### 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/Bedding Materials**

#### Design Criteria

**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**

<table>
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<th>Concrete Curb</th>
<th>Concrete Pavers</th>
<th>Permeable Joint Material</th>
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<tr>
<td>Open-graded Bedding Course</td>
<td>Open-graded Base Reservoir</td>
<td>Open-graded Subbase Reservoir</td>
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<td>Underdrain (as required)</td>
<td>Geotextile Against Excavated Soil Walls</td>
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#### Additional Resources

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