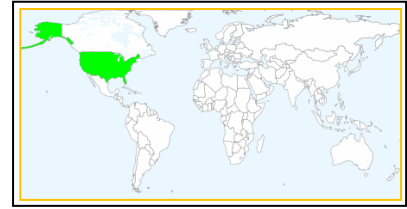


International Green Roof City Network

Case Study Portland, Oregon USA



1) City Data

Location

Portland, Oregon is located in the Pacific Northwest of the United States at the confluence of the Willamette and Columbia rivers. California is to the south and Washington State is to the north.

Area

- 140 sq. miles overall area (approx. 363 km²)
- 18 sq. miles of rooftops (approx. 47 km²)
- 27 sq. miles of pavement (approx. 70 km²)
- Numerous smaller suburban cities and towns are located within the greater Portland Metro area

Population

Portland's population is 570,000. The population of the greater Portland Metro region is 2.1 million.

Other Information

The climate is mild and wet in winter, and hot and dry in summer with little to no rain.

2) Description of the local Green Roof Policy Initiative

2.1 Start

The Portland ecoroof program started in 1996 when Tom Liptan, a City of Portland employee, constructed an ecoroof on top of his garage. Ecoroof growth and enthusiasm have increased steadily since then. The City's ecoroof program expanded rapidly in 2008 when almost \$6 million was allocated to the program.

2.2 Expected environmental benefits

- Stormwater management
- Biodiversity
- Urban Heat Island Effect
- Air Quality
- Climate Change
- Energy Savings
- Beautification of the City

2.3 Environmental benefit that is the carrier of the green roof initiative

Primarily stormwater management: In Portland, ecoroofs are promoted primarily for sustainable stormwater management. Initially, ecoroofs were promoted to help reduce combined sewer overflows and reduce the amount of stormwater reaching our streams. Recently, additional benefits such as providing habitat have been recognized. BES staff are researching and monitoring the benefits ecoroofs provide including: water quality, stormwater runoff, habitat and biological communities.

2.4 Support instruments that are used by the municipality to promote green roofs

- Building, landscape, energy, or other code or policy (e.g. land-use plan, green roof bylaw, zoning code, green factor, design regulations, etc.)
- Reduced stormwater fee
- Financial Incentives
- Tax Credits
- Favourable Credit Terms
- Density Bonus
- Demonstration Projects
- Ecological Labels
- Press, Internet
- Education and Information (e.g. seminars, conferences, green roof tours, etc.)
- Research
- Local Green Roof Guidelines
- Consultancy offer for constructors, investors, building owner
- Other instruments: Portland's Stormwater Management Manual

Description of support instruments

Building, landscape, energy, or other code or policy:

Oregon State Reach Code. The State of Oregon, Building Codes Division, implements a voluntary energy conservation code for property owners who want to build beyond the current code. Ecoroofs are included in the code as an elective measure.

Green Building Policy: Portland's Green Building policy was adopted by City Council in 2001, and most recently updated in 2015. The policy requires the City's buildings and facilities to meet certain energy efficiency and environmental standards. The Green Building Policy requires all new City-owned facilities and all roof replacements on buildings greater than 500 sq feet to have



an ecoroof covering the entire roof. There are some exemptions such as single-family residential homes and steeply sloped roofs.

www.portlandonline.com/bps/index.cfm?c=41701

Watershed Health Policy: The City of Portland Watershed Health Plan establishes goals and objectives for improving and maintaining watershed health. Vegetated roofs are recognized in the Plan as a way to sustainably manage stormwater runoff and improve habitat.

<http://www.portlandonline.com/bes/index.cfm?c=38965&>

Reduced Stormwater Fee: The City of Portland's Clean River Rewards program offers a reduction in stormwater utility fees when stormwater is managed on the property. Ecoroofs can be used to reduce stormwater drainage fee on private property.

Density Bonus: The Portland Central City Plan District has special zoning provisions and design guidelines that include a set of development bonuses called floor area ratio (FAR) bonuses. If a building includes an ecoroof that meets specific requirements, the Ecoroof FAR Bonus will allow a larger development footprint or additional floor area than otherwise allowed by zoning codes. The Ecoroof FAR Bonus typically applies to larger scale development projects such as industrial, commercial, and multi-family residential housing (e.g. condominiums, apartments). The amount of FAR bonus allowed to a developer depends on the percentage of ecoroof coverage in relation to the building footprint.

Press, Internet: The ecoroof web site has information about the City's ecoroof program and a blog: www.portlandonline.com/ecoroof

Education and Information: Environmental Services offers technical assistance to individuals how are interested in using an ecoroof on their building. The assistance consists of site visits, tours, technical manuals, website and blog, and partnerships with groups such as the Green Roof Information Thinktank. (www.greenroofthinktank.groupsites.com)

Research and Monitoring: Environmental Services and others are conducting research on several topics related to vegetated roofs. Technical resources are located here:

www.portlandoregon.gov/bes/50818

- Ecoroof Incentive Cost Analysis
- Habitat and biological communities
- Stormwater quantity and water quality

Other Instruments: Portland's Stormwater Management Manual (SWMM) is a technical document that outlines the city's stormwater management requirements. Emphasis is placed on using vegetated facilities to treat and infiltrate stormwater on the property where the runoff originates. Ecoroofs play an important role in Portland's stormwater management strategy because they reduce impervious area, they reduce the amount of runoff generated, and they eliminate or reduce the need for surface infiltration facilities. On constrained sites where there is little to no land is available for a stormwater facility on the ground, ecoroofs may be the only stormwater management option.

<http://www.portlandoregon.gov/bes/64040>

3) Number and area of green roofs

Type	Number	Square feet	m ²
Ecoroofs	434	990,554	92.025,50
Roof Gardens	149	710,028	65.963,76
Total	583	1,700,582	157.989,26

4) Challenges and future prospects

For five years, the City of Portland offered a financial incentive of \$5 per square foot of new ecoroof constructed. The program was very successful in getting more ecoroofs constructed. Now the City is investigating new incentives and codes to encourage the use of ecoroofs. City comprehensive plans have proposed including language about ecoroof codes and policies.

5) Contact persons

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6) Internet resources

www.portlandonline.com/ecoroof