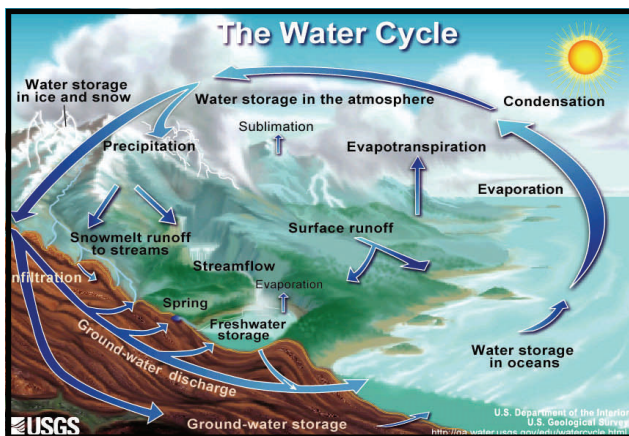


STORMWATER CONSERVATION AND LOW-IMPACT DEVELOPMENT (LID)

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What Is Stormwater?

Stormwater is water that originates from precipitation (rain, sleet, snow or hail). Precipitation and the resultant stormwater are key components of Earth's water cycle (the continuous movement of water on, above, and below the surface of the Earth), and are responsible for depositing the fresh water in surface water bodies and as groundwater in underlying aquifers.



Source: U.S. Geological Survey

What Is Stormwater Conservation?

Stormwater conservation is a type of water conservation, which is generally defined as the protection, development, and efficient management of water for beneficial purposes¹ (such as drinking water supply, irrigation, and industrial uses).

Is Stormwater Conservation Important?

Stormwater conservation is decidedly important, especially in arid Southern California. In this region, stormwater that does not soak into the ground often flows across the land surface to streams and rivers or is channeled into storm drains, eventually being wasted to the ocean. This is considered to be a relatively poor use of the stormwater for two primary reasons. First, the stormwater may pick up undesirable pollutants on its way to the ocean and deposit those pollutants in the ocean near the coast. Second, the stormwater could be put to beneficial use by either capturing it and putting it to direct use, or allowing it to soak into the ground and

replenish the underlying aquifers for later withdrawal by supply wells. Increasing groundwater replenishment through stormwater conservation can reduce the region's dependence on expensive and sometimes unreliable imported water from the Colorado River or Northern California.

How Is Stormwater Conservation Being Done?

The Water Replenishment District of Southern California (WRD) service area includes the Central Groundwater Basin and the West Coast Groundwater Basin (which cover southern Los Angeles County). In this region, most stormwater conservation is done by capturing stormwater at spreading grounds. These spreading grounds consist of large, unlined basins, which resemble shallow quarry pits and are used to infiltrate water into the ground to replenish the underlying aquifers. During storm events, much of the stormwater drains into river



Source: WRD

channels, where the water moves along and is diverted into the spreading grounds. Some stormwater is also stored behind dams (such as Morris Dam along the San Gabriel River above Azusa). The stormwater is released at a later time, when the weather is relatively dry and the downstream spreading grounds can accept the water for infiltration. The dams are owned and operated by either the Los Angeles County Department of Public Works or the U.S. Army Corps of Engineers, who work cooperatively and with other water resource agencies in the region to conserve hundreds of thousands of acre-

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feet (equal to tens of billions of gallons) of stormwater each year using the dams and spreading grounds.²

Could More Stormwater Be Conserved?

Yes. Due to the nature of storm events in this region (infrequent storms, having relatively heavy rainfall over a short time period) and large-scale urbanization (many areas are covered with impervious pavement that does not allow stormwater to soak into the ground), it has been estimated that about 50 percent of precipitation in the region cannot be captured quickly enough by the existing dams and spreading grounds and is wasted to the ocean.³ During large storms, the Los Angeles River alone may lose tens of billions of gallons of stormwater to the ocean.⁴ One promising new approach to increasing stormwater conservation in this region is through Low-Impact Development (LID).

What Is Low-Impact Development (LID)?

Low-Impact Development (LID) is a term used to describe a land use and design method for managing stormwater.⁵ The goal of LID is to capture and infiltrate stormwater while protecting underlying groundwater quality. LID technologies are geared toward installation and use at conventional urban sites such as residences,



Source: Adams County, PA Cooperative Extension Service



Sources: Composters.com; Ziger/Snead Architects, U.S. Army

schools, and commercial properties, which could benefit from local stormwater conservation. Examples of LID technologies include rain barrels, grassy/planted drainage swales, and porous pavement.

How Is LID Being Used?

To explore the potential for increasing stormwater conservation in the region, in 2000 the Los Angeles & San Gabriel Rivers Watershed Council (LASGRWC), a consortium of water resource agencies and environmental organizations (of which WRD is a partner) convened a workgroup of representatives from federal, state, and local agencies to design and implement the Water Augmentation Study, which has included several phases of field pilot tests of LID technologies such as those mentioned above⁶. Data thus far have been encouraging, showing no evidence of harm to groundwater quality from stormwater infiltration. The Elmer Avenue Retrofit Project, the latest phase of the study, retrofitted an entire neighborhood block with LID technologies. The site will be studied for years to come to develop the best practices for stormwater management which protect groundwater quality and improve water supply. Ultimately the results will help to bring LID technologies to widespread use in the region.

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