

# Redirecting WATERFRONT DEVELOPMENT

MARY VOGEL

## Can Portland, Oregon, have both a thriving economy—and an improved environment?

OVER THE PAST THREE DECADES, NEARLY EVERY American city located near water has been involved in bringing restaurants, shops, housing, hotels, entertainment venues, and transportation to the waterfront. But while there are many examples of attractively designed urban waterfronts and technically impressive rural river restoration projects, few examples exist of ecologically sensitive urban riverfront design.

One city that has made some strides in this direction is Portland, Oregon, with its River Renaissance Initiative involving the Willamette River, which flows through the city. The River Renaissance Strategy, adopted by the city council in December 2004, maps a course of strategic actions and investments.

First among the five theme areas in the strategy is “ensure a healthy river system for fish, wildlife, and people”—no easy task given the context of the next three theme areas: maintain and enhance the city’s prosperous working harbor, embrace the river and its banks as Portland’s frontyard, and create vibrant waterfront districts and neighborhoods. The key to reconciling these goals may lie in the final theme area: achieve these goals through partnerships, leadership, and education.

Portland has created a multibureau partnership to integrate a watershed approach into city operations, activities, and programs, and has partnered with citizens’ groups to disconnect downspouts and plant vegetation on stream banks. But to see its full vision realized, the city must turn to the development community.

Portland, which has long had a small business and design community deeply involved in sustainability issues, had a vision for an entire new district—the 140-acre (57-ha) South Waterfront District. A key test would be whether a developer with the resources and experience to tackle a project of that scale would emerge—a developer willing to tackle it in a way that would meet the city’s deep green criteria.

Local developer Williams & Dame Development Inc. (WDD) and its chairman Homer Williams, with a history of success in redeveloping former brownfields into a vibrant community in Portland’s Pearl District, introduced a vision for the South Waterfront that the city could support. A neighborhood master plan for the Central District of the South Waterfront, plus strong partnership among the city, the developer, and Oregon Health & Sciences University (OHSU), established a framework that allows an urban neigh-

**As part of Portland, Oregon’s 140-acre (57-ha) South Waterfront District, the 35-acre (14-ha) Central District now contains 500 native trees and 11,000 native shrubs along a restructured riverbank that includes a bioswale used for treatment of runoff.**

borhood, anchored with strong sustainability principles, to evolve.

"It was an opportunity to transform 38 acres of underutilized, formerly industrial land along the river into the densest neighborhood in Oregon, while meeting Portland's goals for a clean and healthy river," explains Nicole Peterson, WDD's project manager in the South Waterfront. "Forming a strong public/private partnership with the city of Portland and Oregon Health & Science University, we were able to develop a plan that has strong enough merits to catalyze development in a neighborhood that hasn't seen development activity in three decades." The Central District is slated to have a value of \$1.9 billion when work is completed in 2010.

strong mix of goods and services, with an emphasis on locally owned businesses. Also included will be more than 3,000 housing units in residential towers and townhouses.

The dense neighborhood will be balanced by green spaces to provide a respite from the urban environment, a connection with nature, and the reestablishment of habitat. The Central District's "frontyard" will be a four-acre (1.6-ha) greenway that integrates habitat for local wildlife with urban amenities. An average 125- to 150-foot (38- to 46-m) setback along the greenway will allow residents and workers to stroll along the waterfront, watch birds, kayak, walk dogs, jog, or watch boats on the river.

**The Central District's "frontyard" will be a four-acre (1.6-ha) greenway that integrates habitat for local wildlife with urban amenities. A setback along the greenway will allow residents and workers to stroll or jog along the waterfront, go kayaking, use water taxis, and watch birds, among other activities.**



Of the 2,700 housing units planned, nearly 550 have been occupied.

The Central District, planned as a live/work/play environment, emphasizes multimodal transportation, including tram, streetcar, and bus access, plus bike and pedestrian trails. Street design includes wide sidewalks, ecologically functional landscaping, pedestrian-scale lighting, and ample transit facilities. All buildings in the Central District plan to achieve Gold or Silver ratings under the Leadership in Energy and Environmental Design (LEED) program, and a stormwater treatment bioswale is designed to reduce by 95 percent the amount of untreated runoff reaching the river.

A retail master plan for 250,000 to 300,000 square feet (23,000 to 28,000 sq m) of storefront space concentrates retail uses along key pedestrian/transit corridors and optimizes retail frontage at sidewalks. Retail tenants are targeted to provide a

The company's intent, says Peterson, is to "create a garden district that will extend fingers of green from the greenway into the fabric of the neighborhood." WDD's own design guidelines describe a vision for abundant landscaping, including an eco-roof on each building, and groundwater swales and infiltration planters on each block. A 200-foot- (60-m-) long regional bioswale will serve as public green space, wildlife habitat, and site for stormwater management, and a two-block central park will offer additional outdoor opportunities. The neighborhood's design will include a variety of native plants and trees linking the neighborhood into the river greenway.

While Portland's goal is to enhance its reputation as a worldwide leader in sustainable development and livability via the South Waterfront, the work there represents an extension of much of the new development already taking place in the city. Even industrial



BRUCE FORSTER

**Oregon Health & Sciences University's new Center for Health and Healing, complete with a green roof, is located in the South Waterfront and is the first LEED Platinum-certified medical clinic in the country.**

development in Portland is being transformed: Toyota received Portland's 2005 BEST (Businesses for an Environmentally Sustainable Tomorrow) Award for the extensive sustainable features at its vehicle distribution center at Terminal 4.

The Toyota facility's landscape design by GreenWorks P.C. includes perimeter screening, two parking lots, and 4,800 linear feet (1,500 m) of Willamette riverbank restructuring and revegetation. About 90,000 square feet (8,360 sq m) of asphalt was removed from the Willamette River floodplain to accommodate new riverbank plantings, which included 500 new trees and 11,000 shrubs. The success rate of these plants has exceeded expectations, and ducks, geese, and rodents are building their nests there, says Doug Warneke, production supervisor at Toyota Logistics Services. Foxes have now appeared as well.

The upgraded facility is nearly 20 acres (8.1 ha) smaller than Toyota's previous facility in Portland, yet is capable of processing the same number of vehicles because of a layout that allows more efficient vehicle handling, less driving of vehicles, and a simpler process. Toyota built four new energy-efficient buildings on its 86-acre (35-ha) leased property, for a combined 97,600 square feet (9,070 sq m) of interior space, and obtained LEED Gold certification for its new, energy-efficient main building. It has also become the first industrial site to receive certification

## Portland's River Renaissance Goals/Themes

- ▷ Ensure a clean and healthy river system for fish, wildlife, and people.
- ▷ Maintain and enhance the city's prosperous working harbor.
- ▷ Embrace the river and its banks as Portland's frontyard.
- ▷ Create vibrant waterfront districts and neighborhoods.
- ▷ Achieve these goals through partnerships, leadership, and education.

from the Portland-based nonprofit organization Salmon-Safe, a designation that means the company is actively improving the environmental health of its site along the Willamette River. Toyota is now adding 35,000 square feet (3,250 sq m) of production area to its main building to accommodate increased demand, with construction to be completed next spring.

Portland's commitment to environmental sensitivity has been decades in the making, involving thousands of public meetings, task forces, studies, and plans. Its River Renaissance project is not a single program, but rather an umbrella project covering many programs and plans. The document that most sets the tone for environmental sensitivity under that umbrella is the Framework for Integrated Management of Watershed Health, approved by the Portland City Council in March 2006, which outlines a vision for the future of Portland's watersheds and watershed health goals, including measurable indicators related to hydrology, habitat, water quality, and biological communities.

Because of their special legal, economic, and cultural status in the Pacific Northwest, salmon receive special attention. But the framework process applies to other aquatic species, as well as to riparian and terrestrial wildlife habitats. For the implementation of watershed-specific plans, the framework calls for the monitoring of selected actions, and then adjustment of actions, benchmarks, targets, or objectives as needed using adaptive management.

"The city of Portland's watershed management approach via the framework differs from many other efforts because it integrates the activities of multiple

A variety of vegetative solutions have been used to treat stormwater in a dense environment, including an eco-roof, landscaping with native plants, flower boxes, and a bioswale.



city bureaus,” says Claire Puchy, a program coordinator in the science, fish, and wildlife section of the city’s Watershed Services Group in the Bureau of Environmental Services. “The focus is on solving environmental problems at their source and improving watershed health overall, not merely complying with individual regulations. What’s most important is that the city’s process is scientifically based, relies on measurable goals and objectives, and is ongoing.”

The framework recognizes that Portland’s watershed management activities will be taking place at the local level but within the context of a larger, interconnected ecosystem that extends through much of the Pacific Northwest. For example, every salmon migrating to and from every tributary of the Willamette River (and many Columbia River tributaries) must pass through Portland. As water moving from upriver nears the Columbia, all of the effects of land uses, agriculture, hydropower, and flood control throughout the region are manifested in Portland. This ecological link means that the conditions in Portland’s watersheds affect—and are affected by—watershed health in communities throughout the region.

For this reason, Portland is active in many local, state, and regional efforts aimed at improving conditions of fish and wildlife and their habitats in the Willamette and Columbia River watersheds. By



The South Waterfront District is shown before redevelopment (top) and after (below).

participating in these efforts, Portland hopes both to improve the conditions of its watersheds and do its part to contribute to regionwide improvements in watershed health.

If the framework provides the scientific research and sets the tone for watershed protection and restoration, the Portland Watershed Management Plan, also approved in March 2006, fleshes it out. Not only does the plan identify a variety of strategies and actions to protect and improve watershed health, but it also identifies *where* these activities may best be applied throughout the city over the long term. This information, based on the best scientific data and analysis currently available, is used to produce the Watershed Priority Map highlighting the areas where watershed protection and remediation are most badly needed.

Portland city officials hope that the results of the watershed plan methodology can be used in a cost/benefit analysis to describe the benefits of these types of projects beyond cost savings. The city wants to expand the number of methods and tools available to quantify the value of ecosystem services.

As one example of the type of projects in the watershed plan, Portland has calculated that its streets

contribute 66 percent of the city's total stormwater runoff discharge and 77 percent of the pollutants in the discharge. In response, it created a very active multi-bureau Green Streets program that redevelops street edges with infiltration and flow-through planters to treat stormwater from streets. (See "Moving toward High-Performance Infrastructure," October 2006.) This past April, Portland finally moved from considering Green Streets a pilot program to passing a policy to implement it citywide. While still in its pilot stage, Green Streets became a model for other cities around the nation as policy makers realize that clean water will become a scarcer commodity over the next few decades.

"Even though we're considered a national leader in many ways, I still think we can do better," says city commissioner Sam Adams, who oversees the Bureau of Environmental Services, with responsibility for the watershed management plan and its Green Streets program. Adams has been pushing the bureau to speed up its shift to vegetative solutions for infrastructure and hopes to unveil his Green City Strategy later this year.

Both the framework and the watershed management plan incorporate city values, such as public safety and economic vitality, into decision making about watershed management. Over time, both plans aim to bring the activities of every city bureau and program into alignment with the city's watershed health goals.

On the environmental front, the proof will be in the funding, according to Bob Sallinger, conservation director for the 10,000-member Audubon Society of Portland and one of the top advocates for watershed health. "While the city is spending \$1.4 billion on the big pipes to redress the combined sewer overflow issue, it almost balked at allocating the \$260,000 requested to fund the tree code upgrades that would improve the city's tree canopy," he says. "A healthy tree canopy is probably your most cost-effective investment for capturing runoff and pollutants," he points out, adding that the city council came through with the requested money for trees at the final hour.

"Even the Watershed Investment Fund was only funded to \$500,000 in 2006, its first year," he says. "Through a great deal of pressure, we've pushed it up to \$1.5 million this year. But to truly be the kind of model that the plans call for, we will need the same kind of money for trees, bioswales, and habitat restora-

tion that we put into the big pipes. That's almost 1,000 times what we got this year."

Mike Houck, founding director of the Urban Greenspaces Institute and Portland's premier advocate for protecting and restoring nature in the city, says the people moving into South Waterfront offer the best hope that Portland's leading-edge policies will actually be implemented. "The new residents have invested a considerable amount of money to live at South Waterfront," says Houck. "They have also bought into an ecologically sustainable lifestyle. We've taken many of the residents on kayak trips around nearby Ross Island, and it's interesting to note that residents at the Meriwether condos have taken it upon themselves to build their own kayak and canoe ramp on the temporary greenway. They understandably want to protect their investments and are best positioned to hold the city's feet to the fire to ensure that greenway construction and riverbank restoration become a reality."

Sallinger echoes Houck's assessment. "Because South Waterfront was marketed as green living, the people who moved in down there really get it," he says. "They really understand that, even before nearby Ross Island is finally acquired by the city for use as a natural area park, we must put into place policies for restoration, protection, and passive rather than active recreation. They understand that there are some places that are inappropriate for Jet-Skis and ballfields. By defending what they bought into, they will be our best hope for making Portland the model it purports to be." **UL**

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## Portland's Watershed Management Plan

The Portland Watershed Management Plan identifies 20 actions grouped into the following six strategies:

- ▷ Stormwater management—reduces impervious area, increases infiltration, and removes pollutants.
- ▷ Revegetation—slows runoff, increases infiltration, traps sediments, and absorbs pollutants.
- ▷ Aquatic and terrestrial enhancement—improves stream flow, recharges groundwater, provides flood storage, reduces heat-island effects, provides connectivity, protects biodiversity, and provides habitat for native fish and wildlife species.
- ▷ Protection and policy—preserves remaining natural areas and ensures sustainable development.
- ▷ Operations and maintenance—increases efficiency, reduces waste, and prevents pollution.
- ▷ Education, involvement, and stewardship—enhances public understanding, generates support, and ensures success.