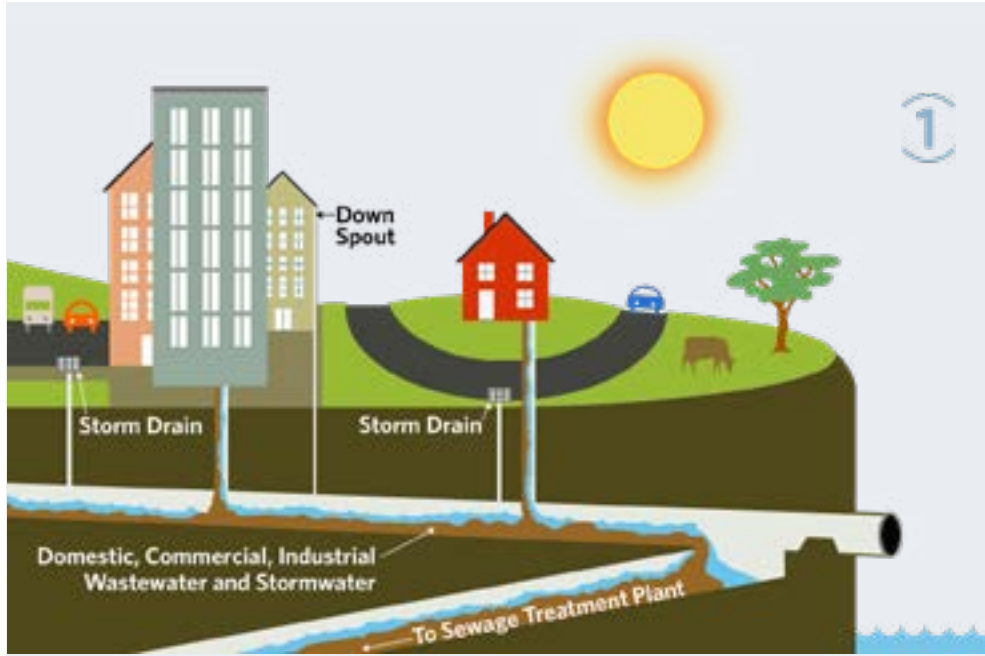


# TURNAROUND FILMS

## WHAT WASTEWATER AND STORMWATER HAVE TO DO WITH CLIMATE CHANGE



Before the US Congress enacted the [Clean Water Act](#) of 1972, cities commonly dumped raw sewage into America's rivers, streams, lakes, and harbors. Our waterways were polluted, often toxic to humans and deadly to aquatic life. The Clean Water Act established regulations to restrict the discharge of pollutants and provided federal funding for the construction of thousands of publicly owned wastewater treatment plants which brought our waters back to life.

Wastewater comes from bathing, toilet flushing, laundry, and dishwashing. Stormwater is rainwater or snowmelt that runs off of the land's surface. Much of water pollution today is caused by stormwater runoff that carries sediment, oil, bacteria, toxins, and other pollutants from farms, yards, and paved streets and parking lots into nearby waters. This pollution can harm aquatic life, lead to the development of harmful algal blooms, and contribute to ocean acidification.

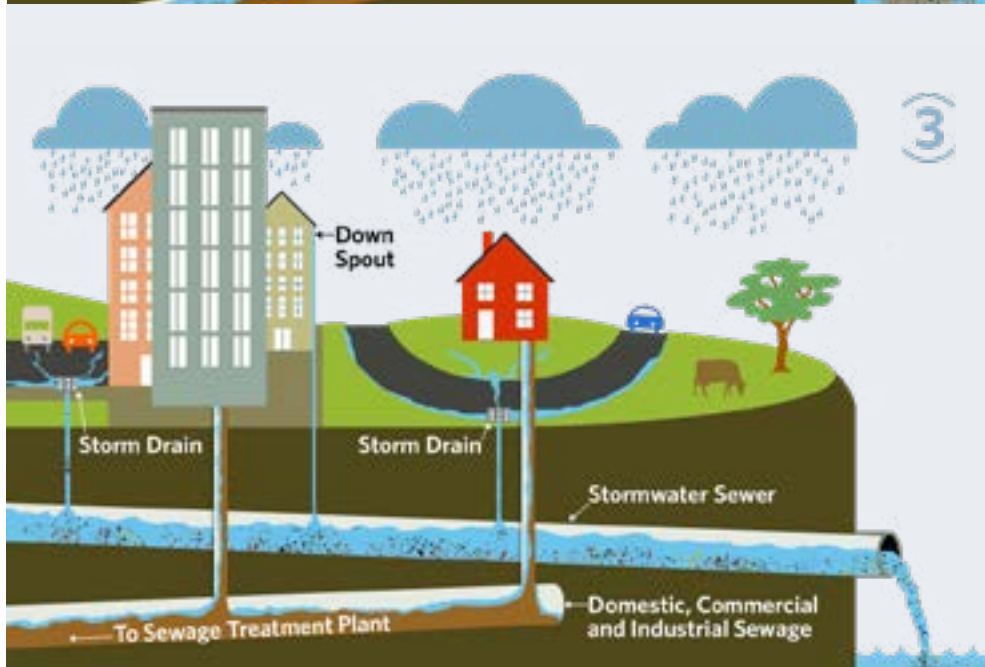
### COMBINED WASTEWATER AND STORMWATER SYSTEM



1 In a Combined Sewer System, stormwater from road drains and downspouts, domestic sewage, and industrial wastewater are collected and combined in a single pipe network, carried to a sewage treatment plant, cleaned, and then discharged into a local waterway.

2 Combined Sewer Systems were designed to release excess flow when the volume of wastewater exceeds capacity of the system during rainstorms. Too often, however, this causes untreated wastewater to discharge to nearby waterbodies.

### SEPARATED WASTEWATER AND STORMWATER SYSTEM

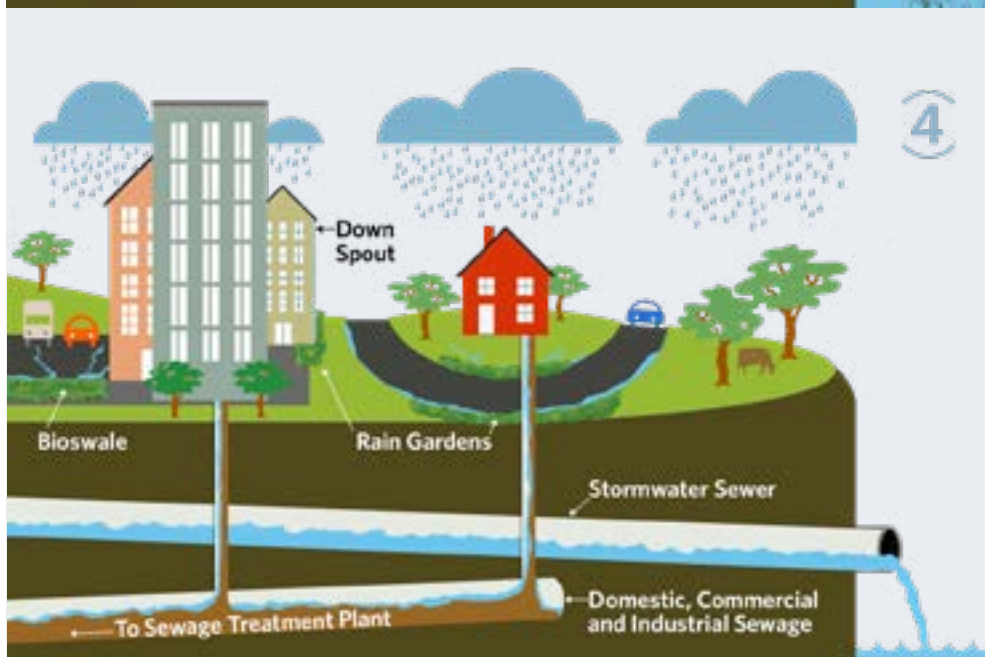


3 Newer, separated wastewater and stormwater systems send water from road drains and downspouts directly into a local waterway, while domestic sewage and industrial wastewater flows to the sewage treatment plant in a separate pipe. These systems prevent sewage overflow but do not provide treatment for polluted stormwater.

Many of the wastewater treatment and collection facilities are now old and out of date. Deteriorating sewer pipes allow wastewater to seep into aquifers and to gush into streams and rivers. The growing human population means more pressure on the systems. These older wastewater treatment plants also emit greenhouse gasses like carbon dioxide, methane and nitrous oxide during the process of treating wastewater, contributing to the problem of climate change.

Wastewater and Stormwater systems are vulnerable to climate change. The warmer air brings more intense rainfalls, flooding and overwhelming the capacity of these systems. It also causes severe droughts that can interfere with water flow, concentrate pollutants, and affect the performance of treatment equipment. As sea levels rise in low-lying coastal areas, saltwater intrusion from storm surges can corrode or flood treatment equipment.

The good news is that municipalities and advocacy organizations are pushing for upgrades or replacements for aging wastewater and stormwater infrastructure. [New regulations](#) in Massachusetts require wastewater treatment plants to notify the public, local media, and federal agencies whenever a plant discharges untreated or partially treated wastewater into surface waters within two hours of discovery.



4 Numerous communities are replacing excessive road and parking lot pavement with green spaces, rain gardens and bioswales to slow down the flow of stormwater and allow it to percolate into the ground helping combined sewer systems reduce overflows and separated systems reduce pollution. This "green infrastructure" mimics the natural environment and takes some of the pressure off of our wastewater and stormwater systems.

Watch **X-Cel Conservation Corps** and other environmental/climate change films on [turnaround-films.com](http://turnaround-films.com).