# Appendix A

**(Resolution No. )**

**"Portland's Green Building Policy:**
**A Status Report and Recommendations"**

CITY OF PORTLAND
OFFICE OF SUSTAINABLE DEVELOPMENT
A BETTER FUTURE. A BETTER NOW.

# MEMO

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To: Commissioner Dan Saltzman
CC: Susan Anderson, OSD
Subject: Portland's Green Building Policy: A Status Report & Future Recommendations

## I. Executive Summary

This memo outlines the progress of the Green Building Policy (Policy) during the first 4 years and makes recommendations for further refinement and improvement. In January 2001, the City of Portland City Council adopted the Policy to require resource and energy efficient design and construction practices for City-owned facilities and publicly funded private sector development. The Policy was the result of a two-year process initiated by the then Portland Energy Office and Sustainable Portland Commission to create the Green Building Initiative, a strategic plan to expand market demand and make green building practices easier to implement in Portland. The newly created Office of Sustainable Development (OSD) subsequently launched the Green Building program – a mix of technical assistance, training, incentives and policy implementation – under the name G/Rated, in 2001.

One of the first actions taken in 2001was the development of the City's Green Building Policy. The Policy is comprised of strategies and specific actions for the following project types:

1) Buildings constructed, owned and managed by the City of Portland, including new construction and major retrofits; interior tenant improvements; operations and maintenance;
2) Publicly-funded, private-sector development through Portland Development Commission
3) City-owned infrastructure
4) Private sector development.

The Policy requires all City owned new construction and major retrofit projects to achieve the 'Certified' level of the LEED™ Green Building Rating System.[1] The other three City facility project types - interior tenant improvements, operations and maintenance, and city-owned infrastructure - necessitated the development of new requirements that are in different stages of development. In 2001, the Portland Development Commission also adopted a Green Building Policy requiring publicly-funded projects to achieve the 'Certified' level of LEED.

Since the Policy was passed in 2001, green building market transformation has significantly quickened. As of April 2005 in Portland, 49 buildings are LEED registered (7 are currently certified). Nationally, more than four percent of US commercial buildings (including more than ten percent of new government

[1] A localized version of LEED™, "Portland LEED," created by OSD addresses Portland-specific regulations to help local projects meet LEED standards.

buildings) are LEED registered. The US Green Building Council (USGBC) has certified 167 buildings and registered 1,800 more projects worldwide. The USGBC has launched two new LEED products - LEED EB (Existing Buildings) and LEED-CI (Commercial Interiors) and has three in pilot phase – LEED (CS (Core & Shell), LEED ND (Neighborhoods), and LEED H (Homes). Dozens of cities, counties, state and federal agencies have adopted LEED-based green building requirements in the last three years to address the negative impacts of buildings on human health, the environment, and global atmosphere and perceived efficacy in delivering market differentiated energy and resource efficient buildings.

The Policy has provided a pragmatic and effective framework for accelerating the pace of market transformation. Since 2001, Portland has become recognized as an international leader in green building, pacing the country in the number of LEED-registered projects and its growing concentration of development, planning, and design firms; manufacturers and vendors with green building credentials. This expertise is attracting intellectual and financial capital that is helping reshape Portland and its development patterns to better respond to local and global environmental challenges while growing its economy. However, as this memo points out the Policy is in need of updating to improve efficacy and consistency. It calls for stronger standards, new strategies to remove existing gaps, new links to development plan review and permitting, and other refinements that reflect the changing landscape of green building.

**OSD recommends modification of the City's Green Building Policy to include the following improvements:**

*New Construction*

- Increase LEED threshold for all new, City-owned facilities construction projects from "Certified" to "Gold" and require at least:
  - 75% C&D waste recycling;
  - 30% stormwater management beyond City of Portland baseline code requirements;
  - 30% energy savings beyond City of Portland baseline code requirement;
  - 30% water savings beyond City of Portland baseline code requirement; and
  - additional commissioning as defined by LEED.
- Increase LEED threshold for new private sector projects that receive PDC funding (for all projects where PDC assistance equals 10% or more of total project cost AND where the project is 10,000-ft2 or greater) from "Certified" to "Silver."
- Update PDC's Affordable Housing green building threshold and voluntary guidelines.
- Require design and construction of all new City-owned facilities to include an ecoroof with at least 70% coverage AND high reflectance, Energy Star™-rated roof material on any remaining non-ecoroof surface area; OR, Energy Star™-rated roof material when an integrated ecoroof/Energy Star™-rated roof is impractical.

*Existing Building: Major Retrofits & Tenant Improvements*

- Require for all occupied existing City-owned facilities to achieve LEED "Silver" for Existing Buildings (LEED-EB).
- Require all tenant improvements in City-owned facilities to achieve LEED for Commercial Interiors (CI) "Silver" AND/OR G/Rated Tenant Improvement Guide certification.
- Require all roof replacement projects on City-owned facilities to install an ecoroof AND high reflectance, Energy Star™-rated roof on any remaining non-ecoroof roof surface area; OR, when an integrated ecoroof/Energy Star™-rated roof is impractical, install an Energy Star™-rated roof.

*Leased Facilities*

- Require all tenant improvements undertaken in all City-leased facilities to comply with LEED for Commercial Interiors (CI) Silver AND/OR G/Rated Tenant Improvement Guide certification.

*Facilities Operations & Maintenance*

- Require all operations and maintenance practices at City-owned facilities (undertaken by the City or its contractors) to apply the *City's Green Building Operations and Maintenance Guidelines* under development by the Bureau of General Services. The requirements apply to all facilities, regardless of size and contract type (e.g. either in-house or outsourcing contracts). The guidelines will sync up with ongoing maintenance requirements in the LEED EB rating system.

*Public Infrastructure*

- Create a sustainable infrastructure best practices manual and baseline requirements for all public infrastructure to include roads, pipes, sewers, and utilities among others.

*Tools, Resources & Training*

- Require all City Architecture and Engineering service contracts to follow the Bureau of Purchases "Professional and Technical Expertise Architect & Engineer Request for Proposals for LEED Projects".
- Require green building training for all appropriate city project managers and maintenance and operations staff.

*Building and Zoning Plan Review and Permitting*

- Provide BDS process management for qualified public and private sector LEED Silver-registered building projects;
- Identify building and zoning code and process conflicts that inhibit green building practices and technologies;
- Create a inter-bureau training program for relevant City development review and inspection staff; and
- Create an integrated marketing effort to promote the City's green building services.

## II. Policy Performance to Date: A Focus on Capacity Building

Listed below is an update on the implementation of the Green Building Policy organized by strategy – identifying progress made and lessons learned to date.

In general, awareness of the Green Building Policy and its directives remains somewhat unclear within relevant bureaus. When engaged to participate in a Policy or other green building-related project, City staff often demonstrates unfamiliarity with the nature and strength of the City's commitment to green building. In this regard, self-initiated competency around green building, Policy guideline development, and general eagerness to participate in implementation of the Policy is weak. The recommendations outlined later in this document address these issues with a strategically targeted approach to relevant bureaus and City Staff assisting in Policy implementation.

**Policy Strategy #1: The City of Portland shall incorporate green building practices into all facilities projects constructed, owned, managed or financed by the City**.

1. NEW CONSTRUCTION AND MAJOR RETROFITS

*"New construction and major retrofit projects undertaken by the City or its contractors shall meet the 'Certified' level of the Portland LEED Green Building Rating System."*

Projects

The City's capital improvement schedule included no LEED-obligated "new or major retrofit" projects during the first four years (2001-04) of the Green Building Policy. Projects that have been built during this period were bond financed pre-Policy and thus exempted from the LEED Policy. However, in 2001 the City chose two demonstration buildings - the BES Columbia Boulevard Wastewater Treatment Plant Operations Center and Office of Emergency Management Emergency Communications Center (911 Center) - to go through LEED certification (both are currently pursuing LEED certification). For all other capital building projects, OSD has worked closely with bureaus to encourage voluntary, cost effective green building practices.

The late application of LEED to the Wastewater Treatment Plant and 911 Center projects proved challenging and makes analyzing the efficacy of the Green Building Policy to date difficult.

*The Wastewater Treatment Center –*

The Wastewater Treatment Center decided to seek LEED certification after design completion, specifically on the day before the project's bid specs were to be released. BES thus had to work with the architect to redesign the project which, despite the architect's willingness to absorb some of the additional costs in exchange for LEED experience, resulted in additional costs. This also impacted project phasing and required creative project management at BES. Given the circumstances, little documentation of the process took place from which to evaluate the experience.

*The 911 Center -*

The 911 Center project is an addition and both the original building and addition were designed without express LEED or high performance intentions. Again, discussions regarding LEED did not take place until the project was well under way and in the final stage of design development. Logistical issues with certifying only the addition portion of the building under the LEED for New Construction (LEED-NC) program and being physically and operationally connected to an already complete non-LEED structure made application of the LEED system relatively difficult. Further, implementation of the more fitting LEED for Existing Buildings (LEED-EB) program released in November of 2004 would now require certifying the *entire* building and may require very costly retroactive evaluation and additional documentation. For these and other reasons, the challenges with LEED in these two projects are not typical of a successfully executed development process that includes LEED from the start.

Tools

*Portland LEED –*

Portland LEED is a supplement to the National LEED rating system that references local codes where more stringent than LEED standards and rewards locally recognized innovations. OSD is in the final stages of updating the Portland LEED Green Building rating system from LEED NC 2.0 to 2.1 standards. Each Portland LEED credit includes a list of local resources to help project teams both comply with local development requirements and implement LEED in Portland. This document is currently under final review by the USGBC.

*Green RFP Language –*

The Bureau of Purchases has developed a "Green RFP" for PTE Services involving LEED-obligated new construction and major retrofit projects. This tool clearly spells out the required actions by the A/E contractor and City project team to ensure that LEED objectives are explicitly spelled out up-front and that the LEED system is properly integrated into the development process.

Training

*Green Building Advisory Team (GBAT) and project specific technical assistance -*

OSD has been providing bureau project mangers technical assistance on development projects since 2000. Projects receiving assistance include Ode to Roses, People's Food Co-op, Portland State University-Epler Hall, the Rose's "zero net energy" home, and Johnson Creek Commons whose features range from rainwater harvesting for toilets to the first commercial use of "cob" as an infill green building material, among others.

To provide a better range of assistance and build greater capacity within the City, OSD has assembled an inter-bureau Green Building Advisory Team (GBAT), which serves as a technical committee to assist City project teams with LEED and green building implementation. For LEED-obligated projects, the GBAT consults with project teams early in the process to establish goals and develop a LEED action plan. For exempt projects, the GBAT works with the project team to determine which, if any, Portland LEED credits apply and identify strategies for execution. In the case that the project is exempt from the Policy (an unoccupied pump station for example), the GBAT will work with the project teams to identify green building strategies specific to the project.

Remaining GBAT work items include development of a policy for LEED-exempt projects; establishment of a regular system of inter-bureau project information exchange and designation of a point of contact for each bureau; and, finalization of the process by which the GBAT will identify projects.

*Staff training –*
OSD has conducted three half-day City Project Manager trainings in 2002, 2004, and 2005. The training explained the requirements of the Green Building Policy, the tools and resources available to City project managers, and case studies of former and current green building projects. In addition to in-house training, OSD has sponsored a variety of training opportunities for City project managers, including sessions on LEED rating system, the G/Rated Tenant Improvement guidelines, and value engineering green buildings among others.

OSD has also convened in-house meetings between City staff and visiting sustainable design and construction experts in Portland for separate OSD-related events. Recent examples include Joe van Bellingham and Tom Paladino, both presidents of private sustainability consulting and development firms with extensive LEED experience worldwide. These meetings have provided an opportunity for City staff to capture lessons learned from leading experts and get an outside perspective on the compatibility of the City's development process and LEED implementation.

2. INTERIOR TENANT IMPROVEMENTS (T/I)
*"Interior-tenant improvement projects undertaken by the City or its contractors shall apply the Portland Interior - T/I Green Building Guidelines. This applies to projects regardless of funding source or amount…"*

<u>Tools</u>
*G/Rated Tenant Improvement Guide ("TI Guide") –*
The TI Guide is a handbook of tenant improvement best practices that was developed by OSD to provide a set of required and voluntary strategies for City-owned facilities. Additionally, it doubles as a resource guide and rating system for private sector development. The guide provides an overview of the TI process, describes the roles of key players, and explains how to "green" the TI process through a series of strategies and checklists that provide information, specific tools, and resources to guide the manager in undertaking specific green practices. The Guide was first published in August of 2002 and updated in August 2004. The printed guide is available free to City employees and for $5 to the public; the document can also be downloaded free in PDF format from the G/Rated website.

A distribution strategy, training and education, and tracking mechanism need to be developed to ensure that relevant City staff understands the importance of the TI Guide as a Green Building Policy implementation tool and that they know how to use it. Further, an effective TI Guide tracking mechanism will enhance G/Rated's ability to measure the City's success in implementing the Green Building Policy.

Training
OSD has held two T/I Guide trainings in 2004 for City project mangers. The trainings provided an overview of strategies and relevant resources.

Projects
Although OSD has provided TI Guides to some relevant City staff, it is unknown to what extent the manual has been used in City projects. TI project tracking is particularly difficult because of the volume of TI work done by the City and the range in scope of projects. For example, both a small-scale carpet replacement project and a large-scale space redesign are considered "tenant improvements", with the majority of projects falling into the small-scale category. The TI Guide is designed to certify full-scale tenant improvement projects so OSD needs to determine what scale of TI projects to track and how to do so. In general, some project managers have been encouraged to implement the TI Guide and qualitative feedback from these individuals indicates that the Guide is useful. A robust tracking system is needed across bureaus to capture what strategies are used in all city facility tenant improvement projects.

3. OPERATIONS & MAINTENANCE ("O&M")
*"All City operations and maintenance practices undertaken by the City or its contractors shall apply Portland Green Building Operations and Maintenance Guidelines. This applies to all facilities, regardless of size and contract type…"*

Tools
The Bureau of General Services was directed in 2001 to develop the Green Building Operations and Maintenance Guidelines. After 3 years, the Guidelines are finally under development by BGS. When they are completed, they will serve as the Policy Implementation tool for all City O&M work. BGS will need to develop an inter-bureau distribution strategy.

Training
No training has been conducted to date. BGS will need to develop a training program for the guidelines once they are published

Projects
Due to the lack of tool, no projects have implemented the O&M Guidelines.

**Policy Strategy #2: The Portland Development Commission (PDC) shall adopt Portland LEED Green Building Rating System, City of Portland Green Building Policy goals and incorporate green building practices into each of its ongoing and future program areas.**

Based on local and national trends, OSD recommends the following: increase LEED threshold for new private sector projects that receive PDC funding (for all projects where PDC assistance equals 10% or more of total project cost AND where the project is 10,000 sf or greater) from "Certified" to "Silver." OSD will work with PDC staff, PDC Commission members and City Council to research the costs and benefits of going to LEED Silver.

OSD is currently partnering with PDC, Bureau of Housing and Community Development, the Housing Authority of Portland and other affordable housing service providers to update their affordable housing

green building threshold and voluntary guidelines. The update includes new strategies specific to high-rise construction, updated cost data, and a comprehensive life cycle analysis (LCA) of electric and gas heating systems. The guidelines are due to be published in June 2005.

**Policy Strategy #3: "The construction, operation, and maintenance of public infrastructure that serves building development shall be examined in order to determine the opportunity and need for a sustainability rating system for infrastructure similar to Portland LEED Green Building Rating System."**

Tools

A Sustainable Infrastructure Team (SIT) was formed in 2001 that included representation by the three infrastructure bureaus (BES, Water, Transportation) and OSD. The team evaluated current and ongoing practices and reviewed opportunities for improvement in sustainable practices. The team developed a report that recommends the establishment of the SIT as a standing committee that meets regularly, the development of guiding principles, ongoing research to stay abreast of the latest practices, and a budget to support their efforts.

The SIT concluded that a sustainability rating system like LEED is not well suited as a decision-making tool for infrastructure projects. The SIT also agreed that the next step should be to establish broader Guiding Principles to serve as the basis for any system for sustainable infrastructure adopted by the City. This could be used as a tool to help examine the applicability of existing systems and standards and guidelines adopted by other cities. Staff changes resulted in the disbanding of the SIT before the Guidelines could be established.

Training

SIT's monthly meetings can be classified as training in that they provided the three infrastructure bureaus a venue in which to exchange project information and lessons learned.

Projects

Through SIT meetings, SIT members learned that there were a variety of disparate efforts that would fall under the guise of "sustainable infrastructure" projects already happening. These efforts include asphalt and concrete recycling (PDOT), "Water Quality Friendly" street design (BES/PDOT), LED traffic signals (PDOT), and micro-hydro power generation between Mt. Tabor reservoirs (Water), among others.

PDOT recently proposed the revitalization of the SIT, adding budget and higher-level staff involvement to ensure its viability. The primary objectives are to pick up where the report left off, establish a systematic means for consistent inter-bureau communication, and coordinate the City's now incongruent sustainable infrastructure efforts.

**Policy Strategy #4: The City shall promote the voluntary application of the Green Building Guidelines in private sector building design, construction, and operations.**

Policy Strategy #4 is not the focus of this memo. OSD's G/Rated program promotes private sector green building through its events, educational materials, training, guidelines, website, and financial incentive program. For more information on the activities and status of the program see: *ReThinking Development: Portland's Strategic Investment in Green Building, Progress Report: FY: 2000-2002, Five-year Strategic Plan: FY: 2003-2007* (March 2003) at:
http://www.green-rated.org/uploaded_files/publications/03_mar_2yr_report.pdf

**III. Lessons learned from Portland's private sector**

Portland's private development sector has been quick to adopt LEED and has played a significant role in positioning Portland as a leader in green building. Unlike Seattle where a majority of green building is being driven by the City's over $1 billion in municipal facilities construction, green building in Portland is focused in the private and institutional sectors. Portland boasts the most LEED projects and square footage per capita in the nation and is home to 49 registered projects, 7 certified projects and some 300 LEED-accredited professionals (more than 80% of the state's total).

Local private sector experience shows that the incremental costs associated with LEED decrease with experience and that LEED projects can, in fact, cost less. One LEED-savvy developer who has consistently raised the bar with each project now claims that, "LEED does not have to cost more." The tracking, documentation and extra design costs associated with LEED can be offset by the resultant quality of design that downsizes or eliminates typical building systems and enhances operational efficiency. This same developer is now achieving these savings in LEED Silver and Platinum-rated projects.

**IV. Municipal Green Building Policies**

Although the City of Portland blazed the trail in 1999 by adopting a Green Building Policy, it has recently been surpassed by several other cities that have adopted more stringent standards.

*Seattle, WA – LEED Silver*: The City of Seattle's Sustainable Building Policy was adopted in 2000 and requires all City-owned projects greater than 5,000 ft2 to budget for, and achieve, a LEED Silver level of certification. The adoption of the Policy coincided with the City's largest-ever capital improvement campaign - over $1 billion - and has resulted in 15 City-owned LEED projects to date. The State of Washington also recently signed into law the high performance green buildings bill and became the first US state to adopt a LEED Silver Standard for all public facilities greater than 5,000-ft2, including schools.

*San Francisco, CA – LEED Silver*: The City of San Francisco recently amended its Resource Efficient Buildings Ordinance to require that all future City development greater than 5,000-ft2 meet or exceed a LEED Silver level of certification. The amendment augments the City's standard, which previously relied upon "resource efficiency requirements" and yielded buildings that performed roughly equal to a LEED Certified level building.

*Vancouver, B.C. Canada – LEED Gold:* The City of Vancouver B.C. was the first municipality to adopt the LEED Gold standard for public facilities. Vancouver's research found that the 1-3% up-front cost increment to achieve a Gold rating was negligible and Council resolved that the value created by achieving a higher level of building performance readily reclaimed the extra investment. Planning Analyst Dale Mikkelsen notes, "the issue in Council soon became about the cost of *not* adopting a LEED Gold Standard".[2]

*Scottsdale, AZ – LEED Gold:* The City of Scottsdale, AZ is the first US municipality to approve a Green Building Policy that directs all new city buildings to meet the LEED Gold or Platinum standard. The standards will also apply renovations of existing facilities when feasible. The City determined that achieving LEED Gold or Platinum would add, on average, about 2% to the total project cost.

[2] Personal Communication with Dale Mikkelsen, Central Area Planning Analyst, City of Vancouver, B.C., Canada, January 5, 2005.

Other local governments that have adopted the LEED Silver standard for municipal projects include Alameda County, CA, Arlington, MA, Atlanta, GA, Berkeley, CA, Boulder, CO, Calabasas, CA, Calgary, B.C., District of Columbia Parks and Recreation, Dallas, TX, Houston, TX, Kansas City, MO, San Diego, CA, San Francisco, CA, Santa Monica, CA, and Seattle, WA[3]. Canada's national government recently passed a LEED Gold equivalent standard for all new projects as an important part of Canada's need to meet the Kyoto Protocol.

**V. The Cost of LEED**

The latest and most comprehensive green building research affirms that incremental costs to achieve LEED are minimal compared to long term utility savings, employee productivity gains, and environmental performance. A study commissioned by California's Sustainable Building Task Force that looked at the life cycle costs of 33 green buildings concluded that, "a minimal up-front investment of about two percent of construction costs typically yields life cycle savings of over ten times the initial investment". More specifically, the study determined that the requisite incremental investment to achieve a Silver and Gold rating was 2.15% and .5% respectively- suggesting that LEED Gold is actually *less* expensive than Silver and nearly cost neutral with standard construction.

A Seattle study that looked at the benefits and costs of achieving LEED Silver in two City-owned buildings found that the average LEED-related incremental cost was 1.2% and the benefit cost-ratio was approximately 1.5. For Seattle, a LEED Silver Policy is readily supported by such cost-effective building investments.

Seattle's experience also indicates that the incremental costs of LEED are realized when LEED is implemented late in the development process and by project teams unfamiliar with the system. Seattle's first projects realized the highest incremental costs of those built since Policy adoption and those costs have consistently come down with experience. In fact, the City of Seattle's latest project will be LEED Gold certified and is $180,000 *under* budget.

The City of Vancouver, B.C. commissioned a LEED audit study that evaluated the cost to bring six existing multi-family buildings up to LEED Certified and Silver levels of certification. The researchers considered, retroactively, what strategies and measures could have been implemented during the design and construction phases of development to achieve the necessary number of points to meet the Certified and Silver LEED thresholds. The results indicate that the average cost increment to achieve these levels was 1.14% and 1.2% respectively. Further, the report concludes that "design tradeoffs can reduce or minimize cost increases due to a more aggressive 'green' approach. All non-documentation costs will be reduced if project teams *begin* with a LEED focus and adopt a more integrated approach".[4]

The up-front and operational savings attributed to well-designed and executed LEED buildings are demonstrated in both public and private projects. LEED-savvy Portland developers are building cost-neutral LEED projects and cities like Seattle are proving that it can actually cost *less*. The City of Portland recognized this potential four years ago by adopting a LEED-based policy and is primed to raise the Policy's standard to Gold.

[3] LEED Users Summary Government Sector. Templeton, Peter. USGBC. March 2005.
[4] LEED Audit Report for South East False Creek Project, City of Vancouver, January 2003.

**VI. Recommendations**
To reflect the changes in the marketplace, advances made in green building strategies, application, and competency and to ensure that Portland continues to be a national leader in green building, OSD recommends the following:

CITY-OWNED NEW CONSTRUCTION AND MAJOR RETROFITS

**LEED Gold: For all new, City-owned facilities construction projects increase LEED certification from "Certified" to "Gold" requiring at least:**
- **75% C&D waste recycling;**
- **30% stormwater management beyond Portland baseline code requirements;**
- **30% energy savings beyond Portland baseline code requirement;**
- **30% water savings beyond Portland baseline code requirement; and**
- **additional commissioning as defined in LEED.**

Experience shows that the incremental costs for LEED Gold level buildings are negligible and that they are a cost-effective investment, especially for long-term building owners like the City of Portland. The high performance of LEED Gold buildings yields an array of public and private benefits. For example, a LEED Gold building may rely more on daylight, natural ventilation and building mass to condition the building rather than energy-consuming mechanical systems and thus reduce the building's capital costs, ongoing energy bills, and energy source carbon dioxide emissions.

The specific performance standards for C&D waste recycling, stormwater management, and water and energy savings reinforce and augment pre-existing objectives expressed in various local programs and codes. In addition, they parallel LEED standards, will contribute at least 7 points towards LEED Gold certification, and qualify otherwise eligible projects for the Oregon State Business Energy Tax Credit for Sustainable Building Projects.

Policy augmentation will require no programmatic or structural changes. LEED implementation strategies will remain the same but project teams will be required to strategize up-front on how to earn the extra points required for a Gold rating. Private sector feedback affirms that this poses little additional challenge and that adherence to Portland's purposeful development standards frequently yields Certified-level buildings. Further, new LEED products that address a variety of building types will provide increasing flexibility in LEED implementation. A LEED Gold standard will draw national and local attention and, on the platform of the last three and a half years of work, provide an impetus for future educational and practical policy implementation efforts.

**Ecoroofs: Require design and construction of all new City-owned facilities to include an ecoroof with at least 70% coverage AND high reflectance, Energy Star™-rated roof material on any remaining non-ecoroof surface area; OR, Energy Star™-rated roof when an integrated ecoroof/Energy Star™-rated roof is impractical.**

The recent Ecoroof Study demonstrates that ecoroofs provide an array of public and private benefits to include building energy consumption and urban heat island reduction and, most notably, greater than 50% annual stormwater runoff reduction. Ecoroofs have also been demonstrated to prolong the roof's useful life two or threefold thus avoiding costly roof replacement projects. Project teams will work with the Green Building Advisory Team to determine the practicality of ecoroof application on a case by case basis.

**PDC funded projects: For all new construction projects that receive PDC funding, increase LEED certification from "Certified" to "Silver" (for all projects where PDC assistance equals 10% or more of total project cost AND where the project is 10,000-ft2or greater).**

Local and national experience demonstrates that green affordable housing projects that are marked by healthy indoor environmental quality, lower utility costs, increased occupant control and community orientation are both attractive to tenants and cost effective. This strategy presents an opportunity for the City to manifest its balanced commitment to Portland's social, economic, and environmental health.

EXISTING BUILDINGS: MAJOR RETROFITS & TENANT IMPROVEMENTS

**LEED for Existing Buildings: Require for all occupied, existing City-owned facilities to achieve LEED-EB "Silver".**

LEED-EB is a user-friendly system designed to allow incremental improvements that augment building performance over time. The magnitude of financial benefits that are realized due to enhanced building operational efficiency and worker productivity (two core objectives of LEED-EB) is correlated with duration of building ownership. Identify and pilot LEED-EB program with 2 or 3 renovation-ready facilities**.**

**Tenant Improvements: Require all tenant improvements in City-owned facilities to achieve LEED for Commercial Interiors (CI) "Silver" AND/OR G/Rated Tenant Improvement Guide certification.**

The Tenant Improvement Guide is identified as the tool by which City-owned tenant improvements meet the Green Building Policy directive identified in Policy Strategy 1. Identify a list of practical strategies that should be required as a baseline for every project and define the threshold for projects required to earn full G/Rated TI certification. Develop a tracking tool by which to measure the volume of G/Rated Tenant Improvements. Evaluate practicality and applicability of LEED-CI in contrast to the Tenant Improvement Manual.

**Ecoroofs: Require all roof replacement projects on City-owned facilities to install an ecoroof AND high reflectance, Energy Star™-rated roof on any remaining non-ecoroof roof surface area; OR, when an integrated ecoroof/Energy Star™-rated roof is impractical, install an Energy Star™-rated roof.**

The recently conducted Ecoroofs Study demonstrates that ecoroofs provide an array of public and private benefits to include building energy consumption and urban heat island reduction and, most notably, greater than 50% annual stormwater runoff reduction. Multnomah County installed an ecoroof on a portion of their existing building in light of a study that demonstrated that the ecoroof would yield a significant net financial benefit to the County as a long term building owner. Project teams will work with the Green Building Advisory Team to determine the practicality of ecoroof application on a case by case basis. Evaluate the effectiveness of ecoroofs on existing membranes, a potential means by which to significantly reduce the cost increment to install an ecoroof on an existing building.

LEASED FACILITIES

**Tenant Improvements: Require all tenant improvements undertaken in all City-leased facilities to achieve LEED for Commercial Interiors (CI) "Silver" AND/OR G/Rated Tenant Improvement Guide certification.**

Well designed and implemented green tenant improvements and high performance green buildings reduce utility costs for the City, improve worker productivity, foster healthy indoor environmental quality, and reduce negative building construction and operation-related impacts on the natural environment, hence supporting the public good. Preferencing green buildings in space leasing also sends a market signal to the real estate community that reiterates the City's commitment to green building.

FACILITIES OPERATIONS & MAINTENANCE

**City facilities operations & maintenance: Require all operations and maintenance practices at City-owned facilities (undertaken by the City or its contractors) to apply the City's *Green Building Operations and Maintenance Guidelines* under development by the Bureau of General Services. The requirements apply to all facilities, regardless of size and contract type (e.g., either in-house or outsourcing contracts). The guidelines will sync up with ongoing maintenance requirements in the LEED EB rating system.**

The Guidelines are to be developed by the Bureau of General Services as the tool by which City O&M practices meet the Green Building Policy Directive contained in Strategy 1.

PUBLIC INFRASTRUCTURE

**Sustainable Infrastructure Team:** The City should support PDOT's efforts to revitalize the Sustainable Infrastructure Team (SIT). The SIT should facilitate the development of a sustainable infrastructure best practices manual and baseline requirements for public infrastructure to advance best practices for the design, construction, and maintenance of the public right-of-way in Portland. Manual should identify opportunities within the typical cross section of the urban right-of-way: street and sidewalk, utilities, stormwater infrastructure, landscape and streetscape elements without compromising safety, accessibility, longevity, and aesthetics.

The Green Building Policy directs all bureaus involved in infrastructure development to incrementally incorporate best practices and determine the need for a relevant sustainability rating system. Revitalization of the SIT team will enable the continuation of this effort as well as provide a centralized resource that connects the infrastructure bureaus.

TOOLS, RESOURCES AND TRAINING

**A&E Contracts: All City Architecture & Engineering services contracts must follow the Bureau of Purchases' "Professional and Technical Expertise Architecture & Engineering Request for Proposals for LEED Projects" (A&E RFP).**

The City recently completed the A&E RFP for LEED projects which directs all contractors to design and construct all new facilities and major retrofits to meet the LEED and other obligations contained within the Green Building Policy.

**Training: Require green building training for all relevant City project managers, and maintenance and operations staff.**

Training is crucial to creating the capacity within bureaus and would drastically increase the ability of other bureaus to implement the Policy.

**Affordable Housing Guidelines: Update PDC's Affordable Housing green building threshold and voluntary guidelines.**

OSD is currently partnering with PDC, Bureau of Housing and Community Services, Housing Authority of Portland and other affordable housing service providers to update their affordable housing green building threshold and voluntary guidelines to reflect the rapidly changing financial, scientific and technical landscape of green building. The guidelines are due to be published in June 2005.

BUILDING AND ZONING PLAN REVIEW AND PERMITTING

**BDS Process Management: Provide Process Management for all qualified public and private sector LEED Silver-registered building projects.**

Through LEED certification, the City is encouraging developers to design and build using the highest quality development practices. Such practices characterize green building and help reduce impacts to Portland's infrastructure and environmental quality over time. LEED provides a rigorous, third party certification for buildings that achieve excellence in site connectivity, transit orientation, stormwater management, erosion control, energy and water conservation, materials conservation, indoor air quality, and commissioning.

**Code Conflicts: Identify building and zoning code and process conflicts that inhibit green building practices and technologies through a facilitated process with relevant public and private stakeholders.**

Through customer-oriented programs such as Process Management, BDS has made significant strides in improving their services and reputation in the development community. However, persistent code issues coupled with structural and procedural barriers stemming from the various layers of regulation (multi-bureau review, zoning and building code conflicts, State regulation) can inhibit innovation and cause developers to seek only to meet the minimum building code. Gathering all of the relevant stakeholders at the same table with guidance from a green building codes expert will provide a venue to identify specific code, structural, and procedural barriers to green building and create a platform for continued work in this area.

**Staff Training: Create an inter-bureau training program for relevant City development review and inspection staff. Work collaboratively to identify what type of green building knowledge would be most effective in promoting and/or enabling private green building per service area and train relevant staff.**

**Marketing: Create an integrated marketing effort to promote the City's green building services. Marketing should reflect the connectivity between G/Rated and BDS, adding beneficial exposure for both bureaus.**

**VII. Appendix – Green projects, tools, training and resources developed to date.**

City projects that have incorporated "green" strategies

*New Construction or Major Retrofit*

- City Hall - Earth Smart rating - 25% energy savings, proposed ecoroof;
- Office of Emergency Management Emergency Communications Center – LEED registered;
- Gabriel Park SW Community Center - Earth Smart rating;
- University Park Community Center - in design for LEED renovation, addition of new gym;
- Water Pollution Control Lab - Energy Smart Design, LEED registered, neighborhood-scale tormwater management;
- Water Quality Lab - Energy FinAnswer rating;
- Wilson Pool – solar hot water;
- Bureau of Parks and Recreation lobby office remodel – bamboo flooring, energy efficiency lighting, certified wood;
- Fire Station 1 (in project planning) – LEED silver or above goal, LEED consultants engaged, Energy Trust registration for review and incentives, LEED savvy project team, integrated design process
- Fire Station 9 – Retain existing building, drip irrigation for low-maintenance landscape, stormwater soakage trenches and planters, saved existing trees, water efficient fixtures, occupancy sensors;
- Fire Station 12 – 10,000-ft2 ecoroof and high reflectance roof, local and regional materials, materials reduction, efficient windows, community space, space flexibility;
- Fire Station 16 – Daylighting, fly ash in concrete, FSC certified framing materials, SIPS roof materials, on-site stormwater management (bioswales and planters), solar electric panels for parking lot light, wheatboard cabinets, community room, occupancy sensors, thermostat tied electronic solar shades;
- Fire Station 20[5] - Landscape restoration, salvaged cabinets, exposed existing fir ceiling, energy efficient lighting, operable windows.
- Fire Station 25 – Solar electric panels along entire length of roof;
- Fire Station 28 – Exterior sunshades, erosion control plan, fan-assisted stack ventilation, building reuse[6].

*Tenant Improvements*

- OSD TI – green materials and finishes, daylighting, energy efficient lighting.

*Horizontal Infrastructure and other*

- First "Green Street" on NE 35th Place and Siskiyou;
- Pervious concrete installation at pump station on NE 94th and Broadway;
- First permeable paver installation at Multnomah Arts Center on Capitol Highway;
- South Waterfront City Corps Greenway design – bike path, native plantings;
- Hamilton Terrace ecoroof – BES stormwater runoff monitoring project.

[5] Fire Station 20 is typical of about 16 other fire station remodel projects not listed.

[6] All fire stations: *Earth Advantage* certified (when in PGE service area), Energy Star™ appliances, daylighting, natural ventilation, low VOC finishes and furnishings, recycled and sustainable materials, on-site stormwater management (bioswales, soakage trenches, etc.).

Tools, resources and training

- Green RFP language: Professional, Technical and Expert Services - Request for Proposals A/E Services for New Construction and Major Retrofits available at: http://www.portlandonline.com/shared/cfm/image.cfm?id=65310
- Affordable Housing Guide – Guidelines required of affordable housing developers that receive PDC funding;
- TI Guide – Resource and guidelines to assist project managers with integrating green building practices into TI projects;
- Portland LEED – Localized version of the LEED Green Building rating system that includes local resources, Portland-specific credits, and local codes when applicable;
- Green RFP for A/E Services – New language integrated into the City's RFP PTE language that reflects the directives and goals of the City's Green Building Policy;
- G/Rated Website – Comprehensive green building resource that includes case studies, research, tools, strategies, and local events among other resources;
- ReTHINK – 3-month, expert-led green building education program for public and private sector professionals and homeowners;
- Build it Green Home Tour & Information Fair – Tour of "green" homes in Portland and information fair including representation by many local providers of green building goods and services;
- Greening of Cement Training – Training by experts in the use of permeable concrete/asphalt and use of fly ash as an environmentally-preferable substitute to Portland cement;
- January 2005 "Show me the Green" training – City Project Manager training on directives, tools and strategies to implement the Green Building Policy.