GOAL 6

Promote Ecological Preservation and Healthy Ecosystems

Snohomish County

SOAP Action Update

Public Works Use of Permeable Pavement

Why permeable pavement?
Permeable pavement is a unique and effective means to address important environmental issues and support green, sustainable growth. Permeable pavement is made of either pervious asphalt or pervious concrete. Both materials resemble conventional asphalt and concrete, but each contain air voids that allow water to pass through the pavement into a reservoir base of crushed aggregate, before infiltrating into the ground. By allowing stormwater to infiltrate into the ground, permeable pavement aids in recharging groundwater, reducing stormwater runoff, and meeting Washington State Department of Ecology stormwater regulations.

The use of permeable pavement is among the Best Management Practices (BMPs) recommended by the U.S. Environmental Protection Agency and other agencies and geotechnical engineers across the country for the management of stormwater runoff on a regional and local basis. Its use results in more efficient land use by decreasing or eliminating the need for detention ponds, vaults, storm drain systems, and other stormwater management measures. In doing so, permeable pavement has the ability to lower overall project costs and reduces the need for additional right-of-way.

Between 2012 and 2014, Snohomish County Public Works has installed approximately 17,300 sq. ft. of permeable pavement in conjunction with county road construction projects, infiltrating and treating up to 630,000 gallons of stormwater.[1] In addition, at least two detention ponds were decreased in size or eliminated due to the use of permeable pavement. The use of permeable pavement is limited to low traffic areas with slopes not exceeding five percent. It is not recommended in native soils with an insufficient infiltration rate, in locations with a high ground water table, or in close proximity to wells, building foundations, or stormwater pollution hotspots (e.g. fueling stations, industrial activities, recycling facilities).

1. Based on 36 inches of precipitation per year flowing to permeable pavement constructed on Snohomish County Public Works projects since 2012.
2. Stone, B., and Norman, J. M. (2006). "Land use planning and surface heat island formation: A parcel-based radiation flux approach." Atmospheric Environment, 40(19), 3561-3573.

environmental goals

Increasing the use of Low Impact Development techniques such as permeable pavement in the county is one example of how we are taking action to achieve our SOAP Goals and Objectives, namely:

- **Goal 6:** Promote Ecological Preservation and Healthy Ecosystems
- **Objective 6S:** Manage county land, facilities and infrastructure in a way that minimizes negative impacts to the natural ecosystem while meeting the functional needs of the site.
- **Objective 6T:** Protect water resources and watersheds from actions that can degrade water quality.
- **Strategy 6(ii):** Use Low Impact Development (LID) best management practices at all county facilities to the greatest extent feasible (new development, maintenance and renovations).
- **Strategy 6(iv):** Identify strategies to reduce the urban heat island effect in the development and maintenance of public infrastructure and facilities.

environmental benefits

Installing permeable pavement . . .

- Eliminates runoff, and reduces erosion and sediment in streams and rivers.
- Traps suspended solids and pollutants.
- Recharges groundwater.
- Reduces surface temperatures and, therefore, the heat island effect.[2]
- Eliminates the need for detention ponds, treatment facilities and storm drain systems.

economic case

Some economic benefits to installing permeable pavement include:

- In winter conditions, it typically requires much less salt or other de-icing products than traditional pavement types.
- Reduces costs for detention ponds, treatment facilities, curbs, gutters, and right-of-way.
- Reduces likelihood of flooding, decreasing damage to infrastructure and private property.
- Lower installation costs (no underground pipes, storm drains, or sloping/grading needed on flat surfaces).
- Low life-cycle costs with an equal life expectancy to that of regular concrete: 20 to 40 years when correctly installed.