Public Meeting No. 2: CSO Control Plans Update Typical Year Development, Goals & Priorities

December 15th, 2022

This slide is a placeholder. Please note that slides 2 through 13 were intentionally removed as they are the language interpretation/ selection and Zoom meeting instructions that will be presented during the meeting.

Agenda

1. **Welcome and Introductions** (15 minutes)
2. **Combined Sewer Overflow Planning Background** (10 minutes)
3. **Goals and Priorities** (5 minutes)
4. **Clarifying Questions** (10 minutes)
5. **Discussion on the "Typical Year" Development** (15 minutes)
6. **Audience Survey** (5 minutes)
7. **Question and Answer / Community Feedback Session** (1 hour)

Meeting Guidelines

- The meeting is being recorded.
- Chat function is enabled for any technical issues you might experience.
- You may ask questions at any time using the Q&A feature.
- Please raise your hand if you wish to ask *questions*.
- Maximum 1 minute.
- Please put comments in the Q&A, not the Chat.

Please pace your speech to allow our interpreters time to translate.

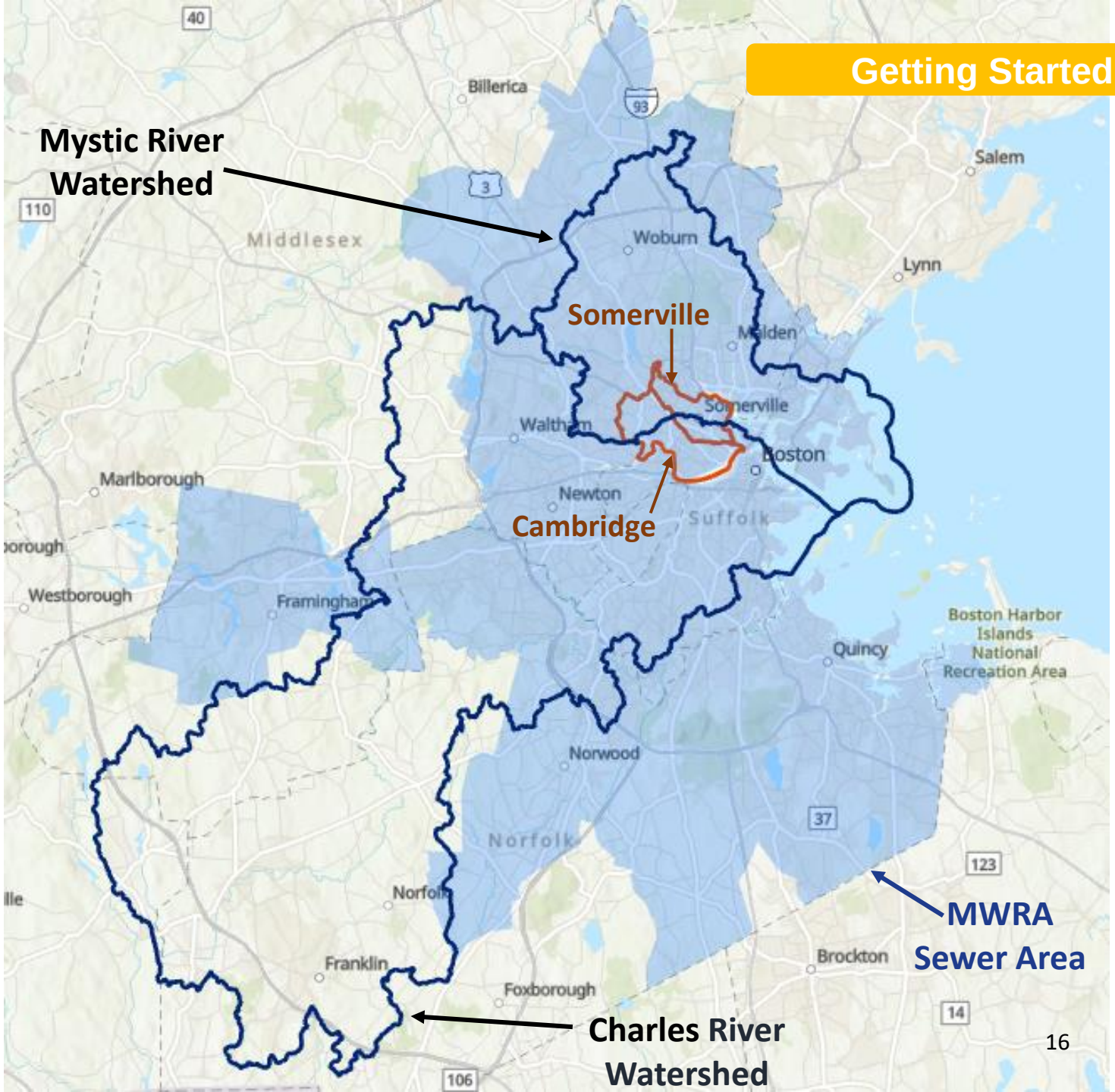
Who We Are

Our Sewer Service Areas
and the Local Watersheds

City of Somerville

City of Cambridge

Massachusetts Water Resources Authority (MWRA)



Audience Poll

Audience Poll

Getting to Know You

Where do you live?

a. Arlington
b. Boston
c. Cambridge
d. Everett
e. Medford
f. Somerville
g. Other

Combined Sewer Overflow Planning Background

Presented by: Rich Raiche – City of Somerville

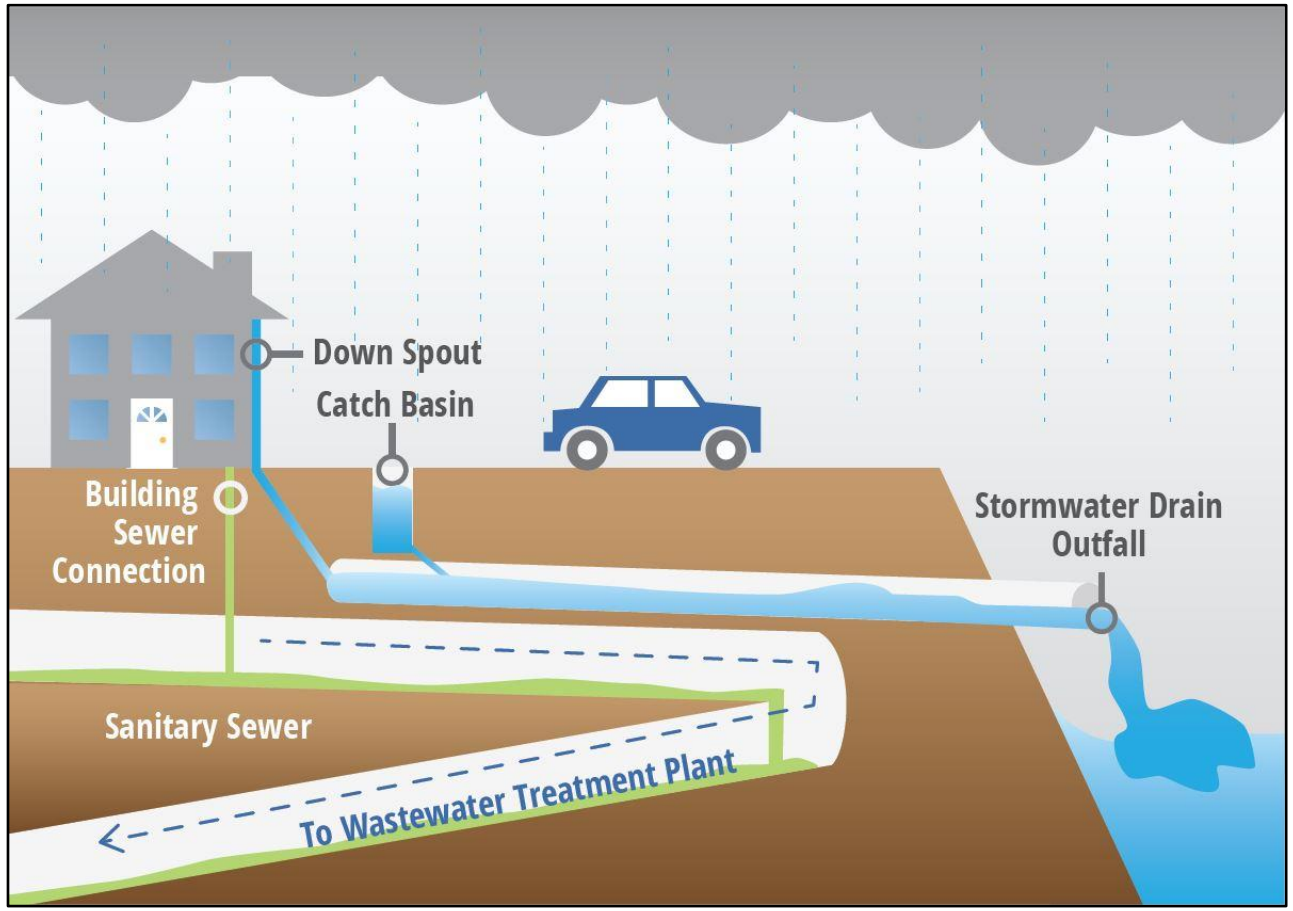
Image Source: https://magazinebeach.org/2013/10/22/fabulous-tour-of-cottage-farm-cso-treatment-plant/

What is a Separate Sewer System?

Two dedicated networks of pipes: one for sanitary flows, and one for stormwater flows.

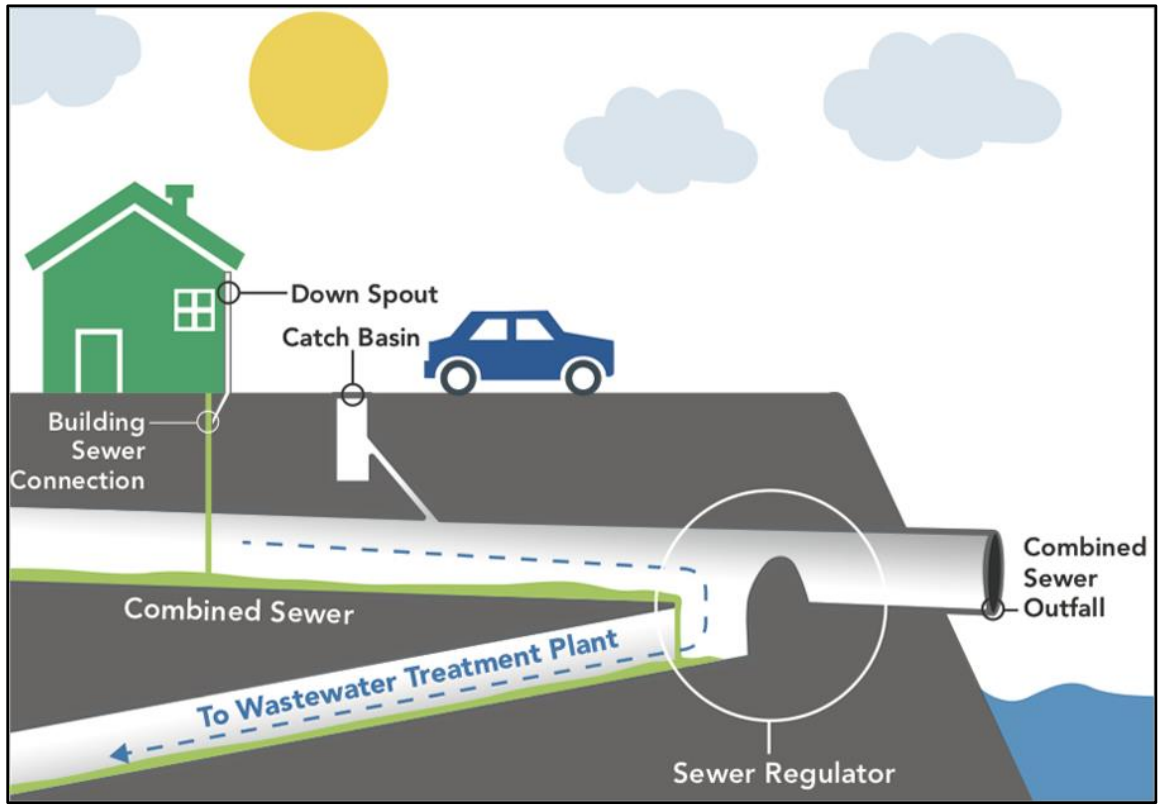
Residential sewage and industrial wastewater is conveyed to the Deer Island facility for treatment.

All stormwater runoff is discharged to the Alewife, Charles and Mystic Rivers.

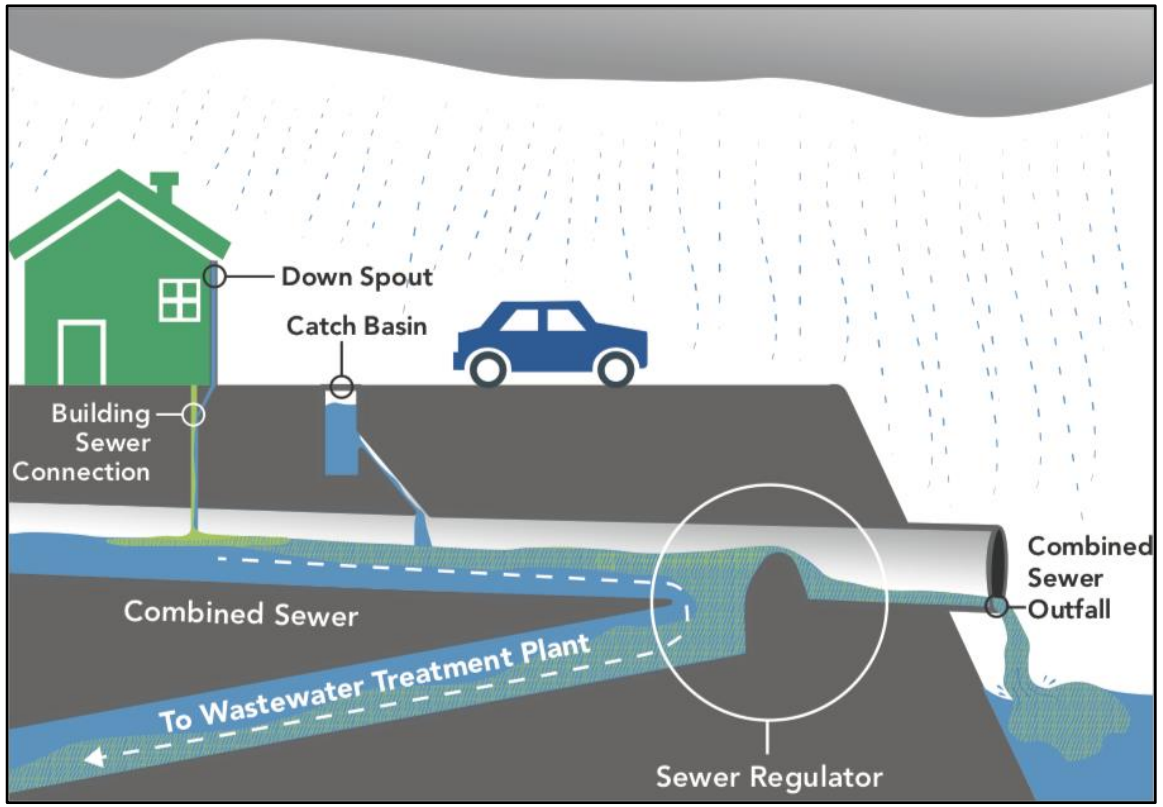


What is a Combined Sewer System?

One network of pipes for both sanitary and stormwater flow.



All sanitary flow and stormwater from most storms is moved to the Deer Island Wastewater Treatment Facility.



Occasionally, **excess flow during heavy rain** can cause a combined sewer overflow (CSO) into rivers.

Why are Combined Sewer Overflows Permitted?

When heavy rain overwhelms the combined system, discharges to neighborhoods and buildings occur.

Sanitary Sewer Overflows (SSOs) release sewage in neighborhoods and contribute to local flooding.

System backs up and discharges to basements and garden-level apartments.

CSOs provide controlled relief at known locations to better manage the hazards of a combined system.

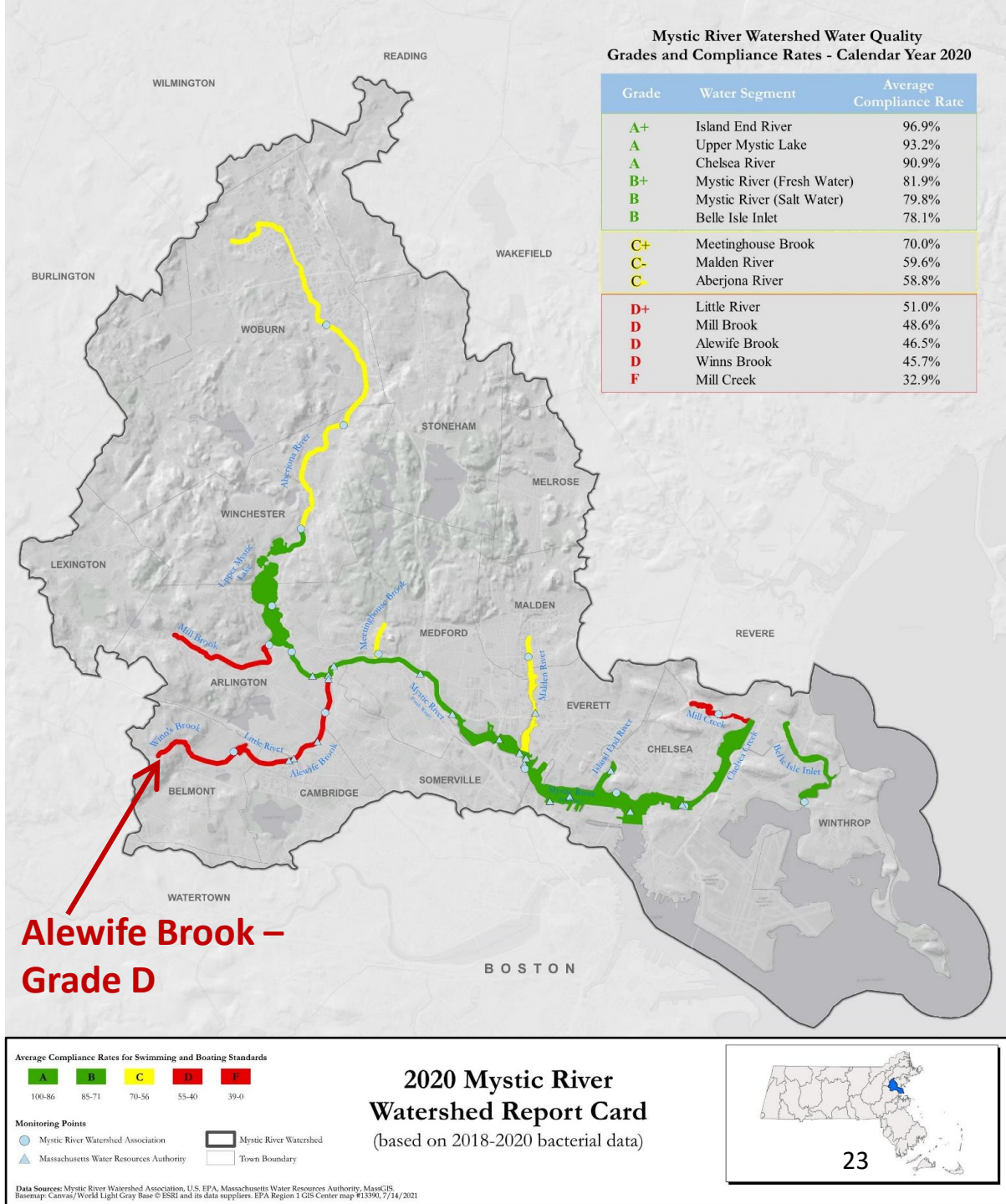
How do CSOs Impact the Environment?

During large storms, CSOs discharge to the Alewife, Charles & Mystic Rivers.

CSOs are mostly stormwater but do contain sanitary wastewater, and discharge bacteria, nutrients, and other pollutants into waterways.

This can impact water quality and recreational uses during and immediately following those heavy rain events.

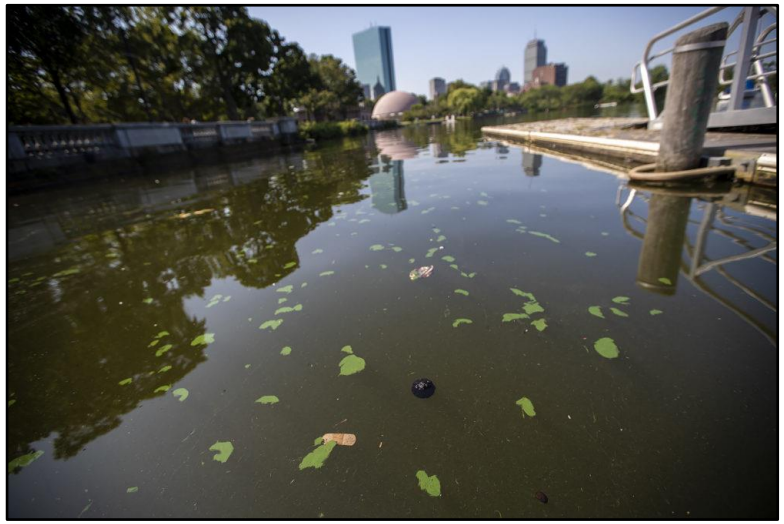
CSOs do not cause flooding but they do impact stormwater water quality. Stormwater from separated systems causes flooding and also impacts water quality.



How do CSOs & Stormwater Pollution Impact You?

CSOs and stormwater discharges can impact your communities during and after storm events by:

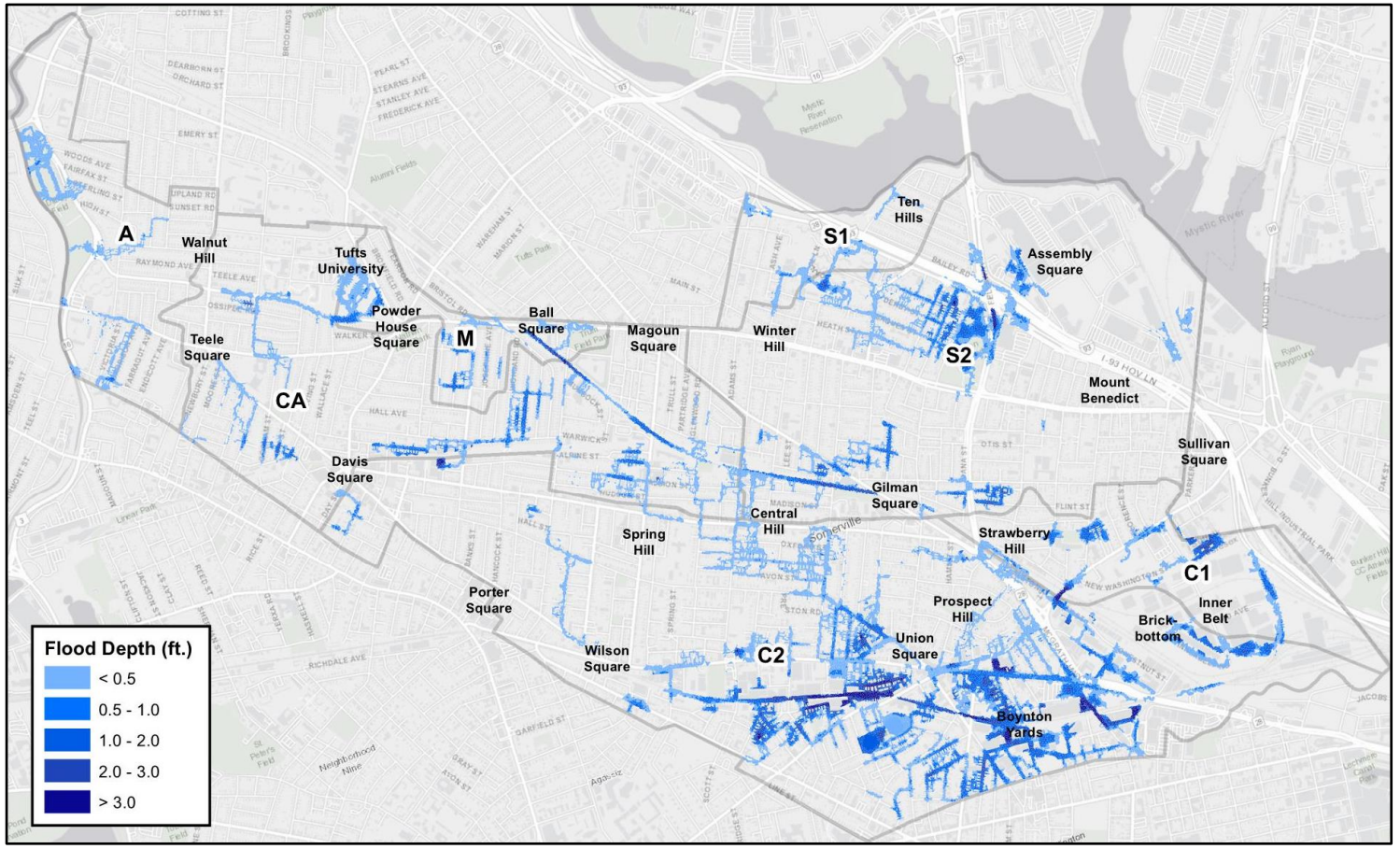
- Making rivers unsafe for swimming or fishing
- Impacting appearance - debris, oil slicks, odor



The Impact of Climate Change

As our climate continues to change, more intense rainfall will make flooding and CSOs worse in the region.

- *For more information, refer to the Cambridge and Somerville websites and reports*



Control Plans
Goals & Priorities

Presented by: Brian Kubaska – Massachusetts Water Resources Authority

What is a CSO Control Plan?

A plan to meet water quality and CSO discharge requirements.

Assess how well proposed improvements perform under an agreed upon year of storm events (typical year)

The Planning Process

Goals & Priorities

Assess Conditions → **Develop Plans** → **Submit Final Plans****

1. Present Day
2. Future
3. **Develop a Typical Year**

Develop Combined Sewer System Control Plans including alternatives that use information from assessment and engagement

Initial Schedule**:

- Draft Plan: June 2023
- Final Plan: December 2023

***We requested a schedule extension*

The Planning Process

Goals & Priorities

- Up to 7 Public Meetings at major milestones
- MA Environmental Policy Act (MEPA) Review
- Flyers, Fact Sheets, and Public Events
- Stakeholder Interviews

Feedback from public engagement will be used in all stages of the planning process.

***The schedule extension will allow more time for:*

1. *Incorporating climate change into the updated Typical Year,*
2. *A thorough MEPA review, and*
3. *An in-depth alternative analysis*

Goals and Priorities

- **Goals** – specific objectives to be achieved by the CSO Control Plan recommendations.
  What is the purpose of this planning process?

  - Develop **a new Typical Year** to reflect future climate conditions
  - Develop, assess, and select **alternatives for decreasing / eliminating CSOs**
  - Identify **alternatives to improve water quality** in the Charles River, Mystic River, and Alewife Brook
  - **Engage with the community** throughout the planning process
  - Consider and address impacts of CSOs on **Environmental Justice** communities

Goals and Priorities

- **Priorities** – important issues to be incorporated into the development of alternatives.

  How do we optimize resources through the planning process to address goals and priorities?

We want to hear from you!

Clarifying Questions and Answers

Introducing the Technical Experts

Lead Author: Indrani Ghosh, Ph.D.
Senior Technical Leader, Weston & Sampson

Lead Reviewer: Arthur DeGaetano, Ph.D.
Professor, Earth and Atmospheric Sciences Department,
Cornell University

Typical Year Development

Presented by: Dr. Indrani Ghosh – Weston and Sampson
(on behalf of the City of Cambridge)

What is a “Typical Year”?

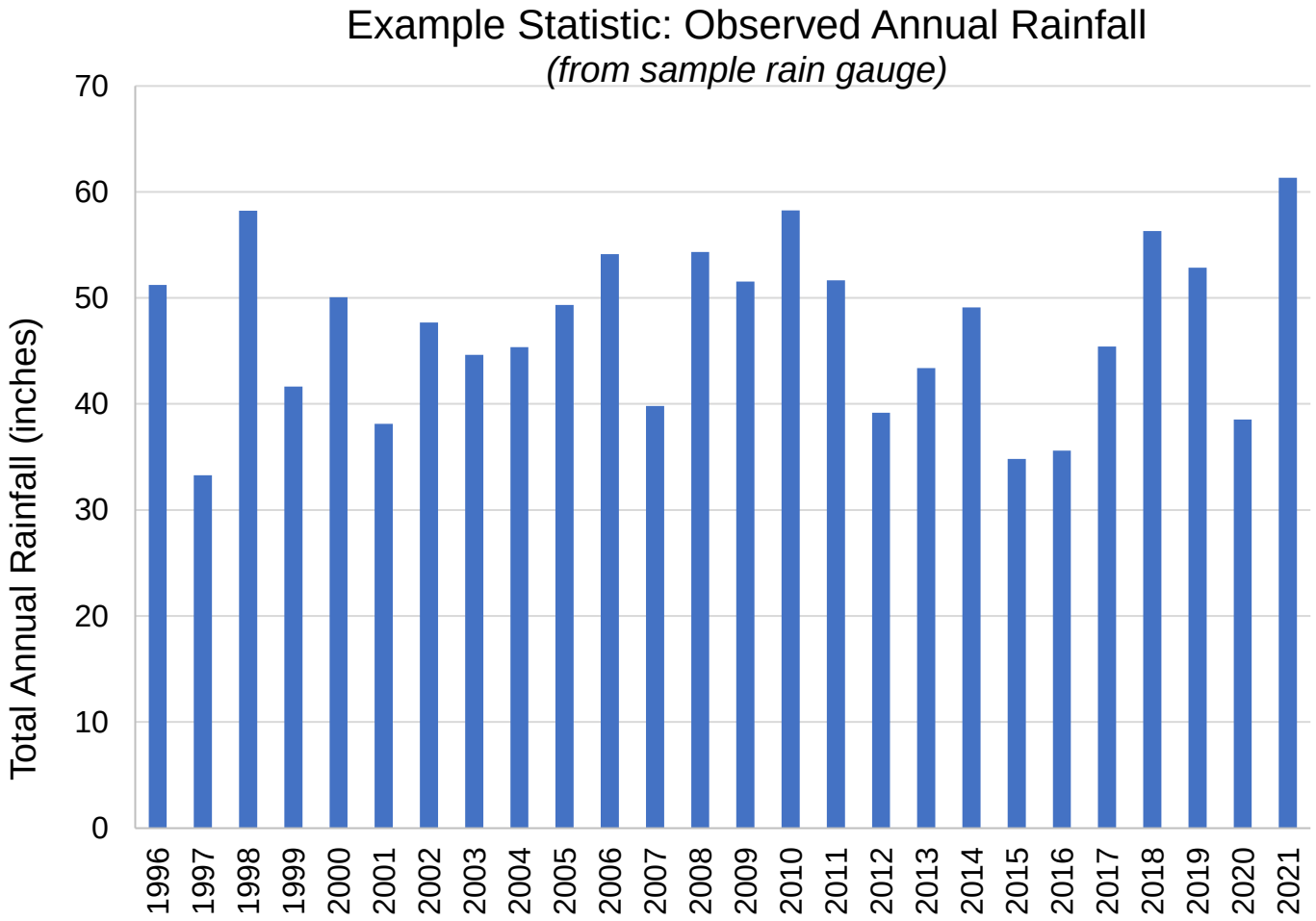
A **Typical Year** is a full year of rainfall data that best represents rainfall conditions over a period of time.

Image Source: https://www.mass.gov/doc/storm-fact-sheet-english-0/download

Why Develop a Typical Year?

Required by EPA's CSO Control Policy requirements:

- Rainfall fluctuates from year to year, and we need to find a representative "average" year for planning, using statistics and the **best available rainfall data.**
- Test the performance of CSO controls during rain events on an **annual average** basis.



How is the Typical Year Used?

Used throughout the CSO control planning process

- <u>During Development:</u> To identify and test alternatives.
- <u>During Implementation:</u> Sets a **benchmark** to measure and assess progress.

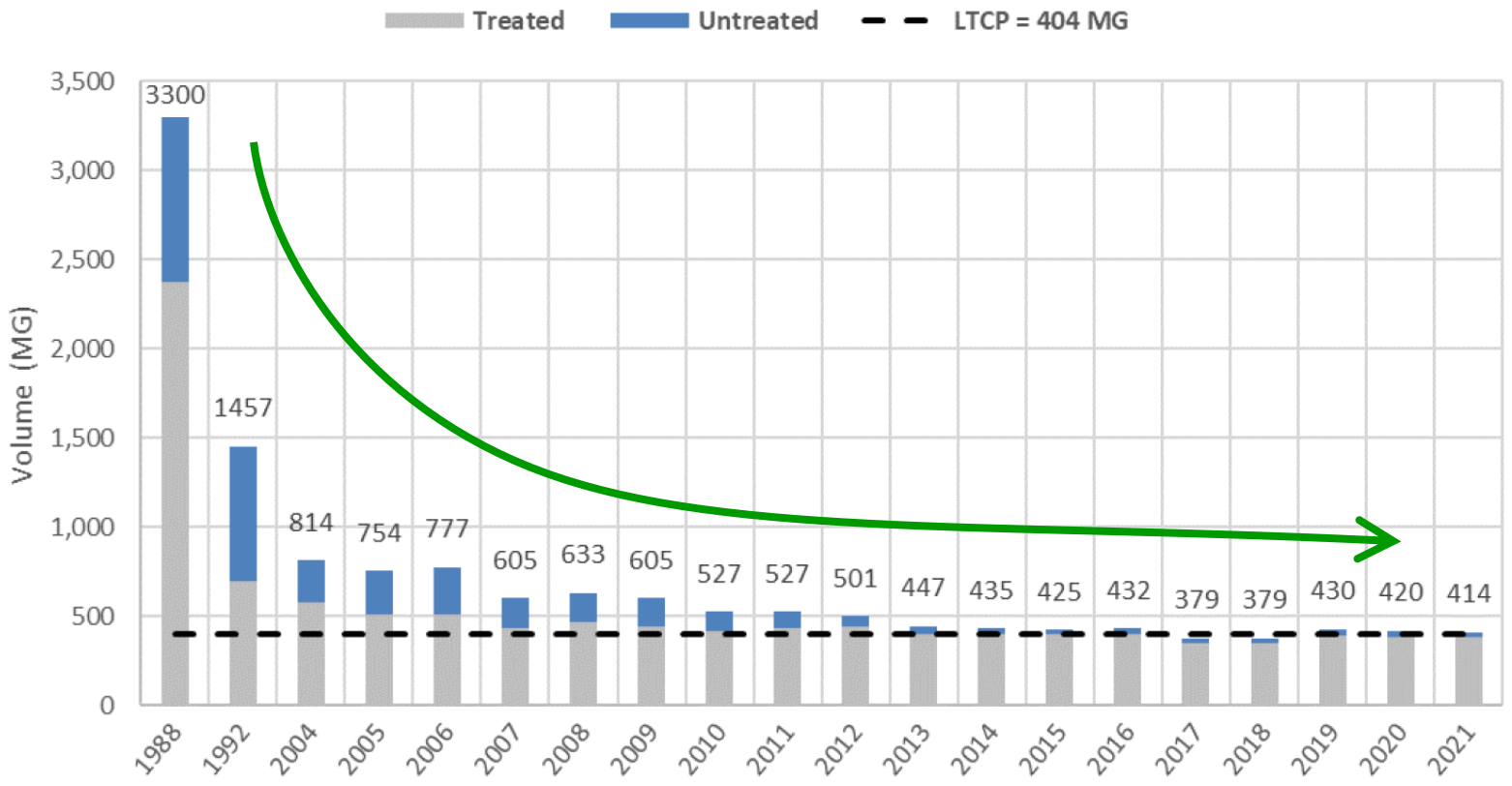
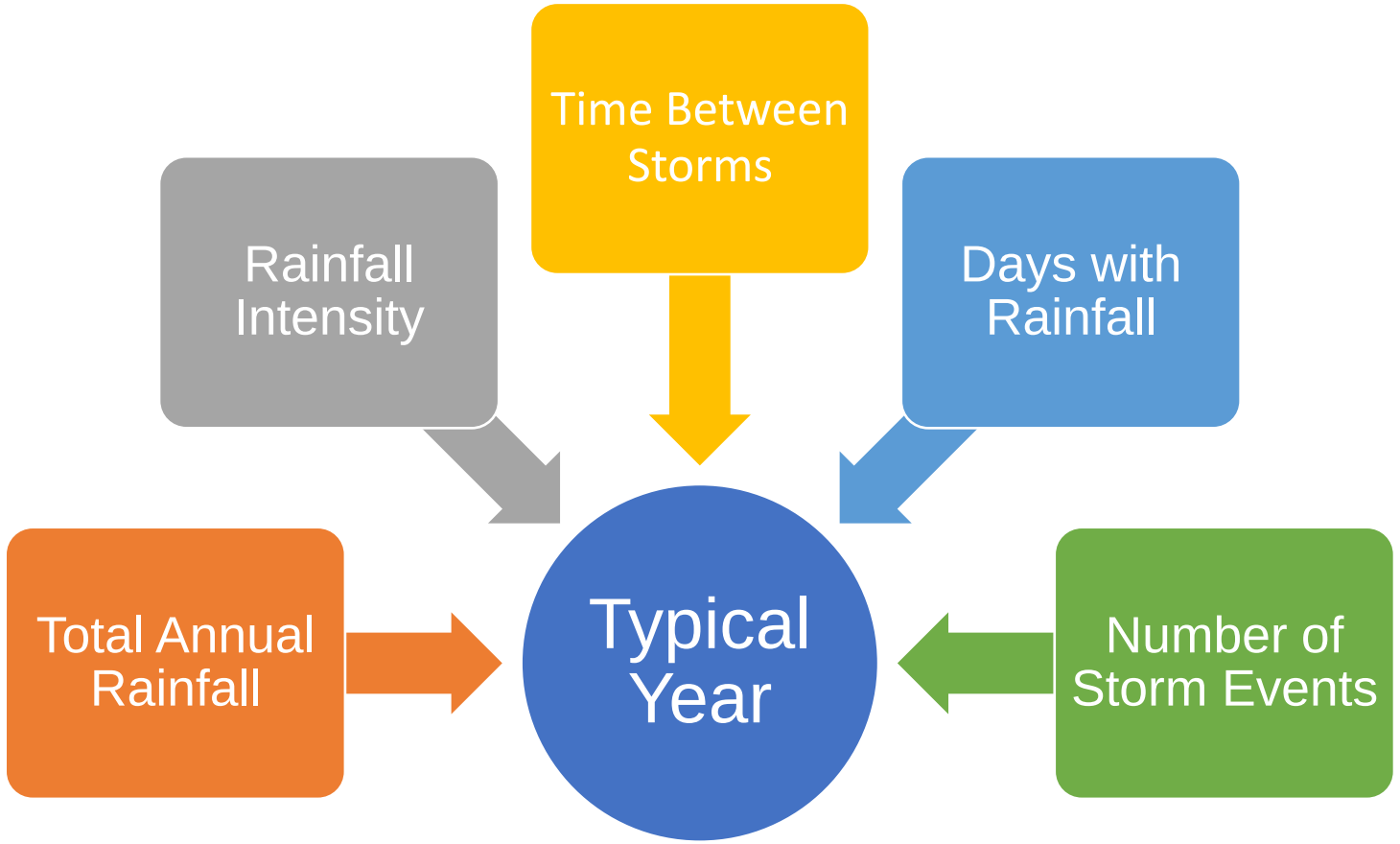


Figure 1-1. Estimated Treated, Untreated and Total CSO Volume in the Typical Year, 1988-2021.

How is the Typical Year Developed?

- **Data-driven** process analyzing rainfall patterns to identify the best match year.
- Uses **real data to assess alternatives** and measure performance.



❖*For more information, refer to the Typical Year Technical slides at the following website:* http://www.cambridgema.gov/csoPlanning.

Considering Climate Change

- This CSO Control Plan Update process is unique because the Typical Year used will consider **future climate change projections, including higher intensity rainstorms**.

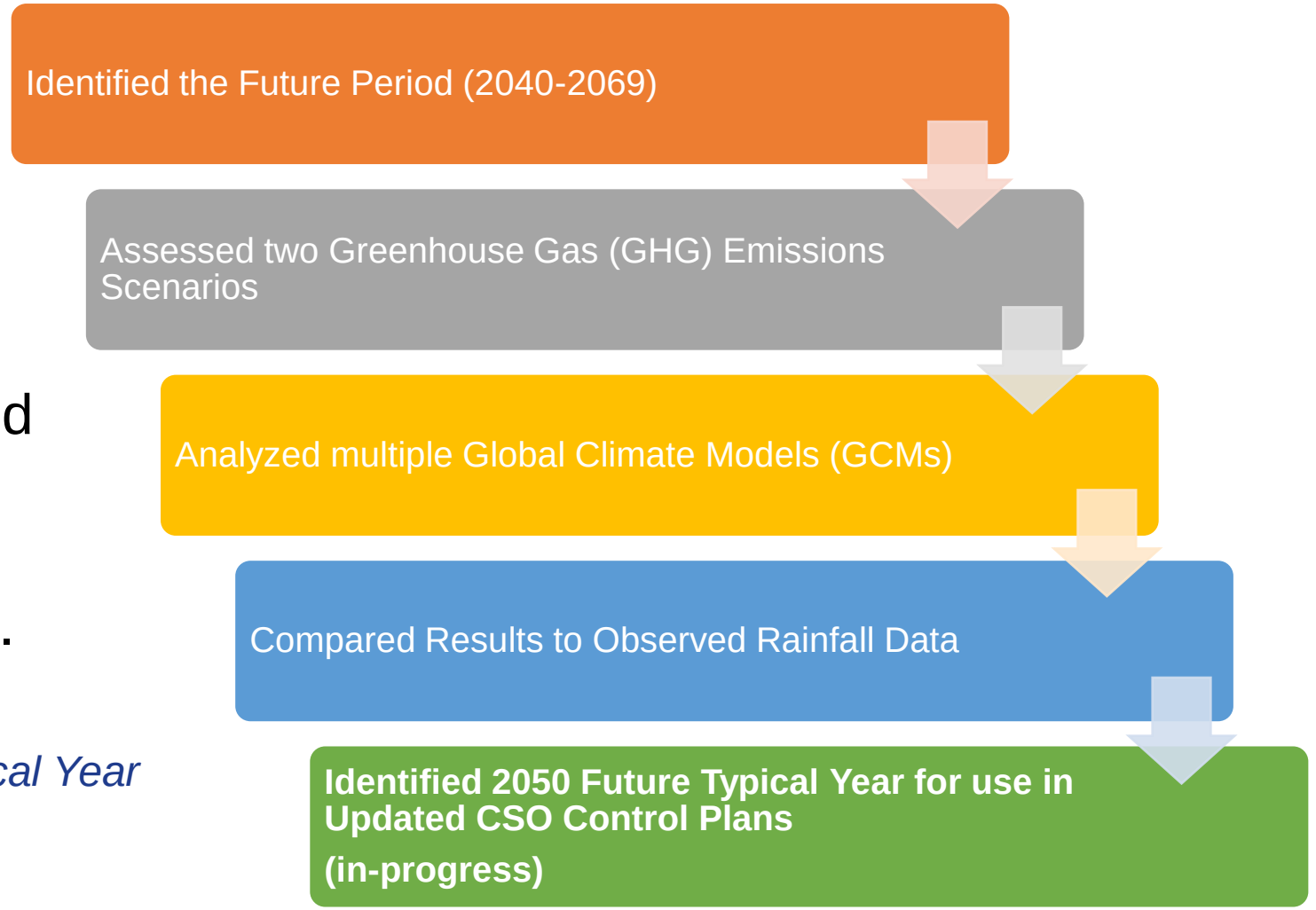
Currently, there is no EPA/DEP guidance to develop a **Future Typical Year**

Image Source: https://patch.com/massachusetts/somerville/weather

Developing a Future Typical Year

- This is a **first of its kind** approach,
- Involves **collaboration with leading climate scientists,** and
- Is **consistent with the Massachusetts Climate Resilience Design Standards**.

❖*For more information, refer to the Typical Year Technical slides at the following website:* http://www.cambridgema.gov/csoPlanning.



Developing a Future Typical Year

- ✓Planning ahead to 2050, (Analyzing 2040-2069)
- ✓Comparing 2 Greenhouse Gas (GHG) Emissions Scenarios
- ✓Using 11 Global Climate Models
- ✓Analyzing rainfall patterns across the region

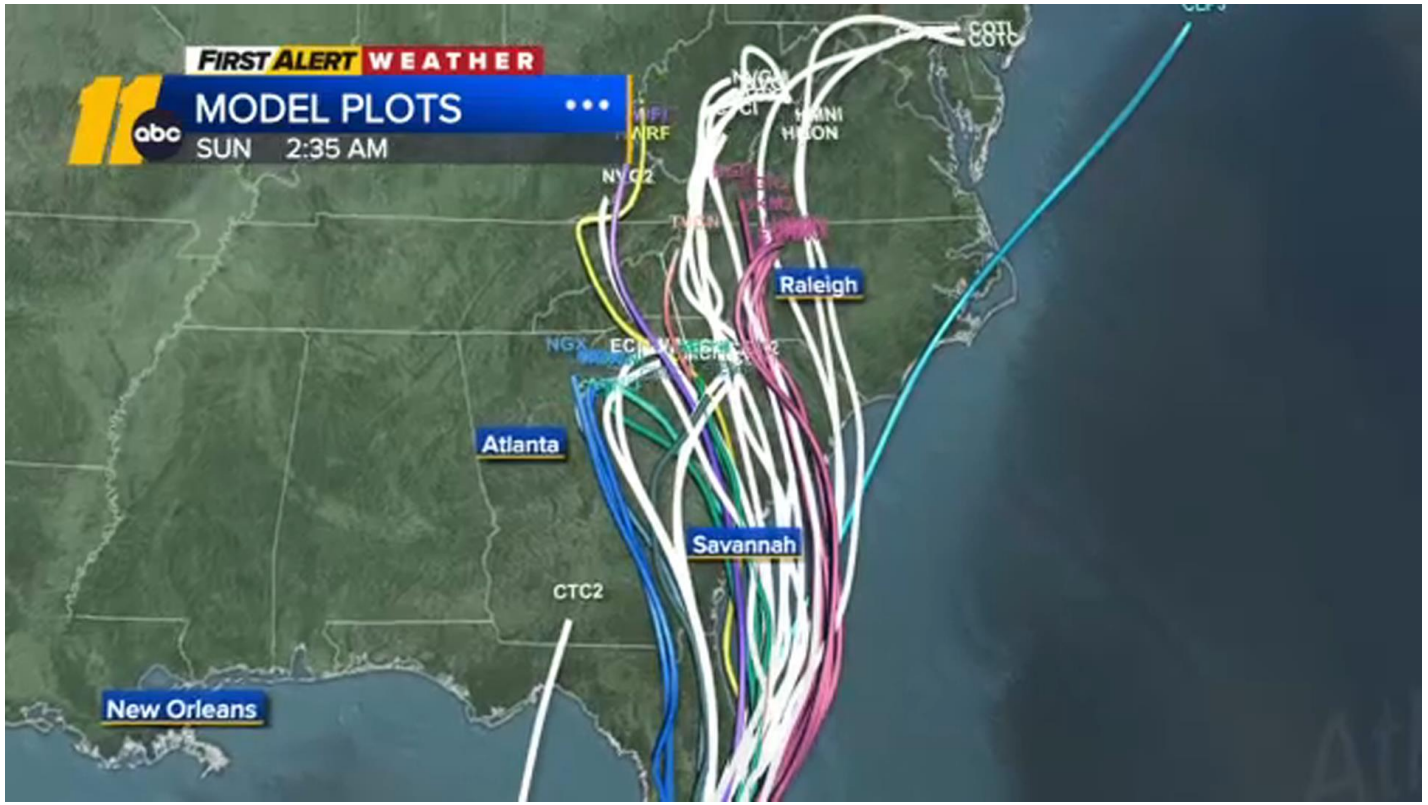


Image Source: https://abc11.com/hurricane-tracker-ian-in-nc-impact-update-florida/12274760/

Typical Year

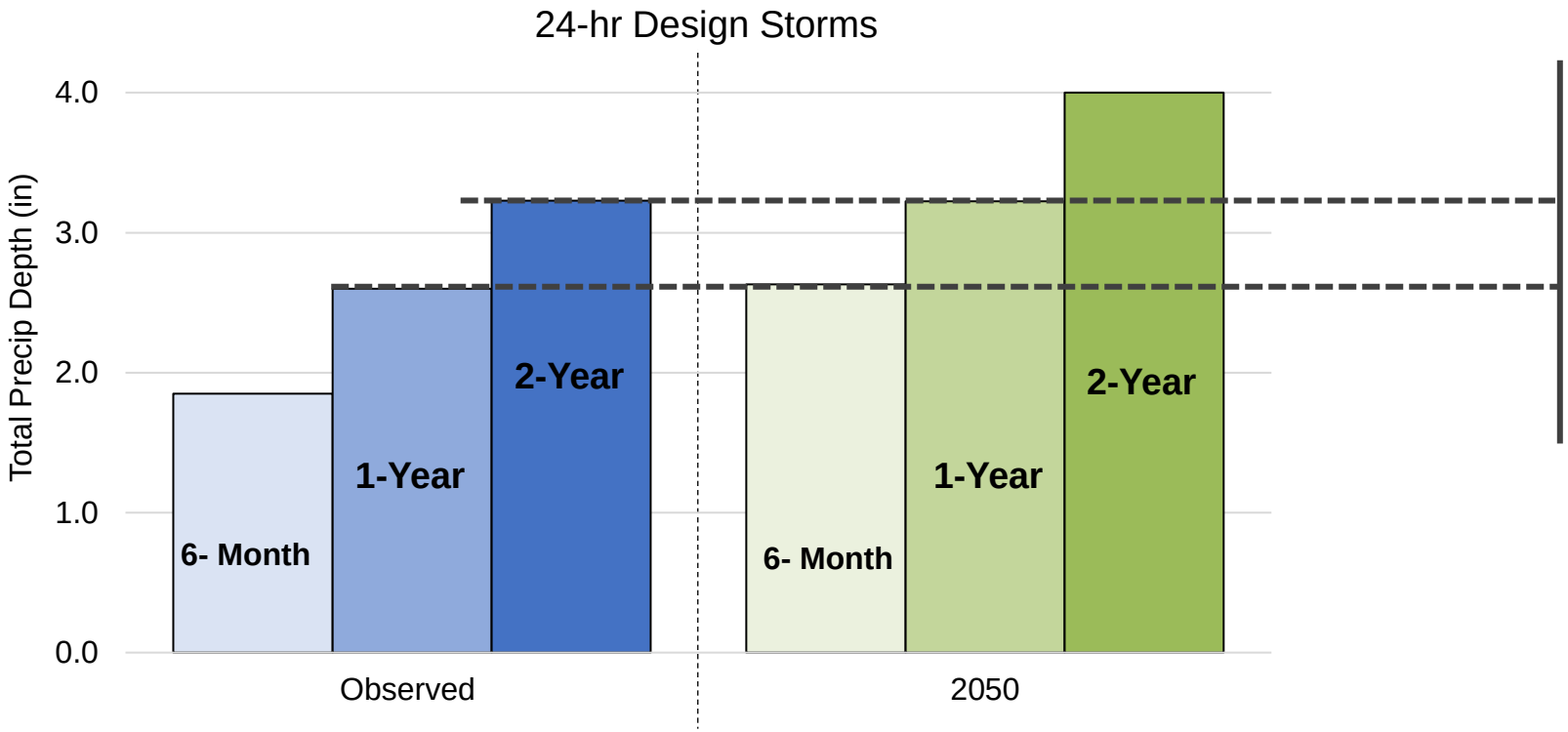
Preliminary Findings

Observed (1996-2021)

Average annual rainfall:
47.1"

Future (2040-2069), RCP8.5

Average annual rainfall: ← From a Sample Gauge
49.5"



The storms of today will likely occur **more frequently** in the future.

Next Steps

- Finalize the Future Typical Year.
- Use the Future Typical Year to identify CSO mitigation alternatives.
- Refine CSO mitigation alternatives using design storms.

❖*For more information, refer to the Typical Year Technical slides at the following website:* http://www.cambridgema.gov/csoPlanning*. Please provide all comments by January 5th, 2023.*

Audience Survey

*Please complete the survey by **Thursday, January 5, 2023***

Questions & Feedback

Submit written comments by January 5th, 2023 (include **"CSO Control"** in the subject):

- *Cambridge:* Catherine Woodbury - cwoodbury@cambridgema.gov
- *Somerville:* Lucica Hiller - lhiller@somervillema.gov
- *MWRA:* Brian Kubaska - brian.kubaska@mwra.com