

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

*December 15<sup>th</sup>, 2022*



# zoom



# Interpretation



**SOMER VIVA**

OFFICE OF  
IMMIGRANT  
AFFAIRS

WE SPEAK YOUR LANGUAGE  
HABLAMOS SU IDIOMA  
FALAMOS A SUA LINGUA  
NOU PALE LANG OU  
हामी तपाईंको भाषा बोल्दछौं।  
我们会说您的语言



Interpretation on a computer  
Interpretación en una computadora  
Interpretação em um computador  
Entèpretasyon nan yon konpitè

कम्प्युटरमा अनुवाद  
在计算机上翻译  
在電腦裡翻譯  
በኮምፒተር ላይ ትርጓሜ  
একটি কম্পিউটারে ব্যাখ্যা

ترجمة عبر جهاز الكمبيوتر

Click on the globe symbol in the bottom right corner of your screen.

Haga clic en el globo terráqueo ubicado en la esquina derecha abajo de su pantalla.

Clique no símbolo de um globo no canto inferior direito da sua tela.

Klike sou senbòl glob la anba adwat nan kwen nan ekran an.

तपाईंको स्क्रिनको तल दायाँ कुनामा रहेको ग्लोब प्रतीकमा थिच्नुहोस्।

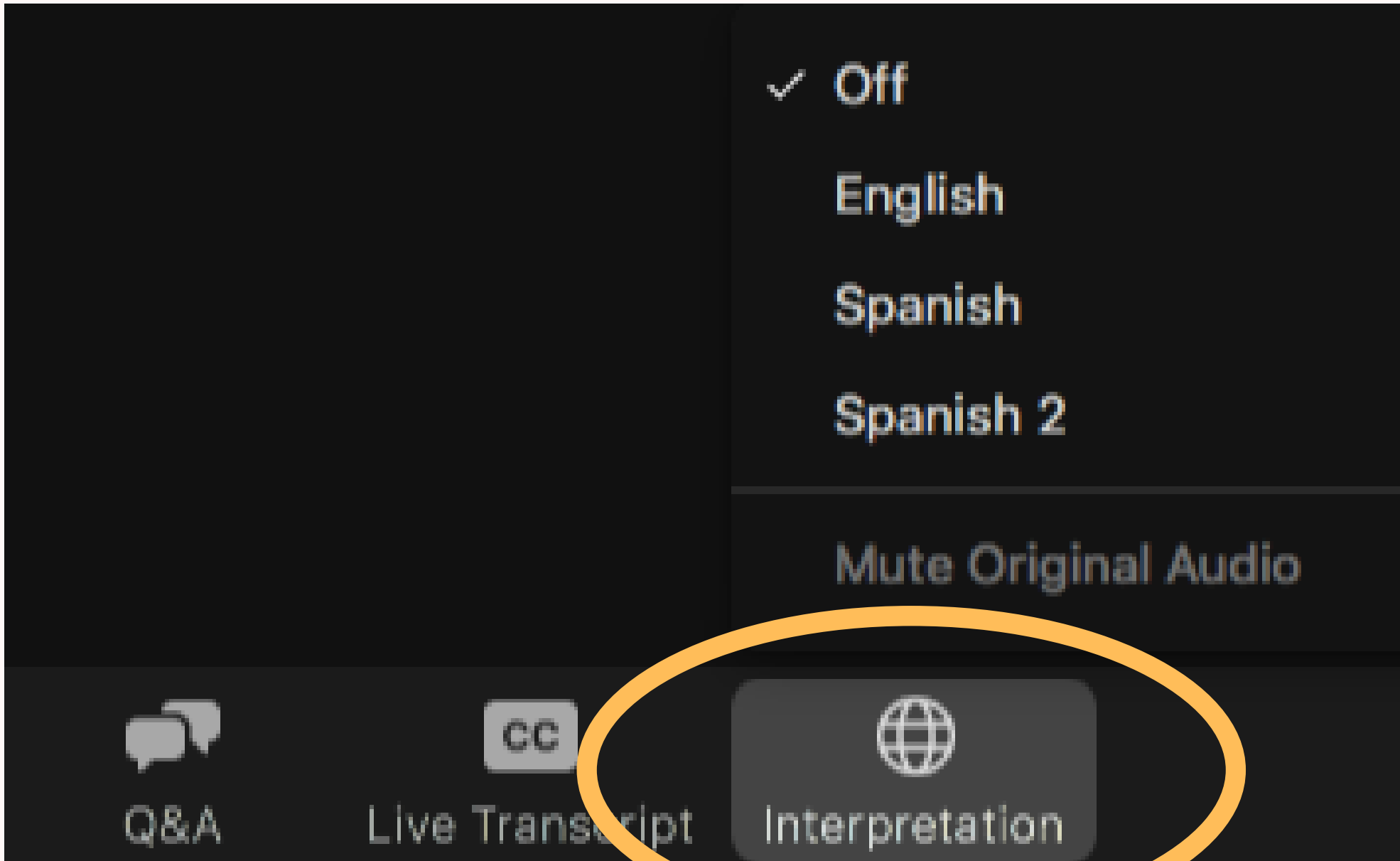
点击窗口右下角的环球标志。

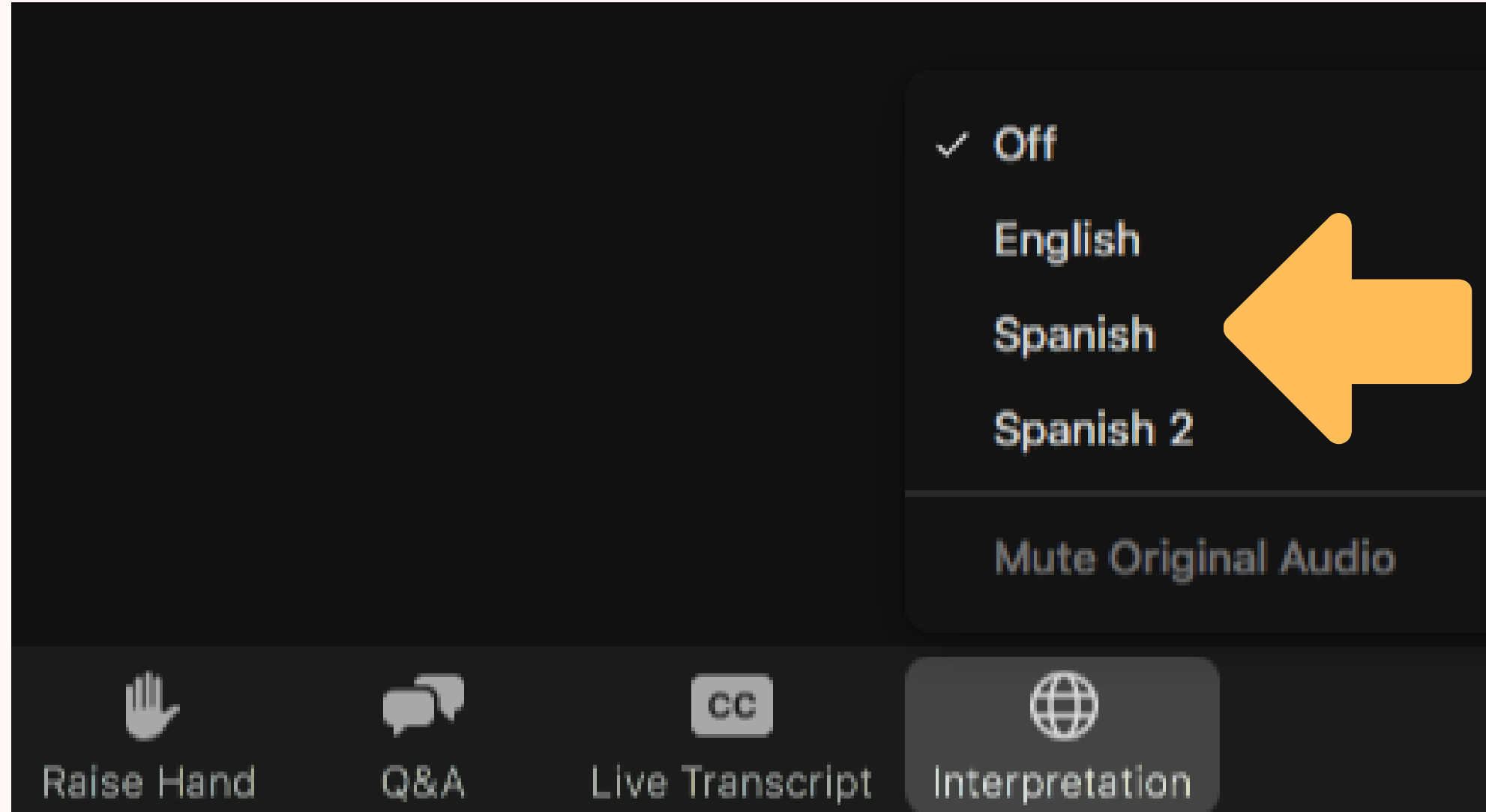
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আপনার স্ক্রিনের নীচের ডানদিকে কোণায় গ্লোব প্রতীকে টিপুন।

اضغط على رمز الكرة الأرضية في أسفل الجانب اليميني من الشاشة.





Select the option for the language you speak.

Seleccione la opción para el lenguaje que usted habla.

Selecione a opção para o idioma que você fala.

Seleksyone opsyon pou lang ou pale a.

तपाईंले बोल्ने भाषाको लागि विकल्प चयन गर्नुहोस्।

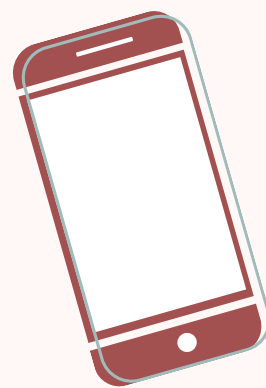
选择您需要的语言。

選擇您需要的語言。

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আপনি যে ভাষায় কথা বলেন তার জন্য বিকল্পটি নির্বাচন করুন।

حدد خيار اللغة التي تتحدثها.



Interpretation on a smartphone  
 Interpretación en un teléfono inteligente  
 Interpretação em um celular smartphone  
 Entèpretasyon nan yon telefòn entelijan (smartphone)

स्मार्टफोनमा अनुवाद  
 在智能手机上翻译  
 在智慧型手機裡翻譯  
 በስማርትፎን ላይ ትርጓሜ  
 একটি স্মার্টফোনে ব্যাখ্যা

ترجمة عبر الهاتف الذكي

Interpretation available in 2 languages.  
 Select language here.



Chat



Q&A



More

Click on the three dots in the bottom right corner of your screen.

Haga clic en los tres puntos ubicados en la esquina derecha abajo de su pantalla.

Clique nos três pontinhos no canto inferior direito da sua tela.

Klike nan 3 pwen anba adwat nan kwen ekran ou an.

तपाईंको स्क्रिनको तल दायाँ कुनामा तीनवटा थोप्लाहरूमा थिच्नुहोस्।

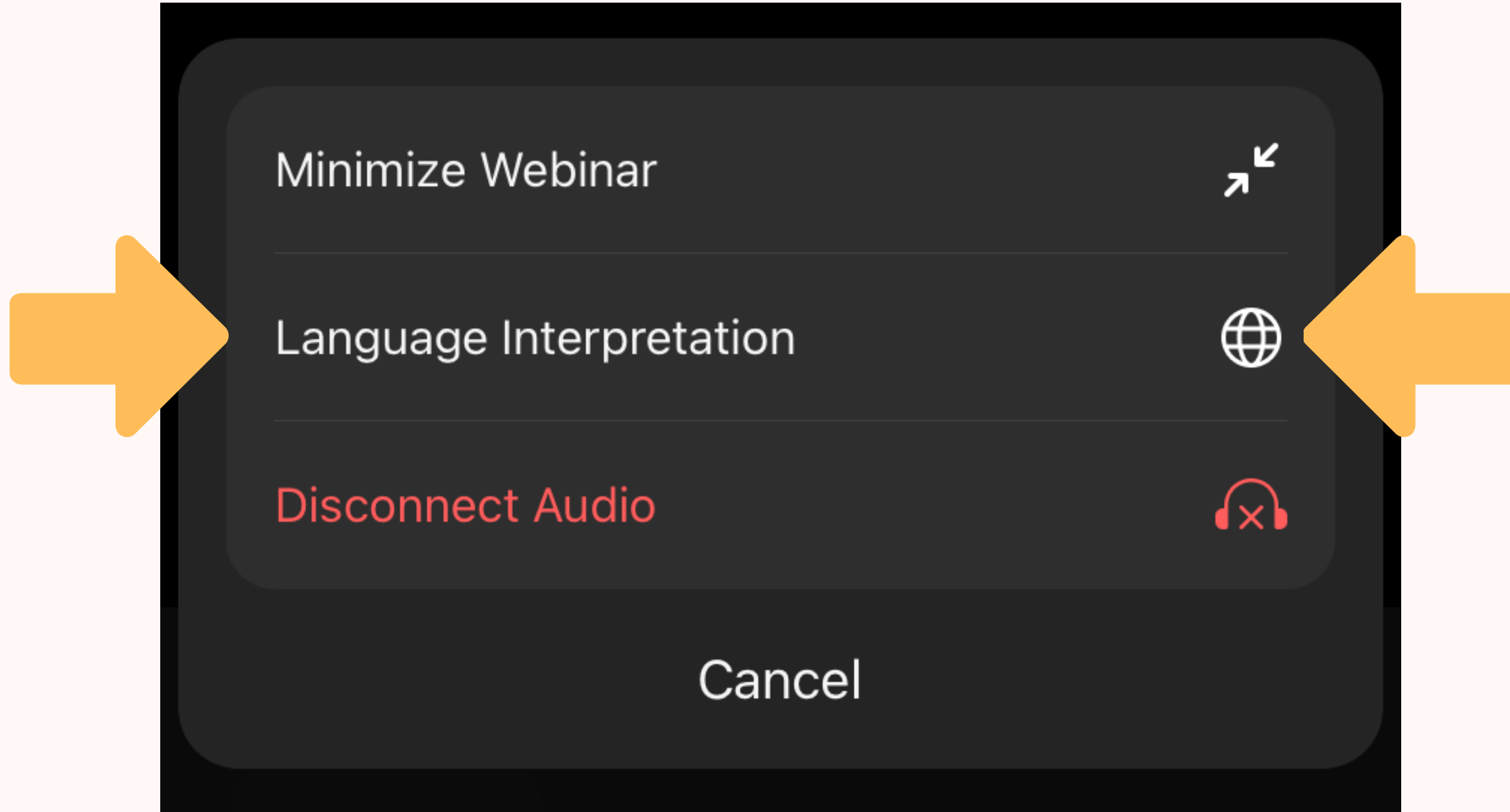
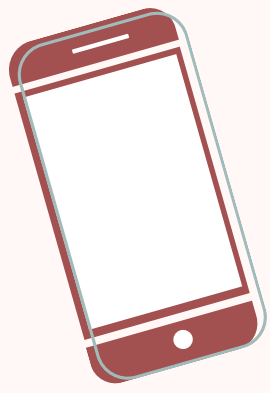
点击右下角的三点。

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গ্লোব চিহ্ন সহ বিকল্পটি নির্বাচন করুন।

حدد الخيار باستخدام رمز الكرة الأرضية.



Select the option with the globe symbol.

Seleccione la opción con el símbolo de globo.

Selecione a opção com o símbolo de um globo.

Seleksyone opsyon ki gen senbòl glob la.

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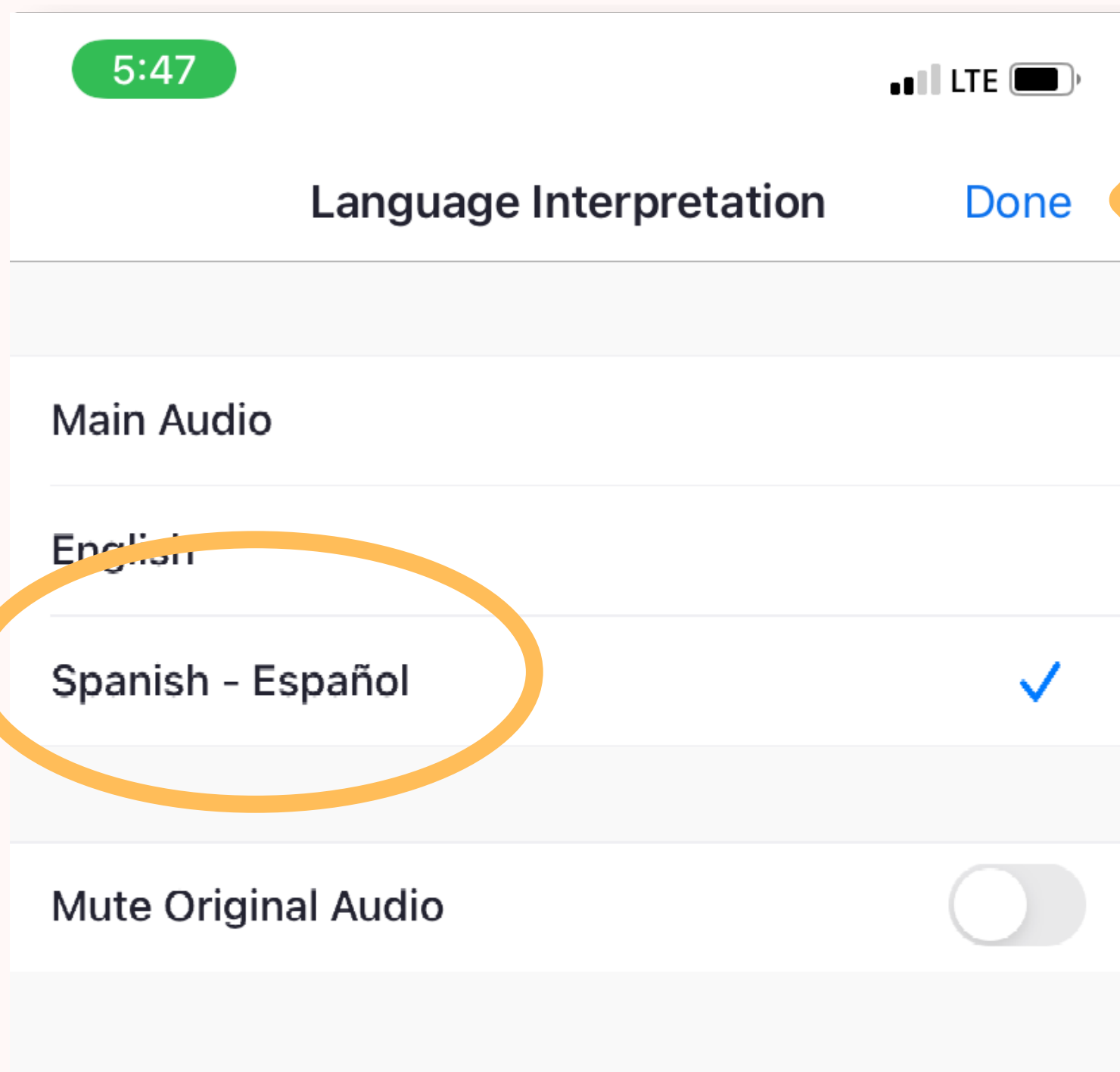
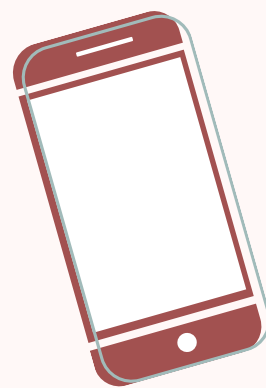
點擊環球標志的選項。

點擊環球標誌的選項。

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গ্লোব চিহ্ন সহ বিকল্পটি নির্বাচন করুন।

حدد لغتك.



Select your language. Press "Done" in the top right corner.

Seleccione su lenguaje. Presione "Done" arriba en la esquina derecha de su pantalla.

Selecione o seu idioma. Aperte "Done" no canto superior direito.

Seleksyone lang ou. Pese "Done" anlè adwat nan kwen an.

आफ्नो भाषा चयन गर्नुहोस्। शीर्ष दायाँ कुनामा "Done" थिच्नुहोस्।

选择您需要的语言。点击右上角的「Done」。

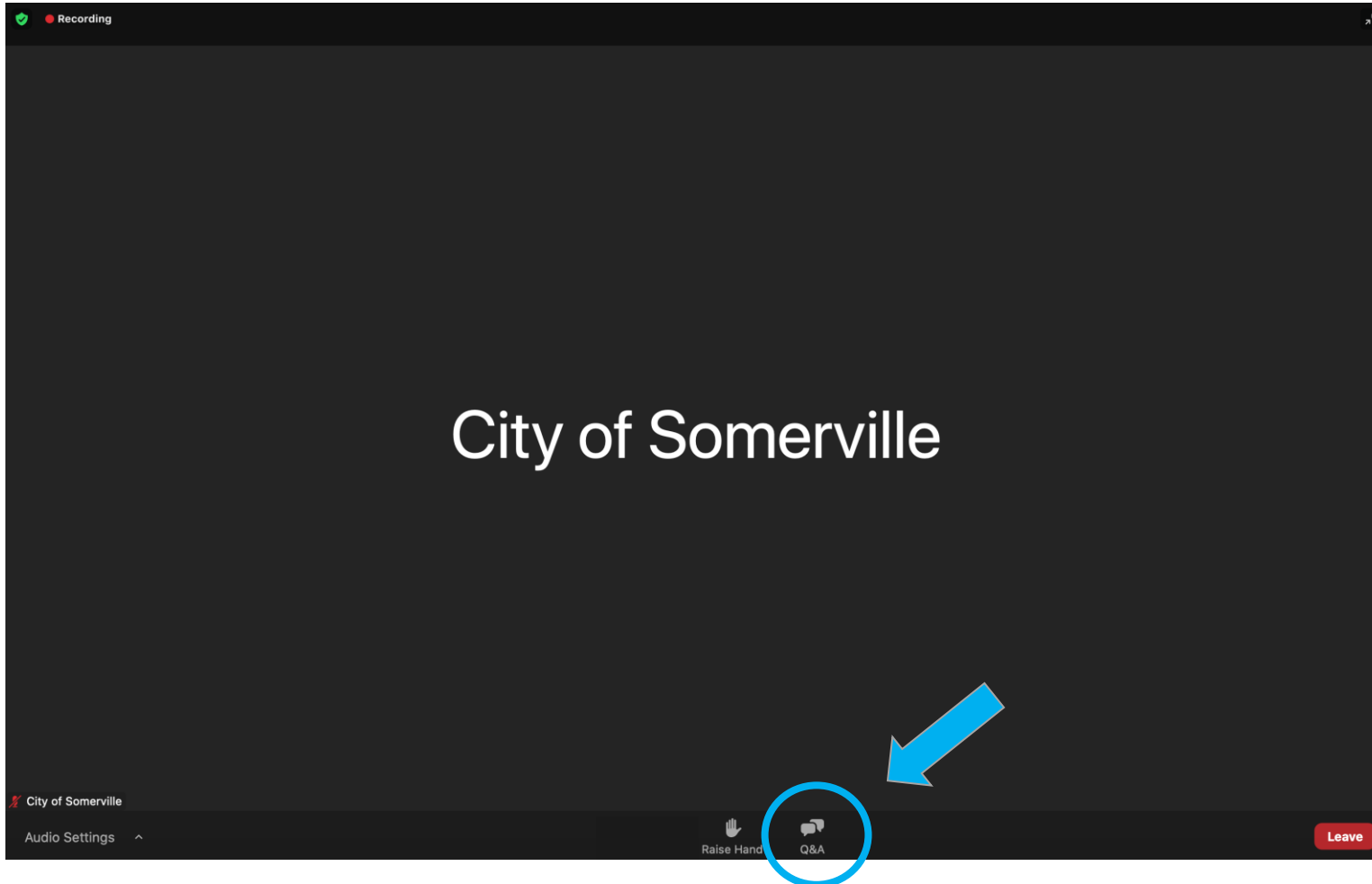
**選擇您需要的語言。點擊右上角的「Done」。**

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আপনার ভাষা নির্বাচন করুন। উপরের ডানদিকে কোণায় "Done" টিপুন।

إضغط على "Done" (إنتهى) في أعلى الجانب اليمين.

# How to Use Zoom's Q&A Function



Type your question in the bottom of the Q&A window. Click "Send" to submit your question

## Welcome to Q&A

Questions you ask will show up here. Only host and panelists will be able to see all questions.

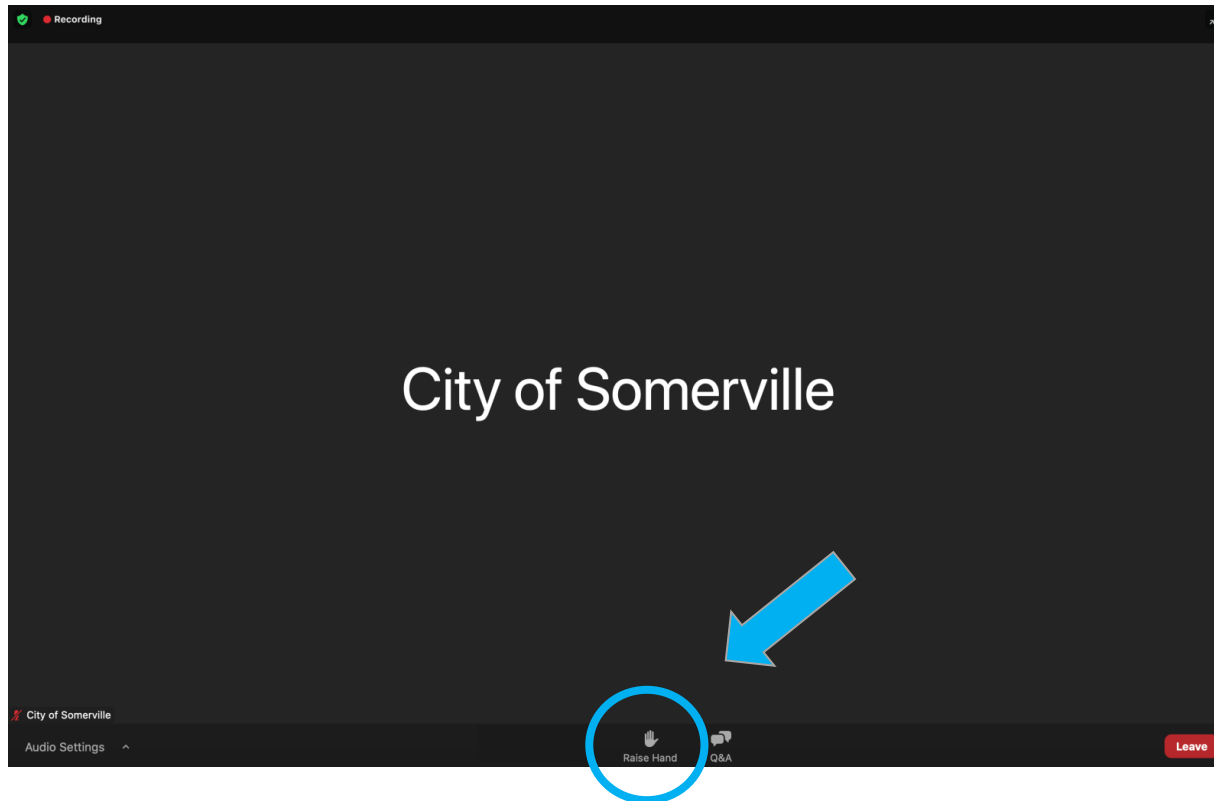
A screenshot of the Zoom Q&A submission form. It features a text input field containing the question "How do I send a question using the Q&A function?". Below the input field, there is a checkbox labeled "Send anonymously" which is currently unchecked. To the right of the checkbox are two buttons: a "Cancel" button and a "Send" button. A blue arrow points from the bottom right towards the "Send" button.

Click the "Q&A" button in the webinar controls bar



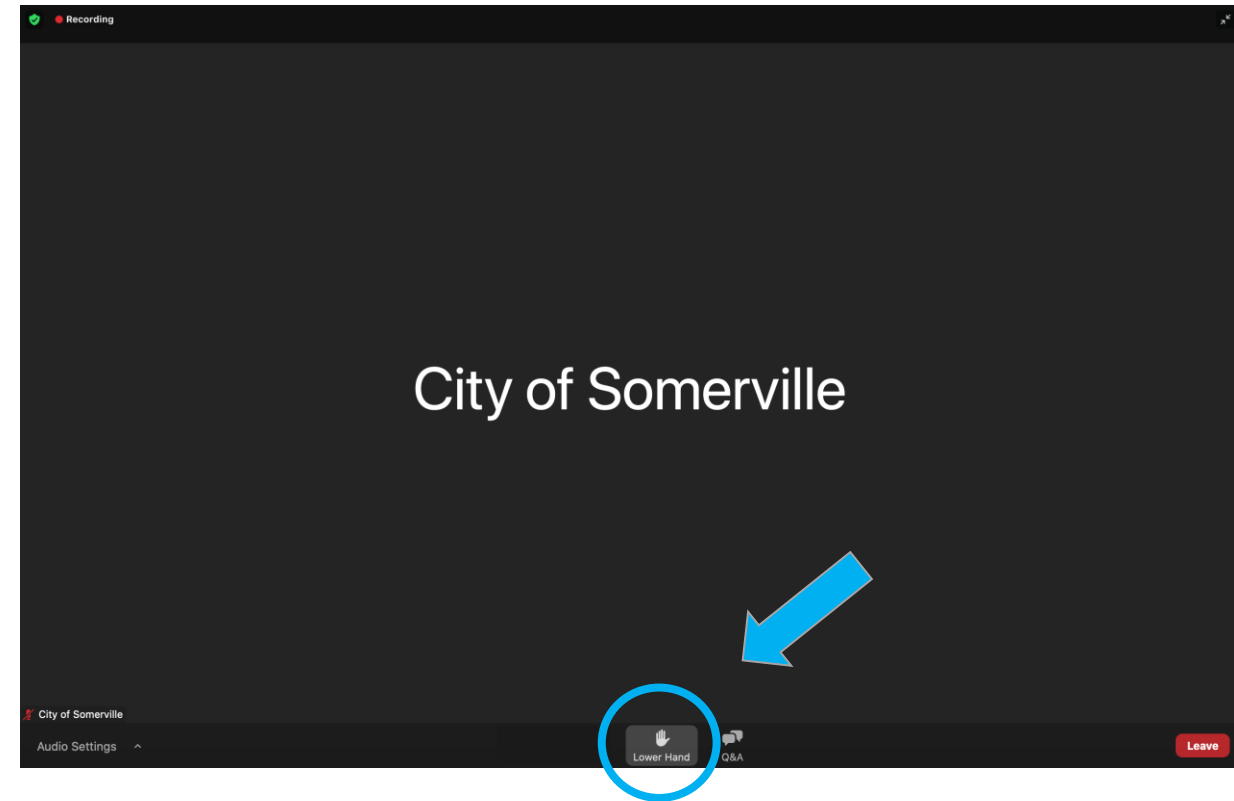
# How to Raise Your Hand to Ask a Question

Click the “Raise Hand” button on the webinar controls toolbar



**If you are experiencing technical difficulties,  
please call: 617-652-0560**

When your question has been answered,  
click “Lower Hand”



**If you are calling in: Dial \*9 to raise your hand  
Dial \*6 to unmute and mute**

# 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**.
- **Q&A function** is enabled for questions and any **technical issues** you might experience.
- You may **type questions** at any time using the Q&A feature.
- Please **raise your hand** if you wish to ask *questions*.
- Please limit your questions to **1 minute** per person so that we can hear from as many people as possible.

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

# Who We Are

Our Sewer Service Areas  
and the Local Watersheds



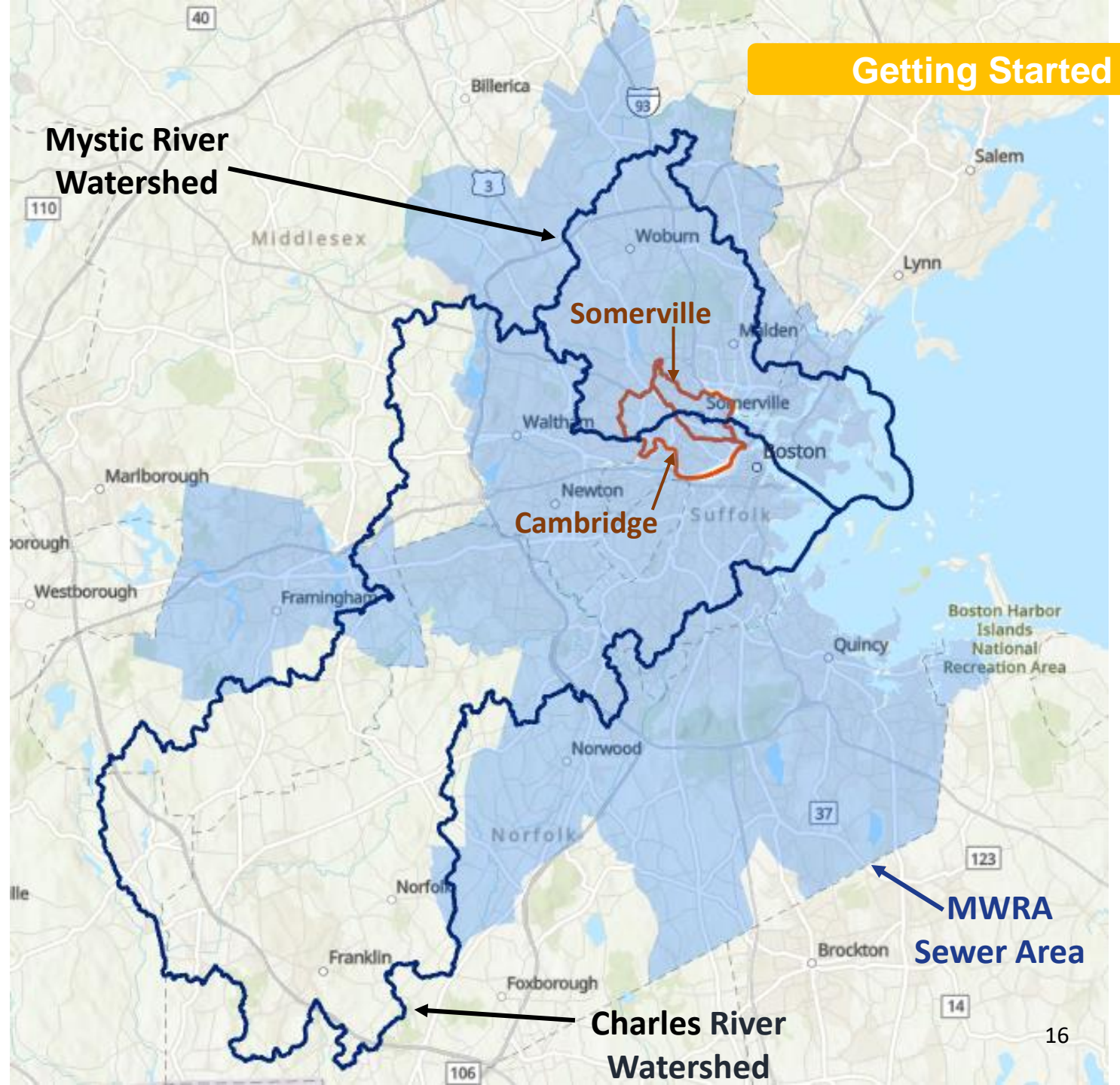
City of Somerville



City of Cambridge



Massachusetts  
Water Resources  
Authority (MWRA)



A blurred background image of an audience with several hands raised, indicating a poll or interactive session. The focus is on the hands and arms, with the faces of the audience members out of focus.

# 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

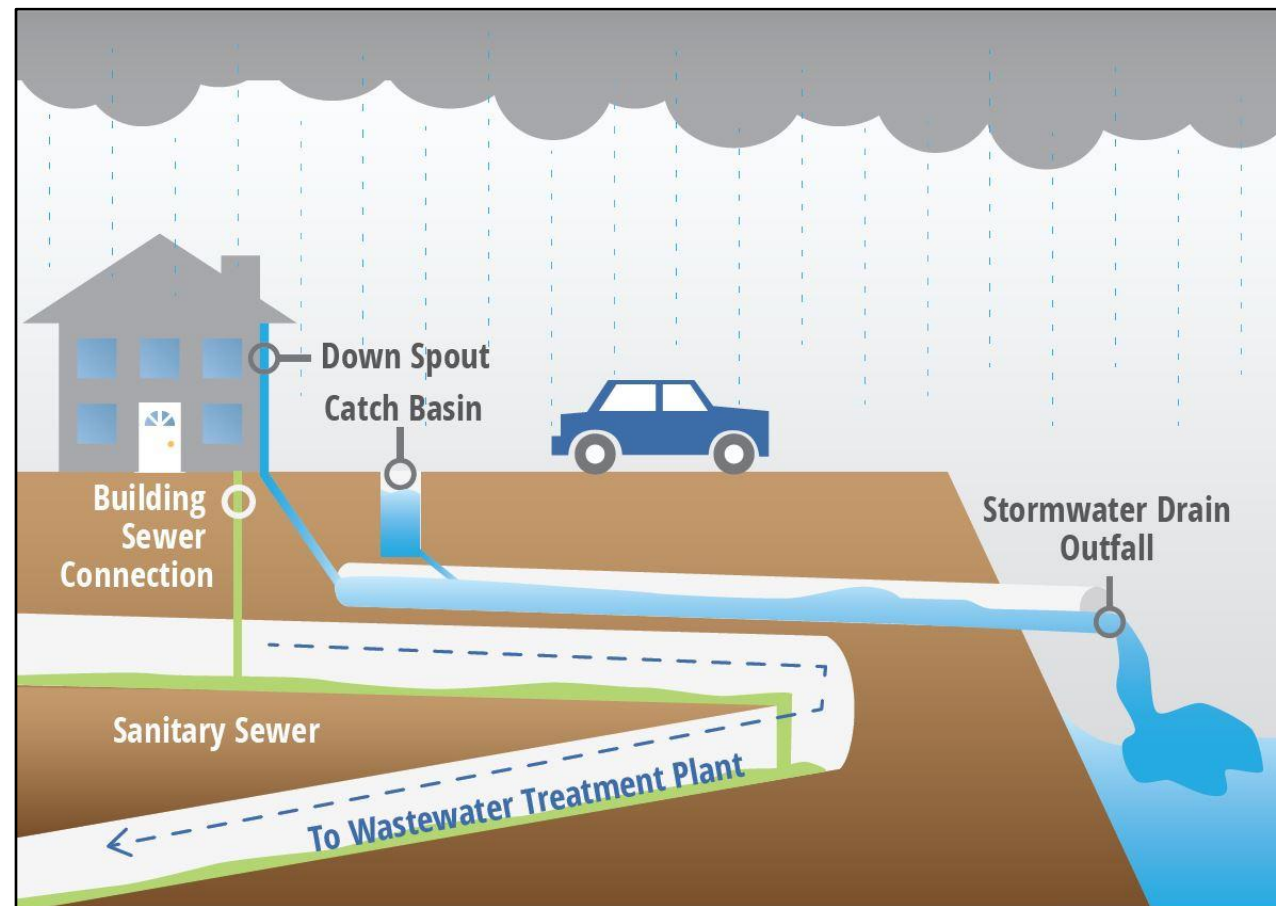
*Presented by: Rich Raiche – City of Somerville*

# 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.

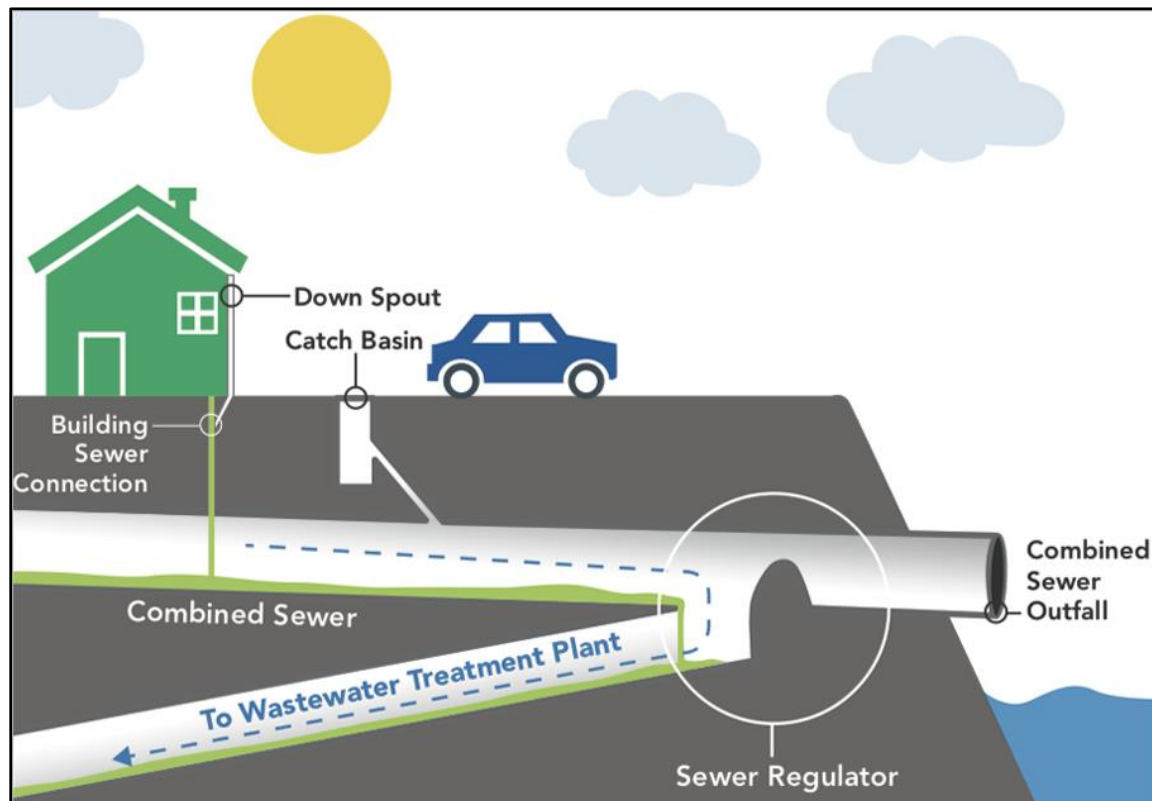
All stormwater runoff is discharged to the Alewife, Charles and Mystic Rivers.



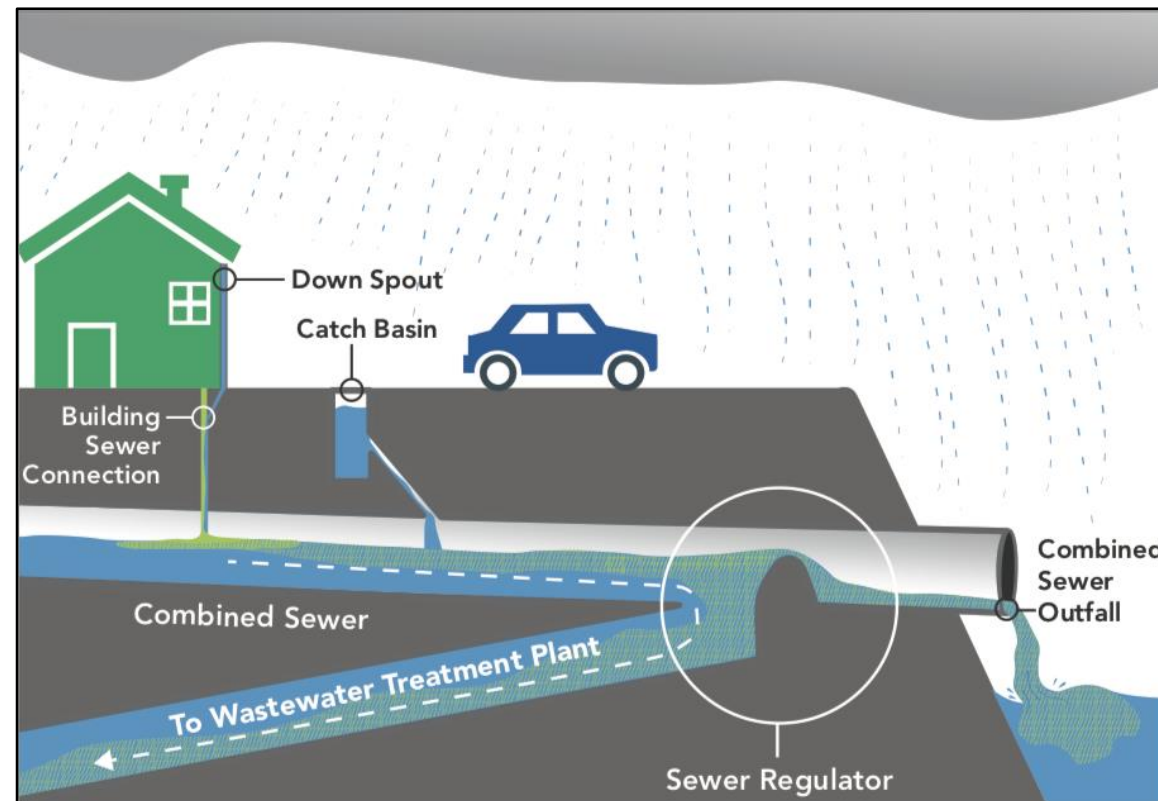


# What is a Combined Sewer System?

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.**

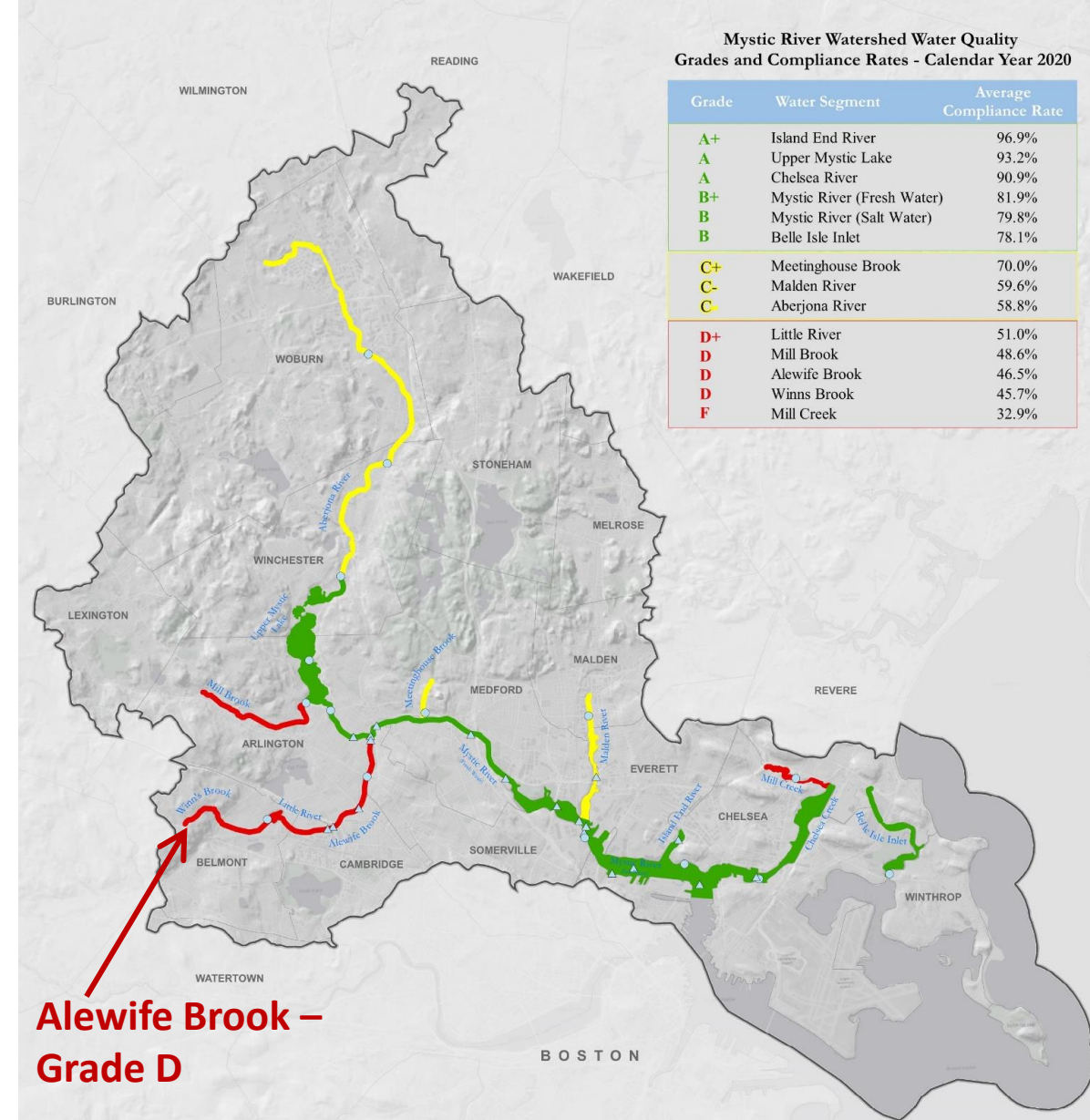
# How do CSOs Impact the Environment?

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 river use 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.



**Alewife Brook – Grade D**

**2020 Mystic River Watershed Report Card**  
(based on 2018-2020 bacterial data)

**Average Compliance Rates for Swimming and Boating Standards**

Grade	Compliance Rate Range
A	100-86
B	85-71
C	70-56
D	55-40
F	39-0

**Monitoring Points**

- Mystic River Watershed Association
- Mystic River Watershed
- Massachusetts Water Resources Authority
- Town Boundary

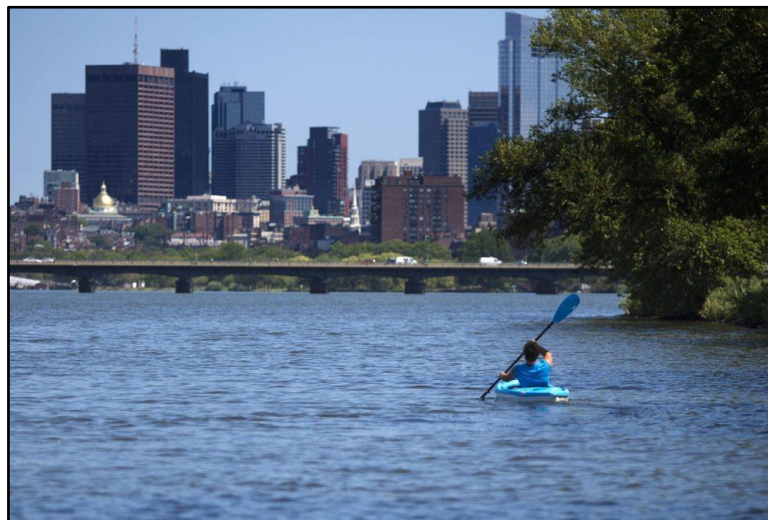
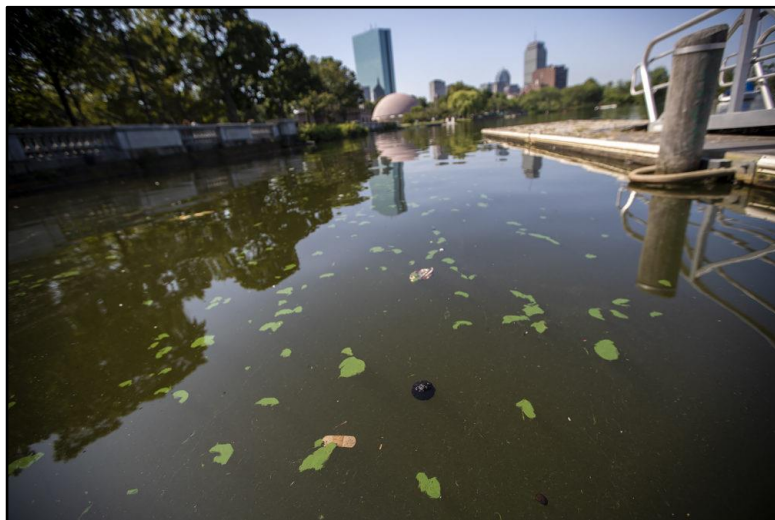
**Data Sources:** Mystic River Watershed Association, U.S. EPA, Massachusetts Water Resources Authority, MassGIS. Basemap: Canva/World Light Gray Base © ESRI and its data suppliers. EPA Region 1 GIS Center map #13390, 7/14/2021

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# How do CSOs & Stormwater Pollution Impact You?

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

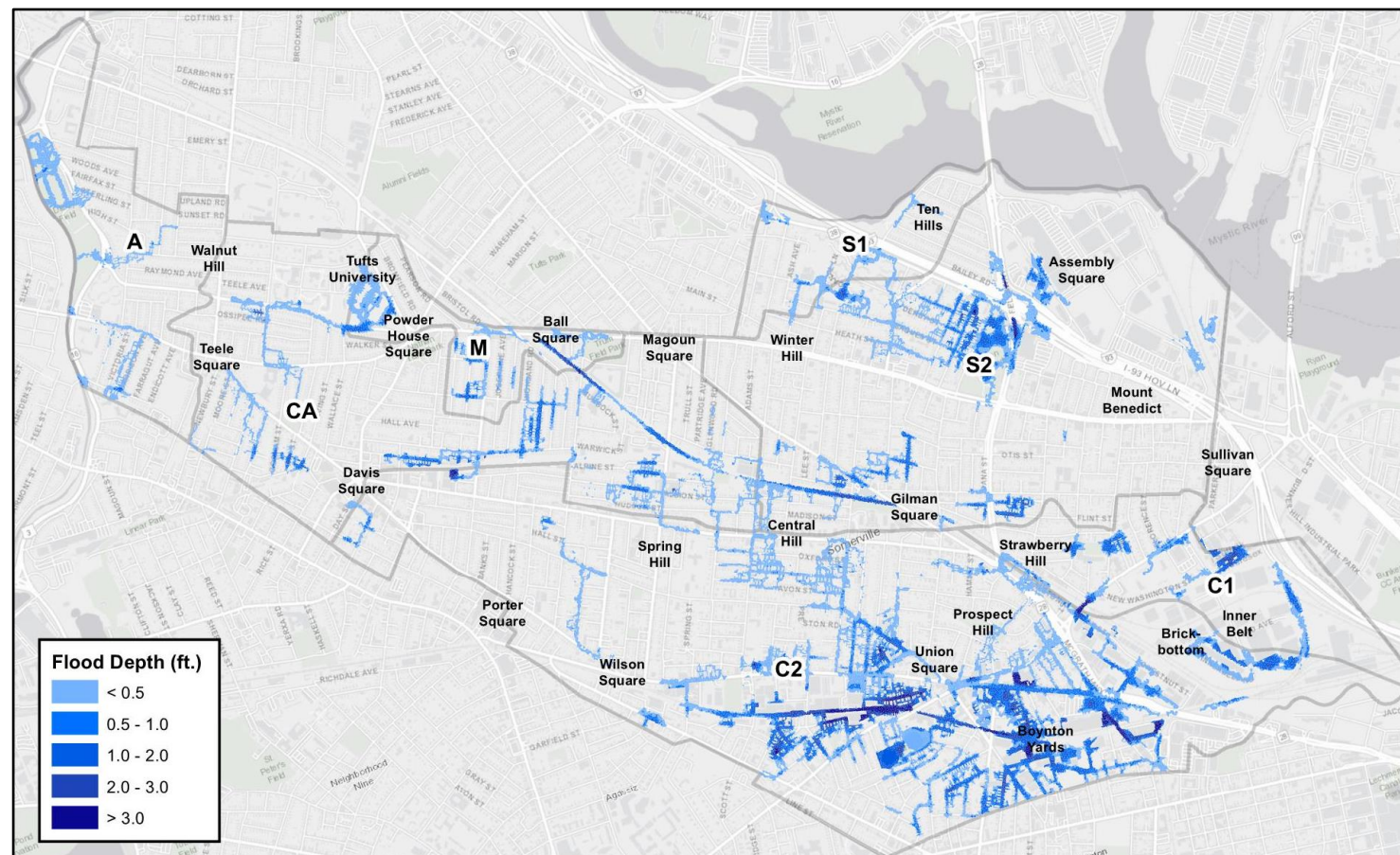
- Making rivers unsafe for swimming or fishing
- Impacting appearance - debris, oil slicks, odor



# 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?



# The Planning Process

## Assess Conditions

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

## Develop Plans

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

## Submit Final Plans\*\*

### Initial Schedule\*\*:

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

*\*\*We requested a schedule extension*



# The Planning Process



- 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** – 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

- **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!**

A blurred background image of a conference room. In the foreground, the back of a person's head with dark hair in a bun is visible. In the center, a person with long blonde hair is seen from behind. To the right, a man in a grey sweater is also seen from behind. Several hands are raised in the air, indicating an active discussion or a Q&A session. The room has large windows in the background, letting in bright light.

# 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.

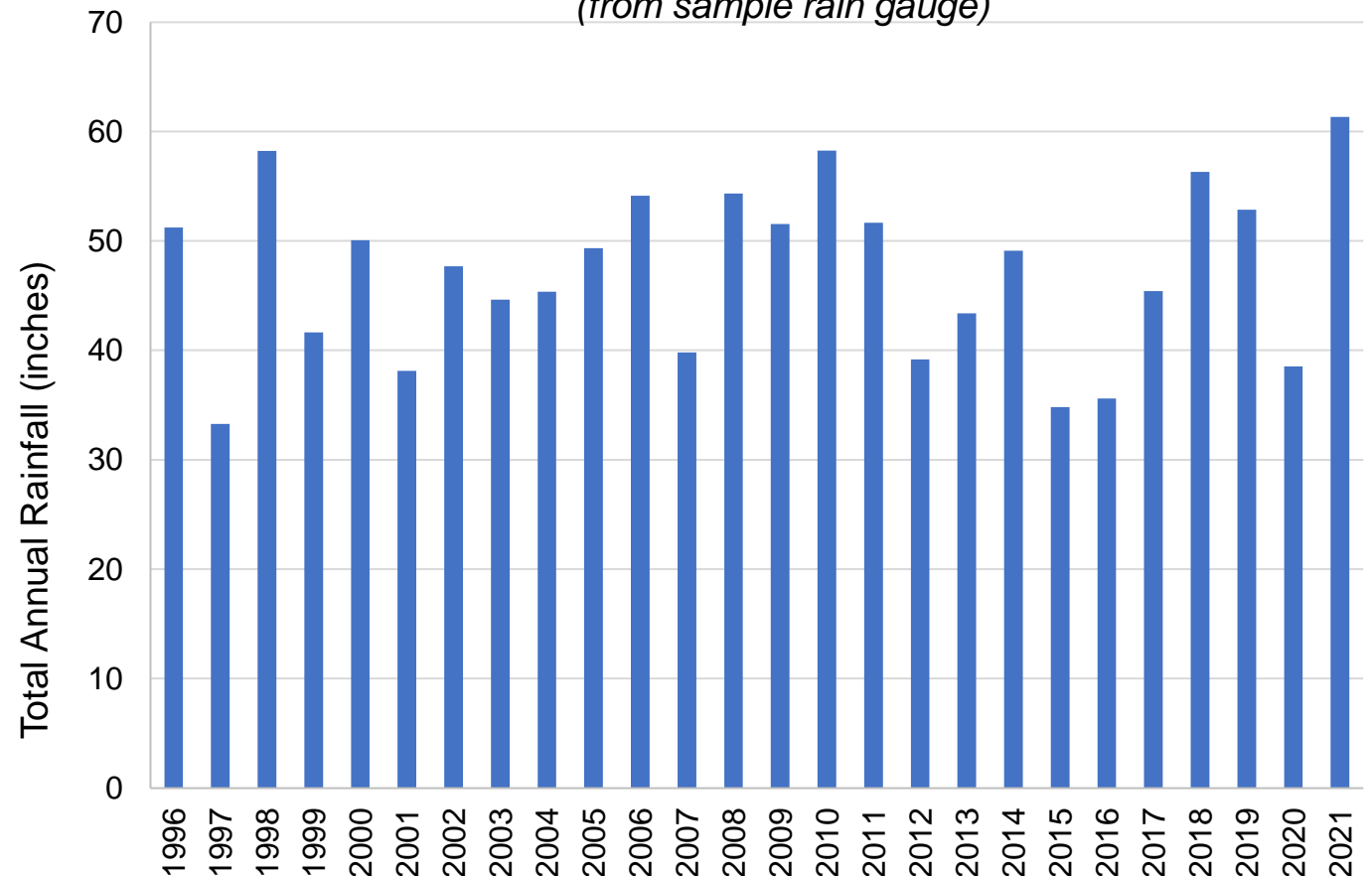


# Why Develop a Typical Year?

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.

Example Statistic: Observed Annual Rainfall  
(from sample rain gauge)





# How is the Typical Year Used?

Used throughout the CSO control planning process

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

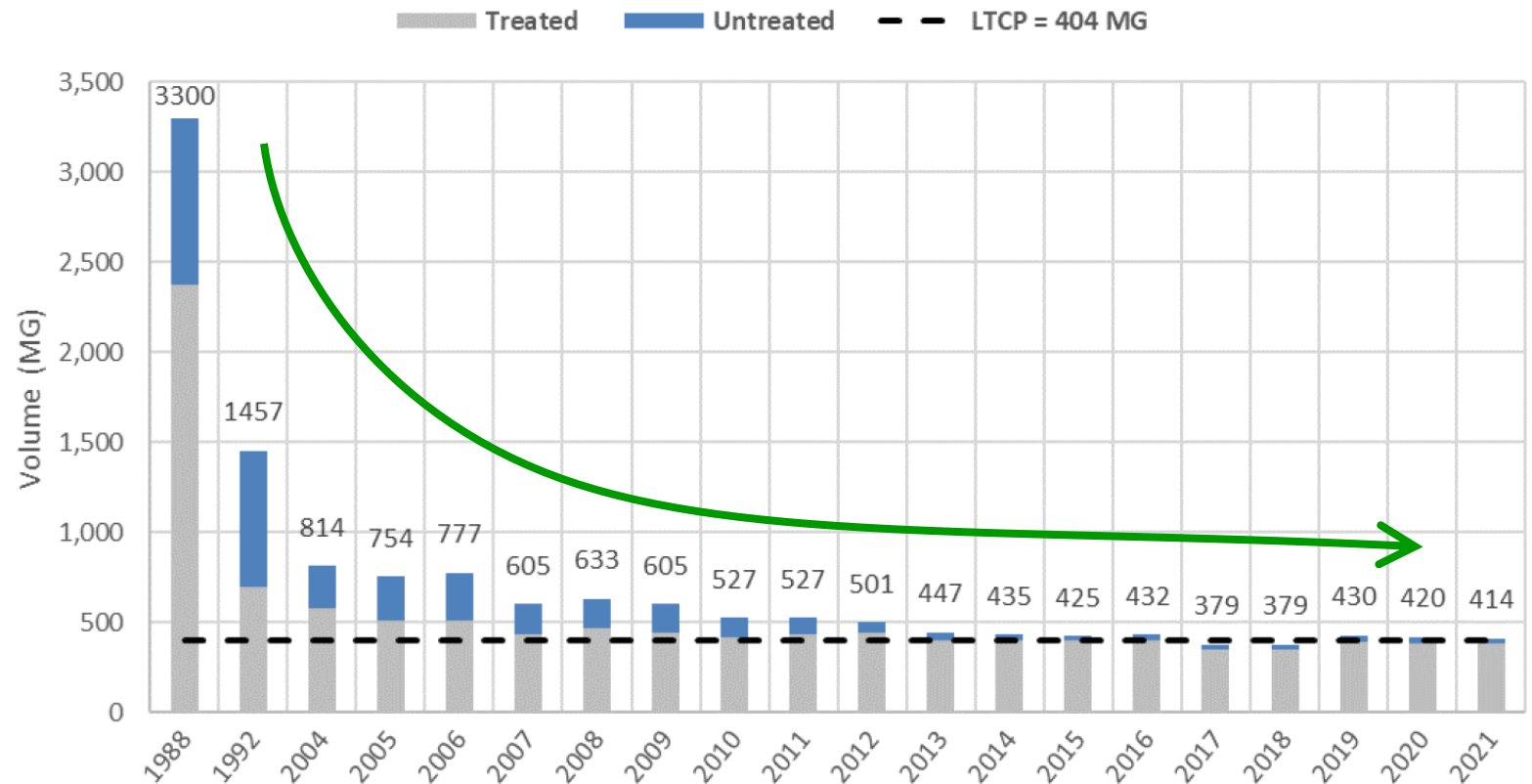
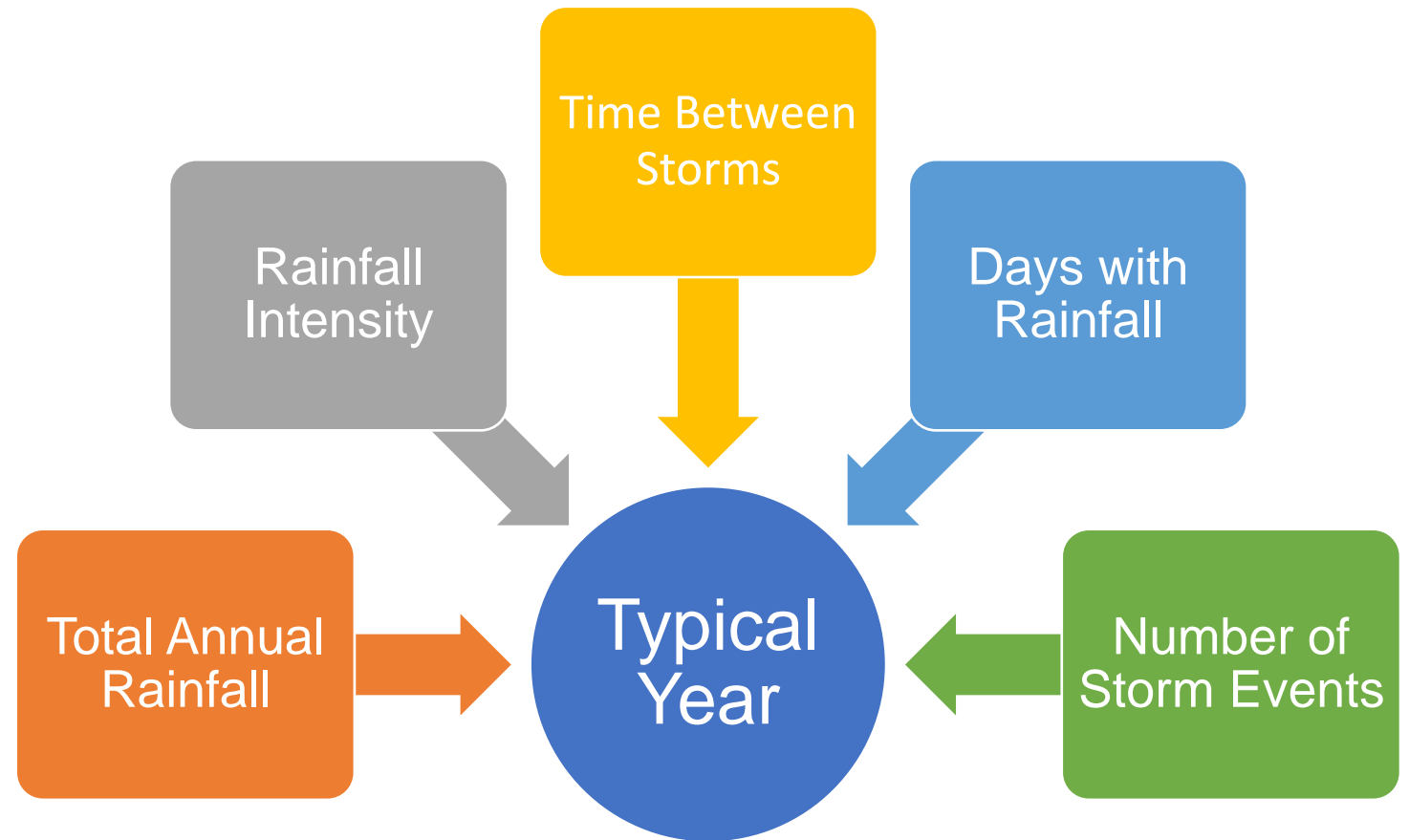


Figure 1-1. Estimated Treated, Untreated and Total CSO Volume in the Typical Year, 1988-2021.

# 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>.

Identified the Future Period (2040-2069)

Assessed two Greenhouse Gas (GHG) Emissions Scenarios

Analyzed multiple Global Climate Models (GCMs)

Compared Results to Observed Rainfall Data

Identified 2050 Future Typical Year for use in Updated CSO Control Plans (in-progress)

# 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

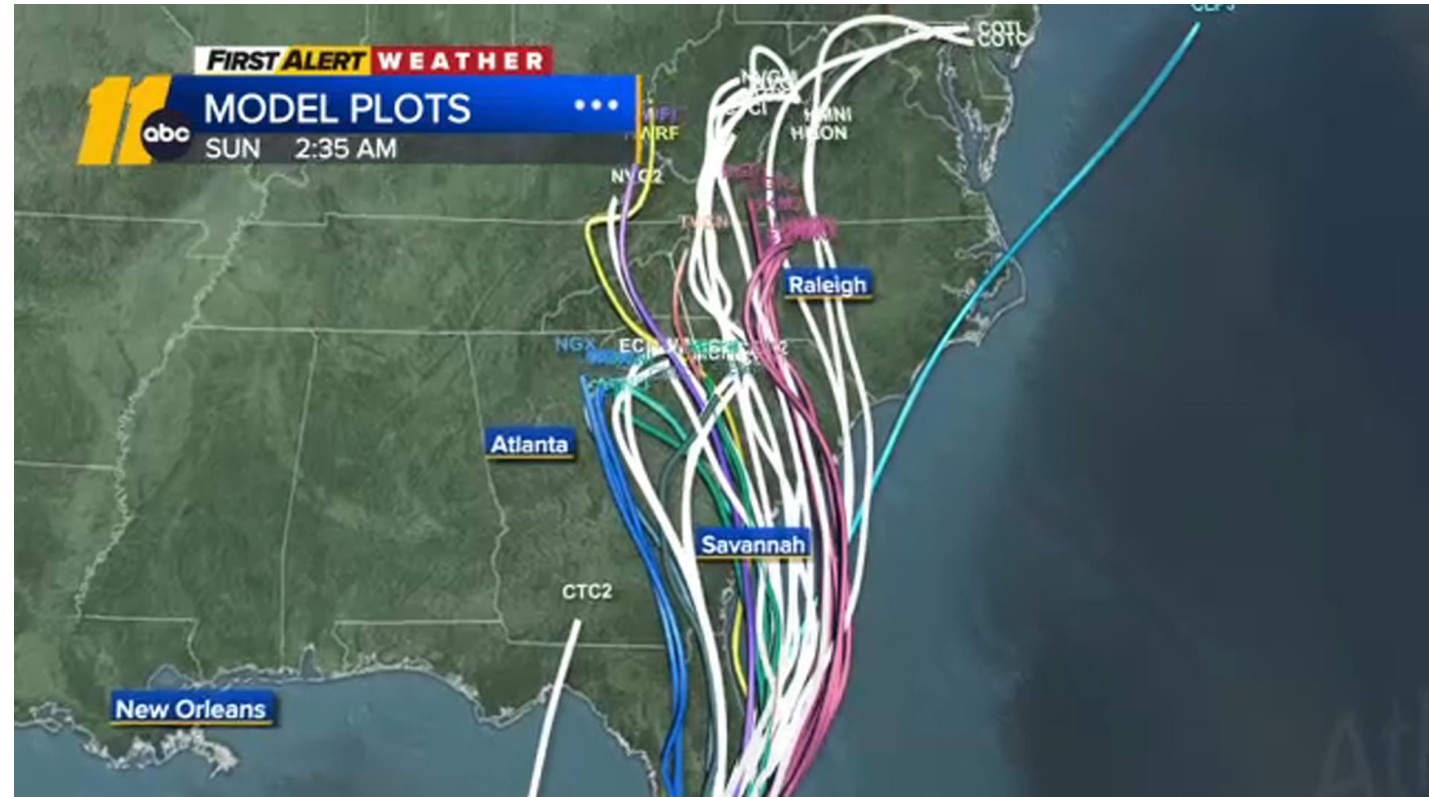


Image Source: <https://abc11.com/hurricane-tracker-ian-in-nc-impact-update-florida/12274760/>

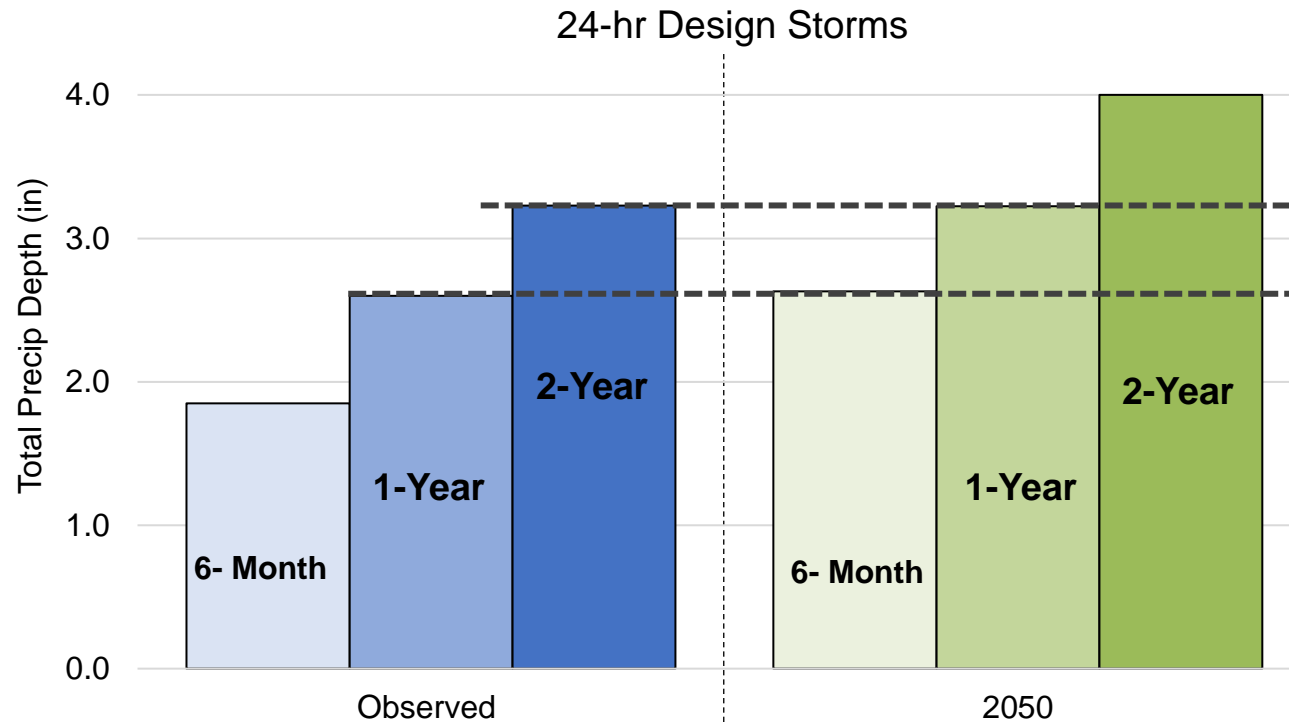
# Preliminary Findings

## 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 5<sup>th</sup>, 2023.*

# Audience Survey

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

[tinyurl.com/CSOplansurvey](https://tinyurl.com/CSOplansurvey)





# Questions & Feedback

1. By January 5<sup>th</sup>, 2023, submit comments using the Survey:

[tinyurl.com/CSOplansurvey](https://tinyurl.com/CSOplansurvey)



2. After January 5<sup>th</sup>, 2023, submit questions, comments, and feedback via email (include "**CSO Control**" in the subject):

- *Cambridge*: Catherine Woodbury - [cwoodbury@cambridgema.gov](mailto:cwoodbury@cambridgema.gov)
- *Somerville*: Lucica Hiller - [lhiller@somervillema.gov](mailto:lhiller@somervillema.gov)
- *MWRA*: Brian Kubaska - [Brian.Kubaska@mwra.com](mailto:Brian.Kubaska@mwra.com)