NCDOT Pavement Preservation Bulletin

In This Issue

- What is it?
- Cost and Life Expectancy
- +/- of Microsurfacing
- Road Prep
- The Emulsion and The Aggregate
- Rut Filling

Resources

Click on the icons or text below to view each resource.

- FWHA Microsurfacing Checklist
- ISSA Design & Inspection Manual
- Current Special Provision: Microsurfacing SPI 6-18

Microsurfacing

What is it?

Pavement Preservation Treatment that is a mixture of emulsion, water, aggregate, mineral filler, and cement.

It is a thin surface treatment: a single lift is 0.1”- 0.4”, when applied at a rate of 15-25 lbs./yd^2.

Cost and Life Expectancy

Estimated Unit Cost:
$3.50-$5.50 per square yard on 2021 let contracts

Life Expectancy:
5-7 years, provided the existing pavement is in fair or better condition.

Microsurfacing Paved in 2022:
922,000 square yards in NC. (Type III)

+/- of Microsurfacing

Pros

- Skid Resistance
- Quick Curing, open to traffic in about an hour
- Self-compacting, rolling not required
- Dark, smooth appearance

Cons

- If cracking is not addressed before Microsurfacing, cracks may reflect quickly, and the pavement may be susceptible to water penetration
- More expensive than chip seals, but comparable to thin lifts of HMA

Microsurfacing Texture at Time of Placement

One Day After Placement

One Year of Heavy Traffic

Quarter 1, 2023

The Emulsion and The Aggregate

Emulsion: In NC, CQS-1hLM.
(Cationic, Quick-Set, lower viscosity, Harder base, Latex Modified)

Aggregate: Type II and Type III

Type II is used on parking lots, low volume routes, and modest resurfacing.

Type III (predominately used in NC) is used on higher volume routes, minor reprofiling, rut filling, and surface texture enhancement.

Type II and **Type III** gradations can be found in the Microsurfacing SPI.

*Microsurfacing Mix Designs must be submitted by the contractor to Tony Collins, Asphalt Materials Design Engineer, to be approved before paving.

Microsurfacing on US 74 in Scotland County; paved in Fall of 2021

Rut Filling

On roads where rutting is an issue, as the rut is stabilized, Microsurfacing can be a useful remedy. With the use of a rut filling box, Microsurfacing can correct ruts up to 2 inches in depth. This can be done without milling.

Once the ruts are filled, a single pass is made over the entire lane width for uniformity and rideability. (If a rut is still working downwards, Microsurfacing may not be a suitable treatment.)

Microsurfacing Treatment
(Note: This is a Continuous Paving Operation as opposed to Truck Mounted)

Road Prep

- Crack Sealant may be applied, and is recommended for cracks larger than ¼”
- A Chip Seal may be applied before Microsurfacing (this combination is referred to as a Cape Seal)
- Excessive deviations in the pavement profile should be leveled before Microsurfacing
- Grass, debris, thermoplastic markings, raised and stuck-on markings should be removed before Microsurfacing
- Snow plowable markers must be popped out and patched before Microsurfacing

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