

Pavements Built for the Future



Main Street
Warrenville, IL

Permeable Interlocking Concrete Pavement

Durable, Sustainable, Attractive

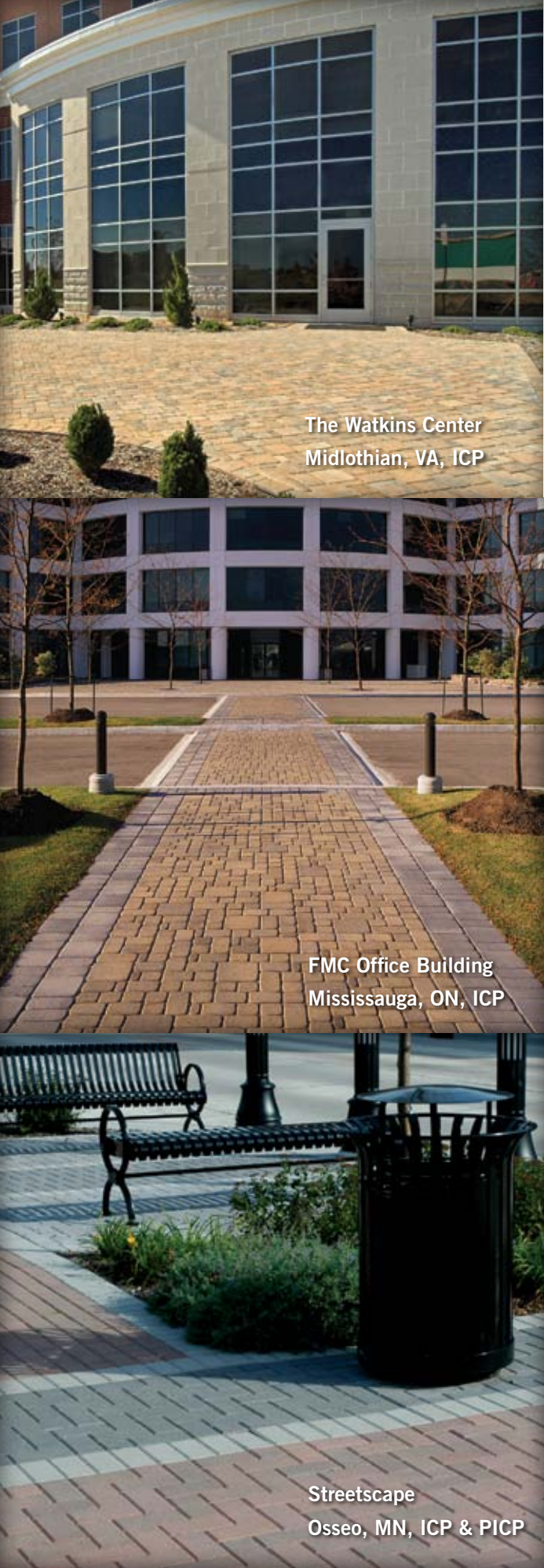
Segmental paving dates back to the Roman Empire. Today's version is made of precast, high-strength concrete paving units. This brochure provides examples among hundreds of municipalities who have used millions of square feet (m²) of segmental concrete pavers as interlocking concrete pavement (ICP) or permeable interlocking concrete pavement (PICP). Municipalities chose concrete pavers for:

- Rapid construction using mechanical installation equipment
- Low maintenance costs
- Fast surface reinstatement after underground utility repairs
- Traffic calming and increased safety
- Upscale visual appeal
- Runoff and pollutant reduction with PICP

Unlike monolithic pavements, concrete pavers are manufactured with specialized equipment in factories that make paving units with close tolerances meeting national specifications. A controlled production environment results in consistent quality and high durability products delivered to the job site. A high level of quality control enables concrete pavers to meet engineering requirements while enhancing the appearance of public and private projects. Like monolithic pavements, design of ICP and PICP considers the sub-grade soils, environment, anticipated traffic and paving materials. Rectangular or dentated shapes are placed in interlocking patterns that provide additional strength and stability under vehicular traffic.

Interlocking Concrete Pavement (ICP) Concrete pavers are compacted into coarse bedding sand, the joints filled with sand and compacted again to interlock. The paving units and bedding sand are placed over an unbound or bound, compacted aggregate base. ICP can be designed to receive heavy traffic from major urban thoroughfares. Designers should follow the American Society of Civil Engineers national standard on ICP structural design (ASCE 58-10).

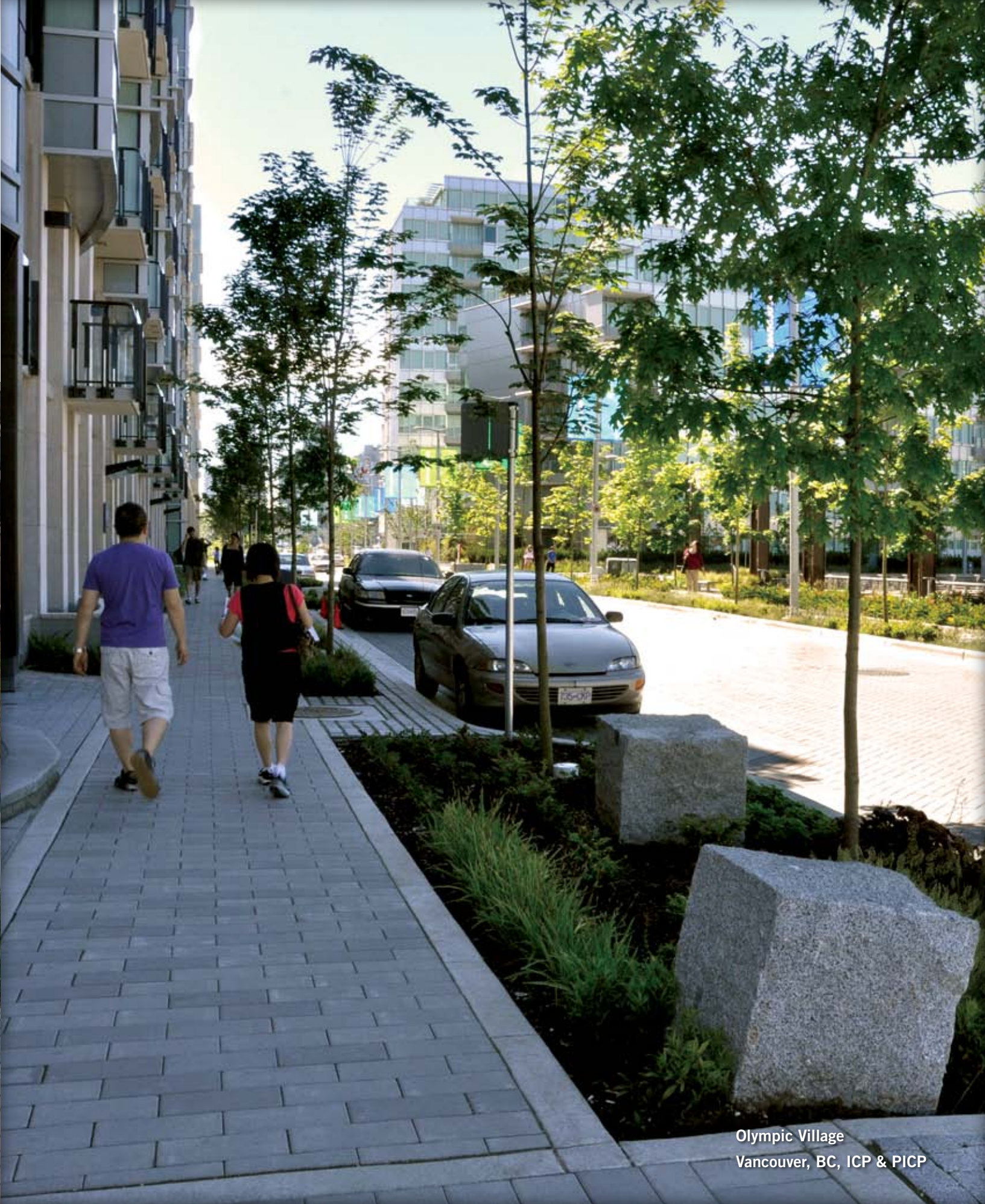
Permeable Interlocking Concrete Pavement (PICP) Intended for stormwater runoff reduction, solid concrete pavers are placed over a bedding course of highly permeable open-aggregate aggregate. The joints are filled with open-graded aggregate making the surface 100% permeable. The pavers and bedding layer are placed over an open-graded base and subbase which create a reservoir for stormwater storage and infiltration. PICP's ability to reduce or eliminate stormwater runoff, even in intense rain events, also reduces pollution. PICP is intended for parking lots and low-volume streets.



The Watkins Center
Midlothian, VA, ICP

FMC Office Building
Mississauga, ON, ICP

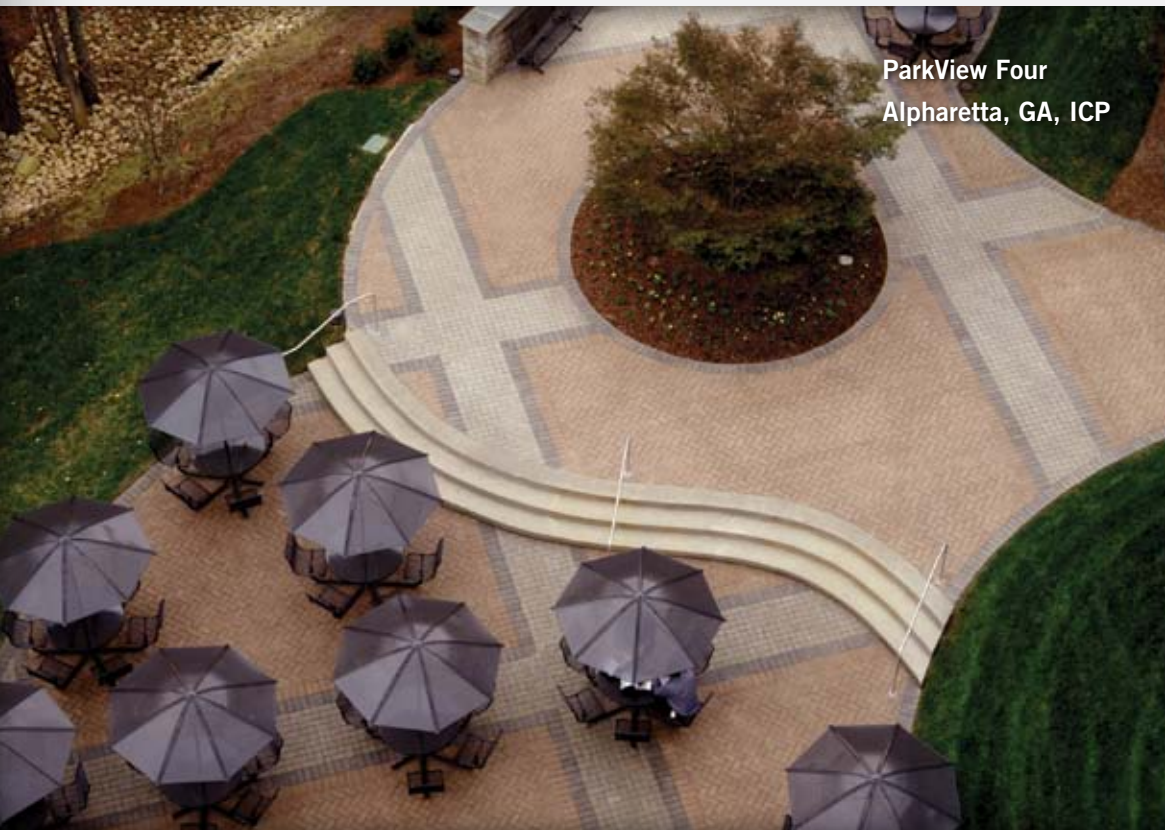
Streetscape
Osseo, MN, ICP & PICP



Olympic Village
Vancouver, BC, ICP & PICP

Municipal Parks

Low maintenance is imperative for municipal parks and ICP or PICP offer this while contributing character. A variety of shapes and colors enhance restful areas or showcase fun places with bold mosaic patterns and supergraphics.



ParkView Four
Alpharetta, GA, ICP



Weber Point
Stockton CA, ICP



Mary Bartelme Park
Chicago, IL, PICP



Goldstream Avenue
Victoria, BC, PICP

Streetscapes & Roadways

Unify the streetscape with ICP or PICP in sidewalks, parking areas and roads. Both pavements accent important places in downtowns or neighborhood business districts by creating distinct visual patterns which can assist in way finding and help calm vehicular traffic. These features help increase pedestrian safety and reduce accidents.



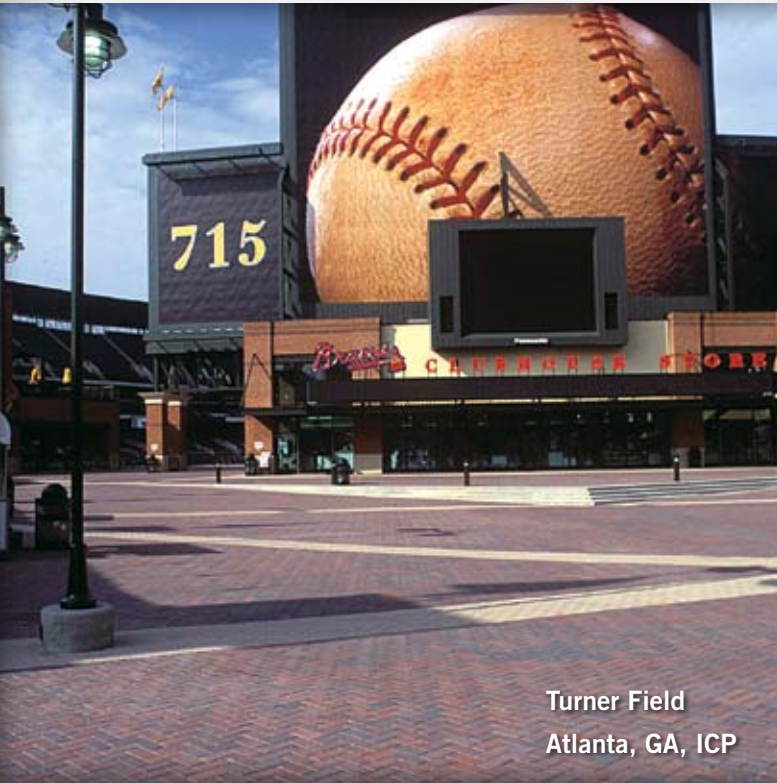
Low speed roadway
Warrenville, IL, PICP



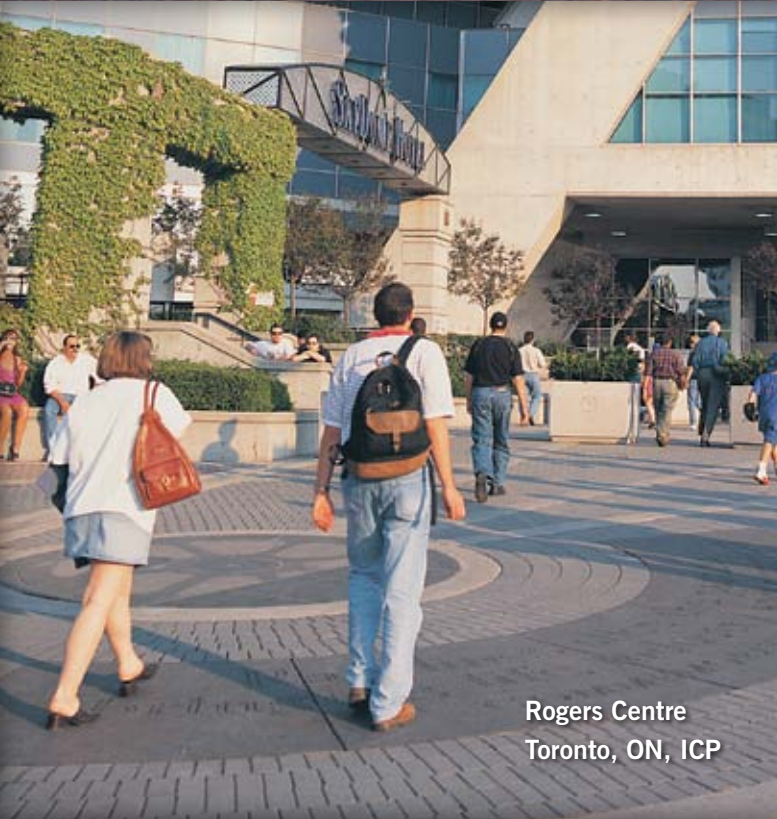
Central Avenue
Osseo, MN, ICP

Civic Centers & Stadiums

Many civic centers and stadiums use concrete pavers as the entry “stage” for sporting events and concerts. Concrete pavers help create a sense of human scale in large plazas and stadium facilities.



Turner Field
Atlanta, GA, ICP



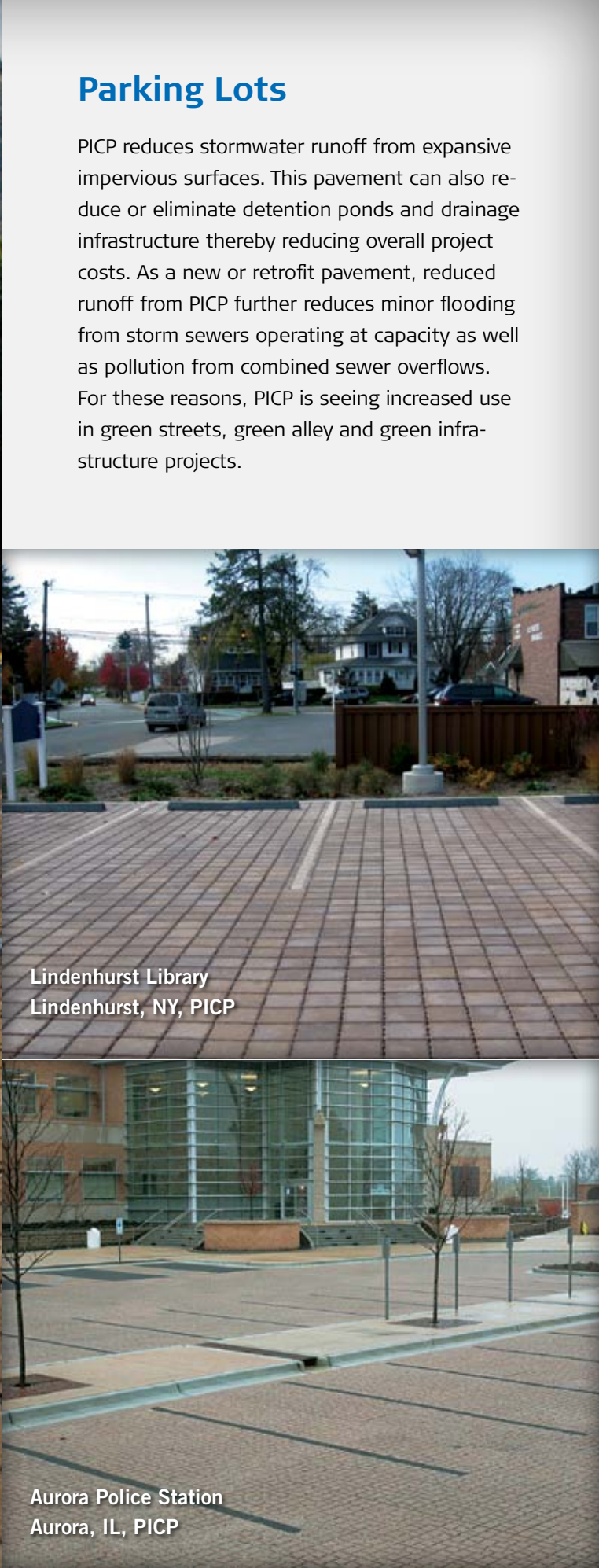
Rogers Centre
Toronto, ON, ICP



White Sox Stadium
Chicago, IL, PICP



Stone Mountain Park
Stone Mountain, GA, PICP



Aurora Police Station
Aurora, IL, PICP



Lindenhurst Library
Lindenhurst, NY, PICP

Parking Lots

PICP reduces stormwater runoff from expansive impervious surfaces. This pavement can also reduce or eliminate detention ponds and drainage infrastructure thereby reducing overall project costs. As a new or retrofit pavement, reduced runoff from PICP further reduces minor flooding from storm sewers operating at capacity as well as pollution from combined sewer overflows. For these reasons, PICP is seeing increased use in green streets, green alley and green infrastructure projects.

Sustainable and ADA Compliant Surfaces

Municipalities evaluate projects for sustainability using LEED® or other evaluation tools. Most plants manufacture PICP and ICP units using local materials, labor and recycled content that reduces energy requirements and their carbon footprint. In addition, PICP offers opportunities for water harvesting for irrigation, as well as meeting runoff and pollution reduction requirements. When properly constructed, ICP and PICP offer surfaces that comply with the design guidelines in the Americans with Disabilities Act (ADA). Paving units can be selected that reduce wheelchair vibrations to less than that from conventional concrete.



Machine-Assisted Installation Decreases Installation Time and Costs

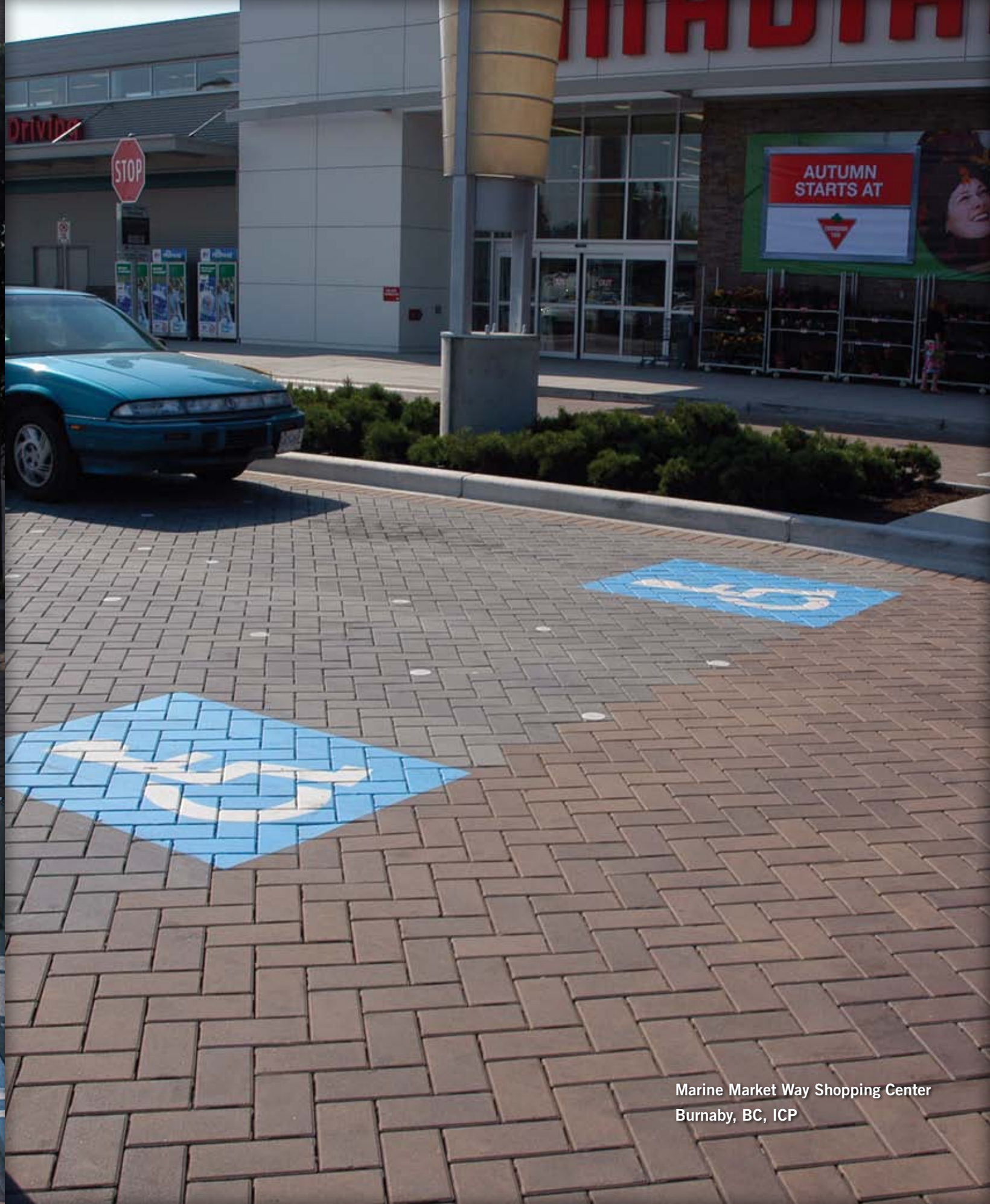
Rather than placing pavers by hand, specialized equipment can place many pavers at once. The units arrive at the site manufactured in the final laying pattern with 35 to 40 pavers in each layer. Mechanized equipment lifts and places a layer every 20 seconds thereby decreasing installation time and costs. After joint filling and compaction, the surface is immediately ready for vehicles. User costs from traffic disruptions are reduced because of rapid opening to traffic, service and emergency vehicles.



Olympic Village
Vancouver, BC, ICP & PICP



ICPs are ADA
compliant



Marine Market Way Shopping Center
Burnaby, BC, ICP

Snoqualmie Fire Station
Snoqualmie, WA
PICP



Segmental Concrete Pavements Provide a Durable Solution

Segmental concrete pavements withstand freezing temperatures, snow plows and deicing materials. They accomplish this by exceeding national product standards that require 8,000 psi (55 MPa) minimum average compressive strength, low water absorption and excellent freeze-thaw durability. These requirements leverage the density and strength of concrete to ensure the longest design life possible. Eliminating re-surfacing costs decreases pavement life-cycle costs. Utility repairs are easier and repaired areas are ready for immediate use without ugly patches.



Freight Delivery Area
Vancouver, WA, ICP



ICPs and PICPs can withstand snow plows



Autumn Trails
Moline, IL, PICP



Glen Brook Green Subdivision
Jordan Cove Watershed
Waterford, CT, PICP



Couch Place
Chicago, IL, PICP

Meet Low Impact Development Goals with PICP

PICP is a best management practice (BMP) for controlling stormwater runoff and conserving water resources by reducing impervious surfaces, allowing for infiltration into soil while reducing pollution and improving water quality.

Many municipalities are developing guidelines and standards for permeable pavements. Municipalities should refer to the ICPI manual, *Permeable Interlocking Concrete Pavements*, for comprehensive coverage on design, specifications, construction and maintenance.

Municipalities are turning to interlocking concrete pavements (ICP) and permeable interlocking concrete pavements (PICP) because they offer lower initial and life cycle costs and provide environmentally sustainable solutions. The Interlocking Concrete Pavement Institute provides resources on ICP and PICP design, construction, and maintenance. These include Tech Spec technical bulletins, guide construction specifications, detail drawings, and design manuals. Municipalities should use contractors with ICPI certification in concrete paver installation, and those who have completed additional training by attending a commercial paver technician course and/or PICP specialist course. For design resources or information on contractors, visit www.icpi.org.

James Madison University
Harrisonburg, VA
Interlocking Concrete Pavement



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