

# Port Infrastructure Project WORKING GROUP

Meeting #2 | September 28, 2021



CAMBRIDGE  
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# Welcome!

## Remote Participation Instructions

### Working Group Members

- Participants may speak and show webcam video
- Use “Raise Hand” button during discussion
- Mute your microphone when others are speaking

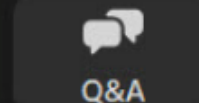
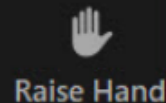
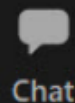
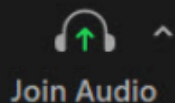
### Members of the Public

- Attendees are muted and cannot show video
- Can write questions and ask for assistance in the Q&A window
- Questions can be submitted at any time and will be addressed, as time allows, after working group member discussion

### Welcome Working Group Members!

As you arrive, please test your mic/video and say hello. Please share verbally or in chat:

What is something that you love about your neighborhood that you'd like to see more of or would like to help grow?



Leave

# Meeting Goals

1. Get input and feedback on how best to engage the community
2. Share information about the underlying goals of subsurface infrastructure and the planning underway for improvements
3. Elicit Working Group guidance on outreach and communication to the community about subsurface infrastructure



# Working Group Members

Tabatha Danyow

Kessen Green

Paul Weaver

Marian Darlington-Hope

Ming-Tai Huh

*Newtown Court/  
Washington Elms Tenant  
Council Representative*

Troy Ellerbee

Raghu Krishnan

Divya Errabelli

Idony Lisle

Colin Fleming

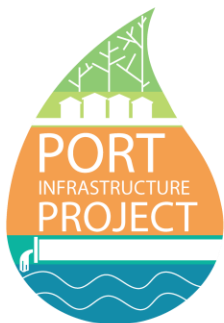
Jack O'Hearn

*Margaret Fuller House  
Representative*

Randa Ghattas

James Pierre

Rev. Dr. Ellis Washington



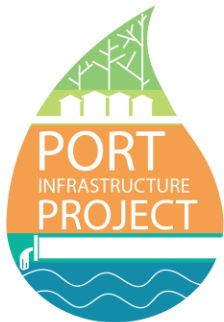
# Project Team

## City of Cambridge

- **Jerry Friedman**  
Project Manager / Supervising Engineer
- **Kathy Watkins**  
City Engineer / Assistant Commissioner
- **Gary Chan**  
Neighborhood Planner
- **Matt Nelson**  
Assistant to the City Manager
- **Cambridge Community Corps**

## Consultant Team

- Kleinfelder, Inc.
- Consensus Building Institute (CBI)



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# Agenda

- 9:30 AM Welcome to Working Group Meeting #2
- 9:40 Neighborhood Walk, Port Pride Day, Community Corps role
- 9:55 Brainstorm: Community outreach and fall events
- 10:15 Review subsurface infrastructure planning & discussion
  - Reconfigure drainage system
  - Sewer separation
  - Sanitary Storage Tank
  - Stormwater Storage Tank
- 11:00 Discussion: How to share with the Community about ongoing planning and design
- 11:15 Public Comment
- 11:20 Upcoming events and next steps
- 11:30 Adjourn



# Port Pride Day



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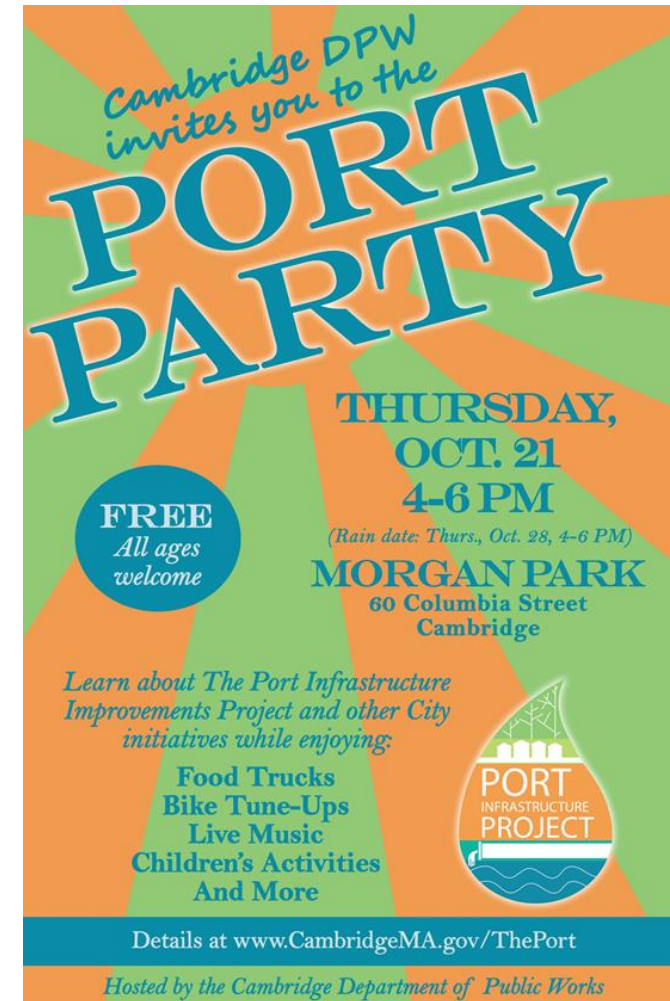


# Community events and outreach

- Fall event: October 21, 4-6 PM, Clement Morgan Park
  - Strategies for outreach, encouraging engagement
- Other scheduled events we should attend?



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# Other outreach to the community

- Other ways we should reach out to community?
  - Canvassing, tabling
  - Social media – channels to share opportunities for participation, input, and events
  - Office hours
  - Digital survey
- Role of Community Corps
- What other ideas do you have?



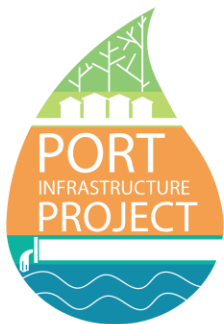
# Subsurface Infrastructure Planning



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# As we discuss subsurface info now, consider...

- What information will be most important to the community? How much technical detail will be of interest?
- Timing and frequency of outreach considering project duration?
- What **key messages** are important for the community to hear? e.g...
  1. All this work **benefits Port residents and businesses** and will create **a more resilient neighborhood**
  2. We want to be **proactive in communicating** what to expect during construction. Recognize the disruption and will work to minimize construction impacts
  3. We want to provide you and Port residents with **tools to protect your homes and property**



# Existing Infrastructure Problems

**Flooding** is a real risk to The Port neighborhood today - and will increase in the future, due to climate change. Most of the City's infrastructure was not built considering future climate change.



Bishop Allen Drive @ School St Looking East, July 2010



# What is stormwater?

Stormwater is rain or melted snow. When heavy rain occurs or snow melts quickly, or both occur at the same time, the capacity of the systems to move water toward the ocean can be overwhelmed and areas of Cambridge can experience flooding.

The Port has experienced significant flooding from stormwater in the past.



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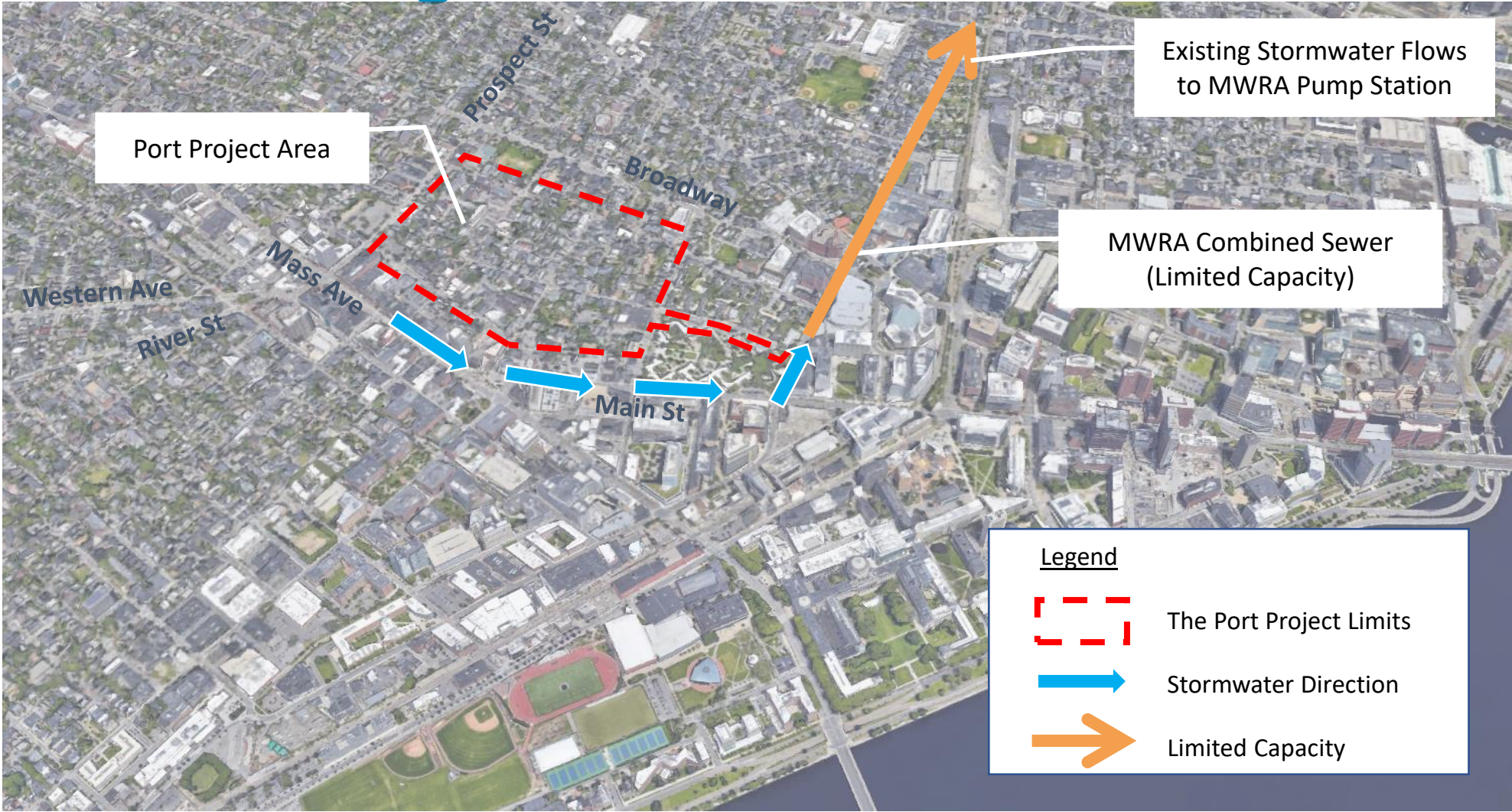
*Stormwater flooding on School Street from a storm on August 19, 2021. Photo by Randa Ghattas*

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# Where does the Port stormwater go?

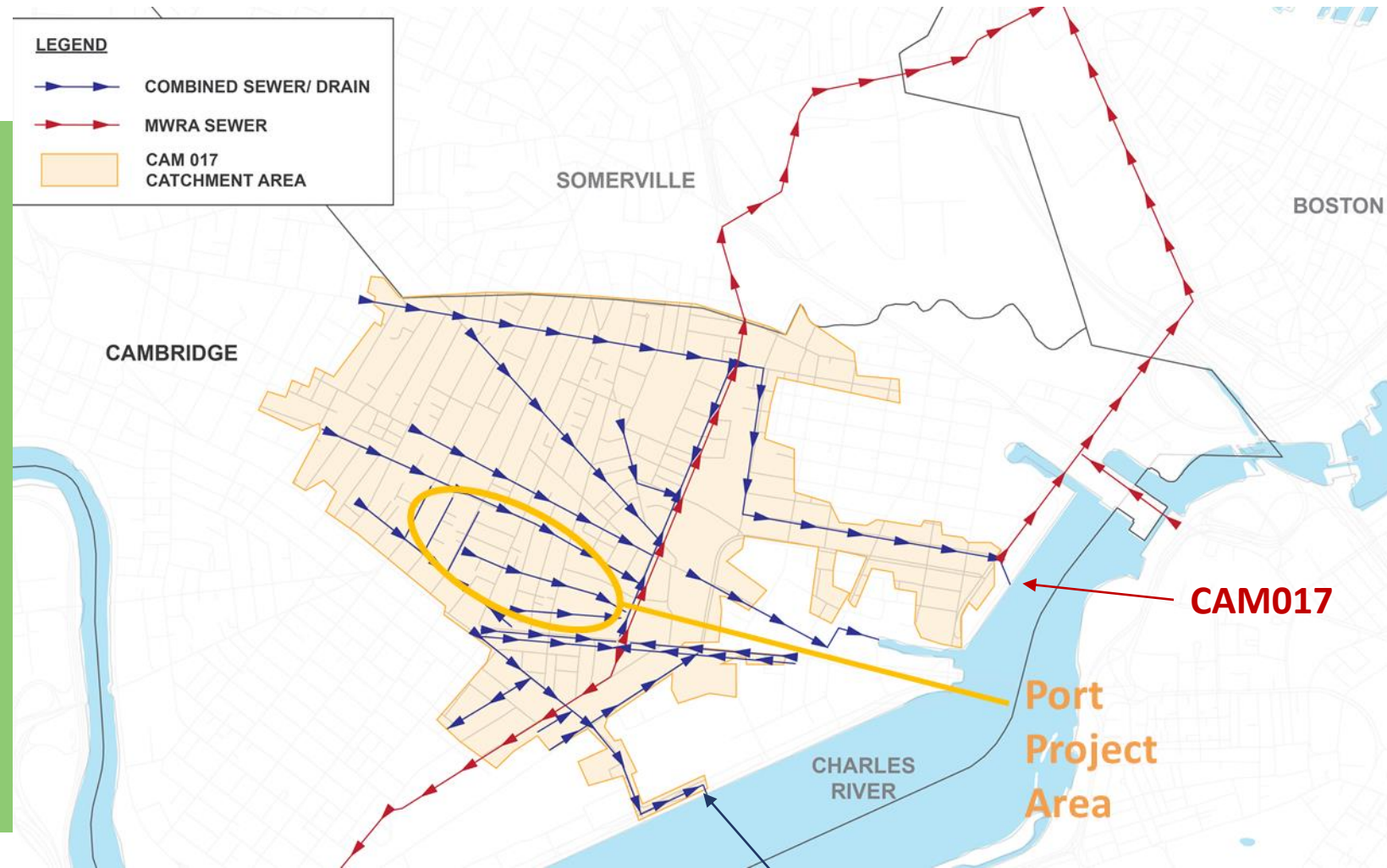
MWRA = Massachusetts Water Resources Authority; a state agency that ultimately receives and treats wastewater from Cambridge, Boston and other cities in the region



Existing Port Stormwater Flow

# Where does the Port stormwater go?

- Stormwater is piped to flow north to Charlestown for treatment
- Contributes to occasional CSOs to Charles River at CAM017
- This project shifts stormwater flows to Mass Ave outfall





# Terminology

**100-year storm:** A storm that has a 1% chance of happening in any year (*City of Cambridge*).

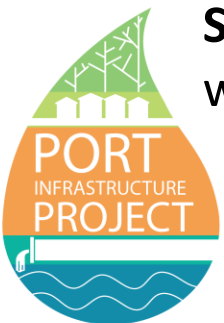
**10-year storm:** A storm that has a 10% chance of happening in any year (*City of Cambridge*).

**Climate change:** A change in the usual weather found in a place. Weather can change in just a couple hours. Climate takes hundreds of years to change (*NASA*). The City uses year 2030 and year 2070-time horizons for climate change planning.

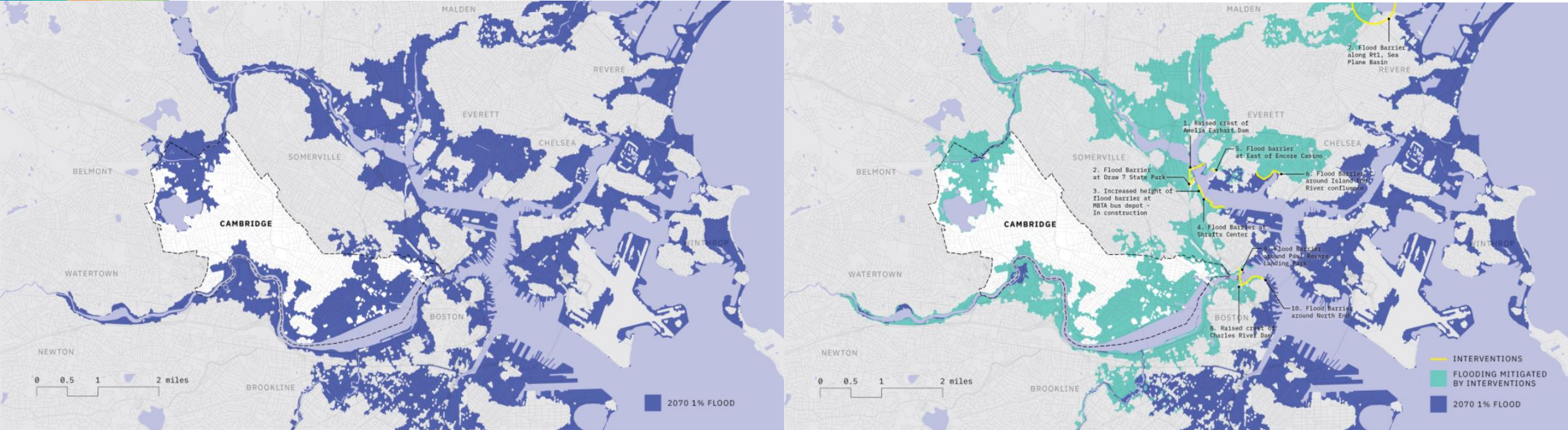
**Precipitation:** Water that falls to the ground in the form of rain, sleet, hail, or snow.

**Storm Surge Flooding:** When ocean waters are pushed onshore by storms centered over the ocean (*City of Cambridge*).

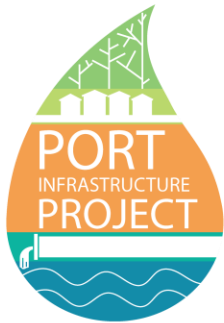
**Sea Level Rise:** Increase in the level of the world's oceans due to the effects of global warming (*National Geographic*).



# Ongoing Regional Coordination



Maps from Resilient Cambridge, City of Cambridge



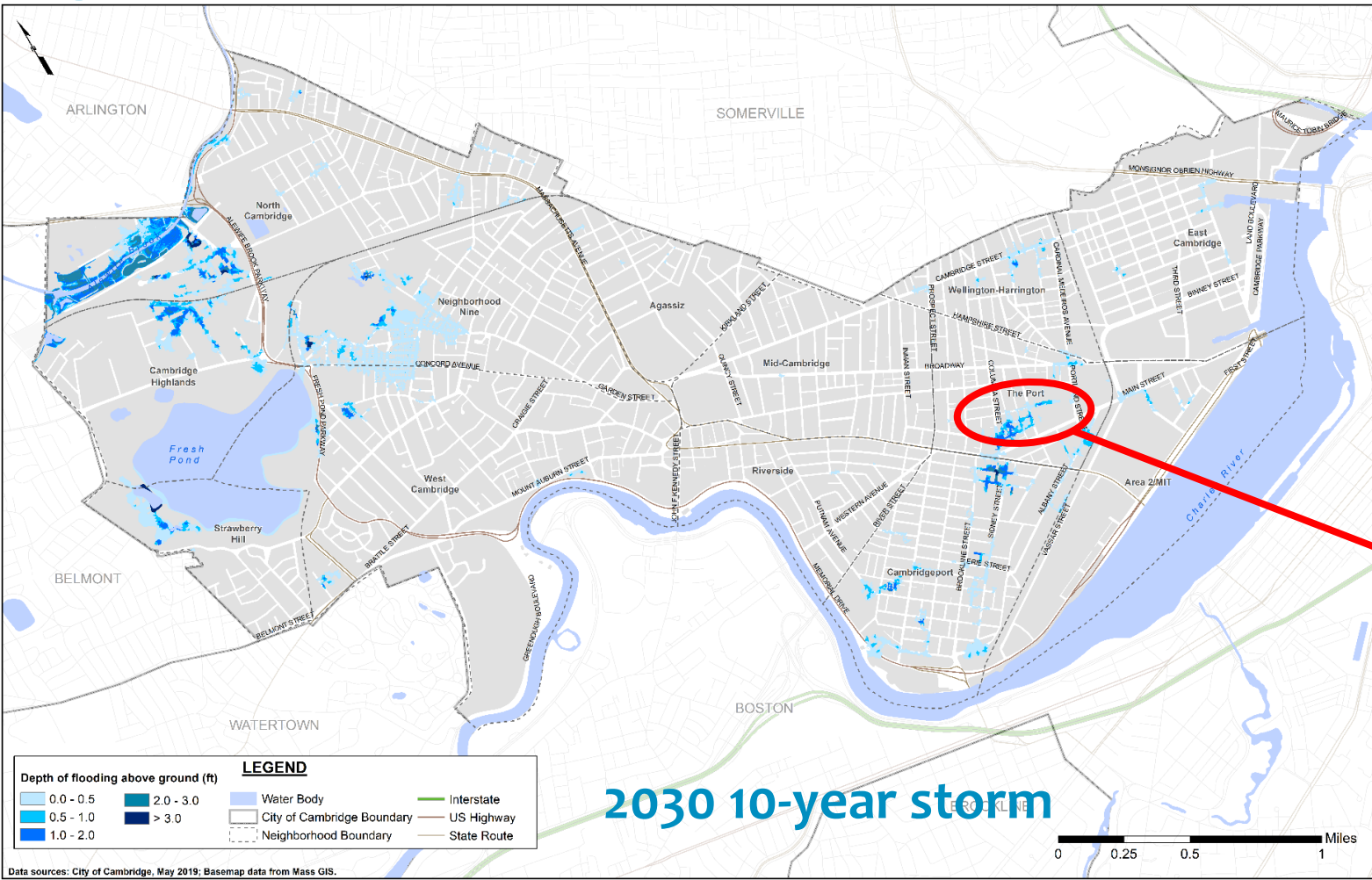
Cambridge is participating with surrounding communities to address SLR/SS vulnerability

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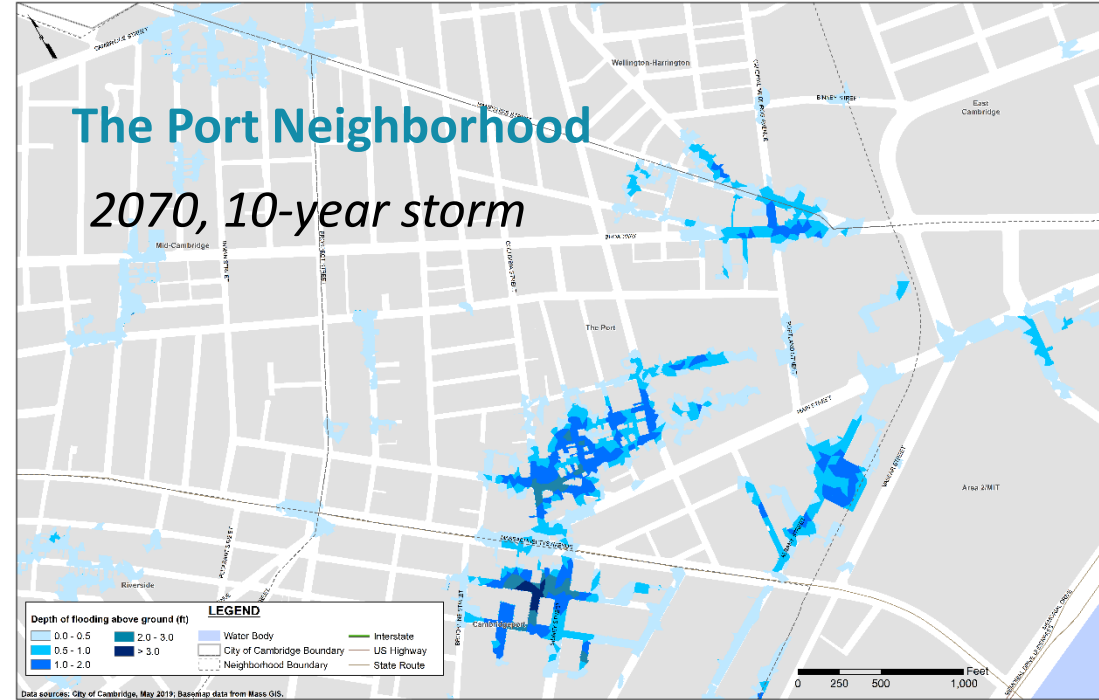
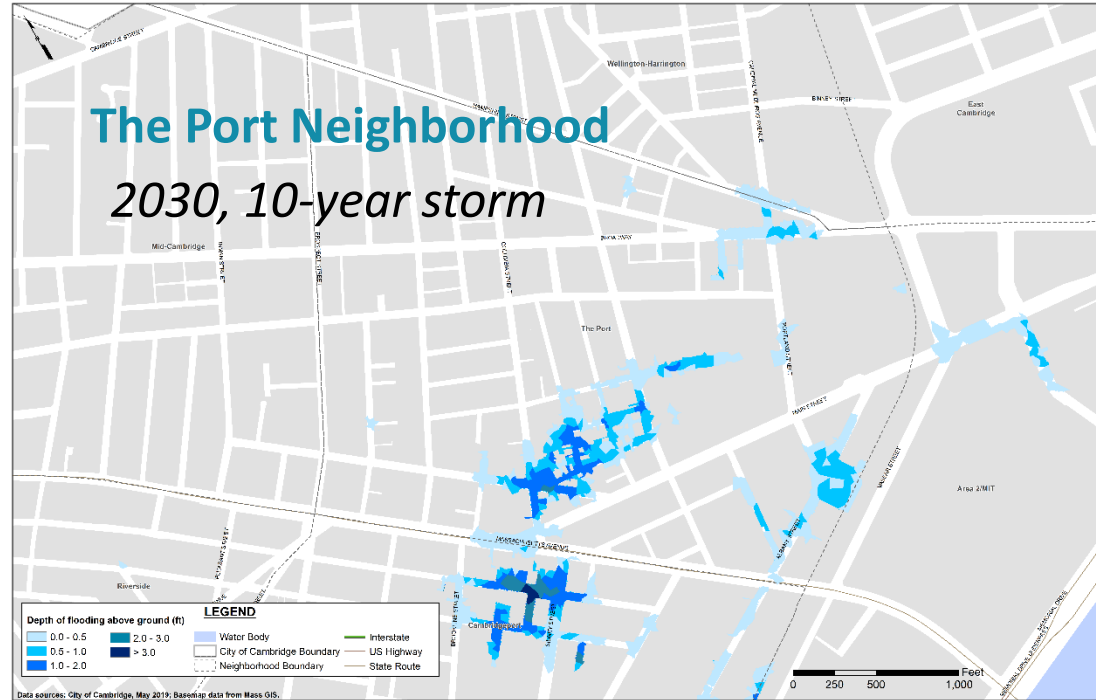
# The Port is especially vulnerable to precipitation flooding



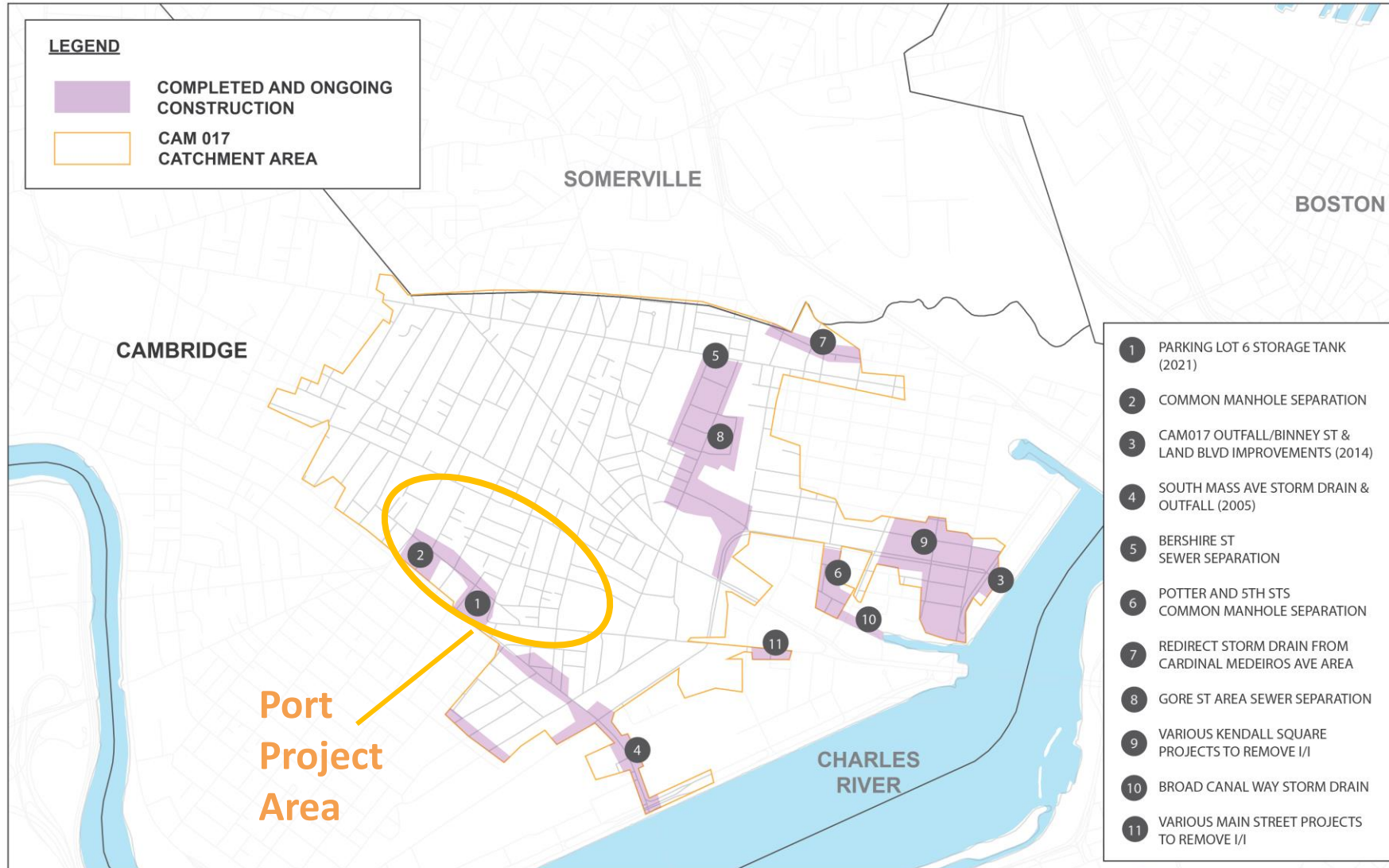
The Port



# Flooding is Getting Worse: 2030 vs. 2070



# Ongoing improvements reducing flooding in The Port



# Port Infrastructure Project Phase 1: PL6 Tank and Pump Station



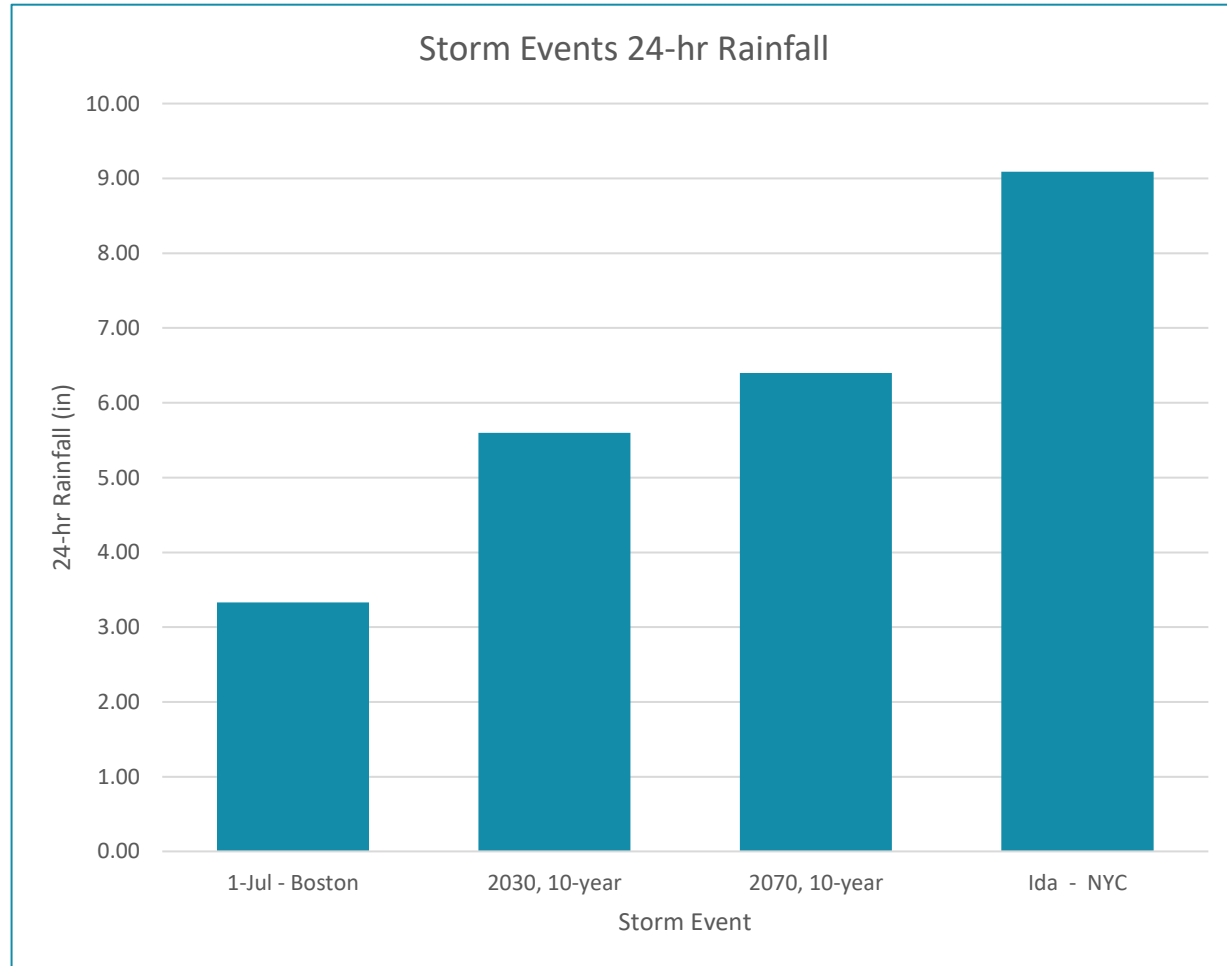
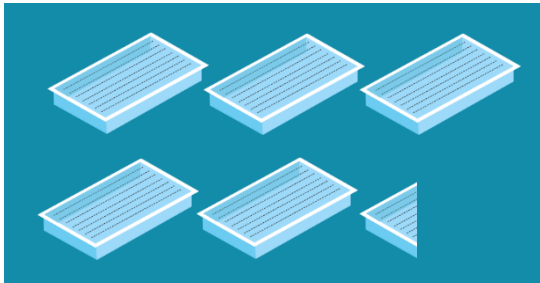
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# Phase 1: PL6 Tank and Pump Station Fast Facts

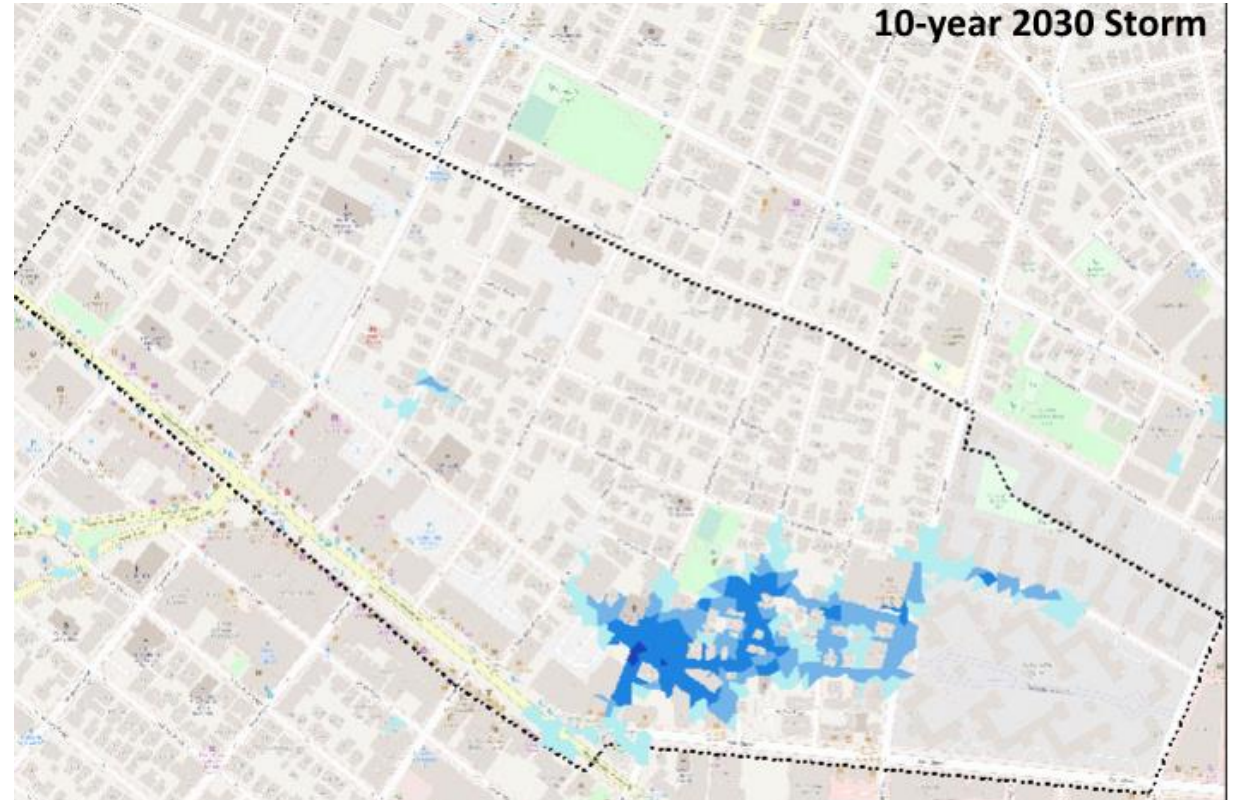
The Parking Lot 6 (PL6) tank at Bishop Allen Drive went into operation in May 2021 and has captured roughly **3,480,000 gallons** of stormwater this past summer. That's equivalent to **5¼ Olympic-sized swimming pools**.



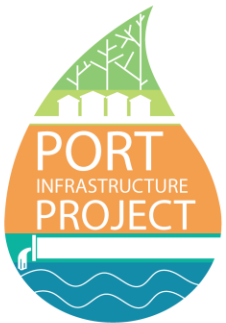
# Project Goals – Reduce Flooding



2030, 10-year/24-hour storm flooding – Eaton at Cherry streets



Anticipated flooding for a 2030, 10-year/24-hour storm



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# Planned Improvements for Flood Mitigation



# Sequence of Planned Improvements

- Infrastructure Improvements
  - ✓ Reconfigure drainage system
  - ✓ Sewer separation
  - ✓ Sanitary storage tank
  - ✓ Stormwater storage tank

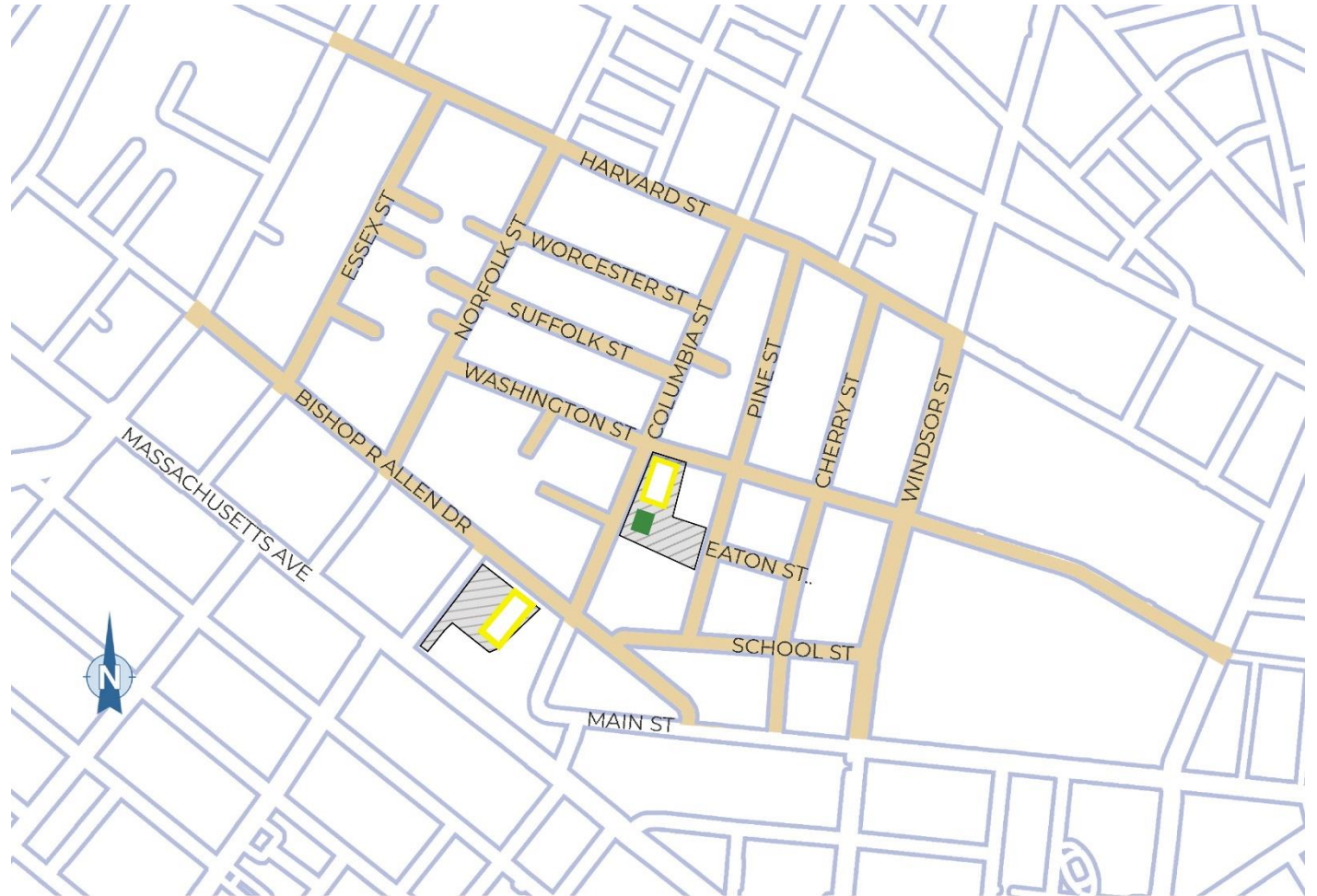


# Previous Plan

## Stormwater and Sanitary Tanks in Morgan Park

Plans changed due to:

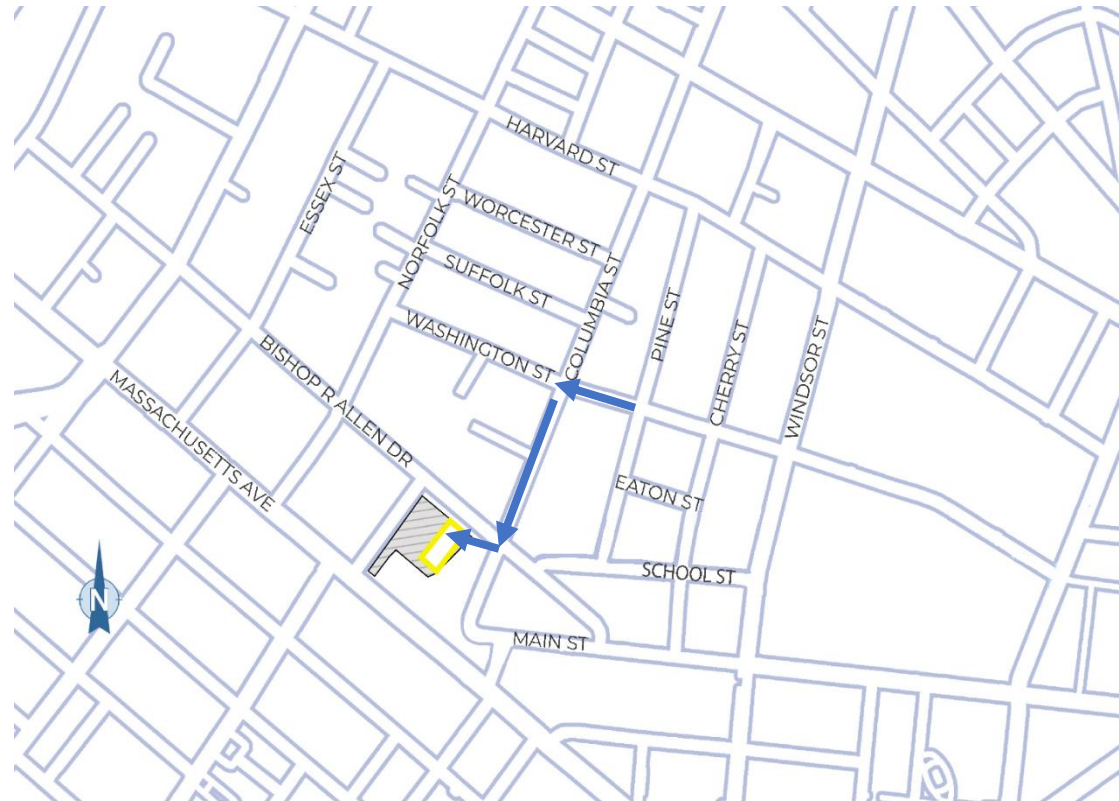
- Increase in size of tanks
- Extensive and lengthy impacts to Morgan Park



# Reconfigure Drainage System

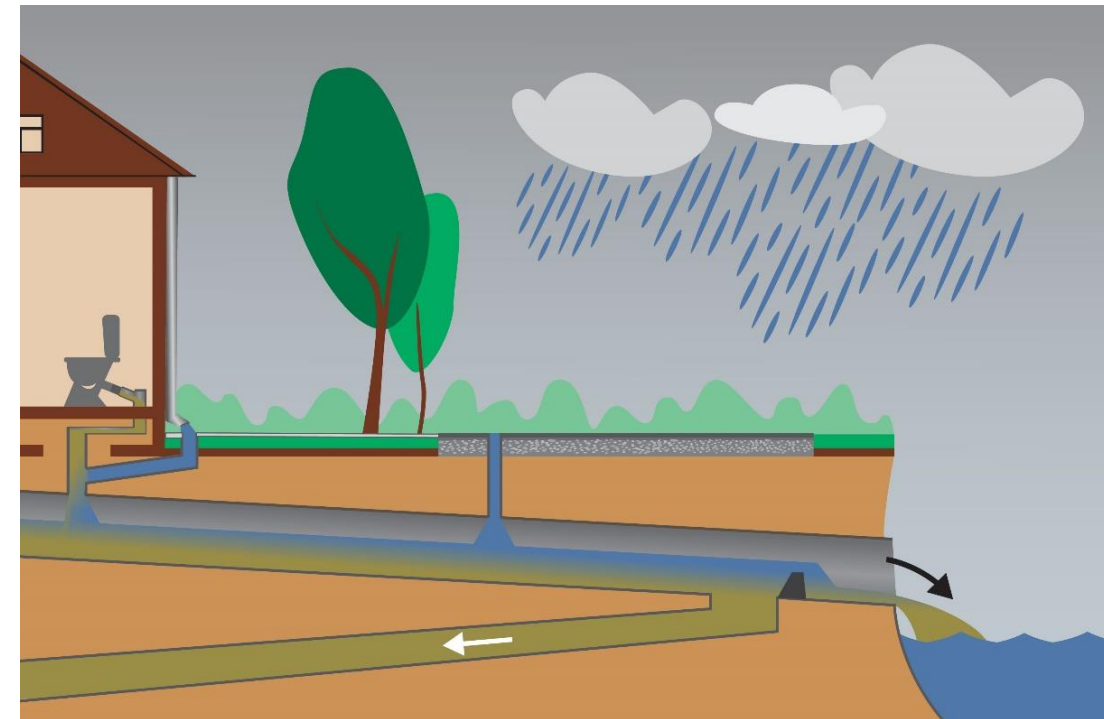
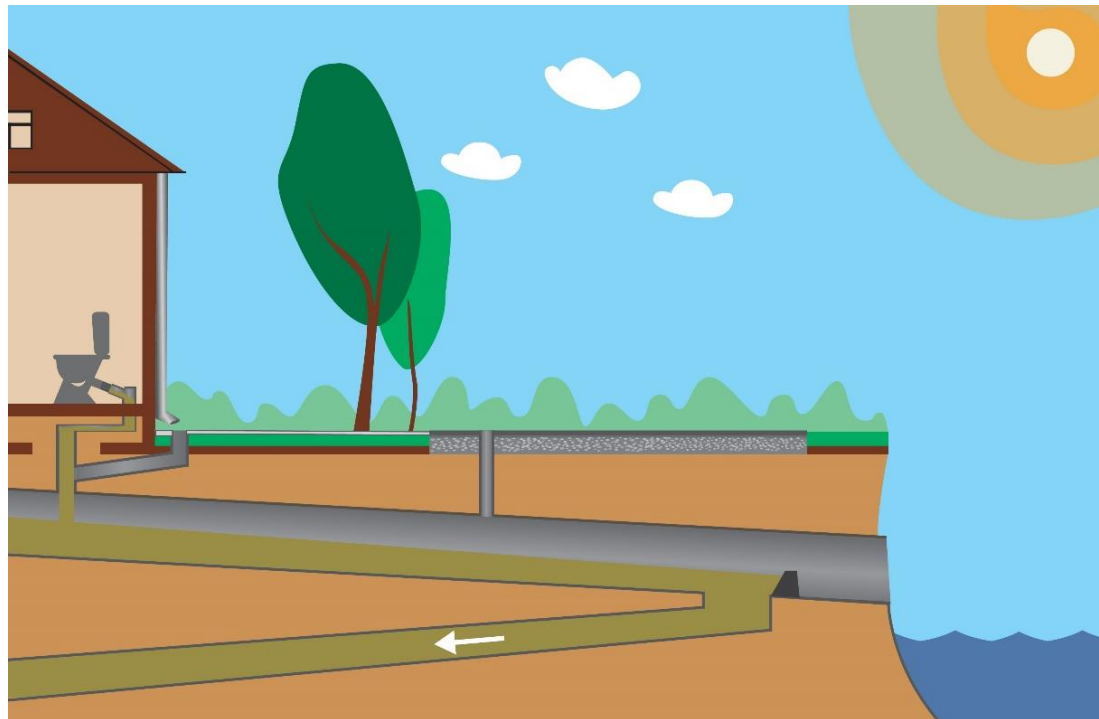
Columbia Street Conduit will help to alleviate flooding on Washington Street by directing stormwater to PL6 Tank.

- Take advantage of additional pumping capacity at PL6
- Sets up at for future expansion at PL6, minimizing neighborhood impacts

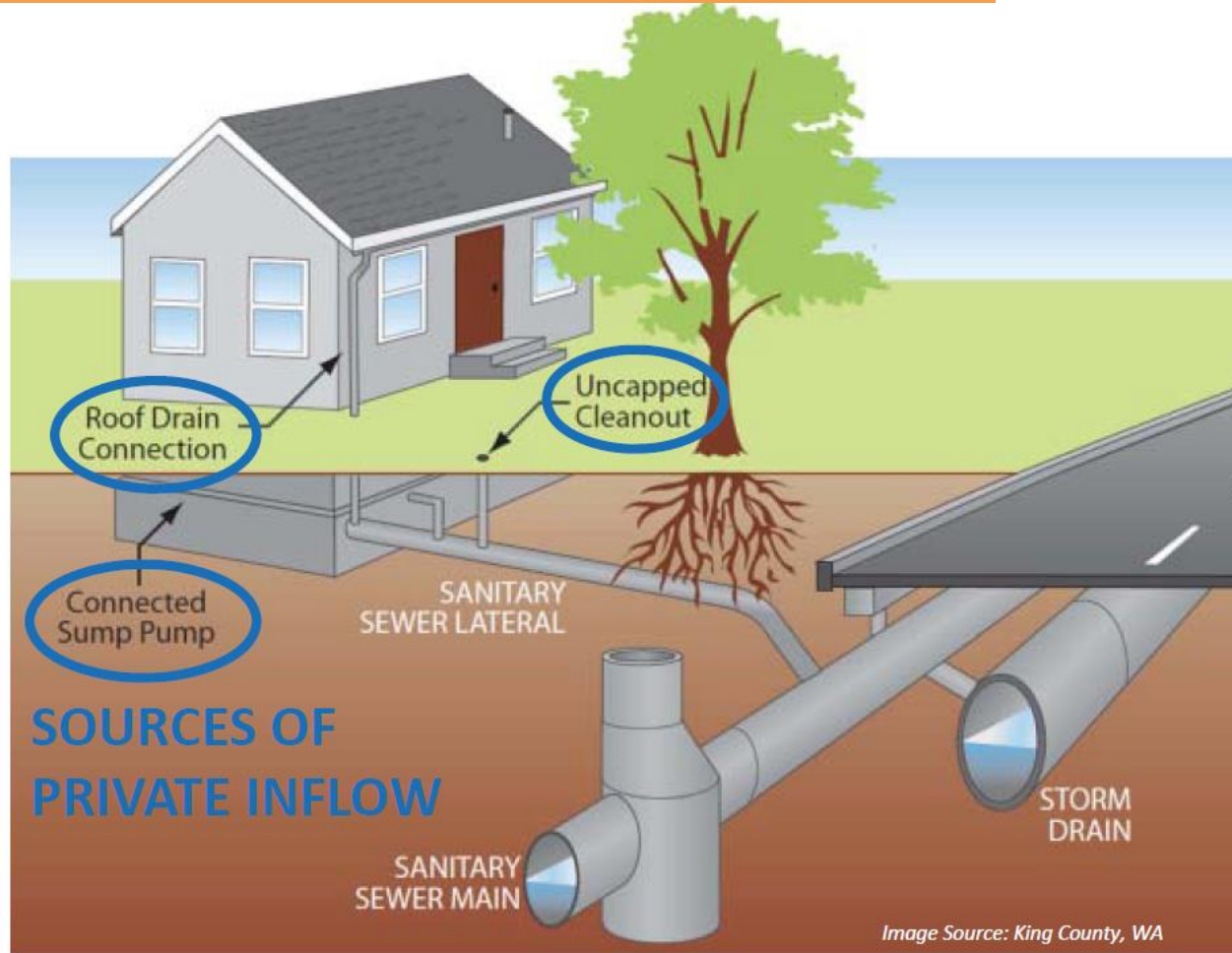


# Sewer Separation

Without sewer separation and during a heavy precipitation event, sewage could be traveling to the stormwater tank that then discharges into the Charles River. Separation means sewage goes to sewer pipes, only, and not the Charles.

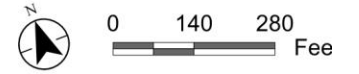
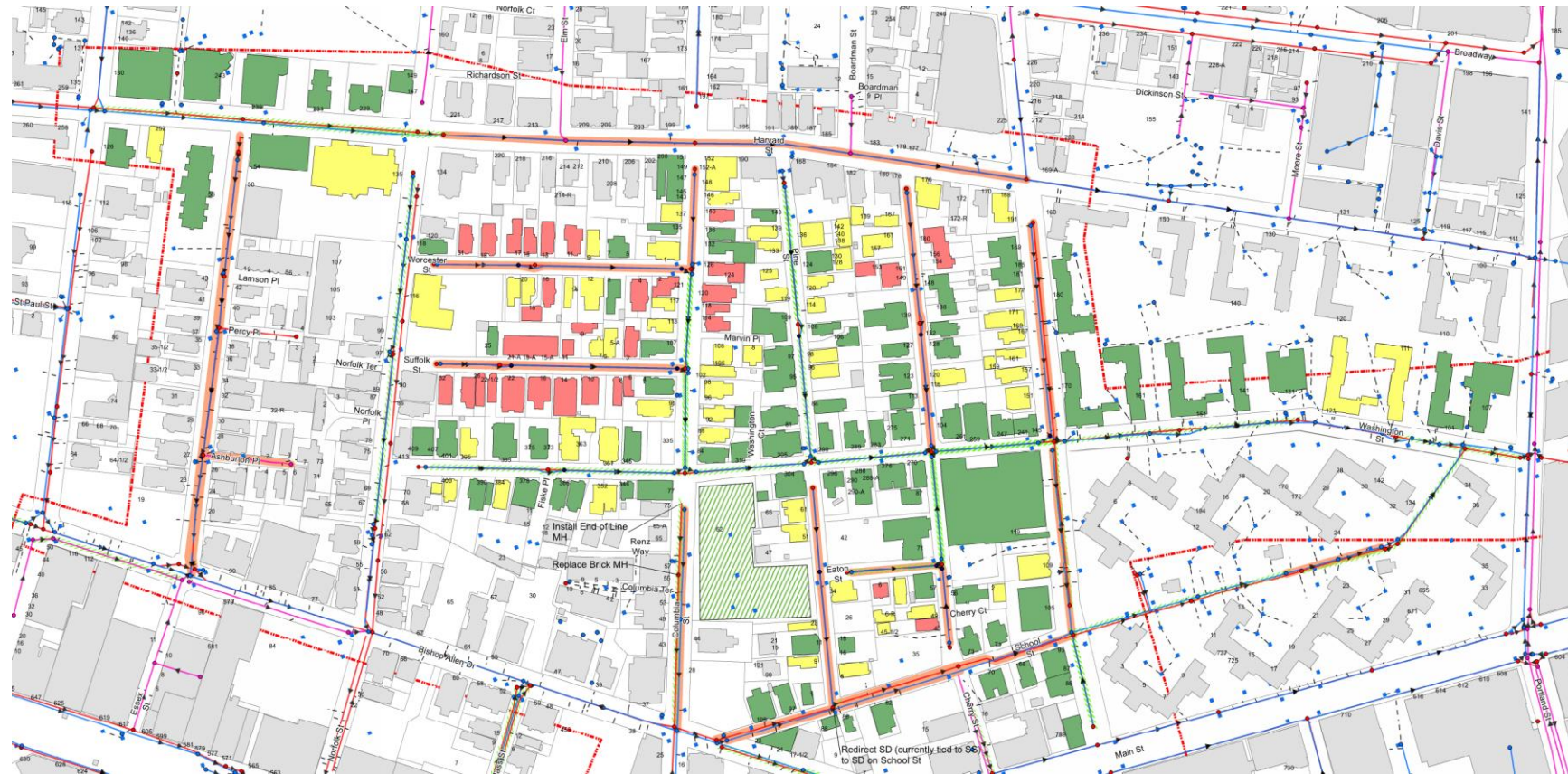


# Sewer Separation



*Inflow is surface water that enters the sewer pipes from yard drains, downspouts, and sump pumps. Inflow occurs as a result of storm events that contribute to excessive sewer flows.*

# Sewer Separation



### Manhole

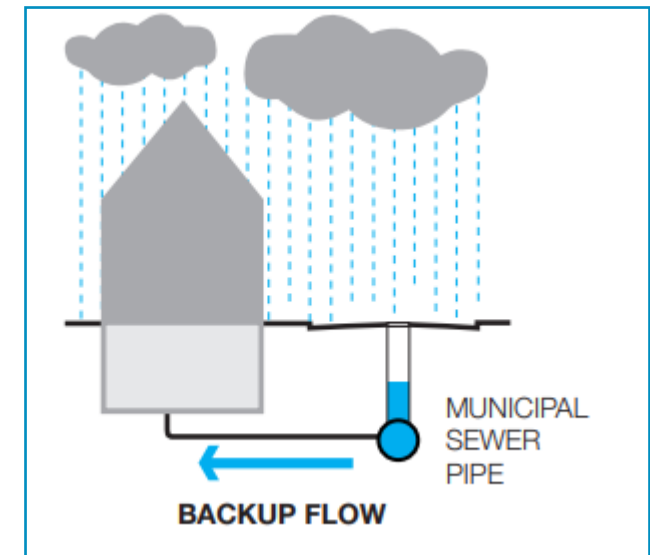
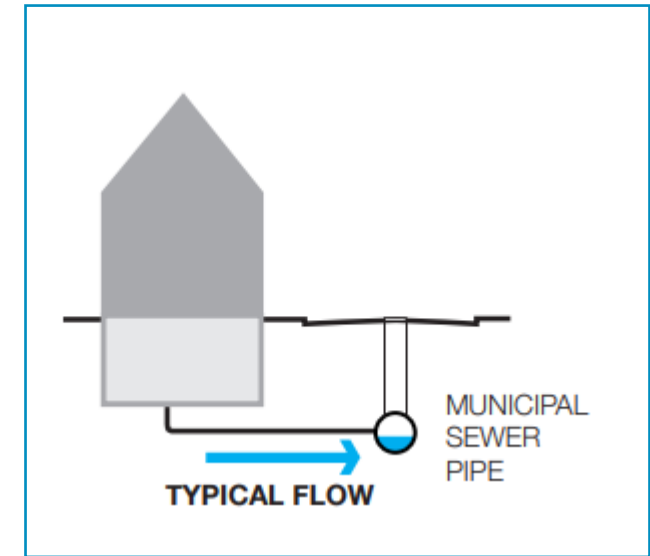
### WATERTYPE

- COMB
- STORM
- SEW
- Catchbasin
- Comb
- Storm
- Sewer
- Confirmed Illicits
- Suspected Illicits
- No Illicits
- Sewer Laterals
- CIPP
- Replace



# Sanitary Storage Tank

- Once systems are separated, MWRA combined sewer still won't have enough room for the flow
- Neighborhoods downstream are still going to MWRA pipes
- Sanitary storage tank is needed to help prevent sewage back ups





# Sanitary Storage Tank

- Tank will hold some of the flow to MWRA during heavy precipitation events
- Requires space underground and above ground
  - 600,000-gallon underground tank
  - Backup power and other support equipment
  - Should minimally disrupt neighborhood
  - Driven by publicly available parcels and engineering constraints
- We are exploring feasible sites and will keep you updated



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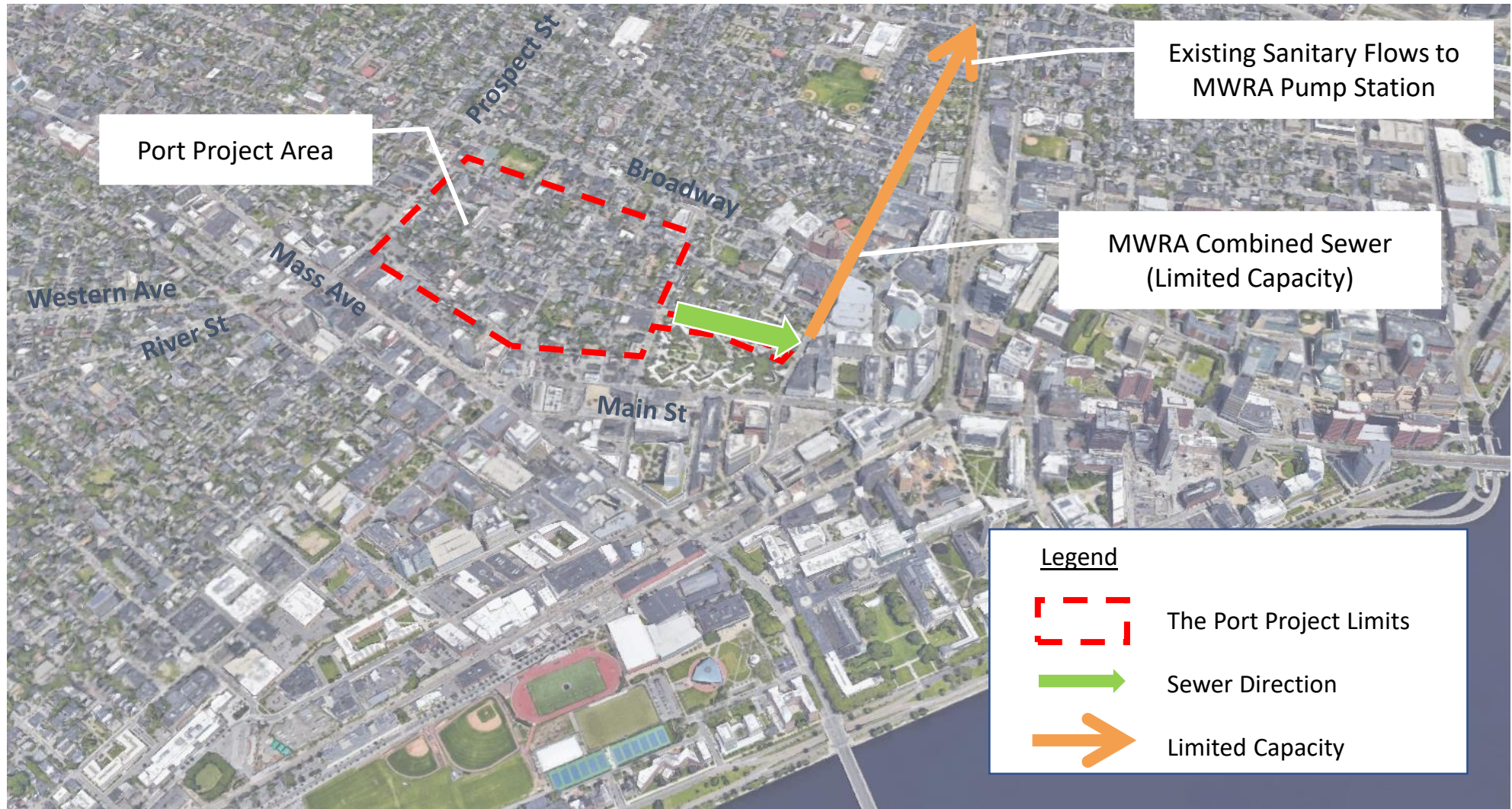
*Generator for PL6 Stormwater Tank.*

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# Planned Improvements

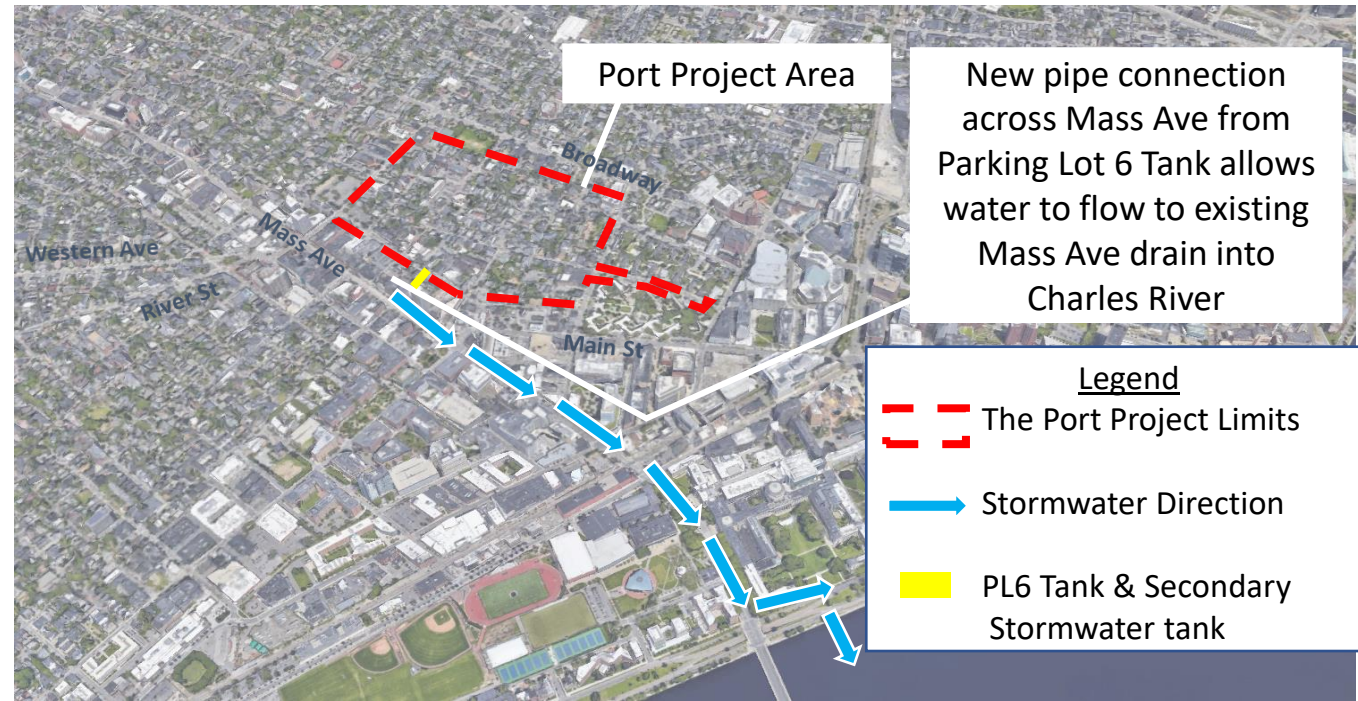
MWRA = Massachusetts Water Resources Authority; a state agency that ultimately receives and treats wastewater from Cambridge, Boston and other cities in the region



Future Port Sanitary Flow

# Stormwater Storage Tank

- 1.1-million-gallon underground stormwater tank
- Adjacent to existing stormwater tank in PL6

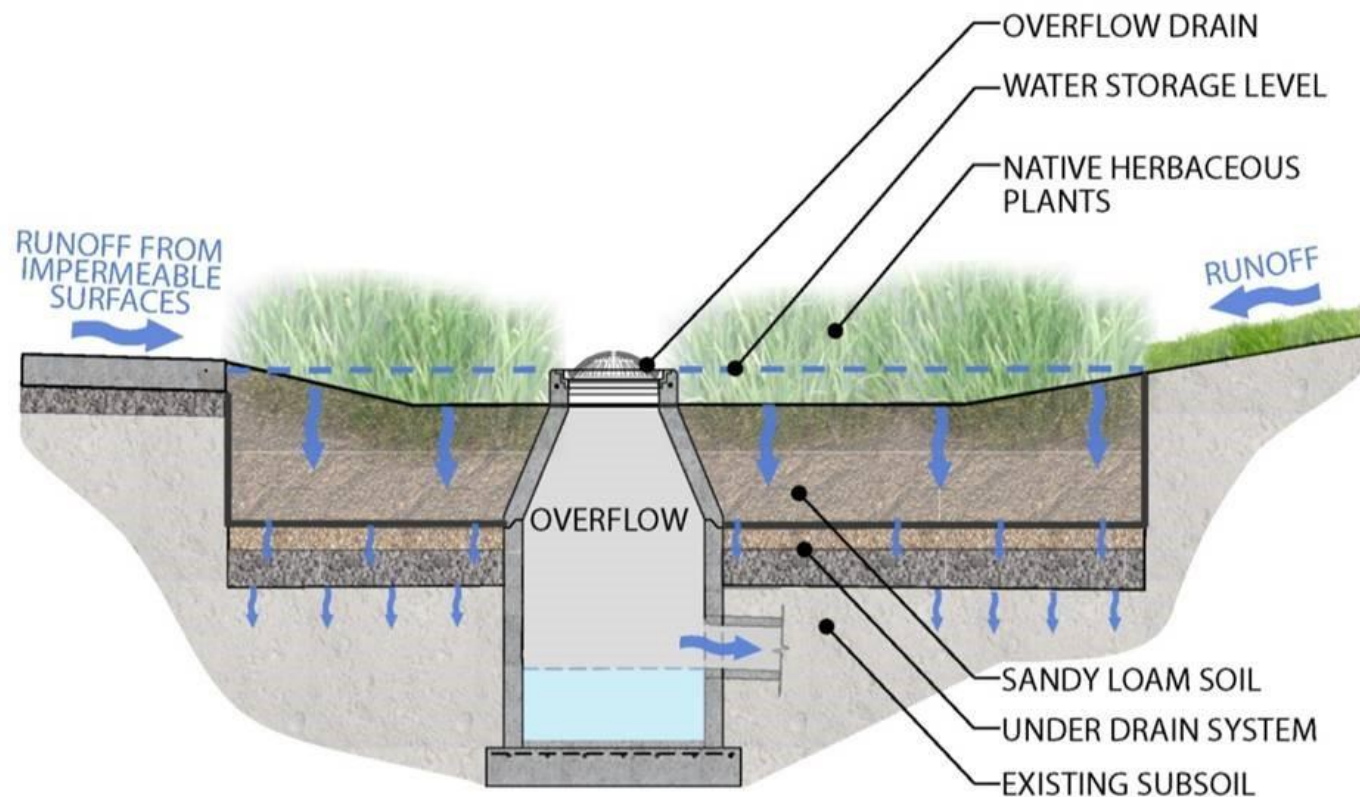


Stormwater Flow After Storage Tanks Installed



# Benefits of Green Infrastructure

- Green infrastructure (GI) is a way to filter and absorb stormwater by using natural elements and processes.
- Green infrastructure has many benefits but needs to be widespread to be effective in reducing flooding; City's approach is to maximize green infrastructure wherever possible.



*A rendering of a biobasin.*

# Limitations of Green Infrastructure

- Green infrastructure can't solve the problem alone.
  - To mitigate the 2030 10-year flooding, rain would need to enter green infrastructure on 35 acres of land in The Port.
    - **60%** of The Port would need GI/infiltration
    - Equivalent to **37 Clement Morgan Parks**

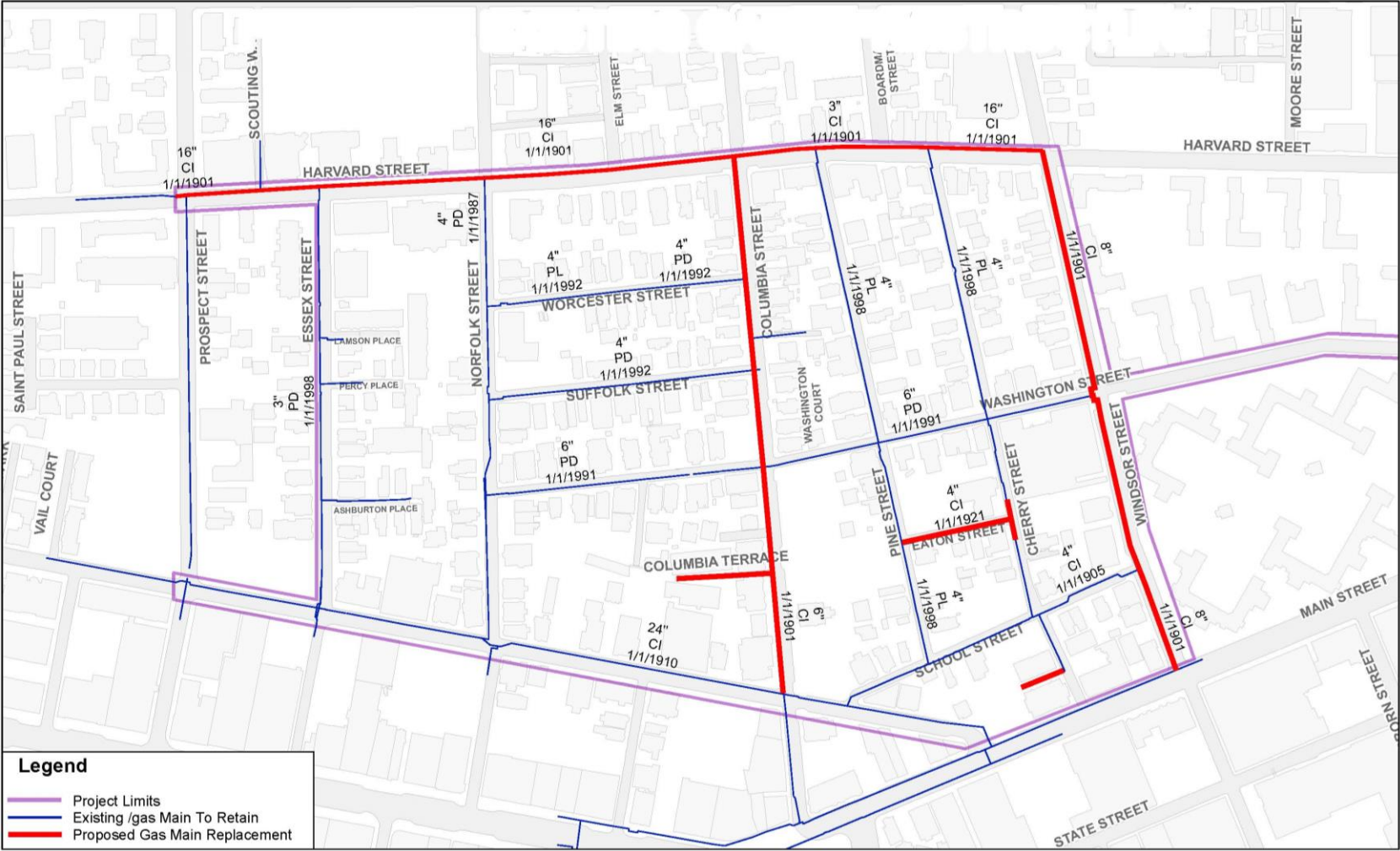


*Existing green infrastructure biobasin on Lakeview Avenue.*



# Other Utility Improvements: Gas Main

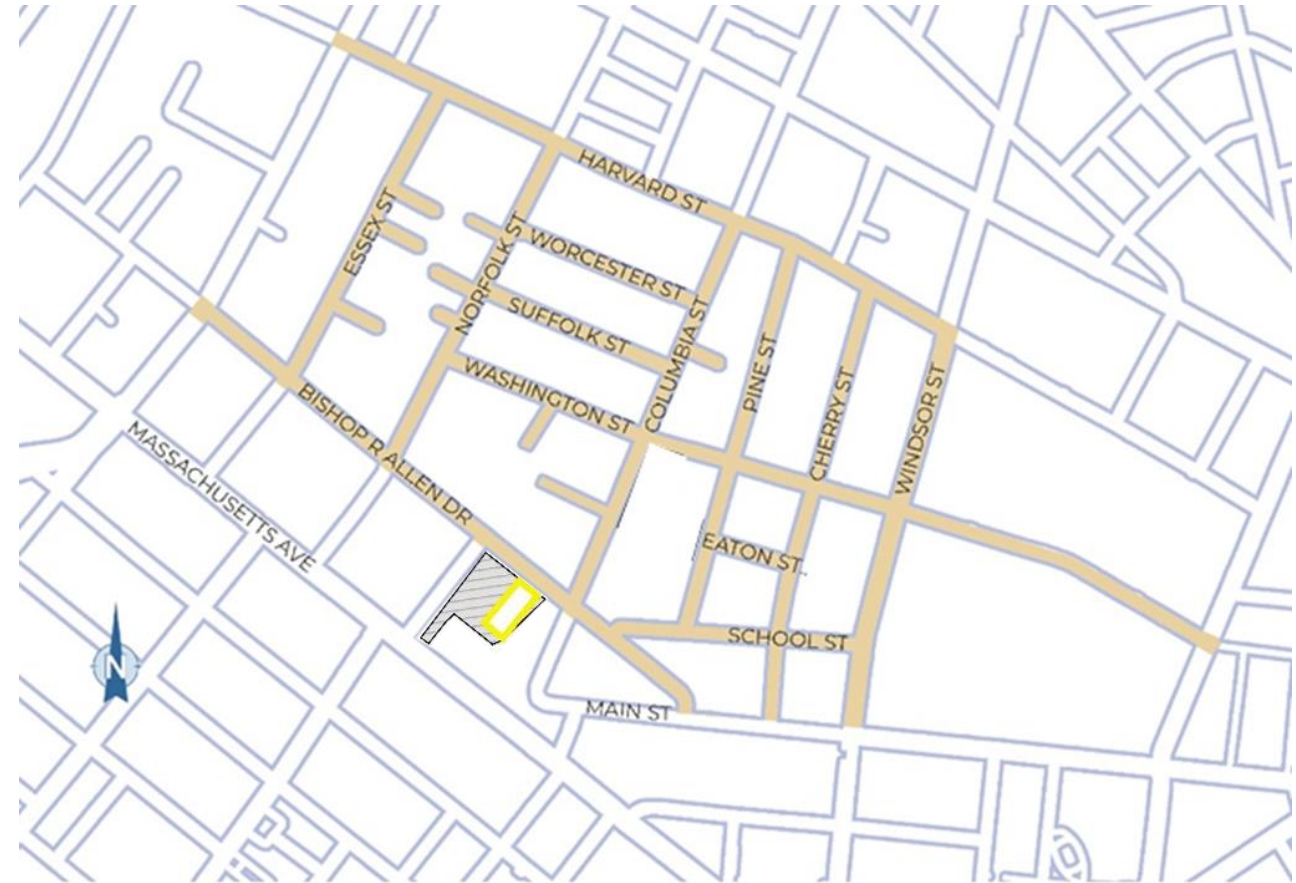
## Existing Gas Main Conditions



# Phase 2: Current Project

- Columbia Street Conduit
- Sanitary Tank
- Sewer and Storm Drain Improvements
- Roadway & Sidewalk Reconstruction
- New Tree Plantings
- Green Infrastructure (Public Right-of-Way and Potential Private Properties)
- Other Utility Upgrades (Water, Gas\*, Electric)

\* *Already underway*

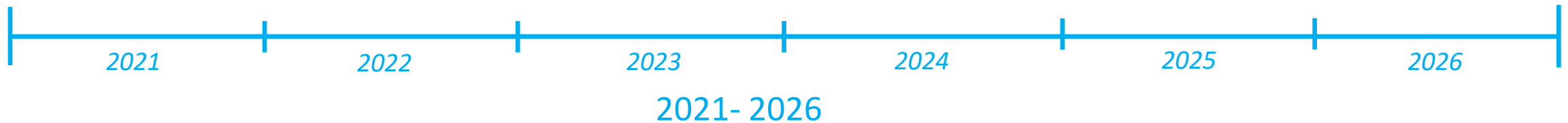




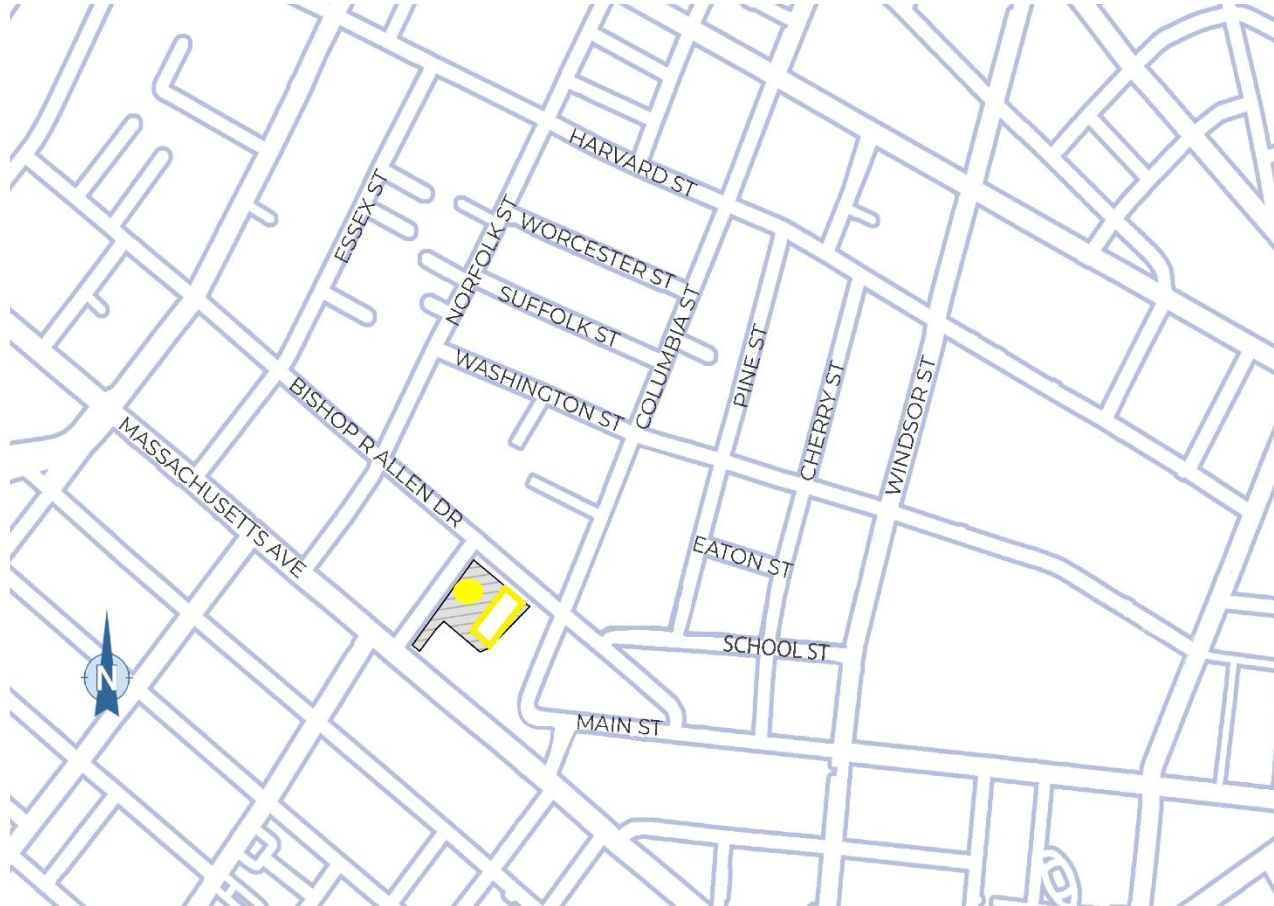
# Phase 2 Project Sequence

Subsurface Design and Construction

Surface Design, Public Input, and Construction



# Phase 3 Stormwater Tank (Future Project)



## Map Key

- Existing PL6 Stormwater Storage Tank
- Proposed Stormwater Tank

# Guidance We Need From You

- What of this information will be most important to the community to hear? How much technical detail will be of interest?
- Timing and frequency of outreach considering project duration?
- What **key messages** are important for the community to hear? e.g...
  1. All this work **benefits Port residents and businesses** and will create **a more resilient neighborhood**
  2. We want to be **proactive in communicating** what to expect during construction. Recognize the disruption and will work to minimize construction impacts
  3. We want to provide you and Port residents with **tools to protect your homes and property from future flood risks**



# Flood Risk Reduced, Not *Eliminated*


CITY OF CAMBRIDGE

**THE CAMBRIDGE DEPARTMENT OF PUBLIC WORKS**

## Flooding: Is Your Property Protected?

- Existing Conditions
- New Construction
- Climate Change

September 2016



## WHAT CAN I DO?

### ① Use Flood Resistant Materials

You can reduce the damage caused by flood waters and make cleanup easier by using flood damage resistant building materials. Building materials are considered flood resistant if they can withstand direct contact with flood waters for at least 72 hours without being significantly damaged. Flood damage resistant materials should be used for walls, floors, and other parts of a building that are below the anticipated flood level.

#### Flooring Materials

- Concrete, concrete tile, and pre-cast concrete
- Lales or bituminous, ceramic, clay, terrazzo, vinyl, rubber sheets and tiles
- Pressure-treated or decay resistant lumber
- Pressure-treated wood and cold-formed steel

#### Other

- Hollow metal doors and metal cabinets

#### Wall and Ceiling Materials

- Brick, metal, concrete, concrete block, porcelain, slate, glass block, stone, and ceramic and clay tile
- Cement board, cold-formed steel, and reinforced concrete
- Polyester epoxy paint
- Pressure-treated and decay resistant lumber
- Pressure-treated and marine grade plywood
- Foam and closed-cell insulation

#### TIPS

- Although using flood damage resistant materials can reduce the amount and severity of water damage, it does not protect your buildings from other flood hazards, such as the impact of flood borne debris.
- All hardware used in areas below the anticipated flood level should be made of stainless or galvanized steel.

#### ESTIMATED COST

- The cost of using flood damage resistant materials will vary, depending on the size of the project you undertake.

- BENEFITS: HELPS PREVENT DAMAGE TO A STRUCTURE AND MAKES FLOOD CLEANUP EASIER.**

### ② Build Exterior Floodwalls

An exterior floodwall can protect a window well or stair against low level flooding. Constructed of concrete or masonry, the walls should be supported by and securely tied into a footing so they will not be undercut by scouring. Understanding your particular flood situation and soil conditions is important in order to properly evaluate if a flood wall is the right solution for you.

- Construct a watertight flood wall around the perimeter of the opening. The wall should be designed by an engineer and be constructed of steel reinforced poured concrete or steel reinforced concrete masonry units to prevent failure under flood conditions. Install a proper footing and anchor the floodwall to existing walls.
- Install a watertight, springloaded steel access door and watertight gaskets on sides and bottom of frame at any necessary opening.



### ③ Install Backwater Valves

Flooding can cause flow from sanitary sewer and drain lines to back up through pipes into buildings. These backups cause damage. Backups is to install backwater valves; a device installed to prevent sewage and drainage from flowing backwards into basement fixtures which allows wastewater to flow in one direction, out towards the street, but closes automatically and does not allow flow back.

#### TIPS

- Changes to the plumbing in your property must be done by a licensed plumber or contractor.
- Valves should be installed on sewer and drain lines that are connected to equipment that is below the potential flood level. Therefore, valves may be needed on washing machine drain lines, laundry sinks, floor drains, and sump pumps.

#### WHERE TO INSTALL

- Install on the plumbing of each basement fixture.
- Valves should be accessible for monthly maintenance.
- A licensed plumber can determine the appropriate installation location.

- BENEFITS: HELPS PREVENT DAMAGE TO A STRUCTURE AND AVOID HAZARDOUS AND COSTLY CLEANUP, AS WELL AS PROTECT THE HEALTH AND SAFETY OF THE OCCUPANTS OF THE STRUCTURE.**

# Public Comment

## Share Your Comments and Questions:

- Type your comments and questions in Q&A window
- If you would like to speak, use the “Raise Hand” button to request to speak

We will read out questions from the Q&A and call on attendees with “raised hands” as time allows.



# Upcoming Events

Thursday, October 21, 4-6 p.m.

**Neighborhood Event** – Food trucks, bike tune-ups, and fun (and info about the project!)

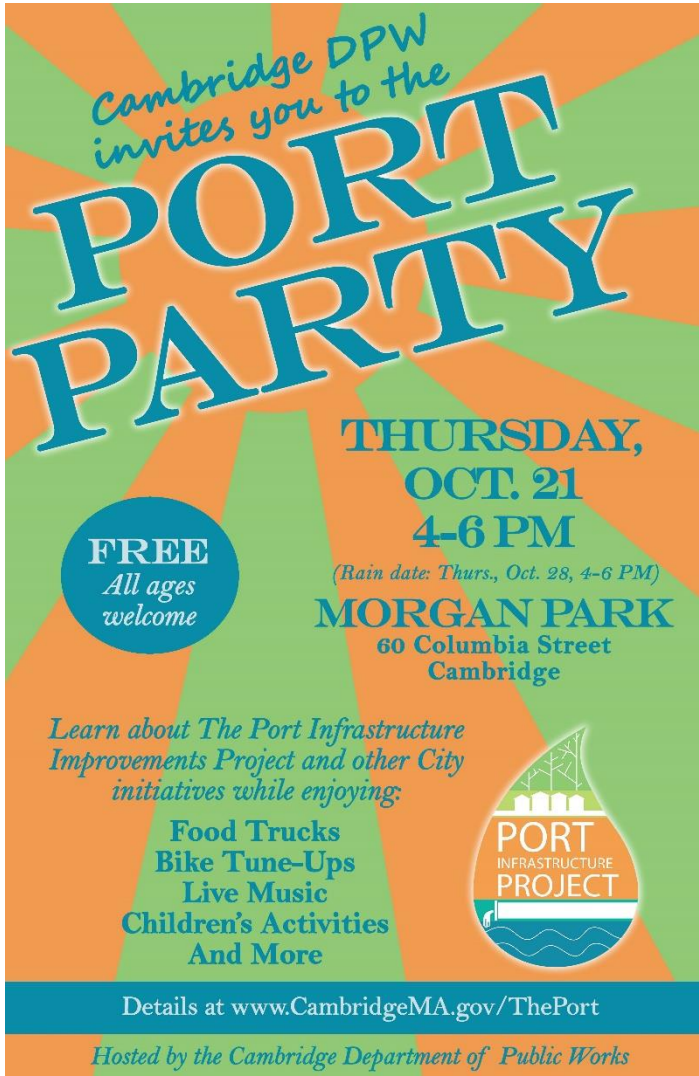
Details and flyer on project webpage.

Please help spread the word!

**Working Group Meeting #3** – late Fall, TBD



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**For More Information:**  
[www.cambridgema.gov/theworks/theport](http://www.cambridgema.gov/theworks/theport)

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**COMMENTS &  
QUESTIONS?**

