



BOROUGH OF
NEW PROVIDENCE
SETTLED IN 1720

Micro-Surfacing

Again this year, the Borough of New Providence will continue our program of micro-surfacing various roadways in New Providence to preserve the roadways from deterioration and avoid costly repair or repaving work. Micro-surfacing allows the Department of Public Works to maintain the roads without the need to completely mill and resurface the roadways.



Micro-surfacing prevents deterioration of the road surface, preventing cracks and potholes as depicted above.

The goal of Micro-Surfacing is to perform preventive maintenance increasing the effective life of the roadways. Accordingly, the borough is able to maintain more streets at lower cost than traditional paving.



Traditional Paving Milling and Paving Operations

History of Micro-Surfacing

Micro-surfacing was pioneered in Germany in the late 1960's and early 1970's. German scientists began experimenting with conventional slurry to find a way to use it in thicker

applications which could be applied in narrow courses for wheel ruts - and not destroy the expensive road striping lines on the autobahns.

When the scientists used highly selected aggregates and bitumen, and then incorporated special polymers and emulsifiers that allowed the product to remain stable even when applied in multi-stone thickness, the result was Micro-surfacing. Micro-surfacing, a cold mix technology, is a cost-effective alternative to hot mix technology. The conventional bituminous hot mix technologies adopted in road construction and maintenance require high energy inputs, from quarrying of stones to the final laying and compacting of the mix, besides creating environmental pollution. The cold mix technologies, on the other hand, use environment-friendly materials and techniques involving use of bitumen emulsion, which can provide effective, energy efficient and long lasting solutions. Because of its quick-traffic properties, Micro-surfacing can be applied in a broad range of temperatures and weather conditions, effectively lengthening the paving season. The surface is initially dark brown in color and changes to the finished black surface as the water is chemically ejected and the surface cures, permitting traffic within one hour in most cases.

Introduced in the United States in 1980, Micro-surfacing now is recognized not only as the most cost-effective way to treat the surface wheel-rutting problem, but also a variety of other road surface problems. Micro-surfacing is now used throughout Europe, the United States, and Australia, and is making inroads into many other areas.

What is Micro-Surfacing?

Micro-Surfacing is a polymer modified cold-mix paving system that can remedy a broad range of problems on today's streets, highways, and airfields.

Micro-Surfacing begins as a mixture of dense-graded aggregate, asphalt emulsion, water, and mineral fillers. While conventional slurry seal is used around the world as an economical treatment for sealing and extending the service of both urban and rural roads, Micro-surfacing has many added capabilities, thanks to the use of high-quality, carefully monitored materials, including advanced polymers and other modern additives.



Micro-Surfacing Operation

Advantages of Micro-Surfacing

Even the best of surfaces are subject to the wear and tear caused by time, weather ultraviolet radiation, and traffic. No surface is permanent, but by undertaking a program of planned pavement maintenance, major savings in rehabilitation costs may be achieved.

The application of the proper micro-surfacing system, which has been in use in the USA for more than 20 years, will significantly extend the life of existing pavements by protecting the undersurface from damage caused by water seepage and oxidation. Improved surface performance is also achieved.

In addition Micro-surfacing:

- Prevents deterioration caused by ultraviolet light.
- Prevents water penetration.
- Prevents sub-base failure.
- Can be used in high and low volume applications.
- Provides a water tight surface.
- Is user friendly to bikes, skateboards, pedestrians
- Eliminates the need to work beyond the curb.
- Eliminates post project operations, loose stone.
- Is esthetically pleasing.
- Does not result in changing grade or adding thickness.
- Eliminates need to raise iron or steel castings.
- Has a six to nine year life span.
- Micro-Surfacing creates a new, stable surface that is resistant to rutting and shoving in summer and to cracking in winter.
- Costs approximately 20% of conventional paving.

It is important to know that the Micro-Surfacing will not result in the same smooth finish as a road that has been milled and repaved. Because of the nature of the material, the surface appears somewhat rough and uneven immediately following the product application. The product smoothes as traffic uses the roadway, resulting in a solid, stable road surface.

For questions or additional information, contact James Johnston, Department of Public Works Manager at 908-665-1076.