

PRELIMINARY

City of Elizabeth & JMEUC: What is the CSO Problem?

Supplemental CSO Team

Informational Presentation #1 - CSO Basics



Introduction

- The City of Elizabeth Public Works Department is responsible for all of the City's infrastructure, including:
 - Engineering services for roads, utilities, and public buildings and facilities owned or operated by the City, including the City's **sewer system**
- The Joint Meeting of Essex and Union Counties (JMEUC) is responsible for the **wastewater treatment facility** which treats wastewater flows, and for the sewer system for upstream communities
- The goals of this presentation are to:
 1. Provide information about combined sewer overflows (CSOs) and the Elizabeth sewer system
 2. Obtain input on ways the City can reduce overflows and other water pollution



Future City Environmental Day 2019 - with Dan Loomis, City Engineer

What is a Combined Sewer Overflow (CSO)?

- Most of Elizabeth's sewers are **combined sewers**, which means that they carry both sanitary sewage and stormwater in one piping system.
- Combined sewers were the first types of sewers and can be found in most older cities.
- When it rains, to prevent flooding at storm drains and in basements, the sewers fill up and release excess flow to nearby water bodies, called **Combined Sewer Overflows (CSOs)**.
- During wet weather, untreated wastewater can be discharged to receiving streams including contaminants such as pathogens, oxygen-demanding pollutants, suspended solids, nutrients, and floatable matter. **Nets** along the outfalls catch floatables as a control measure.

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Typical CSO Outfall



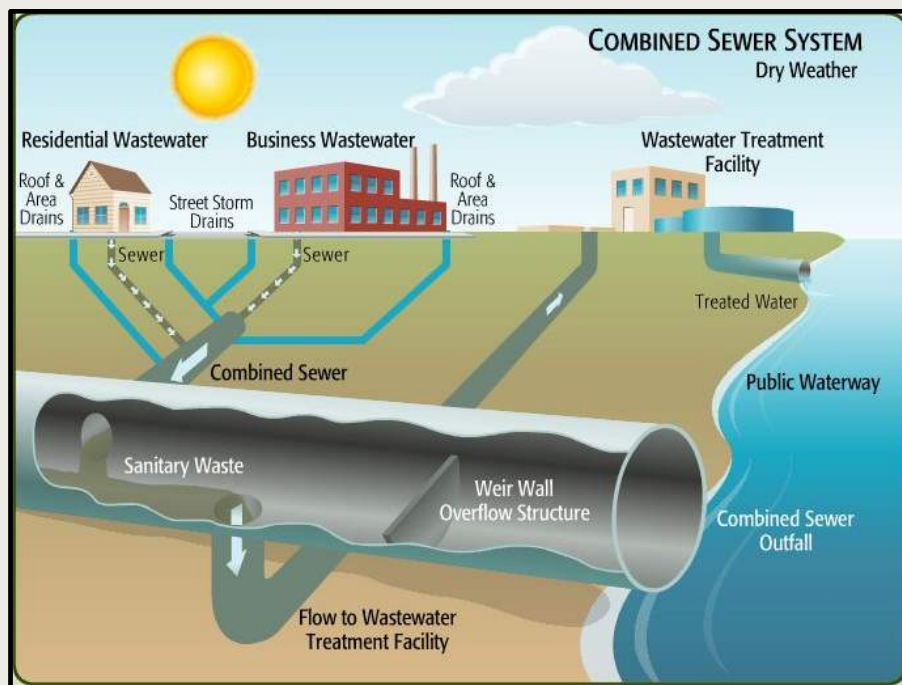
CSO Sign

Nets at CSO Outfall

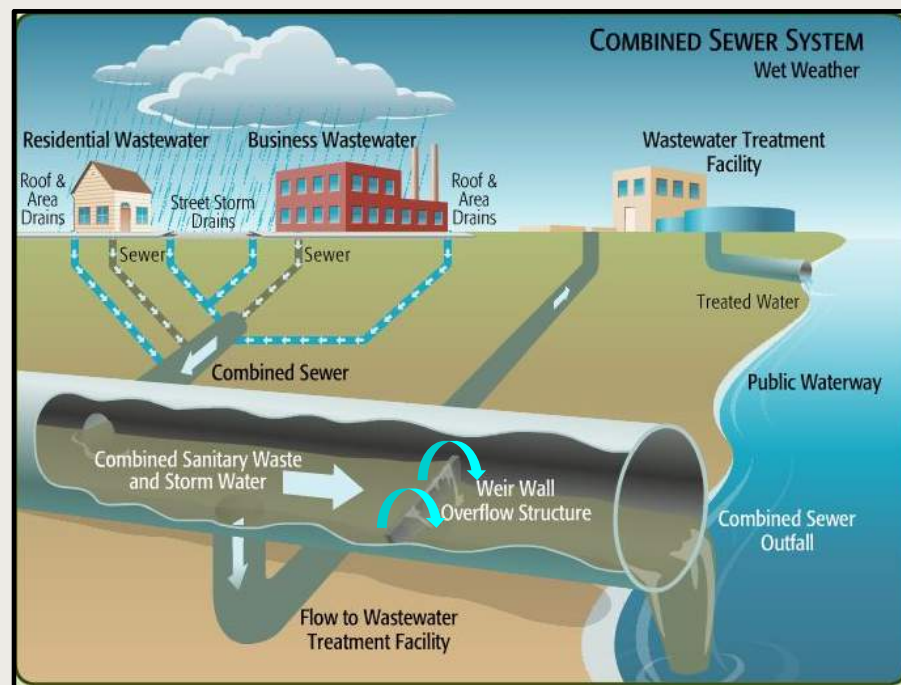


How does a CSO Work?

When it's Dry:



When it's Wet:



Animation and video links
[HWU_combined_web.swf](#)

<https://www.youtube.com/watch?v=ev64xXDYmaw>

JMEUC Wastewater Treatment Facility

- Sanitary flow from the City of Elizabeth is treated at a regional wastewater treatment facility (the Joint Meeting of Essex and Union Counties, or JMEUC, plant)
- During wet weather, the treatment plant does not have the capacity to treat all of the sanitary flow and stormwater, so the excess is released untreated to Elizabeth's waterbodies.



CSOs in the City of Elizabeth

- Elizabeth has **29 locations** where CSOs discharge, called **CSO outfalls**.
- CSOs in Elizabeth discharge to:
 - Elizabeth River
 - Arthur Kill
 - Newark Bay
- The City of Elizabeth is working with the New Jersey Department of Environmental Protection (NJDEP) and the US Environmental Protection Agency (EPA) to reduce the number of CSO events that take place every year to improve **water quality** in Elizabeth's receiving streams.



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City of Elizabeth Current CSO Numbers

Average Values for a Typical Year

48.4"

Average annual total rainfall

55

Total number of overflow events system-wide

870

Million gallons per year
Total combined sewer overflow volume system-wide

130

Million gallon per day
Maximum peak overflow rate from an outfall

73

Storm events with greater than 0.1" of rainfall in typical year

15.8

Million gallons
Average overflow event volume

120

Million gallons
Total overflow volume system-wide for largest storm event

16

Hours
Average overflow event duration

What's Going on Under Your Streets? Follow Your Flush!



- 1 Wet Weather Event (Rainfall)
- 2 Wastewater from your home (toilets, sinks, shower drains)
- 3 Combined Sewer Network = Sanitary + Storm Water
- 4 JMEUC Wastewater Treatment Plant, OR
- 5 Combined Sewer Overflow (CSO) to Elizabeth River, Arthur Kill, or Newark Bay

Stormwater Management

Pollution seeps into the ground and is carried by stormwater (rain and snow) directly to our drinking water, streams, lakes and oceans. Contaminated stormwater is the #1 cause of water pollution in New Jersey. Simple things, like proper clean-up after oneself and careful use of chemicals in the home, office, and yard are helpful ways for businesses and residents to protect the water.

Help us keep our waters clean!

Pick It Up and Pitch It

- Carry pet waste bags whenever you are out with your dog, and always pick up after your pet!
- Tie the bag and toss it in the garbage. Dog poop CANNOT go in compost or yard waste bins.



Be Car Smart

- Take your car to a commercial car wash, where the dirty water is sent to the wastewater treatment plant.
- Don't DRIP and drive. Fix the LEAK.



Do Not Litter

- Surface waters are sources of drinking water, so we need to do our part to clean up pollution and to educate others not to litter.
- Don't overfill trash cans as litter can blow into the street on windy days.



Dispose Properly

- Properly dispose of used oil, paints and cleaning supplies - never pour them down the storm drain, and report anyone who does.



No Dumping

- Dumping of any waste material or causing pollution is an unlawful and punishable offense under the City code.
- If you see it, report it: City Hotline: (855) 772-7066



Discussion Questions:

(there are no wrong answers)

1. How clean do you think the Elizabeth River is?

- A. Very clean
- B. Somewhat clean
- C. Slightly polluted
- D. Very polluted

Discussion Questions:

(there are no wrong answers)

2. What do you think is the main source of pollution in Elizabeth's waterways?

- A. Street and ground runoff
- B. Sewer overflows
- C. Sources outside the City
- D. Other? (Name other sources)

Discussion Questions:

(there are no wrong answers)

3. What is the best way the public can help protect local waterways from pollution?

- A. Support construction of new stormwater storage and treatment tanks
- B. Organize and participate in local waterway cleanups
- C. Install rain barrels and store rainwater at their homes
- D. Plant more trees and vegetation at their homes to absorb more rainwater

Discussion Questions:

(there are no wrong answers)

4. What is the most effective way to communicate information about CSOs to you and your families?

- A. Mail
- B. Community events / school presentations
- C. Website / social media
- D. Other (Name other methods of communication)