



MEMORANDUM | September 30, 2011

**TO** Sandrine Thibault, Burlington Department of Planning & Zoning  
**FROM** Kristen Sebasky, John Weiss, and Angela Helman, Industrial Economics, Incorporated  
**SUBJECT** Task 3: Case Studies

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**INTRODUCTION**

The City of Burlington's Department of Planning and Zoning tasked IEc with preparing case studies of successful or promising urban development strategies focused on alternative energy, transportation, green buildings, and/or green infrastructure, limiting the focus to communities or strategies that have potential transferability to Burlington. To identify these case studies, we drew upon our institutional knowledge and familiarity with the leaders across the sustainability movement, and worked directly with the Department to discuss potential candidates.

To maximize the cases studies' value to Burlington, IEc sought to identify communities that were comparable in size, character, political structure, climate, and geography. However, it was difficult to find communities that satisfied all of these criteria. IEc worked with the Department to ensure that the criteria used to establish comparability were appropriate for the case study topic(s). For example, similarities in community size and character may be important for issues related to density and transportation, but they may be less important in the context of green buildings and green infrastructure. For the latter, similarities in climate and geography may be more important than size and character. Also, we found that the most interesting and relevant case studies appeared to be from the western U.S.

The case studies IEc and Burlington agreed upon are:

- Bus passes and municipal parking in Boulder, CO;
- Municipal building energy retrofits in Berkeley, CA; and
- Stormwater management in Portland, OR.

IEc also agreed to include information related to other stormwater management-related initiatives, particularly initiatives that have tested innovative financing mechanisms. After reviewing available information, we elected to meet this objective by completing a short, fourth case study describing stormwater management financing in Philadelphia, PA.

IEc built off our exploratory research by conducting a thorough review of publicly available information for the selected case studies. In addition, we conducted interviews with local officials (see Appendix I for a list of contacts). Our questions focused on identifying key barriers and methods for overcoming those barriers, quantifying success where possible, and identifying lessons learned that are transferable to Burlington. We also used the interviews as an opportunity to explore whether and how other communities have integrated energy and environment initiatives into parallel efforts to promote and market a community's livability. IEC conducted phone interviews with at least one city official in each city; these officials included program coordinators, planners, and other policy makers.<sup>1</sup>

Our findings are summarized below. Given that the case studies focus on very different programs, we did not find many cross-cutting lessons learned. However, one common theme identified is the importance of ongoing communication and outreach for programs or policies that may encounter resistance, including communication and outreach to other relevant agencies, the business community, and the general public. Under Task 4, IEC will apply lessons learned from the case studies to the Burlington context.

## **BOULDER, CO: BUS PASSES AND MUNICIPAL PARKING**

### **Background**

The City of Boulder is a progressive, highly educated community with a strong history of action on environmental issues. The 1997 Kyoto Protocol piqued the Boulder community's interest in reducing greenhouse gas emissions and led to the development of two climate-oriented groups within the City's Transportation Division: the GO Boulder team and the Local Energy Action Division (LEAD). Although both of these groups focus their efforts on climate change, GO Boulder is primarily concerned with transportation. GO Boulder's initiatives include promoting a wide range of transportation options, such as biking (through bike sharing and bike corrals), public transportation (through the EcoPass program parking fees), and car sharing. GO Boulder's initiatives are designed to reduce carbon emissions in the City, as well as promote City livability. For the purposes of this case study, we focus on the EcoPass and parking fee programs.

### **Program Overview**

The EcoPass is an unlimited-use bus pass for yearly access to all Regional Transportation District (RTD) transit services, offered at a group discount rate. The pass itself is a photo ID card. EcoPasses are available to employers to purchase for their employees to provide an incentive for taking public transit. Employer participation is voluntary. Participating employers must pay the cost of the EcoPass for all full-time employees with an option to include part-time employees, regardless of the number of employees who are interested in the pass. Employers in the downtown area do not need to provide EcoPasses; downtown employees receive them for free (see parking discussion below).<sup>2</sup>

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<sup>1</sup> Where we do not provide a citation for specific information provided in the case studies, the information came from phone interviews or email follow up with case study contacts.

<sup>2</sup> An overview of the EcoPass program is available at: <http://www.rtd-denver.com/EcoPass.shtml>

A second type of EcoPass, the “Neighborhood EcoPass,” provides a group of residents (a neighborhood) with a group rate for the EcoPass, without having to receive the pass from an employer. A neighborhood is defined as all of the households in a particular geographic area; there is no minimum or maximum size for a neighborhood. Not all of the residents in the neighborhood are required to buy into the program, but the cost of the passes is based on the number of households in the neighborhood. Therefore, the households buying into the program may be paying more than the cost of the passes per household. For example, if the “neighborhood” consists of fifteen households but only ten buy into the program, the ten households will have to cover the cost of all fifteen households. However, in most cases, EcoPasses remain an economical option, as the cost of an individual yearly transit pass is approximately \$2,000, while participation in the Neighborhood EcoPass program generally costs \$100 to \$200 per household. When a household purchases an EcoPass, it is valid for all family members.

The EcoPasses themselves are offered by RTD, but GO Boulder provides benefits beyond the group discount rate, including a 50 percent subsidy for the first year in the EcoPass program and a 25 percent subsidy in the second year (for both businesses and neighborhoods). An additional incentive is the EcoPass Extra program, which provides discounts at restaurants, stores, and other local businesses. In order to receive discounts, EcoPass holders must place the EcoPass Extra sticker on the back of their card. These stickers are provided by employers that support EcoPass. Finally, the EcoPass program offers a “Guaranteed Ride Home,” which provides EcoPass holders with a free taxi ride home in an emergency (if they have used any transportation option other than driving to get to work).

GO Boulder also spends approximately \$1 million per year investing in transit service above what RTD provides, to increase the availability and convenience of public transit. The GO Boulder service is called the Community Transit Network (CTN), which is also covered by the EcoPass. CTN includes name and branded buses, such as the HOP, SKIP, and JUMP buses. These buses run so frequently that schedules need not be provided – they generally come every ten minutes or less. This makes taking public transit an even more attractive option, beyond the monetary incentive of the EcoPass.

GO Boulder combined the EcoPass with a parking program to further reduce automobile use in the downtown area. The City used bonds and property taxes within the district to build shared parking structures, install parking pay stations, and improve signage at parking garages to reduce the amount of circling to find available parking spots. All downtown parking now costs \$1.25 per hour, except on weekends. A portion of the revenue generated from parking fees is used to pay for EcoPasses for all downtown employees.<sup>3</sup> In 2010, about \$750,000 in parking fees was used to cover the cost of EcoPasses used by downtown employees.

The GO Boulder program (as well as LEAD) is funded by sales and carbon tax revenues. Since 1967, the City has provided 6/10 of every cent paid in sales tax to the Transportation Division. The City also levies a carbon tax on residents and businesses based on their electricity use. Current tax rates are \$0.0049 per kilowatt hour (kWh) for

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<sup>3</sup> Information on parking pricing can be found at:  
[http://www.bouldercolorado.gov/index.php?option=com\\_content&task=view&id=899](http://www.bouldercolorado.gov/index.php?option=com_content&task=view&id=899)

residential users, \$0.0009 per kWh for commercial users, and \$0.0003 per kWh for industrial users.

#### Barriers and Strategies to Overcome Them

The major barrier the GO Boulder team faced with the EcoPass is that the majority of the transit system and the EcoPass itself are owned by RTD, a regional authority operating out of Denver. RTD is funded by taxes and not by transit ridership, and according to Boulder officials, has little incentive to increase transit ridership. RTD does not support the subsidies that GO Boulder offers on the EcoPass, and has tried to eliminate the GO Boulder plan politically. This is an ongoing issue between GO Boulder and RTD, but so far RTD has not been successful in undermining the GO Boulder program.

In addition to RTD, three main groups needed to be convinced that the EcoPass and parking fee programs were a good idea: the Chamber of Commerce, employers, and developers. The Chamber of Commerce is mainly concerned with economic vitality, and had to be convinced that these programs would be beneficial to the City economy. Both developers and employers had to be convinced that on-site parking is not always a necessity downtown. Developers have difficulty getting outside funding from investors when there is minimal parking available, because investors generally do not understand the transportation habits of Boulder residents. Similarly, employers tend to think that they need parking to attract employees and customers. However, Boulder residents walk, bike, and take public transit at a much higher rate than the U.S. average. Boulder's 2010 Report on Progress for their Transportation Master Plan states that "people in Boulder ride the bus at twice the national average, walk three times as much and bicycle at twenty times the national average." The LEAD team conducted extensive outreach to the business and residential communities to push these programs forward. Also, program managers indicate that communication of environmental and livability impacts to these groups is vital to success.

#### Measures of Success

The GO Boulder team conducts surveys every three years on employee and resident travel behavior. To date, the team has found that an employee or resident with an EcoPass is five to nine times more likely to take public transit compared to an individual without an EcoPass. Also, when an employer provides an EcoPass to its employees, about 38 percent of the employees will drive to work in a single occupancy vehicle (SOV), compared to 70 percent of employees that are not provided with an EcoPass.

With more employees using alternatives to get to work, there are more parking spaces available to visitors and customers in the downtown area. On-street managed parking spaces are nearly full at peak hours, but there is ample space available in the downtown area's shared parking structures. In fact, while there had previously been a waiting list for permits for the parking structures, there are now approximately 200 spaces available.

#### Next Steps

GO Boulder considers implementation of both the EcoPass and parking fee programs to be complete and successful. GO Boulder is also currently pursuing other means of encouraging alternative transportation, such as car and bike sharing opportunities.

## BERKELEY, CA: MUNICIPAL BUILDING ENERGY RETROFITS

### Background

The City of Berkeley began energy retrofits of municipal buildings in the early 1990s, with an emphasis on lighting, motivated by a desire to decrease utility bills as well as to demonstrate environmental leadership. This initiative is currently under the purview of the Office of Energy and Sustainable Development (OESD), which is responsible for implementing the City's Climate Action Plan (CAP). The main goal of the CAP is to achieve a 35 percent reduction in greenhouse gas (GHG) emissions from 2000 levels by 2020, and an 80 percent reduction from 2000 levels by 2050.<sup>4</sup>

### Program Overview

OESD places a high priority on making municipal buildings more energy-efficient. Working cooperatively with the Department of Public Works, OESD staff seek to identify opportunities to incorporate energy efficiency retrofit measures into otherwise scheduled building maintenance activities. Retrofits generally include updated lighting, heating and ventilation systems, and building control systems, along with the addition of occupancy sensors for lights.

In 2000, OESD successfully petitioned to become the direct recipient of ratepayer funds that had previously gone to the public utility, based on the argument that the Office had better knowledge of community needs than the utility. With these funds, OESD created a non-profit organization called SmartLights. SmartLights focuses primarily on lighting retrofits, but has expanded its scope to other areas such as refrigeration and heating. The program performs technical audits and works with a group of contractors who perform retrofit jobs at pre-determined prices. The City often hires SmartLights to perform retrofits because of their reasonable price and technical expertise.

The City's general fund is typically sufficient to pay for smaller upgrades such as lighting retrofits. For large projects, the City often relies on all available utility rebates and financing. For example, Pacific Gas and Electric (PG&E) is currently offering zero percent financing for energy efficiency projects, enabling the City to repay loans through utility bill savings.

In addition to retrofits, the City has other initiatives in place to reduce building energy consumption. These include the requirement that all new municipal buildings acquire LEED Silver certification. Although new construction has been slow since the City adopted the LEED Silver requirement, to date, the City has built both an animal shelter and fire station with LEED Silver ratings. The City also promotes renewables where appropriate. Currently, several City buildings have solar PV or solar hot water technologies.

The City uses the U.S. EPA's Portfolio Manager to monitor energy savings, track energy costs, compare current energy consumption to benchmark conditions, and develop estimates of carbon emissions.

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<sup>4</sup> The Berkeley Climate Action Plan is available at:  
[http://www.cityofberkeley.info/uploadedFiles/Planning\\_and\\_Development/Level\\_3\\_-\\_Energy\\_and\\_Sustainable\\_Development/Berkeley%20Climate%20Action%20Plan.pdf](http://www.cityofberkeley.info/uploadedFiles/Planning_and_Development/Level_3_-_Energy_and_Sustainable_Development/Berkeley%20Climate%20Action%20Plan.pdf)

### Barriers and Strategies to Overcome Them

The City experienced few barriers to completing municipal building energy retrofits, due to the fact that these projects are relatively uncontroversial and are not widely publicized. The Berkeley community gives much more attention into commercial and residential energy retrofit projects, and has not provided any obstacles to the municipal retrofit projects. Also, since municipal building retrofits are just a small portion of the CAP, they have not been a topic of particular focus during recent Plan discussions.

As with most City projects, the main barrier to building retrofits is funding. Funds have decreased for lighting projects over the years, and retrofits can only be done when there is enough upfront funds and/or financing to support them. However, the recent zero percent financing offer from PG&E provides a great opportunity to move forward with substantial (high-cost) retrofit projects.

Throughout the implementation of building retrofits, OESD has identified the need to coordinate with other agencies, specifically the Department of Public Works. When the retrofits started in the 1990s, there was little communication between departments about these projects. Over the years, the Office has realized that coordination with Public Works is particularly beneficial, and maintenance projects now routinely include consideration of energy efficiency upgrade opportunities.

### Measures of Success

The CAP goal for municipal buildings is simply to increase energy efficiency and renewable energy use in public buildings. To date, the City has saved 2.1 million kilowatt hours of electricity and 37,520 therms of heat (primarily natural gas) from energy conservation retrofit projects in municipal buildings. This equates to 1,200 tons of CO<sub>2</sub> emissions and an annual savings of \$370,000 due to municipal building retrofits.<sup>5</sup>

However, at the time we completed this case study, the main CAP web page includes a chart indicating a trend in increasing overall municipal energy consumption.<sup>6</sup> According to City officials, this trend reflects the construction of new buildings, and masks the overall decrease in energy consumption by older buildings that have been retrofitted. Measuring total energy consumption can be misleading if the City is expanding its facilities as Berkeley has done. Berkeley officials suggest that it is more practical to normalize municipal energy use, by measuring energy consumption per square foot or number of employees, to track progress of energy efficiency initiatives. Also, it is not clear if municipal energy use tracked on the CAP website includes non-building energy use.

### Next Steps

Moving forward, the City plans to continue retrofitting projects. They will continue to look for opportunities for retrofits or upgrades, and continue to use financing and rebate options to fund these projects. Currently, the City is in the process of a comprehensive analysis to identify these types of opportunities.

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<sup>5</sup> City of Berkeley website on municipal energy conservation: <http://www.ci.berkeley.ca.us/ContentDisplay.aspx?id=33182>

<sup>6</sup> City of Berkeley website on CAP progress: <http://www.ci.berkeley.ca.us/ContentDisplay.aspx?id=19668>

## PORTLAND, OR: STORMWATER MANAGEMENT

### Background

Stormwater runoff is a critical issue in Portland, due to its high amount of rainfall and high percentage of impervious surfaces. The City has a combined sewer system, and elevated levels of stormwater often cause the combined sewer to overflow, releasing untreated wastewater into the Willamette River. By state and federal law, the City is required through its Municipal Separate Storm Sewer System (MS4) permit and its Underground Injection Control (UIC) permit to reduce stormwater pollution and enhance water quality.

Since the 1990s, Portland has implemented a wide range of projects to manage stormwater. One of the efforts currently being undertaken by the City to manage stormwater is the East Side Big Pipe Project, part of a twenty year initiative to reduce stormwater flows. The goal of this project is to build a bigger pipe for the combined sewer system, so that a larger volume of stormwater and wastewater can be stored on the way to the treatment plant. (This is Portland's third Big Pipe project, following the Columbia Slough Big Pipe and the West Side Big Pipe.) This project is scheduled to be completed in December 2011, but over the course of the project stormwater and wastewater levels have increased beyond the capacity of the new pipe. Thus, in addition to conventional infrastructure solutions, the City is strongly interested in more sustainable ways to manage its stormwater, such as Green Streets.

### Program Overview

In 2005, Portland's Commissioner of Public Utilities (and now Mayor) Sam Adams charged the City bureaus with developing an approach to implement Green Streets where feasible. A "Green Street" is a street that uses vegetated facilities with the following goals: manage stormwater, improve water quality, replenish groundwater, make streetscapes attractive, and improve access for pedestrians and bicyclists. Commissioner Adams' charge was split into two phases: (1) identify opportunities and challenges, and (2) evaluate options for implementation. The City assembled a cross-bureau team to address these charges.<sup>7</sup>

During Phase 1, the cross-bureau team developed a guidance document, which is now included in the City's Stormwater Management Manual.<sup>8</sup> This document provides details on the design of Green Streets and specifications for construction. The team also proposed an outreach plan during Phase 1, with implementation during Phase 2. This plan included: a PowerPoint presentation to present to community members, forums, Green Streets tours, a Green Streets door hanger, and Green Streets site markers. The Bureau of Environmental Services (BES) used the PowerPoint presentation to provide an overview of Green Streets other City bureaus, public agencies, and community groups. They used the forums to address the technical aspects of Green Streets, and offered tours of Green Streets facilities to discuss particular projects and site-specific issues. BES used the door hanger to provide general information on Green Streets and remind community members of their importance, as well as site markers to inform the community about

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<sup>7</sup> Information on the Green Streets program is available at: <http://www.portlandonline.com/BES/index.cfm?c=44407&>

<sup>8</sup> The Stormwater Management Manual is available at: <http://www.portlandonline.com/bes/index.cfm?c=47952>

where Green Street facilities are located and to promote maintenance of these facilities. More details on outreach and an image of the door hanger can be found in the Green Streets Cross-Bureau Team Report, Phase 2.<sup>9</sup> Phase 1 reached completion in 2006.

The team initiated Phase 2 in 2006, during which they wrote a citywide Green Streets policy which they presented to the City Council for approval. The policy establishes the support of the City Council for the Green Streets program, ensuring that the City Council will implement Green Streets as part of public infrastructure programs, and integrate the Green Streets Policy into other City documents, including the Portland Comprehensive Plan, Transportation System Plan, and Citywide Systems Plan. The City Council approved this policy in 2007.

A common theme in the Green Streets reports was collaboration. The group in charge of Phase 1 and 2 of the Green Streets project, the “Green Streets Cross-Bureau Team,” included members from the Bureau of Environmental Services (BES), the Office of Sustainable Development, the Office of Transportation, the Bureau of Planning, the Commissioner’s Office, Parks and Recreation, the Portland Water Bureau, the Portland Development Commission, and the Bureau of Maintenance. Since the passage of the Citywide Policy in 2007, BES and the Development Commission have been the main groups charged with implementation, but all City departments are required to follow the policy.

The Green Streets program is funded by capital dollars and the City’s general fund. The City has made significant investments of capital dollars for CSO projects, and BES has diverted some of these funds from pipe-building projects to sustainable management practices such as Green Streets. Also, transportation enhancement projects fund some Green Street facilities, as all new city infrastructure is required to consider Green Streets (in the citywide policy). When new development projects have difficulty funding Green Streets, they can access Portland’s “One Percent for Green” fund, which can be used to construct Green Street facilities that reduce stormwater runoff in public rights-of-way.<sup>10</sup> Construction projects within the right-of-way that fall outside the requirements of the Stormwater Management Manual are required to contribute one percent of construction costs to this fund.

Maintenance is a crucial part of the Green Streets program, and is the responsibility of the City. Dedicated staff within the Watershed Revegetation Program visit the facilities at least twice per year to perform maintenance. In addition, BES is continuously working on ways to improve maintenance as the number of facilities grows. The Sustainable Stormwater Management Division, within BES, has recently implemented a program called the “Green Streets Steward Program.” Through this program, community members volunteer to become “stewards” of Green Streets, providing maintenance such as weed removal, plant trimming, and trash cleanup.<sup>11</sup> So far, according to program managers, the steward program has been a success. Following the launch of the steward program, twenty-four residents adopted a total of thirty Green Street facilities. BES is

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<sup>9</sup> The report is available at: <http://www.portlandonline.com/shared/cfm/image.cfm?id=153974>

<sup>10</sup> Information on the fund can be found at: <http://www.portlandonline.com/BES/index.cfm?a=341452&c=44407>

<sup>11</sup> Information on the Steward Program can be found at: <http://www.portlandonline.com/BES/index.cfm?c=52501&>

also trying to identify plants and facility types that can be more efficient and require less maintenance.

The goals of Green Streets go beyond stormwater management; Green Streets are also meant to improve pedestrian safety and aesthetics. Additionally, Green Streets are being used as “connectors” between businesses, parks, transit facilities, and other infrastructure elements.

#### Barriers and Strategies to Overcome Them

BES faced a few barriers in program implementation including: funding, plant selection, government cooperation, and community acceptance. As with most government projects, funding was and is a major issue. In addition, BES experienced difficulty in identifying the best plant types to be used in Green Street facilities, as the plants chosen must be resilient to extreme weather conditions and less than three feet tall. Plant selection is an ongoing, iterative process, and project managers note that plant choices are crucial to project success. The correct choice of plants can assist in pleasing the community and reducing maintenance requirements. Also, because of the bureau structure in the City, BES faces barriers to Green Streets implementation across bureaus. Each City bureau is headed by a different city council member, which makes coordination difficult. However, BES has worked successfully with the planning and transportation bureaus to implement Green Streets.

To help engage the community and gain their acceptance of the Green Streets projects, the City provides multiple outreach programs. BES has found that outreach to both other agencies and the public is essential to program success. BES has a group of staff members specifically devoted to outreach. These staff talk to property owners adjacent to Green Street facilities to educate them and to survey their concerns. Other outreach strategies include holding public meetings and requesting input from nearby residents on the kinds of plants to use. When parking spaces are removed for Green Street facilities, the projects can be very controversial, and outreach is vital. When there is extreme pushback about a particular Green Street facility, BES tries to scale back or shift the facility in order to assuage complaints.

Finally, BES has found that landscape architects are as vital to the process as engineers, as the appearance of facilities to community members can be as important as the public as the stormwater management services provided by them. BES now employs five landscape architects to assist with the design of Green Streets.

#### Measures of Success

Portland has constructed approximately 1000 Green Streets, and about 200 community members and property owners are on a waiting list to have a facility constructed in their neighborhood; the City will consider these projects as funding is available. The City has monitored runoff flows to quantify the success of Green Street facilities and other stormwater management projects using green infrastructure. So far, the City has released monitoring reports in 2006, 2008, and 2010. In the 2010 report, the City’s results indicate on average, a 90 percent reduction in peak flow from green infrastructure

facilities, and an average retention of 80 percent of rain water annually.<sup>12</sup> These results indicate that green infrastructure facilities are effective at reducing burden on the City's CSO system. However, City staff indicated that the effectiveness of individual green infrastructure facilities can vary according to a number of factors, including antecedent conditions, maintenance frequency and completeness, and physical elements of the facility (slumped check dams, partially clogged drains, etc.).

#### Next Steps

The City of Portland is continuing to construct Green Streets, as funding allows. BES is continuing to modify the list of plants used in Green Street facilities, so that facilities may be more efficient and require less maintenance. In addition, BES is continuing to change designs to adapt to new locations, including more urban areas. BES hopes to continue innovation and identification of new opportunities and technologies.

In addition, the City is currently implementing its "Grey to Green" program, a \$55 million dollar investment to promote their watershed management plan.<sup>13</sup> The funding is a combination of capital improvement dollars, City general funds, and stormwater utility ratepayer dollars. This program includes the construction of 920 new Green Street facilities. As of August 2010, 325 of these Green Streets had been constructed, which is included in the total of 1000 Green Streets constructed.

## PHILADELPHIA, PA: STORMWATER MANAGEMENT INCENTIVES PROGRAM

#### Background

Stormwater management is a critical issue in the city of Philadelphia. In the 1990s, the Philadelphia Water Department (PWD) held a series of public engagements to develop a plan for managing stormwater in compliance with EPA regulations. The outcome of these groups was a change in stormwater user fees. Previously, PWD charged stormwater fees on a meter-based system. Therefore, larger buildings were paying higher stormwater fees than smaller buildings, regardless of their stormwater management practices. PWD changed this system so that stormwater fees are charged based on a building's amount of impervious surface area, resulting in much higher stormwater fees for smaller building owners. Not surprisingly, this change did not sit well with the smaller building owners, leading a local non-profit organization, the Philadelphia Industrial Development Corporation (PIDC), to seek an alternative solution. The result was the development of the Stormwater Management Incentives Program (SMIP) in 2010.<sup>14</sup>

#### Program Overview

SMIP is a program through which business owners can receive low-interest loans for stormwater management projects. PWD is currently providing a \$5 million fund for the program. Loan amounts range from \$75,000 to \$1,000,000, with a one percent fixed

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<sup>12</sup> City of Portland, *Stormwater Management Facilities Monitoring Report*, December 2010, p. S-5, <http://www.portlandonline.com/bes/index.cfm?c=36055&a=343463>

<sup>13</sup> Information on Grey to Green is available at: <http://www.portlandonline.com/bes/index.cfm?c=47203&a=321331>

<sup>14</sup> Information on SMIP is available at: <http://www.phila.gov/water/Stormwater/pdfs/SMIP.pdf>

interest rate. The loan term is up to 15 years, consistent with the payback period for stormwater management measures. The program does not apply to residential property owners, as residential stormwater user fees are much less of a burden than commercial fees.

#### **Barriers and Strategies to Overcome Them**

PIDC did not experience any significant barriers in the implementation of SMIP. PWD is strongly interested in promoting stormwater management, and was willing to provide funding for this program.

#### **Measures of Success**

SMIP began in late 2010, and already has three applicants. These include a \$200,000 loan for a green roof and porous pavement for a non-profit company and a \$230,000 loan for a retention basin at an auto dealership. In addition, many property owners have showed interest in the program, but are still in the process of developing plans with engineering firms.

#### **Next Steps**

PIDC is continuously working with PWD to identify opportunities in assisting property owners with stormwater management. They are considering options to increase funding for SMIP, along with funding to support property owners with the engineering costs involved in developing stormwater management plans. Also, they will continue to manage SMIP as funding allows.