

# From Molasses to Sea-Level Rise: Langone & Puopolo Park as a Catalyst for Climate Action

Cathy Baker-Eclipse (City of Boston, Boston, MA, USA)

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**Background/Objectives.** Through multiple initiatives, the City of Boston is preparing for approximately 40 inches of sea level rise (SLR) by 2070. The Climate Ready Boston initiative is identifying climate vulnerabilities and preparing conceptual ideas for resilience by neighborhood that are leading to action, such as the newly constructed Langone Park & Puopolo Playground. The park was designed to adapt to climate change following the Boston Public Works Department (BPWD) Climate Resilient Design Standards and Guidelines (2018). The 2018 nor'easters emphasized the urgency for integrating flood resilience into the park redesign efforts. The park encompasses 6 acres of waterfront land in Boston's North End and is a key link along the Boston Harborwalk and future regional climate resilience efforts.

**Approach/Activities.** Climate change impacted the design process, including accounting for changes in sea level rise and storm surge, extreme precipitation, and extreme temperatures through the design life of the park and infrastructure. The site of Langone Park & Puopolo Playground was once tidelands and is part of the history of land-making in the City of Boston. It is the same location of the Great Molasses Flood in 1919, which devastated the North End community and spurred the need for standardized engineering and construction practices. The seawall along the waterfront varies with the history of fill and construction methods, including granite block, cast-in-place concrete, and steel sheet piling. The history of fill and subsurface conditions directly impacted the technical considerations for integrating climate adaptation into the park design.

Active recreation parks typically go 30 years before needing significant re-design, which informed the selection of climate projections as well as adaptability of design, as recommended by the BPWD Climate Resilient Design Standards and Guidelines. The need to maintain Harborwalk access and incorporate active recreation features limited the space available to achieve the desired 4 to 6 ft. of flood protection. Simply raising the seawall and adding more fill may have negatively impacted the existing seawalls and resulted in settlement, consequently reducing the height and effectiveness of flood protection. In addition to the challenges on-site, the Boston Harbor Flood Risk Model used to inform design also showed that the site is vulnerable to flooding from off-site sources in the latter half of the century. This underscored the importance of coordinated district-scale solutions.

**Results/Lessons Learned.** Langone Park & Puopolo Playground is the City's first significant public realm deployment using the BPWD Climate Resilient Design Standards and Guidelines. The constructed cantilevered boardwalks and floodwall integrated into the park programming balances the technical and regulatory considerations while enhancing the public realm, providing access to waterfront, and maintaining recreational uses. The innovative flood resilience strategy provides passive flood protection, but also embraces flooding in areas intentionally designed to accommodate it. Elements of the park are designed to provide opportunities for future passive or deployable barriers to connect to or increase in height. This park serves as a link that can integrate into a longer chain of critical flood protection needed district wide. These individual links can provide opportunities for adjacent development to tie-into overtime and coordinate with a larger resilient, equitable harbor vision.