

# Fixing Our City's Old Sewers

Complicated problems required creative solutions

## What is a Combined Sewer System?

Old sewer systems that mix sewage and stormwater are an expensive and complicated problem for cities around the country. During dry weather, combined systems take sewage to wastewater treatment plants. But when it rains, that extra water running off streets and roofs also flows into sewers. The added water can overwhelm the capacity of the pipes. When that happens, the sewage-contaminated water mixture overflows from pipes directly into local waterways. This is called a combined sewer overflow, or a CSO. In New Jersey, 21 cities have CSOs.

### Combined sewers and overflows can:



- Dump trash into waterways
- Expose people to raw sewage
- Cause street flooding
- Cause sewage to sometimes back up in streets and homes
- Cause beach closures
- Harm aquatic life
- Contaminate shellfish beds

### Why CSOs are a problem:

States and cities are required by the federal government to meet water quality standards. This includes reducing or eliminating sewage spills into waterways. If they don't, the federal government can order cities and states to meet standards and, as a result, dictate the repairs cities must do.

### How the state is helping

In early 2015, New Jersey issued new permits to the 25 communities and sewage treatment plants that have CSOs. These permits require that cities and treatment plants must:

- Develop Long-Term Control Plans that outline how they will upgrade infrastructure to reduce or stop overflows.
- Report how often and how long overflows occur
- Develop a system to alert the public when overflows happen.
- Talk with residents and business owners to learn what projects are most important.

## How this affects our city

Our city must create a plan in between three and five years. Cities will be hiring experts to study the problem and find the best solutions with the most benefits and lowest cost. Cities and treatment plants must also figure out how to pay for the fixes over time. These repair projects have the potential to transform your city through greener redevelopment, new parks, and changes to how neighborhood streets look.

## How to fix the problem

Reducing or eliminating overflows will require a diverse set of repairs. Cities will have to create a customized solution for each neighborhood because local conditions can vary. What will work well on one street, for example, may not be best a few blocks away. Lessons from elsewhere show what likely will happen is a mix of changes above the ground and below the ground.



### Above-ground examples:

- Capture rainwater in planters
- Replace pavement with trees and gardens



### Below-ground examples:

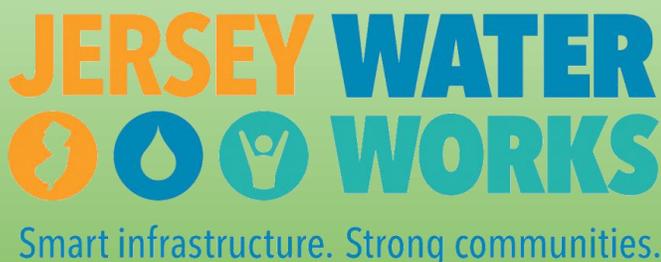
- Separate sewers
- Build large underground storage tunnels
- Fix leaky pipes

## Why you should care

As our city develops plans and financing options, residents and business owners can provide input. Solutions may include new parks, community gardens, greener redevelopment, or other changes to your neighborhood. This means your community will have the chance to say what it wants. Residents should learn what the options are so they can give informed opinions and help leaders make decisions that reflect the community's needs and wants.

## How to get involved

For more information about combined sewers, visit [Jerseywaterworks.org](http://Jerseywaterworks.org). You also can contact your local community groups to see if they are involved with Jersey Water Works.



# How can our city end CSOs?

There is a diverse menu of solutions that can help reduce sewage overflows

Experience from around the U.S. shows us that cities are using a variety of ways, based on local conditions, to solve their CSO problems. The best solutions maximize community benefits and minimize costs. **Here are a few examples.**

## Gray infrastructure

This below-the-ground infrastructure takes raw sewage and water to a sewage plant for treatment. Examples include:

### Sewer line maintenance and repairs

Cleaning pipes creates more room for sewage and stormwater.  
Fixing leaks reduces groundwater coming into pipes.

### Outfall disinfection

This involves installing a device that releases a disinfectant into sewage before it overflows.

### Increasing capacity at sewage treatment plants

This creates more room to treat sewage and stormwater at the plant so overflows happen less frequently.

### Underground storage tanks and tunnel

This creates a place for the stormwater and sewage to go until there's room for it at the treatment plant.

### Sewer separation

This makes two lines – one for sewage, one for stormwater – so the sewage plant is never overwhelmed when it rains.

## Education & Engagement

### Public notification of CSO overflows

New Jersey cities are required to create a way to tell residents when sewage spills from overflow pipes.

### Public engagement

CSO communities are required to get input from residents and business owners about which solutions they want.

## Finance

### Sewer rates

Rates can be increased to pay for upgrades. They can be designed so lower-income households can afford bills

### Stormwater fees

Cities around the country use a fee that is calculated by how much area on a parcel does not absorb or retain water.

### Innovative financing

This includes incentives and grant programs for private property owners, as well as public/private partnerships.

## Green infrastructure

Above-the-ground methods mimic nature by capturing stormwater so it can be reused or it can trickle into the ground. Examples include:

### Rain barrels and cisterns

These containers capture stormwater from roofs and save it for another use. Cisterns are large and collect from multiple roofs.

### Rain gardens

During dry weather, these look like simple gardens. When it rains, stormwater flows in and seeps into the ground.

### Pervious pavement

This type of paving material allows water to seep in rather than rush off into sewers. It can be used for many paved areas.

### Green and blue roofs

Blue roofs are designed to retain and slowly release water after a storm. Green roofs are planted with grass and other plants.

### Green streets

When cities make major repairs to streets, they can include designs for areas with grass and trees to absorb stormwater.

## Policies and Programs

### Stormwater requirements on new development

Cities can require new and redeveloped buildings keep stormwater on site to infiltrate into the ground or be reused.

### Planning for the future

Cities can consider designing stormwater infrastructure for future conditions, including effects from climate change.

### Collaborate with neighboring communities and sewage plants

Cities can work with neighbors to develop plans and share costs.