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Spring 2008

## Sustainable Portland: Implementation Series 1

New England Environmental Finance Center

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# **Sustainable Portland: Implementation Series 1**

Spring 2008

A Report by Students from the Muskie School of Public Service

Community Planning and Development Program, Course in “Sustainable Communities”



*Source: <http://www.portlandmaine.com/>*

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## Introduction

When the Sustainable Portland Task Force Report was released in November 2007, under the leadership of Mayor Jim Cohen, Portland Councilor Kevin Donoghue had the idea that students at the Muskie School of Public Service might be able to help implement recommendations from the report. It may have helped that Kevin was himself a graduate of the Community Planning and Development Master's program at the Muskie School, but it was a good idea nevertheless. He approached Professor Sam Merrill in the CPD program, who spoke with the new Mayor Ed Suslovic about a possible partnership between the City and the School to further the idea.

The Task Force Report provided over 50 recommendations, but little prioritization among them, few specifics about what implementing them would look like, and scarce guidance about obstacles that might be encountered. With this situation and a forward-looking new Mayor interested in collaborating with the School, the opportunity arose for Professor Merrill to tailor a course he was to teach that semester to the needs of the City of Portland. The course was "Sustainable Communities," an offering organized around the question of How do municipalities successfully implement sustainability initiatives? For the collaboration with the City of Portland, each student was to select one of the Report's recommendations and write their term paper about cities that had endeavored to implement that particular sustainability initiative. The goal was to provide detailed guidance about steps particular individuals, committees, and/or organizations in Portland should take to implement the Task Force recommendations, and what those entities should do to prepare for challenges they would likely encounter.

An important part of the process was the City's willingness to be involved with the Sustainable Communities class. The Mayor and two key City staff (Bill Needleman and Troy Moon) came to several class sessions to discuss the project. The class also spent time in Council Chambers at City Hall, discussing the project with the City's

Sustainability Committee, a new standing entity formed by Mayor Suslovic. In these collaborative discussions, a process was established for selecting recommendations the students would research. The 9 recommendations selected were ones the group felt had the greatest potential impact and were most feasible. Some “early wins” in the City’s overall efforts to become more sustainable was a priority for the Mayor. Also prioritized were topic areas the students felt passionately about. The result was a set of nine term papers presented in this single document and available on the City of Portland’s website. As an additional requirement for the course, the students made 15-minute PowerPoint presentations on their projects to the Sustainability Committee and the public. Those presentations are also available on the City’s website.

The experience was rewarding for all involved. Most guidance provided by the students received immediate support from the Committee, which indicated it would aim to take at least a few suggested steps from all nine reports in the remainder 2008, with continuations planned into 2009 and beyond. The students reported great satisfaction with having been involved in an applied, hands-on experience where their research could contribute to pressing local needs. Both the Muskie School of Public Service and the City are interested in continuing the model with future iterations of this course and with other graduate courses that may cover topic areas of potential interest to the City and its various agencies, including alternative dispute resolution, intergovernmental relations, organizational assessment and program evaluation.

Thanks are due to all the City Councilors, staff, and community members that helped with these reports, as well as representatives from each of the cities profiled, who provided valuable time and insight into these issues. Thanks also to Barbi Ives who helped in document review and preparation.

# Low Impact Development

**Mary DeRose**

*"[Our program] is a success because the business community, city residents and local government have teamed up in an unprecedented partnership," Tim Douglas, former Mayor, Bellingham, Washington.*



Source: <http://www.Flicker.com>

ABSTRACT: Under pressure from local residents and leaders, the City of Bellingham, Washington, has achieved a working consensus on a process that encourages the use of Low Impact Development (LID) techniques to control stormwater runoff and increase stormwater quality by applying Leadership in Energy and Environmental Design (LEED) standards to development site designs. Bellingham has created a stormwater public information program, installed highly visible LID demonstration projects, and has begun to implement a downspout disconnection and rain barrel initiative. System thinking and the integrated work of city officials, private citizens, green developers, business owners, educational leaders, and other stakeholders has begun to create a holistic action plan that will result in effective change.

Bellingham, Washington, is a 21st century community struggling to replace a system that relies heavily on a stormwater sewage infrastructure that was installed in the 19th century. Nonpoint source pollution and sewage overflow during major rain events create a challenge that Bellingham shares with many American cities. The implementation of a system of successful solutions to nonpoint source pollution and runoff volume required changes in the way that both city officials and staff, as well as the public, viewed stormwater. A paradigm shift from considering stormwater as a waste product that is drained away towards managing water as an ecological asset that is part of a sustainable system required changes in mindset.<sup>1</sup> The legal and

regulatory pressures for improved stormwater management, a growing public awareness of climate change as a factor in the future supply of available water, and the financial crisis that the national economic downturn brought to state and local funding, all set the stage for a dynamic public shift in “water attitudes.” The City of Bellingham is confronting the challenge of stormwater runoff and, in the process, has changed in many ways: in its built infrastructure, in its ordinances, in the way that challenges are handled, and in the level of public involvement in creative solutions.

In 2001, the subject of stormwater in Bellingham was fraught with political conflict, which had to be confronted before any effective change could occur. To be truly meaningful to any community, changes need to be based on an awareness of the challenge, must yield concrete understandable results, they must occur systematically, must become institutionalized within prevailing systems and must yield concrete results. An analysis of the process that was used, when placed within the context of a highly charged political situation, finds that through the use of a set of surveys and an inclusive public information campaign, some common understandings were forged, creative solutions were solicited and tested, and key messages were extracted to help guide a shared vision of the future. What began as a set of reactions to an imminent problem and fee hike seems to have been transformed into successful changes in behaviors and mindset.<sup>2</sup>

Understanding the experiences of Bellingham requires a short review of recent event history. Like many other growing cities, Bellingham installed its CSO system in the late 1880’s. As the city grew, and especially after the advent of the automobile, the amount of impervious surface also grew to the point where it, like many other cities, increased the stormwater runoff load from a predevelopment low of 10% to the current national average of about 55% runoff. In large rain events, because the combined stormwater sewer system becomes overwhelmed by a storm surge of runoff, stormwater mixes with sewage and overflows into Bellingham Bay, pollutes the Puget Sound, and then flows into the Pacific Ocean. When confronted with a stringent new state law regulating nonpoint source water pollution, and under threat of lawsuits from the EPA and a variety of environmental action groups, the city council felt the need to take immediate action. It responded with an aggressive, and expensive, CSO separation construction program. This project is expected to cost between 60 and 80 million dollars, with the distinct possibility that additional millions more will need to be spent at a later date. Funding was to be

derived from sewer fees, which will end up increasing by 46% by the year 2013, including a proposed 29% increase in one two-year period.<sup>3</sup>

While this solution and other solutions were looked on with approval by state and federal authorities, as well as some environmental groups [(the *Environmental Liberation Front* (ELF) is active in the area],<sup>4</sup> there was also a significant negative reaction from other segments of the community, especially local business property owners who have to pay the higher sewer fees. The fee hikes, and complaints about the process that imposed them, spawned *People for Fair Storm Water Solutions*, a group that is made up mostly of business leaders.<sup>5</sup> The increased fees also stimulated an already fermenting anti-development sentiment in the city. Some people felt that they were already being asked to pay too much to solve the stormwater problems and that any new growth, even the redevelopment of the waterfront area known as Old Town, would only aggravate the problem.<sup>6</sup> Pro-development groups saw new stormwater regulations and higher fees as just another stumbling block in the way of progress. Developers, who had Leadership in Energy and Environmental Design (LEED) accreditable LID projects, were stymied by vague ordinances and a lack of LEED knowledge on the part of the city planning staff, which created costly delays.<sup>7</sup> And then there were a lot of people who simply were not informed about nonpoint source pollution and that things like dog droppings, etc. were being washed into the Bay, or, that the water from their downspouts mixed in with sewage during large storms. For them, the problem was simply below their radar screens.<sup>8</sup>

The two facts that everyone agreed upon were: 1) it would be a very expensive fix; and 2) the city had probably waited too long to attack the problem. Although some people said it in a variety of nicer or nastier ways, it was agreed that Bellingham had “lagged before it led.” As even a critic admitted: “These stormwater issues needed to be addressed a long time ago. It just needs to be done in a reasonable way.”<sup>9</sup> Stung by criticism of having excluded the public in the city’s decision-making process, the city instituted a fact-gathering process. They hired a team to complete a Public Involvement Survey. They also funded a survey of attitudes about water conservation. Using the resulting information and a series of measures designed to integrate more public involvement into the process, Bellingham has instituted a public education program that promotes the use of LID wherever possible, in the city and greater Whatcom watershed area. It has used demonstration projects, public outreach, and has sent personnel for LEED training,

while changing its code/specifications for planning and site plan review, in an attempt to create a systematic, institutionalized program.

### **Lesson 1: Include public opinion, education, and involvement in the process.**

A Public Involvement Survey, completed in 2006, found that public involvement activities needed to occur at an earlier stage in recommendation development and be designed to allow for more meaningful discussions between staff and community members. City outreach efforts needed to engage a broader mix of community members and use a variety of methods to do so. A strong theme throughout the responses was the perception that the city has a predetermined outcome and that what the public has to offer was perceived as, “not needed.” There was a concern that, until the city’s leadership articulates a more collaborative philosophy and institutionalizes these practices, the quality of public involvement in the city would not improve.<sup>10</sup> While this is still a work in progress, it has also not devolved into the form of gridlock and fragmentation that is described by Philip Berke in *Does Sustainable Development Offer a New Direction for Planning?*

Instead, the subsequent involvement of the public in a variety of stormwater demonstration projects has informed the process in new ways. By working with the public on committees and previously established partners, as well as forming new partnerships, the city has achieved a working consensus that is centered on sustainability. Advisory boards, commissions, stakeholder groups, city and community groups have shared responsibility for developing policy, and made program and project decisions about LID implementation. Public Works and the Planning Department have worked to present a coordinated program. An example is the Depot Market Square, where LID design decisions were made by a Design Committee that was made up of city staff and private citizens. The city has set targets that promote a sustainable future.<sup>11</sup>

In another survey, done to measure water conservation attitudes, 68% of the residents surveyed agreed somewhat or strongly agreed with the statement that, “If I conserve water, it will only encourage new growth and development in the city.”<sup>12</sup> This outcome has raised a red flag in terms of public perceptions. A stated city goal has been to establish a Quality Retention Initiative (Reining in the Rain) to encourage onsite stormwater management of households within city limits to reduce pollution and peak flow surges; but if a person wants to limit growth, conserving water and managing stormwater onsite may be seen as tools that promote an



unwanted outcome, which could deter participation. People need to “buy in” to the program for there to be meaningful participation. Bellingham is working towards changing water and sewer fees, which are currently formulaic flat fees based on building size and use, in ways that incentivize conservation and on-site stormwater retention to help overcome this perception.<sup>13</sup>

**Lesson 2: LID techniques are an understandable and cost-effective set of solutions for managing stormwater runoff.**

The City has supported the use of LEED endorsed LID techniques. Demonstration and participatory programs include a downspout disconnection program, the use of rain barrels, demonstration rain gardens, tree planting, installing. Greenstreets with pervious pavement and swales for drainage and green roofs have been encouraged. The city applied for and has received some grant funding for demonstration projects, involved both public and private schools in the program, and worked with Western Washington University on a variety of projects. It has used this as a way to draw “a line in the puddle,” to control stormwater runoff.

What began as citizen resistance to sewer fee hikes has gradually evolved into citizen involvement and a community that supports stormwater retention programs, largely due to an inclusive educational effort. The community has bought into the idea of reducing pollution by reducing stormwater runoff. While the *Bellingham Bay Foundation* and *People for a Healthy Bay* have opposed waterfront development in the city, there has been little political opposition to the LID aspects of the stormwater management program. They have proven to be highly effective measures, reducing measured stormwater runoff volume in demonstration sites by between 70 and 95%.<sup>14</sup> They also cost less. LID can be a cost effective way to deal with stormwater. A study of the first two rain gardens installed in Bellingham found considerable savings:

<u>A COST ANALYSIS OF TWO RAIN GARDENS</u>				
	Conventional Vault	RAIN GARDEN	Savings	% Savings
City Hall	\$27,600	\$5,600	\$22,000	80%
Park	\$52,800	\$12,800	\$40,000	76%

(USEPA)

Another study has analyzed the cost of stormwater controls in gallons processed per year per \$1000 spent and found good value<sup>15</sup>:

CONTROL	GALLONS PROCESS PER YEAR PER \$1000 COST
Conventional Storage Tanks	2,400
Greenstreet (rain gardens, swales)	14,800
Street trees	13,170
Greenroof (but good for heat reduction)	810
Rain barrel	9,000

The Bellingham LID demonstration projects have had great educational value and caused residents to think about storm water in new ways. A list of projects that have been or will be undertaken in Bellingham have encouraged citizens, developers and property owners to change their behaviors and work together to move forward toward sustainable storm water management.

### **Lesson 3. Changes need to become institutionalized.**

In 2005, the City of Bellingham passed resolution 2005-21, which set the LEED silver standard for city funded projects and all new and renovated city buildings. Bellingham also resolved to promote the use of LEED standards in the construction practices of the private sector.<sup>16</sup> This has assuaged some anti-development sentiment, because it makes a strong public stand that new development will not overburden the pre-existing drainage systems. There have been some “greening pains” in this process. For it to work well, Green Codes and Ordinances must be in place and be understood by both developers and public employees, which often requires shifts in mindset. There have been some frustrations. One Bellingham citizen, for example, after sitting through a meeting wrote, “it was like listening to 16th century geographers or astronomers [drawing a map] who had missed the account of Columbus' voyage, or were yet to read Copernicus.”<sup>17</sup>

For a time, an innovative public works department was creating and promoting rain gardens, but if the public sought to emulate them, it was stymied in the permitting process. One

developer reported that he eventually was able to install a rain garden but that the entire project took three years, from pencil to planting, because the permitting process was “sooo” slow. Other LEED ideas were turned down. City planners’ and developers’ lack of experience with permitting green building and LID made the process difficult. In one case, the developer felt like he was in limbo. “There are instances where they haven’t approved us but they haven’t said no... Engineers and developers need to have a city staff green team to work with-the focus should be on removing obstacles.”<sup>18</sup> This is being addressed by have planning staff members become LEED certified.

#### **Lesson 4: You don’t have to reinvent the wheel!**

There are a lot of good models out there that should be examined; when planning to implement a stormwater retention program, you can learn from the successes and mistakes of other cities. Bellingham is modeling its downspout disconnection program on a successful Portland, Oregon project that uses trained Americorps volunteers to do disconnections for people who don’t want to or can’t do it themselves. Portland, Oregon, had over 56,000 properties participate in this program in the first two years, and the project manager figures that 1.2 billion gallons of stormwater per year were taken out of their combined sewer system.<sup>19</sup>

Bellingham’s program **revising city ordinances** to include LEED and LID. The city is LEED certifying key staff members to facilitate the permitting process. In conjunction with and financially underwritten by Sustainable Connections, **green building educational events** were held in the city in 2004. Over 100 building professionals, as well as 60 local government staff members, and over 1000 community members attended. These events were an important public information tool to create an understanding of and support for LID practices. **LID projects** included demonstration rain gardens at Bloedel Donovan Park and at City Hall, and The Depot Market Square project, which also included pervious pavers in the center of the parking lot. Funding was from The Storm and Surface Water Utility and a Puget Sound Action Team grant. A Bike/Pedestrian path based on public input about need was built. Public Works saw this as an opportunity to demonstrate low impact development techniques. The project incorporated a “Percocrete” pervious sidewalk and the use of bioswales for stormwater treatment. The project includes an integrated system of rain gardens, within the ditchline on one side, and a sand

infiltration ditch on the other. A pervious driveway demonstration project will be completed in the summer of 2008.

Public Works has also agreed to work with Sustainable Connections and Washington State University on a demonstration residence. This residence is to be remodeled utilizing a full suite of LID and LEED techniques. Pervious systems for infiltration, water conservation, soil remediation and LID landscaping are part of the proposed plan. Public tours and a public information program will accompany this project. The City of Bellingham Water Conservation Program along with several community partners, including public television, is working to develop a reality-television show called “The Greenest House.” The effects of these projects: reduction in storm water run off, plus less pollutants, less heated water going into Bellingham Bay and a “Competent Community” involved in their planning, implementation and continued maintenance, especially of the rain gardens.

Residential retrofits have become an important part of the program. A Downspout Disconnection Rain Barrel Project was recently awarded a \$189,000 grant from the Washington State Department of Ecology. The goal of this project is to attain a 51% reduction in stormwater runoff from individual properties and to provide a means of promoting and providing for water conservation. The primary implementation strategy is downspout disconnection modeled after a program in Portland, Oregon, and the wide distribution of specially fitted rain barrels. The project utilizes a very popular and simple management technique to engage residents in being part of the solution. The provision of rain barrels creates an opening and venue to provide education. The education component will also be used to provide information about other Low Impact Development techniques that are available to single-family residents. Effects: concrete results – like a decrease in stormwater flows detrimental to water quality in the Lake Whatcom watershed and Bellingham Bay – will be measurable. People will see and manage water in a very different way in the future.<sup>20</sup>

#### **A green roof:**

The City of Bellingham was awarded a 2008 Department of Ecology Centennial grant to fund the incorporation of a green roof into the construction of the Art and Children’s Museum, which will be open for tours when completed.<sup>21</sup> The Whatcom Children’s Museum has hosted *By the Bay: Working on the Waterfront* in 2006, which included an interactive exhibition about

water and pollution. The exhibit was sponsored by a large group of local businesses. These programs have been effective public educational tools.<sup>22</sup>

### **Green education and the schools:**

The Parks Department's Environmental Learning Center Environmental Program provides place-based environmental education classes for students, focusing on stewardship and urban streams.<sup>23</sup> Local elementary schools and the Well Spring Community School have used rain barrel/rain garden programs as part of their curriculum.<sup>24</sup>

### **WATER POLLUTION MITIGATION PROJECTS:**

The Blue Leashers Program, Hounds for Healthy Watersheds, and Dog Waste Disposal Stations have all encouraged best management practices for pet waste disposal, including the monitoring of waste left on trails and providing receptacles for collecting donated plastic grocery bags. The outcome of these programs is a reduction in fecal contamination and improvement in stream water quality. The recycling of bags engages citizens and reduces staff and materials costs. Pet owners who participate are given a blue leash, signifying their commitment to the environment.

### **Pharmaceutical Collection and Disposal:**

City staff is working with medical associations, hospitals, pharmacies and the Department of Ecology to launch a program for the collection and disposal of surplus, expired and unused pharmaceuticals. The goal of this program is to change public behavior and keep pharmaceuticals out of the City's waste disposal system and surface water bodies.<sup>25</sup>

As a community, Bellingham is in the process of transformation and the changes being made are still a work in progress. However, by 2007, a perceptible change in the local community mindset was being expressed by one member of the Bellingham community, Matt Christman, who wrote:

*One of my great visions for this community is of builders and environmentalists working together to create exciting solutions to our environmental troubles (that will catch the eye of other builders and communities) to make our city a model of techniques for incorporating nature, thereby helping to heal the planet. We're amazing citizens in this*

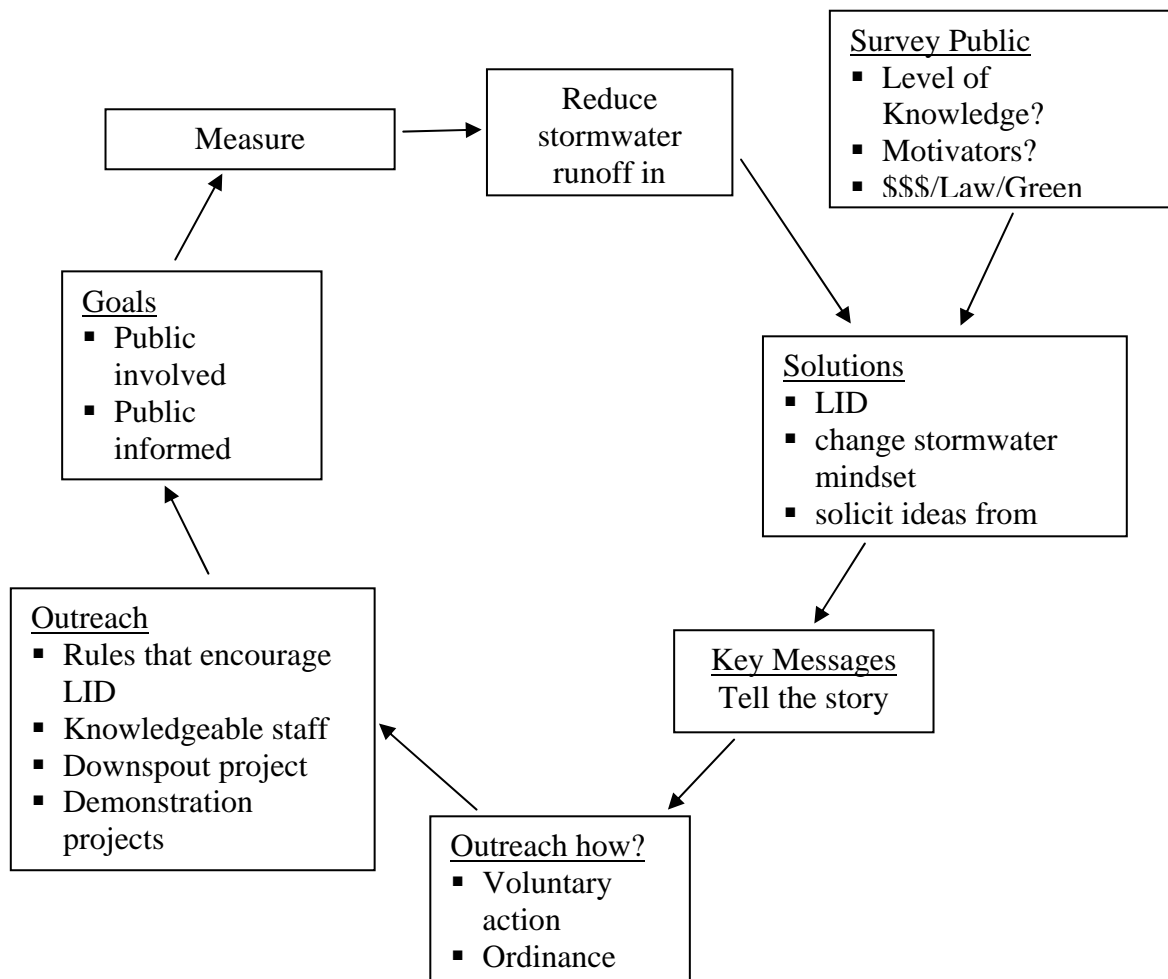
*community — among us: architects, engineers, builders, etc. — and in my mind old Walt Disney's got nothing on our community's ability to achieve a vision of a better world (and create a solid economic niche at the same time).*<sup>26</sup>

## **To Do List:**

1. Draw a line in the gutter: institutionalize LEED and LID  
Planning Department/City Attorney
  - Enact LID/LEED standards.
  - Have LEED trained and certified staff.
2. Designate A Stormwater Solutions Committee to formulate and implement program.  
Private citizens/City Manager's Office/Public Works/Mayor's Office.
  - Involve the public in the process.
3. Fund the Program  
Taxpayers/City Council
  - Apply for grants, take .01 out of sewer rates, for the \$\$\$ spent. *The return will be worth it!*
4. Publicize the program  
Committee member/City Manager's staff
  - Create logo/website/posters/public outreach.
5. Downspout disconnection/Rain Barrel Project/Workshops/Painting Contest  
Public Works Department/Portland Water District/Private.
  - This program will require a dedicated staff person to inspect and inventory downspouts, and needs a significant amount of publicity to be successful.
  - Inquiries could be made with Americorps to see if the same type of collaboration could be set up in Maine as in Oregon.
6. Have one or more very visible demonstration projects in each district of the city:
  - Rain gardens in public places – Public Works/Portland Water District/Private.
  - A demonstration driveway – impervious pavement - Private/Public Works.

- Continue to integrate LID into CSO project where feasible and tell public you are doing it! – Public Works/City Manager/Portland Water District/Private.
7. Evaluate the projects and measure the results!

Figure 1. A Program to Encourage Stormwater Runoff Reduction.



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<sup>1</sup> Hallsmith, The Key to Sustainable Cities, 165-7.

<sup>2</sup> Sarah James and T. Lahti, The Natural Step for Communities, 182.

<sup>3</sup> City of Bellingham, Sewer Fee Schedule 2007 at [www.cob.org](http://www.cob.org).

<sup>4</sup> Reilly, telephone interview, 2/20/2008.

<sup>5</sup> Blackburn, Bellingham Business Journal, March 1, 2001.

<sup>6</sup> Applied Research Northwest, Water Conservation Survey, January, 2008

<sup>7</sup> Lemons, Bellingham Business Journal, December, 2007.

<sup>8</sup> Applied Research Northwest, Water Conservation Survey, January, 2008.

<sup>9</sup> Blackburn, Bellingham Business Journal, March 1, 2001.

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- <sup>10</sup> Dumas and Associates, Public Involvement Survey, Bellingham, 2006.
- <sup>11</sup> Pike, Mayors 100 Day Report, 2008.
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- <sup>13</sup> Pike, op cit.
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- <sup>15</sup> Plumb and Seggos. "Sustainable Raindrops," Riverkeeper, 2007.
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- <sup>17</sup> G.H.Kirsch, "The Merger; Second Thoughts Anyone?" Northwest Citizen, Apr 28, 2008.
- <sup>18</sup> Lemons, Kelly, "Permitting green projects: City undergoing greening pains in permit process," Bellingham Business Journal, December, 2007.
- <sup>19</sup> Crowley, Neighborhood Level Analysis, 2005.
- <sup>20</sup> Kahn, Dean "High-tech rain barrels coming to Bellingham," The Bellingham Herald, neighborhood blog, March 11, 2008.
- <sup>21</sup> Pike, MAYOR'S REPORT, March 3, 2008.
- <sup>22</sup> Sponsors were Trident San Juan Seafoods, The Bellingham Herald, RBC Dain Rauscher, Key Foundation, Starbucks Coffee Company, Elliott Bay Design Group and Ann and Rick Kaiser, Friends of the Museum with other support provided by Drayton Harbor Maritime, Homeport Learning Center and Whatcom Maritime Association.
- <sup>23</sup> Pike, op cit.
- <sup>24</sup> Millage, Kira, THE BELLINGHAM HERALD, Aug 31, 2007, see also LID school curriculum.
- <sup>25</sup> Pike, MAYOR'S REPORT, March 3, 2008.
- <sup>26</sup> Letter to the Editor, THE BELLINGHAM HERALD, Dec 3, 2007.

## APPENDIX; BELLINGHAM LEED RESOLUTION

RESOLUTION NO. 2005-21

### **A RESOLUTION PROMOTING THE USE OF LEED STANDARDS IN THE CONSTRUCTION AND RENOVATION OF CITY BUILDINGS AND IN THE CONSTRUCTION PRACTICES OF THE PRIVATE SECTOR**

**WHEREAS**, development and construction practices are significant contributors to the depletion of natural resources and a major cause of air and water pollution, solid waste, toxic waste, health hazards, deforestation, habitat destruction, global climate change, and other deleterious consequences; and

**WHEREAS**, the United States Green Building Council has created a variety of rating systems to address multiple areas of construction, such as existing buildings and commercial interiors, collectively referred to as the LEED Rating System™ (Leadership in Energy and Environmental Design) that identifies a range of actions and performance measures that define green buildings through qualification and quantification criteria and provide a third party certification process for such buildings; and

**WHEREAS**, the term "Green Building" has become synonymous with other terms and trade names such as "high performance building", "smart building", "BuiltGreen", "sustainable design and construction", "healthy building", "eco-building"; and

**WHEREAS**, Green Building can be defined as building practices that conserve resources, use recycled materials, maximize energy efficiency, reduce waste, prevent pollution, improve indoor air quality, and consider lifecycle analysis to promote environmental, economic and social benefits in the design and construction of a building project; and

**WHEREAS**, the City recognizes that the principles of LEED and Green Building are supported by a variety of goals and policies in the Bellingham Comprehensive Plan; and

**WHEREAS**, the City encourages, and has implemented, Low Impact Development (LID) strategies in the public and private sector and that these are integral components of LEED and Green Building; and

**WHEREAS**, the State of Washington recently adopted legislation requiring all new public buildings to meet LEED standards, one of the first states in the country to do so; and

**WHEREAS**, with the support of the City of Bellingham, Sustainable Connections held Green Building educational events in 2004 that attracted over 100 engineers, architects, developers, builders, and other professionals, along with over 60 local government staff members from Public Works, Building Services and Planning Departments; and

City of Bellingham  
City Attorney  
210 Lottie Street  
Bellingham, Washington 98225  
360-676-6903

**WHEREAS**, nearly one thousand community members participated in a variety of other educational events in Green Building produced by Sustainable Connections; and

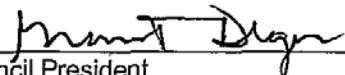
**WHEREAS**, the Building Industry Association of Whatcom County has adopted the BuiltGreen™ program to establish standards for "green" residential construction; and

**WHEREAS**, the City Council and City departments support sustainable economic development by encouraging the expansion of the environmental services and products sector, that includes Green Building practices, products, and technologies; and

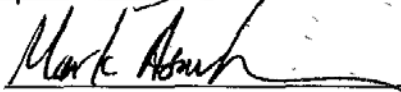
**NOW THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF BELLINGHAM:** Where feasible, the City commits to meet the LEED "Silver" rating for the construction of all new and renovated City buildings over 5,000 square feet where the City provides the majority of funding.

**BE IT FURTHER RESOLVED:** The City of Bellingham is dedicated to promoting LEED and Green Building construction practices in the private sector and to educating city staff on LEED and Green building strategies, in conjunction with ongoing efforts to promote and implement Low Impact Development (LID).

**PASSED** by the Council this 9<sup>th</sup> day of May, 2005.

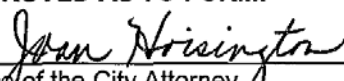
  
Council President

**APPROVED** by me this 12<sup>th</sup> day of May, 2005.

  
Mayor

**ATTEST:**   
Finance Director

**APPROVED AS TO FORM:**

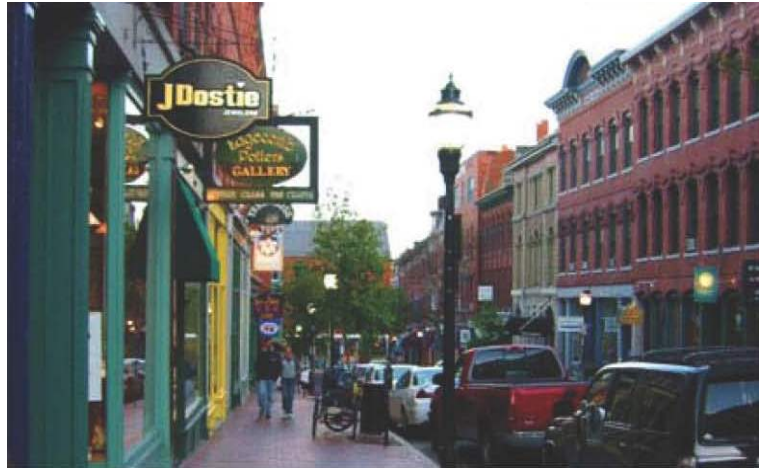
  
Office of the City Attorney

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City Attorney  
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# Giving Local Businesses Preference For Municipal Purchases

*Stephanie Dulac*

**ABSTRACT:** The focus of this paper is the value of a municipal local preference purchasing ordinance for Portland, Maine. The topic was commissioned by the Sustainable Portland Task Force as a means to better support local businesses in our quest for sustainability. The research led me to Albuquerque, New Mexico, who in January of 2008 implemented a small local business preference ordinance. The new ordinance gives small local businesses a five % preference in their municipal bids, with the overarching goal of directing 10% of city spending to small business owners. This paper examines the methods Albuquerque used to write and implement this ordinance, so that Portland may learn from their model and apply it in a way that meets our own community's needs.



*Source: <http://www.cooltownstudios.com>*

## Introduction

There are a number of reasons for a municipality to support small local businesses. First of all the local economy thrives on the revenue and jobs created from small local businesses. Local businesses sustain jobs directly and indirectly; directly through their own payroll and indirectly through their transactions with other local businesses. This economic activity maintains a healthy business environment that is self-supporting. Additionally, jobs at local businesses typically pay well and include benefits. Local employers depend on their staff and don't see them as expendable or easy to replace. In general local businesses are also located in a downtown area where municipal services are already available and are inexpensive to maintain. They produce greater tax dollars than they use (Mitchell, 2006).

For economies dependent on tourism dollars, such as Maine's, it is especially important to support a diverse and unique business community. Visitors would much rather stroll through a

lively city center than go to the nearest box store to buy their souvenirs. Downtown shops and boutiques attract visitors and locals alike, because of their distinct style and the experience of visiting someplace different and new. The local businesses give their city character and make it special from other places, which in turn draws more business from the tourism industry.

All of the reasons to support small local businesses can be reversed as reasons to not support national chains. National chains provide a backdrop of homogeneous landscaping that does not serve the community well. Due to their size and sprawl inducing locations, they consume land at a rapid rate, strain municipal tax dollars for the infrastructure maintenance that supports them and promote excessive car-use. “A typical big box store requires 1,000 parking spaces and generates 10,000 car trips every day...As a result, Maine residents log three times as many road miles for shopping and errands as they did a generation ago” (Mitchell, 2006, p. 8). A reliance on the services of large national chains is unsustainable and creates an unhealthy environment that is not so easily reversed. The miles and miles shoppers drive to get from one store to another contributes to our greenhouse gas emission levels, which in turn exacerbates the problem of global warming.

Additionally, national chains do not support the local economy as well as small local businesses. A 2003 study conducted by the Institute for Local Self-Reliance in Midcoast Maine titled *The Economic Impact of Locally Owned Businesses vs. Chains*, found that national chain stores spend 14% of their revenue in the local and state economy, while local businesses spend 53%. The majority of the local money generated by the national chains is through payroll, while the local businesses also spent money supporting other local businesses and banking with local banks. That difference in funding is money flowing out of the local economy and into the pockets of distant corporate owners.

One city that recognizes the value of a local purchase to their community is Albuquerque, New Mexico. Albuquerque is centrally located at the crossroads of interstate highway routes 25 and 40. It is considered a gateway city to the Sandia Mountains, which offer an abundance of activities for outdoor enthusiasts. With a 2006 population of 507,789, Albuquerque is the largest city in New Mexico and is a hub of economic activity. The city boasts strong technological business clusters in arenas such as alternative energy, aerospace and aviation, bioscience and electronics. Albuquerque is also frequently ranked high in “Best of” lists, such as the *Best Real Estate Market in the West*, according to Fortune Magazine, or being named a *Smart City for*

*Singles, Families and Retirees*, according to Kiplinger's Personal Finance. Due to the city's healthy local economy and environment, it has become a very desirable and sustainable place to live and work. (Albuquerque Website, 2008)

## **What Have They Undertaken?**

New Mexico has had a long history with giving government purchasing preference to resident businesses. Since 1978 the state of New Mexico has applied a five% preference to resident state manufacturers, contractors and businesses for state and municipal purchases. That means that all municipalities and all state purchasing offices must award the contract to the lowest bidding resident business as long as the bid is not more than five% higher than the lowest bidding nonresident business. The lowest bidding nonresident business would get the contract if the lowest resident business bid was greater than five% higher. All state resident businesses must register with the state in order to qualify for the preference. They are issued an identification number that must be included on their bids when applying for state or municipal contracts.

In addition to the New Mexico state resident business preference, in 1994 Albuquerque adopted a local business preference ordinance for all municipal purchases. This ordinance trumps the state resident business preference in that the city's preference is now geared to local businesses. According to Albuquerque purchasing policy, local businesses get preference over state resident businesses as well as nonresident businesses. In order to qualify, local businesses must have their main office located within the Greater Albuquerque Metropolitan Area, which covers the city proper as well as all of Bernalillo County. In addition, 10 or more, or 25%, of the business' employees have to be residents of the area. If it's a corporation, a majority of the shareholders have to be resident, if it's a partnership, the majority owning partners have to be residents, or if there is a sole proprietor, he or she has to be a resident of the area. These conditions keep the dollars generated by the business local.

Just recently, in January 2008 the city of Albuquerque implemented an ordinance giving additional preference to small local businesses. This is the ordinance that I have researched for the city of Portland, Maine, to extract information that will be useful in their quest to better support local businesses. This preference further trumps the local business preference in that the quotes from small businesses can be up to five% higher than those of local businesses and still receive the contract. Consequently, the bids from small businesses can be up to 10% higher than

those of non-local businesses and still be awarded the job. The city also exclusively seeks bids from small local businesses for small purchases, not exceeding \$10,000, before accepting those of larger local and non-resident businesses. Small local businesses can only employ on average 20 or fewer fulltime employees in addition to the criteria established for the qualifying local vendor. The goal of the small local business preference ordinance is to direct at least 10% of the city's purchases to those businesses each year. Both local and small businesses must register with the city's purchasing department in order qualify for the preference. It should be noted that there is not any preference for proposals exceeding \$5,000,000, or for projects funded with federal money.

The small business preference is most apparent in bids for small purchases. Three quotes from small businesses are necessary for single purchases exceeding \$1,000 but less than \$10,000 in cost. If fewer than three bids are obtained by small businesses than larger, local businesses may make an offer. A five % preference is still given to the small local businesses. If there are still fewer than three bids, the purchasing department may receive offers from all available businesses until three bids have been made. In this case, a five % preference is given to local businesses with a 10% preference given to small local businesses. If there are still fewer than three bids, then the best offer, taking into account the preference, may be accepted with documentation describing the lack of offers received by local businesses.

## **By What Important Means**

In 2006 Mayor Martin Chavez established a Small Business Advisory Committee and charged them with the task of writing a small local business preference ordinance. The committee was represented by several groups located in the Greater Albuquerque Metropolitan Area. These groups included but were not limited to the Albuquerque Hispano Chamber of Commerce, the Albuquerque Independent Business Association, the Albuquerque Economic Development, the Greater Albuquerque Chamber of Commerce and several small business owners. The committee met once a month to work on the ordinance, drum up support, and develop strategies for ordinance approval.

Through the process of writing the ordinance, the committee worked closely with the appropriate municipal offices. They worked with the purchasing and finance offices to tweak the terms of the ordinance in order to make it more effective. Through this collaboration they were



able to proactively meet the needs of the city. The committee found that it needed to determine a size limit for the small businesses, develop a means for quantifying the amount of business the city does locally, and outline a method of verifying that the small businesses are indeed local.

First of all, in determining the allowable size of the small business, they decided to set the cap at 20 fulltime year-round employees. However, the committee did not independently settle on this figure, as it came straight from the U.S. Small Business Administration's defining criteria. By selecting this pre-established standard, they were able to avoid conflict and the appearance of favoritism.

The finance office was also initially concerned with the purchasing department's inability to determine how much of their spending goes to local businesses. Without knowing that quantity, they would not be able to determine if they are meeting the goal of the ordinance, which is to direct 10% of the city's purchases to small local businesses. This issue was easily resolved when the purchasing department bought new software that allows them to distinguish if their spending is going to registered, small local businesses, larger local businesses, or to nonresident businesses. The city can now effectively ascertain whether it is meeting its purchasing goals.

The final concern of the municipal purchasing and finance departments was ensuring the validity of the businesses taking advantage of the preference. All small local businesses have to register with the city to qualify for the preference, just like the larger local businesses did. However, this newer small business preference functions more like an honor system, where the businesses only have to submit as much information as they did for local preference but are taken on their word that they qualify as a small business. If for some reason their eligibility is called into question, then the purchasing department can request more information, like payroll documents or tax information, for verification. In addition, the Small Business Advisory Committee assists the purchasing department with policing the system if any businesses are called into question.

After the committee was through writing the ordinance with the assistance of the purchasing and finance departments, they were ready to take it to City Council. They decided that before presenting the ordinance to the general council, they would first meet with each of the individual council members to address needs and concerns, and to build support. By pleading their case and selling their ordinance to the council members one by one, the committee was able to take the time to make sure the council members were knowledgeable of the value of local dollars and that

they understood the ordinance fully. The strategy worked and the ordinance was passed as it was presented to the general council. This entire process took one and a half years to implement, from the formation of the Small Business Advisory Committee to the approval of the ordinance.

## **With What Effects?**

As the policy was just adopted in January of 2008, it is still too early to gauge the success of the small business preference ordinance in terms of meeting its goal of directing 10% of city spending to those businesses. However, we do now know that the ordinance was a success in building a strong relationship between the local government and the small business community. Using municipal funds to support the local economy gives small business owners a sense of security and reduces the risks involved in their ventures. The preference shows that the city is invested in their collective futures.

The Small Business Advisory Committee hopes to develop that relationship even further by improving communications with the city's purchasing department, to better meet the city's needs. For instance, the committee would like to know about what items the city cannot find locally, so that they can start producing those items. The committee is also planning to host a procurement fair, where small businesses can meet the city's purchasing department and learn how to register their business, so that they too can learn how to take advantage of the preference.

What Albuquerque does have solid financial numbers for is the impact of the local procurement policy that was established in 1994. Through an email interview, John Vigil, the city purchasing manager, gave me the spending information for the 2006 fiscal year. That year, the city made 437 transactions and spent \$1,181,480 on purchases less than \$10,000. Of that total, 321 transactions, or 73%, were awarded to local businesses. This resulted in \$788,227, or 67%, of the total dollar volume going to local businesses. For purchases greater than \$10,000, the city spent approximately \$14,276,000 on 139 transactions. Of that total, 83 transactions, or 60%, were awarded to local businesses. This resulted in approximately \$9,136,000, or 64%, of the total dollar volume going to local businesses. A large portion of the spending Albuquerque does goes straight into the hands of the local business owners.

Mr. Vigil also told me in a phone interview that local businesses rarely require the entire five % preference to win the bid. He said that the vast majority of the local awards for the 2006 fiscal year were made without preference. When the purchasing department does utilize the

preference, it's usually because there is a 2%-3% difference between the lowest local and the lowest non-local bid. There are a couple of possible reasons for this. The first is that there may not be as many non-local businesses competing in the bidding process, perhaps due to the existence of the preference. Those business owners may realize that Albuquerque has chosen to support their local economy first. The other is that within a healthy business environment, local businesses are also competing against each other and keeping their costs down. The local business owners don't expect to be able to mark up their prices and still receive the city contracts.

## **Political Opposition**

The Small Business Advisory Council was smart in their quest for ordinance approval. Because they worked closely with the city finance and purchasing departments in drafting the ordinance and met with each of the city council members before presenting the document to the general council, they were met with little opposition. The finance and purchasing departments worked out their issues with the ordinance while it was still being written. Without this collaborative approach, they might have faced more intense scrutiny when they presented their ordinance to the city council. As it turned out, the committee came to the council members with the support of the two departments.

Additionally, the Small Business Advisory Committee took their chance to meet with the individual city council members as an opportunity to educate them about the value of supporting small local businesses and the benefits it would bring the local economy. They also answered any questions or concerns the council members had, before going to the general council. This strategy worked, and, at the general council meeting, the ordinance was approved immediately.

## **What Key Lessons**

When I was speaking with the Small Business Advisory Committee's chair, Mr. Tony Trujillo, he emphasized Mayor Martin Chavez's commitment to the ordinance as its greatest strength. He reiterated that, without the support of the mayor, the committee would not have been established and the ordinance most likely would not have been written. He stressed that having the mayor on board is the first step to writing a successful local preference ordinance. Portland has this support as well, through Mayor Suslovic and the Sustainable Portland Task Force. We now just have to take the next step toward action.

What Portland can learn from Mayor Chavez's approach is to delegate. Portland should seek the help of its Economic Development Division and the Portland Chamber of Commerce to create its own Small Business Advisory Committee. Challenge the individuals who would benefit the most from the ordinance with the task of writing it. Albuquerque's Small Business Advisory Committee members knew that it was in their best interest to write an ordinance that would be approved by the city council. They worked hard and made a commitment to establish an ordinance that would not meet political opposition and ultimately fail.

Furthermore, by establishing a Small Business Advisory Committee, the city of Albuquerque now has a more unified small business community with an enhanced relationship with the municipality. This relationship is beneficial for both the business community, as it has learned that it is well supported by the city, and the municipality, as much of its revenue is derived from a healthy local economy. Portland's downtown already has a strong and diverse small business community, but they should be protected and sustained as one of the city's greatest assets. The value of the local dollar spent is reverberated throughout the entire local economy, community and environment.

## **To Do List:**

1. The Mayor should form a Small Business Advisory Committee. He should elicit the help of the Portland Chamber of Commerce and the city's Economic Development Division to recruit members and ensure that the local business community is well represented.
2. The Mayor should charge the newly formed Small Business Advisory Committee with the task of writing the local preference ordinance. The group should look to Albuquerque, New Mexico's ordinance as a model. Make sure that the group understands the value of collaboration and consensus-building when working to write an ordinance of this caliber.
3. Inform the Purchasing and Finance Departments of the committee's goal in writing a local preference ordinance and encourage them to assist in any way they can. These departments should work with the Small Business Advisory Committee to format the ordinance so that it meets Portland's needs. They should also feel free to ask the group to alter the ordinance before it goes in front of the city council.

4. Once the ordinance is written, the Small Business Advisory Committee should work with members of the city council to drum up support for the ordinance and make sure they understand its implication. The committee should try to “sell” the ordinance to each member of the city council before it goes to vote.
5. The ordinance is presented to City Council for approval.

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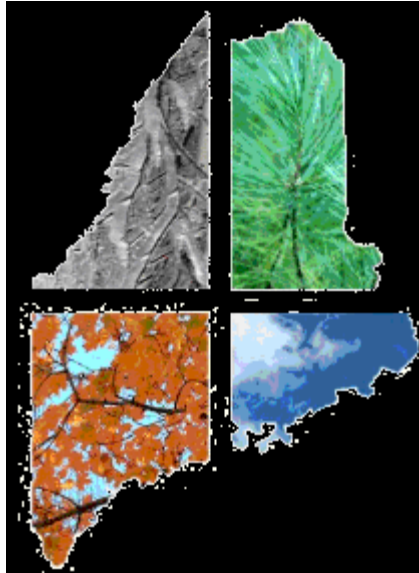
Vigil, J. Albuquerque Purchasing Manager. Email Interview. (18 March 2008)

Vigil, J. Albuquerque Purchasing Manager. Phone Interview. (24 March 2008)

# Climate Action Plan

*Brittany Howard*

**ABSTRACT:** Colorado and Maine face similar issues when dealing with global warming. Industries like agriculture and skiing will both be affected by rising



temperatures. There will be a shift in growing seasons, greater occurrences of drought, and an infiltration of pests and weeds that thrive in warmer temperatures. Because these two states are going to be facing similar global warming issues, it makes sense to see how they are addressing them. Boulder, Colorado and Portland, Maine have similar populations and climates. However, Boulder has been taking proactive steps in changing their future by creating and implementing a Climate Action Plan that has resulted in a reduction of their carbon footprint.

Source: <http://maineghg.raabassociates.org/images/finalplan.gif>

## What Issues have been Undertaken:

In May 2002, Boulder's city council passed Resolution 906 (similar to the Kyoto Protocol) and established a goal to reduce community greenhouse gas emissions to 7% below 1990 levels by 2012. By 2004, Econergy International completed Boulder's emissions inventory. The inventory is updated annually by city staff, which inputs data into an Inventory Maintenance System (Excel Workbook). In 2005, sustainability was a main goal of Boulder and they created a Sustainability Task Force.

The task forces identified the following elements as ways to become more sustainable: leadership, the creation of a plan, exploring funding strategies, communication, training, inspections, audits, measurements, green roofs, green buildings; and programs that incorporated efficiency rebates, renewable energy, multifamily buildings, and income-qualified citizens. For sustainability to be achieved, the city is going to have to require more efficient and healthier buildings, provide multi-modal transportation, offer a wider availability of sustainable products,

investigate renewable energy and distributional generational systems, and design creative social programs. The most important factor of sustainability is a strong sense of community pride in the city's effort to protect the environment (OEA, 2006).

The Office of Environmental Affairs (a division of the City Manager's Office) along with the Climate Action Plan Committee, the Environmental Advisory Board, and Boulder City Council, began the creation of the Climate Action Plan (CAP). Also in 2005, there was an increase in the trash tax to help fund the first steps of the CAP. The tax revenues collected from 2005 and 2006 equaled \$516,000 and funded commercial energy efficiency programs, residential energy efficiency programs, the development of long-term funding and policy options, workshops, outreach and marketing, the public process, technical and peer review, greenhouse gas inventory tracking system, and 1.5 fixed term staff. In 2006, the city adopted its CAP, and the citizens of Boulder voted in the CAP tax (a carbon tax) to fund the implementation and continuation of the CAP programs.

The CAP is similar to a Master Plan and it establishes in detail, policies, priorities, strategies, services standards, facility and system needs, and budgeting strategies. Boulder breaks their CAP into six different components; the first two being, energy efficient strategies to reduce emissions and renewable energy and emissions offset strategies. Both of these aspects are further divided into three segments: commercial and industrial, residential, and city facilities and operations. The other sections of the plan are transportation, waste reductions and recycling, water conservation and urban forestry and carbon sequestration.

## **By What Important Means:**

### Energy Efficiency Strategies to Reduce Emissions

#### ***Commercial and Industrial:***

1. Building Performance Program (BPP) – The BPP conducts energy audits and supports businesses with the implementation of recommended energy efficiency improvements (Afflerbaugh, 2008). With the help from the BPP, local businesses and contractors discover energy-saving opportunities and obtain utility rebates for efficiency projects. Boulder's commercial buildings raise awareness of utility rebates, and offer a better understanding of the energy-related support that the commercial sector needs.

An energy audit is the first step of the BPP. “Nexant performs a site survey and walkthrough of commercial facilities to analyze the main energy uses and opportunities for improving the energy efficiency of the facility,” (Afflerbaugh, 2008). They also look into the potential opportunity for renewable energy. Soon after this process, there is a delivery of a detailed report, and the customer schedules a follow-up meeting to review the report findings and implementation strategies.

“The Trade Ally Network helps connect businesses with qualified contractors who can implement the recommended energy efficiency retrofits, a Trade Ally Network (TAN) was developed in 2007,” (Afflerbaugh, 2008). The TAN is comprised of heating/cooling, lighting, and solar contractors who work in the region.

2. Small Business Energy Performance Program (EPP) – The EPP was created because small businesses did not benefit from the BPP. The BPP’s main focus is on buildings with a large square footage. EPP offers energy audits and a tailored implementation service to small businesses. “For efficiency measures that the business elects to implement, Nexant acts as a general contractor by hiring subcontractors, reviewing bids, and ensuring proper implementation of the measures. By removing the burden of project management and implementation from the small business owner, improving energy efficiency becomes more desirable,” (Afflerbaugh, 2008).

### ***Residential:***

1. Residential Energy Audit Program (REAP) - This program offers low-cost, expert energy audits and energy savings information to involved homeowners. The homeowner’s cost varies from \$100 to \$250. The square footage of the home determines the price. “The audit includes a blower door test, insulation assessment, and appliance and HVAC system assessment,” (Afflerbaugh, 2008). After the audit is complete, a report is delivered to the homeowner that includes an inventory of energy-saving recommendations and a list of skilled contractors. After this process, REAP delivers a survey asking the homeowner about the process and what energy savings recommendations they are planning to implement.

2. Neighborhood Sweep – This program distributes free energy and water conservation kits door-to-door in Boulder. Boulder collaborated with the University of Colorado at Boulder’s



(CU) Environmental Center to distribute these kits. The students delivered 350 kits. Within the kits are CFLs, water reduction aids, energy and water conservation information.

3. Weatherization Program – This program offers free weatherization services to low income, owner- and renter-occupied households. It offers CFLs, insulation, programmable thermostats, duct sealing, furnace repair and replacement, refrigerator replacement, and a combustion safety inspection.

### ***City Facilities and Operations***

Facilities and Asset Management (FAM) - FAM constantly assesses Boulder's efforts at conservation, energy efficiency, and alternative energy. They try to meet the city's energy needs at the lowest cost. FAM also tries to implement purchases, projects, etc. that have a five year or less return on investment and they buy hybrid and alternatively fueled vehicles whenever possible.

### **Renewable Energy and Emissions Offset Strategies**

Unlike Portland, Boulder has the option of receiving power from windmills, so this section is hard to compare and transfer over to Portland. However, they do place an emphasis on solar power, which Portland has the ability to install.

### ***Commercial and Industrial***

Boulder currently, "educates industrial users on available renewable energy options, including on-site generation and how to subscribe or implement; promote local renewable energy suppliers; connect businesses with external resources, such as EPA's Green Power Partnership and the Center for Resource Conservation (CRC); and recognize companies for their renewable energy purchases." (OEA, 2006)

### ***Residential***

In Boulder, solar hot water systems are the dominant form of renewable energy in households. They are also promoting solar electric systems.

## ***City Facilities and Operations***

The city is looking into installing solar photovoltaic systems on its buildings, as well as implementing community wind farms.

### **Transportation**

#### ***City of Boulder Fleet Services:***

Boulder's Fleet Services has been effective in reducing greenhouse gas (GHG) emissions from city vehicles. They have reduced the number of miles traveled, expanded biofuel use, and purchased vehicles with better fuel efficiencies. In 2007, Fleet Services purchased three E85 vehicles, 16 diesel vehicles with the capacity to use biodiesel, and eight Ford Escape Hybrids. These alternatives are available to Boulder because, biodiesel, E85 and propane are available at the city's fleet fuel pumps. Also, to further aid in GHG reductions, CAP staff has an education campaign to inform employees of the importance of GHG reductions.

#### **Waste Reduction and Recycling**

The city currently offers curbside recycling services, but it also offers the following programs: Center for Hard-to-Recycle Materials (CHaRM), Yard Waste Drop-off Center, Wood Waste Drop-off Center, and many more. However, even with these programs, the city of Boulder still creates a lot of waste. Boulder has written a master plan for waste reduction including an Action Plan for 70% waste reduction by 2012 and a Vision Plan for 85% waste reduction by 2017. "The Master Plan for Waste Reduction acts as a roadmap to Zero Waste, as it sets forth the budget, specific programs, and enabling legislation that will be required to get to 85% waste diversion – which by any community's accounts is darn near to Zero Waste," (OEA, 2006).

#### **Water Conservation**

"Electricity used by water and wastewater utilities typically represents over half of a city government's electricity bill," (OEA, 2006). Boulder has implemented a Spray Nozzle Project, and offers rebates to its citizens and businesses that install high efficiency washing machines, dual flush or ultra-low flow toilets, drip irrigation, sprinkler controllers, heads or nozzles, soil amendments, and turf type buffalo grass.

Spray Nozzle Project – The installation of water-saving spray nozzles at local restaurants.

## **Urban Forestry and Carbon Sequestration**

The city plants 80 trees per year, and city staff educates Boulder's citizens on tree species as well as on maintenance. They also conduct annual educational programs about trees, greenhouse gas reduction and global climate change to public elementary schools.

## **With What Effects:**

### Energy Efficiency Strategies to Reduce Emissions

#### ***Commercial and Industrial***

1. Building Performance Program (BPP) – From 2005-2007, 81 buildings were audited. During that three-year period, a study of 15 building showed the following savings: 757,300 kWh of electricity, 11,638 therms of natural gas, and 765 mtCO<sub>2</sub> of GHG.

2. Small Business Energy Performance Program (EPP) – in 2007, the EPP conducted eight Small Businesses audits. The audit results showed a potential electrical savings of 172,979kWh, a potential natural gas savings of 178 therms, a potential annual energy cost savings of \$13,528, an estimated capital investment of \$51,034, an average payback of 4.96 years, and potential GHG reductions of 161 mtCO<sub>2</sub>.

#### ***Residential***

1. Residential Energy Audit Program (REAP) – In 2006, 15 homes were audited as a part of a REAPs pilot program. One year after the audit, a study showed a reduction of 23% of natural gas use and a 21% reduction in electricity. This success resulted in the completion of 224 audits in 2007. Results from 2007 are not yet completed.

2. Neighborhood Sweep – The sweep distributed 2,364 CFL bulbs, which resulted in 1,016,520 kWh of electricity saved, \$92,503 of total energy cost saved, and 939 mtCO<sub>2</sub> emissions reduction.

3. Weatherization Program – In 2007, they retrofitted homes in a variety of means. Six homes received attic insulation, five received wall insulation, four received foundation perimeter insulation, five received ENERGY STAR furnace upgrades, five received ENERGY STAR refrigerator upgrades, 11 received Duct sealing, 19 received compact fluorescent light bulbs, four

received programmable thermostats, seven had window storm installation or replacement, and 20 had miscellaneous measures. These building improvements saved 3112 therms of annual gas (\$2,894), 1533kWh of Annual Electricity (\$138), and 15.5mtCO<sub>2</sub> of GHG gas savings.

### ***City Facilities and Operations***

Facilities and Asset Management (FAM) – “In 2007, FAM completed almost \$90,000 worth of energy efficiency improvements in city facilities,” (Afflerbaugh, 2008). This included efficient window installation; the replacement of heating, ventilation and air conditioning (HVAC) units; and an increased insulation in city buildings.

### **Renewable Energy and Emissions Offset Strategies**

“The North Boulder Recreation Center has one of the largest solar thermal systems in the country. The system conserves approximately 20,000 therms of natural gas annually, preventing almost 100 mtCO<sub>2</sub> emissions. The system saves around \$20,000 a year for a simple payback of 10 years,” (OEA, 2006).

### **Transportation**

#### ***City of Boulder Fleet Services***

In 2006, a study showed that, with the purchase of fuel-efficient and alternative fuel vehicles, Boulder was successful in reducing GHG emissions to 65 tons below the Kyoto target (7% below 1990 emissions). An initial look at 2007 shows that fleet has reduced emissions even further.

### **Waste Reduction and Recycling**

In 2005, the city of Boulder implemented these programs: single-stream recycling at the Boulder County Recycling Center, residential yard and food waste collection, commercial food waste collection, construction and demolition debris recycling, banned electronic scrap, and a more aggressive “pay-as-you-throw.” These programs have been successful in reducing waste. Single-family residential waste diversion is at 48%, up from 38% in 2003, multi-family residential waste diversion is at 13%, up from 12% in 2003 and commercial and industrial waste diversion is at 25%, up from 23% in 2003 (Mertz, 2006).

## Water Conservation

Spray Nozzle Project - In 2005, the city installed over 40 nozzles. Each nozzle saves about 40,000 gallons of water a year.

## Urban Forestry and Carbon Sequestration

“The 2005 study, ‘The City of Boulder, Colorado Municipal Tree Resource Analysis,’ demonstrated that for every dollar spent to maintain public trees, \$3.64 worth of benefits are returned in avoided costs for energy consumption and air pollution control, in addition to the trees’ ancillary benefits, which include increased property value and improved human health and well being,” (OEA, 2006).

## ***Political Opposition:***

An interview with the Boulder’s Environmental Affairs Manager, Jonathan Koehn, showed that there was little to no political opposition to the development of the CAP. However, there was an issue with the CAP report team’s recommended funding source. The CAP wanted to pass a carbon tax, but the city itself could not campaign on its behalf. The council voted unanimously to put the tax on the ballot for voter approval, and has continually supported the aggressive nature of the CAP strategies.

## **Key Lessons:**

Boulder knew which programs and services it could delivery and which ones they could not. The city collaborated with the city council, other city and county departments, non-profits, business leaders, property owners, The University of Colorado and the Federal Laboratories, community activists, energy services, industry, and the public, to make its programs a reality. Also, they worked across departmental lines. Jonathan Koehn sited this example: “Our recent update to our residential Green Points program was a joint effort between Planning and Development Services and our office. Now that the code is in place, code questions are directed to the code officials, while programmatic details come to us.” This makes departments more efficient; the city is using its resources effectively.

There are external factors affecting emissions reductions that the city should take into account. Weather conditions are important matters to consider. For example, a bitterly cold winter will result in the use of more heating sources, like oil and natural gas. The city cannot

control these events. On the other hand, high energy prices will make the decision to implement energy saving techniques easier for homeowners and businesses, once they see the return.

Population growth is also something cities cannot control, and it can have a negative impact on emissions reductions. Along with population growth comes the current trend towards larger homes. New incoming residents need to be educated about the city's strides to reduce its carbon footprint and that they may have to change their mindset.

Another strategy that makes implementing the CAP easier is to set specific goals. How energy efficient does the city want to be? Set a number of reductions the city would like to meet. What percentage of energy does the city want to come from renewable energy? Setting goals gives the city something tangible to reach for and meeting that creates a sense of achievement, which keeps the momentum up.

## **To Do List:**

1. Energy Audit – Look at the energy audit conducted in 2005 and implement policies and programs that focus on GHG reductions. The city's focus should be on the greatest contributors to GHG.
2. Do a Pilot Program – Run a pilot program for energy audits and report the energy savings after one year. Once the community sees the success of the pilot program, it will be more willing to participate in the program.
3. Community Engagement – The citizens of Portland need to know that reducing greenhouse gas emissions is important to the city. Citizens, however, need to see some of the work on the ground in order to believe it. The city needs to lead by example! Once the community is actively engaged, friends will begin telling friends, kids will encourage parents, etc., creating a media campaign just by word of mouth.
4. Create a Database of Groups – Use what you have: neighborhood groups, non-profits, the state government, federal government, universities, business leaders, community activists, volunteers, etc. This database can alleviate some funding issues and broaden the city's scope and workforce base. Also, if one of these groups is working on a project, then the city should focus its efforts elsewhere. Delegating responsibilities to other

groups while staying slightly involved was successful in Boulder, making it a collaborative effort.

5. Recognize Successful Programs – “Developing meaningful ways for local businesses and homeowners to be recognized for their efforts will be important in supporting the view that combined, sustained, community-wide efforts can add up to significant GHG reductions,” (OEA, 2006). If homeowners and business see a successful program, they will be more apt to implement the same energy saving measures in their own buildings.
6. Find Programs That Fit Portland – Emulate cities that have been successful in ways that will make Portland successful. Just because a program worked somewhere else does not mean that it will work on Portland. Tailor the program so that it will be a success in Portland.
7. Work with Colleges and Universities in the Area – Boulder’s Neighborhood Sweep program was successful because they worked with the local University. Colleges and Universities have resources that the city may not have.
8. Start Young – Work with the public school systems to educate children from a young age about pollution, recycling, trees, etc., and reinforce it every year. Children who are educated at a young age will grow up to be adults who are environmentally conscious.

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# Green Building, Rehabilitation, and Historic Preservation: Codes and Incentives

*Deidre L. Johnston*



Source:[http://en.wikipedia.org/wiki/Burlington, Vermont](http://en.wikipedia.org/wiki/Burlington,_Vermont)

ABSTRACT: This paper addresses the topic of green building rehabilitation, in particular, the “green,” or sustainable, aspects of historic preservation, codes, and incentive programs. The city I chose to study was Burlington, Vermont.

Research sources included the City of Burlington websites (ordinances, review standards, action plans, committee meeting notes) as well as other sustainability websites. Also referenced in researching this topic was the course materials from CPD 602 Sustainable Communities and private reports/publications from the National Trust Publications and various green building publications. Two pertinent interviews (phone and email) from City of Burlington employees were utilized as well.

My main recommendations will be for a new energy efficiency ordinance and a study of aging residents' housing needs. Tipping fees, the city's role, a sustainable merit award system, and a non-profit sustainability organization will be discussed as well.

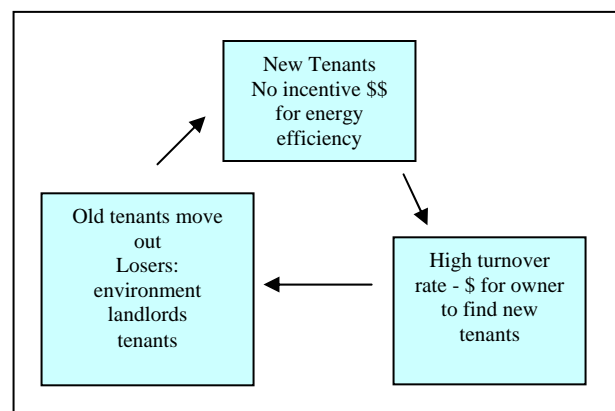
Burlington, Vermont has a population of approximately 40,000, which makes it the largest city in Vermont. Vermont is home to the University of Vermont, as well as Burlington College, Champlain College, and a community college. Some recent listed accolades for the city include that Burlington is one of the top 10 “Greenest Cities” a top 25 small town art destination, number five out of 10 top places to retire young, and one of five *Delicious Living* magazine's "Impressive City Award."<sup>27</sup>

Burlington has an unusually high proportion of older buildings (over half are pre-1939) and 13 Historic Districts. To address this issue, the City of Burlington has promoted restoration/preservation efforts and encourages "adaptive re-use and respectful infill development."<sup>28</sup>

There are many articles written today addressing "green" building vs. "sustainable" historic preservation. In a recent article from the National Trust for Historic Preservation<sup>29</sup>, the author describes the "Sustainable Stewardship of our Buildings and Communities - Guiding Principals" as follows: reuse existing buildings, reinvest in our older and historic communities, and retrofit our existing building stock. Similarly, in a recent article in *GreenSource* magazine,<sup>30</sup> an architect describes in detail the "natural partners" aspect of green design and historic preservation, as well as some of the discrepancies. In general, the reuse of existing sites, buildings, and materials is "sustainable/green." But conflicts do arise, including energy efficiency (windows), insulating load-bearing walls improperly, lighting preferences, and the overall feeling that the LEED rating system does not credit conservation substantially. Despite this, Vermont has set precedents in their energy efficient programs for older buildings.

One of Burlington's more successful energy efficiency plans was the Minimum Energy Efficiency Standards Ordinance, first established in 1997. This ordinance addresses the "split incentive between landlord and tenant, and was an effort at a win-win situation for both.

Originally established by the Vermont Energy Investment Corporation (VEIC) and later administered by the Burlington Electric Company, the program established minimum standards to be met at the time of sale. Prior to the ordinance, the tenants in the rentals were unlikely to pay for efficiency improvements, and the landlords had no incentive to upgrade their units. The result was short rental periods (1 year); tenants cited the main reason for moving as unaffordable energy bills. Burlington is one of the coldest metropolitan areas in the United States and among the top 10% of cities in fuel use per capita.<sup>31</sup>



Systems Thinking: Sustainable Communities CPD 602

The result was VEIC leading an effort (with support of the EPA) to establish a city-wide ordinance. The plan was phased; originally applying only to the Old North End Enterprise Community, it was expanded after a two-year period (once a report was given to the City).

The ordinance is well written, and there are many measures to ensure that the burden doesn't fall unevenly. There is a cap on improvements of 3% of the sale price (or \$1,500/unit). Either the buyer or the seller may pay for the improvements, with a one-year compliance period. Generally, the compliance consists of insulating exterior walls, open attics/ceilings/roofs, box sills, ducts and piping. Additionally, windows and doors must meet standards, such as storm windows and weather-stripping, and certain appliances and equipment must be inspected for operational safety. The average cost was estimated at the time of the study at \$650-\$750.<sup>32</sup>

I spoke recently with Chris Burns of Burlington Electric Company, the director of the program. We discussed the overall program currently in place.<sup>33</sup> Originally, the ordinance came into being because of Burlington's low vacancy rates, and the landlords were insisting on "top dollar." Original opposition for the ordinance came from the Landlords Association, as well as some local realtors. The realtors felt it was just "one more step," but the city didn't believe there was an issue. The city did compromise on the magnitude of the inspection (it had originally requested a blower door test) and agreed upon the current plan. The cost of the inspection is included in the total cost cap. Additionally, Mr. Burns urged that those involved understand the ordinance is only applicable at the time of sale of a property.

All in all, Mr. Burns stated that the most important lessons learned have been to hire knowledgeable/skilled inspectors, or the inspections are not worth doing. Secondly, flexibility and education with realtors (calling at the last minute with questions) is a must. Burlington Electric also has a great relationship with the gas company, and both have worked together on incentive programs.

Currently, the Vermont State Action Plan is looking into adopting Burlington's city ordinance state-wide, as well as reviewing the possibility for residential state-wide time of sale efficiency measures.<sup>34</sup> At the 2005 Energy Efficiency Awards presented by the Alliance to Save Energy, Burlington Electric Department was awarded "Star of Energy Efficiency" for its efforts over the last 15 years, citing the phenomenal result the city achieved in using less energy in 2004 than in 1989, even with significant commercial growth. This was due to many efforts, including

the ordinance listed above, but also promoting LEED certification and high standard energy codes, and implementation of ISO-based load response programs.

Over the past two years, the company has further streamlined the process and established a fuel consumption screening process, which allows them to get the building's past history sent to them, in order to decide whether to do an inspection or not.

Burlington has also been successful in an affordable housing agenda, which is based upon what they call the three "P's:" Protection of the Vulnerable, Preservation of Existing Affordable Housing, and the Production of New Affordable Housing.

For preservation projects, Burlington has many programs to address these needs, including a home improvement program, minimum housing program, the Burlington Community Land Trust, and the Lake Champlain Housing Development Corporation. They have also established the VT Co-operative Housing Act, Apartment Registration Fee Ordinance and the Housing Trust Fund. The Apartment Registration Fee Ordinance was a system where landlords were charged a yearly fee, similar to a motor vehicle registration. Burlington's Housing Trust Fund, which passed by voters (1¢ of every \$100 in property taxes goes to affordable housing), currently raises approximately \$190,000 annually for project and operating grants for non-profits.<sup>35</sup>

In a City Council Housing Super Committee Report (2005), the current housing market conditions were addressed. At the time of the report, home prices and rents were escalating at rates much higher than wages. Conversely, in the year 2000, Vermont had 48 Million Dollar homes, and by 2003, there were 1,030. As stated in this article, "it is also becoming clear that a lack of housing affordable to ordinary Vermonters and their families acts as a drag on the economy." Vermont was short 21,000 affordable rental units and in need of 12,300 more owner-occupied units within the next five years.

In order to address this issue, the committee offered the following recommendations in relation to existing housing issues:

- First would be to adopt a flexible rehabilitation sub-code, providing clear guidelines and reducing the cost of rehabilitation. Rental housing totals approximately 71,000 in Vermont, which is the lowest rental vacancy rate of any state in the nation. CEDO has been unsuccessful at this effort in the past, but hopes to adopt a model rehab sub-code within one year. Also, the city insisted that the number of off-campus UVM students not increase.

- “Green,” rehabilitation efforts in Vermont also include the promotion of Deconstruction.<sup>36</sup> Deconstruction, or "taking apart the building in reverse order in which it was built," is a significant help to the environmental movement. Salvaged materials can include windows, doors, plumbing and electrical fixtures, flooring, lumber, etc. It is quoted that Vermont has the third highest tipping fees in the nation. A Vermont based deconstruction company called ReCycle North is starting to see a shift in behavior and attitude with contractors. The contractors are not only seeing it as a financial savings, but are also looking at the positive public relations aspect of deconstruction as well.

An exciting program that Burlington is currently involved in is the Burlington Livable Community Project (BLCP) in collaboration with the AARP Vermont.<sup>37</sup> The study, established in 2006, is a multi-year effort to discover the needs of the aging community in Burlington in many aspects, including housing and transportation. The answer Burlington came up with is a rehabilitation master plan.

Research shows that, like most of the United States, there is an aging population (or the “Boomers”). In Burlington, there is expected to be a 50% increase in residents aged 55-65 in the 10 year period ending 2010. The research also found what made Burlington such a desirable city included its small town feel, cultural offerings, sense of safety, natural beauty, diversity, downtown accessibility, and access to leaders and government.

The findings on housing for this group indicate that eight out of 10 respondents rated their neighborhood as an excellent/good place to live. Most would like to stay in their homes as long as possible. If they could no longer stay in their homes, the group surveyed would like access to transportation, shopping services, and to be able to schedule their own day. Affordable housing is needed, in particular middle class, assisted living and one-level housing. The report goes on to set an action plan for housing in Burlington, including that housing options should: allow residents to stay in houses if possible, be affordable to all, range in options from age segregated to multi-generational, and reduce isolation. Issues of safety and diversity need to be addressed as well. The action plan includes creating a game plan, exploring financing incentives, and obtaining inventory of developable and re-developable sites for new housing. Included in this would be schools, above storefronts, and theaters. Other actions would be to participate in rewriting zoning codes, densities, and researching national organizations and legislation. Some

key actions for this group also included exploring green houses ([www.nccapitalimpact.org](http://www.nccapitalimpact.org)), address workforce issues, and provide more assisted living facilities.

David E. White, Director of Planning and Zoning, Burlington, VT.<sup>38</sup> stated that, "folks are pretty progressively minded here, so any political opposition more often comes in the form of not doing enough." More importantly, when it comes to green building, his response is, "The bottom line is their bottom line. The owner/developer has to have a long-term interest so they reap the benefits...The reality of it is to directly engage those people and operations who are more closely related to the initiative and understanding of the cost benefits." He mentioned some, "green-related factors in our development review standards that help move things along in that direction." In reviewing the Development Review Standards, I did come across many sustainable concepts and factors, included in the initial principles, throughout the article, and in the description of quality of materials.<sup>39</sup>

The goal of this paper was to explain what Green Building (rehabilitation) truly entails. My purpose was not necessarily to show one model, one great product or project, or one great idea. My goal was to incorporate as much of this particular topic into the all-encompassing topic of sustainability. True green building does need to address all aspects of sustainability – not only environmental – but community, social, justice, civil, and economic balancing. Everyone needs a voice; a "seat at the table."

The following is a "To Do List" for the City of Portland in an attempt to successfully implement the above mentioned programs/lessons from the City of Burlington, Vermont.

## **To Do List:**

1. Work with city staff/volunteer to implement a phased new ordinance plan for time of sale rental units. Get initial endorsement from USGBC Maine, Portland Society of Architects and RPIC (Responsible Property Investing Center). This should avoid any initial backlash from Landlord Associations and Real Estate Associations. Educate the latter two on the city's ordinance, using Burlington as a working model. Work with the Sustainable Task Force, current Mayor Edward Suslovic, and Jeanie Burke of the City of Portland.

2. Approach AARP Maine to see if it is interested in study/focus group on Portland's aging population's housing needs and desires. Work with interested Muskie students and research grant opportunities.
3. Reassess tipping fees and the city's role in setting it. Volunteer Muskie students to work with Portland Public Works.
4. Establish unbiased sustainable merit award system/guidelines for Greater Portland Area businesses. Obtain USM graduate business office and sustainability leader input.
5. Long-range: Establish a "Legacy Project" non-profit organization to address the city's long-term sustainability goals.

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# Natural Playgrounds

*Amanda Loomis*

ABSTRACT: The City of Portland has an opportunity to create sustainability through parks and school grounds. With the installation of natural playgrounds, the city is enhancing recreational opportunities and promoting active lifestyles through school and park



Source: <http://www.landscapeonline.com>

venues. Natural playgrounds are a prospect of expanding the connection between the community and nature, as well as a technique to address the problems of childhood obesity and Attention Deficit Hyperactivity Disorder. In addition, it creates a play environment that promotes community involvement and connectivity, hands-on learning, on top of as well as improving physical, social, cognitive development skills. Through the implementation of natural playgrounds, there is an overall connection of the economy, environment and ethical obligation of the city to its citizens.

Within the City of Portland, there is a rare opportunity to make school grounds places of learning, exploration, active and passive play, as well as create a habitat for wildlife to co-exist with an urban setting. The installation of natural playgrounds at schools and parks in Portland will promote healthy lifestyles, clean the environment, support education, promote community involvement and reconnect children and the community with nature.

Natural playgrounds have numerous positive impacts: they reintroduce children to nature, reduce childhood obesity, reduce the effects of Attention Deficit Disorder, as well as improve social skills. By replacing traditional playgrounds with natural playgrounds, the city is giving children an opportunity to explore the natural world, and providing children who are not sports-minded an opportunity to get outside, and develop a connection to place and nature. Not only are natural playgrounds beneficial to the children and community, they are also a sustainable and functional way to improve the urban environment, by decreasing runoff, reducing carbon

emissions (by establishing walkable recreation destinations), and creating natural wildlife habitats within an urban setting.

School grounds in the City of Portland function both as playgrounds for the schools as well as community parks. According to Laura Newman, who is the Greening Coordinator for Portland Trails School Ground Greening Coalition, “in Portland, unlike many other communities, public school grounds are parks. They are used as parks before and after school, on weekends, and year-round.”<sup>40</sup>

Currently, all school grounds and parks within the City of Portland are traditional playgrounds made up of expensive manmade features such as slides, swings, and jungle gyms, with little to no green space for children to explore. Children who grow up in urban environments have less access to activities and recreation in a natural green setting compared to children who grow up in rural areas. It is very important to connect kids with an assortment of choices in addition to sports and programming. One of the benefits of natural playgrounds is the ability for children to engage in both active and passive play. “Active play,” involves running, jumping, climbing, and the development of balance, coordination, and strength which promote physical development. “Passive play,” involves the imagination, exploration of place, creative thinking, and quiet play. Both active and passive play that occurs on natural playgrounds is neither programmed nor designed; it is a way for a child to explore and develop his or her learning, social and developmental abilities away from structured and programmed play activities. In this day and age, children’s lives are so over-programmed, that they miss out on unstructured time, and the development of important creative and social collaboration skills.

## **What is a Natural Playground?**

Conventionally, traditional playground equipment was designed to promote and enhance the child’s physical development. However, traditional playgrounds failed to include social, emotional and cognitive development within the design of the playground. So, it has been found that traditional playground equipment, although it is designed to endorse play and support gross motor development, it does not meet the needs of children to participate in imaginative, self-directed play.<sup>41</sup>

Natural playgrounds use natural features such as trees, bushes, gardens, boulders and raised beds, as well as features built into the landscape, like slides, mazes, treehouses and huts; sand,

hills, waterfalls, and benches. Natural playgrounds also include “loose parts,” which include sand, leaves, rocks, ferry houses, etc. Loose parts are things that kids can manipulate, whereas traditional playgrounds don’t have anything kids can move and control. These natural features inspire children’s imagination; they allow them to engage in social interactions, introduce various types of textures, and to partake in active and passive play that encourage self-directed learning. Within a natural playground, children’s play enhances their social, emotional and cognitive development. Children who learn to play in nature develop lifelong learning and social skills. According to an article in the New York Times,

*“natural play areas could offer children even more loose parts — and more of a sense of adventure. For instance, studies show that children on flat playgrounds play in short, interrupted segments; but in greener, more natural playgrounds, children make up adventures that they carry forward from day to day — and they’re far more likely to invent their own games.”* <sup>42</sup>

Natural playgrounds ideally transform and reduce asphalt into green vegetated areas as well as, “enhance schoolyards as places of ecological diversity and reduc[e] the impact of schools on ecosystems.” <sup>43</sup>

## **Benefits of a Natural Playground:**

Natural playgrounds have numerous benefits for children, parents, teachers, and the surrounding neighbors, as well as the community at large. A natural playground allows its visitors to partake in both active and passive play, which are both necessary for healthy physical as well as emotional development. Natural playgrounds also allow the visitor to escape, providing respite and reducing stress while engaging her in a world unlike her urban, built environment. With a growing concern that children and adolescents are becoming more sedentary in our culture, natural playgrounds provide many benefits that both increase physical activity and enhance the social, creative and cognitive development of children.

*“The 1996 Surgeon General's report on physical activity and health reveals that physical activity reduces risk of chronic diseases including hypertension, type two diabetes, high blood lipids, cardiovascular disease, and obesity. The report states that physical activity can prevent or delay the development of hypertension in children and adolescents and maintain their blood pressure at normal levels. Recreation is also important for children*

*in order to promote, 'weight control through caloric expenditure,' and is particularly important for the large number of children who are overweight.”<sup>44</sup>*

When children engage in play in a natural environment, they are also developing physical skills such as balancing, spatial perception, and fine motor skills (Isles and Steinhagen). Other connections between children and natural playgrounds include a decrease in violence, the ability to pay attention in class after physical activity, reduction in behavior associated with Attention Deficit Hyperactivity Disorder (ADHD), an increase in learning ability and promotion of imagination and creative play. Also, natural playgrounds promote more self-directed physical activity, because kids make up their own stuff, which is why natural playgrounds have a lifelong impact.

Natural playgrounds support sustainability within the city's environment, addressing issues of stormwater runoff by decreasing the amount of impervious surfaces, such as asphalt, and replacing them with vegetation, allowing runoff to have the opportunity to be absorbed and filtered through the ground, or allowing the ground vegetation to slow down runoff, decreasing erosion and sedimentation into waterways. Another benefit of natural playgrounds is the increase in biodiversity and habitat creation. Many natural playgrounds incorporate butterfly gardens, native vegetation, or other natural areas that provide shelter, food sources and habitat for various types of wildlife.

Both stormwater management and the increase in biodiversity can be used as a teaching tool for local schools. Teachers can use the natural playground as an outdoor classroom, providing their students with an opportunity to have hands-on experience and apply what they are learning in the classroom to a real life situation. This hands-on approach is proven to be a more effective way of teaching. Kids also learn the ethics of environmental stewardship and active citizenship through their involvement in school grounds. Natural playgrounds also green up an area that once consisted of solely manmade objects and asphalt, into a landscape that provides shade and groundcover vegetation; as well as providing a place that promotes physical and social benefits to children while improving the environment.

## **Natural Playground City Profile:**

Given that no parks or school yards are the same, this paper looks at three similar but very different natural playground projects that have been undertaken. These natural playgrounds include:

- Butterfly Garden, Cummer Valley Middle School , (Toronto District School Board), Toronto, ON
- Earl Haig Community Daycare Play Space, Earl Haig, (Toronto District School Board), Toronto, ON
- Frankland’s Wild Playground, Frankland Community School, (Toronto District School Board), Toronto, ON

## **What they have undertaken:**

All three study areas took on similar but also different tasks for their natural playground projects. Below is a list of both “introduced natural features” such as plantings, gardens, habitats as well as “introduced built features” such as slides, water fountains, and art work.<sup>45</sup> The following list is only a small fraction of the many projects that can occur on natural playgrounds. Since all playgrounds and open spaces are different with various restrictions and needs, each playground will be designed differently. Although some natural playgrounds will have similar features to others, each playground is non-generic and fun; unlike today’s typical playground equipment that comes from a catalog.

## **Introduced Natural Features:**

- |                                   |                         |
|-----------------------------------|-------------------------|
| Bird and Butterfly Habitat        | • Berm                  |
| Hedgerow/living fence             | • Forest/woodland       |
| Native shrubs, trees, wildflowers | • Prairie/meadow        |
| Turf grass                        | • Vegetable/herb garden |

## **Introduced Built Features:**

- |                  |           |
|------------------|-----------|
| Archway/entrance | • Seating |
|------------------|-----------|

Fencing	• Shade Structure
Movable objects	• Signage
Art: murals, sculptures	• Sundial
Pathways/boardwalks	• Tool shed
Raised planter bed	• Composting bins
Slides built into hills	• Amphitheatre

For more information and examples on various natural playground projects that have been constructed, please refer to the following websites: Evergreen of Canada: [www.evergreen.ca](http://www.evergreen.ca) and Earthartist: Natural Playground Design [www.earthartist.com/playground/design.htm](http://www.earthartist.com/playground/design.htm)

## **By what important means:**

### **Planning for the playground:**

At Frankland Community School, Beverley Cooper and Lynne Freeman – two parents – got together to formulate a plan to promote natural playgrounds at their school. Together, they presented their ideas for a natural playground to the local school board and PTA. After the project was approved, several other parents donated their time to help support the natural playground planning efforts. The group of parents attended a workshop on, “How to create naturalized gardens,” which was put on by Evergreen, a local non-profit organization in Canada<sup>46</sup>.

From there, a consultant from the school board and the head of the school board’s maintenance, along with the group of parents (playground committee), got together to discuss and assess which plants would grow where and to see how other schools implemented natural playgrounds at their schools and parks. The playground committee then took a tour of the current playground for an assessment of how the kids ran around at recess, to see where heavy uses of the playground were. With this information, as well as information gathered from a survey given to the kids at the school to learn about what they wanted on and from the playground, the playground committee developed a plan for the natural playground that reflected the information learned from studying the movement of the kids on the current playground, as well as the

information attained from the surveys (Freeman, 2008). (Note: one of the parent volunteers was a horticulturalist, so the plan for the playground was designed by the playground committee)

**Funding for the project:**

The group of parent volunteers worked together to write grants to government and local organizations to help fund the project. Other sources of funding came from various fundraising events put on by the school.

**Building the playground:**

A majority, if not the entire playground, was built by the community, faculty and staff of the school, and students or children of the community.

**Community involvement:**

Newsletters were sent out to the parents of the school to keep them updated with the progress of the project, as well as announce upcoming events, such as the annual spring and fall clean-up of the playground. During the fall and spring clean-ups, parents, community members, friends, neighbors, teachers and children are invited to participate in the process.

**Greening Club:**

At the Frankland Community School, teachers worked together to start a greening club. The greening club involved the children from the school to help maintain the gardens. The children spent free time before and after school and during breaks, to plant, water, and sustain the gardens.

**With what effects:**

Natural playgrounds provide schools, families and communities with many benefits. The following section briefly describes the effects of a natural playground with a school yard or community park setting.

According to Lynne Freeman, the project coordinator at Frankland Community School, the greening project at the school has attracted neighbors to help volunteer their time to build and plant the playground. Many organizations and communities involved in a school yard greening project state that, “the most successful playground designs result from a collaborative effort



involving school administration and teach staff, parents, the local community, and advice and direction from the school board.”<sup>47</sup>

### **Provide alternative to sports**

Natural Playgrounds provide children who are not competitive by nature with an opportunity to get involved and develop a connection to the outdoors. Children who are not active in sports are often left out and not given a chance to be active. Natural playgrounds provide children with an opportunity to develop and improve their coordination, balancing and along with the development of a creative and self-directed learning process.

### **Meet new educational goals**

*“Greening projects should also be concerned with the educational values of the school landscape and provide enhanced opportunities for formal and informal learning, cooperative social interaction and increased beauty and interest in the school landscape. Ideally, academic education and recreation sports should be balanced with the new imperatives of environmental responsibility, ecological education, hands-on learning and positive social relationships.” (Evergreen 2002)*

Natural playgrounds provide teachers and mentors with an opportunity to teach outside of the classroom and provide their students with a hands-on approach to learning. Providing children with alternative methods of learning allows the students to engage in and experience real life situations.

### **Provide natural habitat in urban setting**

Due to the lack of green areas or forested areas within the city, natural playgrounds provide important green areas the within the city. Given that schools usually occupy large areas of land, replacing traditional playgrounds with natural playgrounds provides the school and the city with an opportunity to install green areas within the city. It has been found that “hidden messages of the landscape affect their mental and physical development.” (Evergreen, 2002)

### **Give sense of achievement, pride, responsibility**

Children, parents, teachers and community members who are involved in the designing, coordination, building or maintenance of the natural playground project usually feel a sense of

achievement, pride and responsibility for the project. Participants in a natural playground project usually feel a sense of ownership over the project and want to continue to see the project improve and offer a place to show off their work to family, friends and neighbors. As a result, participants in a natural playground sustain the project.

### **Improvement in student behavior and social development**

Natural playgrounds promote positive learning and behavior. A recent study showed that interactions between student/teacher and student/student improved significantly due to natural playgrounds; “participants reported that when students were learning and playing on a green school ground, they were being more civil (72%), communicating more effectively (63%) and were being more cooperative (69%).”<sup>48</sup> Other examples of improved behaviors and social development include less fighting between students as well as teachers, students were well- mannered, tolerant, polite, more sharing of toys, and overall being nicer to each other (Evergreen, 2005).



Source: <http://ts5.gazettelive.co.uk/>

### **Other effects include but are not limited to:**

- Make playground/natural area part of the school curriculum to promote and maximize education
- Allows playground/natural area to be a continuous school/community service-learning project, which could be a strategic means and an effect
- Building of community pride and sustainability
- Place for the community and residents to relax and enjoy the outdoors

### **How they overcame any political opposition:**

#### **Involvement in the process**

For the Frankland Community School, after the school board tore down their existing playground due to the change in safety regulations, parents, teachers and community members

started to panic, according to Freeman. The loss of the old playground called for the school to initiate a new design for the playground. Together, Beverly Cooper and Freeman got the idea of a “greening initiative” for the new playground. They presented the idea to the playground committee and the Parents Teacher Association (PTA). After the presentation of the idea for the new playground, several other parents volunteered to help. Lynne states, “From the beginning, the core group has been parent volunteers.”

### **Funding**

Natural playgrounds cost dramatically less than traditional equipment playgrounds. The cost of a natural playground is much less, because boulders, trees, rocks, sand, soil, wood, water and various types of vegetation cost less than equipment. An example given by Ron King, the President of The Natural Playgrounds Company LLC,

*“Because natural play incorporates the use of many natural elements...as integral parts of the play experience, material costs can be low. Further, these projects are so exciting, your entire community will likely help with donated materials, labor, and money, thus further reducing the cost.”<sup>49</sup>*

Funding came from various sources, such as private donations from individuals, businesses, foundations, non-profits, etc. Staff, parents and students of Highlands Elementary, North Vancouver participated in “creative fundraising initiatives.” The project also received a grant from the United Church, a donation of over 50 trees and shrubs, large amounts of soil, and the use of a yellow Bobcat to re-grade the butterfly garden and remove blacktop. Other sources of funding and support for this project include money raised through a plant sale (which occurs yearly), raffles, and a benefit concert put on by the students.

Another school, K.B. Woodward in Surrey, funded and received support for their natural playground project through the donation of products such as trees and shrubs, while other companies sold their plants to the school at wholesale prices. Funding for this project came from the Evergreen Foundation, the Canada Trust Friends of the Environment foundation, SEEDS Foundation, the Surrey School District, the Chris Spencer Foundation, and the Hamber Foundation. Students also raised funds to buy trees by selling stickers with an environmental message on them.<sup>50</sup>

In many natural playground projects, collaboration between funding and planning provided projects with matching grants, also known as collaboration funding. These matching grants were provided by the city, town, region or state government to help reduce the costs contributed by the school or community, as well as to provide funding for the maintenance and development of the playground.

### **Anti-vandalism Strategies**

For some natural playground projects vandalism, has been a problem. In a natural playground project in Quadrat Scotland, there have been few to no acts of vandalism. Nikki Dayton, the project coordinator in Quadrat, feels that natural playgrounds, “are natural and beautiful...mainly because [of] a high level of community involvement in the design and creation and the provision of areas, wee huts and seats, for older kids.”<sup>51</sup>

As for the Frankland Community School, according to Lynne Freeman, gardens were fenced in to prevent people walking through them. Additionally, trees and shrubs were planted near other larger trees ,or clusters of trees, to prevent people from knocking down or hurting these new plantings. Freeman states that, “you have to balance the risk of vandalism with letting the kids enjoy the garden (Freeman, 2008).”

Other forms of anti-vandalism strategies that have been undertaken include forming a Neighborhood Watch, providing adequate lighting, and signage to deter vandalism. Another major source of protection for the natural playground is the ownership of the project by the students, parents, teachers and community. People who were and are involved in the project often become the eyes and ears of the project, and want to see it continue to grow and improve; they often prevent vandalism before it starts.

### **Safety**

Although there are no set standards or regulations for natural playgrounds, many projects utilize ROSPA, a British Organization that handles safety on playgrounds. Since natural playgrounds are often natural features or non-standard homebuilt equipment, the designers of the projects must be careful about safety issues. ROSPA provides information sheets and guidelines to help handle safety issues that many arise. Please refer to [www.Rospa.com](http://www.Rospa.com) for more information about safety standards on playgrounds (Dayton, 2008).

Natural areas are safer than traditional equipment! According to Evergreen, “Green school grounds are providing healthier, safer environments for students in the Toronto District School Board (TDSB). According to study participants, after a school ground has been greened there are more shade spaces, fewer accidents and fewer incidents of crime (Dyment, 2005).” Another important factor to remember when deciding between a traditional playground and a natural playground is the benefit of shade. Often, traditional playgrounds lack shade and cover, which causes sunburns, skin cancer, cataracts and other eye ailments, Natural playgrounds provide a canopy from the sun, which protects the students and staff from the adverse affects of the sun. (Dyment, 2005).

There are simple ways to make green grounds safe. To minimize safety hazards, grounds’ keepers or janitors should ensure that all bushes are trimmed, and keep branches trimmed higher up on the tree for easy supervision. Design the natural playground with many “escape routes” that allow the child to exit the area and ensure they will not get stuck or trapped. Also have the community involved with the project and potential users of the project walk through the site and assess any perceived or actual problems with the design or structure of the project, before the project is complete.<sup>52</sup>

## **Recommendations:**

Recommendations to address, consider and research when implementing a natural playground within the City of Portland or the Greater Portland Region include the following.

1. The first recommendation comes from Lynne Freeman, at Frankland’s Wild Playground, at the Frankland Community School in Toronto. Freeman’s recommendation is to, “Do your research. Do little bits at a time. Don’t underestimate maintenance - watering and weeding are hard, especially in the summer. You have to get the principal, teachers, kids and janitor on your side,” (Freeman, 2008) With the proper support and the necessary people working towards a natural playground, the process can be done efficiently and correctly. However, without the support of the school board, janitors, teachers, kids and neighbors, the project will not be utilized, properly installed or maintained, and the community would have ownership.
2. Developing policy for natural playground implementation:

- a. Develop a process or outline that will be used to approve projects. Set specific standards for safety, patrol of the park, etc.
  - b. Designate several people or a committee, who will be responsible for the evaluation, approval, design, installation and maintenance of the natural playground project. Committee members could include but ought not be limited to citizens of the city, members of the school board, Parents Teachers Association (PTA), City Officials, Councilmen, etc.
  - c. Determine the level of funding and where it will be coming from. Various sources of funding for a natural playground project could include Community Development Block Grants, Fundraisers, and private donations.
  - d. Determine what roles will be the responsibility of government departments and what roles will be designated to other agencies for additional funding, expertise, support, and over all implementation of a natural playground.
3. The City of Portland has to decide if they want to address children's recreational spaces by determining the following.
  - a. The city can continue to buy very expensive equipment that does not meet the children's needs. Although traditional playground equipment is easy to buy, install and ignore for several years, it requires a large amount of money up front.
  - b. Or the city can install natural playgrounds that require the spending of money on natural elements that provide excellent landscape designs. And also create an effective space and investment in money on an annual maintenance schedule. Natural playgrounds include living natural features and also support community involvement.

In conclusion, if the City of Portland passes up this opportunity to create a sustainable recreation area, which promotes and involves all three legs of the three legged stool, it will continue to see decreasing test score and school work performance, a continued increase in childhood obesity and ADHD rates, as well as the greater disconnection between children and the community with nature. Natural playgrounds are an opportunity for the City of Portland to be

cutting edge. By engaging in development of policy and regulation, as well as the installation of natural playgrounds, the City of Portland will be looked at as a model city, and used as a reference for other cities to compare their natural playground projects with.

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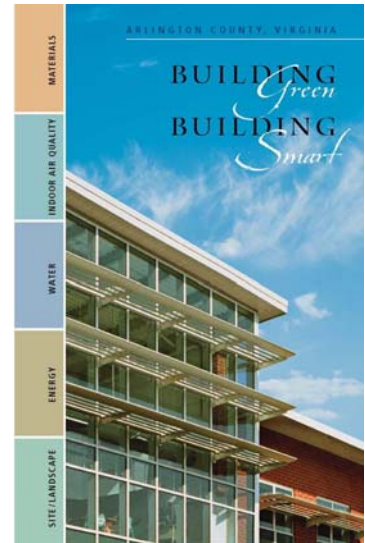
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# Incentives for LEED Certified Site Plans

**Brett Richardson**

Abstract: Financial hurdles, in the form of higher “first costs,” and a lack of expertise in green design, are currently recognized as prominent barriers to private sector adaptation to high performance site plans. Using Leadership in Energy and Environmental Design (LEED) performance benchmarks, Arlington County, Virginia, has created a density bonus incentive and an education fund to overcome these hurdles.

Source: <http://www.arlingtonva.us>



This paper explores the Green Building Incentive Program in Arlington County, and recommends that Portland designate a Density Bonus Pilot District, develop a “Green Building Education Fund,” require LEED certification for contract zones, and institute a preference for LEED certified site plans during the sale of city-owned land.

High performance site plans enhance the three legs of the sustainability stool identified in the *Sustainable Portland* report by creating environmental, community and economic benefits. Site planning based on Leadership in Energy and Environmental Design (LEED) benchmarks provides broadly recognized environmental benefits, including reduced stormwater runoff, reduced water and energy consumption, and protection of open space through infill development. In Portland, fostering high performance development on private parcels will help mitigate surface water pollution entering Casco Bay, while reducing the city’s collective carbon footprint.

LEED-based site plans will enhance community values in Portland by protecting public health, promoting dense development required for viable public transit, creating public gathering spaces, and fostering connectivity between residences, service providers and amenities. Recent research indicates that green site plans also provide economic benefits in the form of higher property values, rental prices and occupancy rates,<sup>53</sup> lower operating costs, and increased employee productivity.<sup>54</sup>

Barriers to LEED certified site planning, particularly higher first costs and lack of expertise in green design, have motivated municipalities across the United States both large and small to



develop incentives for the private sector. Thriving metropolises, such as Arlington, Virginia and Seattle, Washington, have developed comprehensive incentive programs. Smaller communities, such as Acton, Massachusetts and Bar Harbor, Maine, have adopted policies to reward private developers seeking to overcome barriers to implementing LEED certified site plans.<sup>55</sup>

Incentivizing LEED principles in Portland's permitting process will advance high performance development that enhances the respective parcel and surrounding area, while minimizing additional capital investments for infrastructure. This paper will first explore the Green Building Incentive Program in Arlington County, Virginia, which employs a density bonus and educational outreach to foster sustainable design. Recommendations for the City of Portland follow, including the adoption of a density bonus incentive in the Bayside Neighborhood and "Green Building Education Fund" modeled on the successful program in Arlington County, requirement of LEED certified site plans for contract zones, and preference for LEED site plans during the sale of City of Portland owned land.

## **What Things Have They Undertaken**

Arlington County adopted the LEED rating system to measure the sustainability of proposed site plans seeking a density bonus incentive. LEED is a holistic approach to integrated building design that encompasses five, "key areas of human and environmental health: sustainable site development, water savings, energy efficiency, materials selection and indoor environmental quality."<sup>56</sup> The LEED "Sustainable Sites" benchmarks include reduced pollution from construction activities, site selection emphasizing infill development and brownfield redevelopment, community connectivity, proximity to public transit, and innovative approaches that reduce parking requirements and the use of single-occupancy vehicles.<sup>57</sup>

LEED standards provide broadly accepted benchmarks to enhance sustainability in the built environment that represent consensus among developers, regulators and contractors.<sup>58</sup> LEED certification is administered by the United States Green Building Council (USGBC), which minimizes administration for Arlington County staff. Consistent with the findings of the Sustainable Portland Task Force, by adopting the LEED framework, municipalities, "avoid the need to establish local certification bodies..." LEED framework, "reduces technical and administrative uncertainties because it has been produced by the nation's leading coalition of leaders from across the building industry."<sup>59</sup>

According to a 2007 survey solicited by the National Association of Industrial and Office Properties, the most significant barrier to the rapid growth of high performance development is perceived cost increase, and the second highest hurdle is lack of knowledge of how to build green.<sup>60</sup> While less exorbitant than many developers in the private sector believe, research indicates that “first costs” range from .66% higher for LEED certified to 6.8% higher for Platinum certification.<sup>61</sup> Arlington County has implemented policies to reduce these barriers that hinder private sector adoption of sustainable site plans.

## **By What Important Means**

### ***Density Bonus: Green Building Incentive Program – Arlington County, Virginia***

To address the issue of higher first costs, Arlington County provides density bonuses on a graduated scale for developers who attain LEED certification. Greater adoption of LEED design enhances the county’s goals for sustainability, while the additional density provides developers greater rental floor area and profitability over the life of the building.<sup>62</sup> Arlington County is thereby able to provide meaningful market incentives for developers without reducing the government’s coffers through direct financial assistance.

Additional density is granted in Arlington County on a graduated scale with the following range: .15 Floor Area Ratio (FAR) for LEED Certified; .25 FAR for LEED Silver; and .35 FAR for LEED Gold or Platinum.<sup>63</sup> County staff devised their density bonus in tiered framework to provide greater rewards for projects that attain higher ratings under the LEED scoring process.

### **Permitting Process:**

Developers seeking additional density in Arlington County must submit applications that include a statement of intent to obtain a density bonus and a preliminary LEED scorecard. The scorecard serves as the documentation supporting the developer’s request for bonus density and/or height. The scorecard also designates specific design features to achieve the proposed LEED certification level, and supporting documentation justifying the viability and feasibility of those features.<sup>64</sup>

Design teams seeking additional density must include a LEED accredited professional capable of providing the necessary expertise to facilitate the design and implementation of green building techniques, and execute the certification process. LEED accredited professionals

understand that integrating the design of green features early in the site planning process is, “critical to the construction of cost-effective green buildings. Money spent in the early design phase ensures future financial benefits and optimized building performance.”<sup>65</sup>

The provision of LEED-certified green building components does not guarantee additional density and/or height. County Board approval is required for additional density under Section of 36.H.5 of Arlington’s Zoning Ordinance.<sup>66</sup> The provision of LEED-certified green building components is integrated with the typical site plan negotiations for environmental amenities in exchange for the requested bonuses.

During the site planning process, developers applying for a density bonus regularly request the maximum additional density allowed within the county’s permitting framework for the proposed level of LEED certification. However, Arlington’s Planning Department, in concert with the Division of Environmental Services, reviews the site and tailors the additional density to fit the existing conditions and infrastructure. For example, a proposed LEED Silver site plan is eligible for a .25 FAR bonus in Arlington, but the final design that emerges from the negotiation process for a particular project could result in a .22 FAR bonus to maintain the integrity of the parcel’s infrastructure and surrounding neighborhood character.<sup>67</sup>

During project negotiation, a final number of LEED credits are identified and the developer’s commitment to implementation is formalized in a site plan condition. The specific design features for the additional density bonus are incorporated in that negotiation process. Options for additional density include additional height, reduced setbacks, or reduced parking requirements.

The proposed site plan in Arlington, including the requested bonus density, also undergoes the typical community review process.<sup>68</sup> Proposed projects seeking a density bonus are reviewed at public County Board meetings and opportunities for public input are afforded.

The public deliberation initiated by the Arlington County Planning Division regarding design guidelines for density bonuses and additional height in the Central Place district of Rosslyn, Virginia highlight the County’s efforts to engage local stakeholders. The Planning Division convened a working group consisting of citizens, planners, developers, and other stakeholders to, “investigate the relevant design issues that should be addressed by any proposals seeking additional height above 300 feet in the Central Place site.”<sup>69</sup> Site plans submitted by developers seeking additional density in Central Place are evaluated against the

recommendations that emerged from the working group, including desired architecture, setbacks, streetscapes, and public amenities to create, “active streets and a great pedestrian experience.”<sup>70</sup>

#### **Enforcement Mechanism:**

To ensure compliance with the LEED benchmarks articulated in the site plan permit, Arlington County requires that developers who obtain a density bonus must post a bond for the additional density. The County uses the following formula to calculate the bond: FAR value per square foot x Bonus Density Space.<sup>71</sup> Arlington’s density bonus bond is similar to the performance guarantee currently required by the City of Portland.<sup>72</sup> Implemented to obtain assurance that the developer will honor the stipulations of their site permit, Arlington County staff designed the bond to be high enough to encourage the developer to fulfill the project’s LEED commitment, but not so high as to deter developers from participating in the program. The bond for additional density is held by Arlington County until the developer attains LEED certification from the USGBC, at which time the funds are released to the developer.

If the project fails to achieve basic LEED certification, or a higher LEED standard agreed to during the permitting process, the bond for the additional is released to Arlington County. If the developer achieves LEED certification but misses up to three points during the certification process, 50% of the bond is retained by Arlington County. If the developer achieves LEED certification but fails to implement four sustainable features agreed to in the site condition, it is considered a significant deviation from the permitted site plan conditions and the developer forfeits 100% of the bond.

#### **LEED Tracking:**

Arlington County requires that reports be submitted with specific building permit applications to track compliance with the site plan condition and implementation of LEED benchmarks during the construction process. The reports and supporting documentation demonstrate that the developer is complying with the site plan permit, and are prerequisites that trigger advancement to the next stage of the permitting process.<sup>73</sup>

## **Green Building Fund – Arlington County, Virginia**

Arlington County has initiated an outreach program that provides education and technical resources to local developers to address limited expertise in the private sector, the second barrier to sustainable site planning. The County also developed a funding mechanism, known as the, “Green Building Fund,” whereby developers who do not seek LEED certification subsidize the education program.

All proposed development in Arlington County requires a fee of \$.03 per square foot dedicated to the Green Building Fund. The fee was calculated by County staff based on the approximate fees assessed by the USGBC for registration and evaluation of a formal LEED application. The contribution of developers who receive LEED certification from the USGBC is refunded upon receipt of the final LEED certification.<sup>74</sup>

One goal of the GBF fee is to generate resources to conduct outreach to local developers and the community on green building issues. Along with the requirement to submit a LEED scorecard with the site plan application, the assessment of the GBF fee also educates the private sector about the certification process specifically, and green design practices generally, by motivating developers to go through the administrative process. Since developers are effectively paying for the administration process whether they seek USGBC certification or not, the rationale is that it is in their interest to undertake it.

GBF funds are also used to enhance the expertise of the Planning and Environmental Services Departments and relevant city staff regarding LEED criteria. Enhanced staff capacity allows personnel to advise and negotiate with developers about proposed projects during the site planning process.<sup>75</sup>

### **With What Effects**

To enhance the sustainable qualities of its built environment, Arlington County has used density bonus incentives and educational outreach to the private sector to effectively foster adaptation to high performance LEED benchmarks. In 2002, the U.S. Environmental Protection Agency awarded Arlington County the “Overall Excellence in Smart Growth Award” for planning dense-transit-oriented development near Metro stations. To date, two LEED certified buildings have been constructed with additional density, yielding benefits for the local

environment, community and economy. An additional 10 site plans along the county's transit corridor are currently on pace to achieve a density bonus during ongoing permitting processes.<sup>76</sup>

In 2002, in the third year of the incentive program's existence, the new headquarters of the Navy League of the United States became the first building in Arlington County to attain a density bonus.<sup>77</sup> The Navy League building is approximately 213,000 square feet, including a .25 FAR bonus for achieving a LEED silver rating. The non-profit organization occupies about 10% of the building's space and rents the remainder as office space. The Navy League attained LEED certification by siting the new headquarters as infill near an existing Metro station, investing in infrastructure that mitigates polluted runoff entering the Chesapeake Bay by retaining and filtering stormwater onsite, and installing features that conserve water and energy.<sup>78</sup>

In 2003, a team of Arlington County staff representing multiple departments, in consultation with private developers, evaluated the original density bonus provisions to identify opportunities to increase participation. At the time, only office buildings were eligible for additional density. Following the staff evaluation, the scope of the program was expanded beyond office buildings to include mixed-use developments providing office, retail and affordable housing.<sup>79</sup>

Since the scope of the density bonus incentive was expanded in 2003, private sector participation is growing. The redevelopment of a parcel on N. Moore Street in Rosslyn, known as 1812 N. Moore St., is planned to be the first LEED Platinum building in Virginia. The project will take advantage of additional density to become a mixed-use transit-oriented development, including office and retail space.<sup>80</sup> The 1812 N. Moore St. development is utilizing Arlington's density bonus for LEED certified buildings in concert with other County programs designed to foster affordable housing for the local workforce near the downtown core. Similarly, redevelopment of the former Bob Peck car dealership site in Ballston Metro area will include two office buildings, one LEED Gold and the other LEED Silver, including office space, retail and 90 affordable rental units.<sup>81</sup>

While staff has not tracked the total funding accrued through the \$.03 Green Building Fund fee, nor the specifics of outreach conducted, Arlington County has utilized its Green Building Fund to create and distribute the *Building Green Building Smart* booklet. Workshops for private developers and community members have been held, and the capacity of County staff to advise and negotiate with the private sector has been enhanced.<sup>82</sup>

## How Did They Overcome Political Opposition

The County Board in Arlington was supportive of the development of the density bonus to incentivize LEED certified site plans, and assessment of the Green Building Fund fee to advance private sector adaptation to green building practices.<sup>83</sup> No political opposition existed for proponents when the pilot incentive program was adopted in 1999 and expanded in 2003.

The Planning Department's decision to link the density bonus to the broadly accepted LEED certification benchmarks enabled broad understanding of the program goals. The decision to include a, "sunset clause," in the incentive provisions also ensured that the County would periodically review the incentive framework, and adjust the performance benchmarks or terminate the incentive program as needed. Retaining County Board purview during typical permit negotiations, along with community participation during the permitting process, assisted the program's rapid implementation in 2000, and expansion to include broader development categories in 2003.

While no political opposition arose in Arlington County, the recent debate in Scarborough, Maine regarding a density incentive for new development demonstrates the need for clear performance benchmarks and equitable application of the density bonus incentive. According to an April 3, 2008 article in the *Forecaster*, a proposed zoning amendment to grant density bonuses along Route One in Scarborough met with broad resistance from local policy makers, Planning Board members, local business owners and developers. While opposition to the amendment did not reflect opposition to incentives for green building design generally, clear definition of the performance benchmarks and equitable opportunity to qualify for incentives will be required to gain necessary support for implementation.<sup>84</sup>

## Key Lessons from Arlington County

The successful Green Building Incentive Program in Arlington County, Virginia demonstrates that permitting entities can offer incentives that motivate the private sector to adopt sustainable site plans at minimal public expense while creating public benefits. The experience in Arlington County also suggests that an incremental, pilot approach supported by ongoing review, dialogue and adjustment will assist policy makers in establishing strategies that create incentives for site plans on private parcels to enhance the sustainability of the community as a whole.

The incentives identified below offer a combination of both key lessons, and, if thoughtfully implemented, will enhance sustainability in Portland’s built environment, while minimizing future capital investments for infrastructure, such as stormwater management, while achieving similar public benefits. The following are recommended as a pilot approach to test incentives that require minimal city resources to administer, while providing meaningful rewards for private developers who implement LEED performance benchmarks.

## **Recommendations for the City of Portland**

### ***Recommendation #1: Density Bonus for Bayside Redevelopment***

It is recommended that the Bayside Neighborhood be designated as a Density Bonus Pilot District, allowing Portland’s planning board and city council to modify land use regulations to grant additional density for site plans that achieve LEED certification by the USGBC.

According to A New Vision for Bayside, 230,000 square feet of new retail, 950,000 square feet of office space, and more than 1,000,000 square feet of new development in total are planned for Bayside. The city’s stated goals for Bayside include, “economic and employment opportunities,” “brownfield redevelopment,” “transit-oriented development,” and a, “critical mass of dwellings.” Granting additional density based on LEED certification in Bayside will assist the City of Portland in achieving its vision for the neighborhood, and provide an opportunity to evaluate the merit of citywide application of the density bonus.

While the USGBC provides third-party LEED certification based on an established menu of options, there are precedents of local permitting entities requiring specific LEED components “to meet the specific resource concerns of the region.”<sup>85</sup> Due to the ongoing challenges of stormwater and sewer overflow challenges in Portland, described in the Sustainable Portland report, it is proposed that the stormwater management components of the LEED “Sustainable Sites” menu, Items 6.1 and 6.2, be a mandatory requirement for all density bonus provisions in Portland.

### **Actions for implementation:**

1. Amend Portland’s Zoning Ordinance and site plan permitting process to grant the Planning Board the authority to provide additional density on a graduated scale for



projects attaining basic LEED certification, with the greatest density allowed for LEED Platinum site plans.

2. Require that stormwater management components of the LEED “Sustainable Sites” menu be mandatory for all additional density granted in Portland.
3. Review all proposed development seeking a density bonus as, “major development,” under Article V. of Portland’s Land Use Ordinance to ensure Planning Board purview and relevant public participation. Requiring public hearings and notification of all nearby residents and property owners<sup>86</sup> will help ensure quality development in keeping with the city’s vision for Bayside.

### ***Recommendation #2: Green Building Education Fund***

It is recommended that a \$.03 per square foot fee be incorporated into the site plan permit process for new development that does not achieve LEED certification. Based on the square footage of new development planned for the Bayside Neighborhood alone,<sup>87</sup> the Green Building Education Fund could generate \$30,000 in the coming years.

Currently the City of Portland does not track the total square footage for new development.<sup>88</sup> Tracking square footage for new development will enable the calculation of Green Education Building Fund revenues and track the trends for LEED certified development in comparison with conventional development.

### **Actions for implementation:**

1. Institute a fee of \$.03 per square foot for new development; refunded for LEED certified projects.
2. Adopt procedures during the permitting process to record square footage of proposed development and calculate aggregate annual square footage developed in the city.
3. Identify and implement education and outreach initiatives, including brochures, a webpage with links to LEED information, and workshops for developers and contractors.

### ***Recommendation #3: Requirement of LEED Certification for Contract Zone***

#### ***Variances***

It is recommended that the City of Portland require LEED certification for proposed contract zoning development to ensure that all site plans granted conditional zoning will be high

performance buildings that minimize environmental impacts and capital investments in adjacent public infrastructure.

Contract zones are granted by the Portland City Council to allow conditional uses that do not conform to the parcel's existing zoning. According to Portland's City Land Use Code, "Conditional or contract zoning shall be limited to where a rezoning is requested by the owner of the property to be rezoned."

### **Actions for Implementation:**

1. Amended the application process for contract zones to require a LEED scorecard with the site plan, and demonstration of a LEED certifiable site plan prior to going before the Planning Board and/or City Council.

### ***Recommendation #4: Preference for LEED certifiable site plans during the sale and parcels development of City of Portland owned***

It is recommended that the City of Portland create a preference for LEED certifiable site plans during the sale of city owned land. This preference will establish a competitive process in which site plans that obtain the highest LEED rating achieve a market advantage. Preference given to LEED certified site plans during the city's selection process will effectively require no additional city resources to administer, while ensuring that new development on former city parcels will achieve high performance and minimize the need for capital investments for infrastructure such as additional stormwater infrastructure capacity.

### **Actions for Implementation:**

Articulate this preference in all Request for Proposals for the development of city parcels, and incorporate LEED points into the pertinent committee's decision-making process.

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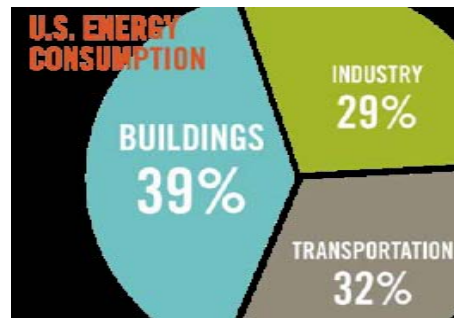
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- <sup>54</sup> Lockwood, 2006; Fisk 2000.
- <sup>55</sup> United States Green Building Council, 2008a.
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- <sup>57</sup> United States Green Building Council, 2005.
- <sup>58</sup> Applegath and Wiggle, 2002; Kats, 2003.
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- <sup>60</sup> Yudelson Associates, 2007.
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- <sup>79</sup> Department of Environmental Services, Arlington County, Virginia. 2007.
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- <sup>81</sup> Communications Department, Arlington County, Virginia, 2008.
- <sup>82</sup> Kelsch, J., personal communication, March 18, 2008.
- <sup>83</sup> Ibid.
- <sup>84</sup> Roberts, 2008.
- <sup>85</sup> Kats, 2003.
- <sup>86</sup> City of Portland, 2008.
- <sup>87</sup> Bayside Task Force, 2000.
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# Green Building Program

*Andrea Small*

Abstract: In this paper, I propose that Portland, Maine develop a Green Building Program. I introduce the topic of green building by giving a common definition, presenting facts from the EPA to show why green building is important, and I describe how green building techniques can benefit a project. I then present a case study of Seattle, Washington which talks about its Sustainable Building Program. Seattle started a Green Building Team in 1999, and promoted the practice of green building through education, technical assistance, incentives, and policy & legislation. The program generates \$671 million in gross revenues and propelled Seattle to the number one spot in the Nation for total LEED buildings. It faced opposition to the program that would be typical to any other US city but it has had the time to work on strategies to overcome the obstacles. It learned some key lessons along the way that could help Portland or any other municipality implement a green building program more smoothly. Based upon the case study of Seattle and other supporting research, I propose six recommendations for Portland that will help it in becoming a more sustainable city.



Source: <http://www.usgbc.org/>

## Introduction

The United States Environmental Protection Agency estimates that as of 2005, buildings in the United States account for 39% of total energy use, 12% of the total water consumption, 68% of total electricity consumption, and 38% of the carbon dioxide emissions. (EPA, 2006) The built environment contributes greatly to our health and welfare; therefore, it is important that our buildings not harm the environment or its inhabitants. Where we locate our buildings, the materials we use, and the fixtures we put in them all contribute to the “built environment.” The sustainable or green building practice, as it is now becoming known, has been defined in Wikipedia as, “the practice of increasing the efficiency with which buildings use resources — energy, water, and materials — while reducing building impacts on human health and the

environment, through better siting, design, construction, operation, maintenance, and removal — the complete building life cycle.” (Wikipedia, 2008) This comprehensive approach to constructing new buildings and renewing already built ones will save on electrical and water usage and reduce negative health effects. There is a great opportunity to reduce our carbon footprint just by improving the efficiency of our buildings. A press release from the US Green Building Council, concerning the goal of carbon neutral buildings by 2030, predicted that 15 million new buildings would be needed by 2015, to keep up with the population and economic growth of the U.S. (Holowka, 2007). In the coming decade, a significant amount of buildings will be added to our already large inventory. It is up to us to decide now how we will design those 15 million new buildings. The EPA believes there is enough evidence to support green building.; “Research and experience increasingly demonstrate that when buildings are designed and operated with their lifecycle impacts in mind, they can provide great environmental, economic, and social benefits.” (EPA, 2006) Local governments play a vital role in the green building market. The evidence seems to show that cities with strong building policies also have the highest concentrations of green buildings; “the 10 strongest green building markets in the nation are in cities that have established public policies that promote green building.” (Case Studies, 2007) If Portland or any other city wants to have a strong green building market, it will need to develop policies, lead by example, educate the public about the benefits, and provide incentives. One such “Top Ten” city is Seattle, Washington. Leading the country with 58 LEED certified and registered projects, Seattle is a pioneer in the adoption of green building standards (Athens, 2005). In 2000, Seattle became the first city in the US to formally adopt a LEED-based sustainable building policy. The US Green Building Council now cites 90 local governments as having adopted LEED. The mayor boasts its position. “The City of Seattle leads the nation in local government ownership of LEED certified buildings and boasts the highest concentration of LEED Accredited Professionals in the nation.” (Nickels, 2007) It only seemed appropriate to choose Seattle as a case study.

### **Case Study-Seattle, Washington: What Things It Has Undertaken**

In 1999, the city of Seattle formed “The Green Building Team” to promote LEED certification for commercial and institutional buildings with the use of awards and incentives. The newly formed team of interdepartmental personnel would be housed in the Office of

Sustainability and Environment (Sugimura, 2007). On February 22, 2000, the Energy and Environmental Policy Committee voted 9-0 to adopt the “Sustainable Building Policy.” Mayor Paul Schell signed the sustainable building resolution number 30121 and made it a policy. The policy applies to all new or renovated city-owned facilities greater than 5,000 square feet. All facilities and buildings meeting 5,000 gross square feet of occupied space shall meet a minimum LEED silver rating. (Drury, 2000) In 2001, the city established “City Built Green,” a residential program to encourage sustainable building practices in the private sector. In 2002, the city’s Office of Housing, along with experts in the affordable housing industry, established “SeaGreen,” a program designed to provide sustainable affordable housing to those who could least afford it. (Athens, 2005) In 2004, Seattle launched the “Green Remodel” program to include sustainability in its aging building inventory. Seattle now has programs that support sustainable building in all aspects of the industry.

## **By What Means**

In 2006, the Green Building Team was reorganized into the Department of Planning and Development and their name changed to “City Green Building”. The new home and name change was meant to encompass all sustainable building in Seattle. The mission of City Green Building is, “To make green building standard practice in Seattle through education, technical assistance and incentives.” (Sugimura, 2007) But promotion of sustainable building also includes policy and legislative acts on the part of the mayor.

## **Education**

Education of the public began as a simple outreach campaign. They started with a Sustainable Building Website that provided definitions and explanations of the concept. The site has grown to encompass all aspects of green building, with many pages that link to news, resources, events, contacts and information on the city’s activities and too much more to even mention. The website is the common link between the city, the citizens, builders, researchers and the general public. Members of the Green Building Team have published articles, brochures, resource guides, case studies and even books to help educate the public. The Department of Planning and Design has a Sustainable Building Library, at the Public Resource Center, which residents can borrow materials from. Seattle Central Community College has a nine-month



certificate program called the Sustainable Building Advisor Program that also qualifies graduates to take the National Exam for Sustainable Building Advisors. (Lewis, 2008) The Sustainable Building Advisor Program has graduated over 240 professionals since 2000. (Athens, 2005) The city hosts events like the “Energy Efficiency Series,” “Seattle LEED Users Group,” and the “Green Builders Collaborative Night.” It holds workshops like “Green Remodeling” and the “Whole House Series.” The city presents exhibits, like “Climate Action NOW, Green Building,” that can be found on display at municipal buildings. Education and Outreach have been an instrumental part of Seattle’s success in the green building market. Seattle has focused on education since the start and it continues to be the main focus of its sustainable building program.

## **Technical Assistance**

The Green Building Team consists of six members who are all LEED accredited professionals, some of whom have worked for or sat on the board of the US Green Building Council. They have a wide array of experience and are available to answer technical questions about building and energy codes, permits, and any other certification questions. Their training and experience make them leaders in the green building field.

## **Incentives**

Seattle offers a wide array of incentives that range from awards and recognition to rebates and tax credits. The Mayor’s Award is given to any facility (government or privately owned) that exceeds the LEED silver rating. The Chamber of Commerce presents the “BEST Awards” (Businesses for an Environmentally Sustainable Tomorrow) to area businesses each year for achievements in sustainable building and conservation efforts (Athens, 2005). In the fall of 2001, the City LEED Incentive Program was launched. The program provided “up-front, soft cost assistance” to projects that committed to LEED certification and performed at least one workshop or charrette. The incentives were \$15,000 for LEED certification and \$20,000 for LEED silver or above. The money came from programs through Seattle City Light and Seattle Public Utilities (Athens, 2005). Homeowner incentives come from tax breaks for energy efficient measures, rebates on Energy Star lighting and appliances, and low interest home improvement loans for such things as weatherproofing and insulating. The state of Washington

also promotes renewable energy by not having a sales tax on renewable energy products such as solar panels and wind mills (Sugimura, 2007). Seattle has become one of the leaders in green building without any major cash incentives.

## **Policy and Legislation**

The policy that started it all was the Green Building Policy of 2000, which called for all city funded projects and renovations with over 5,000 square feet of occupied space to achieve a LEED silver rating (Drury, 2000). Seattle's newest legislative act was a change to downtown zoning ordinances. The Urban Development and Planning Committee voted 8-0 to amend the zoning ordinances on April 3, 2006. The new zoning restricts the base width of buildings to 150 feet and also sets a minimum square footage. This strategy is meant to maximize the height of buildings in certain downtown districts creating greater downtown density. A density bonus, that allows projects to exceed maximum height limits, is given to projects that will achieve LEED silver certification, provide a public amenity, or provide affordable housing (Meier, 2006).

## **With what Effects**

In 2000, Washington State adopted the High Performance Green Building Bill, which required the new construction of public agency facilities over 5,000 square feet to achieve LEED certification. Washington remains the only state with a state-wide mandate of LEED certification. Seattle followed suit the same year becoming the first U.S. city requiring LEED certification of all facilities over 5,000 sq. ft. Seattle set the precedence that 68 other cities have followed. As of 2008, Seattle has a total of 58 LEED certified and registered buildings making it the number one city in the country for LEED buildings (LEED by US State, 2008). Seattle estimates that green building activity generates \$671 million in gross revenue per year. A review of its LEED buildings found that 1.6 million gallons total annual storm water run-off diverted from storm drains, 1.4 million gallons total annual wastewater reduction, and 3.2 million gallons total annual potable water savings. 22,012 tons of construction waste recycled (about 80% of all construction materials, compared to standard practice of 60%). 6.9 million kilowatt hours electricity per year saved (DPD News, 2006).

## **What Opposition Did They Encounter and How Did They Overcome It**

I talked with Peter Dobrolovny, from Seattle's Department of Planning and Development/Green Building Program, and he explained what opposition the city faced and the strategies they used to overcome them.

1. Opposition: Perception that LEED costs more
  - Strategy: Offer financial incentives to adopt the "Triple E's." Early, Everyone, Every Issue was a marketing campaign launched to educate developers on how to achieve LEED certification with a budget that was comparable to non-certification. Seattle believes that implementing LEED late in the process adds to the costs, while early comprehensive adoption has increased cost savings.
2. Opposition: Developers argue that building owners and tenants obtain the greatest benefit from added efficiency.
  - Strategy: Seattle worked with local real estate brokers to promote the benefits of green buildings and market them at premium prices.
3. Opposition: Developers are skeptical of National Reports
  - Strategy: Seattle developed pilot projects that provided local benefits and produced local data.

(Dobrolovny, 2008)

## **What Key Lessons Did They Learn**

- Projects that hired LEED-experienced consultants saw an actual construction cost savings, due in part from the consultant's knowledge of incentive programs.
- Internal capacity increased when one representative from each department was a LEED Accredited Professional.
- Having the Green Building Advisor review LEED submittal packages before submission increased the percentage of certifications. Failures mostly came from an inability to document and budget the cost of credits correctly (Athens, 2005).

## Recommendations for Portland

1. **Develop a Website devoted to green building.** The costs of developing and maintaining a web site are minimal and could be done immediately. The site should explain to people why green building is important. It could address climate change, economic benefits, and environmental benefits. The site should also educate people on how to achieve or implement green building practices. It should provide links to builders, contractors, US Green Building Council, local chapters and green building suppliers.
2. **Become a Member of the U.S. Green Building Council.** National membership, for a city with a population of less than 250-1000, is \$500 per year. The Maine chapter is located in Portland and the city can sponsor employees for \$50 per year. Benefits of membership range from; discounts on certification, recognition as a leader, use of the logo, networking opportunities, notification of national and local events, and a position on the local board.
3. **Have city employees that are LEED Accredited Professionals.** The city can either hire someone who already has the accreditation or can sponsor an employee for the exam. The exam costs \$300 for USGBC members or \$400 for non-members. The study guides can be downloaded from the website and the test can be taken at the Prometric Test Center in South Portland.
4. **Hire dedicated personnel to form the “Green Building Department.”** The team could consist of two employees that report directly to the mayor or the Sustainability Committee. A “technical advisor” would be the inter-departmental liaison who oversees planning, permitting and enforcement of green building. The technical advisor would assist city personnel on matters dealing with green building. A second employee would be the “outreach coordinator” who would connect the city with schools and the public. The outreach coordinator distributes educational materials, develops training programs for city employees, sets up workshops, plans and hosts events, develops participatory programs and promotes demonstration projects. All “Green Building” employees should be LEED Accredited Professionals.

5. **Adopt policy for green building.** Require LEED certification through phased implementation. In 2009, require certification for all new city funded buildings with 5,000 square feet or more. In 2011, require certification for all new construction of commercial, industrial and multifamily buildings of 5,000 square feet or more. This includes all new construction and major renovations. Major renovations are defined as anything that requires a permit. In 2013, require certification of any new construction on residential units of 2,500 square feet or more. This will accomplish two things: larger homes will be built to green standards, or people may choose to build smaller homes to avoid certification. The benefits of the LEED certification is that it is a nationally recognized standard, it provides a base-line for measuring progress, and the outside process takes the burden off city personnel.
6. **Work with local schools, colleges and Universities.** Offering scholarships through an essay contest could provide the city with fresh creative ideas and would show their support for the local colleges. Internships in the “Green Building” department would give students insight into city procedures and give the city access to a broad education base. Connect with Southern Maine Community College through their Certificate of Construction Technology Program. Integrating green building techniques in the curriculum provides a knowledgeable work force. Continue working with graduate students for research assistance.

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# Idle-Free Portland

*Kevin Sprague*

**Abstract:** The City of Portland recognizes vehicle idling as a problem and has committed to become a leader in climate protection and improving air quality within the state of Maine. Vehicle idling is a habit wasting fuel and money, while creating unnecessary pollution at the same time, and is a significant contributor to smog and climate change, which effects the health of all Portlanders, Mainers, Americans, and beyond. The following report will deliver an analysis of idling in Maine and study two interconnected anti-idling cases: The City of Toronto Idle Control By-Law, passed in 1996, and The Greater Toronto Area (GTA) Idle-Free Campaign of 2003. Research will show the importance of a voluntary approach (e.g. GTA Idle-Free campaign) used in tandem with a regulatory approach (e.g. municipal by-law) and the *Idle Control Continuum* will be explained, to guide Portland and other municipalities in using voluntary and regulatory approaches collectively for reducing idling.



Source: <http://www.oee.nrcan.gc.ca>

## An Analysis of Idling in Maine

In Maine, a light duty vehicle (e.g. pick-up truck or automobile) idles an average of 30 hours per year. The average idle time for a school bus annually is approximately 181 hours. For a heavy duty truck (e.g. dump truck or tractor trailer), an average of 2,142 hours are spent idling a year, equivalent to starting any vehicle today and letting it idle for 90 days straight. Maine has approximately 265,399 light duty vehicles, 2,384 school buses and 16,724 heavy duty trucks on the road, totaling 38 million hours of idling time a year; the equivalent being, starting a single vehicle today and shutting it down in the year 6,352. In Maine alone, 3.2 million barrels of oil are consumed annually by idling engines. With today's cost of one barrel at \$116, that's \$379 million wasted by idling. In Maine, the school bus industry alone spends \$1,294,701 of tax revenues on fuel for unnecessary idling. Maine emits a total of 377,489 tons (the same weight of five fully loaded Mega class cruise ship) a year of greenhouse gas in the form of carbon dioxide.<sup>89</sup>

## **Case Study: City of Toronto Idling Control By-law:**

*No person shall cause or permit a vehicle or boat to idle for more than three (3) minutes in a 60-minute period.*

Development of the Toronto Stand Alone By-Law began in the mid-eighties, due to rising concerns about noise and odors coming from idling refrigerator trucks, tour buses and other trucks. By the mid-1990s, there was significant public concern over environmental issues, particularly with respect to air quality and smog. Ongoing complaints from the public over idling tour buses raised the profile of the idling issue. In an update to a 1991 report to City Council and the city's health department on air quality, a discussion and rationale for an idling control by-law was presented. On July 11, 1996, a revised draft by-law was passed and adopted by City Council. Toronto's idling by-law was the first stand-alone idling by-law in Canada and many other stand-alone idling by-laws created since have been based on the Toronto by-law.<sup>90</sup>

The by-law is clear and concise and dictates a brief allowable idling time period of three minutes, which eases enforcement. The longer a by-law enforcement officer must wait and observe an idling vehicle, the more time-consuming and costly the enforcement. It is characterized by a large number of exemptions, and in practice results in a very uneven application of the by-law and excuses many highly visible vehicles from the requirement to reduce idling. This limits the impact of the by-law on reducing emissions. It also creates a feeling among some citizens of an unfair law, because it is not applied to all idling vehicles.<sup>91</sup>

From early on, promotion played a significant role in its implementation. On August 16, 1996, less than a month after the passing of the control by-law, the City of Toronto Public Health Department recommended to the Board of Health that the Department, in cooperation with the Healthy Cities Office, City Works Services and other appropriate departments, developed a public education and implementation plan to support the idling control by-law. The department claimed that, in its experience, new by-laws require a public education campaign in addition to enforcement to achieve successful compliance.<sup>92</sup>

The City of Toronto had three key objectives in communicating its by-law to the public: to ensure that internal staff was aware of and understood the rationale for the by-law, to promote awareness and generate an understanding of the by-law among its citizens and to share its experience with other municipalities. Toronto's departments of Health, Public Works and



Emergency Services prepared a communications plan and partnered with community groups in its implementation.

The City has also conducted four week-long enforcement “blitzes” to promote its Idling Control By-law. Typically, promotion of the blitz is started in advance, primarily through news releases and public service announcements. The first blitz was in 1999, and it had strong media coverage but mixed public reaction. However, public support seemed to increase after two blitzes were held in 2000. Another week-long blitz was conducted in 2003 at the same time as the Greater Toronto Area Idle-free Campaign. During the blitzes, enforcement officers targeted high-profile areas, such as Union Station. Most tickets were issued to commercial vehicles, but some were also issued to personal-use vehicles.<sup>93</sup>

The City’s preferred method of achieving compliance is through voluntary measures, and by-law enforcement staff have integrated public education with enforcement since the by-law was enacted. Initially, the focus was on education, and only warnings were issued. After a few months, a number of tickets for \$105 were issued. Until the end of 2003, 247 tickets, six summonses and approximately 1,350 warnings were issued.<sup>94</sup>

According to city staff, the cost associated with the development or implementation of the by-law has not been categorized. No new resources were made available when the by-law was enacted, and it is considered to be but one of several by-laws that enforcement officers are responsible for. Likewise, the costs associated with legal and technical advice provided by legal services, Public Health and others in the city have not been categorized.<sup>95</sup>

### **Case Study: The 2003 Greater Toronto Idle-Free Campaign**

The Greater Toronto Area (GTA) Idle-Free Campaign was launched in 2003 to address the environmental and health threats of vehicle idling, encouraging over five million residents in the GTA to reduce their idling time. An example of a large-scale partnership, the campaign involved 18 municipalities in the GTA, operating under the umbrella of the GTA Clean Air Council. The Clean Air Partnership coordinated the event and Natural Resources Canada was a funding partner. There was industry involvement through the participation of the Canadian Petroleum Products Institute and local gas stations. The local environment group, Greenest City, provided volunteers for interventions with idling motorists in locations across the GTA. The

campaign lasted for about one month and was estimated to have reached more than five million residents across the GTA.<sup>96</sup>

The GTA-IFC focused heavily on Community-Based Social Marketing (CBSM) and used a number of CBSM techniques, including research into why people idle, literature that directly addressed those reasons, and person-to-person interaction. To determine the best approaches for use in the campaign, the available CBSM literature was consulted to identify both the barriers to reduced engine idling and the motivations for turning engines off.<sup>97</sup>

Campaign materials were provided to participating municipalities and regions, organizations, schools, individuals, and businesses for distribution. Volunteers also distributed materials at intervention locations, such as at GO Transit locations, gas stations, schools, and at other community locations and events. In total, more than 1,300 posters, 34,900 information cards, 24,100 window decals, and 92 banners were delivered to campaign participants across the GTA. The campaign was also covered in the local media. Some of the participating municipalities and regions also used their own idle-free materials for initiatives taking place in their community. Some materials were developed internally, while others were based on the materials provided on Natural Resources Canada's Idle-free Zone website [www.idling.gc.ca](http://www.idling.gc.ca).<sup>98</sup>

An additional component of the campaign was an idling control by-law enforcement "blitz", which occurred in the first week of the campaign. To provide an extra means of raising awareness about vehicle idling, by-law enforcement officers were asked to increase the enforcement of the by-law during the first week of the campaign.<sup>99</sup>

## **The Idle Control Continuum**

Research has shown, voluntary and regulatory approaches to idle control should not be viewed as mutually exclusive, but rather as complementary approaches used together to reinforce the idle-free message. Communities are well advised to begin with a voluntary approach to generate awareness and understanding of the issues associated with vehicle idling. Once this is achieved, the political environment and the general public should be more receptive to the development and implementation of an idle control by-law. The two approaches can then work in tandem to foster reduced idling throughout the community. The ICC is divided into four stages. Each of the first three stages concludes with a milestone setting the stage for the next.

The fourth stage is reached once communities have a mutually reinforcing combination of voluntary and regulatory approaches in place.<sup>100</sup>

### ***Stage One: Build the Foundation***

Stage One of the idle control continuum is where a community takes its initial steps in building its idle-free program. This stage is designed to build a solid foundation from which to start and develops the structure needed to provide direction and maintain momentum. Stage one consists of three steps, to develop partnerships, to develop and define a rationale for the initiative and to position idling within a comprehensive environmental or local action framework (i.e., climate change, air quality, energy conservation or, in Portland's case, a sustainability report.)

Multi- stakeholder partnerships have been useful in developing idle-free programs, because idling and its associated issues affect many different groups and many different locations throughout a community (e.g., schools, transit pick-up locations, community centers, etc.). Examples of typical stakeholders would include health organizations, community groups, schools, businesses, industries and governments at the federal, state and local levels.<sup>101</sup>

Partnerships are effective for a number of reasons. Securing the involvement and the support of a widespread group of organizations can help secure additional support from other organizations, government, or industry, forming solidarity. Involving different and diverse stakeholders can lend credibility to both the issue and the initiative. Having multiple partners from different sectors opens avenues for other sources of funding. Partners can provide invaluable human resources that a municipality or non-profit group may not have. This allows the initiative to reach more residents in the community. Partners specializing in particular areas bring skilled expertise to the initiative in such areas as health, communications, public policy or environmental science. Working together in a partnership helps organizations with similar goals deliver consistent and supportive messages to their audiences.<sup>102</sup>

Proponents must provide a sound argument in favor of their idle-free initiative to build support and create a compelling rationale for action. Unconvincing or weak rationale may fail to garner adequate support from potential funders, proponents, or the general public, and could fall before criticism. Typically, successful idle-free campaigns have focused on the negative health and environmental impacts of idling and emphasized the benefits of reduced idling (e.g., cleaner air, fuel and cost savings).<sup>103</sup>

Idling control initiatives are not the only way to combat environmental issues and should not be viewed in isolation of other methods. Rather, idling control initiatives are best positioned as part of a set of environmental or community improvement actions, such as what might be compiled in an air quality strategy or local action plan to address climate change or energy conservation issues. This approach offers numerous benefits. A comprehensive strategy can provide guidance on how to best use idling control initiatives within the context of other initiatives. Several of the issues relating to idling are connected to other issues (e.g. air quality, smog and greenhouse gas emissions). A long term strategy can help maintain the momentum generated by a successful idle-free campaign, or vice versa; an idling initiative is a great way to kick-start action on a broader strategy. Idle free initiatives included in local environmental strategies approved or endorsed by local governments and community groups may get more political and public support during the initiative's design and implementation. An overarching strategy can help to ensure proponents maintain a consistent and common focus on the initiative and its goals.<sup>104</sup>

At the end of Stage One, the initiative proponents should agree in principal how to move forward. Because this is a continually improving process, the “nuts and bolts” of the continuum will evolve. Partnerships may change as new groups come in and others step back. Messages and point of views may change as new initiatives are tried and modified. However, a shared understanding of the importance and the goals of the work is fundamental to success.

### ***Stage Two: Public Engagement***

In the second stage, partners come together to engage the public, to generate awareness and community support through a voluntary initiative or series of voluntary initiatives. As previously discussed, it has been found to be more effective to start with voluntary initiatives first and introduce regulatory measures later. If a by-law is introduced too soon, the general public may misunderstand and be fearful of an attempt to regulate idling. It can be seen as important as an impingement on their freedom, one that is particularly difficult to accept if the rationale for reduced idling has not been properly established or widely accepted. In this stage there are three steps: 1) prepare and launch an education strategy and/or other voluntary initiative; 2) implement an in-house idling policy; and 3) educate the public about the impacts of idling and remove the barriers preventing motorists from idling less.<sup>105</sup>

Planning for an idle-free program can begin once the partners have reached a common understanding about idling. The purpose of the voluntary idling initiative is typically to generate awareness about idling and to encourage the public to idle less. These initiatives can also stimulate discussion in the media and among stakeholders around the merits of idling control measures. Voluntary initiatives can target the general public, schools, businesses, or other sectors or areas of concern in the community.<sup>106</sup>

Different types of initiatives may include different stakeholders. For instance, a campaign targeting the general public may include representatives from municipal departments, community groups, and a small selection of interested business or industry representatives. Participants in a voluntary fleet challenge might be limited to businesses, government, and other private sector organizations.<sup>107</sup>

It is advised and important for municipalities and other proponents to “get their house in order” before launching an idle-free awareness campaign. Municipalities will be expected to lead by example and demonstrate what they are doing to reduce idling. One tangible way for municipalities to do this is to implement a fleet idling policy. Another is to participate in a fleet challenge to encourage less idling among participating organizations.

Creating an understanding among the public about idling, its impacts and solutions, can also be viewed as a goal of the previous two steps. Target audiences will be more receptive to changing their behavior if they understand the impacts of idling and are able to overcome barriers preventing idle-free behavior. After achieving the first two goals, the chances are greater for public and political support for idling controls. Public support may also include support from interested organizations such as health groups, environmental groups, and industry groups, among others.

### ***Stage Three: Public Engagement II***

During this stage, voluntary initiatives are continued, ensuring that the idle-free message is spread throughout the community. Lessons learned from the previous voluntary initiatives and from initiatives in other area are incorporated into new ones. The beginning of the development of a regulatory approach (i.e. a standalone idling control by-law) begins in this stage. By this point, public discussion on the merits of an idling control by-law will likely have taken place. Given the potentially controversial aspect of the idling control by-law and its wide reach, the

public should again be engaged to discuss the by-law, its potential components and how it may be used.

Careful thought must be given during the development process as to how the by-law is to be enforced. A common approach is to enforce the by-law on a complaint basis. Another approach is to use “blitzes,” where enforcement officers target idling hot spots in a highly publicized crackdown on idling. When attempting to implement an idling control by-law, care should be given to the current political climate, which can either hinder or help the initiative.<sup>108</sup>

The perceived urgency of the problem can affect public and political support for an idling control by-law. If the problems associated with idling (e.g., air pollution) are perceived as significant, then the public and the local politicians may be more inclined to accept the more serious action of implementing a by-law. If a community does not see the issue (e.g., air pollution) as a problem, then the general public may be less likely to feel that idling is a serious issue and thus will be opposed to a by-law.

Before a population will be willing to accept a by-law, they need to understand why the by-law is there and how it works. An idle-free campaign can introduce the general public to the issue of idling and to help them and local decision makers see how the by-law would be used. Additionally, an education campaign provides the opportunity for public discussion on the topic of idling controls, so that many of the concerns surrounding the by-law can be addressed in a non-threatening manner.

Stage Three concludes with the passing of the by-law.<sup>109</sup>

#### ***Stage Four: Continuous Improvement***

The fourth stage of the continuum is an on-going, combined approach using a blend of the regulatory and voluntary initiatives to curb idling. Once the idling control by-law has been passed, it needs to be implemented, and the initial implementation period can last a number of months. There are two key steps that should be taken during this period. The first is to educate the staff on the by-law and the second is to inform the public when the by-law will be coming into effect, what the by-law entails and how it will be enforced.

Having a by-law in place also provides the legal means for a municipality to take stronger action if conditions demand it. For example, if an offender continues to idle his or her vehicle even after receiving information visits by enforcement officers, enforcement officers then are

able to use the by-law to take legal action against the offender. The by-law could also be used to reduce idling behavior in sensitive areas, such as schools or by hospitals.

As its name suggests, Stage four does not end but instead continues on in a stage of continuous improvement. As the interest in sustainable change in vehicle idling behavior continues to grow, new and innovative approaches will be developed and studied. Municipalities and community groups will move forward based on their own experiences and on what they have learned from others.<sup>110</sup>

The end result should be a societal shift on how vehicle idling is perceived. Public behaviors will reflect the understanding that vehicle idling contributes to environmental degradation, and shutting an engine off while parked will become a social norm.

## **Conclusion**

In Toronto, the initial approach to dealing with unnecessary idling began with a push to enact a by-law to control idling. However, since its enactment, city staff have recognized the need for, and worked towards, an education component to support the by-law. According to city staff, the goal of decreasing unnecessary idling is achieved by using both regulatory and voluntary strategies. They note that the two strategies are not mutually exclusive and an effective idling control by-law is dependant on a strong education component. Most citizens idling their engines are not aware of a by-law. The officers found that making them aware of the by-law and why it had been enacted was enough to decrease unnecessary idling.

In Toronto, the presence of the idling control by-law and the awareness campaigns are meant to complement one another. They form a complete package in educating the public on the seriousness of the idling issue. According to city staff, tickets and summonses are considered a last resort, but they and education are not mutually exclusive. A by-law on its own would not be effective if the public does not understand the reason or the rationale for it. An effective by-law is clear and concise with a brief allowable idling period (three minutes or less) and few exemptions, making it easy to enforce.

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<sup>89</sup> All analysis figures obtained from (LeAP Lowering Emmissions and Particulates: Stats in Maine)

<sup>90</sup> (Natural Resources Canada)

<sup>91</sup> (Penney, Cracking Down on Idling, 2005)

<sup>92</sup> (City of Toronto)

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<sup>96</sup> Ibid

<sup>97</sup> (Lura Consulting, 2005)

<sup>98</sup> Ibid

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<sup>101</sup> Ibid

<sup>102</sup> (Lura Consulting, 2005)

<sup>103</sup> Ibid

<sup>104</sup> (Lura Consulting, 2005)

<sup>105</sup> Ibid

<sup>106</sup> (Lura Consulting, 2005)

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# Curbside Organic Waste Collection

*Greg Williams*

Abstract: This is a proposal to the City of Portland to develop and implement a Curbside Organic Waste Collection Pilot Project, what would be a first-of-a-kind in Maine. This proposal aims to demonstrate the economic, environmental, and social benefits of doing so by providing supporting research on an initiative carried out by the Halifax Regional Municipality, Nova Scotia. This proposal also researched initiatives in Chittenden County (VT), Seattle, Washington, and Toronto, Ontario, which can be made available. Research methods include email and telephone interviews, reports, websites, and observations. The proposal concludes with two recommendations, a timeline of objectives, and a “To Do” list.



*Source: Sanitary Service Company*

## Why Compost?

Communities all across the US and abroad are finding that in order to take a significant step toward a sustainable planet, they must first make a few changes at home. Some of these communities are looking to organic waste diversion as part of the solution. The reason for focusing on the collection and composting of organic waste – food scraps and yard waste – is that they are two of the top three contributors to the US’s total waste stream (the other is paper). The Ohio EPA estimates that the typical US household generates nearly 500 pounds of food waste annually. In all, food scraps represent approximately 20% of total waste generated, yet only 3% is said to be recovered. Roughly 90% of waste from restaurants and supermarkets in the US comes from food scraps.

Composting is an environmentally friendly process that not only removes organics from the waste stream, but also converts it into a high-quality product that can be sold and/or used by municipalities, residents, landscaping companies, farmers, gardeners, and others. The benefits to the City of Portland if it were to compost its organic waste, rather than landfilling or incinerating it, would be innumerable and include: 1) reducing the city’s total waste stream and therefore

associated disposal costs and future landfill needs; 2) reducing energy demands for burning wet organic waste; 3) attracting a new composting facility and related jobs; 4) converting organic waste into a valuable “green” product; 5) lowering associated human health risks; 6) saving water and reducing reliance on toxic fertilizers; 7) building healthy soils; 8) cutting air and water pollution; 9) diverting food scraps that, when landfilled, release methane, a greenhouse gas 23 times more powerful than carbon dioxide; and, 10) taking another step toward sustainability.

## **Why Portland?**

With the creation of the Sustainable Portland report, the City has laid out a number of important objectives that, if achieved, will make it a more sustainable place to live and work. Like other cities all over the country, Portland must figure out a way to deal with its solid waste in an environmentally, socially, and economically responsible manner. As the state’s largest urban center, Portland is in a great position to be a leader and model for surrounding communities also seeking cost-effective ways to deal with issues of sustainability.

According to the Maine State Planning Office, the state itself has set a statewide municipal waste diversion goal of 50%, citing composting as an important strategy for success. By incorporating into its current waste management strategy the opportunity to divert significant amounts of organic waste, the City can make an even greater contribution to that goal. Size is on the side of Portland, and because of it, the City has the necessary experience, expertise, and the infrastructure to make a curbside collection pilot project succeed.

It is estimated that 25% of the average household’s waste consists of yard waste and kitchen scraps, both of which are easily composted (City of Portland). In March 2008, the Riverside Recycling Center in Portland took an important step forward by starting a promotional campaign on the benefits of composting and selling backyard compost bins and kitchen waste pails at discounted prices. In line with Portland’s sustainability goals, the City promotes compost as an environmentally responsible alternative to toxic fertilizers and composting as an efficient way to reduce waste management costs (City of Portland).

A decade ago, Portland began to make real gains in how it deals with its waste, and now it appears poised to take another step toward sustainability. In 1999, the City of Portland made two major strides toward greater efficiency in the way it manages its waste. One was the implementation of a pay-as-you-throw trash disposal program. The second was the curbside

collection of recyclable materials. Together, these programs in the first year reduced the City of Portland's total annual waste from 20,000 to 12,000 tons. Given that the City must pay a tipping fee for trash versus no tipping fee for recyclables, there is little doubt the city is saving money. The same could be so for separating organics.

## **Initiatives Researched**

To help make the case why composting is an effective strategy for working toward the City's sustainability goals, this proposal researched programs in the following cities or regions:

1. Halifax Regional Municipality, Nova Scotia
2. Chittenden County, Vermont
3. Toronto, Ontario
4. Seattle, Washington

While each of the four initiatives above were researched, this paper focuses on efforts made in the Halifax Regional Municipality (HRM) and how it relates to the City of Portland and surrounding communities served by ecomaine, a non-profit waste management company owned and operated by 21 municipalities in Southern Maine with a combined population of 240,000. The focus on HRM, rather than the other initiatives researched, is due to its comparable scale; climate and region; mix of urban, suburban, and rural communities; and the fact that it is a time-tested, successful model of a waste management strategy relying heavily on the contributions of a curbside organic waste collection program.

## **Case Study: Halifax Regional Municipality (HRM), Nova Scotia:**

*"Simply stated, our Strategy is based on maximizing the beneficial use of resources and on minimizing disposal...composting is at the heart of this Strategy. Its success depends on composting." – Community Stakeholder Committee (1995)*

Halifax Regional Municipality (HRM) is Nova Scotia's largest metropolitan area, home to nearly 372,679 people and comprised of 23 municipal districts and over 200 communities, ranging from seaside villages to rural and farming areas to suburban and urban centers. HRM was created in April, 1996, as a result of the amalgamation of the cities of Halifax and Dartmouth, the town of Bedford, and the municipality of the County of Halifax.

The initiative of focus for this proposal is HRM's Green Cart program. Implemented in 1998, the program provides residents and some commercial entities with curbside organic waste collection service. HRM provides residents with a 64-gallon aerated cart to 124,313 single-family and apartment households, plus an additional 7,000 condo units. In addition to single-family dwellings, HRM services apartment buildings six units or less, registered condo properties and some commercial properties in the rural areas. Businesses use whatever collection method works best for them, as long as contamination is kept low, though most use carts or bags. Surveys show that 90% of HRM residents consider the Green Cart program to be a convenient and worthwhile way to manage their waste (HRM website).

HRM contracts with private haulers to collect residential food and yard waste on a weekly and bi-weekly basis (alternating with garbage pickup) and take it to two private composting facilities built in 1998. The facilities, worth about \$9 million a piece, have an annual capacity of 27,500 tons. As part of its contractual agreement, which is renewed every five years, HRM guarantees steady material supply and earns a share of the revenues made from the sale of the resulting product. According to Shannon Betts, HRM Waste Analyst, the municipality pays no tipping fee for the first 25,000 tons as part of the agreement, while charging commercial entities in the area a \$70 per ton tipping fee of its own. The composted material produced by the two plants is primarily marketed through large landscaping businesses.

The total annual cost of HRM's waste management system is roughly \$23 million, of which about \$13 million is paid by residential property taxes and the rest comes from tipping fees charged to commercial businesses. The annual collection charge (organics, recyclables and garbage) to residential property owners, therefore, is \$102, or \$8.50 a month. Betts said though there is a ban on landfilling or incinerating organics, the main incentives to participate in the Green Cart program are wanting to do the right thing and complying with the six-bag limit HRM sets every two weeks. Because its diversion rates are high and contamination rates low in the residential sector, Betts said HRM chooses to use carrots instead of sticks to get people to participate. The commercial sector, however, has been less compliant in general. A 2004 waste audit showed that more than half of the garbage it was throwing out was made up of paper products (25%), recyclables (11%) and organics (21%).

HRM's current-day curbside organic waste collection program is deeply rooted in Halifax's initial search for a new solid waste strategy back in the early 1990s, when the local landfill was

reaching capacity. There were a number of issues with the landfill at the time, most notably its odor nuisance, which ultimately worsened to such a degree that it forced the municipality to buy neighboring homes or award compensation packages totaling in the millions. Another important event came in 1994, when the Provincial Minister of Environment rejected a proposal for a new incinerator to replace the landfill, coupled with new legislation requiring source separation of waste and diversion (Cullbridge 2004).

That same year, HRM invited the public to join a new Community Stakeholder Committee (CSC) to develop an alternative approach through a year-long consensus-based process. Residents were receptive to the public meetings, and a steady, core group of 40 to 60 residents attended each meeting, ultimately forming the membership of a permanent CSC. In 1995, the citizen-driven committee proposed and ultimately had approved a new Integrated Waste Resource Management Strategy (CSC 1995). Its mission statement reads as follows: The IWRMS, “is designed to address the municipal solid waste stream, to achieve the maximum possible diversion of resources from disposal and to encourage citizens to adopt the necessary lifestyle changes to move from a consumer to a conserver society” (CSC 1995)).

According to the strategy report, CSC set out on preparing a shared vision as a first step in developing its new strategy for managing what it called, “materials which can no longer be regarded as waste, but must be turned into *resources* to benefit both our economy and our environment” (CSC 1995). The CSC members proclaimed that they had adopted principles and goals that could be best summed up in one word: stewardship. “Waste not our future” was the consensus statement they agreed upon (CSC 1995).

In 1996, the CSC’s strategy was implemented, and members called on everyone in the community – citizens and their representative politicians – to help build a sustainable future (CSC 1995). One key step toward implementing this strategy, they understood, was an organics demonstration pilot project, which they began in 1996 with the approved expenditure of up to \$350,000. According to HRM, approximately 2,000 HRM households in urban, suburban, and rural communities participated, and the project was deemed a success.

HRM hired a consultant for general community outreach, while Halifax Regional Council established the Solid Waste Resource Advisory Committee to provide an ongoing public forum for developing the new resource management strategy (Cullbridge 2004). HRM staff carried out

an extensive education campaign using municipal newsletters, displays in malls and at events, newspaper ads, at schools, and media coverage (HRM 1999).

Out in the field, HRM staff worked with three private cart providers in distributing 650 carts each for a six-month implementation period. Three collection districts were selected, collection vehicles were retrofitted with hydraulic lifts needed to dump the heavy carts, and an outreach program was implemented. During the demonstration, three types of carts were tested. Halfway through the first year, with residents already participating, HRM began approaching businesses, initially contacting grocery stores and restaurants, most of which agreed to participate. HRM then focused on educating apartment complex owners, though it ultimately left them to educate and encourage the participation of their tenants (Cullbridge 2004).

In 1998, HRM hired a private firm to conduct a phone survey of 505 participants to determine the approval level of the new strategy and Green Cart system in particular. Other phone surveys were conducted later to gauge participation. During the pilot, staff had to address initial resident opposition to certain program specifics, such as paying directly for the cart in their tax bill, saying they were being charged for a service they had not requested. The decision was made to include the cost of the carts and kitchen bins in the general tax rate instead of as a separate line item on the tax bill. Another issue was resident concern about odor and animal problems with the cart, but staff quelled concerns by providing information from existing programs showing that such problems were rare if conducted properly. Also, some vocal residents preferred the idea of using bags instead of carts, which the media picked up on (Cullbridge 2008). However, with bags it is more difficult to keep organics in an aerobic state, meaning collection frequency would have had to increase from bi-weekly to weekly. For that reason, bags were not tested in the pilot project (HRM 1999). At its conclusion, HRM selected two contractors to provide ventilated carts to approximately 100,000 households in the region (SSI Shaefer). That number has since grown by 25,000 homes.

In 1998 – the same year the pilot project was completed – Nova Scotia implemented a ban on incinerating or landfilling organic waste anywhere in the province. Both recycling and composting, the two major tactics embraced by the province to achieve diversion gains, have become more accessible and comprehensive since the inception of the ban and this strategy. Certainly, having a provincial ban on organics incineration and landfilling is a huge policy boost

to any program, but a broad-based citizen rally cry had been made and the desire for a new strategy was broadly shared (HRM 1999).

HRM continues to enjoy tremendous citizen support for its Green Cart program, not only because it is the law, but also because residents who opposed a new incinerator felt invested in the process and saw organics diversion as the, “right thing to do,” said HRM’s Betts. As it is with many planning initiatives, the consensus-based nature of the process was essential to the successful implementation of the strategy; the ban came later.

According to Betts, the Green Cart program’s successful diversion of organics has led to several significant HRM accomplishments, including an overall waste diversion rate of 57%; extending the life of the HRM landfill by more than 20%. It has also helped to reduce HRM’s overall greenhouse gas emissions produced by its waste management program by 1.4 tons per resident, as well as provide hundreds of new jobs in and around the region, including those provided by the region’s two large composting facilities (GPI Atlantic 2004). Furthermore, when taking into account the social and environmental benefits associated with changes made to the overall waste management strategy between fiscal years 1996-1997 and 2000-2001, it appears that the average Nova Scotian – including those of HRM – has saved between \$33 and \$178 annually (GPI Atlantic 2004).

According to GPI Atlantic’s comprehensive cost-benefit analysis of Nova Scotia’s improved waste management strategy – which involves composting, recycling, and landfilling – the numbers initially suggest an increased cost of \$23.9 million for changes made to the system between fiscal year 1996-97 and fiscal year 2000-01. However, after considering associated environmental and social benefits gained from those changes, such as avoided greenhouse gas emissions, liability costs, more efficient use of landfills, and increased employment, the new strategy appears instead to have produced a net savings of between \$31.2 million and \$167.7 million a year. This translates into a net cost savings of between \$33 and \$178 per resident per year, rather than a net additional cost of \$24 as suggested when considering only the operating and capital costs of the two systems. “In other words, the new system has more than paid for itself from a full cost-benefit perspective, while producing new jobs and substantial environmental benefits,” (GPI Atlantic 2004).

The story of the HRM Green Cart program, together with that of Nova Scotia’s redeveloped waste management strategy of 1996 and other initiatives researched for this proposal, points to a

number of important factors to consider when developing and implementing a curbside organic waste collection program. First, it is important to implement a pilot that effectively informs and engages the citizens, and has a clear, consistent message. HRM's proactive community stakeholder process is considered to be at the heart of its success. Second, make known the benefits, because they are real and directly address all three legs of the sustainability stool: the economy, the environment, and community (equity). Third, as with other strategies for greater sustainability, the apparent benefits are not always so apparent. Therefore, when trying to determine the true costs and benefits of a program, it is important to do so comprehensively, not just by simply looking at capital and operating costs, as the HRM example demonstrates.

## **The Future of Composting in Portland**

Last year, the City of Portland's Riverside Recycling Center received 6,800 tons of yard waste and brush from Portland residents, costing taxpayers more than \$335,000 to manage. Composting yard waste and food scraps together instead of disposing of them would reduce waste management costs and provide homeowners, landscapers, and the city with a valuable soil amendment (City of Portland). If the city were to implement a comprehensive organics collection program, it would need to identify a location other than Riverside for composting.



*Source: Green Earth Technologies*

A facility located in the Greater Portland Area could benefit the region in several ways, including: 1) the supply of new jobs and a new addition to the tax base; 2) putting the city at the cutting edge of composting in the Northeast, and 3) helping to reduce the environmental and energy costs associated with current waste management practices. HRM serves as a good example of how all three are attainable. This proposal recommends that ecomaine, the region's waste-to-energy and recycling facility, establish an onsite composting operation to serve its member communities. A second option would be that the City of Portland, together with ecomaine, releases a request for proposals to identify interest in the private sector.

If removing organics from the waste stream is cheaper for the city than providing a place to bury or burn it, such as by paying a reduced or no tipping fee on organic waste, then such a program is truly worth implementing. The same goes for residents and businesses; as long as putting their organics into a collection bin is cheaper than having it hauled away as garbage,



then, again, it provides an effective incentive. And, as for ecomaine, any wet food waste it can divert from its incinerator will be a help at reducing energy costs.

In summary, the City of Portland is in a prime position to contribute even more significantly to the region's environmental and economic sustainability by initiating what could someday become a region-wide organic waste diversion effort and significant source of new green jobs and other economic development opportunities. Together, with ecomaine and other public and private stakeholders, the city can take another step toward improving the way it operates. This is a good time for planning and preparing a strategy: "waste not our future."

## **Recommendations & "To-Do" List:**

The following are two recommendations meant to be carried out by the city's Department of Public Services, in conjunction with ecomaine, residents, businesses, and other willing community partners. The first recommendation follows a draft four-phase approach to developing and implementing a pilot project. From this research, it appears that pilot projects often take approximately two years from development to implementation to final assessment. The second recommendation is a scaled down option – with recognition of the city's current budget situation - that could be implemented in conjunction with Recommendation #1 or as a standalone stepping stone toward it. Many, but not all, of the tasks listed for Recommendation #1 could also apply to #2.

### **Recommendation #1:**

The City of Portland's Department of Public Services, in conjunction with ecomaine and other community stakeholders, develops and implements a curbside food & yard waste collection pilot project to determine the feasibility of a permanent program

The following is a suggested (and flexible) timeline of objectives

#### ***Phase One: Research & Development***

- Conduct a city-wide waste inventory
- Determine specific costs and benefits of implementing a program
- Select potential study areas (i.e., neighborhoods)

- Determine staff and resource needs to conduct a pilot program
- Secure technical support, funding, & partnerships
- Develop education and outreach strategies

### ***Phase Two: Education & Outreach***

- Conduct community survey to inform, generate interest, and identify willing participants
  - Survey perceptions of service prior to implementation
- Implement education and outreach strategies
  - Targeted neighborhood meetings
  - Brochures, flyers, ads, and city website
- Finalize study areas and participants
- Work with private contractor in distributing and explaining curbside and kitchen bins

### ***Phase Three: Implementation***

- Begin curbside collection in selected areas
- Collect data on participation & diversion rates
- Continue education, outreach, and assistance to residents

### ***Phase Four: Assessment***

- Conduct a follow-up survey of participant perceptions
- Assess the pilot's success & feasibility of a permanent program
- If continuing program, seek long-term funding and public-private community partnerships
- Identify a long-term composting entity

### **Recommendation #2:**

The city's Department of Public Services designates two drop-off sites to provide residents with a place to bring kitchen food scraps (to be done with #1 or on its own)

This option would involve the following tasks:

1. Equipping sites with 65- or 96-gallon aerated carts
2. Routine staff monitoring
3. Emptying containers when full
4. Hauling waste to composting site
5. Assessing success of initiative and determining feasibility of long-term program

The following is a “To-Do” list of first steps to be taken by the Department of Public Services, ecomaine, and other participating stakeholders working toward developing a pilot project:

1. Conduct a city-wide waste inventory
2. Strategize a pilot approach with ecomaine
3. Develop education & outreach materials
4. Design a survey of perceptions, interest
5. Continue to promote backyard composting
6. Visit HRM for an on-site tour of the operation.

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