GREY to GREEN

going green for clean rivers

APRIL 2008

Portland is a national leader in green development practices and sustainable stormwater management, yet we still need to do more to protect and restore our rivers, streams and watersheds. Healthy urban watersheds protect water quality, improve air quality, enhance fish and wildlife habitat, give us valuable urban green spaces, and improve livability.

In a natural, pre-development environment, soil and plants absorb rain, then slowly return it to rivers, streams and groundwater. A natural system cleans water, regulates temperature, provides food and creates shelter.

In our post-development environment, we have disconnected rain from the earth, replaced vegetation with pavement and buildings, built structures in floodplains, and developed in critical natural areas. The result is stormwater runoff washing pollutants into our rivers and streams, damaging floods, and a loss of natural watershed functions. Our future can be better.

ENVIRONMENTAL SERVICES
CITY OF PORTLAND
working for clean rivers

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A More Sustainable Approach Has Started

The City of Portland manages stormwater runoff as a valuable resource to replenish groundwater supplies that feed cool, clean water to rivers and streams. Portland's average annual 37 inches of rain creates about 20 billion gallons of stormwater runoff per year. Portland's approach is to manage stormwater where rain falls with facilities that work like natural systems.

Green Streets Work

Green Streets are vegetated curb extensions or streetside planters that collect stormwater runoff from streets. Green Streets reduce stormwater flow to sewers, provide wildlife habitat and neighborhood green spaces, and refresh groundwater supplies. Portland has 475 Green Streets.

Ecoroofs Provide Multiple Benefits

An ecoroof is a living, breathing vegetated roof system that replaces a conventional roof with a layer of foliage over a growing medium on top of a waterproof membrane. Portland has six acres of ecoroofs.

Trees Clean the Air and Water

Trees hold rainwater to reduce stormwater runoff volume, filter air pollutants, absorb carbon to reduce green house gases, and stabilize the soil to reduce erosion. Portland has more than 236,000 street trees.

Revegetation Fights Invasives

Removing invasive vegetation and restoring native plants reduces stormwater volume, filters stormwater pollutants, and cools the air, pavement and streams. Since 1996, the city and community partners have restored more than 2,000 acres of upland area and over 500,000 feet of stream bank through the Watershed Revegetation Program.

Land Acquisition Preserves Undeveloped Green Spaces

Development on forested areas, steep slopes and drainage ways can cause landslides and erosion, increase flooding problems, and harm water quality and habitat. Public acquisition of natural areas protects them from development and preserves watershed and floodplain functions. The public owns nearly 6,000 acres of natural area in Portland.

Culvert Replacement Aids Fish Passage

Identifying and replacing culverts that are too high to allow fish passage through will improve fish habitat and reduce flooding and erosion. The city owns as many as 250 culverts that may restrict fish passage. In the past decade, the city has replaced eight culverts to improve the environment.

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CHALLENGE

SOLUTION

GREEN STREETS AND SWALES

Challenge

Stormwater runs off of public streets.

Solution

Green Streets collect runoff and allow it to soak into the ground as soil and plants clean the water.

ECOROOFS

Challenge

Rain washes over rooftops and flows into the sewer system. Rooftops absorb and radiate summer heat creating a heat island effect.

Solution

Ecoroofs soak up rain, cool the air in hot weather, and reduce runoff to the sewer system.

TREES

Challenge

Vehicles emit carbon dioxide, a greenhouse gas that contributes to global warming, and pollutants from vehicles threaten water quality.

Solution

Trees absorb carbon and hold rain to reduce stormwater runoff.

CHALLENGE

SOLUTION

INVASIVE PLANT REMOVAL - RESTORATION

Challenge

Invasive weeds are spreading in Portland's natural areas, displacing native plants and degrading wildlife habitat.

Solution

Removing invasive vegetation and restoring native trees, shrubs and grasses improves wildlife habitat and water quality.

PUBLIC LAND ACQUISITION

Challenge

Development in sensitive natural areas harms habitat and water quality, removes trees, increases erosion and causes flooding.

Solution

Public acquisition of undeveloped natural areas protects water-shed health and natural systems

CULVERT REPLACEMENT

Challenge

Some culverts block fish passage and contribute to flooding and erosion.

Solution

Identify and replace the most damaging culverts.

We Need to Act

The city and its citizens are making progress in our work for healthy watersheds. But we all need to do more. We need to stop the damage and restore watershed health. If we don't step up the pace of these efforts, we will not be able to protect our watersheds, rivers and streams from further degradation as Portland's population grows.

The Next Five Years

To do that, we need to increase our investment in healthy watersheds and clean rivers. Investing an additional $50 million over the next five years will ensure that Portland continues to grow in a way that protects and enhances watershed health.

Here are the steps we need to take in the next five years:

- Add 43 acres of ecoroofs
- Construct 920 Green Street facilities
- Plant 33,000 yard trees and 50,000 street trees
- Step up the fight against invasive weeds
- Replace 8 culverts that block fish passage
- Purchase 419 acres of high priority natural areas

Starting July 2008

As a first installment, the city needs to invest an additional $5 million in fiscal year 2009 to begin implementing the five-year Grey to Green effort. During the first year, we should:

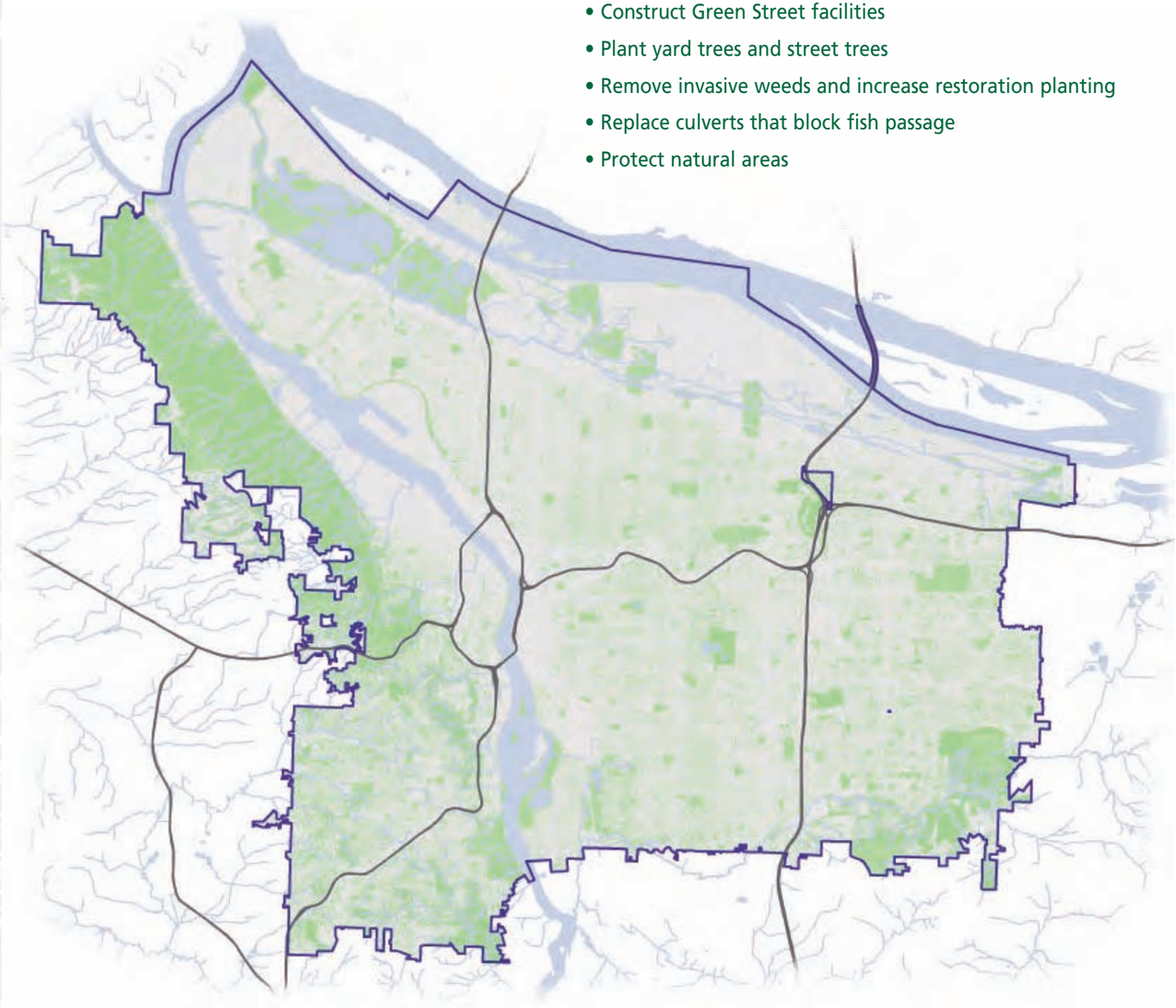
- Add 3 acres of ecoroofs
- Construct 8 Green Street facilities
- Plant 2,000 yard trees and 3,000 street trees
- Revise city code to accelerate invasive species removal
- Purchase 46 acres of natural areas
- Restore native vegetation to 70 acres of natural area

First year funding of the Grey to Green initiative would cost the average Portland residential sewer customer about 11 cents per month.

GREY to GREEN

Plan of Action

- Add ecoroofs
- Construct Green Street facilities
- Plant yard trees and street trees
- Remove invasive weeds and increase restoration planting
- Replace culverts that block fish passage
- Protect natural areas



impervious surfaces (roofs, streets, parking lots etc)
green spaces (parks, golf courses, etc and tree canopy)