Day Two - Track One
Thursday, March 22nd, 2018
11:30 a.m. – 12:00 p.m.

Maintenance and Winter Operational BMPs for PICP

Presenter: Jennifer Drake, University of Toronto

Biography

Jennifer Drake is a Professional Engineer and Assistant Professor of Civil Engineering, cross-appointed with the John H. Daniels Faculty of Architecture, Landscape and Design. Jennifer is an expert in urban flood management and green infrastructure. Here research group specializes in emerging technologies including green roofs, rain gardens and permeable pavements. When there is flooding in Toronto you're likely to hear or see Dr. Drake speaking on CBCradio, CBCnews, Global TV or CityTV! She is a researcher with the Green Roof Innovation Testing Laboratory (Gritlab) and teaches hydrology and hydraulics, w ater resources engineering and stormwater management. Since 2015 she has served as a member of the board of directors for the Toronto and Region Conservation Authority and is a voting member for the ASCE Permeable Interlocking Concrete Pavement Standards Committee (2013 – 2017).

Abstract

Permeable interlocking concrete pavers (PICP) are a sustainable pavement system that for on-site infiltration and treatmet of stormwater. As an alternative product to traditional asphalt pavements PICP is an important technology that can help reduce urban flooding and pollution. As a pavement and stormwater system PICP requires different operational and maintenance practices than traditional im permeable pavements. This research will investigate the best management practices for two operational scenarios: (1) winter operations and (2) hydraulic rejuvenation. During the winter melted snow and ice on a PICP surface infiltrates to underlying subbase preventing black ice from forming on the surface. As a result, PICP surface will require different (and possibly less) deicing application rates than conventional asphalt. This study will test this hypothesis and determine the type and amount of deicing required for a typical PICP pavement. Over the years a PICP surface loses infiltration capacity as sediments accumulate clogging the pavement surface. Surface rejuvenation practices (e.g. vacuuming and washing) can restore a surface's hydraulic capacity. The second half of this study will test specialized cleaning equipment developed to restore the infiltration capacity of PICP. The goal of this work is to develop customized operational and maintenance best management practices (BMPs) for the PICP industry.

Learning Objectives

1. Equipment options for cleaning clogged PICP;
2. Impact of de-icing practices on surface friction and winter stormwater quality; and
3. Physical characteristics of clogging materials.