

Sustainability report FY 2015-16

October 2016

oregonmetro.gov

If you picnic at Blue Lake or take your kids to the Oregon Zoo, enjoy symphonies at the Schnitz or auto shows at the convention center, put out your trash or drive your car – we've already crossed paths.

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EXECUTIVE SUMMARY

This report summarizes Metro's progress toward a set of ambitious and aspirational sustainability goals for internal operations. In 2010, Metro Council adopted a *Sustainability Plan* with strategies and actions to achieve these goals, indicators to help track progress and interim targets that serve as mileposts on the quest to reach these goals. The story of Metro's advancement toward these sustainability goals is told by these indicators, and by key accomplishments across the agency last year. Both are included in this report.

The key accomplishments described in the first part of this report highlight the ingenuity and commitment of Metro staff – from working with community partners to donate usable goods, to seeking net zero energy buildings, to employing innovative strategies to reduce the use of pesticides, as well as dozens of other actions small and large over the past year.

Part two of this report describes progress toward the adopted goals measured by key indicators. Overall, Metro is making headway. However, the agency will need to implement much more ambitious initiatives if it is to meet all of the adopted sustainability goals within the target timeframe. A summary of Metro's progress follows:

- **Reduce carbon**: Electricity use has been reduced by 15 percent from baseline, on track to meet the 2020 interim target. Natural gas use is down 33 percent, ahead of schedule in meeting the 2020 target. These reductions indicate progress for these particular emissions sources, which account for almost half of Metro's total emissions. However, the last greenhouse gas inventory of all sources indicated that much progress must be made to meet the 2050 goal. Metro plans to conduct an updated inventory in the next few years, which will provide a more complete picture of Metro's greenhouse gas emissions.
- **Choose nontoxic**: In FY 2015-16, the percentage of products in Metro's inventory with a high hazard determination in one or more category of toxics was 78 percent, up from 74 percent in FY 2014-15 (baseline). The percentage of products deemed the most toxic, the "worst of the worst", remained seven percent unchanged from the baseline. However, in the last year Metro also significantly reduced the total number of products in its inventory, so while the percentages did not change substantially, the actual number of toxic products decreased. Metro staff expects declines in these percentages over the coming years as these products are phased out and replaced with less toxic alternatives.
- **Conserve water**: Water use is down 23 percent from baseline, a substantial reduction but not quite on track to meet the 2020 interim target of 40 percent reduction. Several facilities have reduced water use by over 50 percent compared to baseline.
- **Prevent waste**: Overall waste generation across Metro is trending in the wrong direction, with the FY 2015-16 amount 37 percent higher than baseline. Metro's recycling rate has increased by six percentage points over baseline to 57 percent, not on pace to reach the 2020 interim target of 90 percent recycling rate.

• Enhance habitat: In FY 2015-16, the overall percentage of effective impervious area on Metro's developed properties was 79 percent, far from the 2020 target of 25 percent. Significant improvement in this area is largely dependent on whether Metro can reduce effective impervious area at Portland Expo Center.

Metro spent over \$5 million on utility expenses in FY 2015-16, primarily on electricity and water and sewer services. That represents an enormous opportunity for cost savings through greater efficiency, especially for upfront investments with short payback timeframes and lower total cost of ownership. Metro's partnership with Energy Trust of Oregon facilitates these investments – last year Metro received \$165,000 in incentives for energy efficiency and renewable energy projects and training.

Metro's sustainable procurement program also supports the triple bottom line of sustainability – environment, economy and equity. In FY 2015-16, Metro spent nearly \$6.4 million on sustainable goods and services, representing roughly 12 percent of Metro's overall spending in these categories.

Metro has built a strong foundation for reaching its ambitious sustainability goals through collecting and refining data, developing programs, policies and tools and creating a supportive culture. Most of the strategies and actions identified in the *Sustainability Plan* have been completed or are in progress. Getting to the next level of performance will require investing additional resources and continuing to spur innovation by marshalling the creativity and commitment of staff and partners.

INTRODUCTION

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As a regional government committed to promoting sustainable communities, Metro also strives to make its own operations sustainable. This report describes efforts in fiscal year 2015-16 to improve the environmental profile of Metro's public venues, parks, buildings and solid waste facilities.

In 2003, 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 improve the agency's environmental performance, listed below. Metro established a baseline for these goal areas in 2008 when it established a coordinated sustainability program.

In recognition of the triple bottom line of sustainability, Metro is working to integrate equity into its *Sustainability Plan*, consistent with Metro's *Strategic Plan to Advance Racial Equity, Diversity and Inclusion* and *Diversity Action Plan*.

Metro Value of Sustainability

We are leaders in demonstrating resource use and protection in a manner that enables people to meet current needs without compromising the needs of future generations, and while balancing the needs of the economy, environment, and society.

行	Reduce carbon	Reduce direct and indirect greenhouse gas emissions to 80 percent below 2008 levels.
∞	Choose nontoxic	Eliminate the use or emissions of persistent bioaccumulative toxics (PBTs) and other priority toxic and hazardous substances.
	Prevent waste	Reduce overall generation of waste, and recycle or compost all remaining waste.
٥	Conserve water	Reduce water use to 50 percent below 2008 levels.
	Enhance habitat	Ensure that Metro's parks, trails, natural areas and developed properties positively contribute to healthy, functioning ecosystems and watershed health.

Metro's *Sustainability Plan*, adopted by Metro Council in 2010, identifies strategies and nearly 100 actions to accomplish the above goals. The goals are to be achieved by 2025 or, in the case of greenhouse gas emissions, 2050. The plan and past years' progress reports are available online at <u>www.oregonmetro.gov/greenmetro</u>.

In addition to Metro's goals for internal operations, Metro works with communities, businesses and residents in the Portland metropolitan area to achieve sustainable outcomes regionally and chart a thoughtful course for the future.

Learn more at oregonmetro.gov.

SUSTAINABILITY SCORECARD



SUSTAINABILITY SCORECARD



CONSUMPTION







greenMetro www.oregonmetro.gov/greenmetro

MT CO₂e: Metric tons carbon dioxide equivalent CCF: Hundred cubic feet, equivalent to 748 gallons EIA: Effective impervious area

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PART 1: KEY ACCOMPLISHMENTS

OREGN Oregon Convention Center



Oregon Convention Center increased donations of usable materials from events by 425 percent

As a result of its commitment to preventing waste, the Oregon Convention Center saw a sizable jump in the amount of usable materials donated to local community groups in the last year, advancing progress toward Metro's waste reduction goal.

The amount of materials — including building supplies like carpet and bricks — brought in for shows and exhibits at the convention center can be substantial. Often, the cost for exhibitors to ship these materials back to their headquarters after the show is prohibitive. Rather than send these materials to the landfill, Oregon Convention Center staff work with show managers, decorators, exhibitors and local nonprofit organizations to put these materials to good use.

This effort has paid off — both in a 425 percent increase in materials donated last year (from four tons to 21 tons), and in reduced disposal costs for clients.



As an example, a large bookstore was one of the exhibits at the United Methodist Church's General Conference held at the Convention Center in May 2016. Shipping the heavy exhibit materials, including 50 bookshelves, tables, clothing racks and other items, back to Nashville would have been costly.

The ReStore collects donations at the Oregon Convention Center

Oregon Convention Center's Sustainability Coordinator Rick Hodges was able to ensure a new life for these items by connecting with local community groups, enabling the donation of over 7,000 pounds of materials.

"All these shelving and other units were in excellent, like-new condition," said Rick, "and I'm thrilled that they will continue to be put to purposeful use. Habitat for Humanity's ReStore took as much as they could, and then we reached out to staff for suggestions. One of the members of our security team connected us with the Oregon Rail Heritage Foundation, which took the remainder."

These kinds of success stories are made possible by the Oregon Convention Center's partnerships with clients and community groups, and by its comprehensive approach to reducing waste. In January 2016, the Convention Center implemented an innovative Waste Diversion Policy that prohibits certain materials at events and requires a refundable waste diversion deposit from clients to incentivize recycling, composting and donation. The Convention Center supports clients' success in preventing waste by educating and coordinating with show organizers ahead of time.

Learn more about sustainability at Oregon Convention Center, including videos highlighting sustainability accomplishments and waste reduction efforts, at www.oregoncc.org/about/sustainability.





Design for new Zoo Education Center targets net zero energy

The Oregon Zoo Education Center, slated to open in spring 2017, is designed for sustainability in both form and function. Focused on educating the public on how individual actions can make a difference in planetary health, the Education Center will house staff offices, six classrooms, an environmental science classroom lab, and outdoor nature learning and play spaces. The Education Center aims to expand the capacity of conservation education across the Portland metro region through partnerships with U.S. Fish and Wildlife Service, Intertwine Alliance and other organizations. Master Gardeners and Zoo teen volunteers will demonstrate sustainable landscape strategies at the new Backyard Habitat, and a large multi-purpose meeting room will serve Zoo partners engaged in environmental education.

In addition to aiming for Leadership in Energy and Environmental Design (LEED) Gold certification, a third party verification for green buildings, the Education Center is designed for net zero energy with an extensive roof top solar array. Net zero energy buildings consume only as much energy as they produce from renewable resources, a key strategy to help Metro reduce its climate footprint.

Other sustainable features that will help Metro achieve its climate, waste, water and habitat goals include:



Historic mural from the former Zoo entrance repurposed at the new Education Center

- rainwater collected from the roof that will be used to flush toilets
- rain gardens that will clean stormwater before it is released into the city's storm system
- bird-friendly lights and fritted glass that will help prevent window strikes
- high efficiency lighting and heating and cooling systems.

Elephant Lands project earned LEED Gold certification

In July, Oregon Zoo staff learned that the Elephant Lands project had earned LEED Gold certification from the U.S. Green Building Council.



"A LEED Gold certification not only highlights the Zoo's commitment to sustainability, but also its responsibility to the community," said Heidi Rahn, who oversees projects funded by the 2008 Zoo bond measure promoting animal welfare and sustainability. "If we want a better future for wildlife, it's vital that we conserve natural resources and make sure our day-to-day operations and construction practices are environmentally sound."

Some of the sustainable features of Elephant Lands include:

- **Pool filtration** A state-of-the-art filtration and water-treatment system cleans and replenishes the new 160,000-gallon elephant pool every hour. The previous pool had to be dumped and refilled often, using millions of gallons of water each year.
- **Improved stormwater management** Rainwater collected from Forest Hall's roof is stored in a 5,000-gallon underground cistern and used at Forest Hall for flushing toilets and wash down.
- Geothermal system An innovative heat-sharing system will deliver hot air created as a byproduct of cooling the new polar bear exhibit through rows of coiled pipes to the indoor area of Elephant Lands, where it will be used to keep the elephants warm.
- Solar photovoltaic panels on Forest Hall roof This array is expected to generate around 34,000 kilowatthours a year of electricity.



Bird's eye view of some the sustainable features at Elephant Lands

- **Solar hot water** This system preheats water for elephant bathing and other uses, storing it in a 1,500-gallon tank in the building's mechanical room and reducing the amount of natural gas required to heat the water.
- **Natural ventilation** Large louvers on the walls and roof of the indoor facility open automatically based on outdoor temperatures, allowing natural ventilation. About 75 percent of the building's fan power is eliminated during natural ventilation mode.

Zoo making energy use more visible and actionable

One strategy the Oregon Zoo is employing to reduce energy use in existing buildings across its campus is to install electrical submeters in exhibits. Submeters monitor energy consumption of parts of a building or individual equipment, increasing

visibility into how and when energy is being used and providing crucial information about energyand cost-saving opportunities.

Submeters allow the monitoring of energy use in real-time, sending the data to building energy management software that allows operations staff to identify equipment that is not operating as it should. This more timely feedback allows problems to be identified that may have otherwise gone unnoticed for a month or more when the utility bill comes, facilitating relatively easy and cost-effective reductions in energy use.

Submetering also provides greater visibility into energy use by allowing operations staff to measure the energy benefits from equipment upgrades or changes in building operations.

For example, in anticipation of planned efficiency upgrades to the chiller and cooling tower at the Steller Cove Marine Exhibit at the Zoo, staff took the opportunity to also add a submeter, which will allow measurement of energy and cost savings from the equipment upgrade. New electrical service installed at the Hay Barn has also included submetering for the Swamp, Bats, Swamp Monkey, Sankuru Trader and AfriCafé buildings.

New electrical submeter will monitor energy savings from energy efficiency upgrades at Steller Cove

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With these projects, the Zoo is making progress toward having the entire campus submetered and taking more control of its energy use.

Other sustainability upgrades at the Zoo in FY 2015-16 included:

- installation of LED lighting to replace incandescent, metal halide and compact fluorescent lighting as upgrades were needed
- reduced number of fleet vehicles and purchase of electric vehicles for use on campus
- a switch from bottled wine and beer to kegs, eliminating over 5,000 bottles annually and reducing noise impacts to animals from glass recycling pick-ups in the middle of the night.

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BLUE LAKE REGIONAL PARK

New facilities at Blue Lake Regional Park demonstrate triple bottom line of sustainability

Four new restroom buildings and a new wetland trail and viewing platform at Blue Lake Regional Park demonstrate the three-legged stool of sustainability — environment, equity and economy.

The restrooms were prefabricated and constructed offsite, saving money by decreasing the cost of on-site construction. Choosing prefabricated design also helped eliminate waste on the front-end of the project — simultaneous production of several projects in a factory allows materials to be reallocated from one project to another. The controlled conditions in a factory also prevent weatherrelated damage to materials, which can enhance the quality and durability of a building. In an indoor environment, the manufacturer also has more control over the quality of the construction process (e.g., application of grout, caulk, paint, etc.), which in turn enhances the ability of the buildings to resist wear and tear and reduces future repair needs.



Prefabricated restrooms being craned in at Blue Lake Regional Park

Other sustainable features include natural ventilation that saves energy by minimizing the need for heating and cooling systems. Materials and fixtures were selected for their durability and ability to withstand vandalism, reducing the need for frequent replacement. Raingardens treat a portion of the stormwater from the buildings before it infiltrates into the groundwater. Exterior LED lights with timers turn on only when needed.

Equity was another driver in the restroom design. All 32 of the restrooms are gender-neutral and eight are wheelchair accessible. All four of the architects and engineering firms involved in the project are certified as minority-owned, women-owned or emerging small businesses.

The restored, wheelchair-accessible wetland trail and viewing platforms at Blue Lake Regional Park demonstrate how material selection enhances sustainability. The previous asphalt trail was replaced with compacted gravel, which allows rain to infiltrate back into the soil. The aging wooden viewing platform was replaced with fiberglass decking and steel, with an expected lifespan of thirty to fifty years. To reduce toxins from entering the wetlands, the platforms incorporated weathering steel instead of galvanized steel.



GLENDOVEER GOLF COURSE



Glendoveer Golf Course using solar power to improve water quality



At Glendoveer Golf Course, efforts to reduce toxins and enhance water quality got a boost with the installation of solar-powered aerators in three golf course ponds. Golf course operator CourseCo had previously switched to a nontoxic product to control algae in the ponds. While this change enhanced water quality by reducing toxins, some algae and weeds remained, requiring manual removal in the summer months. Experts recommended aeration of the ponds to increase circulation and oxygen in the water, which would reduce the buildup of organic material and create a healthier pond ecosystem.

CourseCo recognized this as a perfect opportunity for renewable energy. Choosing a solar-powered aeration system means no electricity from the grid is needed to operate the aerators, avoiding greenhouse gas emissions. Less algae and weed growth also means reduced labor and maintenance costs associated with manual cleaning of the ponds.

A red-tailed hawk perched on a solar-powered pond aerator at Glendoveer Golf Course

In other hallmarks of Glendoveer's commitment to sustainability, Glendoveer received gold certification from the City of Portland's Sustainability At Work Program.

In addition, in recognition of his efforts to implement sustainable practices, golf course superintendent Gary Heath was honored as a 2015 Environmental Leader in Golf by the Golf Course Superintendents Association of America and Golf Digest.



Golf course superintendent Gary Heath holding his Environmental Leader in Golf award

METRO REGIONAL CENTER



Metro Regional Center installed energy-saving upgrades

This past year, the Metro Regional Center implemented several energy efficiency projects to reduce energy use and costs. Operations staff for the Metro Regional Center have been steadily upgrading the building's systems, bolstered by participation in Energy Trust of Oregon's Strategic Energy Management Program since 2014.

One of the energy- and cost-saving measures recommended by Energy Trust had to do with the system for heating and cooling the Council Chambers. The system was running from morning until nighttime, despite the fact that the Chambers are not occupied about a quarter of that time. Last year, staff acted on a recommendation from Energy Trust to install occupancy sensors that allow the system to turn off when the room is unoccupied and restart when occupied. This improvement is expected to save 48,000 kilowatt-hours per year in energy savings (equivalent to powering four homes) and approximately \$5,200 per year in costs.

When a need arose last year to replace several non-functioning exterior lights at the Metro Regional Center and adjacent Irving Street parking garage to enhance safety, operations staff took the opportunity to install much more efficient options. Staff replaced several metal halide fixtures with LEDs, including seven pole-mounted lamps on the fourth floor of the garage (295-watt bulbs changed to 54-watt bulbs), four lamps in the MetroKids daycare parking lot (170-watt bulbs changed to 75-watts) and 16 exterior wall lights (from 170 watt-bulbs to 50-watt bulbs). These lighting upgrades are expected to reduce energy consumption from these fixtures by 72 percent.



One of the several new LED light fixtures at Metro Regional Center

AGENCY-WIDE INITIATIVES



Integrated Pest Management strategies deployed across Metro

In its second year, Metro's Integrated Pest Management (IPM) program implemented innovative strategies to advance progress towards the toxics reduction goal in the Sustainability Plan. Metro's IPM coordinator provided extensive technical assistance to venues and programs across Metro, helping to solve pest problems with the least risk to people, the environment and Metro's bottom line. Some of these strategies included:

- using snap traps instead of rodenticide
- employing a trail camera to better understand pest problems. At Metro Regional Center, images revealed that a cat had been helping Metro control rodents, illustrating another reason to avoid use of rodenticide when non-target species are feeding on pests
- installing door sweeps, patching holes and other methods to prevent pests from entering buildings
- deploying a professional beekeeper to investigate a bee hive at the Arlene Schnitzer Concert Hall, resulting in a determination that the hive did not pose a hazard to employees and visitors and could be left in place, with a plan to exclude access only after the bees leave the hive
- using a shop vacuum to control cockroaches instead of pesticides
- inspecting buildings regularly to identify conditions conducive to increased pest problems, such as clogged gutters that increase the risk of ants and tree branches touching buildings that allow easy access for rats
- installing fly lights and zappers for non-chemical control of flying insects such as box elder bugs and flies.



To standardize these kinds of Integrated Pest Management practices that prevent pest problems without pesticides, staff created a new agency-wide pest management contract and engaged new contractors at the Zoo, Expo Center, Metro Regional Center and Portland'5 Centers for the Arts.

Pest inspection and monitoring at the Zoo

Alternatives identified for the most toxic products in Metro's inventory

In support of the goal to eliminate the use of priority toxic and hazardous substances, last year Metro focused on identifying effective alternatives to the most toxic products in Metro's inventory, dubbed the "worst of the worst".



This effort built on previous work to first identify chemicals currently used in Metro operations, and then to determine the toxicity of these chemicals. To establish a baseline, Metro created an online inventory of all chemical products in use at Metro facilities, which is updated every two to three years. In 2014, Metro created a web-based Toxic Assessment Tool that uses information from product safety sheets to rate the toxicity of products used in Metro operations by cross referencing ingredients against a variety of regulatory chemical lists. The Toxic Assessment Tool rates hazards of ingredients in the following categories: environmental toxicity, human health, physical hazard (e.g., flammability), persistence in the environment, bioaccumulative potential and inherently toxic. If a product has a high hazard determination in all of these categories, the product is flagged as the "worst of the worst".

Next steps include phasing out these existing products, developing a list of "do not buy" ingredients and creating resources and trainings for staff on how to identify and purchase least-toxic products. Purchasing guides are one such resource under development to help users make decisions that are consistent with Metro's toxics reduction goal. Intended to help staff choose less toxic alternatives to the products they are used to buying, these simple guides list certifications to look for, as well as substitutes for "worst of the worst" products.



Product	Purpose	Alternate Product	Benefits	
Spray Satin Clear Indoor polyurethane Finish		Old Masters® Water-based polyurethane - Satin	Non-aerosol, no ethylbenzene, no xylene, no toluene. MPI GSP-1 certification.	
Traffic Line Finish (Red)	Traffic paint			
Hard Hat Striping Paints	Outdoor marking	Pro Park Waterborne	Non-serosol water-based SCAOMD	
IC LSPR Black Striping	Outdoor/indoor marking	Traffic Marking Paint	VOC certified (<50 g/l), no toluene, no solvents. MPI-GSP2 certified	
ICWB LSPR Hi Visabl Yellow Mark	Marking paint			
AUTORF + SSPR Rust	Converts rust to non-	Rust Oleum 3575 System	Water-based spray product (liquid	
Reformer	rust surface	Rust-Reformer	coating), no solvents, VOCs <50 g/l	
391 Gray Primer		Sherwin Williams Multi-	Non-aerosol. SCAQMD VOC certified,	
PTOUCH 2X +SSPR White	Primer	Purpose Latex Primer/	MPI GSP-2 certified, no xylene and	
Primer		Sealer	ethylbenzene.	
Cat Yellow Paint Aerosol HG	Paint	Valspar T&I EN Equipment Yellow	Liquid equivalent product, no toluene	

Excerpt from a purchasing guide for choosing less toxic products

Metro creates tools to make it easier to choose sustainable products and services



In 2010, Metro Council adopted the Sustainable Procurement Program to ensure that its procurement activities support Metro's overall sustainability goals. The program established administrative rules that apply to the goods and services that Metro buys. However, understanding and applying the rules can be challenging.

To help, procurement staff developed specification sheets targeted at the categories of goods and services most frequently purchased at Metro. These guides cover personal services, landscaping, appliances and small equipment, third party certifications and toxics to avoid by product category. These tools provide a brief overview of the typical impacts of the product or service, the benefits of choosing more sustainable options, and cut-and-paste specifications and evaluation criteria that can be inserted into a solicitation document.

For example, the "toxics to avoid" specification sheet makes reducing toxic chemicals in Metro's purchases much more accessible for staff. While guidance on toxics exists, few resources are framed from the buyer's perspective (e.g., buying adhesives without phthalates). Many resources provide banned chemical lists, but do not provide clarity on what to look for or how to ensure that those specifications are met in the proposed goods. Metro's new specification sheet lists common toxics present in typical categories of products, such as textiles, paints, adhesives, and cleaning products, and provides example specifications that will ensure the products are free of the targeted toxic.

PROCUREMENT SERVICES CONTRACTS AND PURCHASING The following list includes of that you can use to elimina and only contains common Before including one of the that meet the specification	SUSTAINABLE PROCUREMENT SPECS: GEN common toxics arranged by the product categories in which the ate (or minimize in some cases) the use of these chemicals in the in toxics and limited example specifications. This guidance should be example specifications listed here, perform market research or h.	ERAL GOODS – TOXICS TO AVOID y appear. The Specifications column provides purchasing requirements manufacture of the products you purchase. This list is not exhaustive be considered generalized, and may not apply to every purchase. a your purchase to ensure that multiple product/supplier options exist
Product Categories	Toxic Chemicals	Example Specifications
Adhesives / glues	Phthalates	Non-phthalate water based
	 Volatile Organic Compounds (VOCs) 	Meet CDPH Standard Method v1.1
Child and Baby Products	Halogenated flame retardants	No-flame retardant chemicals (see Center for Environmental Health guide)
	Phthalates	Fragrance free, non-phthalate
	Polyvinylidene chloride	Non-vinyl/PVC
Cleaning Products / Detergents	Phthalates	Green Seal GS-37 certified Fragrance free
	 Alkylphenols Heavy Metals 2-butoxyethanol Asthmagens 	Green Seal GS-37 certified
Metal Alloys	• Lead	Lead-free
Paints / dyes / liquid coverings	 Cadmium, other heavy metals Chlorobenzenes Alkylphenols Phthalates 	Green Seal GS-11 (paints/coatings)

Excerpt from "toxics to avoid by product category" specification sheet

MEET THE TEAMS



Sustainability Steering Committee: Benjamin Rowe, Nancy Strening, Matthew Uchtman, Lydia Neill, Rick Hodges, Debbie Humphrey, Ed Williams, Nicole Lewis. Not pictured: Jenna Garmon, Tracy Sagal, Chuck Dills, Rick Hanes



Metro Regional Center Green Team (front to back): Paulette Copperstone, Danielle Johnson, Sabrina Gogol, Patrick Morgan, Robyn Brooks, Jodi Wacenske. Not pictured: Thomas Thornton



Combined Property and Environmental Services/Parks and Nature Green Team: Andrew Judkins, Therese Mitchell, Chelsea Althauser, Greg Chavira, Shellie Moran, Jim Quinn, Eric Crandall



Portland'5 Centers for the Arts Green Team: Robyn Williams, Stephanie Viegas Dias, Rich Wehring, William Stitt, Jeannie Baker, Dave Woodman, Courtney Dykstra, Jeanne Uding, Andrea Gratreak

Metro Green Teams implemented several sustainability projects in FY 2015-16, including:

- Metro Regional Center's Green Team partnered with operations staff to implement an energy campaign, focused on reducing energy use from plug loads.
- To reduce pollutants and greenhouse gas emissions from Metro vehicles, the Property and Environmental Services/Parks and Nature Green Team created materials to launch a No Idling Campaign next fiscal year.
- The Portland'5 Green Team installed a water bottle filling station to encourage employees to choose reusable water bottles over disposable cups.

PROJECT HIGHLIGHTS













From top left: Metro **Regional Center and** Energy Trust host LED Lighting Fair; IPM Coordinator Rob Hamrick with a pest contractor; Sustainability Steering Committee tours of Blue Lake Regional Park wetland viewing platform, Oregon Convention Center solar array and Expo Center green stormwater wall; Table 6 Café at the Metro Regional Center receives Sustainability At Work Gold certification

PART 2: PROGRESS TOWARD SUSTAINABILITY GOALS

GOAL 1: REDUCE GREENHOUSE GAS EMISSIONS

	Goal	Reduce greenhouse gas emissions 80 percent below 2008 levels by 2050.
	Indicators	Greenhouse gas emissions for Scopes I, II and III, reported in metric tons of carbon dioxide equivalent (MT CO2e).
1		Electricity consumption from Metro facilities reported in kilowatt- hours consumed (kWh).
-	2020 target	25 percent reduction in greenhouse gas emissions (excluding supply chain) from 2008 levels.

Metro completed a comprehensive greenhouse gas emissions inventory for internal operations in 2008 and repeated this inventory for FY 2012-13. Due to the complexity of the analysis, Metro does not conduct a greenhouse gas emissions inventory annually. The latest inventory report is available at <u>www.oregonmetro.gov/greenmetro</u> and summarized in the appendix of this report.

In lieu of a complete greenhouse gas inventory, Metro compiles electricity and natural gas consumption data for the purposes of this annual report. These two sources comprise 46 percent of Metro's non-supply chain emissions, according to the FY 2012-13 greenhouse gas inventory.

In FY 2015-16, Metro facilities consumed 27.2 million kWh of electricity, a 15 percent decrease from the 2008 baseline and on track to meet the 2020 target for electricity (24.1 million kWh). This total equates the amount of energy needed to power 2,438 Oregon homes for a year. Metro facilities used 534,499 therms of natural gas in FY 2015-16, a 33 percent decrease from the FY 2010-11 baseline¹ and below the 2020 target of 597,766 therms. While these reductions indicate progress toward the goal for these emissions sources, they do not represent the entirety of Metro's greenhouse gas emissions. The last greenhouse gas inventory indicated that much progress must be made to meet the 2050 goal. Metro plans to complete an updated inventory in the next few years, which will provide a more complete picture.



¹ The baseline years for reporting Metro-wide usage of electricity and natural gas differ. FY 2010-11 is used for natural gas since that is the year with the most complete set of gas usage data for Metro facilities.



FY 2015-16 electricity usage at Metro facilities as a percentage of agency total

FY 2015-16 electricity usage in kWh (% change compared to baseline)





FY 2015-16 natural gas usage at Metro facilities as a percentage of agency total

FY 2015-16 natural gas usage in therms (% change compared to baseline)



GOAL 2: CHOOSE NONTOXIC

	Goal	Eliminate the use or emissions of persistent bioaccumulative toxics (PBTs) and other priority toxic and hazardous substances by 2025.
©	Indicator	Percentage of chemical products used at Metro facilities that have ingredients rated as high hazard in any one or more of the following categories: human health, environmental toxicity, physical hazard, persistent, bioaccumulative or inherently toxic.

Metro uses chemical information from product safety data sheets² to track the toxicity of products used in internal operations. In 2014, Metro developed a Toxics Assessment Tool in partnership with KHA-Online SDS, the host for Metro's web-based safety data sheet database. The Toxics Assessment Tool uses a variety of regulatory chemical lists cross-referenced with the information contained in safety data sheets to make toxic hazard determinations.

During FY 2014-15, Metro made some important changes to the Toxic Assessment Tool to be more robust and better reflect the intent of the Metro Council's adopted toxic reductions goal. In addition to flagging products rated high hazard for environment, health or physical hazard (the original methodology), the tool was improved to also identify products rated high hazard in the persistent, bioaccumulative or inherently toxic categories. These changes reset the baseline to FY 2014-15.

In addition, products which receive a high hazard rating in all six of the hazard categories are identified as the most hazardous, deemed "worst of the worst". Metro is focusing its toxics reduction efforts on these most hazardous products, seeking safer alternatives where available.

At the time this report was written, there were a total of 1,554 unique safety data sheets in Metro's database, representing chemical products in use at Metro facilities. In FY 2015-16, the percentage of products in Metro's inventory with a high hazard in one or more category was 78 percent (compared to 74 percent in FY 2014-15), while the percentage of products deemed "worst of the worst" remained seven percent – unchanged from the baseline. However, Metro also reduced the total number of products in its inventory, so while the percentages did not change substantially, the actual number of toxic products decreased.



² Safety data sheets describe the hazards of working with a chemical and procedures to ensure safety.



FY 2015-16 percentage of products with a high hazard rating in one or more category

FY 2015-16 number and percentage of products rated high hazard in Metro's inventory

Total products in inventory		Products with high hazard rating in one or more categories	Products with high hazard rating in all categories
FY 2014-15	2,402	1,772 (74%)	160 (7%)
FY 2015-16	1,554	1,206 (78%)	107 (7%)

FY 2015-16 number of products with high hazard in each category



GOAL 3: REDUCE WASTE

	Goal	Reduce overall generation of waste, and recycle or compost all remaining waste by 2025.
	Indicators	Weight (tons) of waste generated (garbage plus recycled materials ³).
		Percent of waste recycled.
	2020 targets	Reduce waste generation 20 percent from 2008 levels by 2020.
		Recycle 90 percent of waste by 2020.

To measure progress toward this goal, Metro tracks overall waste generation and recycling from the major facilities in the agency's portfolio. Metro facilities generated 4,360 tons of waste in FY 2015-16 and recycled 57 percent of total waste.

Overall waste generation across Metro is trending in the wrong direction – 37 percent higher than baseline and far from meeting the 2020 interim target of 20 percent below baseline. However, waste generation has decreased significantly at several facilities compared to baseline, including Metro Regional Center (36 percent decrease) and Expo Center (25 percent decrease).

Metro's recycling rate has increased by six percentage points over baseline to 57 percent, with greater than 20 percent increases occurring at Arlene Schnitzer Concert Hall and Expo Center. Despite these gains, much progress would need to be made in the next few years to reach the 2020 target of 90 percent recycling rate.



³ Recycled materials include standard recyclables, as well as yard debris or food scraps that were composted or anaerobically digested.



FY 2015-16 total waste generation as a percentage of agency total

FY 2015-16 recycling recovery rate at Metro facilities compared with baseline year (varies)^{4,5,6}



⁴ Blue Lake and Oxbow parks began tracking weight of yard debris, downed wood and trees as part of their recycling recovery rates in 2014 thus dramatically increasing their reported recovery rates.

⁵ Baseline years for calculating recycling recovery vary based on earliest available complete data set for that facility. The following facilities have a 2008 baseline year: Oregon Zoo, Oregon Convention Center, Portland Expo Center, Metro Regional Center and MetroPaint. FY 2010-11 baseline year: All Portland'5 Centers for the Arts facilities and Oxbow Regional Park. FY 2011-12 baseline year: Blue Lake Regional Park. FY 2012-13 baseline year: Glendoveer Golf and Tennis, St. Johns Landfill.

⁶ The Zoo's recycling rate includes composting of manure and animal bedding; subtracting those materials out would reduce the recycling rate to 58 percent.

GOAL 4: CONSERVE WATER

	Goal	Use 50 percent less water from 2008 levels by 2025.
	Indicator	Gallons of water consumed from water utilities and on-site sources.
	2020 target	Use 40 percent less water from 2008 levels by 2020.

Metro collects water usage data for its facilities from water-providing utilities and from well water records. Water use is reported in CCF, or hundred cubic feet (equivalent to 748 gallons).

In FY 2015-16, Metro facilities consumed 213,037 CCF (159 million gallons) of water, including about 93,000 CCF (69.6 million gallons) from onsite wells. This amount of water equates to about 250 times the volume of an Olympic-sized swimming pool.

Water use in FY 2015-16 was 23 percent less than the FY 2008-09 baseline, a substantial reduction but not quite on track to meet the 2020 target of 40 percent reduction (165,078 CCF). Several facilities have reduced water use by over 50 percent compared to baseline: St. John's Landfill (87 percent), Metro South Transfer Station (62 percent), Antoinette Hatfield Hall (58 percent) and MetroPaint (58 percent).

Oregon Zoo and Glendoveer Golf and Tennis Center continue to be Metro's top water users, but each of them achieved substantial decreases compared to baseline – 17 percent and 39 percent, respectively. Two of Metro's facilities reduced water use significantly compared to last year – Metro Regional Center (30 percent) and Metro South Transfer Station (29 percent).





FY 2015-16 water usage as a percentage of agency total

FY 2015-16 water usage compared with FY 2008-09 baseline (CCF)



GOAL 5: ENHANCE HABITAT AND REDUCE STORMWATER



Tracking effective impervious surface area is a way to monitor stormwater runoff from Metro's developed properties and resultant impacts to habitat health. Effective impervious area measures the amount of hardscape on a developed property (e.g., roofs, parking lots, sidewalks) that sends water directly to a waterway or sewer without being treated by an ecoroof, bioswale or other low impact development facility. The higher the amount of effective impervious area, the more significant the property's negative impact on water quality and wildlife habitat.

In FY 2015-16, the overall percentage of effective impervious area on Metro's developed properties was 79 percent. This is far from the 2020 target of 25 percent effective impervious area. Reducing effective impervious area is a particularly challenging goal given the nature of many of Metro's developed properties. For instance, space limitations on several of Metro's properties restrict the ability to install bioswales, and some older buildings lack the structural integrity to support ecoroofs. Other properties offer significant opportunities to reduce effective impervious area, such as the extensive parking lot at the Expo Center, that have not yet been realized due to cost barriers.

However, Metro has implemented low impact development features on properties as opportunities have arisen. For instance, in FY 2015-16, Metro installed raingardens to capture and treat portions of the stormwater runoff from four new restroom buildings at Blue Lake Regional Park. In FY 2013-14, a stormwater green wall was installed at the Expo Center that diverts stormwater and pollutants collected from 9,390 square feet of roof through a series of native plants.





FY 2015-16 effective impervious area as a percentage of agency total

FY 2015-16 effective impervious area in square feet (change compared to baseline 2008-2009)



PART 3: APPENDIX UTILITY COSTS ENERGY EFFICIENCY PROJECT INCENTIVES SUSTAINABLE PROCUREMENT GREENHOUSE GAS EMISSIONS INVENTORY ABOUT METRO'S SUSTAINABILITY PROGRAM

UTILITY COSTS FY 2015-16

Many of Metro's sustainability activities revolve around improving facility systems and operations to make them more energy and water efficient, as well as reduce costs. The following utility costing data provides financial context and a sense of scale to the resource consumption that accompanies operation of Metro facilities and visitor venues.

Department or venue	Utility Services - General	Electricity	Natural Gas	Water & Sewer	Solid Waste	Total FY 2015-16 utility expenses
Portland Expo Center		\$339 <i>,</i> 396	\$61,681	\$130,935	\$37,143	\$569,155
Oregon Convention Center		\$826,810	\$71,618	\$257,307	\$54,375	\$1,210,109
Portland'5 Centers for the Arts		\$348,170	\$66,441	\$82,428	\$37,687	\$534,726
Parks and Nature	\$14,949	\$56,192	\$782	\$107,402	\$72,893	\$252,217
Property and Env. Services	\$164,111	\$60,073	\$8,064	\$74,681	\$146,470	\$453,398
Oregon Zoo	\$1,872	\$694,573	\$177,340	\$1,174,442	\$73,196	\$2,121,423
FY 2015-16 Totals	\$180,931	\$2,325,213	\$385,924	\$1,827,195	\$421,764	\$5,141,028
FY 2014-15 Totals	\$16,167	\$2,393,150	\$454,971	\$1,752,927	\$386,533	\$5,003,749

Utility consumption costs for Metro facilities⁷, FY 2015-16





⁷ Until June 2015, Metro's Parks and Environmental Services included solid waste facilities, Blue Lake and Oxbow regional parks and Metro Regional Center. As of June 2015, solid waste facilities are associated with the new Property and Environmental Services department, and Blue Lake and Oxbow Parks with the new Parks and Nature department. Utility cost data does not include Glendoveer Golf and Tennis Center because the utilities at that facility are paid by a third party operator.

ENERGY EFFICIENCY AND RENEWABLE ENERGY PROJECT INCENTIVES FY 2015-16

Metro works closely with the Energy Trust of Oregon (ETO) to implement energy efficiency and renewable energy projects at Metro facilities and visitor venues. Projects last year included lighting upgrades, building systems updates and controls, solar ready design, solar hot water and photovoltaics, and participation in ETO's Strategic Energy Management Program.

		Electricity	Natural Gas		
		savings	savings	ETO ir	ncentive
Location	Measure Description	(kWh)	(therms)	r	eceived
ETO Existing Buildings Program					
Portland'5 Centers for the Arts	HVAC updates, occupancy	72,432		\$	9,278
	sensing plug strips, LED				
	lighting	4.405		4	
Blue Lake Regional Park	LED lighting	1,435		Ş	457
Oregon Zoo	LED lighting, study on Steller Cove chiller & cooling tower	57,922	604	Ş	11,400
Oregon Convention Center	Kitchen vent hood, zero loss	40,476	710	\$	9,782
	automatic drain valve				
Metro Regional Center	LED lighting, system controls	84,400	1,518	\$	5,865
	Subtotal	: 256,665	2,832	\$	36,782
ETO New Buildings Program					
Zoo Elephant Lands exhibit	Commissioning			\$	4,950
Zoo Education Center	Solar ready			\$	2,000
Blue Lake Regional Park	LED lighting			\$	457
restrooms					
			Subtotal:	\$	7,407
ETO Commercial Solar Program					
Zoo Elephant Lands exhibit	Solar hot water		1,100	\$	6,600
Zoo Elephant Lands exhibit	Solar photovoltaic	20,585		\$	32,760
	Subtotal	: 20,585	1,100	\$	39,360
	Grand to	tal ETO cash ince	ntives FY15-16:	\$	83,549
ETO Strategic Energy Manageme	ent Program				
Expo Center	consulting services and cash ir	ncentives		\$	27,000
Portland'5 Centers for the Arts	consulting services and cash ir	ncentives		\$	27,000
Metro Regional Center	consulting services			\$	13,000
Oregon Convention Center	consulting services and cash incentives			\$	15,000
Total value of ETO Strategic Energy Management consulting services FY15-16:				\$	82,000
	GRAM	ND TOTAL VALUE	OF INCENTIVES	\$	165,549

SUSTAINABLE PROCUREMENT FY 2015-16

Metro's sustainable procurement program was created to ensure that Metro's procurement activities meet adopted sustainability goals and support a sustainable environment, economy and community. The program aims to:

- increase by 5 percent per year the dollar amount of sustainable products purchased from the prior year
- increase utilization of minority-owned, women-owned and emerging small business (MWESB) certified firms in Metro contracting, expressed as a percent of total spending
- increase utilization of local businesses within 400 miles of Metro.

Metro reports MWESB firm contract utilization rates in a separate report available on Metro's website: <u>www.oregonmetro.gov/mwesb</u>. Metro's Sustainable Procurement policy can be found online at <u>www.oregonmetro.gov/greenmetro</u>.

In FY 2015-16, Metro spent nearly \$6.4 million on sustainable goods and services.⁸ This represents roughly 12 percent of Metro's overall spending on goods and services for the year.

Third Party Certified\$408,331				
Recycled Content				
Recycled Paper	\$217,239			
Recycled Content Product	\$122,079			
Product - Other	\$67,491			
Services				
Habitat Friendly	\$1,317,525			
Energy Efficiency	\$230,630			
Feasibility / Design	\$32,903			
Other	\$1,071,474			
Renewable Power	\$932,232			
Green Building	\$26,919			
Supporting Regional Sustainability	\$1,887,958			
Oregon Products and Services				
Oregon Products	\$6,822			
Oregon Services	\$49,244			
Total Sustainable Procurement FY15-16	\$6,370,848			
Total Goods and Services Purchases\$54,401,926				
% Sustainable Purchases 12%				

Metro-Wide Spend Totals by Category

⁸ The "other" categories include products and services that have sustainable attributes but do not fit the categories Metro uses to track sustainable purchases. The "Product – Other" category includes products such as hybrid fleet vehicles. The "Services – Other" category includes services such as software that reduces paper and transit passes for Metro employees.

In addition to the numbers listed above, Metro's Zoo Bond program has made significant purchases supporting green building. With nearly \$12 million in procurement of LEED certified buildings in FY 2015-16, the Zoo Bond expenses show commitment to sustainable new construction. The Elephant Lands project, for example, exceeded its goal when it was recently certified to LEED Gold.

In 2012, Metro established a goal to increase sustainable procurement five percent year over year using FY 2012-13 data as a baseline. Since then, Metro has increased its sustainable procurement to 12 percent. This puts Metro behind the goal of 21 percent sustainable procurement for FY 2015-16.

Fiscal Year	Goal	Actual
2012-2013	n/a	5.6%
2013-2014	11%	3%
2014-2015	16%	9%
2015-2016	21%	12%
2016-2017	26%	-
2017-2018	31%	-

One of the biggest challenges in meeting this goal is the process for tracking expenses. Metro tracks sustainable procurement through budget coding that is applied to every line item in our accounting system. This means that a large number of staff are responsible for correctly and consistently applying sustainability coding to expenses. As a result, Metro is likely under-accounting for our sustainable purchasing. To address this, Metro engages in frequent training and communications regarding tracking sustainable procurement.

In FY 2015-16, Metro updated the tracking codes to better track how our purchases align with our Sustainable Procurement Program. One of the updates involved merging all third-party certified products in order to simplify the tracking system and reduce the number of different tracking codes. Another change involved adding a category for services that support sustainability in the region. This category aims to capture the public work that Metro does to make our region more sustainable.

GREENHOUSE GAS EMISSIONS INVENTORY, FY 2012-13

Metro previously completed comprehensive greenhouse gas emissions inventories for internal operations for 2008, as the baseline year, and for FY 2012-13. Due to the complexity of the analysis, Metro does not conduct a greenhouse gas emissions inventory annually. A summary of the results of the FY 2012-13 analysis can be found in the graph below. Greenhouse gas emissions are reported in metric tons of carbon dioxide equivalent (MT CO₂e).

In FY 2012-13 Metro operations generated a total of 58,173 MT CO₂e from both direct sources (Scope 1 – those owned by Metro) and indirect sources (Scopes 2 and 3 – those that result from Metro's activities but occur from sources owned controlled by another entity such as purchased electricity, embodied emissions in goods, employee travel and commuting, etc.).

The first chart below shows a breakdown of emissions by scope and by functional area. Scopes 1 and 2 yielded 29,768 MT CO2e. This is equivalent to annual emissions from 6,202 passenger vehicles. Scope 3 emissions were 28,406 MT CO2e, equivalent to emissions from 5,918 passenger vehicles.



FY 2012-13 Metro agency-wide emissions from government operations, by functional area

The chart below compares FY 2012-13 emissions with CY 2008 emissions. Overall, non-supply chain emissions decreased nearly nine percent, from 35,892 MT CO₂e in CY 2008 to 32,673 MT CO₂e in FY 2012-13. While this is a significant reduction, it is not on pace to meet Metro's ambitious goal of an 80% reduction of non-supply chain emissions over CY2008 levels by 2050. Emissions sources that decreased since the baseline include:

- electricity and stationary fuels: electricity decreased by 15 percent and stationary fuels (primarily natural gas) by 8 percent due to energy efficiency projects
- regional waste hauling: a decrease in community-generated solid waste due primarily to the economic downtown led to this 25 percent reduction in emissions from waste transportation

The full FY 2012-13 report is available at <u>www.oregonmetro.gov/greenmetro</u>.

- refrigerants: equipment replacement has led to fewer leaks
- business travel: reductions are due to reduced air travel
- Metro operations garbage: recycling and compost programs led to higher diversion rates in FY 2012-13.



Emissions comparison between CY 2008 and FY 2012-13, by emissions source and scope

ABOUT METRO'S SUSTAINABILITY PROGRAM

Metro's Sustainability Program coordinates implementation of the agency's *Sustainability Plan* for internal operations. Actions are spread across Metro's departments, facilities and visitor venues.

Sustainability Steering Committee

A steering committee of representatives from Metro's major facilities and venues and key departments provides oversight and accountability for implementation of the Metro *Sustainability Plan.* 2015-16 members included:

- Ed Williams, Portland'5 Centers for the Arts
- Rick Hanes, Oregon Zoo
- Matthew Uchtman and Rick Hodges, Oregon Convention Center
- Chuck Dills, Portland Expo Center
- Jen Keisler Fornes, Parks and Nature, Parks Operations
- Debbie Humphrey, Property and Environmental Services, Solid Waste Operations
- Nancy Strening, Property and Environmental Services, Construction Project Management Office
- Rory Greenfield, Property and Environmental Services, Metro Regional Center operations
- Tracy Sagal, Finance and Regulatory Services, Procurement Services division
- Benjamin Rowe, Finance and Regulatory Services

Green Teams

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

The following Metro employees served as chairs of the green teams during FY 2015-16:

- Metro Regional Center: Sabrina Gogol
- Property and Environmental Services/Parks and Nature: Andrew Judkins
- Portland'5 Centers for the Arts: Matt Nicoll
- Glendoveer Golf and Tennis Center: Carolyn Sherman
- Expo Center: Chuck Dills

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

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