MICROSURFACING

A thin mixture of aggregate, mineral filler, cement, and polymer-modified emulsion.

Microsurfacing is a surface treatment that is much like a slurry seal, but the emulsion used in the mix is polymer-modified and the mixture is typically stiffer, allowing it to be placed at a thickness of 2 to 3 times the largest aggregate size or in multiple lifts. Due to the added thickness and stiffness, microsurfacing can be used as a leveling course and to correct rutting. It can also be opened to traffic within a couple of hours, depending on additives. Microsurfacing has proven to be successful in preserving aging pavements by correcting surface deficiencies, sealing minor cracks, and providing an impermeable surface, but it is not intended to alleviate structural problems such as fatigue cracking, poor subgrade quality, or potholes.

Selecting the Project: Microsurfacing is an excellent preservation tool that is best used for addressing mild to moderate cracking and surface deficiencies, and can significantly extend the life of an asphalt pavement at a relatively low cost – even for higher traffic volumes. Localized structural failures should be addressed prior to the microsurfacing application.

PURPOSES:

Waterproof the surface
Seal small cracks
Correct surface irregularities
Add skid resistance
Fill ruts
Repair raveling
Improve surface appearance

CAUTION: *Although microsurfacing has greater structural stability than a slurry seal, it may not effectively mask significant areas of unevenness, and has not been successful in preventing significant cracks from reflecting through to the surface layer.*

Materials: Microsurfacing mixtures utilize polymer-modified emulsions, aggregates, fillers, cement, and additives to generate a stable mix. **Cement** shortens the curing time, allowing for a quicker return to traffic, while other **additives** can lengthen the curing, if needed, during warmer weather. **Aggregates** of up to 3/8" may be selected, using coarser gradations for higher traffic applications. To ensure quality, all materials should come from an approved source.

Equipment: A **microsurfacing machine** with a pug mill and microsurfacing box must be used. This box should be rigidly attached to the paver to ensure a consistent, preset material thickness, and contain **augers** to push the mix evenly across the pavement width. A texturing rubber may also be used to create the desired texture for the surface. A rut box is necessary for filling ruts.

Construction: Place during dry, **warm** conditions when no rains or high winds are forecasted – *(April to Sept.)* The surface must be clean and dry. **Consistency** in the paving process is critical, as the emulsion must be continuous and provide complete coverage. A scratch coat may be used to level pavements with surface irregularities and ruts less than ½" deep, followed by a surface coat. Because microsurfacing applications break quickly, handwork can be difficult to complete. Therefore, handwork should be kept to a minimum. Open to traffic after 1 to 2 hours, or when it is expelling clear water. Opening too soon can cause premature raveling.

Cost:
$1.35 - $3.60 / sy
$9,500 - $25,000 / lane-mile

PAVEMENT LIFE EXTENSION GENERATED BY MICROSURFACE	LOWER TRAFFIC	HIGHER TRAFFIC
Asphalt surface – 3 to 5 yrs old, good/fair condition	10 – 12 yrs	7 – 10 yrs
Asphalt surface – aged, fair condition	6 – 9 yrs	5 – 8 yrs