



# Understanding Storm Drains and Sewer Systems

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## How Is A Storm Drain Different From a Sewer?

### Storm Drains

When rain water flows across pavement and down a storm drain, that water is almost always piped directly to the nearest stream, river, or bay. That water almost never goes to a treatment facility. Most storm drains simply collect rain water and channel it away to prevent flooding, carrying polluted runoff to local water resources.

### Sanitary Sewers

Sanitary sewers carry wastewater or "sewage" from homes and businesses through an entirely separate piping network below city streets. Manhole covers allow access for maintenance, but there are no open drains or grates. This wastewater flows to a municipal wastewater treatment facility where it is treated, and that treated effluent is discharged to local rivers and the Bay. Today, businesses are required to pre-treat their wastes before discharging into the system. And many wastewater treatment facilities are being upgraded to improve the quality of wastewater discharged to local waters.

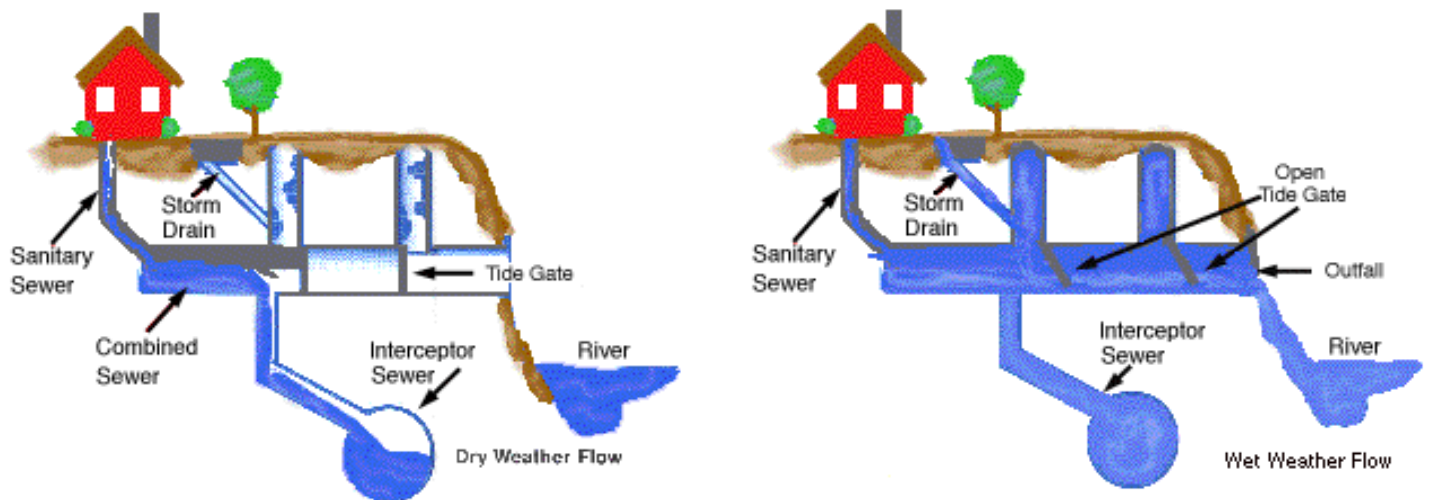
*Storm drains lead directly to local waters. No filters. No treatment. Pollutants that enter storm drains wind up in the water we drink, fish, and swim.*



## Combined Sewers

The exception to the distinction between storm drains and sewers are combined sewers, where the storm drain and sanitary sewers have a connection. These are a problem in older urban areas such as Providence and Newport, where the stormwater and wastewater lines were originally interconnected.

As the graphic illustrates, in dry weather, both the stormwater and the sanitary waste go to a treatment facility. With small storms, the system has enough capacity to treat both the wastewater flow and the additional stormwater. But in larger storms, the pipe overflows, resulting in discharges of mixed stormwater and untreated sewage directly into rivers and the Bay. When a "combined sewer overflow" happens, parts of Narragansett Bay are temporarily closed to shellfishing.



Graphics Courtesy of Narragansett Bay Commission

## Combined Sewer Overflow (CSO) Project

In an effort to correct this problem, a CSO retrofit project has been underway for over a decade in Rhode Island. It involves building subsurface tunnels to store and gradually treat the mixed stormwater and wastewater at the wastewater treatment facility. It is estimated that the project will reduce overflows by 98% at the project's completion. However, it still will be necessary to reduce the total amount of runoff through other stormwater management practices.

More information about the project is available through the Narragansett Bay Commission.