



Charles River Watershed Association

Boston Redevelopment Authority
One City Hall Square
Boston, MA 02201

Attn: Sonal Gandhi

March 30, 2007

RE: Institutional Master Plan Notification Form (IMPNF)/ Project Notification Form (PNF) for Children's Hospital

Dear Ms. Gandhi

Charles River Watershed Association has reviewed the IMPNF / PNF for the above referenced project. There are several project elements that we believe need further analysis and discussion in the Draft Project Impact Report (DPIR) and should be included in the BRA's Scoping Determination for the IMP in order to ensure that all environmental impacts have been minimized and mitigated. We hope these comments will assist the BRA and Children's Hospital as the planning process moves forward.

Stormwater Management

It is our understanding that the stormwater from this site drains, via the Boston Water and Sewer Commission's (BWSC) municipal storm drain system, into either the Muddy River conduit and out to the Charles River; or, during larger storm events, into the Muddy River Fens and then out to the Charles River via Charlesgate. In either case, stormwater from the site enters and impacts the Muddy River and its drainage network.

As you are undoubtedly aware, there are significant and long-standing flooding and water quality problems in the Muddy River. The US Army Corps of Engineers is currently in the process of designing a dredging and environmental restoration project for the entire Muddy River that is estimated to cost well over \$60 million. The Muddy River Restoration project is needed to reduce significant flood hazards, to improve water quality, to restore degraded habitat, and to remove sediments that have accumulated in the Muddy River. Most of these problems are a direct result of stormwater discharges into the Muddy River.

Any redevelopment that is proposed in areas that drain directly into the Muddy River system, therefore, needs to focus carefully on stormwater management issues, and should maximize opportunities to reduce peak storm flows, minimize imperviousness, maximize infiltration and capture sediments. The significant expenditure that will be made by the federal and state government, as well as by the City of Boston, to dredge and restore the Muddy River must be protected to the maximum extent possible.

The IMPNF/PNF indicates that Children's Hospital will submit a stormwater management plan to BWSC and work with them on meeting stormwater quality goals. It is our hope that the IMP and DPIR will study various alternatives to enhance stormwater management on the site so as to demonstrate how improvements will be made over the existing conditions.

We feel that the Article 80 project impact review is the appropriate process for a full analysis of the stormwater management program. The IMP and DPIR should therefore include specific, detailed information and alternatives analyses of stormwater management on the site. Stormwater management should aim to maximize infiltration, slow runoff from the site, maximize the use of vegetation, capture rooftop runoff for irrigation and non-potable water uses, and minimize sediment and nutrient loading. We suggest that the IMP and DPIR include more documentation about the proposed stormwater management program including:

- 1 Detailed information about the final design of the proposed stormwater management infrastructure including the location and design of drains, catch basins, water quality structures, and infiltration structures;
- 2 Detailed information about any surface stormwater management features such as swales, vegetative filter strips, rain gardens, permeable pavement or vegetated storage areas;
- 3 An assessment of the opportunities to reduce even further the peak flows and volume of stormwater runoff, including estimates of the impacts in a one-year storm;
- 4 An assessment of how the site could meet DEP's stormwater management policy in its entirety
- 5 A plan to minimize the primary pollutants of concern for the Muddy River, sediments and nutrients;
- 6 A maintenance plan for the stormwater management plan.

Groundwater

This project proposes a below grade, 350 space parking facility as part of the Patient Care Center. While there are many significant aesthetic benefits to underground parking, there are important environmental issues both during and post- construction that need to be addressed. The location of this project in an area of historic fill, and the ongoing problems throughout many areas of the City with groundwater levels, make it all the more important that this aspect of the project be designed with the utmost care and in anticipation of any potential impacts.

The project needs to be designed to minimize groundwater impacts from the project, and the proponent should commit to working closely with abutters and the Boston Groundwater Trust to ensure that there are no alterations to groundwater levels as a result of the project. Since the project site is on the border of the City's "Groundwater Conservation Overlay District (GCOD)", the project should aim to achieve similar recharge standards as required by the City for projects within the GCOD. Investigations should also include the potential seasonal changes in groundwater levels, as well as potential effects on groundwater flow. In some areas of Boston, construction of sub-surface projects such as tunnels, underpasses and even some building foundations have altered groundwater flow patterns, resulting over time in changes to ambient groundwater levels. Groundwater flows are extremely slow so alterations may occur over years.

The DPIR should include an assessment of groundwater flow directions, as well as a determination of whether those directional flows change seasonally. If the project shows any potential for altering flows, either slowing or reducing flows into the Muddy River, or conversely reducing flows back into the ground during periods of high groundwater, or causing any groundwater "mounding," the DPIR should document a mitigation plan for any such alterations. In addition, the DPIR should specify what source of water would be used should groundwater recharging be necessary during or after construction.

If proponents determine opportunities for on-site infiltration of stormwater to be minimal, the DPIR should evaluate the possibility of seeking off-site locations for groundwater recharge and stormwater infiltration. Finally, a detailed plan for the treatment and disposal of water from dewatering activities should be included in the DPIR.

Impacts to the Emerald Necklace

The project will increase not only the vehicular traffic in the area, but also the number of pedestrians, and will likely increase the use of the Emerald Necklace Parks, including the Fenway. This park system is already heavily used, and is in need of significant capital and operations improvements.

We suggest that Children's Hospital work with the BRA, the Boston Parks and Recreation, the Medical Academic and Scientific Community Organization (MASCO), the Fenway Alliance, and the Emerald Necklace Conservancy to develop a program to support the improvement of maintenance and management of the park system to mitigate this increased use and to provide support for the community-wide effort that is underway to bring this park system up to an acceptable community standard. This contribution could be made as a linkage payment (as a part of the public benefits package) or through the implementation of a specific capital improvement project for improving access to and maintenance of the park or for environmental restoration projects in the LMA as a whole.

Sustainable Site and Building Design

While there is some discussion on measures for energy conservation and sustainable design in the IMPNF/PNF document, there are no specifics provided on what kinds of best management practices and technologies will be incorporated at the building, the individual site and the overall campus level. The Scoping Determination for the IMP and the DPIR need to explicitly define what the project aims to achieve in terms of standards for environmental sustainability on the three levels mention above as well as how the project will determine indicators for sustainability. While the LEED system provides one suite of metrics for incorporating green building standards and requirements, if the proponent feels that given the programmatic constraints of the building LEED might not be an appropriate system to follow, the Green Guide for Health Care might provide a more suitable framework.

In addition to fulfilling requirements related to stormwater management on site, the green building standards should be adopted for wastewater reuse for flushing toilets, etc. (through double plumbing the building) as well as capturing, filtering and storing roof runoff. CRWA would encourage the proponents to design the proposed “Sanctuary” on top of the Patient Care Center to filter and capture roof runoff for the aforementioned non-potable water uses and to attenuate peak stormwater flows. CRWA suggests the roof area of the Patient Care Center be designed as a functional green roof to provide additional stormwater treatment and storage for later use. The addition of the top floors proposed in the main building patient expansion is a great opportunity to create another patient “Sanctuary” serving both patients’ needs for respite, peaceful convalescence, and congregation and also providing stormwater treatment, peak flow attenuation and non-potable water use.

Be that as there is such a dearth of green / open space in the LMA as a whole, green roofs would not only provide cleaner roof runoff, reduce the urban heat island effect in the LMA, and reduce heating and cooling costs, but also provide an aesthetically pleasing amenity for the building occupants. Green roofs will also provide “metapopulation” habitats for birds and insects connecting species to larger, more sustainable urban wildlife corridors such as the Muddy and Charles Rivers.

This project offers a huge potential to expand the purview of green practices from individual building scale to looking a “greening of infrastructure” at an overall neighborhood level. Through retrofitting the entire campus area with Low Impact Development (LID) best management practices, the proponent can achieve a much larger impact than the cumulative impact of a collection of individual green buildings.

We appreciate the opportunity to provide comment on this project through the Article 80 review process. Please feel free to contact me should you have any questions.

Sincerely,

A handwritten signature in black ink, appearing to read 'DSK', written in a cursive style.

David S. Kaplan
Water Resources Specialist

cc: Children's Hospital Boston
Medical Academic and Scientific Community Organization
Boston Parks and Recreation
Boston Groundwater Trust
The Green Roundtable
Muddy River Restoration Project MMOC