



Attendees:

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Engineer

October 19, 2015

FIELD REPORT

Porous Concrete Deterioration Check Randolph Park and Ride

References – Randolph P&R Cat II Final Report, SPR 705

OVERVIEW

Date: Monday, October 19th, 2015

Time: 10:00 AM to 11:30 AM

Weather: 41°F, sunny

A site visit was conducted as part of an investigative check. Observations and photos, which depict the condition of the park and ride were collected and can be seen in Figures 1 - 15. Figures 2 – 4 show overall views of the Park and Ride from three different angles. Figure 2 from the southern edge, Figure 3 from a northeastern location near a lane divider and Figure 4 from the northern edge.

The Randolph Park and Ride near the I-89 exit and on ramp is in poor condition. The schematic pictured in Figure 1 and the photos below depict the extent of deterioration on the porous concrete at the Randolph Park and Ride. It was noted that the extent of deterioration ranged from a depth of around ½” to around 7”. Figure 1 outlines the different levels of deterioration throughout the Park and Ride. It can be noted that the major extent of deterioration is occurring in the middle section of Park and Ride. In the middle lane near the northern side of the Park and Ride we found a section that consisted of loose gravel for a depth of approximately 5”-7”. This can be seen in Figure 11. Arriving to this depth means that the porous concrete layer has completely deteriorated and the compacted material beneath the concrete layer has been exposed. Figure 10 clearly shows the extent of porous concrete deterioration adjacent to a patch.

The extant deterioration to the middle section of the middle section of the Park and Ride is most likely due to extensive use of salts and de-icing agents during the winter months. The consistency of the loose gravel, which can be seen in all Figures, shows signs of a decrease in bonding agents and fine aggregates in the porous concrete. This is the most viable theory because in the past several years the northeastern section of the Park and Ride has been closed off during the winter months and has been used to pile snow. The remaining lanes were kept open and de-iced on a regular basis.

We noticed an increase in the size and number of cracks throughout the Park and Ride. The size increase is most likely due to freeze/thaw, but were likely initiated by insufficient compaction of the subsoil. The cracks can be seen in Figure 12.

Park and Ride Deterioration Schematic

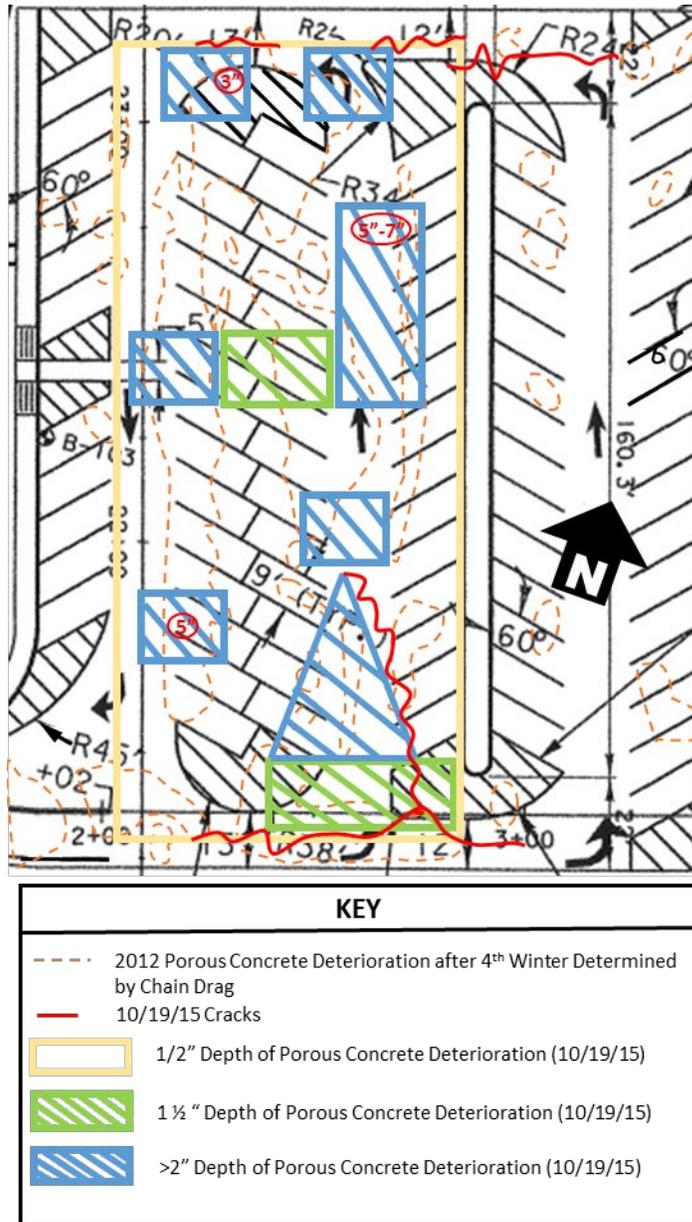


Figure 1: Deterioration Schematic.

Park and Ride Porous Concrete Deterioration Photos



Figure 2: Overall View of Randolph Park and Ride, South Side.



Figure 3: View of Randolph Park and Ride from Divider on East Side.



Figure 4: View of Randolph Park and Ride from North Side.

Photos of Deterioration on Southern Section Around Previous Patch



Figure 5: Loose Gravel. A Product of Deterioration of the Porous Concrete.



Figure 6: Close-up of and Depth of Deterioration.



Figure 7: Loose Gravel and Deterioration Near Patch.



Figure 8: Close-up of Deterioration Near Patch.



Figure 9: Depth of Deterioration Near Patch.



Figure 10: Close-up of Deterioration Near Patch.

Photos of Extensive Deterioration in Middle Lane of Park and Ride



Figure 11: Depth of Deterioration Near Divider on Northern Side.



Figure 12: Close-up of Crack Near Divider on Northeastern Section of Park and Ride.



Figure 13: Extent of Deterioration Near the Middle Lane on Northern Side.



Figure 14: Extent of Deterioration Near a Drain in the Middle of Park and Ride.



Figure 15: Extent Loose Gravel in Middle Lane of Park and Ride Due to the Deterioration of the Porous Concrete