

Water

THE IMPORTANCE OF WATER

Water is a vital resource to the life of the SW Ecodistrict. People, plants and urban wildlife depend on water for their existence. People also depend on water to heat and cool buildings. There are five types of water that are important to the sustainability of the Ecodistrict:

Potable Water – water that has been processed and treated so that it is clean enough to drink. It is pumped to buildings within the district from the municipal water system.

Stormwater – water that falls onto the study area when it rains. It eventually runs into the municipal storm system where it is pumped out to the water treatment plant where to be treated.

Greywater – water that is generated from domestic activities such as laundry, dishwashing, and bathing.

Recycled Stormwater/Greywater – stormwater/greywater that is captured and reused for irrigation and/or toilets.

Blackwater – water that is discharged from toilets.

Traditionally, these types of water function independently. Potable water is used for all water needs on a site. Stormwater, greywater and blackwater are all pumped to a wastewater treatment plant. While this has worked in the past, it is becoming increasingly clear that it is cheaper and more sustainable to integrate these systems. Highly treated and energy intensive potable water does not need to be used for all of the area's water needs, especially when the stormwater and potable water rates (paid by property owners) are scheduled to increase substantially by 2032. The more the study area can capture stormwater, reuse it for non-potable water uses, and decrease its overall potable water use, the more money it will save.

THE AREA TODAY

While this area is not part of the District of Columbia's antiquated combined sewer system, where stormwater and sewage use the same pipes and often overflow into the rivers during heavy rains, it is still important to capture and treat stormwater.

In 2012, rain produces 92.4 million gallons of water in the study area per year. With 82 percent of the land area comprised of hard surfaces, very little rainwater infiltrates into the ground and instead runs off the area's buildings and streets into the municipal storm sewer system. On its way, it picks up pollutants such as oil, gasoline

and pesticides. Once in the system, it must be pumped to the Blue Plains Treatment Plant where significant amounts of energy are used to clean the water before it is released. None of it is reused. The Blue Plains Treatment Plant is owned and operated by DC Water, the water and sewer authority that provides water and wastewater treatment services to the District of Columbia and parts of region.

Today, all of the water that is used in the study area is potable - meaning it has been processed and treated so that it is clean enough to drink. Potable water is unnecessary for many uses, including irrigation, building mechanical systems, and toilet flushing since rainwater and greywater could be used instead.

THE TARGETS

The targets for stormwater and potable water come from Executive Order 13514.



STORMWATER - RETAIN 95TH PERCENTILE RAIN EVENT

The stormwater target is to retain a 95th percentile rain event. In Washington, DC this means all rain events that produce up to 1.7 inches of rain in 24 hours. Few rain events in Washington, DC actually produce that much rain in 24 hours so the target essentially means that all of the rain that falls in the area throughout the year will be retained and reused. This is very challenging in a dense urban area with little pervious surface.



POTABLE WATER USE - REDUCE BY 50 PERCENT

The potable water target is to reduce potable water use by 50 percent (as measured per square foot). Today, the area uses potable water for all of its water needs. This amounts to approximately 22 gallons of water/square foot/year. The target is to reduce potable water use to 11 gallons/square foot/year.