

RUNOFF VOLUME MINIMIZATION

PERVIOUS PAVEMENT



Grasspave® at Bradshaw Celebration of Life Center - Stillwater, MN

Definition:

Pervious pavements reduce the amount of runoff by allowing water to pass through surfaces that would otherwise be impervious. Water can either infiltrate into the ground, if soil permeability rates allow, or be conveyed to other BMPs or a storm water system by an under-drain.

KEY CONSIDERATIONS

Design Criteria:

- ▶ Pervious pavement is typically used in low traffic areas including overflow parking areas, emergency vehicle lanes, and pedestrian areas.
- ▶ In-situ soils should have field-verified minimum permeability rates greater than 0.3 in./hr. Contributing runoff from offsite should be limited to a 3:1 ratio of impervious area to pervious pavement area.
- ▶ The selected systems load bearing surface should be suited to maximum intended loads.
- ▶ Design storms should be infiltrated within 48 hours.

Benefits:

- ▶ Good for highly impervious areas – particularly parking lots.
- ▶ Reduces need for other storm water BMPs by reducing runoff.
- ▶ Construction costs of some systems are less than traditional paving.
- ▶ Soil-enhanced turf systems resist compaction, increase infiltration, and provide soils for healthier vegetation.

Limitations:

- ▶ Construction costs of some systems are more expensive than traditional paving
- ▶ Use depends on infiltration rates of underlying soils.
- ▶ Maintenance costs are higher than conventional paving.
- ▶ Not recommended for high traffic areas because of durability concerns.

MANAGEMENT SUITABILITY

High/ Med.	Water Quality (V_{wq})
Med.	Channel Protection (V_{cp})
Low	Overbank Flood Protection (V_{P10})
Low	Extreme Flood Protection (V_{P100})
High/ Med.	Recharge Volume (Re_v)

MECHANISMS

X*	Infiltration *with appropriate site conditions
X	Screening/ Filtration
X	Temperature Control
	Settling
	Evaporation
X*	Transpiration *if vegetation present
X	Soil Adsorption
X	Biological/ Micro. Uptake

POLLUTION REMOVAL

NA*	Total Suspended Solids <small>*pretreatment for TSS is recommended if adjacent areas drain to pervious pavement</small>
80%/ 80%	Nutrients - Total Phosphorus/ Total Nitrogen
90%	Metals - Cadmium, Copper, Lead, and Zinc
NA	Pathogens - Coliform, Streptococci, E. Coli
NA	Toxins - Chloride, Hydrocarbons, Pesticides

Note: Pollution removal percentages apply to volume of runoff treated, and not to volume of runoff bypassed

