

EcoDISTRICTS Framework Concept for Metro Portland

Rob Bennett, Portland+Oregon Sustainability Institute

Background

Portland's reputation as a livable and sustainable community has been largely built upon its early leadership in land use planning, smart growth, multi-modal transportation infrastructure and demand management, affordable housing preservation, green building, green infrastructure, and citizen participation.

In total, such investments in livability and sustainability have helped Portland create a competitive advantage over other mid-sized cities with a new model for urban development and environmental performance that enhances livability and provides economic opportunities to grow the region's clean tech and sustainable industries (CTSI) cluster.¹ Portland's continued leadership and ability to maintain job growth will depend in large part on how these new sustainability strategies can be accelerated and scaled up to meet the needs of citizens while significantly reducing our collective environmental footprint in the areas of energy, water, and carbon dioxide. Likewise, such investments need to be better integrated and performance metrics created to ensure public and private investment are providing long term community benefits.

EcoDISTRICTS is a bold visioning and investment strategy to manage growth and development in major redevelopment areas. The objective of the program is to test, accelerate and eventually codify the next generation of best practices in green development and civic infrastructure that can be scaled to create neighborhoods with the lowest environmental impact and highest economic and social resiliency in the United States.

EcoDISTRICTS combines best practices in smart growth and urban design, community participation and institutional alignment, modeling and visualization tools, rating and evaluation systems, zoning and building codes, financial models for infrastructure and building retrofits, and green building and infrastructure technologies and practices.

¹ PDC's 2009 economic development strategy calls out clean tech and sustainable industries as one of Portland's four signature clusters. A Feb '09 PDC survey lists 809 CTSI firms in the region, including 327 in Multnomah County that account for 9,817 regional jobs; 53% (5,237) in Multnomah County. Multnomah County saw CTSI earnings increase from \$246M to \$325M between 2001 and 2006, significantly outpacing earnings growth in the region. There is a notable concentrations in wind, green building and environmental services in the City of Portland including Vestas, Iberdrola, CH2M Hill, Solar World, Solaicx, Brightworks, Gerding Edlen, Ecos, PECl, and Green Building Services. Competitive strengths include an educated labor force (talent cluster at least 50% larger than average for similar regions), access to inexpensive energy and water, tax incentives for renewable energy products, quality of life and reputation as a leader in sustainability

EcoDISTRICTS is modeled as a unique public-private partnership between P+OSI and the City of Portland, Portland Development Commission, Metro, Oregon Built Environment & Sustainable Technologies Center (BEST), and real estate, design, and construction industries.

The initiative is a concerted effort to keep the Portland region at the front of applied sustainability that has a direct link to green job growth and research and development while helping the region meet aggressive goals in the following areas:

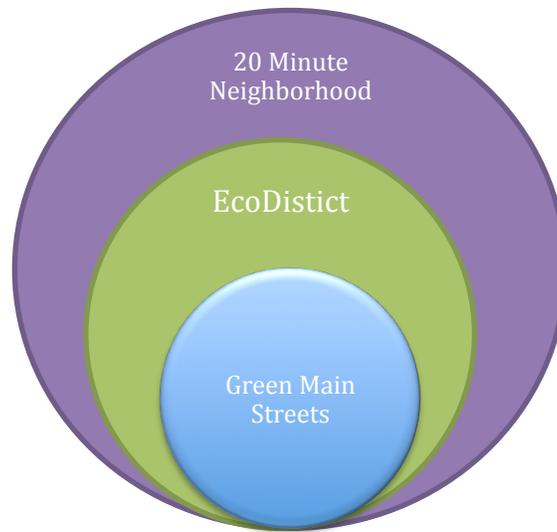
- Green job and local business growth
- Greenhouse gas emissions reductions
- Green building market penetration
- Watershed and urban ecosystem health
- Distributed stormwater and potable water management
- Multi-modal transportation that prioritizes transit, cycling, and walking
- Air toxic and criteria pollutants reductions
- Affordable family and workforce housing preservation
- Livable and resilient neighborhoods

What is EcoDISTRICTS?

EcoDISTRICTS is a strategy to build “triple bottom line” neighborhoods with the lowest possible environmental impact and highest long-term economic and community returns.

EcoDistricts includes

- 1) **Green development strategies** including building and district scale energy efficiency measures, renewable and low carbon energy production, water reuse (rain and greywater), storm water management; habitat enhancement and urban agriculture; and robust transportation options that prioritizes transit, walking and cycling over cars.
- 2) **New governance and financing models** to improve long term building and infrastructure performance through shared investment and savings.
- 3) **Community development best practices** that include high density and mixed income workforce and family housing; shared community amenities such as community centers, daycare, and schools; expanded transportation hubbing for rail, bus, bike and pedestrian access and mixing of commercial, retail and service amenities that enhance livability and reduce long term cost of living.



EcoDISTRICTS compliments other initiatives including “20 minute neighborhoods” that promote mixed use, vibrant neighborhoods and PDC’s Green Main Streets, a commercial district revitalization strategy. Likewise, it is an expansion of a variety of existing sustainability, climate and clean energy/infrastructure efforts at the regional, state, and local levels in Oregon. At the state level, Oregon has established aggressive goals for reducing greenhouse gas emissions (75% below 1990 levels by 2050). The state has created policies and incentives to achieve them. Oregon has also created both a statewide Sustainability Board and Global Warming Commission to support regional and local government sustainability efforts. At the regional level, Metro regional government (only elected regional government in the country) has recently reorganized around sustainability functions and initiated a Climate Action Strategy for its 28 political jurisdictions that includes the Regional Transportation Plan and land use strategies. Locally, the City of Portland and Multnomah County were the first United States city/county to set greenhouse gas goals (1991) and to create a climate action plan. Currently, the city is updating its greenhouse gas, green building, and economic development strategies. BES has adopted a far-reaching green infrastructure program called Gray to Green and the Portland Bureau of Transportation is creating new Bicycle and Streetcar investment strategies. EcoDISTRICTS is designed to meet the goals and accelerate the investments embedded in these plans.

EcoDISTRICT Goals

I. Reduction of Greenhouse Gas Emission and Air Pollution: The state of Oregon and Portland have created aggressive greenhouse gas emission reductions that EcoDISTRICTS helps to address through deep neighborhood energy savings in the following areas: building scale passive design, equipment efficiency, and occupant behavior best practices; renewable district energy generation; reduced vehicle miles traveled (VMT), and more efficient water systems.

II. Clean and Safe Water: Priorities includes on-site water efficiency and reuse, on-site

greywater management and reuse, and on-site storm water management that meets the City's Gray to Green best practices. These technologies will look to reduce the life cycle costs and environmental impacts of pumping and treatment, enhance urban watershed and estuary health, and provide flexibility and redundancy in the City's water distribution system.

III. Land Preservation and Restoration: Through land use and smart growth best practices, efficient land utilization will be emphasized through prioritized densification (e.g. brownfield, infill, along transit corridors). Restoration will emphasize bioremediation for land recycling and habitat enhancement (urban and edge). Additionally, advanced technologies and systems for waste reduction, reuse, and recycling both in the construction of buildings and infrastructure and in their ongoing management and operation.

IV. Healthy Communities and Ecosystems: Priorities include strategies to enhance and protect human and ecosystem health through a variety of best practice in the areas of 1) improved air quality, daylighting access, and reduction of harmful chemicals in buildings; 2) prioritization of walking and cycling as the primary mode of transportation for residents and visitors; 3) mixed income and generational housing, schools, daycare, and community centers; 4) brownfield remediation, and 5) watershed and ecosystem enhancement including on-site greywater, wastewater and storm water management to reduce the mean concentration of certain contaminants of concern found in water and fish tissue in the Columbia River basin.

V. Green Job Creation: EcoDISTRICTS creates a fertile proving ground to create an applied economic development strategy that will help grow green and clean tech jobs; create commercialization opportunities for corporate entities looking to deploy next generation products and services at centers of sustainability innovation; and attract outside direct investment.

Key Programmatic Activities

EcoDISTRICTS includes three distinct programmatic components:

- 1) **PLANNING:** identification and analysis of pilot districts and testing and institutionalization of new neighborhood/district planning tools, including best practice rating systems, scenario and visualization software, and environmental and social footprint measurement strategies.
- 2) **PILOTS:** implementing next generation green development, green infrastructure and community development best practices through large scale and neighborhood infill projects.
- 3) **CODIFICATION:** Analyze and implement public-private financing strategies, incentives, building and zoning regulations, and rating and monitoring systems.

EcoDISTRICTS strategies include:

- Apply aggressive energy and resource reduction strategies to the design and engineering of buildings and infrastructure;
- Test new zoning regulations and green building codes;
- Expand transportation options and aggressive demand management strategies;
- Create new financing tools including energy efficiency utility districts to fund energy efficient building retrofits;
- Prioritize commercial, retail, and housing options that emphasis high density family and workforce housing;
- Broaden civic participation and participatory decision making;
- Measure and monitor baseline environmental, economic, and social impacts including metrics such as LEED ND and the Livable Places Index.

Expected Project Outcomes

1. Adopted planning, zoning, code and other changes create incentives for best practices in green building, green infrastructure, district scaled utility services, transportation hubbing, emission reduction, mixed income and mixed-generational housing, and civic infrastructure, including best practice rating systems, visualization software, foot printing strategies and process methodologies Measured by:
 - a. Adoption by City Council, state, agency
 - b. Pilot projects successfully completed
 - c. # Buildings, infrastructure facilities, etc. constructed or services provided
2. Reductions attributable to EcoDistrict actions (both inside and outside the District)
 - Metrics subject to change as a result of convening of steering and advisory teams
 - a. GHG—tons
 - b. Air toxics (indoor and outdoor)—pounds or tons
 - c. Energy consumption—BTU's per bldg or infrastructure compared to baseline neighborhoods
 - d. Diesel emissions—vehicle and stationary engines compared to national or state standard
 - e. Water use and sewage—gallons/day compared to baseline neighborhoods
 - f. Soil contamination—tons contaminants removed/neutralized
 - g. Waste generation—tons compared with baseline neighborhoods
 - h. Cost of utility services--\$s compared to baseline
3. Increases attributable to EcoDistrict actions
 - a. Storm water quantity and quality—gallons and contaminant loading per storm event compared to baseline water reuse—gallons compared to baseline

- a. Jobs—short term construction, long term operation and maintenance, permanent businesses locating within the District
 - b. Affordable housing units—compare income, generational and family mix to baseline, city average etc.
 - c. Shared community amenities such as community centers, daycare, and schools—capacity compared to city average
 - d. Expanded transportation options and nearby commercial, retail and service amenities to reduce the need for car ownership, and affordable tenure options tied to building design. Will need to devise an appropriate measure.
3. Development of project demonstrations with completed master planning and deployment of sustainable practices at the district level measured by:
- a. Number of services provided—energy production and efficiency, water efficiency, reduction, reuse, etc., green roof/wall/garden, mobility/parking, street and building cleaning—compared to other districts in US or abroad
 - b. Degree of integration among those services producing otherwise unobtainable reductions in energy, water, toxics, etc.—identify and measure unique synergies

Collaboration and Partnerships

P+OSI will lead the EcoDISTRICTS strategy, convening key City of Portland bureaus (BPS, PDC, PBOT, BES, Water, BDS), Metro, real estate, design and construction industry leaders, Oregon BEST, relevant ngo's and workforce support and training providers. Specific partner responsibilities include:

- Portland+Oregon Sustainability Institute to provide overall project management and facilitation.
- Oregon Solutions to provide overall project facilitation and development of governance structures.
- City of Portland to develop and implement infrastructure and policy best practices.
- Portland Development Commission to provide project management and financial and technical analysis for pilots within PDC urban renewal areas.
- Metro to provide technical and policy support related to land use planning, transportation and public infrastructure.
- The State of Oregon Departments of Environmental Quality, Energy and Economic Development to provide technical assistance, tax credit financing, loans and other support.
- Portland State University to provide faculty and student research through the Center for Sustainable Processes and Practices.
- Oregon BEST to identify relevant green building product and service commercialization opportunities to be tested in pilot projects.
- Private sector green development industry leaders to provide best practices in

financing, design, engineering, and operations.

Stakeholders include:

- The Climate Trust, which will help design, fund and implement carbon offsets
- Northwest Energy Efficiency Alliance Betterbricks Program and Pacific NW National Laboratory will provide technical assistance (daylighting, advanced lighting, passive ventilation modeling)
- Energy Trust to provide financing and technical support
- Bonneville Environment Foundation - investment in carbon offset projects
- Renewable Northwest, will provide connection to innovative technology solutions and workforce
- Worksystems Inc and Portland Community College to provide workforce training
- Northwest Natural, Portland General Electric and Pacific Power, the three utilities in the area, will provide policy, technical and implementation assistance.
- Neighborhood and community groups in the individual EcoDISTRICTS will be engaged in project design and implementation to assure that community concerns, including any environmental justice issues are addressed
- Gerding Edlen Development to provide project management and financial modeling support

Proposed Workplan & Timeline

- March '09: Steering (subcabinet of Mayor Adam's Planning and Sustainability Cabinet) and interdepartmental technical committees created, with emphasis on regulatory, design, finance, and research & commercialization
- April '09: P+OSI finalizes the EcoDISTRICT framework that identifies key goals, deliverables, and metrics
- April '09: Steering Committee identifies and selects pilots to participate in the program
- May '09: P+OSI drafts analysis of sustainability metrics and relevant case studies
- May '09; MOUs signed with first phase EcoDISTRICT pilot stakeholders
- May '09: Portland and Metro host practitioners' summit to review EcoDISTRICT initiative and solicit feedback on scope of work, criteria, and deliverables
- May '09: EcoDISTRICT program introduced to City and Metro Councils for adoption
- July '09: P+OSI to hire EcoDISTRICTS Technical Director to run the program
- July '09: Financial and technical feasibility completed for 2-3 pilot projects to identify initial pilot projects
- Sept '09: Develop EcoDistrict design concepts for 6 metro-area sites
- Nov '09: Regulatory reform analysis and recommendations (zoning and building codes, fees and incentives).

- Dec '09: Regulatory changes introduced for adoption to City Council
- 2009-2012: Development Projects commence