Chip Seal over Geotextile

Geotextile placement.

Photo Source: FHWA-CFLHD

Finished chip seal over geotextile surfacing on left lane.

Photo Source: Asphalt Interlayer Association

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Fog Seal

Fog seal surfacing.

Photo Source: Golder Associates Inc.

Traffic Range:

No limitations, although a high degree of quality control is required for high volume applications.

Life Expectancy:

1 to 3 years (average 2 years).

Unit Price:

Material & Installation: $0.25 to $0.60/$m^2$ ($0.20 to $0.50/$yd^2$).

Appearance:

Immediately after placement, fog seals are black. Appearance can be modified with the use of pigments in the emulsified asphalt.

Advantages:

Low initial cost; Enriches oxidized asphalt surfaces; Seals small cracks.

Limitations:

No structural value; Short life expectancy; Can reduce skid resistance.

Product Description: A fog seal is a light application of emulsified asphalt diluted with water. Fog seals are predominately used to enrich oxidized asphalt surfaces or to seal very small cracks and surface voids.

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Fog Seal

Fog seal on right lane of roadway.

Photo Source: FHWA-CFLHD

Fog Seal.

Photo Source: Telfer Oil Company

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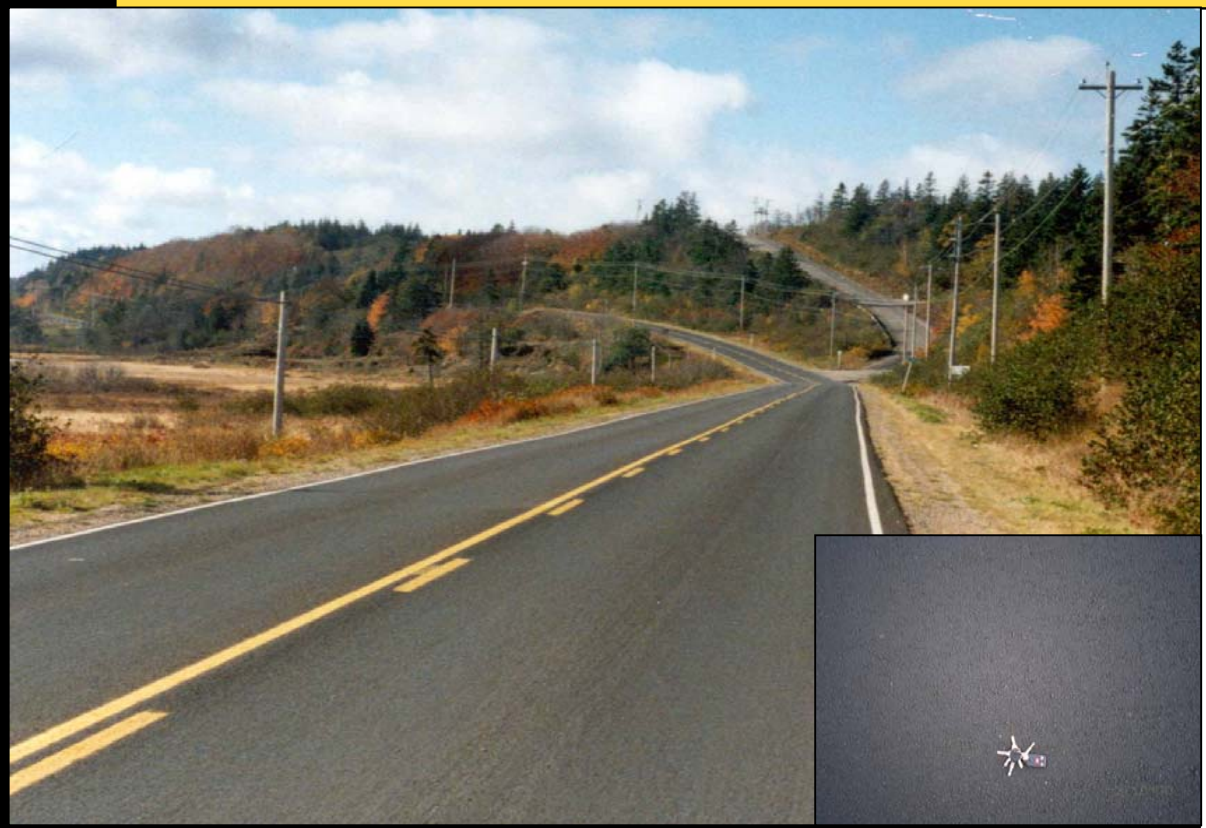
Microsurfacing

1.5



Microsurfacing treatment on roadway.

Photo Source: Miller Group

Traffic Range:

No limitations. Typically used for AADT > 400.

Life Expectancy:

5 to 8 years (average 7 years).

Unit Price:

Material & Installation: $3.10 to $3.90/$m^2$ ($2.60 to $3.30/$yd^2$).

Appearance:

Microsurfacing is usually black with a fine surface texture. Microsurfacing color can be modified by the use of pigments in the microsurfacing mix.

Advantages:

High quality surface treatment; Excellent skid resistance; Can rehabilitate instability rutting.

Limitations:

Higher initial cost than some other surface treatments; Specialty contractors required.

Product Description: Microsurfacing, an enhanced slurry seal, is composed of a mixture of polymer-modified emulsified asphalt, dense-graded crushed fine aggregate, mineral filler or other additives, and water. Microsurfacing is used as a protective or rehabilitative maintenance technique for paved surfaces or thin asphalt surface treatments.

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Microsurfacing

Microsurfacing placement.

Photo Source: Nevada DOT

Microsurfacing treatment on roadway.

Photo Source: Missouri Petroleum

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Multiple Surface Treatments

Double chip seal surfacing.

Photo Source: D & D Contracting Inc.

Traffic Range:

Typical AADT <1,000 when placed on aggregate base. Typical AADT < 2,000 when placed on existing HACP.

Life Expectancy:

4 to 8 years (average 6 years).

Unit Price:

Material & Installation: $1.50 to $3.00/$m^2$ ($1.25 to $2.50/$yd^2$).

Appearance:

Appearance is influenced by the binder and aggregate chip color. Surface texture is influenced by the aggregate size, but is generally coarse.

Advantages:
Widely available; Less susceptible to minor construction defects than single chip seals.

Limitations:

Loose chips can be windshield hazard.

Product Description: Multiple surface treatments include double chip seals, triple chip seals, and sandwich seals. Double and triple chip seals consist of two and three layers of chip seal, respectively. A sandwich seal is similar to a double chip seal, except the first layer of asphalt binder is omitted.

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Multiple Surface Treatments

Triple chip seal surfacing.

Photo Source: FHWA-WFLHD

Double chip seal surfacing.

Photo Source: Missouri Petroleum

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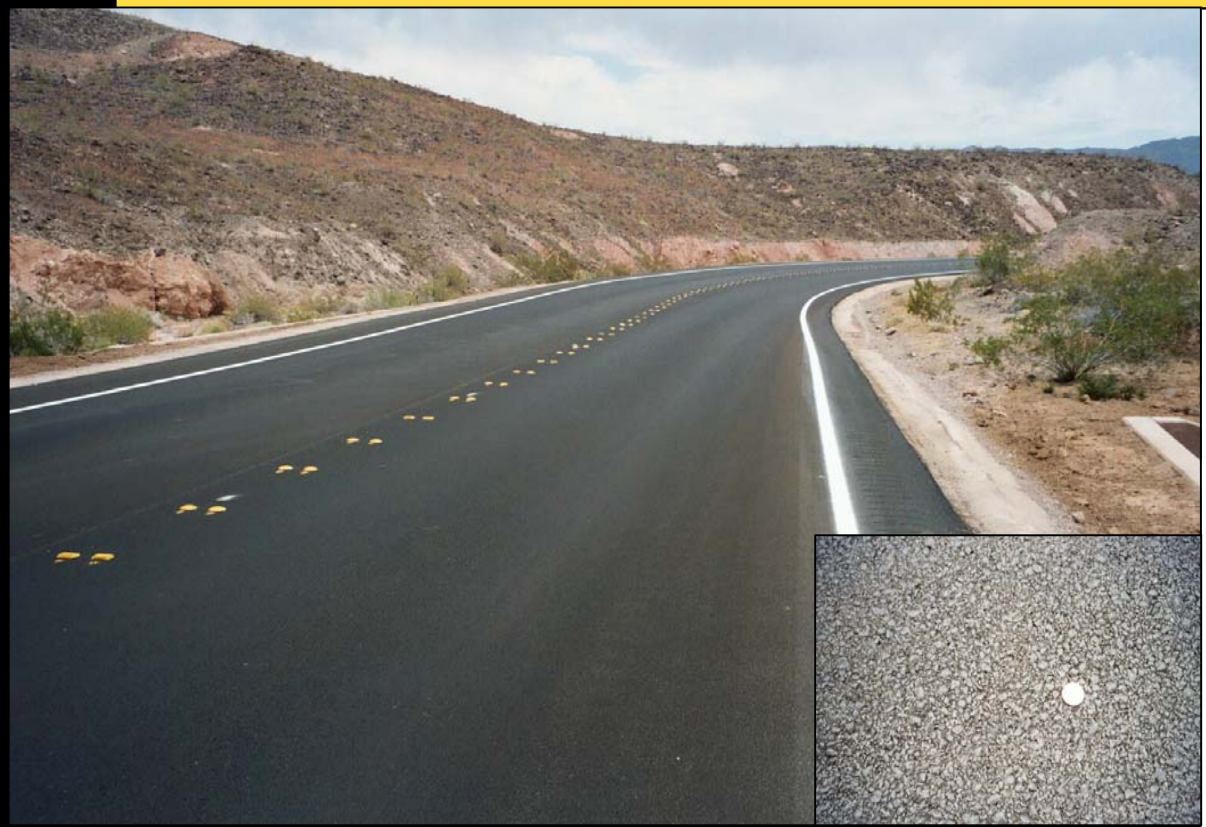
Open Graded Friction Course

1.7



Open graded friction course surfacing.

Photo Source: FHWA-CFLHD

Traffic Range:

No limitations; however, low traffic volumes allow dust and other materials to clog surface pores.

Life Expectancy:

8 to 12 years.

Unit Price:

Material & Installation: $11.00 to $13.40/$m^2$ ($9.20 to $11.20/$yd^2$) for 19 mm (0.75 in.) layer thickness.

Appearance:

Appearance is generally black with a coarse surface texture.

Advantages:

High quality surface treatment; Excellent skid resistance; Significantly reduces hydroplaning and splash/spray from vehicles.

Limitations:

Higher initial cost than most surface treatments; Requires special maintenance procedures in cold climates where ice and snow are common.

Product Description: Open graded friction course (OGFC) is a porous HACP wearing course, containing little sand and with high air voids content (typically from 15 to 25%. The OGFC is designed to allow water to drain through to an impermeable barrier and, following the cross slope of the roadway, drain into a side ditch.

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