

Metro Currently Allocated Resources – Climate Mitigation

Research Center

These estimates are for activities related to estimating emissions of a suite of several dozen pollutants, not just GHGs. It wouldn't be possible for me to split them out since they're all done under the same umbrella.

The primary purpose of our emissions estimation activities has historically been to demonstrate conformity in conjunction with RTP updates. Our technical methodology has been developed with this in mind and in compliance with the most current EPA guidance related to conformity determinations. While Metro is no longer required to demonstrate conformity, the same set of emissions (including GHGs) is still calculated and reported in the same manner.

The bulk of our emissions estimation work is done in conjunction with RTP updates and is therefore very intermittent, heavy for a few months every 4 years or so and light outside of that. These estimates smooth that out to an annual average.

This process has been automated and streamlined over the years and so the numbers are pretty low. Much of the heavier lifting occurred years ago when I was first setting up the methodology.

There is no M&S here, only FTE.

Nature of Current Work	FTE
Maintaining and updating EPA's MOVES emissions model and input databases	0.02 FTE
Maintaining and updating internal materials (scripts that extract transportation model activity output, calculation spreadsheets)	0.02 FTE
Calculating RTP emissions estimates	0.01 FTE
Climate Smart Strategy support	0.01 FTE
Miscellaneous emissions estimates (corridor studies, T2020, etc.)	0.01 FTE
Technical support to local partners	0.01 FTE
Total	.08 FTE

Property & Environmental Services

Greenhouse gas emissions are produced around the world as a result of the Metro region's consumption of goods and services. In 2015, the last year for which there is full data, 41 million metric tons of greenhouse gas emissions were generated from the products, materials and services that the region's residents bought, used and threw away. A core value of the 2030 Regional Waste Plan includes leading efforts to reduce impacts of climate change and many of the actions are focused on reducing greenhouse gas emissions. In addition, one of the Plan's key indicators for evaluating progress is "greenhouse gas emissions associated with the products and services consumed in the Metro region." Efforts to reduce emissions span the life cycle of products, from "Upstream" (extraction and manufacturing) focused policies to "Mid-stream" (use) efforts through education, policies and purchasing decisions to "Downstream" (discards) initiatives to recycle the right materials in the right way. In 2017, recycling efforts alone reduced greenhouse gas emissions equivalent to removing 306,000 cars from the road.

Within the downstream part of the life cycle, efforts to reduce diesel particulate emissions and change equipment and fuels used by on-road trucks and off-road equipment at solid waste facilities also result in greenhouse gas emissions reductions.

In addition, PES currently houses coordination of Metro's Internal Sustainability program, which develops and implements a number of actions intended to help the agency meet its internal operations goal related to greenhouse gas emissions.

Nature of Current Work	Position(s)	FTE equivalent	FY19-20 M&S
Planning, development and implementation of regional waste reduction programs, services and policies, and development and support of state legislative proposals	Waste Reduction Planners and Program Managers	10.5	\$3,176,000
Planning, development and delivery of waste reduction and climate-focused educational programs for youth, adults and families	Waste Reduction Educators and Managers	8	\$584,000
Integration of emissions reduction strategies (fuels and technology) into Metro-operated, contracted and regulated on-road and off-road fleets, and collaborative work with local government and haulers on collection fleets	Solid Waste Planners	0.2	TBD
Grant program for private, for-profit companies and non-profit organizations to leverage work that advances the region's waste reduction efforts.	Investment and Innovation Grants Program Coordinator and Program Team Members	2.5	\$6,000,000
	Sustainability Coordinator	0.3	\$40,000

Planning, coordination and implementation of greenhouse gas emissions actions in Metro's Internal Sustainability Plan	Climate Analyst	0.8	
	Total	22.3	\$9,800,000

The resources listed above do not include personnel and M&S associated with regulating private recycling facilities in the region. While a step removed from the waste reduction work described below, this oversight is essential to ensuring the functioning of a segment of the recycling system that leads ultimately to greenhouse gas emissions reductions.

Visitor Venues

Work	Amount	FTE
4 employees from across Visitor Venues serving on Sustainability & Asset Mgmt Capital Projects Committees	4 employees x 3 hours per month = ~144 hours per year)	.05 FTE
Zoo policy		.25
Zoo Education		.75
Zoo Communications		.2
Expo center		.2 FTE
P5		.2FTE
Convention Center Sustainability Manager		1 FTE
Convention Center Facility Manager		.25 FTE
Convention Center Sustainability Specialist		.50 FTE
Convention Center Director of Facilities & Operations		.10 FTE
		3.3 FTE

All Visitor Venue climate mitigation efforts

(FTE and M&S investments / expenditures)

Each of the Visitor Venues have a representative serving on Metro's Sustainability and Asset Management Capital Projects committees

(4 employees x 3 hours per month = ~144 hours per year)

- The Metro Visitor venues are members of the WAVE Pacific Northwest Sustainable Development Coalition for regional collaboration of large public assembly buildings, sports arenas, performing arts centers, zoos, aquariums, etc. to accelerate environmental programs that address climate change, social justice and youth engagement. WAVE endeavors to generate scale and impact in the Pacific Northwest to: build a strong, clean energy economy; ensure healthy air and pure drinking water; share economic resources; address social inequities; and, engage and activate the public. (Membership = \$12,500)
- Venues operations team members suggest an agency-wide policy establishing GHG reduction standards for contractors.

Oregon Zoo climate mitigation efforts

Employee resources: .2 FTE Comms, .25 FTE Policy, .35 FTE Education = .75FTE

- The mission of the Oregon Zoo embeds conservation efforts and education into the majority of the venue's work. The Oregon Zoo inspires the community to respect animals and take action on behalf of the natural world, by creating engaging experiences and advancing the highest level of animal welfare, environmental literacy and conservation science.
- In 2019, the zoo established the Oregon Zoo Green Team whose charge is to (1) update the Zoo's Sustainability Plan and (2) find green initiatives/ideas and act on them. The Zoo's Sustainability Plan will be in line with the **sustainability goals set by Metro Council**.
- Some actions taken on the zoo campus in recent years include sub metering a significant portion of the campus, installation of LED lighting, a switch from bottled wine and beer to kegs, a switch from single-use plastic bottled water to aluminum, purchase of green energy from Northwest wind projects, installation of a two-port electric vehicle charging station, replacing water heaters with tankless units, installation of filter water station in employee areas to replace water delivery, installing a high efficiency boiler in the Swamp building, shutting down equipment at night, decommissioning the hippo pool, fixing water leaks, and an efficiency upgrade of Steller Cove.

As a result of these efforts, in FY2017-2018 the zoo experienced 20 percent savings in natural gas use, 11 percent savings in electricity use, and 23 percent in water savings compared to the previous year.

In addition to the Green Team the Zoo Bond Projects demonstrate the zoo's commitment to the agency's sustainability goals. The new Education Center is designed for net zero energy and achieved LEED Platinum certification. Some of the key features include more than 700 solar panels, LED lighting, high efficiency heating and cooling systems, rainwater harvesting, rain gardens, a wildlife garden, salvaged building materials, and bird-friendly glass. The Elephant Lands project earned LEED Gold certification. Some of the sustainable features include: pool filtration, improved storm water management, geothermal system, solar photovoltaic panels on Forest Hall roof, solar hot water, and natural ventilation.

Oregon Zoo's strategies are also aligned with the **Climate Smart Strategy** adopted by Metro Council in December 2014. The zoo works closely with Explore Washington Park in trying to direct visitors towards the use of MAX. The zoo recently installed a bike repair station available to bikers in Washington Park. Zoo facilities have goals to reduce the number of fleet vehicles and transition to more fuel-efficient vehicles.

The Facilities Team ensure compliance with various Metro sustainability measures, including reductions in gas vehicles, improvements to Life Support systems and the positive animal impacts as well as water saving benefits.

Portland Expo Center climate mitigation efforts

~.2FTE Operations staff time devoted to Climate Mitigation efforts

- With aging HVAC systems, the Portland Expo Center has planned for capital improvements averaging \$200,000 per year starting in 2023 for a 10-year period thereby reducing the refrigerant gases, significantly.
(Estimated at \$1.5 million, 2023-2033)
- Expo would like to partner with and benefit from Metro's existing Clean Air Program through PGE and PES.
(Estimated at \$1000-\$1500 per year)
- The visitor venue food and beverage contract specifies a profit share for capital improvements. Expo utilized this revenue share to replace ice machines, recently.
(\$10,000 investment by pacificwild/Expo)
- The Portland Expo team has established agreements with clients and contractors to increase sustainability. For example, last minute load-in procedures can impact heating. As such, clients are encouraged to use "work lights" during setup versus full lighting. Clients receive incremental fees for last minute impacts to incentivize resourcefulness and advance planning in the move in and move out.

Portland's climate mitigation efforts

~.2FTE Operations staff time devoted to Climate Mitigation efforts

- With each capital project to update and upgrade the Portland's theaters, the operations team includes sustainability in the decision-making framework.
- Recently, P5 replaced the chiller for increased efficiency which will be realized in the upcoming fiscal year.
(Total Cost: \$2.4M)
- The Antoinette Hatfield Hall roof replacement will increase energy efficiency at an estimate of 20%.
(Total Cost: \$3.9M)
- In the coming months, the two marquee sign will be upgraded on Broadway and Park to LED lighting which will reduce energy usage by a 20% estimate. Additionally, labor hours will be significant as the manual change of signage takes many hours each year.
- Additionally, the Arlene Schnitzer Concert Hall stage lights have been upgraded to LEDs.
- And, the team now utilizes an electric bike to commute from theater to theater which will reduce some GHGs over the course of its lifetime.

Oregon Convention Center climate mitigation efforts

1 FTE Sustainability Manager

.50 FTE Sustainability Specialist

.25 FTE Facility Manager

.10 FTE Director of Facilities & Operations

1.85 FTE Total

- The Oregon Convention Center is one of two LEED Platinum certified convention centers in the US. In addition to OCC's operations, the client waste diversion policy ensures events within the center comply with Metro's sustainability values. These efforts and the many solar panels on the rooftop make the center one of the most sustainable in the world.

Parks and Nature

Because much of Metro P+N land protection, restoration and long-term management work naturally overlaps with climate change specific strategies, it is difficult to precisely parse how much time staff spend on global climate change mitigation and adaptation (resilience) as opposed to work on habitat and water quality. Core strategies for biodiversity and water quality conservation, such as developing a connected landscape of well-managed protected anchor sites and smaller connector areas within a matrix of healthy private lands and the use of green infrastructure and nature in the city are also core to climate mitigation and resilience. Conservation management for forest, prairie-savanna or wetland health also generally, but not always provides carbon sequestration benefits.

This table presents staff time spent specifically on GCC, including only the conservative marginal addition of time that would not be spent on the same issue in the absence of climate change considerations.

Position	Name	Nature of Current Work	FTE equiv.
Science Manager	Jonathan Soll	Tracking climate change literature, serving on occasional work groups, attending occasional workshops, ensure inclusion of accurate climate change concepts in P+N work and documents.	0.05-0.1
Senior natural res. scientist	Lori Hennings	Staff scientist most engaged in tracking GCC literature and models, attends occasional conference or workshop. Leads Metro work on regional connectivity and coordination with transportation.	0.05-0.1
Natural res. scientists managing our land portfolio	Various (5)	Track GCC literature, incorporate and communicate GCC concepts into regional conservation efforts, site conservation plans and restoration projects.	0.1

Planning and Development

Climate change mitigation and greenhouse gas reduction are inherent to the key programs under Land Use & Urban Development. Management of the urban growth boundary, promoting transit-oriented development, distributing planning grants to assist local jurisdictions in working towards walkable, transit-friendly places, advancing small-format housing, and other activities that work to ensure efficient use of land within the UGB are all essential smart growth practices that promote density and reduce VMT. With the exception of FTE dedicated to the Affordable Housing Bond, staff time spent in support of Metro's land use planning activities would be considered staff resources already committed towards climate change mitigation.

Program/Project	Gibb	Williams	McLaughlin	Lieb	Alvarado	Larson	Miles	Reid	O'Brien	Small	Total
TOD	0.3	0.4	0.4								1.1
Equitable Housing	0.05			0.05	0.05	0.2		0.05		0.1	0.5
2040 Grants	0.05	0.1	0.1		0.05		0.9	0.05	0.3	0.1	1.65
Land Use Planning	0.25						0.1	0.7	0.4	0.5	1.95
Functional & Framework Plan	0.05							0.2	0.3	0.2	0.75
TOTAL	0.7	0.5	0.5	0.05	0.1	0.2	1	1	1	0.9	5.95

Periodic updates to rtp (every 5 years) implementation of regional transportation program including grants to local governments and nonprofits (ongoing)
TSMO including grants to government agencies, within RTO Safe routes to school is a new program with a dedicated staffer, all of their. Pull from the word doc

(existing projects) – RFFA cycle, this year all funded projects were evaluated on how well they advanced climate goals (among others) and in future years will continue to emphasize climate.

Updating policies that will advance state, local and regional GHG emissions efforts: regional mobility policy update, TSMO strategy update,

All of these are tools for implementing the regional transportation plan.

Climate Smart Monitoring

P&D Planning Manager and Principal Planner	Planning, policy and legislative support related to Climate Smart Strategy implementation and monitoring	.1	
RC Modeler	Modeling support related to Climate Smart Strategy implementation and monitoring	.1	