

The Board of Governors on July 10, 2009 received this report for INFORMATION; and FURTHER that a copy of said report be sent to the City of Toronto, Works Infrastructure Department for its information.

June 17, 2009

To: The Board of Governors of Exhibition Place
From: Dianne Young, Chief Executive Officer
Subject: **Porous Asphalt Demonstration Project**

FOR INFORMATION ONLY

Summary:

The purpose of this report is to provide an update on the Porous Asphalt demonstration project installed in Parking Lot 3, east of BMO field. Exhibition Place conducted a trial of Duraphalt-Permeable asphalt to ascertain if the technology was suitable to northern climates with extreme surface temperatures associated with Toronto summers and winters. If successful porous asphalt would be a viable option for storm water retention as opposed to releasing rain water into the existing storm water drainage system which put a burden on existing infrastructure. With the system in place for approximately two years, the test appears to have been a success.

Financial Impact:

There are no financial implications to this report.

Decision History:

At its meeting of May 29, 2009, the Board requested a report outlining the results of the demonstration project for porous asphalt in one of the Exhibition Place parking lots.

Issue Background:

This porous asphalt test was originally conducted in an effort to determine the viability of the product in a local environmental application and in partnership with LaFarge North American.

Comments:

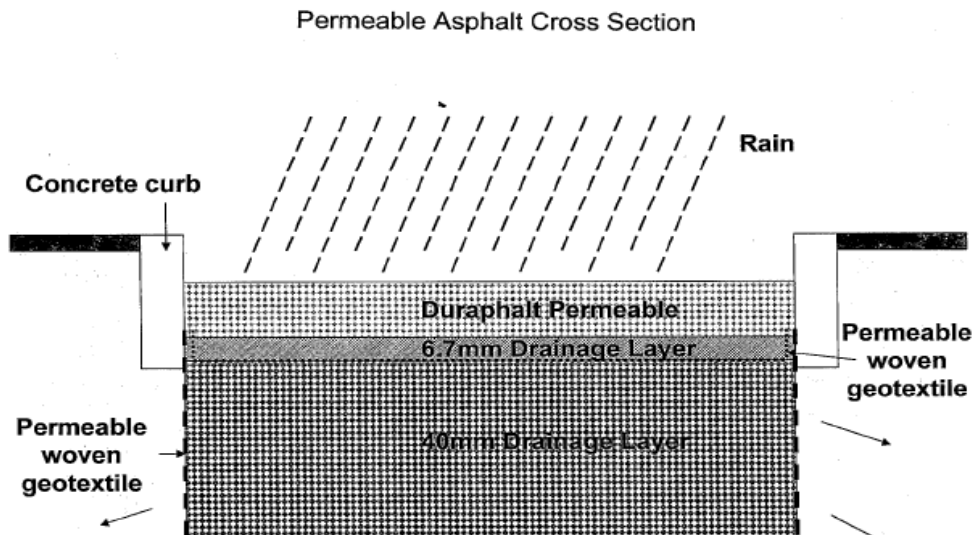
Storm water management in the City of Toronto has been a priority issue for a number of years. Initiatives to deal with the rapid influx of large amount of rain run off from parking lots have ranged from collection ponds, marsh runoff areas to underground storage systems to prevent the release of all the water into the City storm water system putting pressure on its ability to properly deal with the overflow. An option Exhibition Place chose to investigate was the application of porous asphalt.

As part of the BMO Field project the parking lot immediately east of the stadium required resurfacing and LaFarge North American proposed a demonstration project for one of its new porous asphalt called Duraphalt-Permeable asphalt. Through this partnership, LaFarge supplied the Duraphalt-Permeable asphalt at the same price as regular asphalt. Duraphalt-Permeable asphalt consists of a gap-graded asphalt mix with 25% to 30% air voids. The aggregate particle shape and the design of the stone skeleton provide rutting resistance under heavy traffic. Because of the air voids it is permeable, allowing water to pass through the matrix, filter through the sub-bed drainage layer and pass into the surrounding sub-grade area and not into the storm drain system. This is how the test operates during the non freeze seasons. During winter months when the ground is frozen and surface water can not permeate through the asphalt, a valved area drain is opened to allow surface water to enter into the storm water system to prevent ponding.

Prior to the Exhibition Place project most of the performance data was from the south eastern United States and a side walk at Pennsylvania State University. At the time of installation there was a parallel test being conducted on a parking lot surface in Halifax, Nova Scotia. There was

minimal information on how the asphalt would perform in varying surface temperature ranges experienced in the hot Toronto summers and the cold winters while holding up to car traffic. There was no data on the ability of the product to withstand water freezing in its matrix while not breaking down in structure.

A 450 square meter strip in Parking Lot 3, east of BMO field was installed in the Spring 2007 and has been monitored over the past two years and appears to perform to design. No surface water is present during moderate to heavy rainfalls, and there are no obvious signs of damage from frost. The surface of the test asphalt area is not as smooth as the traditional impervious asphalt, but does not pose any difficulty when walking, cycling or pushing strollers. From an operational perspective, there have been no issues with the control valve adjustment done seasonally. The diagram below illustrates the cross section and functionality of the system.



At this time the details of this demonstration project are included within the Environmental tab on the Direct Energy Centre and Exhibition Place websites. As a follow-up to this report, Exhibition Place will be labelling Parking Lot 3 to identify the porous asphalt demonstration site for the public and at the site, have an information board explaining the product. Exhibition Place staff will also communicate both with our partners, LaFarge to see if a more complete assessment document can be crafted and released by the partners.