

GAO Highlights

Highlights of [GAO-17-750](#), a report to the Honorable Sheldon Whitehouse, U.S. Senate

Why GAO Did This Study

Urban stormwater runoff is a major contributor to pollution in U.S. waters. Municipalities historically managed stormwater with gray infrastructure. In 2007, EPA began encouraging the use of green infrastructure to manage stormwater and reduce the need for gray infrastructure.

GAO was asked to examine the use of green infrastructure by municipalities to meet EPA's stormwater requirements. This report (1) describes the extent to which selected municipalities are incorporating, and funding, green infrastructure in stormwater management efforts; (2) describes what challenges, if any, municipalities reported facing in incorporating green infrastructure into stormwater management efforts; and (3) examines efforts EPA is taking to help municipalities use green infrastructure.

GAO surveyed two nongeneralizable samples totaling 31 municipalities with stormwater permits or consent decrees for CSOs and interviewed EPA officials to examine EPA efforts to help municipalities use green infrastructure. The municipalities were randomly selected from lists of municipalities that are required to have permits and have consent decrees.

What GAO Recommends

GAO recommends that EPA document agreements, when working with municipalities and other stakeholders, on how they will collaborate when developing long-term stormwater plans. EPA generally agreed with GAO's recommendation and plans to implement it over the next 12 to 18 months.

View [GAO-17-750](#). For more information, contact J. Alfredo Gómez at (202) 512-3841 or gomezj@gao.gov.

September 2017

STORMWATER MANAGEMENT

EPA Pilot Project to Increase Use of Green Infrastructure Could Benefit from Documenting Collaborative Agreements

What GAO Found

Almost all 31 municipalities GAO surveyed reported using green infrastructure to comply with their Clean Water Act permits or combined sewer overflow (CSO) consent decrees. The Environmental Protection Agency (EPA) regulates stormwater pollution under the Clean Water Act, which requires municipalities to obtain permits to discharge stormwater into waterbodies. EPA has also entered into consent decrees with municipalities that have CSOs—events where raw sewage is discharged into waterbodies. Green infrastructure uses natural processes to manage stormwater, such as capturing stormwater so it can seep into soil (see figure). However, of 27 municipalities responding, 15 reported that less than 5 percent of the area subject to their permit or consent decree drained into green infrastructure, with the remaining area draining into gray infrastructure, such as concrete sewers, or directly to waterbodies. Most of the municipalities reported funding green infrastructure with fees and general revenues.

Of the 31 municipalities GAO surveyed, 26 reported that green infrastructure was more challenging than gray infrastructure in aspects of infrastructure development, such as developing project operation and maintenance cost estimates. Nevertheless, 25 of these municipalities reported instances where they used green infrastructure even though it was more challenging. Some municipalities reported that they were less familiar with green infrastructure but used it anyway because it performed better or it provided additional benefits, the community wanted to use it, and the municipality saw an opportunity to learn about green infrastructure.

EPA provides multiple resources to educate and assist municipalities on the use of green infrastructure. In 2016, the agency launched a pilot project with five municipalities to encourage states, communities, and municipalities to develop long-term stormwater plans to increase their use of green infrastructure. Key to the success of the pilot project is collaboration among many stakeholders from across each community, such as members of the local utility, transportation, and recreation departments, as well as local organizations. GAO has previously identified key considerations, such as documenting agreements on how to collaborate that can benefit collaborative efforts. However, EPA has not yet documented collaborative agreements with pilot stakeholders. EPA could better assure that the stakeholders will successfully develop long-term stormwater plans if it documents how the stakeholders will collaborate.

Examples of Green Infrastructure



Bioswale



Green roof



Rainwater harvesting

Source: Environmental Protection Agency. | [GAO-17-750](#)