

Appendix C



LEED 2009 for New Construction and Major Renovation

Project Checklist

BMC - New Energy Facility

17-Feb

18 | 7 | 1 Sustainable Sites Possible Points: 26

Y	N	?	Prereq	Description	Points
1			Credit 1	Construction Activity Pollution Prevention	1
5			Credit 2	Site Selection	5
1			Credit 3	Development Density and Community Connectivity	1
6			Credit 4.1	Brownfield Redevelopment	6
1			Credit 4.2	Alternative Transportation—Public Transportation Access	1
3			Credit 4.3	Alternative Transportation—Bicycle Storage and Changing Rooms	3
2			Credit 4.4	Alternative Transportation—Low-Emitting and Fuel-Efficient Vehicles	2
1			Credit 5.1	Alternative Transportation—Parking Capacity	1
1			Credit 5.2	Site Development—Protect or Restore Habitat	1
1			Credit 6.1	Site Development—Maximize Open Space	1
1			Credit 6.2	Stormwater Design—Quantity Control	1
1			Credit 7.1	Stormwater Design—Quality Control	1
1			Credit 7.2	Heat Island Effect—Non-roof	1
1			Credit 8	Heat Island Effect—Roof	1
1				Light Pollution Reduction	1

0 | 6 | 4 Water Efficiency Possible Points: 10

Y	N	?	Prereq	Description	Points
4			Credit 1	Water Use Reduction—20% Reduction	4
2			Credit 2	Water Efficient Landscaping	2
2			Credit 3	Innovative Wastewater Technologies	2
2				Water Use Reduction	2

2 | 31 | 2 Energy and Atmosphere Possible Points: 35

Y	N	?	Prereq	Description	Points
17			Credit 1	Fundamental Commissioning of Building Energy Systems	17
7			Credit 2	Minimum Energy Performance	7
2			Credit 3	Fundamental Refrigerant Management	2
2			Credit 4	Optimize Energy Performance	2
3			Credit 5	On-Site Renewable Energy	3
2			Credit 6	Enhanced Commissioning	2
2				Enhanced Refrigerant Management	2
2				Measurement and Verification	2
2				Green Power	2

4 | 9 | 1 Materials and Resources Possible Points: 14

Y	N	?	Prereq	Description	Points
3			Credit 1.1	Storage and Collection of Recyclables	3
1			Credit 1.2	Building Reuse—Maintain Existing Walls, Floors, and Roof	1
2			Credit 2	Building Reuse—Maintain 50% of Interior Non-Structural Elements	2
2			Credit 3	Construction Waste Management	2
2				Materials Reuse	2

Materials and Resources, Continued

Y	N	?	Prereq	Description	Points
2			Credit 4	Recycled Content	2
1			Credit 5	Regional Materials	1
1			Credit 6	Rapidly Renewable Materials	1
1			Credit 7	Certified Wood	1

14 | 0 | 1 Indoor Environmental Quality Possible Points: 15

Y	N	?	Prereq	Description	Points
1			Prereq 1	Minimum Indoor Air Quality Performance	1
1			Prereq 2	Environmental Tobacco Smoke (ETS) Control	1
1			Credit 1	Outdoor Air Delivery Monitoring	1
1			Credit 2	Increased Ventilation	1
1			Credit 3.1	Construction IAQ Management Plan—During Construction	1
1			Credit 3.2	Construction IAQ Management Plan—Before Occupancy	1
1			Credit 4.1	Low-Emitting Materials—Adhesives and Sealants	1
1			Credit 4.2	Low-Emitting Materials—Paints and Coatings	1
1			Credit 4.3	Low-Emitting Materials—Flooring Systems	1
1			Credit 4.4	Low-Emitting Materials—Composite Wood and Agrifiber Products	1
1			Credit 5	Indoor Chemical and Pollutant Source Control	1
1			Credit 6.1	Controllability of Systems—Lighting	1
1			Credit 6.2	Controllability of Systems—Thermal Comfort	1
1			Credit 7.1	Thermal Comfort—Design	1
1			Credit 7.2	Thermal Comfort—Verification	1
1			Credit 8.1	Daylight and Views—Daylight	1
1			Credit 8.2	Daylight and Views—Views	1

5 | 1 | 0 Innovation and Design Process Possible Points: 6

Y	N	?	Prereq	Description	Points
1			Credit 1.1	Innovation in Design: Article 37 "Modern Grid" CHP System	1
1			Credit 1.2	Innovation in Design: Article 37 "Modern Mobility" TDM Plan	1
1			Credit 1.3	Innovation in Design: Green Cleaning Plan	1
1			Credit 1.4	Innovation in Design: Green Building Education Plan	1
1			Credit 1.5	Innovation in Design: Article 37 "Groundwater Recharge"	1
1			Credit 2	LEED Accredited Professional	1

2 | 2 | 0 Regional Priority Credits Possible Points: 4

Y	N	?	Prereq	Description	Points
1			Credit 1.1	Regional Priority: SSC6.1: Stormwater Design-Quantity Control	1
1			Credit 1.2	Regional Priority: SSC7.2: Heat Island Effect-Roof	1
1			Credit 1.3	Regional Priority: Specific Credit	1
1			Credit 1.4	Regional Priority: Specific Credit	1

45 | 56 | 9 Total Possible Points: 110

Certified 40 to 49 points Silver 50 to 59 points Gold 60 to 79 points Platinum 80 to 110

Appendix D

Green Committee Update

September 2009

New Construction

The Design and Construction department continues to evolve in utilizing green design and construction elements for our projects. Our most significant effort to date is the design and construction of the Shapiro Ambulatory Care Center currently beginning construction. The project is registered with Green Guide for Health Care (GGHC) which is based on the LEED point system (the original national model for sustainable building design). The GGHC system tracks all possible sustainable options utilized within a project. The Shapiro project is aspiring to gain points in optimizing energy performance, recycling and salvage non-hazardous construction and demolition debris, using low-emitting materials for interior paints and flooring systems, striving for occupant thermal comfort to name a few of the many point goals available in the GGHC program.

This project is a true success story in the efforts made by many BMC project team members to create the first official "green" based building on our campus and will be a major contribution to our goal of Patient Satisfaction here at BMC. As we move forward with all our capital projects, we will be incorporating as many green elements as possible in each project for all aspects of planning and construction thus ever widening the circle of contribution to our patients and campus environment.

Green Cleaning

BMC has used Green Seal Certified Chemicals throughout the year. Microfiber mops are coming and the savings in terms of cost and water consumption are impressive. Using 575 beds cleaned per day here are the differences per month

	Mop and Bucket	Microfiber
Cost	\$690.	25.88
Water gallons used	767	28.75

Recycling January – August '09

	<u>Tons</u>	<u>Gallons</u>
Paper	98.34	
Cardboard	119.52	
Comingled	11.247	
Metal	.2	
Bulbs	1.355	
Solvents		176
Cooking Oil		1,910
Total	230.66	2,086

All of these materials were removed from our waste stream reducing the cost of hauling and disposing of them.

Food and Nutrition (Focus on the Environment)

Implemented a sustainable seafood policy which protects endangered fish species. This has impacted 7,470 pounds of Cod this year.

Implemented a policy to protect the humane treatment of farm animals. This has resulted in the purchase of cage free eggs which impacts 100,000 eggs at BMC annually.

Transitioned all styrofoam trays from our retail operations which has resulted in removing 20,000 styrofoam trays annually from our waste stream.

We have removed all of our metals, plastics and glass from our kitchen waste stream which has resulted in 5 tons of comingled material recycled.

We have marketed a Reusable Coffee Mug program in our retail operations which has saved 52,000 paper cups, sleeves and lids from being tossed into our waste stream.

We have replaced all of our grab n go Plastic containers with a container which is made from 100% annually renewable resources; this has impacted 19,000 containers this year.

We have removed all of our plastic based lids from our retail operations which remove 156,000 lids from our waste stream annually

We are purchasing our dairy from a vendor which has partnered with local New England farms.

We have replaced all of our catering plastic trays and plastic hinged containers with a cardboard based solution which in turn is recycled and removed from the waste stream.

We recycle 3,600 gallons of cooking oil annually which in turn is transitioned into a fuel solution for vehicles.

Transportation

Transportation Solutions for Commuters, Inc.

TranSComm encourages all forms of alternative transportation to decrease traffic congestion in our neighborhood, to improve air quality and to encourage “green” awareness.

Listed are some of the successful TranSComm programs of alternative transportation:

Carpooling and Hybrid car use:

- Carpool and Hybrid Preferential Parking Program began June 18, 2007

- Additional capacity (twice as many) was added October 6, 2008.
- GOOSE NETWORKS introduced an innovative concept of ridesharing via text and cell phones as part of a state grant.
- Discounted ZIPCAR (“wheels when you want them”) program continues to be successful
- ZIPCAR now has one HYBRID and one conventional car on campus. (both are well utilized!)

Cycling:

- TWO, SECURE BIKE CAGES are available on campus with active membership of 348 cyclists
- TranSComm organized their FOURTEENTH Annual Bike-To-Work/School Event entitled, “Kick Gas”
 - Online registration, free bike luncheon for registered cyclists
 - TranSComm wins award for “Most Cyclists” in our size category (again!)
 - TWO Bike Safety Check Ups donated by REI and EMS - 70 cyclists served

Walking:

- MEDICAL HISTORY WALKS: this summer/fall we had four guided walks with local historian, Alison Barnet
- FIRE UP YOUR FOOT POWER SUMMER PROGRAM
(BUMC commuters reported their “foot power” commutes: walking, cycling, jogging, rollerblading, etc.)
Of the 10 participating TMA (transportation management associations) teams, TranSComm placed FIRST!
Our 161 participants actively commuted a combined total of 29,399 miles and prevented 23,206 lbs of CO2 from being emitted into the regional atmosphere. And to make it sweeter, four medical center employees won a check for \$25.00 that was awarded weekly during the summer.
Congratulations to all 161 members of our community that chose an active commute last summer.

MBTA Participation:

- Semester Pass Program offered with 11% discount
- BMC offers a 30% discount to employees
- Payroll-deducted, pre-taxed employee pass program delivered with paychecks, downloaded onto Charlie cards each month
- Distribution of MBTA bus schedules, notices, information, etc. at transportation kiosks in all lobbies and front desks
- MBTA mini-events, contests, incentives

Green Awareness:

- FIRST Green Transportation Fair with BMC Green Committee hosted hybrid car owners for informational event
- TranSComm is active in BMC and BU’s Green Committees

Personalized Commutes Planned:

- TranSComm plans individual alternative commutes for all members of the medical center seeking assistance.

Memberships

- Association for Commuter Transportation (ACT) • ACT/Patriot Chapter • Mass Bike • **Walk** Boston • Mass Commute • Transit Works

Pharmaceutical Waste Management

Hazardous Pharmaceuticals collection expanded from Pharmacy to clinical areas throughout hospital. This effort included creating and assigning an online training program for nursing staff, locating and distributing collection buckets, creating labeling through pharmacy and Pyxis machines, and signage at each collection location.

Food Pantry

Reduce the use of plastic at the pantry by approximately 50%. In 2007 we used 2 cases of bags per week. We are now using 1-1/2 cases a week with an increase of 51% of the number of people served.

Appendix E

BOSTON REDEVELOPMENT AUTHORITY

SCOPING DETERMINATION

FOR

INSTITUTIONAL MASTER PLAN NOTIFICATION FORM/PROJECT

NOTIFICATION FORM

BOSTON UNIVERSITY MEDICAL CENTER/BOSTON MEDICAL CENTER

ENERGY FACILITY

PREAMBLE

Boston University Medical Center (“BUMC”) is comprised of Boston Medical Center (“BMC”) and Boston University Medical Campus (“BU Medical Campus”) which includes three of Boston University’s health science schools – the School of Medicine, Goldman School of Dental Medicine and the School of Public Health. The BUMC campus is located in Boston’s South End neighborhood and is comprised of approximately 20 acres including 28 BUMC campus-owned or controlled buildings, a helipad and development parcels. BMC and BU Medical Campus also leases spaces in 8 buildings located on and/or proximate to the campus. Total BUMC owned or controlled and leased space is approximately 3 million square feet of usable space.

As stated in Section 80D-1 of the Boston Zoning Code (“Code”), “the purpose of Institutional Master Plan Review is to provide for the well-planned development of Institutional Uses in order to enhance their public service and economic development role in the surrounding neighborhoods.” Under the Code, an Institutional Master Plan (“IMP”) has a dual purpose of meeting the needs of the institution and relating the campus to its context in a positive way. In preparing its IMP and Supplemental Materials, BUMC will need not only to demonstrate an understanding of its future facilities needs but also the context of its campus; identification of all owned, leased and planned space, land uses, physical characteristics, planned changes, resident desires, and applicable public policy.

The BRA also seeks to enhance BUMC's presence in the City of Boston as an important economic development entity and employer. Care should be taken to respond to the concerns outlined below:

1. The BRA seeks to understand the long-term plans of its institutions in the so that necessary growth by institutions can be allowed on a fair and equitable basis. Therefore, the BRA requires 10 year IMPs of all institutions. Institutions will be required to provide updates to the BRA on the status of their IMP and any projects and commitments therein every 2 years on the anniversary of their approval by the Boston Zoning Commission.
2. Attractive residential neighborhoods are viewed by the BRA as being vital to the long-term success of Boston. BUMC sits within the context of the South End neighborhood. Impacts from institutional project construction, operations and expansion must have minimal negative impacts on the neighborhoods and BUMC should take appropriate steps to ensure this.
3. A Task Force has been appointed to assist and advise the BRA on the BUMC IMP and Proposed Projects. BUMC is requested to provide 2 year regular updates to Task Force members in addition to the BRA.

SUBMISSION REQUIREMENTS

The Boston Redevelopment Authority (“BRA”) is issuing this Scoping Determination pursuant to Section 80D-1 and Section 80B-5 of the Boston Zoning Code (the “Code”). Pursuant to Article 80D of the Boston Zoning Code (“Code”) the Boston University Medical Center Corporation and the Trustees of Boston University (collectively known as the “Proponents”) submitted an Institutional Master Plan Notification Form (“IMPINF”) to the Boston Redevelopment Authority (“BRA”) on September 25, 2009. The IMPINF includes three new construction projects over the next 10 years: (1) Energy Facility – an approximately 48,000 square foot building on an existing parking lot located to the east of the Power Plant to improve energy efficiencies, ensure reliability, and support greener campus growth (“Proposed Project”); (2) Administration/Clinical Building – an approximately 160,000 square foot building on the surface parking lot located on the north side of the Power Plant along Albany Street; (3) New Inpatient Building – an approximately 405,000 square foot building on the Dowling Building site to support increased inpatient volume and the growth in Emergency Service and Trauma volume, which will necessitate the demolition of the Dowling Building. Notice of the receipt by the BRA of the IMPINF was published in the Boston Herald on September 25, 2009 initiating a public comment period ending on October 27, 2009.

In conjunction with the submission of the IMPINF, BMC submitted a Project Notification Form (“PNF”) which seeks Large Project Review, under Section 80B of the Code, for the Energy Facility Project (“Proposed Project”) as described above on September 25, 2009. Notice of the receipt by the BRA of the PNF was published in the Boston Herald on September 25, 2009 initiating a public comment period ending on October 27, 2009.

Pursuant to Section 80D-4.3c and Section 80B-5.3c of the Code a scoping session was held on October 13, 2009 with the City’s public agencies and to which members of the Task Force were invited and attended. Task Force

meetings, where the proposed IMP and Proposed Project were reviewed and discussed, were held on September 28, 2009 and October 13, 2009. The Task Force also toured the campus and met with key administrators on November 9, 2009. A public meeting was held on October 20, 2009. Based on the BRA's review of public comments and comments from the City's public agencies, the BRA hereby issues its Scoping Determination pursuant to Section 80D-4.3 and Section 80B-5.3 of the Code. Comments from the City's public agencies are attached and incorporated as a part of this Scoping Determination.

This Scoping Determination requests information required by the BRA for its review of the proposed IMP in connection with the following:

1. Approval of the Children's IMP pursuant to Article 80 and other applicable sections of the Code;
2. Recommendation to the Zoning Commission for approval of the BUMC Institutional Master Plan.

The BUMC IMP should be documented in a report of appropriate dimensions and in presentation materials which support the full review of the IMP. Twenty-five copies of the full IMP should be submitted to the BRA. An additional fifty copies should be available for distribution to the Task Force members, participants, community groups and other interested parties in support of the public review process. The IMP should be uploaded on the BUMC or other appropriate website so that it may be viewed electronically. The IMP should be submitted 1) as a stand-alone document, and 2) electronically in the form of CD's. The IMP should reference and/or include information from the Supplemental Materials that is also submitted to the BRA to meet the requirements of Large Project Review for the Proposed Project. The IMP document should include this Scoping Determination and text, maps, plans, and other graphic materials sufficient to clearly communicate the various elements of the IMP.

BUMC will be responsible for preparing and publishing in one or more newspapers of general circulation in the City of Boston a Public Notice of the submission of the IMP and Supplemental Materials to the BRA as required by Section 80A-2. This Notice shall be published within five (5) days after the receipt of the IMP and Supplemental Materials by the BRA. Public comments shall be transmitted to the BRA within sixty (60) days of the publication of this Notice, unless a time extension has been granted by the BRA in accordance with the provisions of Article 80 or to coordinate the IMP review with any required Large Project Review. Following publication of the Notice, BUMC shall submit to the BRA a copy of the published Notice together with the date of publication.

From: Gandhi, Sonal [Sonal.Gandhi.bra@cityofboston.gov]
Sent: Tuesday, October 13, 2009 4:07 PM
To: Kristi Dowd
Cc: Giers, Bob
Subject: FW: Boston Medical Center - IMP
 Kristi - Please see below.
 Bob – Thanks.
 Sonal

From: Giers, Bob
Sent: Tuesday, October 13, 2009 4:05 PM
To: Gandhi, Sonal
Cc: Jayasinghe, Para; Leo, Vincent; Banks, Joseph; Spinetto, Stephen; Crasco, Ken - Parks Dept.; McCarthy, Timothy (Public Works); Cardarelli, Mark; Goodfellow, Karin; 'Hopkins, Thomas (DPS)'
Subject: Boston Medical Center - IMP

hi Sonal, here are PWD comments for the subject project Phase I only, for the proposed new Energy Facility at 750 Albany Street, where the developer is estimating the cost of the project to be approximately \$ 82,000,000:

Site Plan:

Developer must provide an engineer's site plan at an appropriate engineering scale, that shows curb functionality on both sides of all streets that abuts the property. PWD 1

Sidewalks:

Developer is responsible for the reconstruction of the sidewalks abutting the project, and where appropriate, extend the limits to the nearest intersection. In order to improve pedestrian flow to and from the site and encourage and compliment pedestrian improvements and travel along all sidewalks within the Public Right of Way, the Developer is also requested to extend beyond the limits of the site other improvements to the immediate and relevant surrounding sidewalks and streets abutting the project. PWD 2

In order to enhance the accessibility to the pedestrian travel of the immediate area, the sidewalks and intersections within the project limits must meet the BPWD requirements and be brought into full compliance with the ADA/AAB. The reconstruction effort must meet current ADA guidelines, including the installation of new or reconstruction of existing compliant pedestrian ramps at all corners of all intersections. This effort may constitute a License, Maintenance and Indemnification (LM&I) agreement with the Public Improvement Commission (PIC).

NOTE: The developer is encouraged to contact Mr. Thomas Hopkins, Director of the Massachusetts Architectural Access Board, as needed, to ensure compliance with, and adherence to, the MAAB Rules and Regulations.

Discontinuances:

Any and all discontinuances (sub-surface, surface or above surface) within the Public Right-of-Way (ROW) must be processed through the PIC. PWD 3

Landscaping:

Developer must seek approval from Ken Crasco, Chief Landscape Architect with the Parks and Recreation Department for all landscape elements. Program must accompany a LM&I with the PIC. PWD 4

Street Lighting:

Street lighting needs must be consulted with Mr. Joe Banks of the Street Lighting Division with the PWD, and where needed, be installed by the developer, and must be consistent with the area lighting, to provide a consistent urban design. PWD 5

Roadway:

Based on the extent of construction activity, including utility connections and taps, the Developer will be responsible for the reconstruction of the roadway sections that immediately abuts the property, and where appropriate, extend the limits on re-construction to the nearest intersection. PWD 6

Roadway Clearance:

The Highway Division of Public Works is responsible for the clearance process pertaining to BPWD capital projects, such as reconstruction, resurfacing, etc. PWD 7

Developer must contact Mark Cardarelli in order to determine whether the development parcel(s) are on proposed capital projects or are free of conflict.

Public Trash Receptacles:

Developer to consult with Tim McCarthy of BPWD, and is responsible for purchasing solar powered trash compactors consistent with City of Boston's plan.

PWD 8

Public Art:

Developer is encouraged to contact Karin Goodfellow, Boston Arts Commission to participate with the City's public arts program, creating notable art pieces in public spaces.

PWD 9

Groundwater:

Developer should install groundwater-monitoring wells in accordance to ISD standards, to monitor groundwater levels during construction, and convey the wells to the Groundwater Trust through the PIC after the completion of the project.

PWD 10

Note: these are the general standard BPWD requirements applicable to every project, more detailed comments will be addressed during the PIC review process.

Any questions please give me a call at 617-635-4966

Thank you, Bob Giers

The substance of this message, including any attachments, may be confidential, legally privileged and/or exempt from disclosure pursuant to Massachusetts law. It is intended solely for the addressee. If you received this in error, please contact the sender and delete the material from any computer.

Help make the earth a greener place. If at all possible resist printing this email and join us in saving paper.

November 9, 2009

John Palmieri, Director
Boston Redevelopment Authority
Boston City Hall, Room 925
Boston, MA 02201
Attention: Sonal Gandhi, Senior Project Manager

Re: Boston Medical Center Energy Facility - Project Notification Form

Dear Director Palmieri:

The City of Boston Environment Department has reviewed the Project Notification Form (PNF) and offers the following comments.

The proponent, Boston Medical Center (BMC), part of Boston University Medical Center (BUMC), proposes to construct a new 48,000 square foot (sf), 100-foot tall combined heat and power (CHP) energy facility. Emission stacks will be 160 feet above ground level. The structure will have one below-grade level and four above. The project site is adjacent to the BMC "Power Plant," located at 750 Albany Street, north of the Massachusetts Avenue Connector and west of East Concord Street, and is bounded by a service area, existing buildings on two sides and a site for a future administration/clinical building for BMC. The project site is in the Groundwater Conservation Overlay District (GCOD) and the South End Protection District. Construction is expected to begin during the fourth quarter of 2010 and take about 18 months.

The Power Plant provides chilled water and is the steam and electric distribution center for the campus so is not a power plant in the true sense. Minor renovations will be made to the Power Plant to allow for circulation between the two buildings.

The goal of the project is to provide reliability, efficiency and reduced environmental impact using state-of-the-art technologies for the production of electricity and steam. It is expected that, through cogeneration, the plant will meet 95 percent of its high-pressure steam needs and 75 percent of the electrical needs for the BMC/BUMC campus. Cogeneration will result in energy costs lower than those associated with traditional systems.

BMC has already engaged in demand-side energy savings through the use of building automation systems, upgrades and replacement of systems, the centralization of mechanical systems and the installation of pipe and electrical infrastructure designed to accommodate the connection of separate utility systems at various locations on the campus.

The Energy Facility will use two combustion turbine generators (CTG) and two duct burners to provide supplemental steam to the existing distribution system. The turbines and duct burners will be equipped with NO_x, CO and VOC controls. They will be fueled by natural gas; fuel oil from an existing tank will be used to ensure operation in the event of an emergency. Heat recovery generators (HRC), auxiliary systems and ancillary equipment will also be part of the system. Auxiliary systems include condensate and feed water systems, control system, natural gas, chemical treatment, ammonia, fuel gas piping, gas compressors, plant air systems, HVAC systems and chilled water.

BMC expects that the facility will reduce its CO₂ emissions by 18,000 metric tons during the first year of operation. An Environmental Results Program Installation Compliance Certification for New Engines and Turbines (Non-Emergency) and a Non-Major Comprehensive Air Plans Approval application must be filed with the Massachusetts Department of Environmental Protection (DEP). The project will meet DEP requirements for Best Available Control Technology (BACT) and comply with National Ambient Air Quality Standards (NAAQS).

A service and loading dock will be located on the south side of the site. Combustion air inlet filters and a plenum will be located on Level Three. The Draft Project Impact Report (DPIR) should indicate if the dock will be fully enclosed and, if not, identify sound expected to result from its use and from building systems and the potential impacts on surrounding users such as laboratories, the office of the Chief Medical Examiner and the proposed clinical/administration building. The closest existing and proposed residential structures should be identified and any potential noise impacts described.

Air intakes and vents should be located as far as possible from pollutant sources (including the positioning of project vents away from project intakes) and from air intakes on adjacent buildings.

The PNF notes that there is no LEED rating system for a CHP facility. Despite that, important sustainability issues, many consistent with LEED credits, can be addressed through attention to the following:

- energy conservation through Energy Star windows;
- the conservation of non-process water;
- stormwater quantity and quality;
- solid waste recycling (An on-site area, appropriate for the small number of employees, should be established for solid waste recycling);
- light pollution reduction (Exterior lighting should meet safety needs while not contributing to light pollution. Fixtures should be shielded and downward directed. We recommend as a resource, the Campaign for Dark Skies which can be accessed at ['http://www.britastro.org/dark-skies/'](http://www.britastro.org/dark-skies/) – click 'Lighting' and then 'Good & bad lighting/.');
- parking capacity (absence of new parking);
- construction waste management;
- construction Indoor Air Quality Management Plan;
- the use of low-emitting materials, as appropriate for space usage;
- controllability of lighting and thermal comfort in areas such as the command and control center, conference room and facilities administration; and
- construction-period best practices.

BED 1

We request specifically that the proponent seriously consider a green roof. Flat roofs are particularly well suited for them; they can easily co-exist with mechanical systems. Benefits include stormwater retention, allowing for re-use or infiltration, the minimization of the heat island effect and a longer life-span than that expected for a non-planted roof. BED 2

If there will be passenger-only elevators, this department suggests that the Proponent evaluate two elevator systems for the project – the Otis Elevator Company’s Gen2 model and Kone’s EcoSpace model. BED 3

The Gen2, manufactured for two to 30-story buildings, requires a smaller sheave size than most standard, passenger elevators so the machine is mounted within the hoistway. Flat polyurethane-coated steel belts are used in place of cable. Otis describes the belts as more durable, flexible and space-saving. This elevator does not require additional lubrication and is advertised as providing a 50 percent reduction in energy use over conventional systems with a 75 percent reduction if combined with a regenerative drive.

Kone manufactures the EcoSpace Low-Rise Elevator, designed for two -10 landings. Kone states that 95 percent of EcoSpace materials are recyclable, that the elevator uses no oil, consumes about 33 percent less energy than that used by hydraulic machines and 50 percent less energy than a conventional traction machine.

We request the Proponent install permanent castings stating, “Don’t Dump: Drains to Boston Harbor,” on the sidewalk next to any catch basin existing, created or modified as part of the project. Plaques should also be installed at drains at other areas on the site. BED 4

It appears that the emission stacks are not included in shadow diagrams. We look forward to diagrams with stacks in the DPIR that include the identification of doorways, bus stops, open space and areas where pedestrians are likely to congregate (in front of historic resources or other tourist destinations, for example) and clear delineation of shadow on both rooftops and facades. BED 5

The DPIR should detail construction plans to ensure compliance with noise regulations and address air quality issues such as dust and particulates. BED 6

The DPIR should indicate where any on site bicycle racks/storage will be located and, if no storage will be provided at the site, the two closest areas for bicycle parking for project staff. BED 7

If the staff locker room will not have a shower, the DPIR should indicate the two closest shower areas on campus available to project staff.

According to the Massachusetts Department of Environmental Protection (DEP), about 33 percent of mobile source particulate matter (PM) and ten percent of all nitrogen oxide (NO_x) pollution in the northeast is caused by construction vehicles. More than 90 percent of diesel engine particulate emissions are highly respirable and carry toxins deep into the lung, exacerbating human respiratory ailments. The U. S. Environmental Protection Agency (EPA) has proposed classification of diesel exhaust as “highly likely to be carcinogenic in humans.” It estimates that diesel engines currently on the road can run for 1,000,000 miles and remain in operation for as long as 20 to 30 years. This amounts to 160 to 240 tons of pollution over the life of each engine.

The use of flow-through filters and diesel particulate filters on pre-2007 diesel vehicles can reduce air quality degradation caused by emissions of carbon monoxide (CO), volatile organic compounds (VOC), NO_x and air toxins generated by heavy-duty equipment. Oxidation catalysts and catalyzed particulate filters reduce toxic emissions of formaldehyde, benzene, acrolein and 1-3 butadiene by as much as 70 percent, decrease localized adverse impacts and reduce dust and odor complaints from project abutters and regulatory agencies. We ask that all pre-2007 diesel construction vehicles working on the project be retrofitted using retrofit technologies approved by the United States Environmental Protection Agency (EPA) and that contractors be required to use ultra low-sulfur diesel (ULSD) fuel (15 ppm), in all off-road construction equipment. BED 9

The South End Landmark District Commission (SELDC) looks forward to reviewing the proposed project. We note that the proposed stacks would be height is ten feet above the 150-foot limit in the Protection District. If the proposed height is required by regulation, please provide such information with the submission. BED 10

This department supports the proposed project and applauds BMC for choosing CHP and for its establishment and work of the Green Committee.

Thank you for the opportunity to offer comment. We look forward to the DPIR.

Sincerely,

Bryan Glascock
Director

Boston

Groundwater Trust

234 Clarendon St., Third Floor, Boston, MA 02116
617.859.8439 voice • 617.266.8750 fax
bostongroundwater.org

October 16, 2009

Board of Trustees

Gary L. Saunders
Tim Ian Mitchell
Co-chairs

Galen Gilbert
Nancy Grilk
Mary Hall
James W. Hunt III
Nikko Mendoza
Aaron Michlewitz
William Moy
Michael Nairne
Honorable Michael P. Ross
Molly Sherden
Peter Sherin

Executive Director

Elliott Laffer

Ms. Sonal Gandhi, Senior Project Manager
Boston Redevelopment Authority
One City Hall Square
Boston, MA 02201-1007

Subject: Boston Medical Center

Dear Ms. Gandhi:

Thank you for the opportunity to comment on the Institutional Master Plan Notification Form for the Boston Medical Center, as well as the Project Notification Form for the BMC Energy Facility. The Boston Groundwater Trust was established by the Boston City Council to monitor groundwater levels in sections of the city where the integrity of building foundations is threatened by low groundwater levels and to make recommendations for solving the problem. Therefore, my comments are limited to groundwater related issues.

I appreciate the acknowledgement by the proponent in both the IMPNF and the PNF that all of the planned projects are located in the Groundwater Conservation Overlay District and the commitment to meet the standards required in the GCOD. For the Energy Facility, which is the project that is more completely designed, I particularly appreciate the commitment in the PNF that the basement including walls and lowest level floor slab will be fully waterproofed, as well as the promise that no long term groundwater pumping will be allowed. The proponent committed in the scoping session to working with the Trust to determine the best location for the recharge system; I look forward to that effort. I also look forward to working with the proponent to determine the best location for the groundwater monitoring well that they have committed to install prior to the start of construction and appreciate that it will be installed in accordance with City and BGwT standards for permanent monitoring wells.

BGwT 1

BGwT 2

Because the project is to be constructed under an Institutional Master Plan and will not need the approval of the Board of Appeals, the process for assuring that groundwater standards are met and commitments are formalized should be spelled out in more detail. I look forward to participating in that effort.

BGwT 3

The commitments spelled out in these documents make me optimistic that the project will be designed and constructed in a way that can only lead to improvements in groundwater levels. I look forward to working with the proponent and the Authority to assure that this promise is kept.

Very truly yours,

A handwritten signature in black ink, appearing to read "Elliott Laffer", written over the typed name.

Elliott Laffer
Executive Director

Cc: Kathleen Pedersen, BRA
Maura Zlody, BED

**Boston Water and
Sewer Commission**



980 Harrison Avenue
Boston, MA 02119-2540
617-989-7000

October 26, 2009

Ms. Sonal Gandhi
Economic Development
Boston Redevelopment Authority
One City Hall Square
Boston, MA 02201

Re: Project Notification Form- Boston University Medical Center Energy Facility

Dear Ms. Gandhi:

The Boston Water and Sewer Commission (BWSC) has reviewed the Project Notification Form (PNF) for the proposed Boston Medical Center Energy Facility (Energy Facility).

The proposed Energy Facility will be located adjacent to the existing Boston Medical Power Plant at 750 Albany Street. The site is currently paved and is entirely impervious. The adjacency to the existing Power Plant is necessary in order to tie into the existing system and enhance operational efficiency. The proposed Energy Facility is comprised of spaces designated for primary mechanical equipment such as combustion turbine generators and heat recovery steam generators, auxiliary systems and ancillary equipment, and the associated distribution infrastructure. Other programmed spaces include a control room, a break room, and a locker room.

The project site is served by a 12-inch high and a 12-inch low pressure line located on Albany Street. Water demand for the Energy Facility is estimated at 435,000 gpd, with a peak demand of 640 gpd for water service. It is anticipated that to maintain uninterrupted water services, separate potable water supply, and fire protection services, supply will be provided from the 12-inch mains on Albany Street. Water supply for steam generation will be provided from the 12-inch low main. Fire protection service will be from the 12-inch high main.

It is estimated that the Energy Facility will generate an estimated 31,800 gallons per day (gpd) of wastewater with a peak discharge of 85 gpm. Most of the wastewater generated will be from process water during the steam generation and condensate. It is anticipated that for sewer service the project will tie directly into the existing sewer services from the Power Plant and Medical Examiner's office which are connected to the 60-inch service at the rear of the site. No new direct connection to the sewer interceptors in the area is proposed and the construction of new sewer mains is not anticipated.

The proponent anticipates that any runoff from non-roof areas and storms in excess of 1-inch of rainfall will be conveyed through existing infrastructure to the Roxbury Canal Conduit.

The proposed structure includes one level below grade and will subsequently involve some subsurface excavation. The foundation elements that are required to extend down to competent soils, below groundwater level, will be solid, discontinuous, discrete elements that will not cause the groundwater to raise, pond or be lowered.

The Energy Facility is located within the Groundwater Conservation Overlay District (GCOD). As such, the project will be required to infiltrate 1-inch of runoff per square foot of new building footprint. The proponent anticipates accomplishing this with a subsurface infiltration system. The system may be designed to accept clean roof runoff and infiltrate it to the ground. As the existing project area is entirely impervious and a new subsurface infiltration system will be installed, any infiltration of stormwater from the proposed project is expected to have a positive effect on groundwater levels in the area. Methods to assure that the project will not result in any negative impacts to the groundwater levels will include fully waterproofed basement (walls and lowest level floor slabs) for the portion of the structure that extends below groundwater levels. Design criteria for the project will include a provision that no long term groundwater pumping will be allowed.

The Commission met with the project proponent's representatives on October 13, 2009, and preliminary plans for the Energy Facility were discussed.

The Commission submits the following comments regarding the proposed Energy Facility:

General

1. The proponent must submit a site plan and a General Service Application to the Commission for the project. The site plan must show the location of existing public and private water mains, sanitary sewers and storm drains serving the project site, as well as the locations of proposed service connections. BWSC 1
2. It is the proponent's responsibility to evaluate the capacity of the water, sewer and storm drainage systems serving the project site to determine if the systems are adequate to meet future project demands. With the site plan the proponent must provide an analysis of the impacts of the proposed project on the Commission's water, sewer and storm drainage systems. BWSC 2

3. With the site plan, the proponent must provide detailed and updated estimates for water demand, wastewater generation, and stormwater runoff for the proposed project. Estimates of water demand and wastewater generation relating to domestic uses must be quantified and provided separately from estimates for the co-generation process. BWSC 3
4. The proponent is advised that should it be determined later that new, relocated, reconstructed or expanded water, sanitary sewer, or storm drainage pipes are required to accommodate the project, the facilities must be designed and constructed at the proponent's expense and in conformance with the Commission's Sewer Use and Water Distribution System regulations. The proponent should continue to keep the Commission apprised of any proposed plans regarding the sanitary sewer, storm drainage or drinking water systems. BWSC 4
5. To assure compliance with the Commission's requirements, the proponent should submit the site plan and General Service Application to the Commission for review when project design is 50 percent complete. BWSC 5

Sewage/Drainage

6. Separate sanitary sewer and storm drain services must be provided from the new facility to the respective pipe in the street. BWSC 6
7. The site plan must show in detail how drainage from building roofs and from other impervious areas will be managed. Roof runoff and other stormwater runoff must be conveyed separately from sanitary waste at all times. BWSC 7
8. The Department of Environmental Protection (DEP), in cooperation with the Massachusetts Water Resources Authority (MWRA) and its member communities, are implementing a coordinated approach to flow control in the MWRA regional wastewater system, particularly the removal of extraneous clean water (e.g., infiltration/ inflow (I/I)) in the system. In this regard, DEP has been routinely requiring proponents proposing to add significant new wastewater flow to assist in the I/I reduction effort to ensure that the additional wastewater flows are offset by the removal of I/I. Currently, DEP is typically using a minimum 4:1 ratio for I/I removal to new wastewater flow added. The Commission supports the DEP/MWRA policy, and will require the proponent to develop a consistent inflow reduction plan. BWSC 8
9. The proponent must fully investigate methods for retaining stormwater on the project site before the Commission will consider requests to discharge additional stormwater to the Commission's system. Under no circumstances will stormwater be allowed to discharge to a BWSC 9

sanitary sewer. A feasibility assessment for retaining stormwater on site must be submitted with the site plan.

10. The discharge of dewatering drainage to a sanitary sewer is prohibited by the Commission. The proponent is advised that the discharge of any construction site dewatering drainage to the storm drainage system requires a Drainage Discharge Permit from the Commission. If the dewatering drainage is contaminated with petroleum products for example, the proponent will be required to obtain a Remediation General Permit from Environmental Protection Agency (EPA) for the discharge.

BWSC 10

11. In conjunction with the site plan and General Service Application the proponent will be required to submit a Stormwater Pollution Prevention Plan. The plan must:

BWSC 11

- Identify specific best management measures for controlling erosion and preventing the discharge of sediment, contaminated stormwater or construction debris to the Commission's drainage system when construction is underway.
- Include a site map which shows, at a minimum, existing drainage patterns and areas used for storage or treatment of contaminated soils, groundwater or stormwater, and the location of major control or treatment structures to be utilized during construction.
- Specifically identify how the project will comply with the Department of Environmental Protection's Performance Standards for Stormwater Management both during construction and after construction is complete.

Water

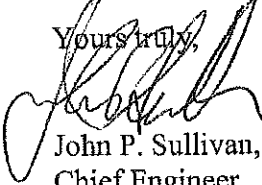
12. The Commission utilizes a Fixed Radio Meter Reading System to obtain water meter readings. Where a new water meter is needed, the Commission will provide a Meter Transmitter Unit (MTU) and connect the device to the meter. For information regarding the installation of MTUs, the proponent should contact the Commission's Meter Installation Department.

BWSC 12

13. The proponent should explore opportunities for implementing water conservation measures in addition to those required by the State Plumbing Code. In particular the proponent should consider outdoor landscaping which requires minimal use of water to maintain. If the proponent plans to install in-ground sprinkler systems, the Commission recommends that timers, soil moisture indicators and rainfall sensors be installed. The use of sensor-operated faucets and toilets in common areas of buildings should also be considered.

BWSC 13

Thank you for the opportunity to comment on this project.

Yours truly,

John P. Sullivan, P.E.
Chief Engineer

JPS/as

cc:

M. Zlody, Boston Env. Dept.
P. Laroque, BWSC
R. Bartlett, Vice President for Finance, BMCC
J. Hobbs, President, RFWalsh collaborative partners



51 Sleeper Street • Boston, Massachusetts • 02210-1208 • 617-778-0900

WWW.RFWCOLLABORATIVEPARTNERS.COM