



Landscape Maintenance Subcommittee
of the
Muddy River Restoration Project
Maintenance and Management Oversight Committee (MMOC)

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***Landscape Maintenance
Subcommittee Members***

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MMOC Staff
Matt Eddy

To: Sarah Black, Senior Planner
Boston Planning and Development Agency
1 City Hall Square, 9th Floor
Boston, MA 02201

Re: Longwood Place (305 Brookline Ave.)

Date: November 30, 2022

Dear Ms. Black,

Since its creation in 2002 by the Secretary of the Executive Office of Environmental Affairs, the Muddy River Restoration Project Maintenance and Management Oversight Committee (the “MMOC”)¹ has reviewed and commented on the MEPA filings and other agency submittals and permit applications for the Muddy River Restoration Project². In addition, the MMOC monitors those activities and projects which, although not a part of the Muddy River Restoration Project, are either located within the Muddy River Project Area or impact the ecology and historic character of the parks, waterway or roadways within the Project Area.

The MMOC’s Landscape Maintenance Subcommittee is composed of experienced landscape architects, park designers, Olmsted historians, and other landscape professionals who advise the full MMOC, the City of Boston, the Town of Brookline, and various state agencies on issues related to the health of the ecosystems that are part of the Project Area.

We write in regard to the proposed Longwood Place Project at 305 Brookline Ave. as described on [BPDA’s web portal](#). Though we recognize the intended economic and community benefits of

¹ The MMOC is the citizen-based independent oversight committee created by the Secretary of the Executive Office of Environmental Affairs with respect to the Muddy River Project.

² Also referred to as the Emerald Necklace Environmental Improvements Master Plan and Phase I Muddy River Flood Control, Water Quality and Habitat Enhancement, and Historic Preservation Project, EOEI No. 11865

the proposal, the MMOC's Landscape Maintenance Subcommittee is concerned with the potential effects of shadows cast by tall buildings on areas adjacent to the Muddy River. Riverway Park, Justine Mee Liff Park, and the length of the Muddy River are nationally recognized public parks that are key components of Olmsted's world-renowned historic Emerald Necklace, a much-loved Boston landmark that has been officially listed in the [National Register of Historic Places](#) since 1971. The 2001 [Emerald Necklace Master Plan](#), prepared by the Commonwealth of Massachusetts, the City of Boston and the Town of Brookline, serves as the foundation of today's Muddy River Restoration Project. The authors summarize the importance of these parks:

“Now entering its second century, [the Emerald Necklace] has enormous historical significance. It was the most ambitious combination of landscape architecture, metropolitan area planning and engineering that [Frederick Law] Olmsted ever completed in any of the cities in which he worked. It was one of the largest public works ever undertaken by the City of Boston and the Town of Brookline.... In 1984, Massachusetts became the first state in the nation to initiate a program to preserve the historic urban parks designed by Olmsted and his sons and their successor firms and to restore the legacy for the future.”

The heights of the proposed buildings at Longwood Place represent a significant threat to the ecological health, and therefore the historic character, and to the enjoyment by visitors of these recently restored public parks. We have looked closely at the Skanska/Sasaki 15-minute shadow studies (dated September 28, 2022) that show how publicly owned areas adjacent to the Muddy River would be affected:

- March 21 (vernal equinox)
 - 3 hours of additional morning shade along Riverway Park, 7:30-10:30AM
 - 2.25 hours of additional afternoon shade along the Fens, 4:00-6:15PM
- June 21 (summer solstice)
 - 2 hours of additional morning shade along Riverway Park, 6:15-8:15AM
 - 2 hours of additional afternoon shade along the Fens, 6:00-8:00PM
- September 21 (autumnal equinox)
 - 3 hours of additional morning shade along Riverway Park, 7:00-10:00AM
 - 2.25 hours of additional afternoon shade along the Fens, 3:45-6:00PM
- December 21 (winter solstice)
 - 3.25 hours of additional morning shade along Riverway Park, 8:15-11:30AM
 - 3.5 hours of additional afternoon shade along the Fens, 12:00-3:30PM

In addition to their duration, the shadows will extend over a large area. On March 21 at 8:00AM, new shadows will completely cover a 700 ft linear stretch of Riverway Park near the Chapel Street footbridge – more than 5 acres. At 5:30PM on that same day, new shadows will darken a 500 ft linear stretch – over 2.5 acres – of the recently restored river segment of the Fens east of the Project area. (See images.)

The areas affected by the shadows along Riverway Park, Justine Mee Liff Park, and the Fens have only recently been restored as a result of investment of tens of millions of public dollars. These sections of the Emerald Necklace are already challenging places in which to maintain a healthy park – foot traffic is high, soils are shallow, heritage trees create areas of dense shade, and winter winds are a significant factor. The addition of several hours of shade beyond what currently exists will negatively impact tree, shrub, and turf growth there, with cascading consequences for wildlife habitat and bank stabilization. The parks will also become significantly darker, degrading the experience of park visitors and passersby.

The likely threat to the health of ecosystems by additional shadows is not simply a matter of opinion; it is reinforced by peer-reviewed academic research. We note the following points made in Appendix B of the comment letter submitted by the Emerald Necklace Conservancy:

- This area of Riverway has many mature canopy trees on both the Boston and Brookline sides. These trees, largely Red Oaks (*Quercus rubra*) and American Beech trees (*Fagus grandifolia*) have acclimated to the conditions and competed for the sunlight that they rely on. Trees are known to be less productive when in shaded areas as this reduces their capacity to photosynthesize, filter air, sequester carbon, and potentially mitigate stormwater and bank erosion – all of which are ecosystem services that the city needs and were central to Olmsted’s vision. When trees are shaded out, phenotypic changes ensue, and qualities such as leaf size, leaf mass, stomatic density, and chlorophyll content are all documented to change (Masarovicová & štefančík, 1990).
- Shade is understood to increase the presence of both ice and freeze/thaw cycles throughout winter months. These cycles have been extensively documented to dramatically worsen erosion in a number of natural and laboratory settings (Ferrick & Gatto, 2005). This is particularly concerning around rivers and other bodies of water that are susceptible to freezing and bank erosion (Kaczmarek et al., 2019). Mean radiant temperatures are likely to decrease in the area, on behalf of the extensive shadow, which will continue to perpetuate these winter problems for the river and the highly sloped banks in this part of the Necklace (Lindberg & Grimmond, 2011).
- Overall disturbances to soil conditions and natural regimes tend to favor invasive species. This is something that we are already actively managing and working against in the Emerald Necklace Parks, because disturbance is inevitable in urban ecology, but increased shade and freezing in the area will likely worsen these conditions (Shackelford et al., 2013).

Persistence of ice and frozen ground in the late winter and early spring would be another likely effect of the shade. This not only represents a challenge for plant survivorship but could also be a safety concern for pedestrians. This is particularly true for walkways at the borders between jurisdictions, e.g. the Short Street steps, which historically have not been shoveled or treated after storms. Increased use of snow-melting chemicals, either on the parkways or the paths, further present a water quality concern.

In reply to an Advocacy Alert letter circulated by the Fenway Civic Association, a Skanska representative argued, in effect, that because there are already shadows from existing buildings on certain sections of the Park at certain times of day, that should serve as justification for ignoring the potential impact of additional, larger shadows over public spaces for longer periods of the day. The developer's claims are poorly supported. Specifically:

- The developer argues that 10:15 AM on March 21 (the time when shadows from the proposed buildings will no longer hit the Riverway Park) is a time that is “consistent with the times that shadows from existing buildings leave the parklands.”
 - This is misleading. Two hours earlier at 8:15AM, 90% of the total shadow on the Riverway will be cast by the proposed buildings, not by existing ones. In an absolute sense, new shadows at that time will darken a full five additional acres of public space.
- The developer states that “On the Summer Solstice (June 21), there is no net new shadow cast on the Emerald Necklace between the hours of 8:30am and 6:00pm.”
 - This is accurate but is presented out of context. Sunrise is at 5:07am, and new shadows begin hitting the Riverway at 6am and last until 8:30am. Similarly, sunset is at 8:24pm; the project buildings will cast new shadows on public park space for two full hours – 6:00 to 8:00pm. At 7:30pm, new shadows will cover 4 full acres of public space.
- The developer states that “The PDA massings cast limited, fast-moving new shadows on the Emerald Necklace during the early morning and late afternoon during the spring, summer and fall months. Therefore, net new shadows are not expected to have an impact on the use, or use patterns of the park during the seasons of heaviest use.”
 - Setting aside the question of whether a five-acre shadow should be considered “limited” or whether two hours of additional shade at Brookline Ave constitutes a “fast-moving shadow,” the Riverway and the Fenway are major corridors for commuters and students during the early morning and late afternoon, so arguing that the shadows will not affect park users is unfounded.
- The developer states that its ecologist consultants determined that “the understory was generally observed to contain native plant species that tolerate and thrive in shade. Therefore, it is anticipated that the understory could tolerate the addition of two hours or less of new shade without harm to the health of the plants.”
 - This appears to be a misunderstanding of basic physiology. Just as a marine fish can tolerate sea water, that doesn't mean adding additional salt to its environment won't harm the fish. All understory plants (by definition) possess a degree of shade-tolerance, but those tolerances have limits. Understory plants generally grow most in the early spring before the overstory produces a dense canopy, but if they are subjected to significant shade in the spring, those understory plants will be significantly weakened.
 - Additionally, the ecologist appears to focus their view on existing plants and not on the ongoing efforts to restore Olmsted's historical plant palette. This palette includes species such as Viburnum that do require more sunlight. Efforts are

already underway to establish Viburnum and other species on embankments affected by the Muddy River Restoration Project.

- The developer states that “Given the access to sunlight throughout the growing season, it is... anticipated that two hours or less of new quickly moving shadow is not expected to have a negative impact on the health of the tree canopy/overstory.”
 - A reduction of light availability by one hour per day at the equinox represents a reduction in the length of the growing season by six weeks (three weeks in the fall, three weeks in the spring).

BPDA has an important role to play in balancing the City’s interests in development and stewardship of public resources. To play that role responsibly, it is essential that BPDA hear from the full range of interested and affected parties. Because Boston Parks and Recreation (BPRD), Brookline Parks and Open Space, and the Massachusetts Department of Conservation and Recreation (DCR) have collective responsibility for maintaining those spaces for public enjoyment, safety, historic preservation, and long-term flood risk mitigation, the perspectives of those departments should be given particular weight. BPRD, in particular, owns a large portion of the impacted area. We note that in the February 18, 2022 letter from BPRD to BPDA, “The proposed project will cast shadows on the Emerald Necklace. The proposed heights should be reduced to *eliminate any shadow impacts* on the park and parkway” (emphasis added).

In sum, the MMOC urges the BPDA to recognize that the heights of buildings recently proposed for Longwood Place will exact significant and irreparable harm on public parks – harm that cannot be undone by the developer’s proposed mitigation funding. The developer should fully inform and respond to the concerns of BPRD, DCR, and Brookline, in whose care and custody these parks are entrusted on behalf of the public, before allowing the project to move forward. While we recognize that this project has critical economic benefits for Simmons University, which has been a collaborative neighbor to the historic Emerald Necklace for generations, we strongly urge the redesign of this project to eliminate the destructive shadow impacts on the Riverway and Fens parks posed by the height of the buildings currently proposed.

Sincerely,

Members of the MMOC’s Landscape Maintenance Subcommittee:

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Fredericka Veikley, Emerald Necklace CAC

Margaret Pokorny

Margaret Pokorny, Friends of the Public Garden

Carroll Williamson

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Cc:

Michelle Wu, Mayor of Boston

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Alexandra Vecchio, Director of Parks and Open Space for Town of Brookline