiesel – Increase percentage of biodiesel to ULSD purchased. May be accomplished through: <ul style="list-style-type: none"> • New vehicle acquisition • Vehicle replacement • Improvements in biodiesel technology to increase blend 	Year 1 – Increase percentage of biodiesel to ULSD purchased by 15% over FY 06-07 baseline Year 2 –20% over FY 06-07 baseline Year 3 –25% over FY 06-07 baseline	LEAD: WB Fleet – Tom Dufala <u>Support</u> Stewardship – Kim Dinan Fuel Supplier – Star Oilco	Global Warming Action Plan
Transportation-related CO2 Emissions - Actions might include: <ul style="list-style-type: none"> • Improving vehicle efficiencies (see above) • Increasing biodiesel purchased (see above) • Purchasing carbon offsets and/or establishing local/rural partnerships to achieve offsets 	Year 1 – Reduce or offset 1 million pounds of CO ₂ emissions Year 2 – Reduce or offset 2 million pounds of CO ₂	LEAD: Stewardship – Kim Dinan <u>Support</u> Fleet – Tom Dufala	Global Warming Action Plan

	Year 3 – Reduce or offset 100% of transportation related CO ₂ emissions	Accounting – Tom Fitzgerald Stewardship – Janet Senior	
Supporting Activities			
Alternative Transportation – Promote alternative transportation options for employee commute to and from work, particularly at Interstate. Encourage reasonable use of mass transit, biking and walking to perform tasks during work hours. <ul style="list-style-type: none"> • Use of bureau sponsored Tri-Met passes • Use of City and Bureau bicycles • Promote “Bike/Walk to Work Bucks” 		LEAD: Stewardship – Kim Dinan <u>Support</u> Stewardship – Matt Weatherly WB Green Team	Global Warming Action Plan
Trip reduction for meetings -- Evaluate mechanisms for tracking miles driven for meetings, particularly between downtown and Interstate, and from remote worksites (e.g., Headworks and Sandy River Station). Identify and promote feasible alternatives to reduce number of trips and number of miles driven (e.g., transit, carpooling and conference calls).		LEAD: Stewardship – Kim Dinan <u>Support</u> ComNet – Mark Ford Office Support – Teresa Chadwell	Global Warming Action Plan

2008 update on progress:

- *We are reevaluating our goal to achieve a 100% reduction or offset of transportation-related emissions in light of our carbon footprint calculation. We plan to develop a revised and more realistic goal as we begin implementing the carbon mitigation strategies discussed above.*
- *Biodiesel purchases substantially increased between FY 06-07 and FY 07-08. Gallons purchased increased to 62,900, and the percentage of biodiesel to ULSD increased from about 0% in 2005 to near 50% in 2007.*
- *All new vehicles purchased are diesel, and miles per gallon efficiency is considered when matching the new vehicle to the program need. We don't yet have an adequate data set to assess improvements in fuel efficiency across the entire fleet. Fuel efficiency will be a focus of attention in FY 08-09.*
- *The Bureau sponsored a “commute challenge” in September 2008 for Engineering staff and others who frequently travel between downtown and interstate for meetings. Purpose was to compare and contrast alternative modes for making the trip, and to generate enthusiasm for trying those alternatives for routine trips. Bureau also worked on bike facility upgrades at Interstate and a “bike buddy” program, as well as a bike safety event for both bike riders and Bureau drivers of large vehicles.*

Paper

Goal: Reduce per-employee paper use by 40% (from FY 03-04 baseline) by July 2010

Actions	Annual Targets	Staff	Related City Policy
<p>Paper Reduction - Educate and encourage employees to reduce paper consumption</p> <ul style="list-style-type: none"> • Reduce paper use via transition to SAP • Install educational signs, and distribute informational articles and other educational pieces • Sponsor employee brown bags on resource efficiency techniques 	<p>Year 1 – Reduce per employee paper use by 30% below FY03-04 baseline</p>	<p>LEAD: Stewardship – Matt Weatherly</p> <p><u>Support</u> Office Support – Chuck Buyukas Stores – Craig Sautter Customer Service – Barbara Streeter Sandy River – Tim Grandle</p>	<p>Sustainable Paper Use Policy</p>
	<p>Year 2 –Reduce per employee paper use by 35% below FY03-04 baseline</p>		
	<p>Year 3 – Reduce per employee paper use by 40% below FY03-04 baseline</p>		

2008 update on progress:

- *Per employee paper use during FY 07-08 was about 26% less than during FY 03-04 (down from a 40%+ decrease from FY 03-04 during FY 06-07).*
- *AEPP paper comprised 83% of all paper purchased during FY 07-08.*

Water

Goal: Reduce water use at bureau facilities by 10% by July 2010

Actions	Annual Targets	Staff	Related City Policy
Water Efficiency – Promote water conservation at bureau facilities and in daily work activities	Year 1 – No new action planned	LEAD: Conservation – Sarah Santner <u>Support</u> Stewardship – Kim Dinan Interstate – Craig Sautter Sandy River – Tim Grandle	
	Year 2 –Initiate water efficiency education		
	Year 3 – Reduce water used for domestic purposes at bureau facilities by 10%		
Supporting Activities			
Water Audits – Conduct water audits at Sandy River Station, Lusted Hill, Headworks, Interstate, a representative pump station, and a representative tank	LEAD: Conservation – Jeff Sandberg <u>Support</u> Stewardship – Kim Dinan Interstate – Craig Sautter Sandy River – Tim Grandle Headworks – Andrew Degner	Green Building Policy	
Water use measurement – Investigate options for measuring water use at Water Bureau facilities by July 2008. Initiate data collection at up to five representative facilities in FY 08-09.	LEAD: Stewardship – Kim Dinan <u>Support</u> Conservation – Jeff Sandberg Asset Mgmt – Eric Brainich Meter shop – Rich Brown	Green Building Policy	

2008 update on progress:

Progress on water use measurement and reduction tasks has been affected by lack of staff availability (both Sustainability Coordinator and Water Conservation staff). Focus on this effort will be renewed in 2009. Water use measurement target has been pushed back to FY 09-10.

Toxics

Goals:

- Eliminate 20 toxic chemical products identified by the Chemical Assessment and Ranking System (CARS) by July 2010
- Reduce quantity of batteries purchased by 20% below FY 06-07 baseline

Actions	Target	Staff	Related City Policy
Chemical Product Analysis - Evaluate hazardous products identified through the Chemical Assessment and Ranking System Analysis. Discontinue use or, where necessary, substitute less toxic alternatives and/or identify safety protocols.	Year 1 – 10 reviews, 2 products eliminated	LEAD: Safety – Eric Fullan	City of Portland and Multnomah County Toxic Reduction Strategy
	Year 2 – 5 reviews, 2 products eliminated	<u>Support</u> Stewardship – Kim Dinan	
	Year 3 – 5 reviews, 1 product eliminated		
Rechargeable Batteries – Pilot the use of rechargeable batteries with water utility locating crews	Year 1 – Identify pilot crew, and purchase recharging equipment and batteries	LEAD: Locators – Dave Johnson	
	Year 2 – Reduce purchase of single use batteries by 10%	<u>Support</u> Stewardship – Matt Weatherly	
	Year 3 – Reduce purchase of single use batteries by 20%	Stores – Craig Sautter	
Supporting Activities			
Facility Review – Audit primary operations facilities for MSDS compliance (Sandy River Station, Lusted Hill, Headworks, Interstate, Paint Shop, Reservoirs, Pump Stations, and Service Vehicles)	LEAD: Safety – Eric Fullan <u>Support</u> Stewardship – Kim Dinan	City of Portland and Multnomah County Toxic Reduction Strategy	

2008 update on progress:

- *Chemical product analysis has been delayed due to lack of staff availability. Targets have been pushed back by one year. Audit of MSDS compliance is complete. Effort is underway to fill gaps in documentation.*
- *Initial pilot of rechargeable batteries with a water utility locate crew is complete; these crews use 3-5,000 single use batteries per year to power a variety of hand-held tools. Results were however inconclusive and analysis continues.*

Property Management

Goals:

- Enhance neighborhood livability and improve neighborhood security through maintaining existing HydroParks and developing 3 additional bureau properties into HydroParks
- Comply with all landscaping practices developed as part of the Bureau of Parks and Recreation Integrated Pest Management program
- Preserve existing trees at bureau facilities and plant new trees for shade and habitat
- Control spread of invasive plants at bureau facilities and in the Bull Run Watershed
- Use of Green Seal Certified cleaning products at Bureau facilities by July 2010
- Maintain BlueWorks Certification through July 2010

Actions	Annual Targets	Staff	Related City Policies
HydroParks – As of July 2007 the bureau has 5 HydroPark facilities. Develop 3 more by 2010.	Year 1 – Identify and develop 1 HydroPark Year 2 – Identify and develop 1 HydroPark Year 3 – Identify and develop 1 HydroPark	LEAD: Property – Tom Klutz <u>Support</u> Property – Darcy Cronin Grounds – Rich Rice Security – Roger Hediger Neighborhood Asso. groups	
Integrated Pest Management – Adopt practices and audit compliance with Parks Bureau IPM program at Bureau facilities	Year 1 – Review IPM program practices and develop bureau specific IPM policy Year 2 – Audit 5 Bureau facilities Year 3 – Audit 5 bureau facilities	LEAD: Grounds – Rich Rice <u>Support</u> Stewardship – Kim Dinan Property – Tom Klutz Parks – John Reid	City of Portland and Multnomah County Toxic Reduction Strategy
Invasive Plants – Develop and implement a policy to control invasive plants at Bureau facilities	Year 1 – Collect information on needs and identify potential partnerships	LEAD: ResPro – Steve Kucas (to be filled by new staff person)	Invasive Species Resolution

	<p>Year 2 – Hire a new staff person dedicated to invasive plant management. Develop a strategy, establish necessary partnerships, and collect baseline data</p> <p>Year 3 – Initiate pilot control efforts at 3 bureau facilities</p>	<p><u>Support</u> Stewardship – Kim Dinan Grounds – Rich Rice Property – Tom Klutz Parks – John Reid</p>	
<p>Trees – Contribute to implementation of Urban Forestry Action Plan by preserving and/or planting trees (as appropriate) at Bureau properties</p>	<p>Year 1 – Work with City arborist to evaluate trees at 10 Bureau properties. Identify appropriate preservation methods. Identify opportunities to plant trees.</p>	<p>LEAD: Property - Tom Klutz</p> <p><u>Support</u> Property-Darcy Cronin Grounds – Rich Rice Stewardship – Janet Senior</p>	<p>Urban Forest Action Plan</p>
	<p>Year 2 – Work with neighborhood volunteers to plant 100 trees at bureau properties.</p>		
	<p>Year 3 – Work with neighborhood volunteers to plant an additional 100 trees at bureau properties.</p>		
<p>Green Cleaning</p> <ul style="list-style-type: none"> • Develop and implement a policy to increase use of non-toxic cleaning products at bureau facilities • Identify general cleaning products for purchase by bureau office support staff • Work with bureau staff and/or existing cleaning contractor to modify agreements at Interstate, SRS, Headworks, and Lusted Hill • Work with other city bureaus and PHC on Portland Building cleaning agreement 	<p>Year 1 – Adopt green cleaning policy. Purchase 5 green cleaning products for general office cleaning use.</p>	<p>LEAD: Stewardship – Kim Dinan</p> <p><u>Support</u> Stores – Craig Sautter Office Support – Chuck Buyukas SRS – Tim Grandle Lusted/Headworks - Andrew Degner PHC – Water Bureau Lead</p>	<p>City of Portland and Multnomah County Toxic Reduction Strategy</p>
	<p>Year 2 – Identify and purchase 5 additional green cleaning products for general office cleaning use</p>		
	<p>Year 3 – incorporate use of “Green Seal” certified cleaning products for janitorial services</p>		
<p>Supporting Activities</p>			
<p>Recycling - Maintain existing recycling facilities</p>		<p>LEAD: Stewardship – Matt Weatherly</p> <p><u>Support</u> Stores – Craig Sautter</p>	<p>Portland Recycles! Plan</p>

2008 update on progress:

- *The Bureau currently has five hydroparks: Texas, Hazelwood, Marigold, Gilbert and Sabin. The last three were officially completed in FY 07-08. Two additional hydroparks are currently in the works: one in outer NE Portland, and the other in North Portland.*
- *Bureau staff drafted an integrated pest management policy—based on the existing Parks Bureau policy. The policy will be forwarded for management approval this fall.*
- *Budget was approved to hire an invasive species specialist during FY 08-09. Recruitment is in progress. This staff person will focus primarily on managing invasives in Bull Run and in the Sandy River Basin. The Bureau sponsored two ivy removal events at Dodge Park (Sept 2007 and May 2008).*
- *City arborist and grounds supervisor completed a review of trees on Bureau properties, and identified priority locations for additional tree planting. At least one tree planting event is planned for fall 2008.*
- *Green cleaning tasks have been delayed due to lack of staff availability. Targets have been pushed back by one year.*
- *Recycling facilities were updated both downtown and at Interstate to coincide with new hauler contracts. Educational presentations were provided at staff meetings to encourage participation.*
- *The Bureau has completed an application for the Blueworks program. Establishing a green team is the only remaining requirement not yet in place (see below).*

Institutionalizing Sustainability

Goals:

- Educate employees about sustainability objectives and methods
- Encourage employee involvement in sustainability projects
- Incorporate sustainability criteria into bureau decision-making processes

Actions	Staff	Related City Policy
<p>Carbon Footprint - Calculate the carbon emissions associated with bureau operations by July 2009</p>	<p>LEAD: Stewardship – Ian Petrich/Kim Dinan</p> <p><u>Support</u> Stewardship - Janet Senior OSD – Michele Crim/ Michael Armstrong</p>	<p>Global Warming Action Plan</p>
<p>Asset Management – Incorporate sustainability principles into the following processes:</p> <ul style="list-style-type: none"> • Basis of Design Reports • Reliability Centered Maintenance efforts • Updating standards and specifications • Definition of desired service levels of each asset category • CIP project prioritization (e.g., criticality analyses) <p>Help implement Urban Forestry Action Plan by preserving and/or planting trees as part of CIP projects, where appropriate.</p>	<p>LEAD: Stewardship - Janet Senior</p> <p><u>Support</u> Eng Planning - Erna Foronda Asset Management - Jeff Leighton, Dave Peters Standards – Larry Greep Operations – Steve Schenk</p>	<ul style="list-style-type: none"> o Global Warming Action Plan o Green Building Policy o Urban Forestry Action Plan
<p>General Education</p> <ul style="list-style-type: none"> • Develop sustainability related educational materials – articles in Dispatch, e-mail information, employee sustainability handbook, signage, fact sheets, etc. (Create and distribute 20 sustainability-related education pieces per FY) • Provide general sustainability training – voluntary brown bags and workgroup presentations on WB-related sustainability actions (5 presentations each FY) • Provide Voluntary NWEI discussion courses: Global Warming, Changing Course, and Choices for Sustainable Living (40 employees participate in 3 discussion courses by July 2009) 	<p>LEAD: Stewardship – Matt Weatherly</p>	
<p>Sustainability Credentials for WB Staff</p> <ul style="list-style-type: none"> • 2 LEED accredited engineers by July 2008 • LEED accredited Sustainability Coordinator by July 2008 • 2 engineers with 30+ hours of Green Building Training by July 2008 	<p>LEAD: Stewardship – Kim Dinan</p>	<p>Green Building Policy</p>

Recycling Leaders - Identify and train 1 lead staff person per workgroup to answer recycling related questions for their group. Workgroups include: Finance/Admin, Operations, Construction, Engineering, Resource Protection, Customer Service.	LEAD: Stewardship – Matt Weatherly	Portland Recycles! Plan
Green Team - This cross-functional team will identify ways to incorporate sustainable practices into daily office and work practices.	LEAD: Stewardship – Kim Dinan	

2008 update on progress:

- *The carbon footprint calculation for calendar year 2007 is complete; comparison data for 2005 and 2006 is also available (see summary earlier in this 2008 update document).*
- *An initial effort to incorporate sustainability considerations into planning guidance for capital improvement projects (BDRs) is complete; efforts are ongoing to improve these early versions and to add sustainability into other guidance documents and pilot projects.*
- *At least two Bureau staff are currently studying for the LEED exam, but are not yet accredited. Discussions are also underway for additional strategic investments in LEED credentials and green building training, especially in the Bureau's engineering group.*
- *A "recycling lead" has been identified for each work group. Communication with Sustainability program staff is ongoing -- to answer questions and to encourage participation.*
- *Establishing a green team is necessary to achieve certification in the Blueworks program. Although initial planning is in progress, establishment of the green team has been delayed until the recycling leads effort is fully functional.*

Progress Reporting and Measuring Success

The Water Bureau will produce an annual sustainability results report. The report will be made available to the Office of Sustainable Development and the Portland City Council. This report will describe progress on the performance measures identified in this plan as well as on the ongoing sustainability work of the bureau.

The Water Bureau tracks program performance in quarterly program results reports. These reports summarize expenditures of dollars and staff time, as well as program results. The quarterly reports for all bureau programs, including Sustainability, are posted on the bureau's website. These results reports will be a primary source of information for the annual sustainability results report.

Many of the action items in this report involve collection and interpretation of baseline data, as well as progress data. In some cases, the data required has not been collected in the past and may require new equipment and/or procedures. The completeness of progress reporting during the term of this 3-year plan will depend on the availability of this data. In addition, the data may be used to refine the goals and targets described in this plan.

2008 update on progress:

Partial results have been included in the Bureau's quarterly program results report, which is posted on the Bureau's website. Measures included in the results report will be updated to more closely align with targets in the plan.

This document, the 2008 update of the plan, will constitute the 2008 Sustainability Results Report and will be supplemented by two reports requested by the Office of Sustainable Development, the 2007 Sustainability Progress Report and 2008-09 Sustainability Plan Update Summary Report.

Communication Strategy

This plan will be posted on the Water Bureau's website and an email will be sent to both employees and interested external stakeholders to announce the plan. A short article on the plan will also be posted on the Water Bureau blog. Key milestones in implementing the plan will also be posted on the blog and included in the employee newsletter.

The contents of the plan and the rationale and assessment work behind it will be included in the employee education tasks described in the action plan.

Progress toward meeting the annual targets in the plan will be reported in the quarterly Sustainability program results report (Water Bureau audience) and the annual Sustainability results report (citywide audience).

2008 update on progress:

The original version of this plan has been posted on the Water Bureau's website. Articles for the Water Bureau blog and the employee newsletter are forthcoming, but have been delayed due to other competing priorities.

FY 07-08 effort has focused on ongoing communication between Sustainability Program staff and individual task leads to encourage follow through on FY 07-08 commitments. Bureauwide communications efforts included staff education on upgraded recycling facilities and opportunities provided by new hauler contracts, a Northwest Earth Institute discussion course on climate change for both downtown and Interstate staff, and improved educational signage about paper, water and electrical use.

The quarterly Sustainability program results report will be revised to better reflect progress on targets in the Sustainability Action Plan.

Appendix A: Current Actions (2007)

The following is a summary of current sustainability activities at the Portland Water Bureau. This list is not comprehensive (see also Related WB Programs on page 4).

Activities are grouped in the following six categories:

- Energy and Fuel
- Toxics Reduction
- Facility Design and Planning
- Construction, Maintenance, and Operations
- Stewardship
- Employee Education

2008 Update: *This list of current actions will be updated in 2009. See updates provided above, as well as the 2007 Sustainability Progress Report and 2008-09 Sustainability Plan Update Summary Report.*

Energy and Fuel

Micro-Hydro Power Generation between Mt. Tabor Reservoirs

- PWB continually generates power from the water flowing between Reservoirs 5 and 6 on Mt. Tabor. Power is sold to PGE and fed into the power grid. Since the water used for generation has already been removed from the natural system for domestic use, this generation has no effect on salmon spawning or other natural uses of that water.
- PWB is researching additional opportunities for Micro-Hydro generation within the distribution system

Purchased 55,000 gallons of Biodiesel

120 construction and maintenance crew vehicles (i.e. vehicles include backhoes, dump trucks, graders, excavators, welding and crane trucks, pickup trucks, compressors, forklifts, tractors, mowers, vans, and some passenger vehicles) use B99 in warmer months and B50 in the winter. The bureau purchases about 135,000 gallons of diesel fuel annually.

Solar power generation

- Upgrade of energy-efficient sampling equipment and use of photovoltaic power to operate Bull Run turbidimeters
- PWB is researching Solar Photovoltaic opportunities at the Groundwater Well Field

Energy Efficiency

- *Interstate Facility* -- The Bureau has performed energy audits at the Interstate operations facility and made HVAC efficiency improvements and installed energy efficient fluorescent lighting.
- *Pump Efficiencies* – The bureau performed an energy analysis on pump efficiencies at the larger decorative fountains and replaced pumps as appropriate

Toxics Reduction

Chemical Assessment and Ranking System (CARS)

PWB uses the Chemical Assessment and Ranking System (CARS) for assessing toxicity of chemicals and finding more environmentally-friendly alternatives. This system ranks various chemicals on toxicity and defines criteria for seeking alternatives.

Water Treatment

- PWB uses aqueous ammonia and sodium hypochlorite at the Groundwater Pump Station. Both of which are less hazardous than anhydrous ammonia and chlorine gas.
- PWB uses a dilute hypo-chlorine solution at the Washington Park and Mt. Tabor reservoirs to minimize the potential for an accidental release.

Recycled Latex Paint

PWB uses Metro's recycled latex paint for coating the concrete above ground water tanks.

Food Grade Lubricants and Cleansers

PWB uses only food grade lubricants and cleansers where the lubricant is likely to be in contact with the water.

Lead-Free Locating Paints

All paints used for locating underground water mains are lead free.

Facility Design and Planning

Green Building

- *Groundwater* -- incorporated LEED techniques at the Groundwater Pump Station
- *Meter Shop* – designing meter shop major renovation to meet LEED gold standards

Green Streets

The Water Bureau works with Bureau of Environmental Services and other city agencies to accommodate Green Street development. Services include: water main relocation, plan review, and financial support.

Sustainability Criteria in Capital Planning

- PWB incorporated sustainability criteria to the decision making process for the Distribution System Master Plan
- PWB is incorporating decision criteria into the Basis of Design Reports (BDR). BDRs are used to guide design of facilities.

Underground Storage Tanks

PWB constructed an underground tank to fulfill permit requirements and minimize the impact on the environment. The buried tank's exposed surface was surrounded with native plantings, which blended the site in with the natural environment.

Construction Coordination

PWB regularly communicates with other Bureau's and privately owned utilities to coordinate construction dates. This minimizes environmental impact, inconvenience to customers, and maximizes resources. Example: The Central City Street Car project only had to re-cut a street once.

Construction, Maintenance, and Operations

Continuous Service

- To minimize neighborhood and business disturbance, PWB maintains water service to all customers during construction when possible. PWB tries to adjust construction times to accommodate local businesses.
- PWB strives to repair broken water mains and conduits in an efficient time period to minimize water loss and other collateral damage or resource waste.

Recycle All Broken Meters

- All broken small meters are sent for trade-in and recycling.
- All broken large meters are recycled.

Recycling Construction Debris

Asphalt, concrete, and soil are sent to a recycle yard to be re-used

Minimizing Vegetation Removal

When possible, PWB minimizes the amount of vegetation removed from a construction site. Native or acclimated plants are replaced when feasible.

Plant Native or Acclimated Plants at New Construction Sites

In new construction projects, native or acclimated plants are used to help restore the area to an original or improved state.

Street Debris

PWB uses evacuation trucks to pick up and remove debris on streets. This practice reduces the amount of debris that goes into the storm and sanitary sewers.

Asbestos Pipe Removal

When asbestos pipes are removed from the distribution system, PWB pays to have the pipe taken to a hazardous waste disposal site.

Concrete Mixing Onsite

PWB purchased a new concrete mixing truck that mixes concrete onsite. This truck allows construction crews to mix the appropriate amount of concrete at the site, which significantly reduces the amount of waste.

Reusing Construction Signs

PWB constructs reusable aluminum and wood signs for construction purposes.

Hydrant Flushing Activities

- Bio Bags and inlet bags are used to remove silt from water used during flushing activities.
- High velocity zonal flushing helps to reduce amount of chlorine needed for water disinfection.
- Water from flushing and cleaning is dechlorinated when it drains to natural waterways.
- Diffusers are used to disperse flushed water to prevent erosion.

Wheel Washing Troughs

PWB installs washing troughs that wash wheels of trucks at construction sites as they leave the construction area. This minimizes the amount of debris tracked onto the streets, which eventually could find its way into the storm or sanitary sewer systems.

Directional Boring

PWB installs water mains by directional boring when appropriate. The conventional method is to dig an open trench. Directional boring minimizes disturbance and helps to prevent debris from entering neighboring waterways and the stormwater system. PWB also often uses directional boring to install small services and water sample lines.

Erosion Control

PWB strives to control and prevent construction debris entering waterways and the City's stormwater system.

Storm Filters

At some locations, the PWB has installed storm filters using a leaf/moss compound. These filter systems surpass legally-required standards.

Improved Water Efficiency When Cleaning Infrastructure

PWB formerly drained a significant quantity of water from tanks and reservoirs into the sewers for reservoirs cleaning. Now PWB lowers reservoir and tank levels using the distribution system prior to cleaning. This new practice has vastly reduced the amount of water drained into the sewer system.

Stewardship

Re-circulating fountains

PWB maintains numerous decorative fountains throughout the city. The vast majority of these fountains are retrofitted or originally constructed to re-circulate the water they use. Re-circulating the water saves millions of gallons of water per year.

Water System Tours and Education

PWB provides tours of the Bull Run watershed and in-town facilities for the general public, schools, and public groups. PWB also provides classroom education on the water system. These programs include sustainability topics.

Historic Preservation

Some water system facilities (e.g., cabins in the Bull Run watershed) are considered historic facilities. PWB protects and restores these facilities to maintain important historic elements.

Alternative Transportation

- Provides Trimet bus tickets for day travel when requested
- Promote employee participation in Bicycle Transportation Alliance's annual "Bike Commute Challenge"

Leak Detection Program

PWB targets 30 percent of the distribution system annually for leak detection. Finding and repairing leaks reduces wasted water and leaves more water in the natural environment. Leak detection also reduces the need for future infrastructure development.

BlueWorks Certification

PWB is in the process of gaining Blueworks certification and is planning to maintain this status through 2010. This certification requires recycling staff or internal Green Team, a purchasing policy which outlines purchasing products of recycled content, six activities which prevent waste, purchasing paper of at least 30% recycled content, and at least one activity that goes beyond reduction and recycling. Many of PWB current practices exceed these standards.

Employee Education

- Provide employee "Dispatch", monthly newsletter that highlights personal and professional information in relation to health, safety and general information
- Provide education and lead testing kits for public consumers
- Participate in Water Providers Consortium conservation programs and assistance
- Sponsor annual Children's Clean Water Festival, a water conservation education event

Education activities of note prior to 2007:

- Developed (in cooperation with the American Water Works Association) first sustainability curriculum for water utility industry
- Sponsored Volunteer Simplicity brown bag discussion course for employees and Natural Step training for the Management Team
- Trained PWB Stores' staff and several field personnel on The Natural Step Framework. These staff also participated in a process improvement effort incorporating sustainable principles.