

Section 6

Conclusions and Recommendations

6.1 Project Overview

The development of the *Sustainable Design Guidelines* presented in this report was completed by CDM to facilitate integration of sustainable principles into current BPRD operations and future BPRD projects. The information was developed based on numerous consultations with BPRD operations, planning and management staff. The final scope of work and the information presented in this report were developed by CDM based on direct input from BPRD staff.

This *Sustainable Design Guidelines* report focuses on review of existing practices and design standards with recommendations for improvement as appropriate. It also provides a mechanism for BPRD staff and/or consultants to use to evaluate additional sustainability opportunities as part of the planning process for BPRD projects.

This report does not present a detailed management study regarding overall BPRD operations; rather it provides guidance for use when evaluating the overall environmental sustainability of BPRD activities.

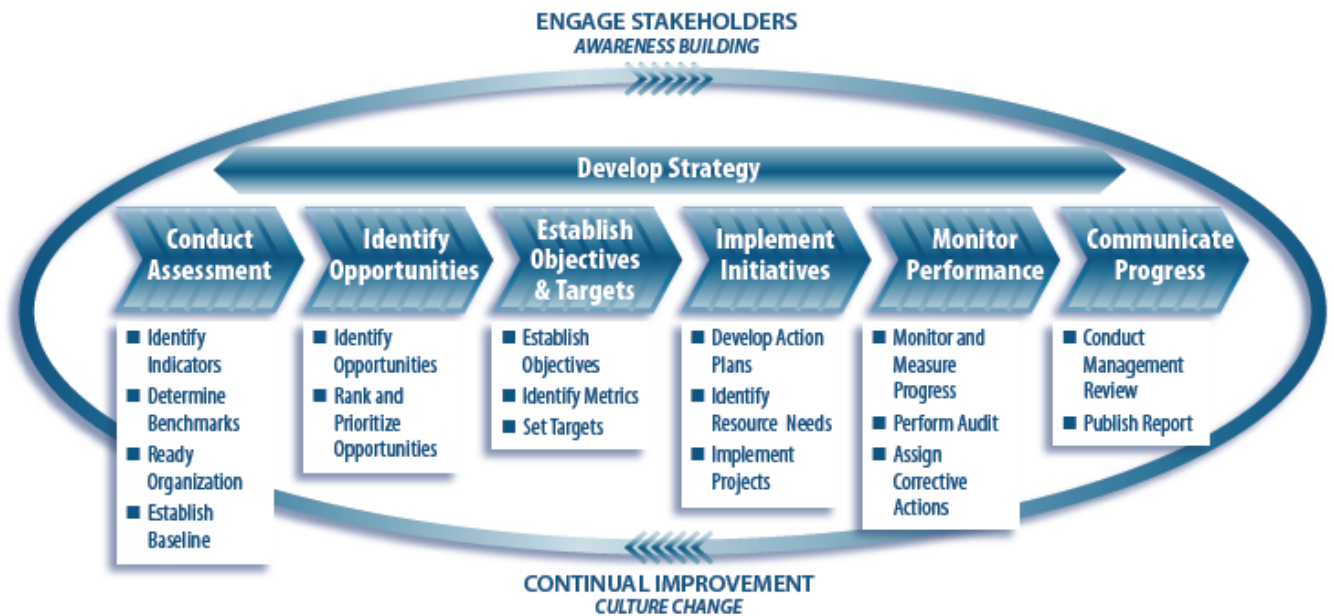
The BPRD's *Sustainable Energy and Design Standards Study* completed by CDM included following three major tasks as outlined in the project agreement:

- ***Identification, Evaluation and Site Analysis for Renewable Energy Generators***
CDM completed preparation of the report titled: *Evaluation of Renewable Energy Generation Opportunities at Parks Department Sites* (CDM – September 2010) providing an analysis of wind, solar and other sustainable options for energy production that should be considered by BPRD for current park facilities.
- ***Standards Recommendations and Development of Guidelines***
Preparation of this Sustainable Design Guidelines report (CDM – February 2011) provides BPRD with recommendations regarding sustainable standards, details and includes development of checklist for overall project sustainability. CDM expanded this study to include analysis of current operations and maintenance activities with recommendations for improvements related to overall BPRD sustainability.
- ***Development of Sustainability Performance Improvement Management System***
During completion of this project, CDM worked with BPRD management and staff to develop a management system intended to help with prioritization, tracking and reporting of project successes. The management system is discussed below with an update on the current implementation status and recommendations for continued use to support BPRD's overall sustainability efforts.

6.2 Sustainability Performance System

In conjunction with the review of sustainability practices, CDM worked with BPRD management and staff to develop and implement a system to track and recognize the sustainability practices that are implemented by BPRD regardless of whether they are developed as part of the planning and design process or they come from the construction, operations and/or maintenance activities.

To support the BPRD as they implement future sustainability efforts developed as a result of this report and/or other initiatives underway in the City of Boston, CDM utilized our Sustainable Performance Improvement Management System. The intent of the system is to present a strategy to engage stakeholders in the process of identifying and implementing sustainability improvements in BPRD operations. In addition, use of this strategy will provide BPRD with important data necessary to communicate the success of your sustainability efforts.



As part of the implementation process for the Sustainable Performance Improvement Management System, CDM worked with BPRD staff to develop a sustainability project strategy and to engage stakeholders in an awareness building program at the beginning of the study phase. During the project execution phase, CDM worked with BPRD staff to conduct assessments, to identify opportunities and to establish objectives or targets for specific activities. BPRD already initiated several sustainability practices to improve operations. CDM recommends that BPRD continue to monitor performance of the sustainability initiatives and communicate progress to BPRD staff and City leaders. Over time these measures will help BPRD to institute cultural changes and continual improvement relative to sustainability goals.

6.3 Conclusions

Against the impressive level of success with sustainability programs in the City of Boston, our review of the current BPRD operational practices indicates that the BPRD management and staff are already committed to and implementing many of the principles of sustainability in their current daily activities and planning for the future of the Boston Park system.

The sustainability project guidelines and checklist presented in Section 2 are useful starting points for BPRD with respect to assessment, planning, design, construction and operations of existing and/or new BPRD facilities. CDM short- and long-term recommendations for use and modification of the new sustainability guidelines and project checklist are intended to provide for continuous and sustainable improvement in BPRD facilities throughout their lifecycle. Implementation of sustainability reviews by BPRD staff for projects of varying scope and complexity would be an effective method to evaluate effectiveness of new sustainability guidelines and project checklist.

The review of BPRD standard details and specifications described in Section 3 provided BPRD with appropriate considerations for use during evaluation of sustainable options as part of planning, design and construction. CDM's review focused on the standard details and specifications provided to CDM by BPRD. Potential short- and long-term goals for BPRD staff would be to develop additional standard details and specifications related to improved sustainability performance. An area of particular importance would be for BPRD to develop additional stormwater management specifications and details that improve sustainability.

Section 4 provides a summary of sustainable stormwater management tools and planning/design considerations for BPRD as it begins the process of identifying, cataloging, and monitoring stormwater discharges from BPRD facilities in the City. This section also includes important considerations for BPRD as it seeks to partner on sustainability and/or stormwater programs with other city agencies or departments. BPRD should consider additional opportunities to reduce resource consumption and utilize stormwater for irrigation purposes (especially in high water use situations).

In Section 5 the concept of integrating sustainability into the BPRD purchasing practices is a challenging effort that must be undertaken in phases as regulations and funding conditions allow. BPRD's efforts to develop sustainable planning, design and construction performance standards are an effective way to maximize the integration of sustainable practices into their purchasing, operations and maintenance practices. It is important to remember that a "sustainable" project moves beyond purely green components to integrate concepts of Economic Growth and Social Responsibility. As part of its ongoing commitment to sustainability BPRD should consider increased energy conservation efforts including installation of remote controlled lighting systems that will improve safety and sustainability of park use.

In terms of sustainable operations and maintenance activities, the BPRD should continue to expand the use of hybrid vehicles and alternative fuels. BPRD staff should also expand sustainable waste management and recycling practices at BPRD facilities using solar compactors as appropriate. BPRD should also increase recycling requirements and documentation process for relevant BPRD construction projects.

6.4 Recommendations

BPRD's efforts to develop and implement sustainable principals into the planning, design, construction and operations of park facilities in the City has resulted in demonstrated level of success to date and a series of recommendations for additional improvements as presented within this report. These recommendations are consistent with the sustainability principles developed by BPRD and consistent with the ongoing sustainability efforts within the City of Boston.

CDM worked with BPRD staff to develop the recommendations contained in this report and to identify quantifiable short- and long-term goals for BPRD to consider as part of their ongoing integration of sustainability principles in the operation of the City's park system. The short-term recommendations focus on the next two budget cycles and the long-term recommendations look at things that can be accomplished in 3 to 5 budget cycles depending on the scope and the availability of funding. In addition, CDM has also included potential opportunities than can be implemented immediately to improve BPRD's overall sustainability.

BPRD staff should utilize the information presented herein to develop and prioritize the sustainable activities and operational enhancements recommended in this report in a manner that can be clearly identified, measured and communicated to important internal and external stakeholders for BPRD. It is also important for BPRD to maintain flexibility to respond to sustainable opportunities as they arise. Key short-term and long-term goals are summarized below with additional details provided with the relevant section of the report and supporting appendices.

6.4.1 Short-Term Recommendations

The following represent short-term sustainability opportunities for BPRD:

- Recognize and document sustainability efforts already in use and/or recently developed by BPRD staff in conjunction with the *Sustainable Energy and Design Standards Study*. Share these accomplishments with City leaders and other City Departments. Partner with other City Departments as appropriate. Develop signage/information to communicate success of sustainability programs in Parks.
- Identify legal and/or political challenges and opportunities facing BPRD with respect to public use, operations and maintenance of BPRD facilities including implementation of sustainable practices. An example would be for the BPRD to support expansion of the bottle bill in an effort to increase recycling at BPRD facilities and to reduce overall volume of waste and cost of disposal.

- Implement Use of Sustainability Guidelines and Pre-Design Checklist making recommendations for improvements and development of additional checklists as necessary. Expand/edit content and format of tables to maximize effectiveness for all aspects of traditional and non-traditional BPRD projects. Develop range of project scores to achieve various levels of sustainability in the eyes of BPRD staff.
- Expand use of BigBelly solar compactors to include recycling program for pilot parks. Expand pilot program based on review of operational efficiencies and overall sustainability after 2 full years of use.
- Continue to expand use of other “green” techniques in on-going maintenance, operations, and capital improvement projects and practices, including stormwater management, plant materials, recycled materials, and energy efficient materials and processes. Identify locally available materials and sustainable products.
- Continue to research and incorporate sustainable green techniques and materials into capital improvement projects and/or operations and maintenance practices. Use research and experience to develop additional sustainable standard details and specifications from ongoing and future projects/activities.
- Increase purchase and use additional hybrid and/or electric vehicles (maintenance carts, cars, small SUVs, pickups and large SUVs).
- Implement small-scale renewable energy demonstration project and/or solar lighting project at a BPRD facility. Track and report progress. See *Evaluation of Renewable Energy Generation Opportunities at Parks Department Sites* (CDM, September 2010) for more detailed information.
- Identify potential mid to large scale renewable energy projects for BPRD facilities and consider implementation based on further study and/or the availability of funding. See *Evaluation of Renewable Energy Generation Opportunities at Parks Department Sites* (CDM, September 2010) for more detailed information.
- Participate in Boston’s Green Capitals program at City Hall Plaza.
- Continue to utilize Sustainability Performance Improvement Model to implement sustainable initiatives, monitor performance and communicate progress to BPRD stakeholders. Use information to support Boston About Results performance reporting for BPRD activities
- Reduce resource (water, fuel, paper) consumption. Set benchmark reduction levels and monitor progress.
- Develop web-based GIS applications to enhance public use and operations of the BPRD system (for use by park users and staff). Integrate the GIS enhancements with existing online park maintenance requests to better track and plan for maintenance needs. Integrate the GIS system with the Parcel Prioritization Model

intended to systematically evaluate and prioritize the acquisition potential of available vacant parcels for inclusion in the city's public open space program.

- Continue to support Growing Boston Greener Initiative to achieve the 35% canopy coverage goal while distributing the benefits in an environmentally equitable fashion throughout all the neighborhoods in the City.
- Expand public/private partnerships and sponsorship programs aimed at increasing the overall sustainability of BPRD facilities and operations.
- Increase use and functionality of online procurement system for construction services and/or for consulting services.

6.4.2 Long-Term Recommendations

The following bullets represent long-term recommendations and/or ongoing commitments for BPRD to consider as part of the sustainability of its operations.

- Continue to recognize and document sustainability efforts implemented by BPRD staff in conjunction with the *Sustainable Energy and Design Standards Study*. Share these accomplishments with City leaders and other City Departments. Partner with other City Departments as appropriate. Develop signage/information to communicate success of sustainability programs in Parks.
- Continue to utilize the Sustainability Guidelines and Pre-Design Checklist making recommendations for improvements and development of additional checklists as necessary. Expand/edit content and format of tables to maximize effectiveness for all aspects of traditional and non-traditional BPRD projects.
- Consider implementation of additional renewable energy demonstration project(s) and/or plan for and budget to install one medium to large scale renewable energy installation at an existing BPRD facility. Evaluate best available technology and conditions for the specific facility chosen. Track potential funding opportunities.
- Identify, implement and track long-term opportunities to enhance sustainable standard details and specifications (based on changes in technologies, regulations or sustainable operations practices).
- Expand use of LED lighting in BPRD facilities based on results of ongoing demonstration project and availability of funding.
- Consider potential partnerships with the Boston Public Works Department (PWD) and/or with Boston Water and Sewer Commission (BWSC) relative to sustainable stormwater management opportunities mutually beneficial to all parties and consistent with regulatory requirements facing the City.

- Continue to work with other municipal and regional jurisdictions to improve ecological systems shared by them and Boston, using watershed protection principles and regional projects such as greenways as a basis for cooperation.
- Support the existing public and private programs dedicated to the care of park system and encourage the creation of other public and private open space enhancement programs.
- Continue to expand use of web-based and/or electronic data management systems for permitting and procurement of services associated with BPRD operations.
- Implement an ongoing evaluation program for all operations and maintenance activities in order to support sustainability improvement efforts, in order to respond to the use of emerging technologies and to respond to changes in the needs of the BPRD.
- Work with city leaders, state officials and political leaders to identify programs and funding opportunities that have an overall benefit on the sustainability of BPRD operations including but not limited to identifying and supporting beneficial changes in local or state regulations as appropriate.
- Work with city, state, and federal agencies to improve the natural resources of our open space system, especially our vulnerable water bodies.
- Protect city-owned urban wilds and other natural areas from development, encroachment, and uses that degrade their natural character. Advocate for the long-term protection and stewardship of urban wilds and other natural areas not owned by the City. Acquire through transfer or purchase urban wilds and natural areas where community support warrants the protection of highly valued natural resources and ecosystems/habitats.
- Manage and maintain city-owned urban wilds and other natural areas to facilitate public access and promote ecological values. Promote the use of city-owned urban wilds and other natural areas for passive recreation, environmental education, and other uses in keeping with their natural character. Develop administrative, fiscal, and programmatic resources to ensure ongoing, long-term maintenance and management of city-owned urban wilds and other natural areas.
- Develop and implement an urban tree and forest management and development plan (of which the Emerald Necklace Woodlands Program is a sub-set) which highlight the city's trees as a part of the capital infrastructure that ensures a quality environment (air, visual, climate, and wildlife).

Note: Several of the above noted long-term sustainability goals are from the City's current *Open Space Plan* and will contribute significant benefits to the overall sustainability of the Boston Park system.