

PC-40 POROUS PAVEMENTS

Reference: Denver Urban Drainage and Flood Control District, Volume 3 Criteria Manual.



BMP Objectives

- Perimeter Control
- Slope Protection
- Borrow and Stockpiles
- Drainage Areas
- Sediment Trapping
- Stream Protection
- Temporary Stabilizing
- Permanent Stabilizing

Definition and Purpose

Porous pavement consists of porous asphalt, concrete, lattice pavers, concrete blocks, or stones. The surface material is laid on a gravel subgrade and the surface voids are filled with sand or a sandy loam turf. Stormwater flows percolate through the pavement into the underlying soil. Using this BMP, streets, parking lots, sidewalks, and other impervious surfaces retain infiltration capacity.

Appropriate Applications

- Best used in areas of low traffic volumes and loads.
- Alternate approach is to use grass turf reinforced with plastic rings and filter fabric underlain by gravel.
- Porous pavements function to decrease the effective imperviousness of a project site.
- Most often used in the construction of parking lots for office buildings and shopping centers. Other uses include traffic islands, emergency stopping areas, road shoulders, residential driveways, airport parking aprons, and maintenance roads.
- Structural and functional characteristics of the surfaces they replace are maintained.
- Potential for high particulate pollutant removal.
- Can be used to reduce flooding by infiltrating or slowing down stormwater runoff.
- Lattice pavers, blocks, or stones can enhance site aesthetics.

Limitations

- Suitable sites are generally limited to low traffic areas with a minimum soil infiltration capacity of 0.5 inches/hour.
- Porous pavements should not be used in areas of high contaminant loads such as gas stations, and the proximity of the pavement to groundwater needs to be considered.

Standards and Specifications

- Initial pollutant removal rates are high but decrease as the porous materials become clogged.
- Pavement thickness should be sufficient to protect the subgrade.
- Quality base and subbase materials should be used to support the applied loads.
- Underdrain system can be used if sub-soils cannot adequately infiltrate the expected flows.
- Adjacent unpaved areas should be stabilized to prevent sediment from washing into the porous pavement area.

Maintenance and Inspection

- Conduct inspections as required by the NPDES permit or contract specifications during construction.
- Periodic inspection and maintenance will be required based on post-construction site conditions.
- Make any repairs necessary to ensure the measure is operating properly.
- Careful attention to maintenance is necessary to reduce clogging. Maintenance should include vacuum sweeping and jet hosing.