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greenMetro

Annual sustainability report for operations at Metro facilities

December 2011



About Metro

Clean air and clean water do not stop at city limits or county lines. Neither does the need for jobs, a thriving economy, and sustainable transportation and living choices for people and businesses in the region. Voters have asked Metro to help with the challenges and opportunities that affect the 25 cities and three counties in the Portland metropolitan area.

A regional approach simply makes sense when it comes to making decisions about how the region grows. Metro works with communities to support a resilient economy, keep nature close by and respond to a changing climate. Together we're making a great place, now and for generations to come.

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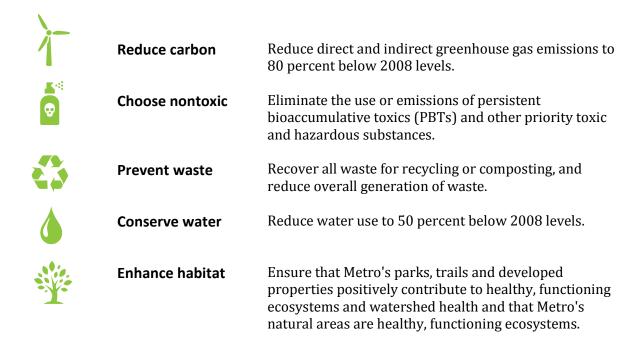
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INTRODUCTION

As a regional government committed to promoting sustainable communities, Metro is working to reduce its own ecological footprint. This report describes the efforts to reduce the environmental impact of Metro's public venues, parks, buildings and solid waste facilities.

The Metro Council set an ambitious target for internal operations to be sustainable within one generation. To this end, the council adopted goals in five key categories to reduce the agency's environmental impact:



Metro's comprehensive sustainability plan identifies strategies and nearly 100 actions to achieve the above goals. The goals are slated for completion by 2025 or, in the case of greenhouse gas emissions, 2050. The Metro Council adopted this plan by resolution on Oct. 7, 2010. The plan is available online at www.oregonmetro.gov/greenmetro.

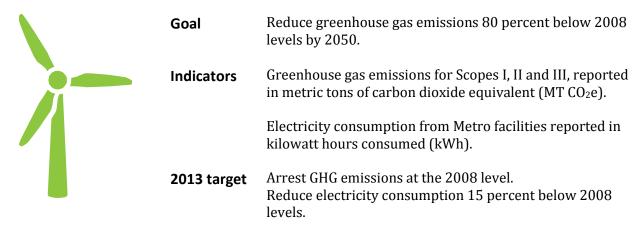
The sustainability plan guides sustainable operations objectives for five very different types of facility operations: public event venues including the Portland Center for the Performing Arts, Oregon Convention Center and Expo Center, the Oregon Zoo, solid waste transfer stations and household hazardous waste facilities, the Metro Paint recycling facility, multiple regional parks and one office facility.

Since the plan was adopted one year ago, Metro departments have taken substantive initial steps toward implementation. Metro facilities have made notable improvements in electricity consumption and recycling diversion in 2011. However, environmental performance in other goal areas hasn't changed substantially from the 2008 baseline year. To meet the goals, Metro will need to consistently invest in the facility upgrades and operational changes needed to conserve resources and operate in a manner consistent with the goals.

MEASURING PROGRESS

Metro tracks progress toward its environmental sustainability goals by measuring performance in five indicators against a 2008 baseline year. The information presented in this report lists 2008 and 2009 calendar years, then shifts to fiscal year 2010-2011 for this report. This switch to fiscal year reporting reflects Metro's fiscal year which extends from July to June.

Goal 1: Reduce carbon emissions



Metro completed a comprehensive greenhouse gas (GHG) emissions inventory for internal operations using 2008 as the baseline year. The top sources of GHG emissions from Metro's operations include purchased goods and contracted services (supply chain), electricity, and natural gas (Figure 1). Although Metro does not comple a comprehensive GHG inventory every year, electricity is used as an indicator of progress in the area of energy efficiency.

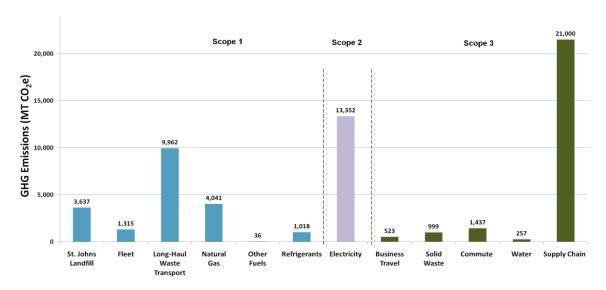


Figure 1: Sources of greenhouse gas emissions from Metro internal operations, 2008

¹ Metro GHG Emissions Baseline Inventory for Metro internal and business operations, August 2010. http://library.oregonmetro.gov/files/metro_internal_ghg_inventory_8-10.pdf.

Metro invested in several energy efficiency projects during 2011. These upgrades in lighting, HVAC equipment and business practices to conserve energy all contribute to the reduction in electricity use during the 2010-2011 fiscal year (figures 2 and 3). To meet Metro's GHG emissions reduction goals, consistent investments are needed in energy efficiency measures that are identified for Metro's major facilities and largest electricity consumers, in addition to other GHG-reducing actions outlined in Metro's sustainability plan.

Until more information is available about the GHG reduction potential from Metro emissions sources (i.e., electricity, purchasing, fleet fuels, etc.) an interim target reduction of 15 percent is assumed for all GHG source categories including electricity.

Electricity consumption from Metro facilities (kWh)

•	•	Daysant shanas
		Percent change
	kWh	over 2008 baseline
FY 10-11	30,284,445	-7%
2009	31,557,612	-3%
2008	32,582,585	

Figure 2

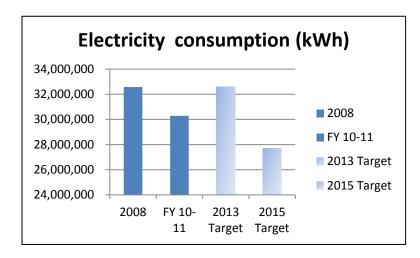


Figure 3

Goal 2: Choose nontoxic

	Goal	Eliminate the use or emissions of PBTs and other priority toxic and hazardous substances by 2025.
©	Indicator	Percentage of chemical products used at Metro facilities that have ingredients with a "3" rating (most hazardous) in MSDS inventory for health, environmental or physical hazard.
	2013 target	20 percent reduction in chemical products in use at Metro with a "3" rating in one or more hazard category (health, environment or physical hazard) from 2008 levels.

Metro created an inventory of chemical products and corresponding material safety data sheets (MSDS) to establish a baseline for toxics use in Metro operations. Metro then evaluated the potential health, environmental and physical hazard risks of chemical products in the inventory using product hazard evaluation criteria. The inventory will be updated in early 2012 when the overall product inventory is expected to decrease due to recent clean out events at Metro facilities.

Of the 3,703 products in Metro's MSDS inventory:

- 45% are rated high hazard for human health toxicity (i.e., carcinogens or sensitizers)
- 23% are rated high hazard for environmental toxicity (i.e., toxic to fish)
- 35% are rated high hazard physical hazard (i.e., flammable)

Some products are rated high hazard in more than one category, so the total exceeds 100%. Since 2008, the percentage of high hazard products has decreased 1 percent (figures 4 and 5).

Percentage of chemical products use at Metro facilities that are rated high hazard

	Total products in MSDS inventory	Products with high hazard ranking in one or more categories	Percentage of chemical product inventory with high hazard ranking in one or more categories	% change over 2008 baseline
FY 2010-11	3,703	2,119	57%	-1%
2008	3,638	2,110	58%	

Figure 4

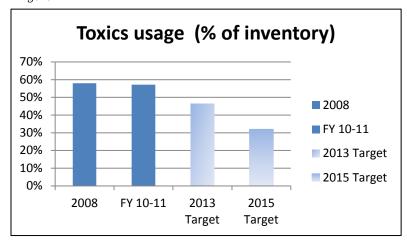
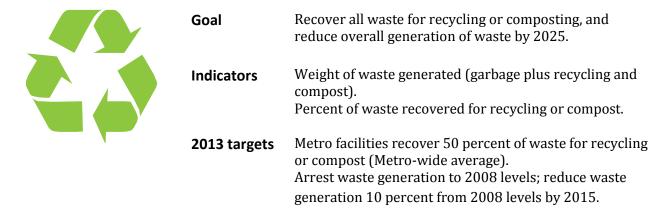


Figure 5

Goal 3: Prevent waste



To measure progress toward the goal of recovery of all waste for recycling or composting as well as waste reduction, Metro tracks recycling and waste generation from the major facilities in the agency's portfolio. Two Metro facilities, the Oregon Convention Center and the Oregon Zoo, have both increased recycling and compost recovery above and beyond previous levels to 67 percent and 74 percent, respectively. However, several Metro facilities have not yet been able to achieve this high level of recovery, and the Metro-wide average reflects this. Despite the challenges, the recycling recovery rate has increased by 13 percent since the 2008 baseline year (figure 6 and 7).

Percentage of waste recovered from Metro facilities for recycling or compost

	Average	% change over
	recovery rate	2008 baseline
FY 10-11	58.0%	13%
2009	50.7%	-1%
2008	51.1%	

Figure 6

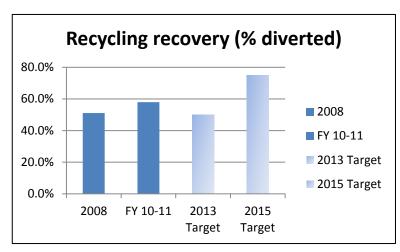


Figure 7

Waste generation, however, continues to rise. Metro facilities collectively generated 7 percent more waste in fiscal year 2010-2011 than it did in the 2008 baseline year (figure 8). This could be due to increased numbers of visitors at the visitor venues including the Expo Center. Also, waste generation and recycling data was not available for the three Portland Center for the Performing Arts theaters in 2008, or for Blue Lake Regional Park. This additional data is a contributing factor to the increase in waste generation reported for FY 2010-2011.

This is the only sustainability goal area that worsened since the 2008 baseline year. Reducing the overall generation of waste is particularly challenging for public facilities and major event venues, but best practices such as food waste prevention and reducing the amount of packaging received from vendors can help Metro to reduce the quantity of waste generated.

Waste generation from Metro facilities (tons)

		% change over
	Tons	2008 baseline
FY 10-11	2,898	7%
2009	2,604	-4%
2008	2,701	

Figure 8

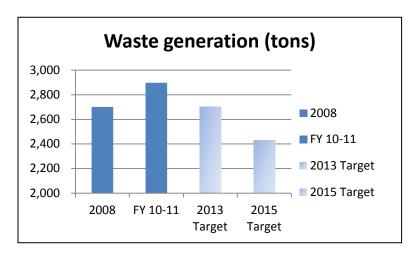
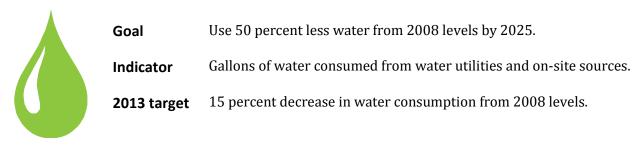


Figure 9

Goal 4: Conserve water



Water usage data for Metro facilities is collected from water-providing utilities and from well water usage records. Water use is reported in CCF, or hundred cubic feet (equivalent to 748 gallons). Water consumption for Metro facilities has held steady since the 2008 baseline year, decreasing only one percent overall (figure 10).

The Oregon Zoo and Glendoveer Golf Course are the top water users of the Metro facilities. Reductions in water consumption are expected for fiscal year 2011-2012 as the Zoo has just completed a major upgrade at the penguin exhibit that will reduce water usage by 90 percent in that exhibit. This and other water efficiency upgrades planned at Metro facilities will help to meet the 2013 target of a 15 percent reduction from 2008 levels (figure 11).

Water consumption from Metro facilities (hundred cubic feet, CCF)

		% change over
	CCF	2008 baseline
FY 10-11	278,231	-1%
2009	277,587	-1%
2008	281,239	

Figure 10

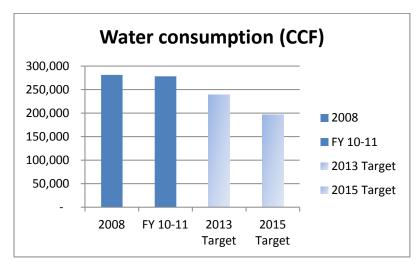


Figure 11

Goal 5: Enhance habitat

Goal	Metro's parks, trails and developed properties positively contribute to healthy, functioning urban ecosystems and watershed health. Metro's natural areas are healthy, functioning ecosystems by 2025.
Indicator	Percentage effective impervious area on Metro's developed properties.
2013 targets	Arrest and begin to reduce effective total impervious area on developed properties. Identify habitat-friendly improvement opportunities for developed properties.

Tracking the effective impervious surface areas is a way to monitor the quantity of stormwater runoff from Metro's developed properties and facilities. It is used as the indicator for this goal because it is closely related to habitat health and function. Effective impervious area is impervious surface area that is directly connected to a stream or drainage system and does not include surface area where stormwater is directed to a green roof, swale or other pervious area.

The impervious surfaces of Metro properties are largely unchanged since the 2008 baseline period. However, two new properties developed since 2008, Graham Oaks Nature Park and the Oregon Convention Center Plaza, were designed to treat all of their stormwater onsite through bioswales and rain gardens. Despite these additions, the overall percentage of effective impervious areas was not affected. These were the only habitat-friendly development practices added; no other habitat-friendly retrofits were added to existing Metro facilities.

Effective impervious area at Metro facilities

	% of effective impervious area	% change over 2008 baseline
FY 10-11	90%	0%
2008	90%	

Figure 12

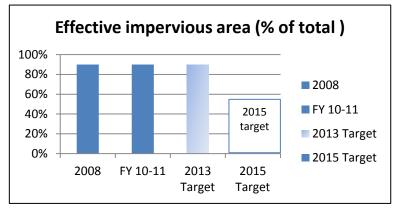


Figure 13

HIGHLIGHTS OF METRO'S SUSTAINABLE OPERATIONS IN 2011

Metro venues and facilities had successfully implemented several projects in 2011 that support the Metro Sustainability Plan. These projects share some common outcomes: increased awareness of sustainability goals among operations staff; increased accountability among operations management staff; and increased support for improving resource conservation despite constraints to staff capacity. The projects highlighted in this report are just a few of those Metro undertook in 2011. A full list of sustainability plan actions and their status is on pages 17 and 18.

Hoyt Street Café illustrates a triple bottom line business model

The Oregon Convention Center and its food and beverage partner, Aramark., opened Hoyt Street Station Café in the Lloyd District next to the Metro Regional Center. Remodeling of the site incorporated several green building features such as local, recycled and reused materials. Energy-efficient refrigerators, dishwasher, hand dryers and lighting were installed. The table bases and chairs and fluorescent lights are reused and the bar and table tops were constructed with reclaimed wood from Refind, a division of the Rebuilding Center. Portland-based Schoolhouse Electric light fixtures offset walls covered in Metro's recycled paint. A refurbished classroom chalkboard serves as the menu display.

This project includes social benefits in addition to environmental benefits. As a demonstration of the Convention Center's ongoing commitment to the community, Hoyt Street Station Café serves as a workforce training program designed to jumpstart a successful career in food service management for disadvantaged individuals facing barriers to entry. Upon completion of the 18-month program, employees will emerge as experienced managers eligible for grants to further their career goals. The project also awarded 47% of contract dollars worth \$73,200 to certified Minority-owned, Women-owned, and Emerging small businesses (MWESBs) and 16% of contract dollars worth \$24,300 to First Opportunity Target Area (FOTA) firms in the vicinity of the Convention Center. This contract effort further supports social equity and the project's commitment to the triple bottom line.

For more information contact Lydia Neill, construction supervisor, at Lydia.Neill@oregonmetro.gov.



The Hoyt Street Station Café incorporates reclaimed wood throughout the cafe.

Natural materials play area at Blue Lake Regional Park

Blue Lake Regional Park installed a new children's play area made of all-natural materials instead of a traditional playground materials such as metal, plastic and lumber. "The whole entire thing is real!" a girl exclaimed to her playmate one Saturday. Huge round river rocks provide climbing surfaces and a long curved tunnel of saplings beckons kids to explore. Industrious pretenders can work together to build a fort with branches, while the wanderers can hop from log to log on a creek-like path, look for animal tracks, see a beaver log and play in the sand. The giant nest towering high over the area looks like it could belong to a bald eagle or osprey.

The play area was created from materials found in several Metro parks (Blue Lake and Oxbow regional parks and Chinook Landing marine park) and includes only logs that came down naturally no cut timber products. The project was a collaborative effort among Metro staff and supports Metro sustainability goals by using reclaimed natural materials and creating a more natural habitat in our developed park settings. You can buy plastic rocks and plastic logs for play areas, says Metro park ranger Jim Caudell, "but to actually have the real stuff is a pretty rare thing."

For information and directions to Blue Lake Park, go to http://www.oregonmetro.gov/index.cfm/go/by.web/id=149.

For more information contact Dan Kromer, parks operations manager, at Dan.Kromer@oregonmetro.gov.



The nature play area at Blue Lake Regional Park is built from natural materials from other nearby parks.

Portland Center for the Performing Arts cleans up its act

PCPA takes on toxics

The Portland Center for the Performing Arts recently finished a two-year process of kicking some toxic characters off of its stages. You might have heard of some of them: phosphoric acid, mineral spirits, oil-based paint, asphalt and non-rechargeable batteries, plus hundreds of gallons of latex paint.

New standards have also been set for the way PCPA selects new materials. For example, latex paint with low VOCs (volatile organic compounds) has replaced oil paint in PCPA venues except for heavy traffic-wear areas, exterior foot traffic marking and exterior decking. Also, all one-use batteries have been replaced with rechargeable ones.

A new boiler increases energy efficiency at the Keller Auditorium

PCPA's recent boiler project at the Keller Auditorium replaced two 26-year old inefficient boilers with two new 92 percent efficient condensing boilers. The efficiency gained from these new boilers allows operations staff at Keller to lower its heating water supply temperatures from 170 degrees to 140 degrees and the new control system allows for implementation of a hot water supply temperature reset based on load. Finally, the project added variable frequency drives for the hot water circulating pumps that will lower energy consumption and add life span to the pumps.

This project will lower natural gas consumption by about 8,400 therms per year, enough to save \$10,000 per year in operating costs and reduce associated greenhouse gas emissions.

For more information, contact Jason Blackwell, PCPA Operations Manager, at <u>JasonBlackwell@pcpa.com</u>.



PCPA brought unused products containing toxic chemicals to Metro's household hazardous waste facility for proper disposal.



New energy efficient boilers at the PCPA Keller Auditorium are expected to save \$10,000 annually in operating costs.

Electric vehicle charging stations installed at three Metro facilities

Seven public electric vehicle charging stations were installed Metro facilities this fall, including the Oregon Convention Center, Expo Center, and Metro Regional Center. The charging stations were paid for by a grant from the U.S. Department of Energy to ECOtality for The EV Project with the purpose of increasing charging infrastructure for electric vehicles throughout Oregon.

In 2009, the Department of Energy awarded a \$99.8 million grant to ECOtality to pilot the development and production of an electric vehicle charging infrastructure in six states including Oregon. Data from usage of the charging stations will be used to inform plans to improve the nationwide electric vehicle charging infrastructure.

This project supports Metro's sustainability goals in the area of reducing greenhouse gas emissions and will make it convenient for visitors to charge electric vehicles while at one of these three facilities.

Learn more about The EV Project at www.theEVproject.com.

For more information, contact Molly Chidsey, Sustainability Coordinator, at Molly.Chidsey@oregonmetro.gov.



The electric vehicle charging station at the Oregon Convention Center is easily accessible to visitors in the parking garage.



A Nissan Leaf electric vehicle from Metro's fleet is charged.

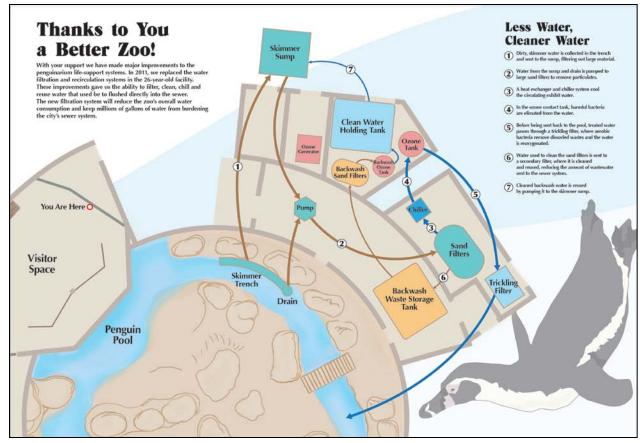
Conserving water at the Oregon Zoo

Oregon Zoo penguin exhibit upgrade reduces water usage by 90 percent

When the Oregon Zoo upgraded the life support system at the penguin exhibit as a part of the zoo's bond program, it also added filters that will reduce the water consumed by the exhibit and improve water quality for the penguins.

The new system takes circulated water from the exhibit and treats it for reuse. Water is pumped to sand filters that remove fine particulate matter. The water is then exposed to ozone to disinfect it from harmful bacteria and pathogens. Treated water passes through a trickling filter where aerobic bacteria remove dissolved wastes and the water is re-oxygenated. As an additional measure, an upgraded heat exchanger and chiller system was installed to cool the exhibit water, saving 540,000 gallons of water per year. As a result of this project, water use from this exhibit is projected to be reduced by 90 percent.

For more information, contact Lee Campbell, Zoo construction project manager, at Lee.Campbell@oregonzoo.org.



The updated filtration system in the penguin exhibit at the Oregon Zoo reduces water usage by 90 percent in the exhibit.

Veterinary Medical Center water reclamation system

Sustainability and resource conservation is a high priority of the zoo's bond-supported construction projects. One of the first bond projects completed, the Veterinary Medical Center, incorporates a water reclamation system into its design. Rainwater is collected from the main roof of the building, an area of 14,000 square feet. The water drains to a vortex filter which removes larger debris, then goes into a 30,150 gallon corrugated steel storage tank.

The water is reused at the facility for irrigation, toilet flushing and in animal areas for wash down. Because of U.S. Department of Agriculture and veterinary water quality standards in the animal areas, the water goes through a filtering system that removes most of the impurities and meets or exceeds the standards.

For more information, contact Jim Mitchell, Zoo construction project manager, at Jim.Mitchell@oregonzoo.org.

To see what other sustainability improvements are planned with the Oregon Zoo Master Plan, go here: http://www.oregonmetro.gov/index.cfm/go/by.web/id=36562.



A 30,150 gallon tank captures rainwater from the Oregon Zoo's new Veterinary Medical Center.

Oregon Convention Center: practicing sustainability

Oregon Convention center helps Food Services of America's food show aim to be a 'Zero Waste' event

Now almost 10 years into its sustainability efforts, the Oregon Convention Center has set the ambitious goal of diverting 100 percent of show waste from landfills. The first show to jump on board the program was the Food

Services of America's Universal Food Show which achieved an 81 percent diversion rate.



"Zero waste is essentially doing all the things you can do to have the least amount of landfill-bound waste," says Oregon Convention Center sustainability coordinator Brittin Witzenburg. "This can be accomplished through waste reduction, donating, recycling – getting to the point where all that's going to the landfill is material that can't go anywhere else." Read more at http://news.oregonmetro.gov/1/post.cfm/oregon-convention-center-collaboration-toward-zero-waste.

Oregon Convention Center lighting retrofit saves \$130,636 per year in energy costs

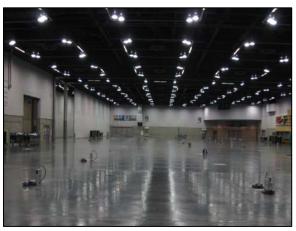
The Oregon Convention Center recently completed a major lighting retrofit in exhibit hall and lobby spaces. In exhibit halls, 1,080 metal halide fixtures, illuminating about 255,000 square feet, were replaced with induction lighting that cut the energy use in half. In lobby spaces, compact fluorescents and LED lighting replaced a variety of incandescent fixtures, in some cases reducing energy use by 90 percent.

Overall, the expected annual energy savings is about 2,721,578 kWh, which represents an estimated financial savings of \$130,636 each year. Project funding included grants from the American Recovery and Reinvestment Act, the Energy Trust of Oregon and the Business Energy Tax Credit. Read more at http://news.oregonmetro.gov/1/post.cfm/oregon-convention-center-takes-more-steps-towards-conservation.

For more information, contact Brittin Witzenburg, Oregon Convention Center sustainability coordinator, at BrittinWitzenburg@oregoncc.org.



The Oregon Convention Center offers enhanced recycling collection for shows that aim to be "zero waste" events.



New energy efficient lighting uses half of the electricity and yields 40 percent more light than the old fixtures.

Metro adopts green building policy for internal operations

With the recent adoption of its first-ever green building policy, Metro has set new sustainability standards for all the agency's facilities and developed properties, from regional parks, solid waste transfer stations and the Oregon Zoo to venues such as the Portland Expo Center and Oregon Convention Center.

The policy, which supports Metro's sustainability goals on greenhouse gas emissions, toxics use, waste generation, water conservation and habitat enhancement, includes standards for new construction, major renovations, and ongoing building maintenance and operations. It incorporates Earth Advantage Institute's new green building standards for midsize buildings and establishes goals to increase participation of minority, women-owned and emerging small businesses in Metro's green building construction projects.

Other key elements:

- New buildings between 5,000 and 70,000 square feet must include Earth Advantage Commercial certification at the gold level.
- New buildings larger than 70,000 square feet must include applicable Leadership in Energy and Environmental Design (LEED) certification at the gold level.
- New buildings must meet performance standards consistent with Metro's sustainability goals.
- Existing buildings larger than 50,000 square feet will be assessed for LEED Existing Building certification eligibility at the silver level.
- All existing facilities must meet selected best practices for environmental performance, such as having an energy efficiency plan, an ecoroof feasibility analysis and low-mercury lighting.
- Requirements will link green building construction projects to the agency's procurement goals for increased utilization of minority-owned, women-owned and emerging small businesses (MWESB).

For more information contact Molly Chidsey, Metro Sustainability Coordinator, at Molly.Chidsey@oregonmetro.gov.



The Oregon Convention Center is certified as LEED-EB at the Silver level. Metro's new green building policy sets standards for new and existing buildings. This photo depicts the OCC rain garden.

STATUS OF 2011 PRIORITY SUSTAINABILITY PLAN PROJECTS

Key: ✓ Completed • In progress

Sustainability program actions

Strategy	Sustainability Plan action and reference number	Status
Program Strategy 1: Integrate accountability into implementation	Program Action 1.1: Create and adopt an implementation process for the Sustainability Plan.	✓ Complete
of the sustainability plan.	Program Action 1.2: Integrate sustainability goals and desired outcomes into PACe and other performance measures for Metro employees, starting with managers.	• In progress
Program Strategy 4: Create policies and procedures to support sustainability plan and goals.	Program Action 4.1: Develop and adopt a sustainable procurement policy as directed by Metro Code, "Sustainable Procurement Program."	• In progress
	Program Action 4.2: Adopt a Metro-wide green building policy to set standards based on LEED for new construction and operations of existing buildings.	✓ Complete
Program Strategy 6: Track progress of sustainability plan implementation and impact on goal areas.	Program Action 6.1: Develop an ongoing tracking and monitoring system for all five goal areas. Include: ✓ Utility Manager database (electricity, natural gas, water) • MSDS database and chemical inventory update Recycling and waste database	• In progress
	Program Action 6.2: Report annually on performance and progress in five goal areas, and on sustainability projects completed each year.	√ Complete

Sustainability goal actions

Strategy	Sustainability Plan action and reference number	Status	
GHG Strategy 1: Reduce GHG emissions from building operations, maintenance and siting through energy efficiency and resource conservation.	GHG Action 1.1: Audit buildings for energy efficiency opportunities and develop recommendations for an energy efficiency plan specific to each site.	• In progress (Complete at PCPA Keller & Hatfield, OCC, Zoo (partial), MRC)	
Toxics strategy 1: Complete and bring up to date Metro's comprehensive chemical product inventory.	Toxics Action 1.1: Establish process for ongoing tracking and inventory of chemicals and products that contain toxics in use at Metro.	• In progress	
Waste strategy 3: Improve and expand recycling programs at Metro facilities and properties.	Waste action 3.1: Meet Business Recycling Requirements at all Metro facilities.	√ Complete	

Strategy	Sustainability Plan action and reference number	Status
Waste strategy 7: Improve tracking and reporting on waste generation and recycling from haulers, as well as internal tracking materials use by department.	Waste action 7.1: Track waste generation and recycling data for all Metro locations.	• In progress
Water strategy 1: Assess and prioritize water conservation opportunities on all Metro properties.	Water action 1.1: Audit water usage at all Metro locations that have not had a recent water audit to develop recommendations for water conservation strategies specific to each site.	• In progress (Complete at MRC, Zoo, OCC)
Water strategy 2: Reduce water usage through improvements to water use prevention and water efficiency, starting with biggest	Water action 2.1: Ensure implementation of water conservation projects identified in the Zoo Master Plan. Water action 2.2: Integrate sustainable operations and	✓ Complete (Penguin filtration) • Tabled
water users.	water conservation requirements into operations contract for Glendoveer Golf Course.	
	Water action 2.5: Create requirement that all water fixtures and equipment purchases be water efficient.	✓Complete (See green building policy)
Water strategy 4: Establish an ongoing tracking and reporting system for all water usage at Metro properties.	Water action 4.1 Create ongoing tracking system for all water uses at Metro locations. Include on-site water sources such as wells.	✓ Complete (Utility Manager database)
Habitat strategies	No actions on 2011 work plan.	

ABOUT THE METRO SUSTAINABILITY PROGRAM

The internal Sustainability Program is housed in the Metro Sustainability Center, a department whose focus areas include protection of natural areas, development of regional parks, waste prevention, recycling and toxics reduction programs, conservation education and promotion of sustainable living practices for residents throughout the Metro region.

Sustainability steering committee

Oversight and accountability for implementation of the Metro Sustainability Plan is provided by a steering committee of representatives from the major facilities in Metro's operations.

- Jason Blackwell, Operations Manager, Portland Center for the Performing Arts
- Dan Kromer, Parks and Visitor Services Manager, Metro Parks & Environmental Services
- Chris Massey, Operations Manager, Oregon Zoo
- Bruce Philbrick, Transfer Station Operations Manager, Metro Parks & Environmental Services
- Richard Thompson, Metro Regional Center Operations Manager, Metro Parks & Environmental Services
- Brittin Witzenburg, Sustainability Coordinator, Oregon Convention Center

Green teams

In addition to the work of the sustainability steering committee and the facility operations managers, four green teams support implementation of sustainable practices in Metro workplaces.

- Oregon Zoo green team 2011 chair: Tyson Stoianoff
- Metro Regional Center green team 2011 chair: Corie Harlan
- Oregon Convention Center green team 2011 chair: Brittin Witzenburg
- Solid Waste Operations green team 2011 chair: Jim Quinn

For more information about Metro's Sustainability Program and this report, contact:

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www.oregonmetro.gov/greenmetro