

# WHAT IS SUSTAINABLE STORMWATER DESIGN?



SOURCE: NEVUE NGAN ASSOCIATES

**Figure 1-2:** The conventional approach to stormwater management is treating rainfall runoff as a waste rather than a resource.



SOURCE: KEVIN ROBERT PERRY - CITY OF PORTLAND

**Figure 1-3:** Sustainable stormwater design strives for a more natural, cost effective, and visible approach to managing runoff.

For much of the last century, drainage systems have been engineered to quickly collect runoff in underground pipes and carry it away using an “out of sight, out of mind” approach. This design philosophy treats rainfall runoff as a waste, and many people are unaware of the stormwater flowing in pipes underneath city streets when it rains.

Sustainable stormwater design treats rainfall runoff as a valuable resource. It is based on balancing urban development while preserving natural hydrological functions. Furthermore, sustainable stormwater design achieves the multiple goals of being cost effective, improving water quality, and addressing community concerns. Mimicking the natural hydrologic function of healthy ecosystems in street and parking lot landscapes can dramatically reduce pollution, decrease runoff volume, reduce runoff temperature, protect aquatic habitat, and create more interesting places to live.

The following pages illustrate how the natural environment functions prior to urban development, the overall effects of creating impervious area, and methods of redesigning urban landscapes to help bring healthy hydrological functions back into our neighborhoods.



SOURCE: NEVUE NGAN ASSOCIATES

**Figure 1-4:** The Sustainable Stormwater Design Model. A balance of economy, ecology, and society.

## SUSTAINABLE STORMWATER DESIGN PRINCIPLES

1. Manage stormwater at the source and on the surface. As soon as rainfall lands on a street or parking lot, allow it to infiltrate into the ground or provide surface flow to nearby landscaping.
2. Use plants and soil to absorb, slow, filter, and cleanse runoff. Let nature do its work.
3. Design stormwater facilities that are simple, cost-effective and enhance community aesthetics. Stormwater facilities can be beautiful!