Pilot Report: South Waterfront EcoDistrict Development

Fiscal year 2010-2011
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Introduction

South Waterfront at a glance

- Total Area: 153.5 acres

Population
- Total Population: 891
- % White: 78.4%
- Median Age: 46.1
- Total Employees: 1,125
- Per Capita Income: $57,962

Built Environment
- Total Area of Buildings: 934,630 SF
- % Residential: 26%
- % Commercial: 31%
- % Institutional: 4%
- # LEED certified buildings: 9

District Overview

This former industrial area was targeted as a mixed-use central city neighborhood in 1999 with the establishment of an Urban Renewal Area. Recent condominium and apartment development has contributed to a sharp increase in residential land use in the district, but much of the district remains undeveloped. Planning efforts centered on revitalization and transforming industrial land into a vibrant and highly urban neighborhood with housing, employment and recreational opportunities. With the goal to live closer to work, district planners aspire to diverse housing types and occupations with family-wage jobs, and further recognize the need for effective and accessible multimodal transportation options. Reconnecting to the riverfront is also a priority, recognizing its aesthetic, recreational and ecological functions. The design and construction of the Willamette River greenway is critical to integrating the area’s natural resources into infrastructure and urban form.
EcoDistricts Overview

The Portland Sustainability Institute (PoSI) created EcoDistricts™, a five-phase, comprehensive approach for accelerating sustainable neighborhood development:

1. District Organization
2. District Assessment
3. Project Feasibility
4. Project Development
5. District Monitoring

This report provides a summary of work to date in the South Waterfront EcoDistrict pilot in each of the five phases of implementation. It was written by the Portland Sustainability Institute and represents PoSI’s opinion, not necessarily that of the City of Portland or district stakeholders.
District Organization

To become an EcoDistrict, a neighborhood—in partnership with the city and other public agencies—must create a shared vision and governance structure to ensure that it has the capacity and resources to implement an EcoDistrict. This phase includes the creation of a neighborhood governing entity with the explicit charge to manage district sustainability, and the next steps of EcoDistrict formation, over time.

Engagement

District Energy

Early EcoDistrict engagement in South Waterfront focused on district energy and the opportunity to include it in infrastructure planning of the north district. The time sensitivity of reconstructing Moody Street in preparation for the Clackamas Light Rail extension prompted PoSI to move forward with project specific engagement. PoSI and the Portland Development Commission (PDC) assembled north district property owners to determine the viability of bringing district energy to South Waterfront. PoSI led a technical and business screen to assess viability of district energy and water. The study determined that there is an excellent business case for district energy, which led to deeper analysis to identify required infrastructure to support district energy as part of the Moody project. As a result, the city agreed to lay pipe in the street intersections to allow for construction of the system once buildings in the area are developed.

South Waterfront Community Relations

A parallel engagement process involved PoSI partnering with South Waterfront Community Relations (SWCR). As a newly formed neighborhood association, much of SWCR’s work to date has been focused on scoping its mission and building community to create a sense of place in this new neighborhood. It also acts as the Transportation Management Association (TMA) for South Waterfront. SWCR represents stakeholders in the central district.

The Value Proposition

Stakeholder Benefits

- Create integrated sustainability strategy to capture opportunities missed in first phase of development
- Expand mission of SWCR to improve energy, water, waste, and transportation performance
- Improve return on investment for existing and new development
- Leverage public partnerships (e.g. district energy) to attract private capital for infrastructure and building performance projects

The Value Proposition

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**Why EcoDistricts?**

To bring investments that enhance the environment and improve quality of life to the Foster area! EcoDistricts offer a framework to work with Foster area residents to identify community needs and priorities (economic vitality, safety, access to parks and open space, and improved transportation among others) and connect with environmentally-based assets and investments to address these needs.

- Foster Green FAQ

**Governance**

South Waterfront Community Relations (SWCR) is structured to effectively shape EcoDistrict goals and project priorities. Unlike most individual neighborhood associations in Portland, SWCR has funding and professional staff. Funding comes from a mix of tax assessments on all new buildings in the district, condominiums’ homeowner association fees, and public funding from Metro to support the TMA.

While the SWCR is interested in leading the EcoDistrict pilot to include broader sustainability outcomes beyond community engagement and transportation, staff have concerns about capacity and funding. PoSI and SWCR drafted a Memorandum of Understanding, to be signed summer of 2011, to jointly work towards developing an EcoDistrict implementation plan.

The next step in governance is to identify interests of North Macadam property owners to confirm their EcoDistrict interests, as they are not currently represented through SWCR. The goal is to strengthen SWCR to more effectively balance the needs of existing property owners, tenants and businesses around EcoDistrict projects.

**Organization Recommended Actions for Fiscal Year 2011-2012**

1. **Additional Engagement**: Engage property owners not currently represented through SWCR to participate in EcoDistrict next steps and sign MOU

2. **Fundraising**: Create a pool of funds for short-term staffing and small projects to launch EcoDistrict; determine self-assessed finance strategy to create ongoing source of EcoDistrict revenue
District Assessment

To achieve the ambitious goals for each performance area, a neighborhood assessment is essential to determine the most effective project priorities for a unique district. An assessment enables districts to determine strategies of greatest impact and prioritize their most appropriate projects.

**EcoDistrict Assessment Method™**

PoSI has developed a ten-step EcoDistrict Assessment Method to guide project selection and prioritization. This method is currently being applied in the Gateway and Foster Green EcoDistrict pilots. PoSI recommends applying this tool in the South Waterfront EcoDistrict to create a long-term EcoDistrict plan and identify project priorities.

The Assessment Method includes ten interrelated steps:

1. Gathering information to understand the district conditions and develop a performance baseline
2. Setting specific performance targets
3. Identifying strategy opportunities based on the unique characteristics of the district
4. Screening a menu of potential EcoDistrict projects to identify those appropriate for the district
5. Assessing potential projects to determine ease of implementation
6. Comparing assessed projects across performance areas
7. Prioritizing projects for implementation
8. Conducting feasibility studies on priority projects
9. Implementing projects
10. Monitoring projects against established performance metrics
Other Assessment

Strategy-specific assessment has been completed in the following areas:

- District Energy Technical and Business Case Strategy
- District Water Technical and Business Case Screen
- District Solar Site Analysis

See “Project Feasibility” section for details.

Assessment Recommended Actions for Fiscal Year 2011-2012

The following District Assessment actions are recommended for FY 11-12:

1. EcoDistrict Assessment: Apply EcoDistrict Assessment Method in South Waterfront to create an action plan with identified priority projects
Project Feasibility

Once the key project opportunities are identified through assessment, they require deeper feasibility to determine overall viability and cumulative impact. In the Project Feasibility phase, the South Waterfront EcoDistrict Steering Committee conducts business and technical analysis and develops an implementation and funding strategy for priority projects in the areas of buildings, infrastructure and behavior.

District Utilities

Feasibility to date in the South Waterfront EcoDistrict has focused primarily on the viability of developing an energy and water management neighborhood utility to serve the north district. General considerations in the assessment include technical feasibility, ease of implementation, economic viability and environmental benefits. The screening involved several steps:

- Establishing clear analysis boundaries
- Gathering information on cost drivers, capacity or operating constraints, and environmental footprint of existing central utility systems
- Gathering information on current and projected building area, utility demand, costs and environmental impacts
- Identifying nodes of growth that could act as the first phase of development of shared utility systems
- Identifying specific technology and distribution options

The analysis finds that a neighborhood energy utility (NEU) is both viable and provides significant environmental and cost benefits in contrast to the ‘business as usual’ development of individual building HVAC systems. The expected high-density mix of commercial, institutional and residential buildings creates a compelling business case for a high-efficiency district heating and cooling facility that can use a range of technologies. The NEU could be expanded over time to serve other parts of South Waterfront over time.
North District Energy Strategy (Infrastructure)

A preliminary screening study has been completed for a shared-district energy system serving OHSU and surrounding private lands. A Phase 2 study is required to select a preferred energy source (including possible implementation of a microgrid), confirm distribution layout and sizing, and develop an implementation plan—specifically ownership arrangements for a shared system.

To support the next phase of feasibility, PoSI prepared a proposal for a Woody Biomass Utilization grant application to the US Forest Service. PoSI did not receive the grant, but is pursuing additional resources to determine the most effective fuel sources for a South Waterfront district energy system.

**Funding:** Expected to be developed, owned and operated by third-party district energy provider; property owners would commit to buying power from the system for a set period of time to create a business case for third-party developer

**Performance Areas:** Air Quality & Carbon, Energy, Materials Management

North District Water Screen (Infrastructure)

An integrated water management plan for the North District of South Waterfront (encompassing OHSU’s Schnitzer Campus and adjacent private land developments) that would consider opportunities for shared stormwater management, gray water collection and use, and local wastewater treatment. The study would seek to optimize different shared systems to minimize water use (in particular peak summer use), maximize local environmental and place making benefits (linkages to local green space and the proposed green street), minimize costs (incremental operating and capital costs for regional infrastructure) and maximize resource recovery from wastewater treatment. This study should leverage lessons from on-site water management strategies at the Centre for Health and Healing, and the existing shared stormwater system between Curry and Gaines Streets. It should also consider possible synergies with the redevelopment of Moody Street and foreshore green space. Consideration should also be given to implications of any dewatering requirements within the North District.

**Funding:** To be determined once business case is refined

**Performance Areas:** Water, Habitat & Ecosystem Function
Solar Site Analysis (Building/Infrastructure)

As part of the Solar America cities program, the National Renewable Energy Laboratory provided technical assistance (through the Bureau of Planning and Sustainability) to identify the solar energy potential for Portland’s EcoDistricts. The goal of the study was to determine the solar energy potential for five pilot EcoDistricts in the city. Potential locations within the districts were determined through a site visit and Google Earth analysis. Energy generation potential was then determined for solar hot water and photovoltaics.

The study determined that there is significant potential for both photovoltaics and solar hot-water technologies to offset a sizeable amount of energy needs in each of the five pilot EcoDistricts. The South Waterfront EcoDistrict has 10,585,623 square feet of usable solar rooftop area. Assuming half the area is used for solar electric and half for solar hot water, the potential production is estimated at 2,000,315 kWh and 84,776 Therms. The study recommends economic analysis could be used to determine the most cost-effective installation size for each building depending on electric and hot water use. For details, refer to Portland EcoDistrict Solar Site Assessment, March 2010.

Funding: To be determined

Performance Areas: Air Quality & Carbon, Energy

Bike-Sharing (Infrastructure)

A bike-sharing system would create a network of hundreds of high-tech, GPS-enabled bicycles distributed at docking stations throughout the central city, for free use (after paying a hefty security deposit upon joining as a member) for short trips around town. Working closely with the Portland Bureau of Transportation (PBoT), PoSI has been working to raise $5 million in private funds to cover the operating gap for such a system for a five-year period.

Multiple EcoDistrict stakeholders are enthusiastic supporters of PoSI’s effort to establish a public bike-sharing system in the central city. A number of private companies have expressed interest in sponsorship, and one has verbally committed to being the “presenting sponsor” and recruiting other companies as “supporting sponsors.” PBoT is writing a request for proposals that will solicit companies or teams to design, implement, operate and help fund a city-wide bike-share program.

Funding/Business Case: This program’s $4 million in initial capital costs will likely come from federal grants; $1.4 million per year in operating funds will

Performance Areas: Placemaking, Social Cohesion, Air Quality & Carbon, Access & Mobility
Project Feasibility Recommended Actions for Fiscal Year 2011-2012

1. **District Energy**: Identify interests from district energy providers to conduct next level of technical feasibility to determine viability of system for north end of district.

2. **Solar Site Analysis**: Pair solar assessment data with district energy usage and local cost data to determine which rooftop technologies present the best investment; determine opportunity for third-party solar investment and installation across the district.

3. **Bike Sharing**: Complete system design and business plan.
Project Development

This phase includes development and implementation of high impact projects. It includes alignment and coordination between district stakeholders, public agencies, and utilities to develop and finance projects at a scale that has meaningful impact. It also involves predevelopment planning, financing, partnership building, and regulatory engagement.

Project Development Recommended Actions Fiscal Year 11-12

1. Project Implementation: Begin implementation of at least one project identified through EcoDistrict assessment; recommend a behavior program to complement ongoing building and infrastructure projects
District Monitoring

As EcoDistrict projects are planned and built, ongoing monitoring is essential to understand the full range of social, economic and environmental impacts. EcoDistrict performance standards can be used to regularly collect data to show the overall value of particular project interventions. In addition, qualitative documentation and lessons learned about EcoDistrict implementation will be essential to refining the EcoDistricts approach.

The EcoDistrict Assessment Method includes a corresponding database with two metrics for most EcoDistrict performance areas. This creates a baseline of present performance to be used to track performance improvements over time.

Monitoring Recommended Next Steps
Fiscal Year 2011-2012

1. None
Summary

Recommended Actions for Fiscal Year 2011-2012

District Organization
1. **Additional Engagement**: Engage property owners not currently represented through SWCR to participate in EcoDistrict and sign MOU
2. **Fundraising**: Develop funding source for short-term staffing and small projects to launch EcoDistrict; determine self-assessed finance strategy to create ongoing source of EcoDistrict revenue

District Assessment
3. **EcoDistrict Assessment**: Apply EcoDistrict Assessment Method in South Waterfront to create an action plan with identified priority projects

Project Feasibility
4. **District Energy**: Identify interests from district energy providers to conduct next level of technical feasibility to determine viability of system for north end of district
5. **Solar Site Analysis**: Pair solar assessment data with district energy usage and local cost data to determine which rooftop technologies present the best investment; determine opportunity for third-party solar investment and installation across the district
6. **Bike Sharing**: Complete system design and business plan

Project Development
7. **Project Implementation**: Begin implementation of at least one project identified through EcoDistrict assessment (likely a behavior change program)

District Monitoring
8. **None**