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Road Ready

Pavement protection can prevent potholes—and save money

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Roadway Micro-Surfacing

Timely action can provide a bigger bang for your bucks

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Bergen County

Roadway repair and maintenance is a never ending problem. Many roadways in the northern New Jersey counties are showing their age after nearly 100 years of use. And, as a result of our high traffic volume and harsh winters, the roadways are showing more deterioration than usual. All of these factors combined with rising costs, are making it more difficult to keep up with repairs and replacement. Since most municipalities have a realistic limit to road program funding, they can't afford to continually perform full milling and paving on every street. There are just too many roadways and the process is too costly, so we decided to investigate alternatives to just filling potholes and sealing cracks. What we discovered was a procedure called micro-surfacing.

At first we were skeptical, because micro-surfacing (or micro-paving) seemed too good to be true. Our Borough Engineer, Maser Consulting's Andrew Hipolit, P.E., had worked with Summit DPW Superintendent Paul Cascais and also New Providence DPW Superintendent Jim Johnston to integrate micro-surfacing into their maintenance plans for about 10 years. We decided to try it in our towns, Tenafly and Montvale. After testing this product on a few roadways, we felt it was worthwhile. We've since used it on about 20 roadways between our two towns.

What is Micro-surfacing? Micro-surfacing is the process of applying a thin asphalt coating that adheres to the existing roadway surface. Unlike driveway sealer which has no thickness, micro-surfacing is emulsified asphalt with a ¼" lift, or thickness. Sealing the road in this manner helps prevent water and frost from penetrating through the pavement surface where freeze and thaw causes damage to the road. This process enables the road surface to withstand significant temperature variations.

> Micro-surfacing can significantly forestall the need for milling and paving.

Once the condition of a roadway has deteriorated beyond 30 percent from its original surface condition it is no longer manageable and needs to be milled and paved or reconstructed. However the good news is that, if micro-surfacing can be performed before the road surface reaches that 30 percent benchmark, it can significantly forestall the need for milling and paving. Having the ability to apply a more cost effective method of saving the road surfaces, within the bounds of this percentage of degradation, provides an option we didn't have previously. Significantly reducing the need for milling and paving can save a community from issuing additional bonding and incurring more debt.

Costs Performing a full milling and re-paving process to an average suburban municipal roadway costs about $250,000 and lasts between 10 and 20 years. Micro-surfacing the same

Micro-surface asphalt slurry being applied

Micro-surfacing application begins after roadway sweeping.

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road costs about $20,000 and lasts five to eight years. Being pro-active and adding micro-surfacing to your maintenance schedule (pothole repair and crack sealing), enables you to address as many streets as possible, and can buy you desperately needed time between more costly milling and paving.

The average cost of milling and paving roads costs about $13/sq. yd. Micro-surfacing costs about $3/sq. yard and includes patching potholes and sealing cracks. Think of it this way, you could micro-pave the same roads three times for about a quarter of the cost of one mill and pave, over the same period of time. With numbers like that, how can you not afford to take advantage?

Integrating this method into your roadway maintenance plan will help you to control costs.

How to Proceed Montvale DPW Superintendent, Rich Campanelli and the borough engineer performed a Pavement Management Study to evaluate the condition of every road. In Tenafly, Robert Culvert, the Director of Public Works and Parks Department and the Borough engineer performed the same kind of study for paving inspection and repair. In both boroughs, once the roadway conditions were identified, they determined which roads meet the criteria for micro-surfacing, other types of patching or full milling and paving and develop cost estimates for presentation to council. This evaluation and process can also be extended to public parking lots and walkways.

While micro-surfacing isn't an end-all fix to roadway maintenance, it can significantly extend the life of a road surface if applied at the right stage of deterioration. Integrating this method into your roadway maintenance plan will extend the life of your roads while helping you to control costs.