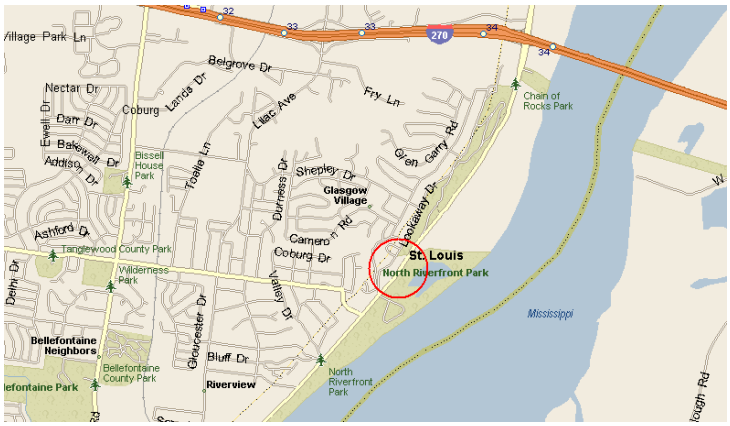
Extreme Road Repair

Across the State of Missouri, UPM® Permanent Pavement Repair Material has demonstrated positive performance in multiple applications. Following is the most recent application within the St. Louis area. The demonstration located at 10282 Riverview Dr. in St. Louis, MO is a known problem area. The local maintenance district was interested in using UPM due to recent successes.



Prior to installing UPM, the site required re-repair about every 10 days. The labor and equipment commitment to this single location was excessive, negativity affecting the maintenance budget. This site was especially challenging because the roadway is subjected to an unusual combination of surface water and water permeating up through the road material due to hydrostatic pressure. The road is located at the base of a hill where the water flows, through the hillside on the left, and onto and under the roadway. The roadway is constantly wet. The photo shows water running down the side of the road to a catch basin north of the repair site.

In addition to the water problem, Riverview Drive is also subjected to high traffic volumes and heavy trucks. The route provides easy access for the neighborhood and nearby warehousing and distribution centers to I-270.

The constant water flow caused the HMA and locally available cold mixes to prematurely fail frequently.

The following picture shows road condition prior to installing the UPM. The photo shows the original pavement failed, as well as, several attempted repairs.

On November 28, 2012, MoDOT personnel from the Bellefontaine and St. Charles Maintenance Sheds mobilized to repair this site with UPM. The Bellefontaine maintenance crew has been successfully using UPM for last 2 years and as this section of road had failed every material to date, it was the ideal location to demonstrate the UPM performance.

This extreme site demanded a solution; the constant re-repairs were not an acceptable resolution. MoDOT needed to resolve this re-repair problem and free-up resources for other maintenance activities.

After setting up a work zone, the area was marked. Using a milling head mounted to a skid steer loader, 1-1/2 to 2 inches was milled from the road surface.

The loose millings were removed.

Sections of hotmix were left in place to use as a control material and to compare performance to UPM. Looking closely you can see the water seeping up through the HMA into the recently milled areas.

The UPM design differs from other cold repair materials. Innitially developed in 1959, the UPM design criteria focuses on maximum survivability with a robust QC program to maintain target performance. As the original High Performance Repair Material and most tested throughout the US, UPM is recognized throughout the industry as the performance bench mark. Other cold applied repair materials focus on price or available aggregate and cutback, omitting the design process. Each UPM production is managed like an HMA production; all parameters affecting surviviability are tightly controlled. Using a pre-qualified aggregate, UPM was produced following a custom recipe at the NB West Contracting location, the local authorized producer in the St. Louis area. This is the material used in the repair. It was shoveled off the truck and raked to a uniform height before compacting the mix.

During the compaction process water from under the road surface was forced out of the repair. Compaction was accomplished using a commerical vibratory plate compactor shown below.

The area was dusted with available road dust and sand to blend the repair into the surrounding road.

The above repair was completed on November 28, 2012 and re-opened to traffic within hours. .

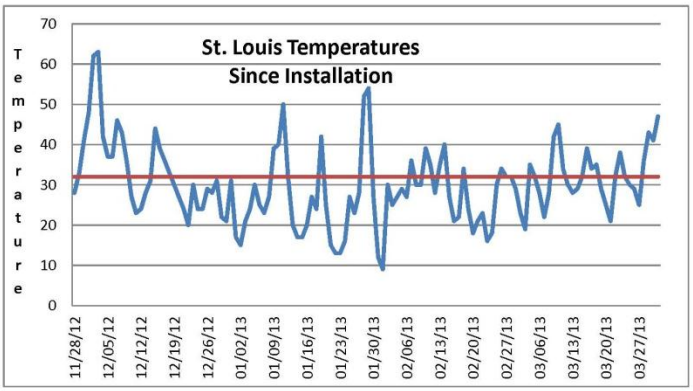
Monitoring challenging repairs is part of the UNIQUE follow-up QC program to verify performance. The condition of repair material after 3 weeks, shows no sign of material loss, raveling or pushing. The repaired area remains wet,but the UPM repair is intact. No sign of ravelling, dishing, lost material or stress.

The above photo is repair site at 7 weeks after installation. The UPM repair remains rock solid. Again, no sign of raveling, dishing, loss of material or stress.

After 11 weeks, UPM is performing as above expectations with no sign of raveling, dishing, and loss of material or stress even with the presence of constant water.

What effect did the weather have on the UPM in the repair? Since the installation St. Louis

had several freeze thaw cycles in the 77 days with temperatures below freezing. This also included 30 days of snow as well as 30 days of rain. Without any affect, on the repair.



Rick Schneider, Maintenance Superintendent for the Bellefontaine Maintenance shed for the Missouri Department of Transportation said: ***"MoDOT considers this area to be the greatest problem pavement in the greater St. Louis area. The repair with this product has lasted longer than others used previously in this location."***

Summary:

UPM exceeded performance expectations again. The successful performance of UPM met the MoDOT expectations by eliminating re-repairs. The permanent repair solution frees resources for other maintenance projects. In addition, the availability of a year round ready to use a premium permanent road material, it creates a high value repair option for use throughout the state.

From left to right front row: Cindy Riggins, Phil Ruffus, Bill Miller, Mella Keller, Danny Cronin, Rick Schneider, Colleen West-Holtmeyer, back row: Gary Brangenberg, , Caleb Foster, Terry Talley, and Steve Cole.

Participants:

From: MoDOT
Rick Schneider, Maintenance Superintendent
Phil Rufus, Pavement Specialist
Danny Cronin, Maintenance Supervisor
Christine Hannar, Maintenance Supervisor

From: NB West Contracting Co.
Colleen West-Holtmeyer

From: Unique Paving Materials
Cindy Riggins, Account Executive
William Stull, Technical Products Manager