

What is Stormwater?

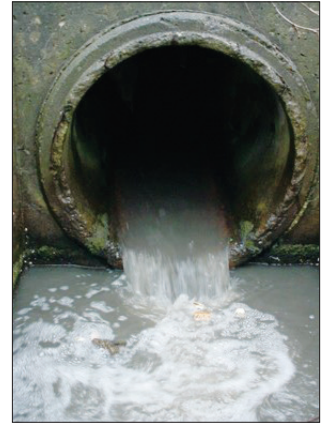
Stormwater is the water generated by rain or melted snow on “impervious surfaces” or surfaces that do not allow the water to soak into the ground (such as roads, driveways, sidewalks, parking lots, and buildings).

Stormwater runoff occurs when rain or snowmelt flows over these impervious surfaces.

Why is stormwater runoff a problem?

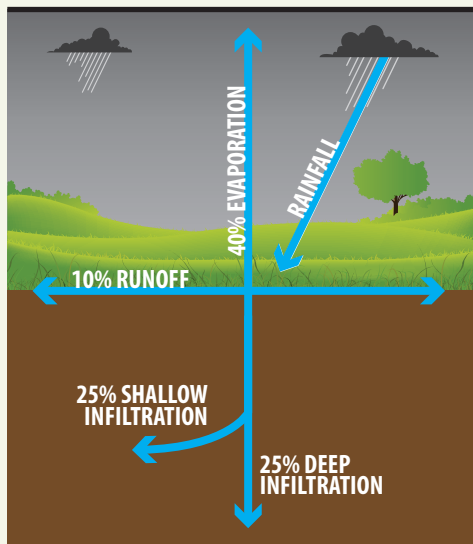
Stormwater can pick up trash, excess nutrients (such as nitrogen and phosphorus), sediment and other pollutants that flow into a storm sewer system or directly to a lake, stream, river, or wetland. Untreated stormwater runoff ends up in the waterbodies we use for swimming, fishing and providing drinking water.

Polluted stormwater runoff can have many adverse effects on plants, fish, animals and people. For example, trash can clog waterbodies, nutrients can cause algae blooms, and sediment impacts aquatic life.



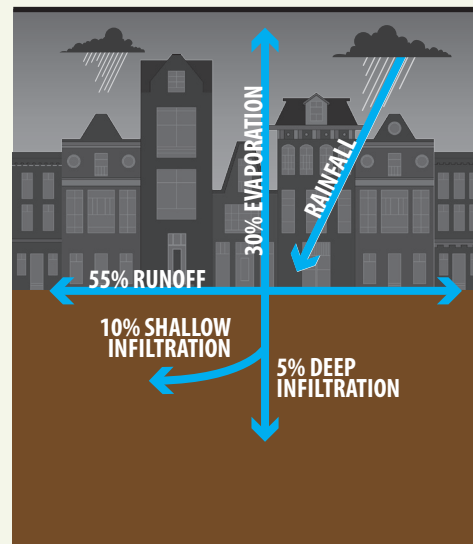
Comparing Natural vs. Urban Environment

NATURAL ENVIRONMENT (natural ground cover)



- 0% impervious surfaces
- Less stormwater runoff means more infiltration and groundwater recharge
- Surface water slower to reach stream or storm sewer minimizing erosion and downstream flooding
- Cooler stormwater temperatures support aquatic habitat
- Minimal pollutants (natural filtering)
- Groundwater recharge through infiltration

URBAN ENVIRONMENT (75% - 100% impervious cover)



- 75% - 100% impervious surfaces
- More stormwater runoff
- Faster stormwater runoff overwhelms streams and stormwater pipes resulting in erosion and potential downstream flooding
- Warmer stormwater temperatures negatively impacts aquatic life
- Higher pollutant loads (nitrogen, phosphorus, sediment) impact aquatic life
- No groundwater recharge due to limited infiltration

What is Green Infrastructure?

Green Infrastructure is an approach to managing stormwater runoff that takes advantage of natural processes such as infiltration and evapotranspiration, to slow down, clean and in some cases reuse stormwater to keep it from overwhelming sewer systems and polluting waterways.

The goal of Green Infrastructure is to mimic the natural environment within an urban setting.

Types of Green Infrastructure

Bioretention –
(tree boxes, rain gardens,
vegetated filter strips)



Permeable Pavements –
(porous asphalt, permeable
concrete, permeable pavers)



Roof Top Collection –
(rain barrels, cisterns, green
roofs, blue roofs)



Fort Reno Reservoir Green Roof

What is a Green Roof? A green roof is a roof that is covered in a lightweight soil and plants which reduce stormwater runoff. The soil and plants that cover the roof act as a natural filter, significantly reducing the amount of runoff. Runoff is slowed, cooled and filtered. The water that is absorbed by the plants on the rooftop then evaporates back into the air. Green roofs create additional green spaces, are visually appealing and attract and support wildlife including butterflies, honeybees and other beneficial insects.

Fort Reno Reservoir Green Roof (newly constructed)
The Reservoir roof was 100% impervious surface before construction of the green roof and created significant stormwater runoff when it rained. The green roof plants will continue to grow in overtime so eventually the entire roof will be green!