Crack Sealing for Paving Projects

Contracts 2014.01, 2014.03, 2014.08

Sealing transverse and longitudinal cracking in pavement structures prior to placing new pavement has been shown to increase pavement service life. MTA has adopted this practice, starting with the 2013 pavement rehabilitation projects, and Highway Maintenance has been supporting this effort since. For the 2014 contracting year, maintenance crews from various camps have been crack sealing milled pavement surfaces prior to new pavement placement between MM 23.3 and 30.3, MM 102.6 and 109.1, and MM 57.0to 59.5, with a combined total of approximately 2,200 hours man hours invested in supporting these projects.

Left: After milling the pavement surface, crews use a heat lance to remove debris and apply heat to the crack, which helps the crack sealing material adhere to the pavement when applied.

Right: Close up of heat lanced crack.

Left: Filling transverse crack with crack sealing material.

Right: The final step: crack sealing material is forced into the crack with a squeegee and then leveled off, which prevents the crack sealing material from reflecting through the new pavement after it is placed.

Exit 19 Northbound Entering Ramp

Line Striping, Pavement Removal, and Lighting Upgrades.

As part of contract 2013.01 Pavement Rehabilitation, the lane configuration for the Northbound Entering ramp at Exit 19 was converted to a parallel acceleration lane from a long tapered merging lane. Not all of the required site work was included in the contract due to time constraints in the design phase, so York Highway Maintenance staff were called on to complete the project. Crews restriped the traffic lines on the new pavement, removed excess pavement and revegetated these areas, and installed additional street lighting on the ramp.

Left: Nice day to string a line!

Right: Realigned paint lines widen the lane at the curve and bring traffic parallel with mainline traffic more gradually (old lines were located where grey color on pavement is).

Left: With old pavement removed, area is filled to grade with gravel, then loam and seed.

Right: The completed project. New grass growth shows extents of old pavement removed.

MM 89.0 Northbound and Southbound

Culvert End Replacement and Side Slope Flattening

A crossing culvert located at MM 89.0 was identified for repairs during survey work for contract 2013.02 Pavement Rehabilitation. The metal ends were rotted out, and side slope erosion was also an issue. Further, existing guardrail on the southbound needed upgraded crash ends, and the north bound would need a complete new rail installation at an estimated cost of $25,000. Extending the culvert ends on both bounds and flattening the roadway side slopes eliminated the need to invest in the guardrail upgrades, and also eliminated future maintenance cost of the guardrail as well. Roadside safety was also increased with the elimination of guardrail at this location.

Left: Existing site conditions on southbound. Note standing water in ditch line.

Right: Existing site conditions on northbound. Guardrail would have been necessary to shield ditch line running perpendicular to roadway.

Left: Finished site conditions on southbound, with guardrail removed. Side slopes were flattened using excess material from Gardiner Maintenance Camp, which provided additional cost savings for this project.

Right: Finished site conditions on northbound. A 12-inch catch basin outlet pipe was also repaired in this project.

MM FS 0.5 Slope Repair

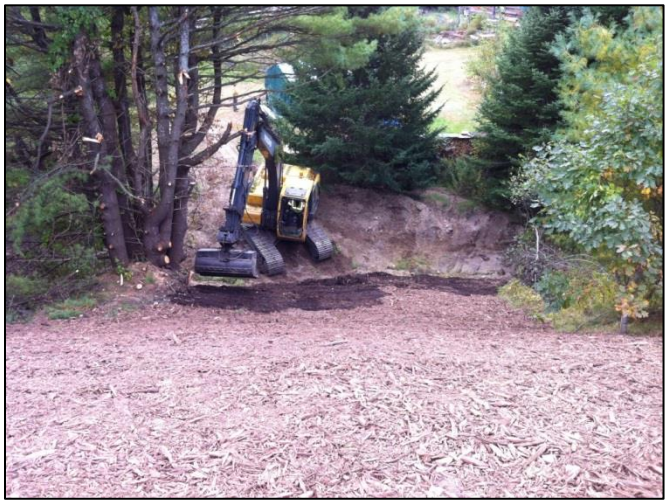
The heavy rains that fell on most sections of the Turnpike on August 13, 2014 caused considerable damage in the Portland area, including a large landslide at MM FS 0.5. The cause of the slide is believed to be saturation of the embankment soil due to thin vegetative cover. After surveying the damage, it was decided that the repair could be accomplished by MTA maintenance crews from the Crosby maintenance camp.

After gaining access to the site from an abutter's property, maintenance crews:

- removed grass and tree debris from the fill material to be reused
- regraded the slope with material that had slid to the bottom of slope
- filled the slope to grade with approximately 150 cubic yards of a higher quality embankment material per MDOT specification
- finished the slope to a 6 inch depth with erosion control material (stump grindings), approximately 60 cubic yards of material
- regraded and lined the drainage way at the toe of slope with erosion control mesh, and
- lined an existing ditch line also affected by the slide with riprap.

Left: Landslide at MM FS 0.5. Some parts of the slope were cut 5 feet deep.

Right: Crews working from top and bottom of slope to import more fill material.



Left: Covering slope with erosion control material.

Right: Completed repair with erosion control material cover on slope and ditch line at toe of slope stablilized.