South Waterfront District, Portland, OR: A Sustainable Brownfield Revitalization Best Practice

By Christopher De Sousa and Lily-Ann D'Souza

SITE HISTORY

The South Waterfront District redevelopment project is the largest urban renewal initiative in Portland's history. The redevelopment transforms an underutilized and isolated brownfield into a mixed-use, transit-oriented neighborhood while reclaiming public access to the Willamette River. The South Waterfront redevelopment also offers an unprecedented opportunity to implement Portland's economic, social and environmental growth objectives through an integrated and sustainable approach.

Situated within the North Macadam Urban Renewal Area, the South Waterfront District is located south of downtown Portland, Oregon on 140 acres of former industrial land. The Willamette River forms a natural boundary on the east side of the district and offers 1.2 miles of direct waterfront access. Marquam Bridge and the I-5 freeway serve as the northern and western boundaries of the district, while Hamilton Street forms its southern edge.

Industrial activities characterized the landscape in the South Waterfront District for most of the 20th century,
before technical innovation and the unintended impact of land use interventions contributed to the eventual decline of the area. The Portland Lumber Company was one of the first businesses to be established in the South Waterfront District, supplying heat and electricity to Portland’s downtown core beginning in the 1880s. Followed by the development of Power’s Lumber Mill shortly thereafter, the locational assets of the South Waterfront area appealed to businesses that relied on river frontage, as well as road and railway access. Other businesses that contributed to the industrial character of the South Waterfront area, while supporting its timber and shipping trades, included a metal fabrication plant, chemical manufacturers, an aluminum smelting operation, and various salvaging facilities. By 1910, these businesses had permanently transformed the resource–rich riparian forest that had sustained Oregon’s indigenous population and first European settlers into an industrial hub.

By the 1960s, however, the momentum of the South Waterfront’s industrial development began to decline as technological innovation in several sectors began to displace older industrial practices. The development of two freeways, Harbor Drive in the 1940s and the I-5 in the 1960s, compounded the industrial decline of the South Waterfront by acting as physical barriers that limited railway, waterfront and local access to the district, consequently leading to its isolation. Moreover, the waste from industrial activities that had been disposed of directly into the adjacent lands and water contributed to the South Waterfront’s status as a brownfield. The industrial decline, physical isolation, and brownfield status of the South Waterfront District negatively impacted Portland’s economic and social development. The loss of jobs in manufacturing contributed to significant unemployment, among the highest in the U.S. The physical isolation and brownfield status of the South Waterfront District discouraged private investment or redevelopment, and led to the erosion of the property tax base.

Efforts to revitalize the South Waterfront District began in the late 1970s, beginning with the removal of Harbor Drive. The Portland Development Commission acquired 73 acres within the South Waterfront District in 1978, and made provisions for their redevelopment in the Portland Downtown Urban Renewal Plan. This was followed by the creation of several other long term renewal plans that addressed the need for urban revitalization, including the South Waterfront Redevelopment Program (1979), the Central City Plan (1988), the North Macadam Urban Renewal Plan (1999), and most recently the South Waterfront Plan (2002). While the South Waterfront remains a sub-district of the North Macadam Urban Renewal Area, the name of the redevelopment plan was officially changed from North Macadam to South Waterfront by Portland City Council when the 2002 plan was adopted.

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4 The Center for Brownfields Initiatives, EPA Region 10 – South Waterfront Redevelopment Project, Portland, Oregon (University of New Orleans, 2003).
7 Portland Development Commission, South Waterfront District FAQS (Portland, n.d.).
8 The Center for Brownfields Initiatives, EPA Region 10 – South Waterfront Redevelopment Project, Portland, Oregon (University of New Orleans, 2003).
9 The Center for Brownfields Initiatives; Portland Bureau of Planning, South Waterfront Plan (Portland, November 2002); Portland Development Commission, South Waterfront Park Redevelopment Area, Region 10 Phoenix Award (Portland, n.d.).
Since the adoption of the Central City Plan in 1988, the South Waterfront District has been envisioned as an “urban mixed-use neighborhood.” While the particular details of the project vision have evolved incrementally, adapting to meet Portland’s changing economic and social needs, the primary objective that remained consistent within each successive plan was to re-establish connectivity between the South Waterfront District and the neighboring communities. Transforming the Willamette River waterfront into a public amenity with opportunities for recreational and civic activities persisted as the cornerstone of this vision.

This vision was influenced by the principles of Smart Growth, which provide a framework for renewing “existing cities and older suburbs…. Quite often, the use of abandoned or underutilized sites or areas that may be contaminated due to past activities become key parts of these restoration efforts.” The principles of Smart Growth include:

- **Compact growth**
  - Reduce demand for greenfield, agricultural and forest lands.

- **Creating communities with a strong sense of place**

- **Transit-oriented development**
  - Offering public transit, cycling and pedestrian options

- **Mixing land uses**
  - Integrating housing, commercial and retail uses

- **Providing a range of housing size and price options**

- **Encouraging economic development opportunities that result in new jobs, businesses, services and improved local tax bases**

- **Restoring and conserving open space, natural beauty, and critical environmental areas and habitats**

- **Utilizing environmentally-friendly and sustainable site-development practices, building designs and construction techniques**
Despite the challenges presented in terms of environmental remediation and infrastructure investment, with these principles in mind, the City of Portland recognized that it had an unparalleled opportunity to contribute to “Portland’s urban planning legacy” while implementing public policy objectives through the creation of a master planned community. These public policy objectives include “affordable housing, job growth, new greenways and parks, new transportation options, sustainability and smart growth practices, [and] enhancement of the city’s research universities.” According to an interviewee, the project vision for the South Waterfront redevelopment is based on the renewal potential of its locational assets, which include waterfront access, proximity to downtown, views to Ross Island, and utilizing Oregon Health and Science University (OHSU) as an economic development anchor.

Key stakeholders, project partners, and land owners in the South Waterfront redevelopment include:

- **Portland Development Commission (PDC)**
  - Charged with “coordinating and guiding development of the South Waterfront Plan Area on behalf of the City in accordance with the vision and goals of the South Waterfront Plan.”

- **Oregon Health and Science University (OHSU)**

- **River Campus Investors, LLC; North Macadam Investors, LLC; and Block 39, LLC**
  - E.g. Gerding Edlen and Williams and Dame Development

Visioning for the South Waterfront master plan began in 1997. The details of the master plan vision evolved incrementally through weekly meetings between stakeholders, building consensus and support for the initiative while balancing their individual needs and objectives. For instance, OHSU, constrained by its location on Marquam Hill, which rises just west of the South Waterfront site, was considering opportunities for expansion in Portland’s suburbs. The redevelopment of the South Waterfront brownfield area would provide OHSU with the land base to expand its research, teaching and service facilities within the renewal area while acting as a catalyst for economic development and retaining jobs within the city. To get faculty, students, staff, and others up and down the hill, a tram between the existing and planned OHSU campuses was agreed to as part of the vision. Williams and Dame Development, a real estate developer consulted during the visioning process, was the first to suggest that OHSU should serve as an economic development anchor to facilitate the city’s employment objectives. The integration of sustainable design and green building techniques in the master plan vision was advocated for by Gerding Edlen, a real estate investment and development firm.

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13 Portland Development Commission, p. 2.
14 Portland Development Commission, p. 3.
15 Environmental Protection Agency, Brownfields at-a-glance - Elizabeth Caruthers Park (EPA Region 10, April 2012).
16 Matthew Brown, Interview (Portland: Williams and Dame, June 2010).
17 Mark Williams, Interview (Portland: Oregon Health & Sciences University, June 2010).
18 Dennis Wilde, Interview (Portland: Gerding Edlen, June 2010).
The final master plan vision comprises:

a three-phase development program to transform the Project Area into a vibrant, sustainable mixed-use neighborhood that will include open space and commercial, retail, institutional and educational facilities as well as a range of housing options at various levels of affordability.19

The goal, through the urban renewal initiative, is to create 10,000 jobs and 3,000 housing units, inclusive of 788 affordable housing units, by 2019.20 The phased approach is based on improvements to buildings and infrastructure, rather than geographic areas within the South Waterfront District. The preliminary phases of redevelopment will, however, be directed to the Central District, a 31-acre zone within the South Waterfront plan area.21

The 2002 South Waterfront Plan affirms the project vision established in previous renewal plans, with policies and urban design standards to guide its implementation. The companion South Waterfront Central District Project Development Agreement describes and allocates development responsibilities between the project partners.

**PROJECT CHARACTERISTICS AND DEVELOPMENT**

Based on experience with other urban renewal projects, the Portland Development Commission (PDC) recognized that redeveloping the South Waterfront District necessitated public leadership and assistance to generate private interest and investment. This is particularly true considering the district's industrial heritage, brownfield status, and physical isolation from adjacent neighborhoods in South Portland. Environmental assessment and clean-up activities were therefore prioritized to prepare for redevelopment. The PDC utilized funding awarded through a $200,000 U.S. Environmental Protection Agency (EPA) Brownfields Assessment Project grant to complete a Phase I area-wide assessment between 2003 and 2004.22 The EPA facilitated the assessment and remediation efforts in partnership with the Oregon Department of Environmental Quality (DEQ) through its own brownfield remediation program. In fact, properties within the South Waterfront plan area were among the first to participate in the DEQ’s Voluntary Cleanup Program.23

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21 Portland Development Commission, South Waterfront within the Urban Renewal Area (Portland, n.d.).
22 Interview (June 2010).
23 Interview.
Several properties did not have any identifiable environmental concerns, whereas others, situated mostly in the northern reaches of the district, required Phase II assessments and remediation. As is the case with most brownfield renewal projects, the intended end use of a property determines, in part, the course of action for remediation or clean-up efforts. Redevelopment in the South Waterfront District therefore addressed the necessary clean-up and remediation requirements on a site by site basis. For instance, the immediacy of the Willamette River presented challenges to the assessment and remediation stage of project sites adjacent to the waterfront due to overlapping regulatory requirements. There was also a concern that contaminated groundwater below the redevelopment area of certain projects would leach into the river. Although groundwater flow modelling indicated this was unlikely, the DEQ prescribed a 5-year groundwater-monitoring program in combination with the “installation of a riverbank stabilization system.”

Phase One of the South Waterfront redevelopment was initiated in 2003, overlapping with the environmental assessment and remediation efforts, and scheduled for completion in 2008. Although Phase One projects are not geography specific, they are concentrated in the Central District plan area within the South Waterfront District. The key Phase One redevelopment projects, as described in the South Waterfront Central District Project Development Agreement, can be arranged under the following categories:

TRANSPORTATION – Multi-modal transportation options were prioritized early in the redevelopment process to address the physical isolation of the South Waterfront District and re-establish connectivity between the plan area and surrounding neighborhoods. By prioritizing access to public transit, as well as bicycle and pedestrian pathways, the intent is to encourage alternative modes of transportation while reducing dependency on automobile use.

- **Portland Streetcar Extension** – Infrastructure improvements in the South Waterfront District included an extension of the Portland Streetcar, providing employees, residents and visitors with a connection to the city center as well as adjacent neighbourhoods. The streetcar extension was completed in October 2006 and follows a 7.5 mile loop with three stops in the South Waterfront District, one of which serves as a transfer point to the aerial tram.

- **Aerial Tram** – The construction of an aerial tram linking OHSU’s existing campus on

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24 Interview.
25 Interview.
27 The Center for Brownfields Initiatives.
28 Portland Development Commission, South Waterfront District FAQS (Portland, n.d.).
Marquam Hill with its new facilities in the South Waterfront District was a critical component of the development agreement. The tram travels 22 miles/hour, completing a one-way trip in 3 minutes, and operates at a 99.8 percent reliability rate.29 This ensures that OHSU's medical and research staff can travel quickly between the campuses without compromising patient care and service delivery.30 The construction of the tram in 2006 was financed through public and private funds and cost approximately $60 million to build.31 Public investment in the tram ($8.5 million) will be recaptured over time through property tax increases in the renewal area.32 While the tram is owned and operated by the City of Portland Office of Transportation, maintenance and operating costs are shared with OHSU. The tram functions as part of Portland's transportation network, restoring public access between the South Waterfront District and downtown Portland.

OPEN SPACE – Declining water quality and habitat degradation in the Willamette River, as well as a shortage of public space in the South Waterfront District, motivated the City of Portland to explore efforts that would renew the river ecology while providing waterfront access and park land to the public.33

- Willamette River Greenway Expansion - Extending the Willamette River Greenway from downtown Portland through the South Waterfront District will facilitate connectivity between the renewal area and surrounding neighborhoods. Set back an average of 125 feet from the riverfront, the 38-acre South Waterfront Greenway offers alternative transportation routes, as well as passive and active recreational opportunities to visitors and residents. Development of the greenway has been complicated by overlapping regulatory permits required to address stormwater runoff and leachate into the river, given the industrial heritage of the renewal area. Phase One of the construction, currently in progress, involves removing contaminated soil and restoring shoreline habitat. The primary source of funding to complete the greenway extension is from public investment, at a cost of $10.5 million.34

- Elizabeth Caruthers Park – A 2-acre neighborhood park in the Central District, formally known as Elizabeth Caruthers Park, was completed in 2010. The park was built on land once utilized as a public storage facility.35 Funding through an EPA Brownfields Grant enabled the PDC to assess and remediate the park land between 2004 and 2006. The development of the park leveraged 10 jobs for cleanup and 39 jobs for

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29 Oregon Health & Science University, Portland Aerial Tram (Portland, n.d.).
30 Interview (June 2010).
31 Go by Tram, Frequently Asked Questions (Portland, December 2010).
32 Go by Tram.
33 Interview (June 2010).
34 Portland Parks & Recreation, South Waterfront Greenway (Portland, June 2012).
35 Environmental Protection Agency, Brownfields at-a-glance – Elizabeth Caruthers Park (EPA Region 10, April 2012).
construction, and cost approximately $3.95 million to acquire, remediate and develop the land. The completed park offers active and passive recreational opportunities, while its re-naturalized landscape is designed to absorb and treat stormwater runoff. It is considered a ‘focal point’ for civic activity in the Central District and is part of Portland’s open space network.

HOUSING - The renewal plan for the South Waterfront District includes the development of 3,000 residential units offering market-rate, affordable home ownership, and rental options. Developers are pursuing Leadership in Energy and Environmental Design (LEED) Neighborhood Development certification, making the renewal area one of the densest and most sustainably designed communities in the country. Sustainable design strategies include orienting buildings to optimize solar radiation, district heating, on-site stormwater management, mixed-use and transit-oriented development. The LEED ND certification will in effect validate the commitment to Smart Growth and sustainable development adopted by the project partners during the project visioning.

Several condominium projects were completed during the first phase of development, including the Meriwether, John Ross and Mirabella buildings. Market volatility in the late 2000s, however, led to high vacancy rates, forcing developers to auction off units to recover construction costs. The ensuing recession also led to the cancellation of the first affordable housing development, with 400 units, referred to as Block 33. A second affordable housing project with 200 units was initiated in 2010 and is scheduled for completion in the fall of 2012.

ECONOMIC DEVELOPMENT – The mixed-used approach to development within the South Waterfront District includes strategies to promote “a mix of occupations and wage levels that provide a range of employment opportunities.” In particular, Oregon Health and Sciences University was identified as an anchor to catalyze the development of a biotechnology cluster as part of Portland’s efforts to encourage economic development and diversification. Expansion of the OHSU campus within the South Waterfront District takes advantage of an existing industry base while serving as an incubator for industry growth.

- OHSU Center for Health & Healing – The completion of the 16-story Center for Health & Healing in 2006 provides OHSU with 400,000 square feet of additional research and clinic space. The developer, Gerding Edlen, also pursued LEED certification and integrates several sustainable design features, such as daylight harvesting, 100 percent wastewater treatment and recycling, and “a large-scale onsite microturbine plant.”

36 Environmental Protection Agency.
37 Environmental Protection Agency.
38 Sarah Mirk, “We Built this City” (Portland Mercury, April 29, 2010).
40 Portland Development Commission, p. 4.
41 Natural Resources Defense Council, Case Studies – OHSU’s Center for Health and Healing (New York, n.d.).
The Center for Health & Healing utilizes 60 percent less energy and 55 percent less water than a comparable facility built to code.42

Zoning and Urban Design Guidelines

Since 1990, the South Waterfront District has been zoned as CX (Central Commercial), which permits a wide variety of office, retail, and housing uses at urban densities.43 Based on the existing site conditions and characteristics of the area, assumptions about the relative locations of office and research, housing, and public space uses were made. For instance, office and research facilities are expected to locate near existing transportation infrastructure in the north-west portion of the district, where impacts of the I-5 freeway would be less amenable to residential development.44 Residential uses will be clustered between the office and research facilities and the Willamette River, offering views of downtown Portland and the waterfront. Retail uses will be located on an east-west axis at grade level throughout the district. A greenway adjacent to the Willamette River ensures public access to the waterfront while serving as an alternative transportation route to downtown Portland.

While the redevelopment maintains the CX zoning designation, urban design guidelines specific to the South Waterfront District were introduced to achieve the desired urban form and mix of uses in the plan area. The urban design guidelines refer to building scale, orientation and height, ultimately influencing site planning, development and investment in the plan area. Moreover, the district was subdivided into 'blocks' in a grid-like pattern to emulate urban form.

As an example of how the urban design guidelines influence the pattern of development within the district, east-west view corridors to the waterfront are preserved and enhanced by requiring buildings to "step back" from the street for the portion of the building over 50 feet in height.”45 Setbacks for buildings at grade are also required, to a maximum of "12 feet from the sidewalk," in combination with "active ground floor uses, including retail, office and housing" to facilitate an attractive and visually interesting pedestrian environment.46 To achieve a 125 foot setback for the waterfront greenway desired by the mayor, trade-offs in building height and density had to be made.47 The urban

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42 Natural Resources Defense Council.
44 Portland Bureau of Planning.
47 Interview (June 2010).
design guidelines therefore allow “building heights of 125-250 feet,” while buildings up to 325 feet may be permitted in exchange for density bonusing, or financing for projects that benefit the public. The prescribed residential density was also increased from “at least 1 unit per 2,900 square feet of net site area”, as required by the zoning code, to “1 unit per 1,000 square feet of net site area” to enable other project goals such as generating ridership to support public transit development. 

PROJECT FINANCING

The redevelopment of Portland’s South Waterfront District is being financed through a 20-year funding strategy established by the PDC. The basis of this strategy is a public-private partnership between the PDC and the key stakeholders noted above. This approach leverages public and private resources to generate investment and development in the plan area that would otherwise not be feasible. Moreover, given the district’s industrial heritage, public intervention was necessary to reduce the environmental and economic costs of development, and to encourage private investment in support of broader policy objectives. A report prepared for the PDC by E.D. Hovee & Company analyzing the anticipated return on investment in the South Waterfront District concludes that a public-private approach to urban renewal will achieve more of the policy objectives in the plan area than private mechanisms would alone. For instance, a market-only approach would have resulted in $352 million of investment compared to the $1.9 billion of public and private investment currently projected by build-out in 2020. Under this second scenario, $1.7 billion is from private investors, with the balance coming from public sources. Performance indicators for housing, jobs, transportation, retail, and parks and open space also demonstrate higher quantitative measures through the public-private approach, allowing the redevelopment project to move from a conventional to a more sustainable one.

The public-private partnership is governed by the South Waterfront Central District Project Development Agreement, first signed in 2003 and updated through several subsequent amendments. The Development Agreement specifies the terms and conditions of the partnership while allocating the redevelopment responsibilities between the project partners. The Development Agreement also specifies “a 20 percent aspirational contracting goal for minority owned, women owned and emerging small business participation.”

Public projects are administered and managed by the PDC. Approximately $131 million of the Phase One public funds will be sourced through Tax Increment Financing (TIF), a funding model that utilizes the increase in property value from urban renewal projects, and thereby property taxes, to pay for ‘urban renewal bonds’. Other public sources have been earmarked to contribute $23 million, although the source of the remaining $64 million in public funds has yet to be determined.

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54 E.D. Hovee & Company, p. 10.
Public sector financing prioritizes investment in infrastructure such as “street and utility construction, extension of the Portland Streetcar, and [the] riverfront Greenway,” to prepare the plan area for private investment. This approach also increases the taxable value of a property. A significant share of the public funds, $53 million, is allocated for transportation projects, followed by $28 million for affordable housing and parks, and $17 million for additional infrastructure and job investment programs. Private investment, on the other hand, is being directed to the development of office and research facilities, retail establishments and market housing in the district.

Through a condition specified in the Development Agreement, the private sector partners are obligated to pay the TIF difference, or revenue gap, if their projects do not proceed as scheduled. This ensures that the urban renewal initiative progresses as planned, and that the city does not incur a loss over the long term due to unexpected delays to the redevelopment.

Despite the recession in the late 2000s, and in particular the impact it had on the U.S. real estate market, the PDC reports that the South Waterfront redevelopment is well positioned to repay the $62 million borrowed through the TIF. According to the PDC’s account, the annual property tax revenue incurred through the redevelopment is $7.2 million, and exceeds the estimate provided by E.D. Hovee & Company by $2.2 million.

**BENEFITS, BARRIERS, AND LESSONS LEARNED**

Portland’s South Waterfront District offers an exemplary case study in brownfield remediation and renewal. The project vision for the master planned community reflects the planning approach utilized by the PDC that integrates economic, environmental and social sustainability. Several policy tools and mechanisms enable this integrated approach, affirming the public’s commitment to the principles of Smart Growth.

The master planned vision to develop a mixed-use, multi-modal 21st century urban neighborhood emerged from the need to address several interrelated challenges, notably industrial decline and Portland’s decreasing supply of developable land. De-industrialization in the South Waterfront District, beginning in the 1960s, contributed to significant unemployment in Portland while the area’s subsequent brownfield status and physical isolation discouraged private investment. Moreover, regional planning directives currently limit greenfield development through an urban growth boundary, thereby encouraging Portland to be creative as it nears build out. Renewing the South Waterfront District represented one of the last large-scale opportunities to implement Portland’s economic and land use growth objectives.

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57 Interview (June 2010).
58 Sarah Mirk, “We Built this City” (*Portland Mercury*, April 29, 2010).
59 Sarah Mirk.
60 Interview (June 2010).
While the South Waterfront District represents less than 1 percent of the City of Portland’s area, it is projected to “assume 4.7 percent of the city’s job growth, 2.5 percent of housing and residents and potentially more than 4.4 acres” of public open space.61 Benefits of the urban renewal initiative include:

<table>
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<tr>
<th>Economic</th>
<th>Environmental</th>
<th>Community/Society</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Increased property tax base</td>
<td>- Renewing the Willamette River ecology</td>
<td>- Infill development and urban revitalization</td>
</tr>
<tr>
<td>- Employment retention, development and diversification</td>
<td>- Brownfields remediation and land reutilization</td>
<td>- A diversity of new housing options in downtown Portland, including affordable units</td>
</tr>
<tr>
<td>- Expansion of a highly regarded research and educational institution</td>
<td>o Clean-up strategies included riverbank stabilization, site capping, off-site soil disposal, and ground-water monitoring62</td>
<td>- Public access to the William River waterfront</td>
</tr>
<tr>
<td>- Job support for ethnic minorities and women through the construction and development phases of the urban renewal initiative</td>
<td>- Pursuing LEED Neighborhood Certification</td>
<td>- Expanding Portland’s network of parks and open space</td>
</tr>
<tr>
<td>- 40,000 sq. ft. of commercial office</td>
<td>- Most LEED certified residential towers of any neighborhood in the country (EPA Brownfields ECP)</td>
<td>- Multi-modal transportation options</td>
</tr>
</tbody>
</table>

The confluence of Portland’s economic and land use needs may have contributed to the project vision for the South Waterfront redevelopment, however, implementing this project vision would not have been feasible without enabling policy tools and mechanisms that support broader public objectives. For instance, the South Waterfront Urban Design Guidelines prescribe the form and function of development to satisfy housing, employment, and public open space targets, while the Development Agreement ensures that the appropriate stakeholders and resources are in place to see the project through to completion. Portland’s culture of sustainability, the adoption of Smart Growth principles, and public leadership also account for the South Waterfront’s status as an exemplary case study of brownfield remediation and urban renewal.

62 Portland Development Commission, South Waterfront Park Redevelopment Area, Region 10 Phoenix Award Winner 2003 (Portland, n.d.).
This is not to say that the implementation of the South Waterfront Plan has been without criticism or challenges. For instance, the South Waterfront redevelopment illustrates that while public-private partnerships leverage benefits to the public, benefits may also accrue to private stakeholders to secure investment. An example in this case is the tram that links the OHSU campuses. While the tram is perceived by citizens as an inefficient use of public funds, it was a critical component of the Development Agreement which made it possible for OHSU to serve as an economic development anchor in the district. The lesson here is that trade-offs are inherent in any public-private partnership, particularly to achieve broader public policy objectives.

While support for the urban renewal initiative generally gained momentum as the project developed, community consultation revealed concerns pertaining to building heights and the eventual increase in demand for existing traffic and transportation routes. Community members also voiced concerns about potential health and safety issues associated with brownfield redevelopment. Given that Portland's urban planning legacy is based on a transparent and collaborative approach, however, these concerns were addressed through education and outreach activities led by the PDC. Communication tools such as fact sheets and maps, in combination with informational meetings, provided the general public with “a better understanding of environmental issues in the South Waterfront District,” as one interviewee noted.

According to several interviewees, financial constraints and market volatility presented significant challenges, particularly with respect to the project's environmental and affordable housing objectives. Some of the environmental objectives were also in direct conflict with each other. For instance, on-site stormwater management in a brownfield area adjacent to a river is challenging enough considering the overlapping jurisdictional and regulatory requirements, but was further complicated by the objective to create new habitat for the Willamette River's fish population. As an interviewee pointed out, capping the site would address stormwater runoff, but not the river ecology; dredging the site would also negatively impact the river. Reconciling the opposing objectives by removing the contaminated soil was achieved in a 'hybrid concept' plan, primarily through inter-governmental cooperation and resources. Phase one of the riverbank restoration is currently in progress.63

Efforts to implement the affordable housing targets established for the South Waterfront redevelopment have been constrained by funding, further compounded by the recession in the late 2000s. For instance, while the city invested $16 million toward the development of 400 affordable housing units, “the deal fell through with the market crash.”64 Since then, progress has been made to secure the development of a six story, 200-unit affordable housing building on Block 49; construction is in progress, with completion scheduled for fall 2012. Interviewees acknowledged that the PDC has been criticized for the way the affordable housing portfolio has been managed, especially given the number of luxury, market-rate condominium units that have been developed in the South Waterfront District. Urban renewal in the South Waterfront community has incidentally increased the need for affordable housing units, as gentrification begins to displace marginal populations to other areas.

The district’s market rate housing and office development have also been impacted by global and regional market conditions. High vacancy rates prompted developers to auction off condominium units, while vacancy rates in office buildings in downtown Portland and in the surrounding metropolitan area indicate “that the need for private office

63 Portland Parks & Recreation, South Waterfront Greenway (Portland, June 2012).
64 Sarah Mirk, “We Built this City” (Portland Mercury, April 29, 2010).
tenancy drops to less than one-half of the level previously planned.”65 This may explain, in part, why job creation has not kept pace with project targets. It also indicates that all areas of the project are susceptible to external market influences.

While financial constraints and market volatility have led to project delays, and cancellations in some cases, challenges are to be expected in any redevelopment project, this one is no exception. The unprecedented scale of the South Waterfront redevelopment, in terms of time and space, increases the risks and thereby the challenges associated with the urban renewal initiative. Moreover, given that the project is still largely in progress, perhaps the most important lessons Portland’s South Waterfront District has to offer have yet to be learned.

Despite these challenges however, it is important to note that the South Waterfront project is not a “one-off” best practice, but one of an growing portfolio of brownfield projects in Portland that incorporate sustainable elements. Indeed the Portland Development Commission, the city of Portland’s Bureau of Environmental Services (which manages the city’s brownfields program), along with other government agencies, nonprofits, and private developers, are taking a very proactive and progressive approach to brownfields redevelopment, targeting sites throughout the city and incorporating sustainable elements into their redevelopment. The list below outlines just a few of the exemplary sustainable brownfield projects that have been developed in the city.

<table>
<thead>
<tr>
<th>Project</th>
<th>Description</th>
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<tbody>
<tr>
<td><strong>Tabor Commons (Cafe au Play)</strong></td>
<td>A small corner lot located in inner southeast Portland converted from a gas station to a green community cafe and training center</td>
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<td><strong>June Key Delta Community Center</strong></td>
<td>A small corner gas station and convenience store converted by an African American sorority into a green building where community outreach and tutoring services are provided</td>
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<td><strong>The Yards and Union Station</strong></td>
<td>This EPA Phoenix Award– winning project converted a former rail yard into a LEED rated redevelopment with affordable family housing</td>
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<tr>
<td><strong>The Watershed at Hillsdale</strong></td>
<td>A former auto wrecking, rail stop, and barn in Southwest Portland converted into a 51-unit senior affordable housing project with extensive building efficiency and stormwater management features</td>
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<table>
<thead>
<tr>
<th>YEAR</th>
<th>DESCRIPTION</th>
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<tbody>
<tr>
<td>1880s</td>
<td>Industrial development of South Waterfront landscape begins</td>
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<td>1960s</td>
<td>Period of industrial decline contributed to rise in vacant lots and brownfield sites</td>
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<td>1966</td>
<td>Completion of I-5 freeway through Portland (created a physical barrier to the South Waterfront area)</td>
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<td>1976</td>
<td>Portland City Council votes to remove Harbor Drive (6-lane expressway); first step in reclaiming waterfront for public benefit</td>
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<td>1978</td>
<td>Portland Development Commission acquires South Waterfront Redevelopment Project area</td>
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<td>1979</td>
<td>City of Portland adopts the South Waterfront Redevelopment Program</td>
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<td>1980s-1990s</td>
<td>South Waterfront “devolved into a blighted, industrial wasteland and became disconnected from the city”</td>
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<td>1997</td>
<td>Visioning process led by the city to reclaim and renew the waterfront area</td>
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<td>1999</td>
<td>North Macadam Urban Renewal Area established by Portland City Council</td>
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<tr>
<td>2003</td>
<td>Public-Private Development Agreement reached between the Portland Development Commission, Oregon Health and Science University, and North Macadam Investors, River Campus Investors, and Block 39</td>
</tr>
<tr>
<td>2003</td>
<td>EPA Grant for a Phase I area-wide assessment</td>
</tr>
<tr>
<td>2004</td>
<td>EPA Grant for Phase II assessment of the future Elizabeth Caruthers Neighborhood Park</td>
</tr>
<tr>
<td>2006</td>
<td>Clean-up and remediation of Elizabeth Caruthers Neighborhood Park completed</td>
</tr>
<tr>
<td>2007</td>
<td>Oregon Department of Environmental Quality issues a No Further Action letter</td>
</tr>
<tr>
<td>2010</td>
<td>Block 33 affordable housing unit project cancelled</td>
</tr>
<tr>
<td>2012</td>
<td>Scheduled completion of Block 49 affordable housing development; Phase One of South Waterfront Greenway river restoration begins; ongoing project implementation</td>
</tr>
</tbody>
</table>
http://www.pdc.us/our-work/urban-renewal-areas/north-macadam/overview.aspx
Portland Development Commission, Oregon Health & Science University, River Campus Investors, LLC, North Macadam Investors, LLC, and Block 39, LLC. South Waterfront Central District Project Development Agreement. Portland, August 2003.
 Acknowledgements

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