# Permeable Interlocking Concrete Pavement (PICP) for Stormwater Management

## Benefits and Uses

- **Quantity**, **Pollutant Reduction**, and **Flood Control**
- **Recharges Groundwater**
- **Reduction in Stormwater Infrastructure** (Piping, Catch-Basins, Ponds, Curbing, etc.)
- **Suitable for Cold-Climate Applications**, **Maintains Recharge Capacity When Frozen**
- **No Standing Water or Black Ice Development During Winter Weather Conditions**
- **Maintains Traction While Wet**
- **Reduced Surface Temperatures; Minimizes the Urban Heat Island Effect**
- **Potential for Extended Pavement Life Due to Well Drained Base and Reduced Freeze-Thaw**
- **No curing time – ready for traffic upon installation completion**

## Limitations

- Requires Routine Vacuum Sweeping (Vacuum-Assisted Dry Sweeper Only)
- ICPI Recommends a PICP Installer Technician On-site During Installation
- Proper Soil Stabilization and Erosion Control Required to Prevent Clogging

## Cost & Maintenance

**Total Project Cost** Can Be Comparable for PICP with Reduced Stormwater Infrastructure VS. Standard Pavement Applications where Stormwater Infrastructure is Required

- **Paver Surface and Bedding Cost** is 25-35% More Than Traditional Concrete
- **Long-term Maintenance Required by Routine Vacuum Sweeping**
- **Sweeping Cost May Be Off-set by Possible Reduction in Deicing Costs**
- **Repairs Can be Made in Freezing Temperatures with Reinstated Concrete Paver Units and Aggregate Jointing/Beding Materials**

## Design Criteria

*Source: ICPI*

- **Recommended Soil Permeability** 0.01 - 3.0 In./Hr
- **Recommended Drainage Time** 24-72 Hrs
- **Use Underdrains to Remove Water That Cannot be Infiltrated within Drainage Time**
- **For Parking Lots, Alleys, Low-Use Roadways and Sidewalks**
- **Required Vertical Separation from Seasonal High Groundwater** (1-3 ft. typical)
- **Minimum Surface Infiltration** (New) – 100 In./Hr and **Minimum In-service Infiltration Indicating Vacuum Cleaning** – 10 In./Hr Using ASTM C1781
- **AASHTO Layer Coefficients**: 0.3 for Concrete Pavers and Aggregate Bedding; 0.9 for Base Reservoir; 0.6 for Subbase Reservoir Thicknesses
- **Can use stabilized open-graded bases for heavy traffic**

## TYPICAL CROSS-SECTION

![TYPICAL CROSS-SECTION Diagram](image)

## Additional Resources

- Interlocking Concrete Pavement Institute, *Permeable Interlocking Concrete Pavement* (2011)
- Interlocking Concrete Pavement Institute: [http://www.icpi.org](http://www.icpi.org)