

**CLIFTON HILL ROADWAY REHABILITATION
NIAGARA FALLS, ONTARIO, CANADA**

Asphalt Pavement Reinforcement

Problem

The Clifton Hill roadway is located in one of the most turistic areas of the City of Niagara Falls, consists of two northbound lanes and two southbound lanes, The road has concrete curbs and gutters, as well as segmented paver pedestrian boulevards and roadway crossings. The existing pavement surface of the subject road section was considered to be in a fair condition with localized areas of high severity distress. Based on pavement investigation report made by EXP, the following distresses and pavement joint deteriorations were observed within the project limits at the time of investigation:

- Throughout reflective cracking with moderate to high severity at the longitudinal and transverse joints in lanes.
- Frequent low to moderate severity transverse cracking.
- Localized deteriorated patching.
- Localized low severity multiple cracking, leading towards alligator cracking.

Tree solutions were considered to perform the roadway rehabilitation:

1. Mill and Overlay.
2. Full-Depth Asphalt Removal, Joint Repairs, and Placement of HMA Overlay.
3. Full-Depth Asphalt Removal, Crack Mitigation, and Placement of HMA Overlay.

Solution

Considering the complexity of rehabilitating composite pavement joints, EXP recommended to completing full depth repairs at all underlying cracks and include the use of a crack mitigating geogrid prior to the asphalt overlay.

The following steps were carried out:

1. Mill 100 mm of the existing pavement.
2. Evaluate the condition of the PCC base. Any localized areas of failed concrete base should be saw cut and removed.
3. Apply tack coat to surface of PCC.
4. Pave HL8 HS HMA to a compacted thickness of 50 mm.
5. Install a layer of MacGrid AR product to mitigate cracking.
6. Pave HL3 HS HMA to a compacted thickness of 50 mm.

MacGrid AR is a biaxial symmetric geogrid designed for asphalt reinforcement. Its fiberglass core provides high strength at low strain, compatible with paving dynamics. The coating and mesh size are tailored to the paving layers' sizes and chemicals for effective performance in this demanding application.

Client: City of Niagara Falls
Designer / Consultant: EXP
Contractor: Brennan Paving Limited
Products used (Qty.)

- MacGrid AR 4,400 m2

Date of construction: 05/2019 - 06/2019

[Google Maps](#)

[Google Earth](#)



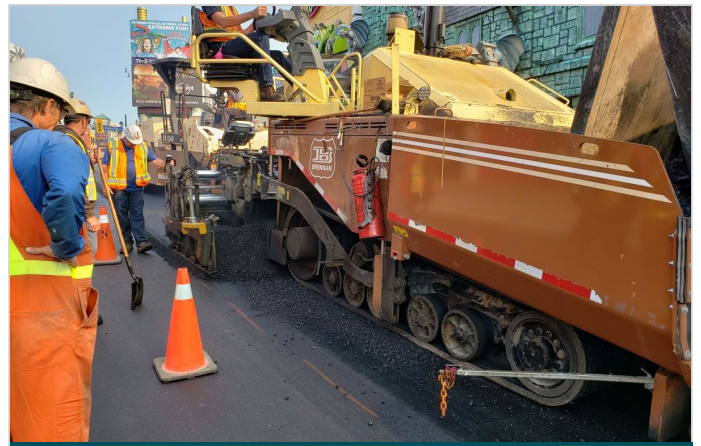
Pavement conditions before rehabilitation



Tack coat application



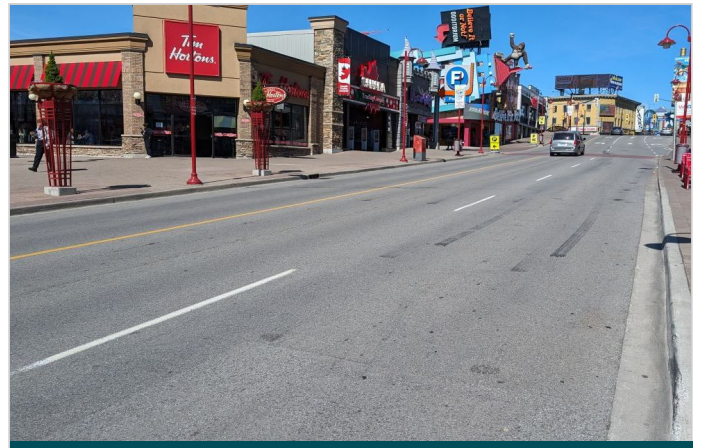
Placement of MacGrid AR



Pavement process



View of roadway partially paved



Roadway conditions after 5 years of rehabilitation