



(1) Green Infrastructure

(2) Traditional Infrastructure

The National Stormwater Calculator shows users how land use decisions and green infrastructure controls affect the amount of stormwater runoff produced. Green infrastructure, such as the street planter and porous pavers shown in the image (1) above, promotes the natural movement of water within an ecosystem or watershed, instead of allowing it to wash into streets and down storm drains as shown in the traditional infrastructure image (2).

These practices allow the stormwater (rainfall) to be used as a resource rather than a waste product. Having less water run off into storm drains and roadways can help prevent contamination of waterways, water infrastructure degradation, flooding, and overwhelming of wastewater treatment plants.



[www.epa.gov/nrmrl/wswrd/wq/models/swc/](http://www.epa.gov/nrmrl/wswrd/wq/models/swc/)

Contact: [SWC@EPA.gov](mailto:SWC@EPA.gov)

## National Stormwater Calculator (SWC)

*A desktop tool that helps users control runoff to promote the natural movement of water*

Stormwater discharges continue to cause impairment of our Nation's waterbodies. Regulations that require the retention and/or treatment of frequent, small storms that dominate runoff volumes and pollutant loads are becoming more common. EPA has developed the National Stormwater Calculator (SWC) to help support local, state, and national stormwater management objectives to reduce runoff through infiltration and retention (i.e., green infrastructure). The primary focus of the SWC is to inform site developers on how well they can meet a desired stormwater retention target with and without the use of green infrastructure. It can also be used by landscapers and homeowners.

The SWC estimates runoff at a site based on available information such as soil type, landscape and land-use information, and weather. This update to SWC will allow users to consider how runoff may vary based both on historical weather and potential future climate. To better inform decisions, it is recommended that the user develop a range of SWC results with various assumptions about model inputs such as percent of impervious surface, soil type, sizing of green infrastructure, as well as historical weather and future climate scenarios. Please check with local authorities about whether and how use of these tools may support local stormwater management goals.

### The SWC is comprised of ten pages:

**Page 1—Location.** This step has an address lookup feature that allows the user to easily navigate to a site selected anywhere within the United States.

**Page 2—Soil Type.** The type of soil on the site is identified and is used to infer infiltration properties. The soil type can be selected based on local knowledge or by retrieving a soil map overlay from the online database.

**Page 3—Soil Drainage.** This step is used to identify how quickly standing water drains into the soil. The user can select the site's soil conductivity based on local knowledge or retrieve it from the online database.

**Page 4—Topography.** Here, the site's surface topography is characterized, as measured by the surface slope. The user can rely on the slope data display as a guide or can use local knowledge to describe the site's topography.

**Page 5—Precipitation.** A National Weather Service rain gauge, which supplies rainfall data for the site, is selected. A long-term rainfall record is used to replicate the full scope of storm events that might occur.

**Page 6—Evaporation.** This step is used to select a nearby weather station that will supply evaporation rates for the site.

**Page 7—Climate Change.** Users can elect to apply different future climate change scenarios that modify the historical precipitation events and evaporation rates normally used by the calculator. These scenarios are based on future outcomes produced by well accepted global circulation models of the earth's weather systems.

**Page 8—Land Cover.** For this step, impervious land cover and the different types of pervious land cover are assigned to the site for the condition the user wants to analyze: pre-development, current, or post-development.

**Page 9—Low Impact Development (LID) Controls.** To help control runoff, seven different LID controls can be selected for use throughout the site. These controls are green infrastructure practices that help the user determine the best way to mimic natural water flow processes to retain rainfall onsite.

**Page 10—Runoff.** A hydrologic analysis of the site is run and the results are displayed for review.