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**OPERA Project: Stabilization of Full Depth Reclamation**

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**Problem:** A four mile stretch of road had an existing surface consisting primarily of block cracking and other weather related distresses. Load related distresses were minimal. Sufficient structure existed to obtain a 9-ton capacity however it is always good to increase load capacities when possible. The challenge was to rehab the surface and possibly increase the load capacity.

When rehabilitating the surface of a road funds are often not available for full surface replacement or reconstruction. Agencies often conduct Full Depth Reclamation (FDR) of the existing bituminous into the existing Base. When there is insufficient bituminous and base the agency is presented with the need to add more material or find a way to strengthen the existing material. This can often be a problem when road widths limit the ability to increase its profile. A common practice has been to inject into the base some type of bituminous emulsion at a substantial cost.

**Solution:** A silica based soil stabilizer produced by Team Laboratory Chemical Corp. has been used successfully to stabilize aggregate roads in Dodge County as well as other counties in Minnesota at a relatively low cost. With this success Dodge County decided to test the soil stabilizer to see if it would noticeably increase the strength of a FDR project blending bituminous and aggregate.

**Procedure:** A four mile project along the Dodge and Goodhue County line was reconditioned using FDR processes. The existing structure was consistent with 3.5 inches of 15 year old bituminous over 15 inches aggregate base. FDR was conducted to a depth of 5.5 inches throughout the project followed with a 4 inch overlay. Prior to paving the reclaimed surface we windrowed the west two miles with graders and blended the FDR material with 660 gallons of Base One mixed with a sufficient amount of water.

The project encountered a problem when shortly after the blending process the site received a five inch...
rainfall. Five days after the rains, paving began on the east end. By the time paving operations reached the stabilized section it was apparent the base materials along much of the project were not sufficiently dry enough and sections of new pavement were failing under the loads of the bituminous trucks. The contractor did not pave the stabilized section. Paving was delayed for 4 1/2 weeks allowing the base materials to dry. Repairs were conducted for the distressed areas of the control section and the stabilized section was then paved and the entire project received the final lift of bituminous.

**Results:** A visual inspection of the test section and control section show no noticeable difference. Both sections are performing well.

Sixteen months after completion of the project both sections received deflection testing with a Falling Weight Deflectometer operated by Braun Intertec out of Eden Prairie. Deflection testing indicated only slight variations along the test section and control section with a slightly lower Granular Equivalent within the test section. Testing was conducted in November and the variations in testing may be attributed to late season effects. Stabilizing only 5.5 inches of an 18.5 inch base appears inadequate to provide a noticeable benefit to strength. At this time it appears that no benefit was achieved by adding a silica based stabilizer to 5.5 inches of reclaimed bituminous.

**Approximate Cost:** The addition of Base One and the cost of applying added approximately $0.35/ sq yd

**Implementation:** Visual monitoring of the test section will continue to determine if any long term durability of the stabilized material is realized.

**Status:** Completed