

# RESILIENT PORTLAND

AECOM



PORTLAND

## PROJECT SITE OVERVIEW

The Resilient Portland project focuses on a project area located between Freestone Avenue and Waverly Avenue off Main Street in downtown Portland, Connecticut. This block contains several significant community support centers, including the Portland Public Library, Waverly Senior Center and Food Bank, and the Portland Police Station. This concentration of critical public buildings is connected by parking lots and civic green spaces, including the gazebo park, the community playground, and a parklet that focuses on the historical significance of brownstone for the town. The topography of this block gently slopes towards a low point (elevation 92.0) adjacent to the playground and parking lot, which receives localized flooding during heavy rain events. In the summer of 2023, the basement of the police station and the senior center were flooded in a heavy rainstorm event, subjecting these municipal buildings to flood damage. In addition to flooding, the study area also experiences extreme heat levels in the summer.

## RECOMMENDATIONS & NEXT STEPS

- Conduct additional stormwater modeling and install a rain gauge for the town.
- Update undersized pipe downstream of Catch Basin E.
- Inspect existing network of drainage pipes for any needed maintenance.
- Redirect roof drains away from building foundations and into proposed green stormwater infrastructure.
- Floodproof basements of critical facilities, including installing a backwater valve, installing window well covers, applying a waterproof membrane or sealant to the walls and floors, and utilizing sandbags and cement blocks to elevate storage.
- Reduce runoff that contributes to flooding by reducing impervious surfaces and incorporating green infrastructure such as rain gardens and bioretention basins.
- Expand shade opportunities with additional tree canopy and shade structures.

**Next Steps to Implementation: The Town should secure funding, update the flood model with draft findings to refine design elements, complete schematic design with community input, finalize costs and implementation steps, advance design and documentation, and prepare a construction plan.**

## TECHNICAL ANALYSIS

Using GIS data from the Town of Portland along with as-built plans and field observations, AECOM produced a model of the stormwater drainage system at the project site. Results showed the existing piping system reaches capacity even during smaller events with a higher likelihood of occurring in any given year. Flooding is most likely to start at the low point near Catch Basin E and spread across the parking lot and playground, affecting areas behind the police station and senior center more severely than those in front of the library. Flooding of the police station basement and the food pantry in the senior center basement is also likely, even in smaller storms. Expected flood depths are proportional to storm size, and patterns already occurring under current conditions are projected to worsen by 2050 if no changes are made to the drainage system or nearby land use.

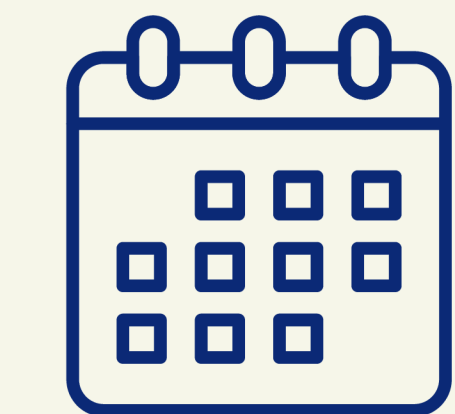
## CONCEPT DESIGNS

The project included three design alternatives to reduce flooding, each building upon the previous option. A Benefit Cost Analysis was also developed to focus on understanding options for alternatives and phasing, and cost estimates.

Alternatives	Alt 1	Alt 2	Alt 3
Description	-Replace existing 15" pipe downstream of Catch Basin E	<ul style="list-style-type: none"><li>• Replace existing 15" pipe.</li><li>• Remove asphalt in parking lots.</li><li>• Add lawn and plantings.</li><li>• Incorporate rain garden and berms.</li><li>• Plant trees throughout open park.</li></ul>	<ul style="list-style-type: none"><li>• Replace existing 15" pipe.</li><li>• Remove asphalt in parking lots.</li><li>• Add lawn and plantings.</li><li>• Incorporate rain garden and berms.</li><li>• Plant trees throughout open park.</li><li>• Incorporate rain garden and berms.</li><li>• Plant trees throughout open park.</li><li>• Add shade structure(s) at playground and/or picnic shelter.</li><li>• Add shaded walkway improvements for pedestrian connections.</li><li>• Increase parking with pervious pavement.</li></ul>
Cost Estimates	\$230,000	\$1,220,000	\$1,300,000
BCA	1.32	--	0.59

## PROJECT OBJECTIVES

- Reduce flood impacts on Portland's critical facilities.
- Manage stormwater to reduce frequency, area, and depth of flooding.
- Apply future precipitation projections for 2050 and 2100.
- Lessen extreme heat impacts on the community.
- Incorporate community and stakeholder priorities.



## STAKEHOLDER ENGAGEMENT

- Monthly Project Team Meetings
- Four Citizen and Technical Advisory Committee (CTAC) Meetings
- Two Public Workshops



For more information, visit: <https://resilientconnecticut.uconn.edu/resilient-portland/>