WHAT IS AT RISK?
The Alewife area serves as the regional hub for several key infrastructure systems, such as energy, transportation, and water. Several of these key critical assets are likely to experience increased flooding and impacts from prolonged heat waves in the future.

KEY CLIMATE CHANGE PHYSICAL AND SOCIAL VULNERABILITIES

WHAT ACTIONS ARE ALREADY BEING TAKEN?

- Raised southernmost hummock in Fresh Pond community gardens
- Combined sewer separation projects
- New development has to meet stringent stormwater storage requirements for present day storm
- MassDOT, MBTA are performing vulnerability assessments for their assets in Cambridge
- Transmission redundancy for Cambridge substation
- Concept plan for watershed scale flood management at a regional scale

WHAT ARE OTHER CITIES DOING?

THE BIG U - NEW YORK CITY, NEW YORK
This project involves installing flood barriers around 3 sections of the City. It also aims to make protective measures one of the City’s attractions by offering waterfront access for leisure along one berm, constructing an educational facility where visitors can observe tidal variations and sea level rise behind another berm, and adding deployable floodwalls.

CANAL STREETS - COPENHAGEN, DENMARK
Canal streets use lowered street profiles that form a flood pathway or corridor, directing stormwater away from public spaces. Abutting open spaces and bio-retention basins aligned with streets also contribute to store some excess stormwater if the corridors overflow due to a heavy rainfall event.

RAISED STREETS - MIAMI, FLORIDA
Miami, Florida, is making efforts to elevate streets to protect the community from rapidly increasing sealevel rise/storm surge impacts. This approach protects the roadways and requires redesigning buildings’ accesses to adjust to the higher street elevations.
To prepare **Resilient Infrastructure** for **climate change**, there are 9 strategies the City is focusing on. There strategies range from **parcel to regional-scale solutions** for **protection** of critical infrastructure and mitigation of the negative impacts from both **SLR/SS and precipitation flooding**.

**ADD YOUR STICKERS TO THE TABLE BELOW**

Which strategy is most important for **your household or work** in terms of resiliency?

Which strategy is most important for the **Alewife Neighborhood** in terms of resiliency?

<table>
<thead>
<tr>
<th>STRATEGY</th>
<th>TITLE</th>
<th>DESCRIPTION</th>
<th>YOUR VOTE</th>
</tr>
</thead>
<tbody>
<tr>
<td>C1</td>
<td>PROTECT FRESH POND RESERVOIR</td>
<td>Protect Fresh Pond Reservoir, the terminal reservoir for the City’s drinking water supply, from future flooding impacts.</td>
<td></td>
</tr>
<tr>
<td>C2</td>
<td>RESILIENCY OF ELECTRICAL DISTRIBUTION SYSTEM</td>
<td>Engage with Eversource and the Massachusetts Public Utilities Commission to increase the resiliency of the electricity distribution system, particularly the Alewife substation.</td>
<td></td>
</tr>
<tr>
<td>C3</td>
<td>RESILIENCY OF THE TRANSPORTATION SYSTEM</td>
<td>Engage the MBTA and MassDOT to increase the resiliency of major transportation and transit infrastructure to ensure mobility and access to evacuation routes. Complete street grid by adding new local roads for better connectivity to the Alewife train station.</td>
<td></td>
</tr>
<tr>
<td>C4</td>
<td>REGIONAL FLOOD RESILIENCY AT AMELIA EARHART DAM AND OTHER SITES</td>
<td>Collaborate regionally and with the State on structural and operational improvements at the Amelia Earhart Dam. Plan, design and implement storm surge barriers, “smart” flood prevention systems and conveyance improvements at appropriate sites.</td>
<td></td>
</tr>
<tr>
<td>C5</td>
<td>WATERSHED SCALE FLOOD STORAGE</td>
<td>Collaborate regionally to plan and implement watershed-scale flood storage at appropriate sites in the Mystic River watershed.</td>
<td></td>
</tr>
<tr>
<td>C6</td>
<td>SUB-NEIGHBORHOOD SCALE FLOOD PROTECTION</td>
<td>Create a neighborhood solution for sea level rise/storm surge flooding for the extended Quadrangle area and Fresh Pond.</td>
<td></td>
</tr>
<tr>
<td>C7</td>
<td>COMBINED SEWER SEPARATION</td>
<td>Continue combined sewer separation in the Alewife area to reduce adverse public-health impacts during flood events and to protect water quality.</td>
<td></td>
</tr>
<tr>
<td>C8</td>
<td>STORMWATER STORAGE</td>
<td>Evaluate the collective benefits of adopting updated stormwater storage requirements at the parcel scale to mitigate flooding at the sub-neighborhood scale.</td>
<td></td>
</tr>
<tr>
<td>C9</td>
<td>CLEAN-ENERGY FACILITY</td>
<td>Establish a neighborhood-scale clean energy facility in the Alewife Quadrangle area.</td>
<td></td>
</tr>
</tbody>
</table>
MAPPING THE POTENTIAL LOCATIONS OF RESILIENT INFRASTRUCTURE STRATEGIES

- Flood Wall at Railroad Tracks (C6)
- Smart Flood Prevention System in Alewife Brook (C4)
- Elevated Evacuation Route at Alewife Brook Parkway (C3)
- Temporary Flood Barrier at Alewife Station (C3)
- Elevated Electrical Substation (North Cambridge Substation) (C2)
- Stormwater Storage in Danehy Park and Tobin School (C8)
- Vegetated Berm for Protected Fresh Pond Reservoir (C1)

(Source: CCPR, 2017)
PROTECTING FRESH POND

Evaluate building a vegetated berm at elevation 23.15 feet CCB* along the Fresh Pond Golf Course. This strategy could effectively protect the Fresh Pond Reservoir for up to the 2070 100-year sea level rise / storm surge flooding.

*Cambridge city-base datum

RESILIENT ALEWIFE TO PRECIPITATION FLOODING

Flood volume for the 10-year 24-hour storm in the Alewife area is projected to increase from approximately 13 MG in the present to 33 MG by 2070. Implementation of the green infrastructure solutions at the Maximum Extent Practicable (MEP) scale in the Alewife area can reduce flooding by 37% to approximately 21 MG of flood volume.

A four-foot berm surrounding the area behind Tobin School and an underground storage tank could hold 5.6 MG of flood volume.

Three-foot berms installed in Danehy Park in the soccer field, baseball field, and running track could store 6.3 MG.

Fifty percent of new development in the Alewife Quadrangle area implementing revised stormwater storage requirements can reduce the flood volume for the 2030 10-year storm by 0.7 MG.

FLOODING RESILIENCY AT REGIONAL OR WATERSHED SCALE

Collaborate regionally and with the State on structural and operational improvements at the Amelia Earhart Dam. Plan, design and implement storm surge barriers, “smart” flood prevention systems and conveyance improvements at appropriate sites.

Evaluate if existing reservoirs within the watershed can be pre-drained based on severe weather forecasts by NOAA to maximize storage in the watershed.