

The background is a light blue gradient with several realistic water droplets of various sizes scattered across the surface. The droplets have highlights and shadows, giving them a three-dimensional appearance.

OCEAN AVENUE WEST STORMWATER PUMP STATION

EVALUATION AND PRELIMINARY DESIGN

(First Public Meeting - April 21, 2020)



HOSTS –

Deb Duhamel – City of Salem, Assistant City Engineer

Ken Mavrogeorge – Woodard & Curran, Project Manager

PANEL –

Ken Carlson – Woodard & Curran, Vice Present

David Knowlton – City of Salem, DPS Director/City Engineer

Jason Kreil – Woodard & Curran, Technical Manager

Patti Morsillo – Ward 3 Councillor

Michelle Rowden – MVP Regional Coordinator

Barbara Warren – Salem Sound Coastwatch Executive Director



ZOOM MEETING

- THIS MEETING IS BEING RECORDED & WILL BE POSTED TO THE PROJECT WEBPAGE IN THE NEAR FUTURE
- PRESENTATION FOLLOWED BY DISCUSSION/Q&A
- USE THE RAISE HAND FEATURE ON ZOOM TO ASK A QUESTION
- ON PHONE PRESS *9 TO RAISE HAND
- COMMENTS/QUESTIONS CAN BE SENT AFTER TO EITHER HOST



Ocean Avenue West Stormwater Pump Station



Evaluation and Preliminary Design

COMMITMENT & INTEGRITY DRIVE RESULTS

Agenda



- Project Overview / Goals
- What is the MVP Program?
- So What is Stormwater
- Planning for the Future
- Climate Projections
- Why This Stormwater Pump Station?
- Project Schedule
- Feedback



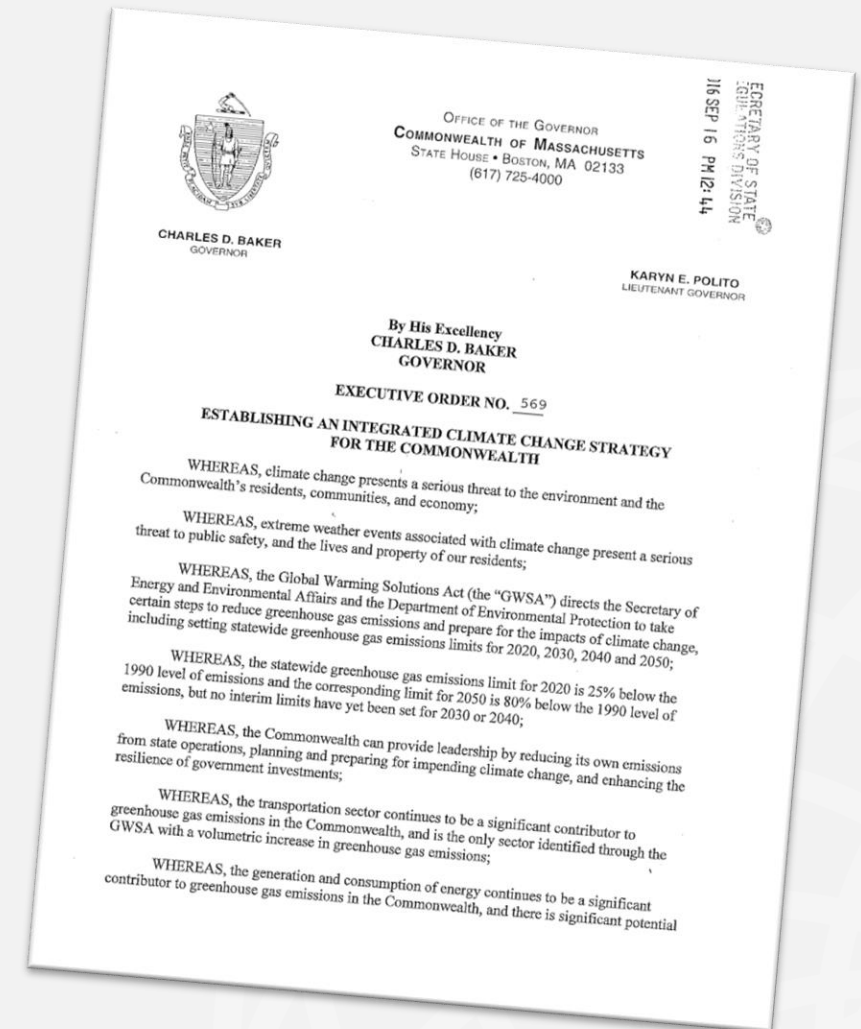
Photo Source: City of Salem, MA

Project Overview / Goals

- Funded by a Municipal Vulnerabilities Preparedness (MVP) Program Action Grant
 - \$233,000 total cost (\$58,250 is a City match, \$174,750 is from MVP grant)
- Evaluation and Preliminary Design
- Alternatives analysis of various pumping equipment, storm drain upgrades, and resiliency measures
- Report with Preliminary Design Criteria
 - Capacity to handle the 100-year storm event as reported by the Northeast Regional Climate Center (NRCC) (1% chance of occurring in any given year)
 - Review current and evaluate improvements to City's Best Management Practices

What is the MVP Program?

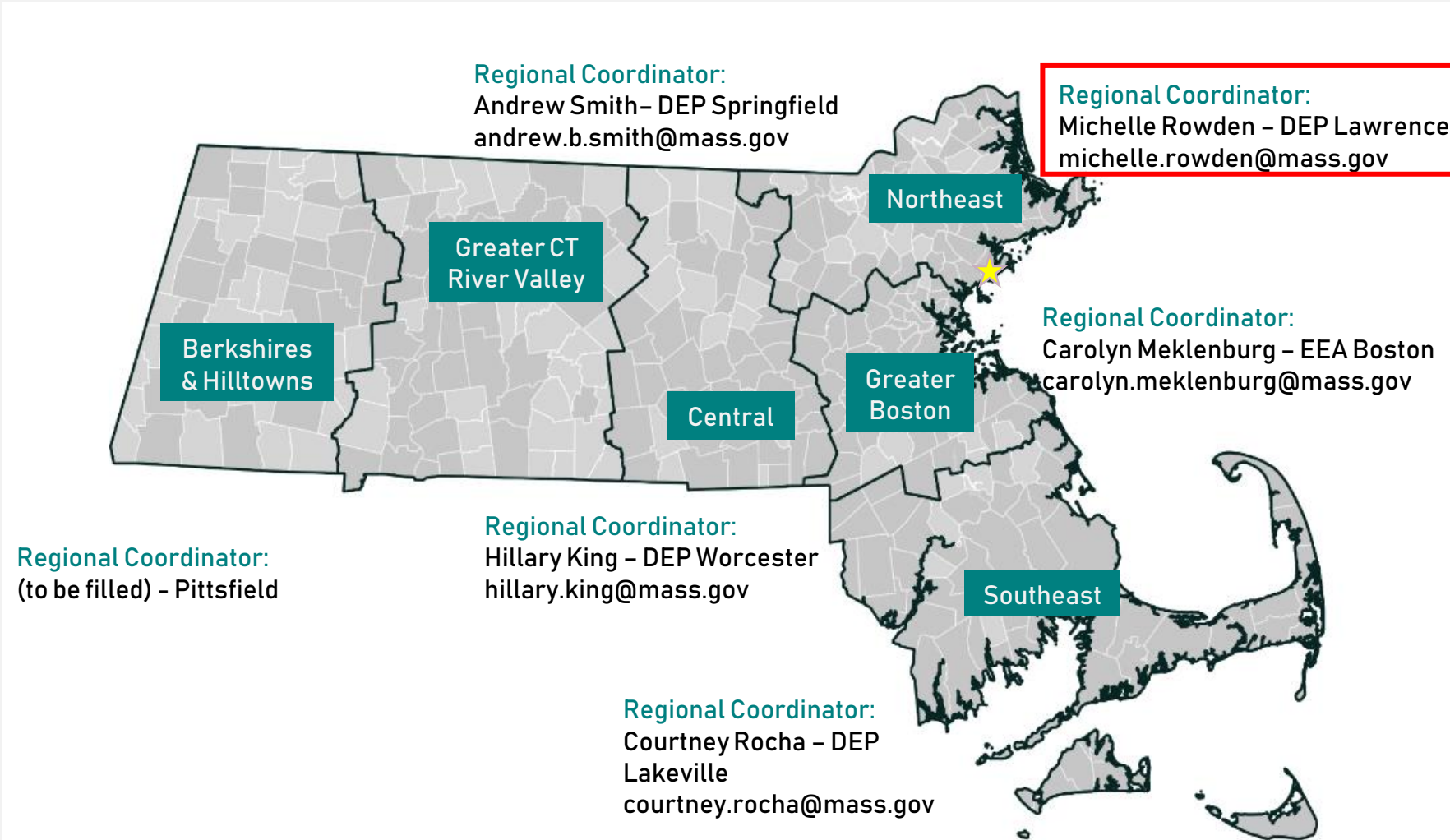
- In September 2016, Governor Charlie Baker signed Executive Order 569, instructing the state government to **provide assistance to cities and towns to complete climate change vulnerability assessments and resiliency planning**
- Two Types of Grants
 - Planning
 - Action



MVP Principles

- A community-led, accessible process that:
 - Employs local knowledge and buy-in
 - Utilizes partnerships and leverages existing efforts
 - Is based in best available climate projections and data
 - Incorporates principles of nature-based solutions
 - Demonstrates pilot potential and is proactive
 - Reaches and responds to risks faced by Environmental Justice (EJ) communities and vulnerable populations

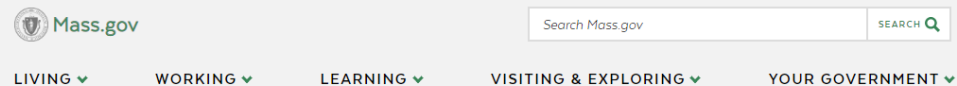
MVP Regions & Regional Coordinators



MVP Action Grants: Project Types

- Vulnerability and Risk Assessment
- Community Outreach and Education
- Local Bylaws, Ordinances, Plans, and Other Management Measures
- **Redesigns and Retrofits**
- Nature-Based Flood Protection, Drought Mitigation, Water Quality, and Water Infiltration Techniques
- Nature-Based, Infrastructure and Technology Solutions to Reduce Vulnerability to Extreme Heat and Poor Air Quality
- Nature-Based Solutions to Reduce Vulnerability to other Climate Change Impacts
- Ecological Restoration and Habitat Management to Increase Resiliency
- Energy Resilience
- Chemical Safety
- Land Acquisition for Resilience
- Subsidized Low-Income Housing Resilience Strategies
- Mosquito Control Districts

mass.gov/municipal-vulnerability-preparedness-program



OFFERED BY Executive Office of Energy and Environmental Affairs

Municipal Vulnerability Preparedness Program Action Grant Projects

Find a summary of all FY18 action grant projects as well as detailed deliverables below.

[FY18 MVP Action Grant Summary](#)

TABLE OF CONTENTS

- Adams
- Arlington
- Belchertown
- Boston
- Brookline
- Cambridge
- Carver
- Charlton & Spencer
- Deerfield

resilientma.org



Explore Sectors Identify Changes Take Action

Maps Data Documents Search for resources... Search

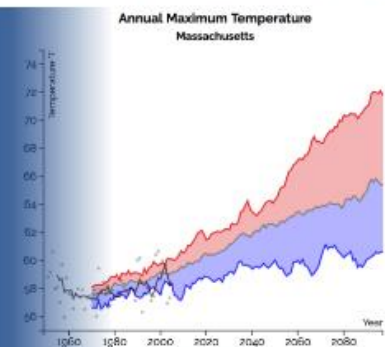
Providing the most up-to-date climate change science and decision-support tools for the Commonwealth. [More »](#)

Climate Change Data

The Baker-Polito Administration is investing in the best science and data to understand how the climate is projected to change and to allow Massachusetts to plan and adapt for the future.

More »

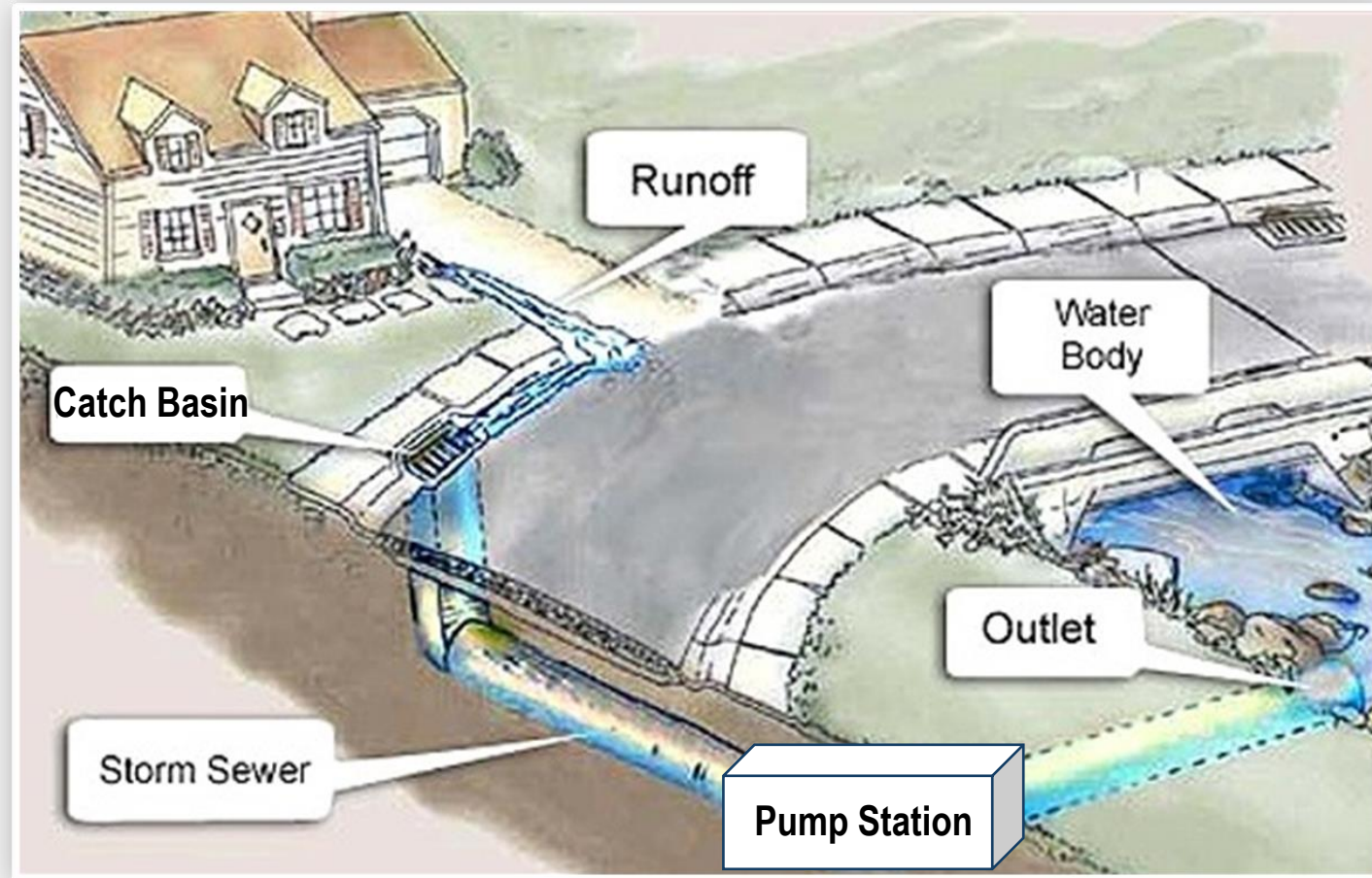
Annual Maximum Temperature Massachusetts



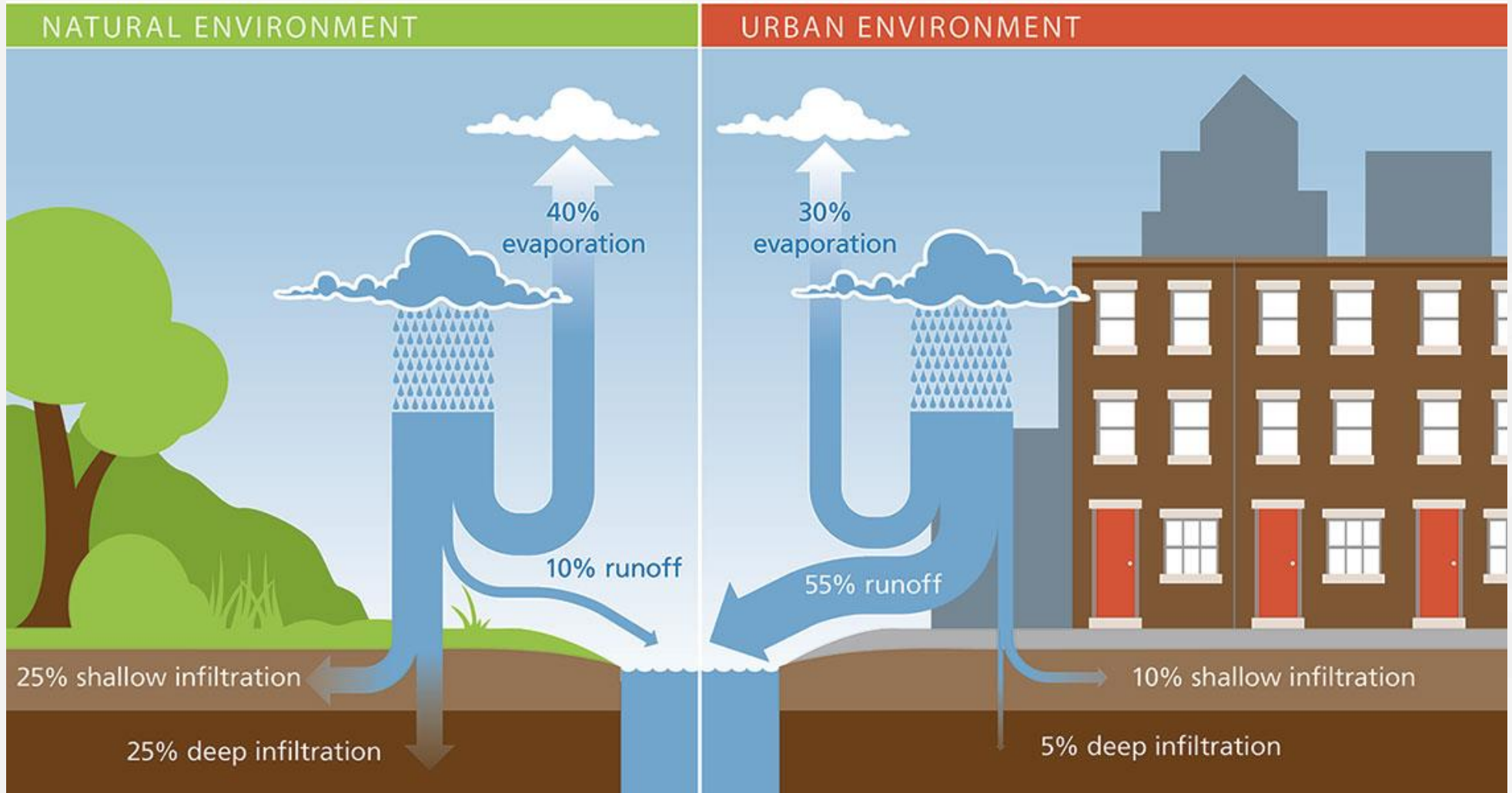
Download Data

Year	Observed 'F
5-yr Mean	
Max	
Median	
Min	
Changes from 1971-2000 for:	
2020 - 2049	3.83 F
2040 - 2069	5.02 F
2060 - 2089	6.14 F
2080 - 2097	6.84 F

So What is Stormwater?



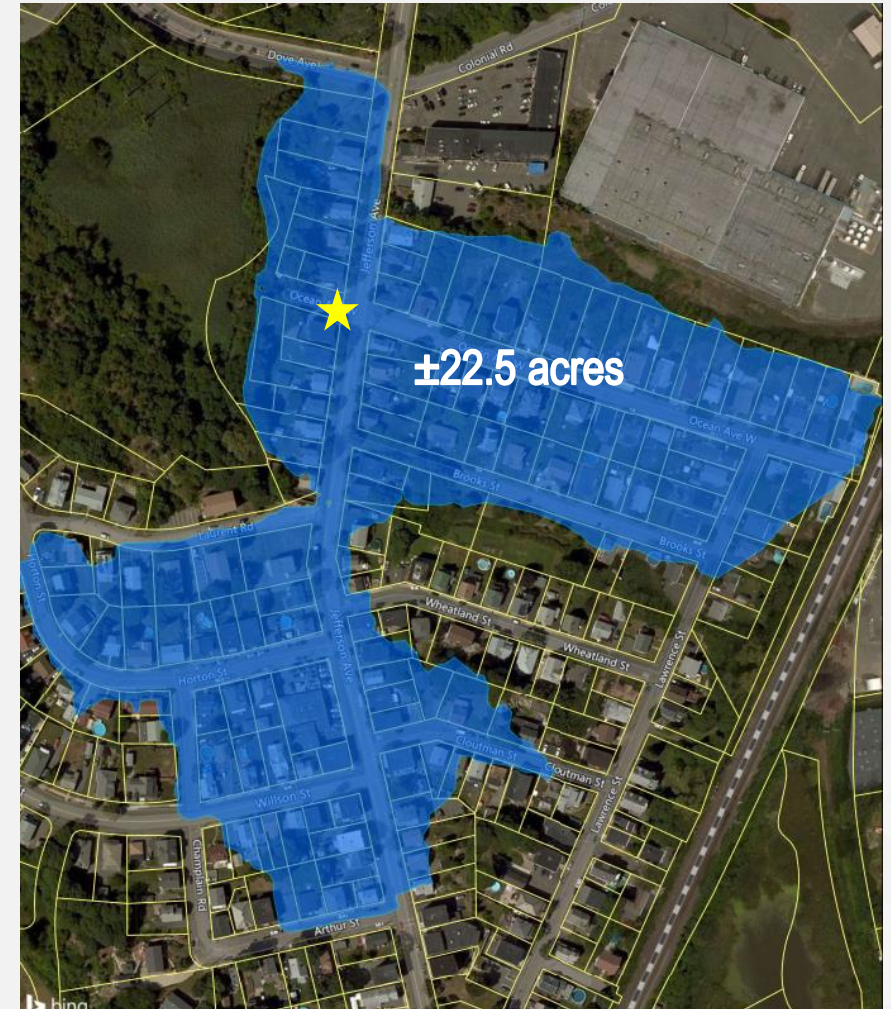
Stormwater Runoff





Planning for the Future

- Using published data that accounts for the effects of climate change
- Resilient MA (resilientma.org)
 - Provides interactive maps with projections of sea level rise, extreme precipitation events, and more
- NRCC
 - Recorded historical rainfall data for modelling various storm events
 - Goal for this project is the 100-year storm event (8.76 inches over a 24-hour period)



Climate Change Projections

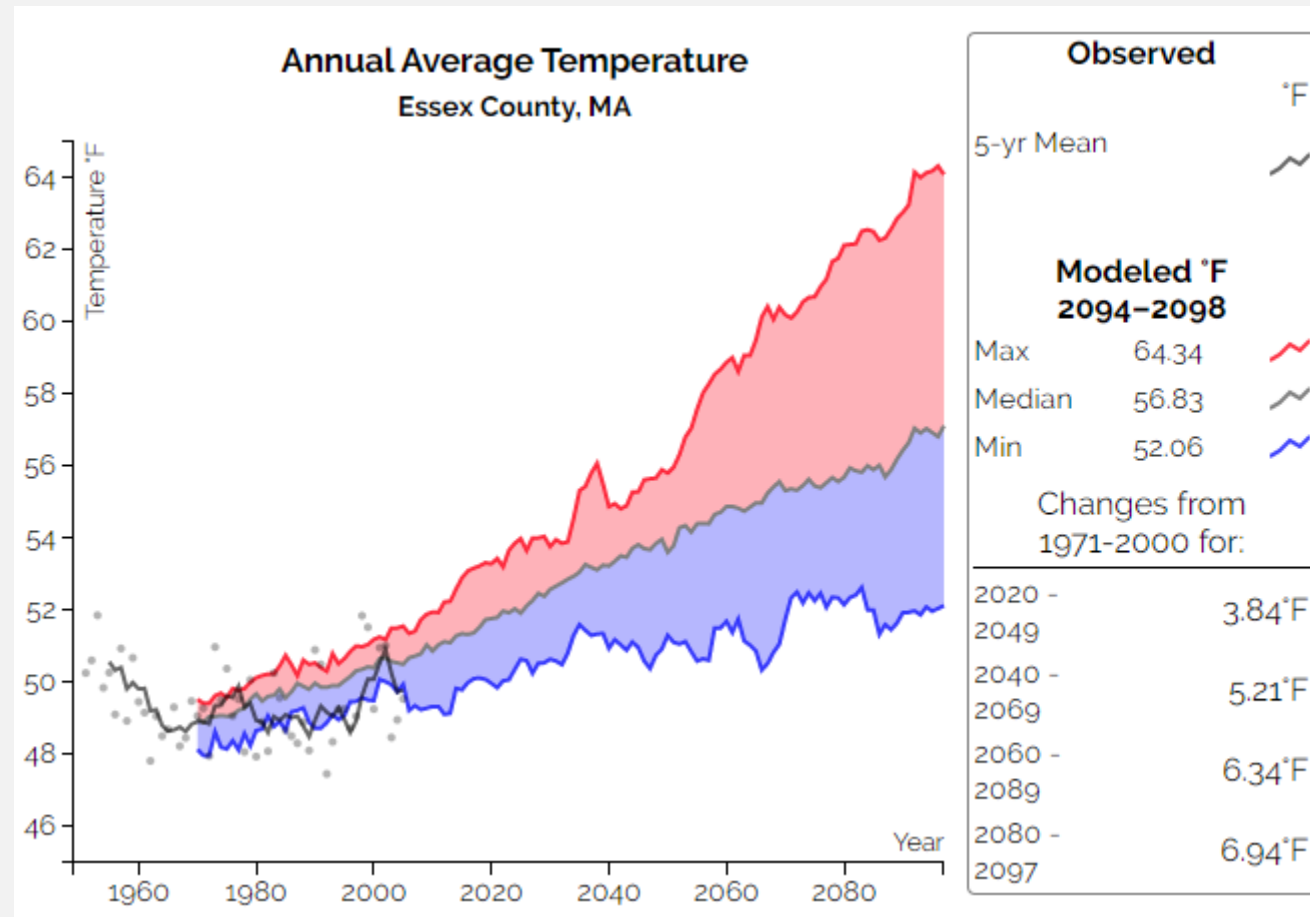


- Extreme temperatures
- Increase rainfall frequency and intensity
- Sea level rise
- Storm surge
- Drought

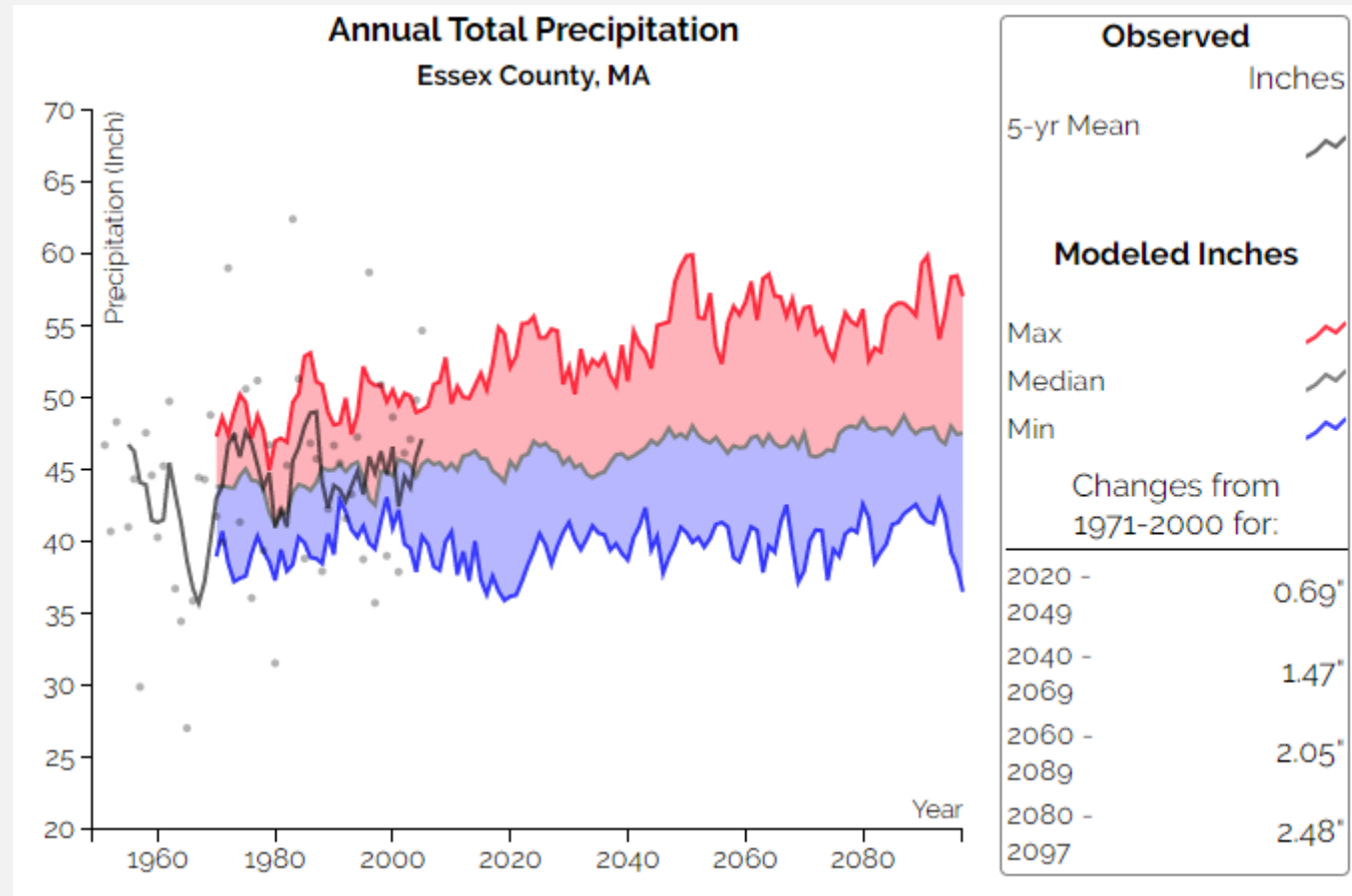


Photo Source: City of Salem, MA

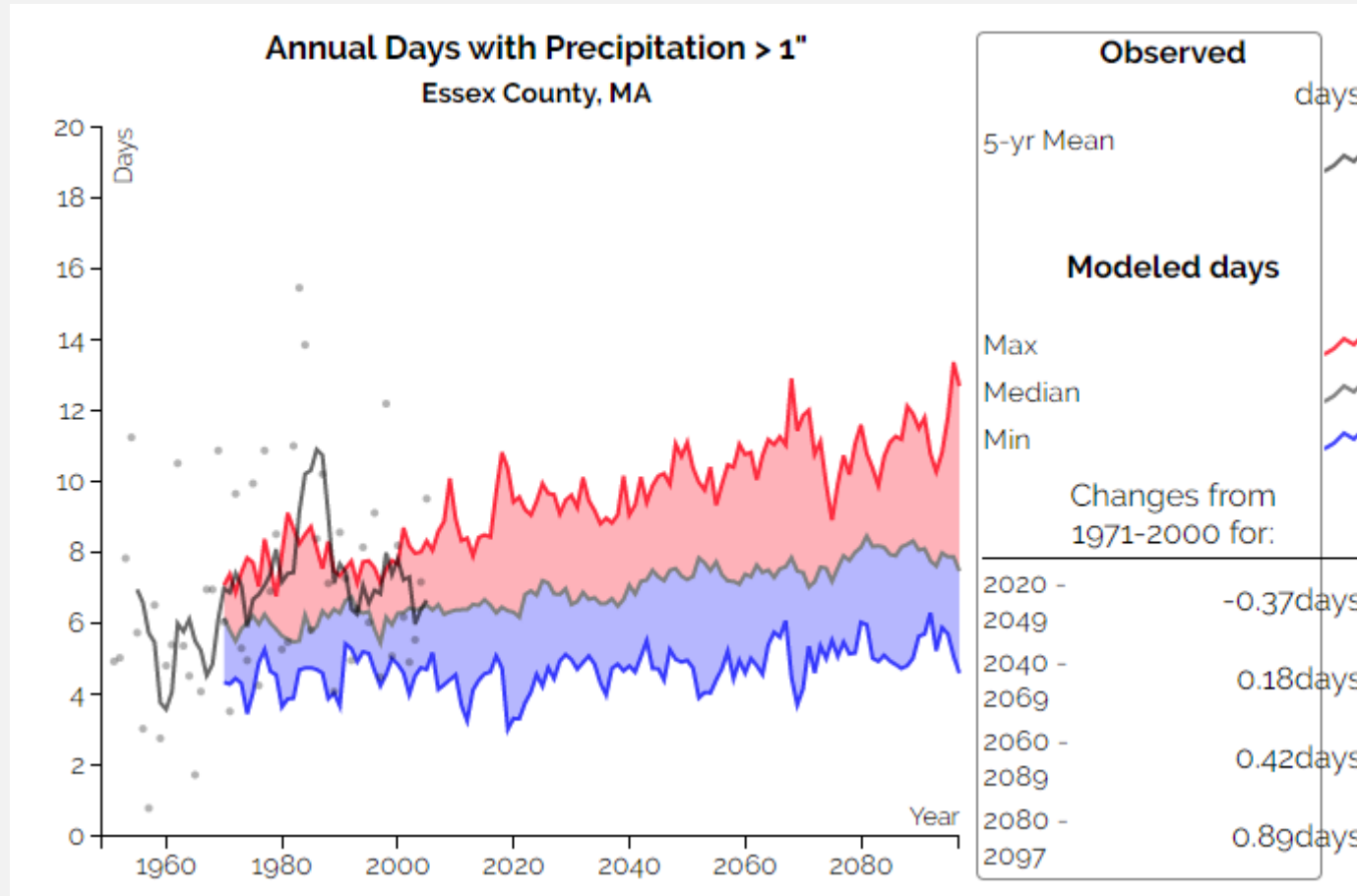
Climate Change Projections - Temperature



Climate Change Projections - Precipitation



Climate Change Projections - Precipitation

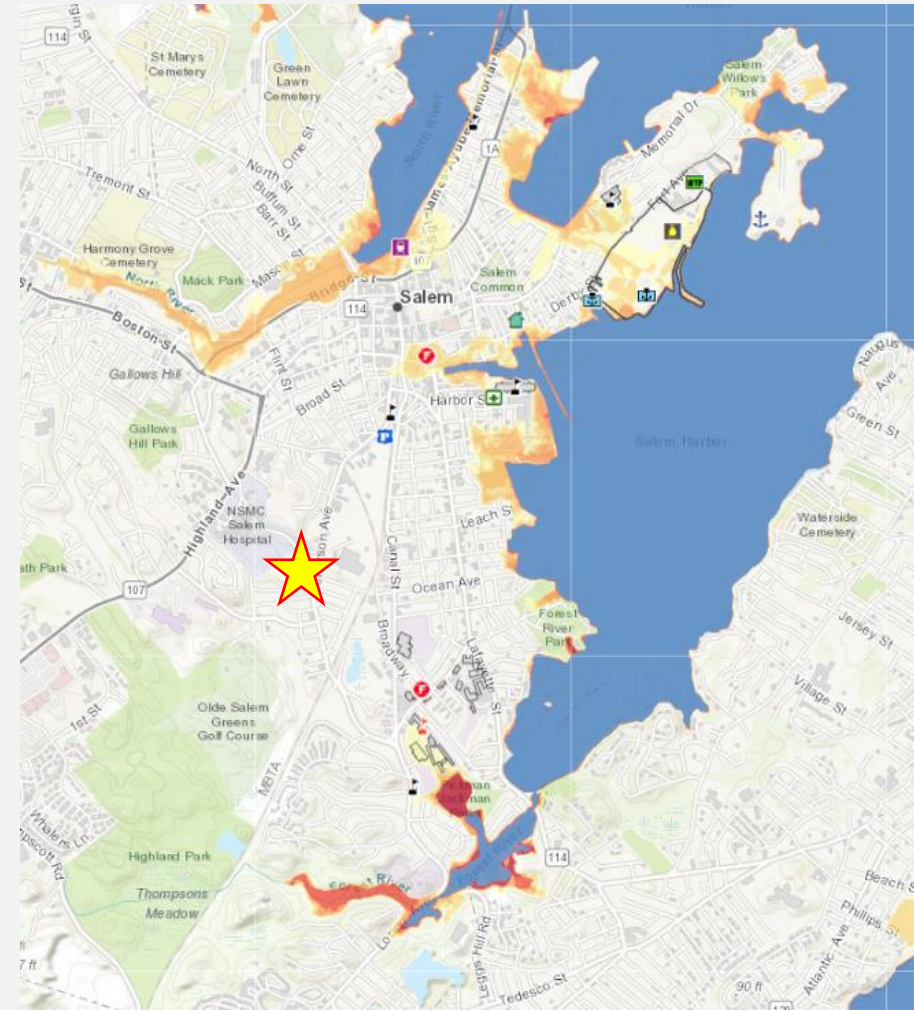


Climate Change Projections Sea Level Rise



- Massachusetts Office of Coastal Zone Management Sea Level Rise and Coastal Flooding Viewer:

Potential Extent of Mean Higher High Water (MHHW) with Sea Level Rise



Climate Change Projections Sea Level Rise



- Massachusetts Office of Coastal Zone Management Hurricane Surge Viewer:

Hurricane Surge Scenarios

- Category 1
- Category 2
- Category 3
- Category 4

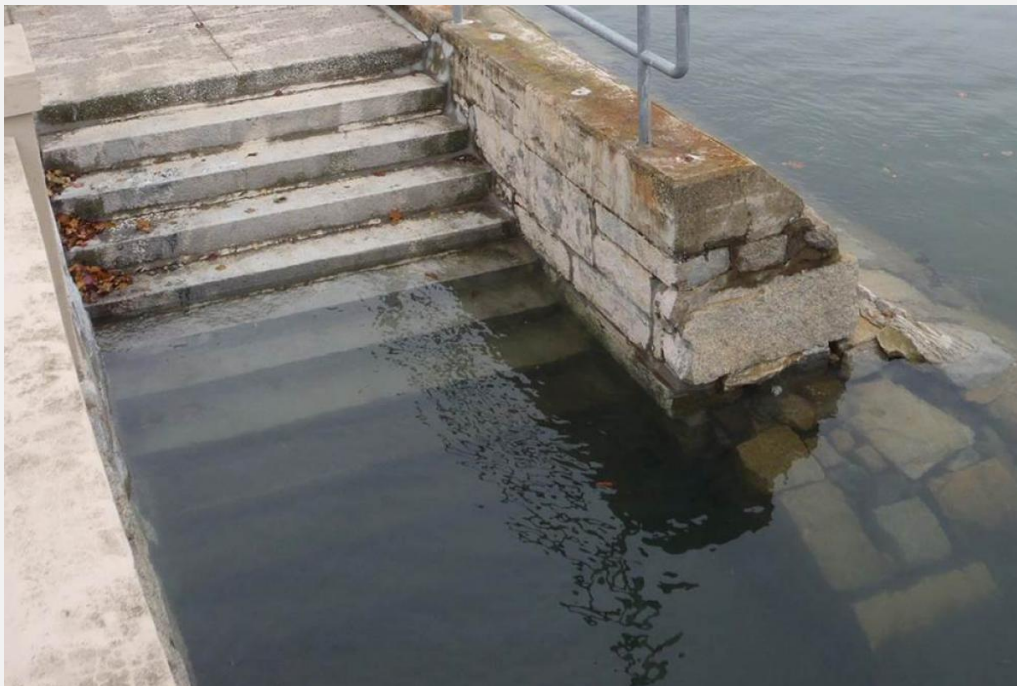
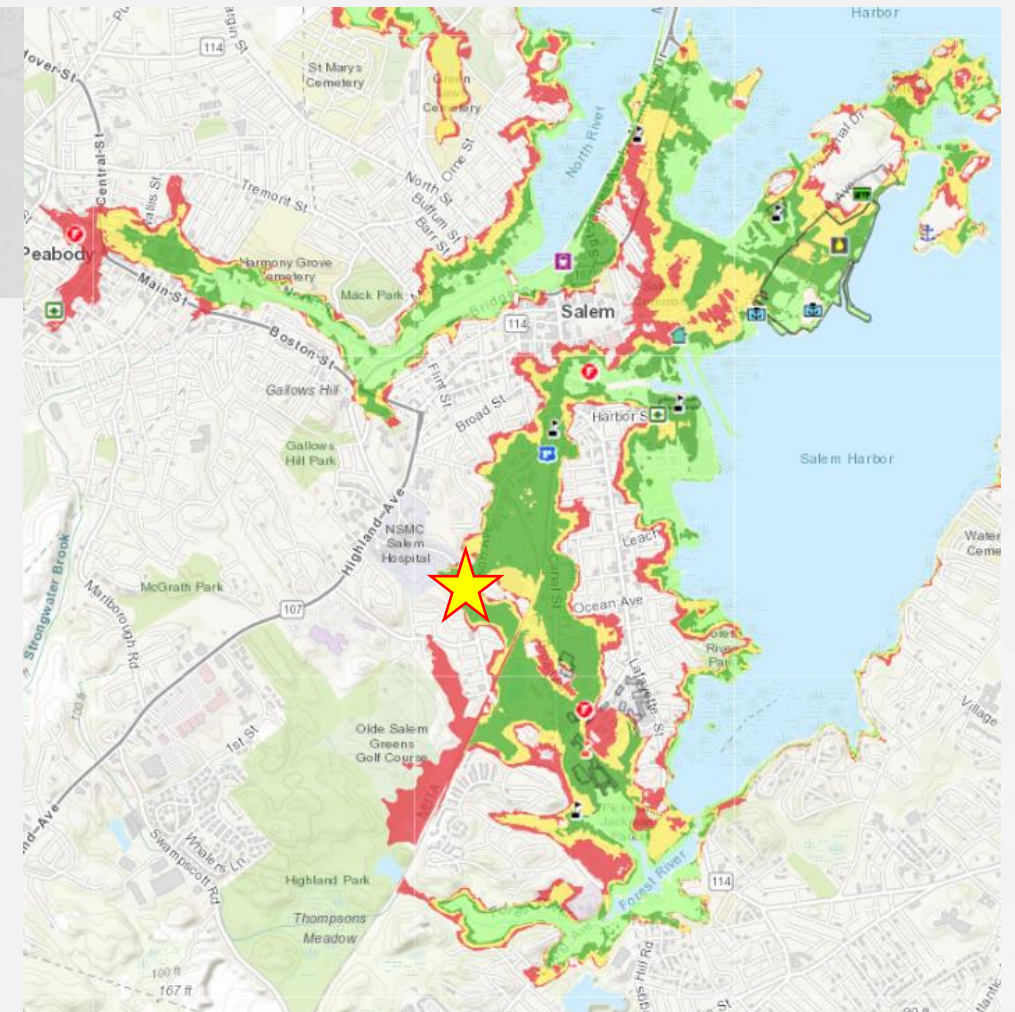
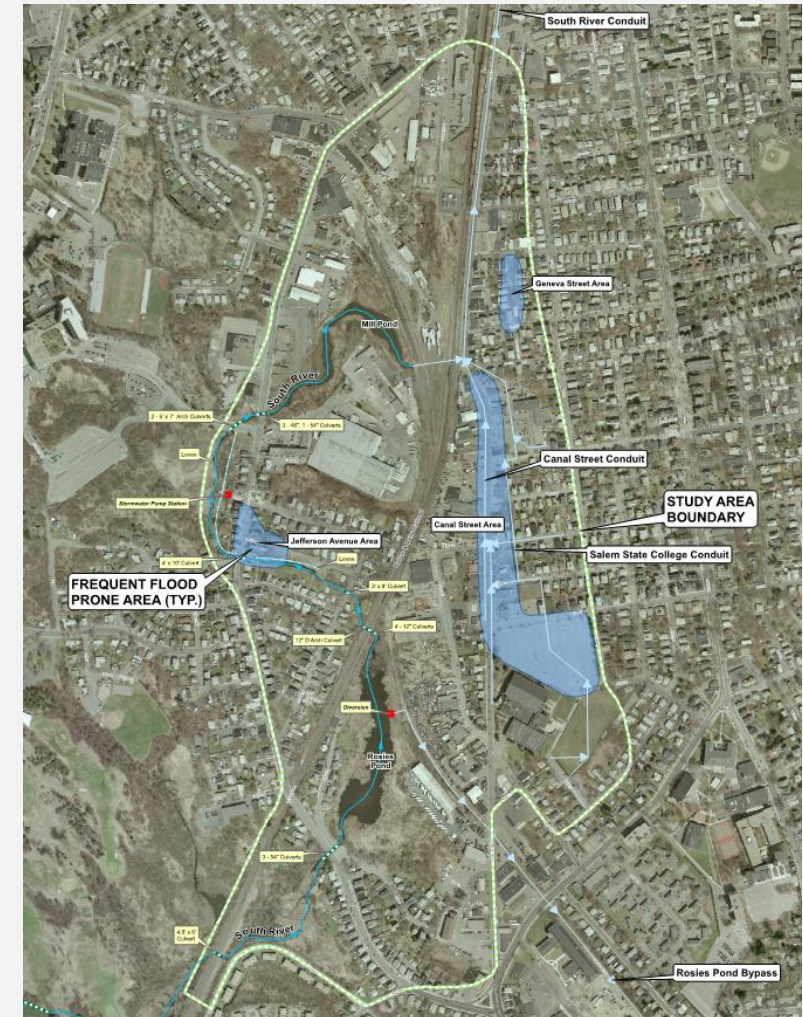


Photo Source: City of Salem, MA



Why This Stormwater Pump Station?

- South River Drainage Improvement Projects Planning Study (2007)
 - Three Low Lying Areas (± 250 acres)
 - Jefferson Avenue Neighborhood
 - Canal Street
 - Geneva Street
 - Multiphase Project
 - Canal Street/Forest River Park
 - Rosie's Pond/Jefferson Ave.
 - Ocean Avenue Pump Station
- MVP Funding secured 2020

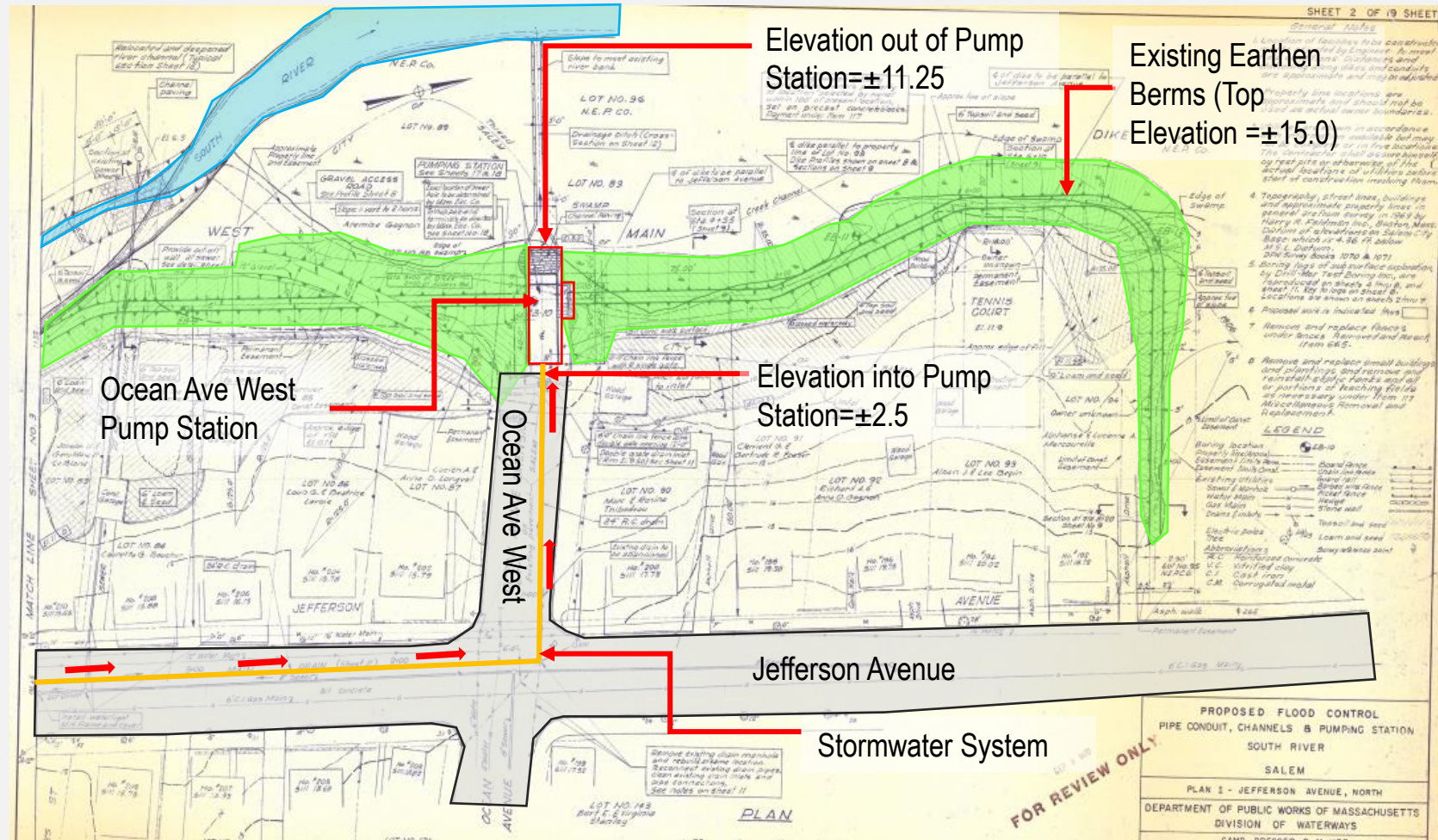


Existing Conditions

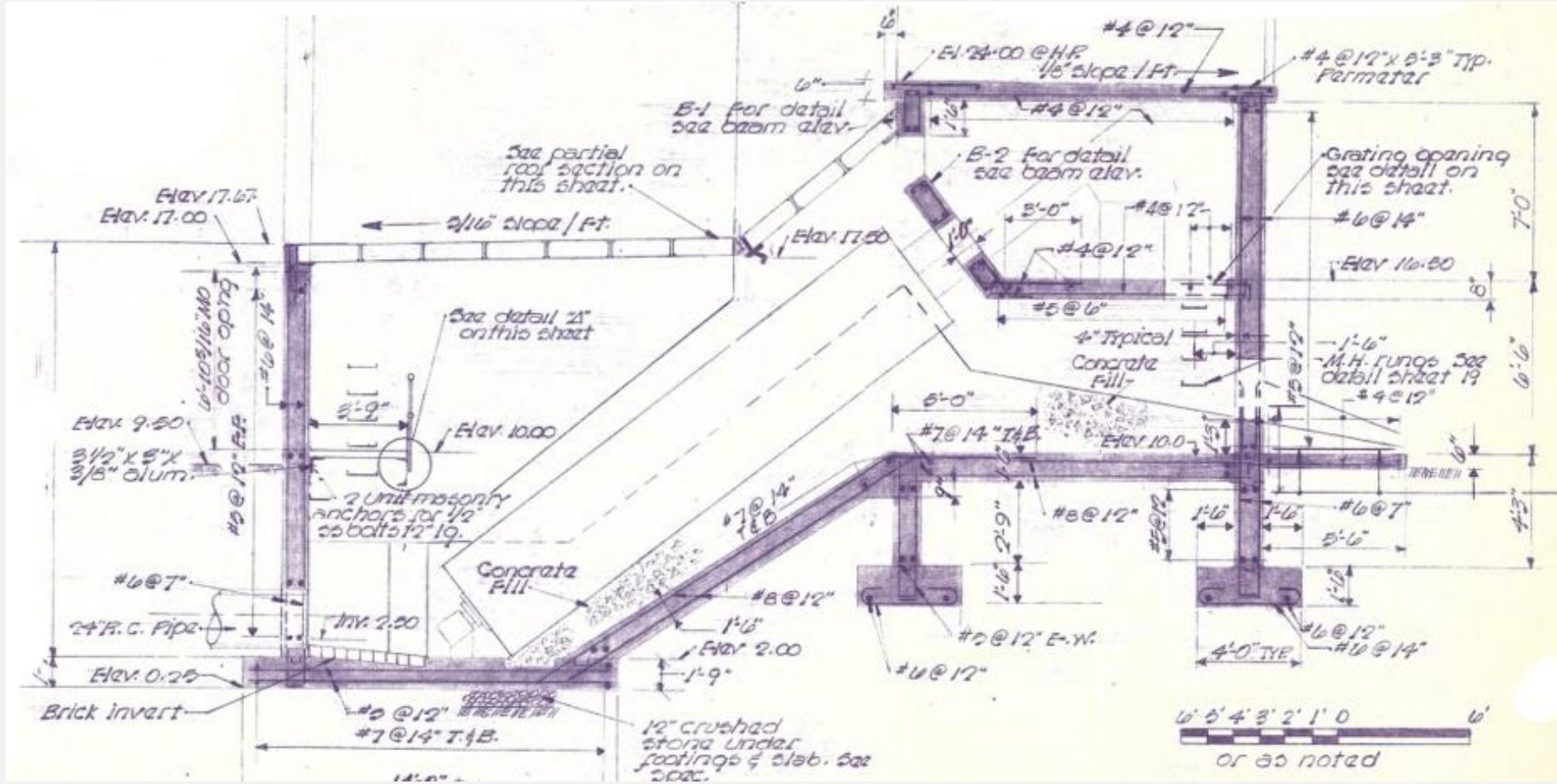
- Building constructed in early 1970s by Massachusetts Public Works
- Structural concrete in building in generally good condition
 - Sealant on the removal roof has deteriorated over the pump channel
- Structure not in line with current building code and best management practices
- Pumping equipment and controls at the end of their expected service life (20-30 years expected service life)



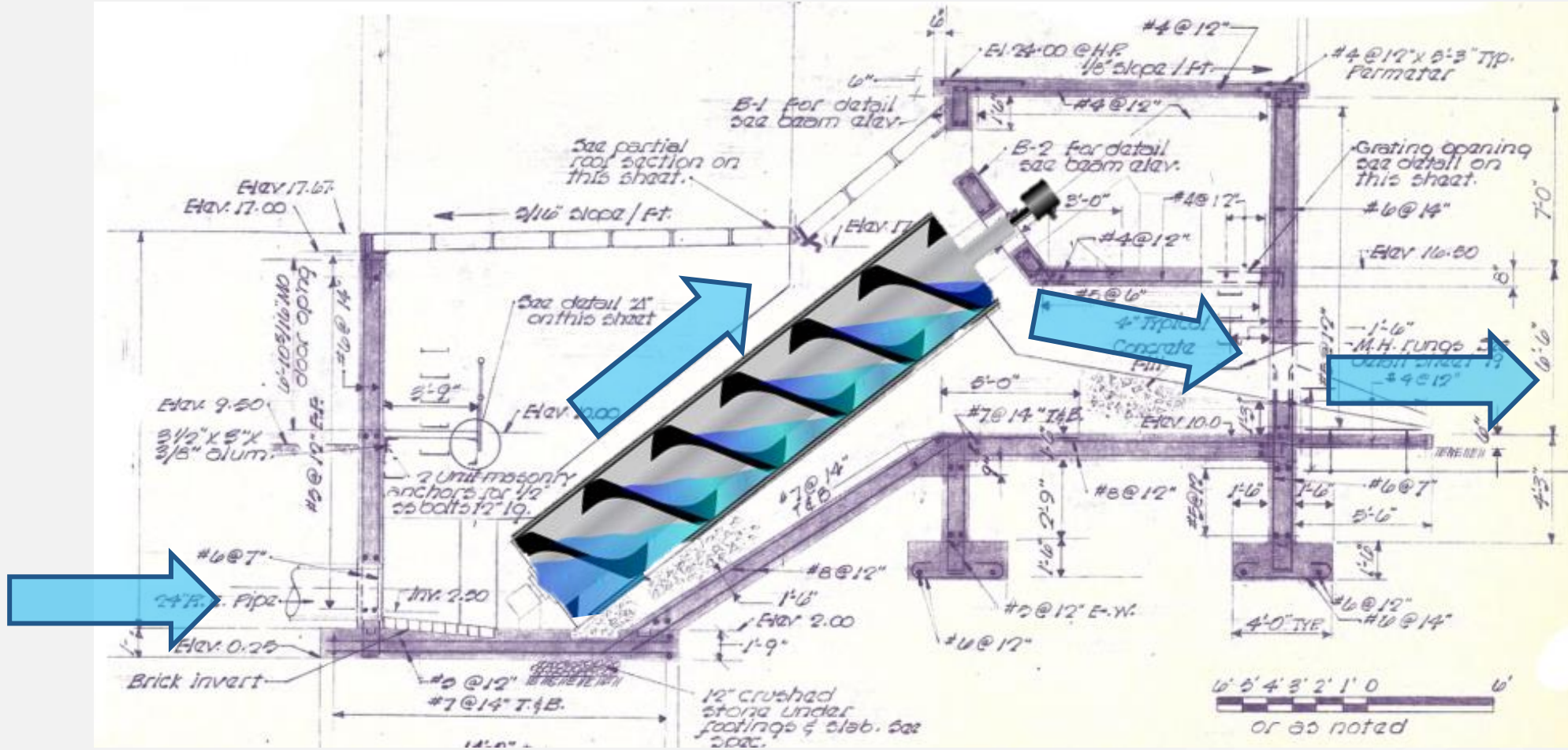
Ocean Avenue West Stormwater Pump Station



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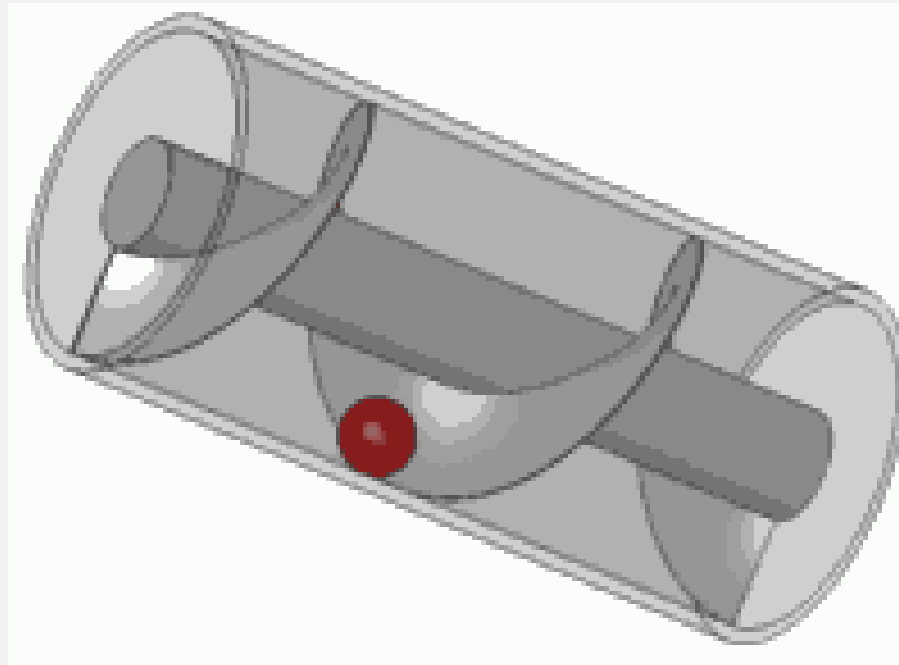


Ocean Avenue West Stormwater Pump Station



Archimedes Screw

- The screw pump is the oldest positive displacement pump which dates back to the 3rd century



Project Schedule

- Public Outreach (Key Part of MVP Program)
 - April 2020 (This Meeting)
 - May 2020 (Date TBD)
- Final Preliminary Design Report
 - Must be completed by June 30, 2020



Feedback

- We Need Your Feedback
 - What are some examples of flooding within the area?
 - What are some thoughts on the pump station and its function?
 - Do you have any questions on the project?
 - What are some populations that might be vulnerable in the event this station does not function?
 - Other Questions?

Contact Us

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