

## CLINTON COUNTY SOLVES ROAD RAVELING

### PROBLEMS WITH NEW RESTORATIVE SEAL APPROACH

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Clinton County, Ill., has lowered costs and added flexibility to its highway maintenance and repair program with an approach to road restoration that is, to our knowledge, totally innovative east of the Mississippi.

It involves the use of an easily applied restorative seal on raveled pavements at big cost savings over conventional methods. The sealing agent augments the use of a preservative seal in surface treatment programs.

The idea of using a single-component restorative seal on raveling originated in the west. Results and ease of application suggested that the "western experiment" would work for Clinton County.

Working with Lou Akers, president of CAM Construction, Alton, Ill. contractor, we adapted a specialized single-component asphaltic emulsion crack filler to this new and broader technique.

The CRF® emulsion, used with great success for five years as a crack filler, had the unique properties required for a restorative seal. The material, manufactured by Witco Chemical's Golden Bear Division, Los Angeles, had performed differently than ordinary emulsions. It penetrated fine cracks and soil permitting dirt to remain in the crack during filling. In fact, it became part of the system due to the material's ability to penetrate the dirt thoroughly.

The crack filler even made roadway dust an ally, too. Dust at the sides of cracks had proved to be a barrier when used with hot asphalts and other types of fillers. Here, it actually helped to fill in the cracks.

The small crew required for the work covered the filled cracks with sand, then turned the lane over to traffic, which did the rest, working the sand into the cracks. The sand also helped in the curing process by creating a "binder" effect. Also important, the filler did not pick up on tires. In this way, we eliminated labor- and energy-intensive methods of doing the work, inexpensively filling cracks in 30 of our 60 miles of bituminous concrete roads. The balance is now being filled, mostly part time.

#### Short step to sealing

Meanwhile, from this proven use of the material, it was a short step to using it in the repair of raveled and deteriorated bituminous concrete roads.

Of course, application techniques had to be varied. Raveling is not merely another kind of crack problem. Generally, it is the result of failure of the bituminous material in the bituminous concrete surface. Therefore, we had to adapt methods used in our surface treatment program to this sophisticated use of a crack filler. It could no longer be applied by county crews of four to five people via pouring pots.

But fortunately, we had a good precedent.

For five years, we had also been using Witco's Reclamite® preservative seal for preventive maintenance on various roads to extend their life an additional three to five years.

So, CAM Construction adapted its spreader truck method of applying the Reclamite seal to the application of CRF as a restorative seal.

In this manner, an entire lane of raveled asphalt could be covered with CRF seal in a short time. The application was followed, as before, by sanding--this time from a truck rather than by shovels. The sand replaced fines lost through aging, restoring surface texture to the road.

This solution to raveling problems promises to be as effective as our use of Reclamite preservative seal for preventive maintenance.

Preservative seal

The Reclamite seal experience began in September of 1980 when two miles of a southbound lane in a two-lane highway received an experimental treatment. CAM Construction treated the southbound lane with 0.10 gallon per square yard of the agent diluted 2:1 with water (two parts agent to one part water). The northbound lane was left untreated.

That section of roadway (see photo # 5) provides a dramatic contrast in surfaces and strong evidence of the value of preventive maintenance. The treated lane is still a reasonably good lane of pavement. The untreated lane is almost gone.

These and similar results prompted the Clinton County Highway Department to proceed with this form of early surface treatment. Several other highway departments in Southern Illinois, which have viewed the contrasting pavements on that two miles of surface, have followed suit.

We will be continuing our treatment with Reclamite preservative seal for preventive maintenance. And where roads are raveled or alligatored and thus require more than surface treatment, we will simply shift to CRF restorative seal, also diluted 2:1 with water, followed by two to three pounds of sand per square yard.

For literally pennies per square yard, we have added three to five years to pavement life. And when raveling appears again, another application of CRF gains us another three to five years. At least, that is our present expectation.

Peter D. Rankin  
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## CAPTIONS

1. CRF® RESTORATIVE SEAL is applied at rates varying from 0.2-0.3 gallons per square yard, depending on degree of alligating and number of voids to be filled.
2. SANDING FOLLOWS application of CRF restorative seal. Sand is applied at average rate of 30 tons of sand per two-lane mile, depending on number of voids in road.
3. DRAG BROOM disperses sand, working it into the voids filled with CRF restorative seal. Series of sweep brooms, five-feet wide, fill all voids and cracks with sand so they become part of the new surface system. Road can then be turned over immediately to traffic. CAM Construction averages three-to-four miles of two-lane highway per day.
4. CRF TREATMENT on right lane two weeks after reopened to traffic shows even textured, smooth, like-new roadway with appearance of asphalt. Left-hand lane will be done later.
5. DRAMATIC CONTRAST in surfaces shows benefit of preventive maintenance with Reclamite preservative seal on this Clinton County test mile. Treated lane is still a reasonably good lane of pavement. Untreated lane is almost a complete breakaway.