

MOAKLEY PARK

MVP FY19 GRANT

SUMMARY

PROJECT INTRODUCTION

The Moakley Park Preliminary Resilience Design project is an important part of the City of Boston's goal of advancing climate readiness along Boston's shoreline through continued development of the Moakley Park Vision Plan, completed in January of 2019. Moakley Park is located at the start of a major flood pathway into four neighborhoods, posing an opportunity to become a legacy park using nature-based solutions to address climate vulnerabilities. This project will serve as a model for municipalities across the Commonwealth looking to integrate climate resilience planning and construction phasing into waterfront open space design. The re-envisioned Moakley Park takes on climate change threats by creating a coastal protection system to address flood risk, designing sustainable stormwater management green infrastructure that manages current and future rainfall, expanding education and engagement of Bostonians on climate hazards and action, adding substantial new tree canopy, and preparing outdoor facilities for climate change and for new programs to attract and diversify park users. Additionally, it creates a more ecologically diverse and sustainable landscape and explicitly addresses issues of inclusion and access to the harbor.

The Boston Parks and Recreation Department (BPRD) has led the completion of this grant-funded work in the past 12 months. The project has resulted in a preliminary design, technical analysis, pre-permitting assessment, Community Engagement, and Schematic Design Flood Protection of Moakley Park to set up the project for construction documentation and phased construction. The three primary tasks are the following: Task 1- Resilience Preliminary Design, Task 2- Community Engagement, and Task 3- Schematic Design Flood Protection and Relevant Earthworks. For more detailed information, refer to the Appendix which includes all deliverables organized by task and sub-task.

BASELINE TECHNICAL ANALYSIS

Sub-Task 1.1 Technical analysis +

Sub-Task 1.2 Pre-Permitting Feasibility Assessment

To further advance the vision plan for Moakley Park, a series of technical studies were conducted from August through November of 2019. The primary intent of these studies was to obtain a baseline understanding of existing conditions in order to inform future design decisions and clarify potential conflicts. Key studies included Coastal resilience assessment using the Boston Harbor Flood Risk Model, Hydrologic and Hydraulic modeling based on BOAA National Resource Services and City of Boston projected rainfall intensities, Field exploration program including environmental and geotechnical subsurface investigations and an Assessment of current soil and groundwater conditions including sampling and laboratory analysis. The results of the above investigations were presented in a series of deliverables, as identified in Appendix under Sub-Task 1.1 Technical Analysis.

Additionally, due to the complexity of the project and number of regulatory bodies involved, a detailed evaluation of future permitting needs was conducted to develop a comprehensive strategy for advancing through construction. The results of the baseline investigations informed the Landscape Design and Engineering Refinements, as further discussed below.

LANDSCAPE RESILIENCE DESIGN AND ENGINEERING REFINEMENTS

Sub-Task 1.3 Stormwater and Coastal Defense Strategies +

Sub-Task 1.4 Landscape Resilience Design and Engineering Refinements + Costs

From December 2019 through May 2020 the design team integrated the technical analysis into a refined landscape design proposal, now grounded with the site-specific existing conditions. Based on the constraints revealed, the team developed three alternative alignments for the flood management system. These options were explored to understand the implications of reducing fill to avoid on-site settlement, to avoid conflicts with underground utilities, and to prioritize tree conservation. The option selected for advancement was most similar to the Vision Plan layout, see Sub-Task 1.4A: Revised Conceptual Plan in Appendix.

Concurrent to this process, the design team work iteratively with Nitsch Engineering to develop a revised stormwater management plan that incorporates both gray and green infrastructure (see Sub-Task 1.3B: Updated Stormwater Management Plan in Appendix). Based on the beach nourishment proposal and analysis completed by the coastal flood modeling engineers, Woods Hole Group, the Design Flood Elevation for the project site was able to be reduced from 23.5 BCB to 21.5 BCB, see 1.3A: Updated Coastal Defense Strategy in Appendix.

In April, a phasing plan was developed with a particular focus on an early implementation of the first phase that addresses short-term flood risks. A cost estimate was developed to capture the fully proposed design based on landscape typologies, as well as by phase. See Sub-Task 1.4: Landscape Resilience Design and Engineering Refinements + Costs in appendix for phasing plan and cost estimate.

SCHEMATIC DESIGN FLOOD PROTECTION + RELEVANT EARTHWORKS

Sub-Task 3.2 Schematic Design for Flood Protection Park and Berm Infrastructure

Building upon previous concept refinement, berm design and engineering were advanced both within the park as well as with respect to tie-ins to regional infrastructure. Preliminary schematic-level design was developed to prepare for federal, state, and local permitting, required for implementation and future construction. This phase occurred from February through July of 2020. A Preliminary Schematic Design package was developed to document preferred alternatives for the berm alignment and relevant adjacent earthworks within the park, and region-level protection alignment identified above including a grading plan and 6 cross-sections. A memorandum accompanies this to summarize settlement, slope stability, seepage and an outline of alternative construction strategies to offset additional load associated with the proposed landscape design. Key deliverables associated with these focus areas are presented in the Appendix under Sub-Task 3.2: Schematic Design for Flood Protection Park and Berm Infrastructure.

RESILIENCY IMPLEMENTATION, COORDINATION + PERMITTING

Sub-Task 3.1 District-level Climate Resiliency Coordination

Sub-Task 3.3 Environmental and Regulatory Review Initiation

District-level Climate Resiliency Coordination

Meetings with area stakeholders and property owners were held to align the proposed flood protections beyond park boundaries, and incorporate the proposed improvements within the greater regional flood protection for the district occurred throughout the last 12 months of the project. These stakeholders include the following: Bayside Mixed-Use development team, Mary Ellen McCormack development team, Boston Housing Authority, South Boston Neighborhood House, Climate Ready Dorchester team, MWRA, and BWSC. Two memorandums were developed in this phase. One, to explore the considerations for BPRD when entering into a MOU agreement for resiliency infrastructure. The second summarizes meetings and coordination that took place during this phase. These memorandums can be found in the Appendix: Sub-Task 3.1 District-level Climate Resiliency Coordination.

Environmental and Regulatory Review Initiation

In June 2020, an initial meeting with regulatory agencies was held to discuss the regulatory approach and permitting requirements for the project. Following these meetings, a preferred permitting pathway with each agency was developed, and design considerations requiring future discussions were identified. Further information regarding the regulatory meetings can be found in the deliverables associated with Subtask 3.3 of the Appendix.

COMMUNITY ENGAGEMENT

Sub-Task 2.1 Multi-faceted engagement strategy focused on climate resiliency education and community building +

Sub-Task 2.2A: Analysis of public input and interactions

Over the course of the last year, the design team has partnered with South Boston Neighborhood House and Boston Harbor Now (BHN) to broaden outreach and gain support for the project. Engagement activities included attendance at a variety of neighborhood events, focus group conversations, as well as on-site activities. For a complete list of events, presentations and virtual outreach strategies see Appendix: Sub-Task 2.1 Multi-faceted engagement strategy.

During the COVID pandemic, the engagement approach in the last few months was thoughtfully tailored to accommodate social distancing measures. The team, working with Greenovate and BHN, virtually engaged with stakeholders and the local community through virtual public forums, distribution of online survey and interactive material, and provided regular project updates through social media. For a more detailed description of events, community input and how that has been reflected in the design, see Sub-Task 2.2: Analysis of public input and interactions of the Appendix.

CONCLUSION

In the last 12 month, the Moakley Park Vision Plan has been refined to reflect both the technical constraints of the site, and the needs of the surrounding neighborhood. A great effort has also been made to ensure that this landscape is well-integrated into a resilient coastline for South Boston for generations to come. The attached appendix includes all deliverables organized by task as outlined in the MVP 2019 Grant.