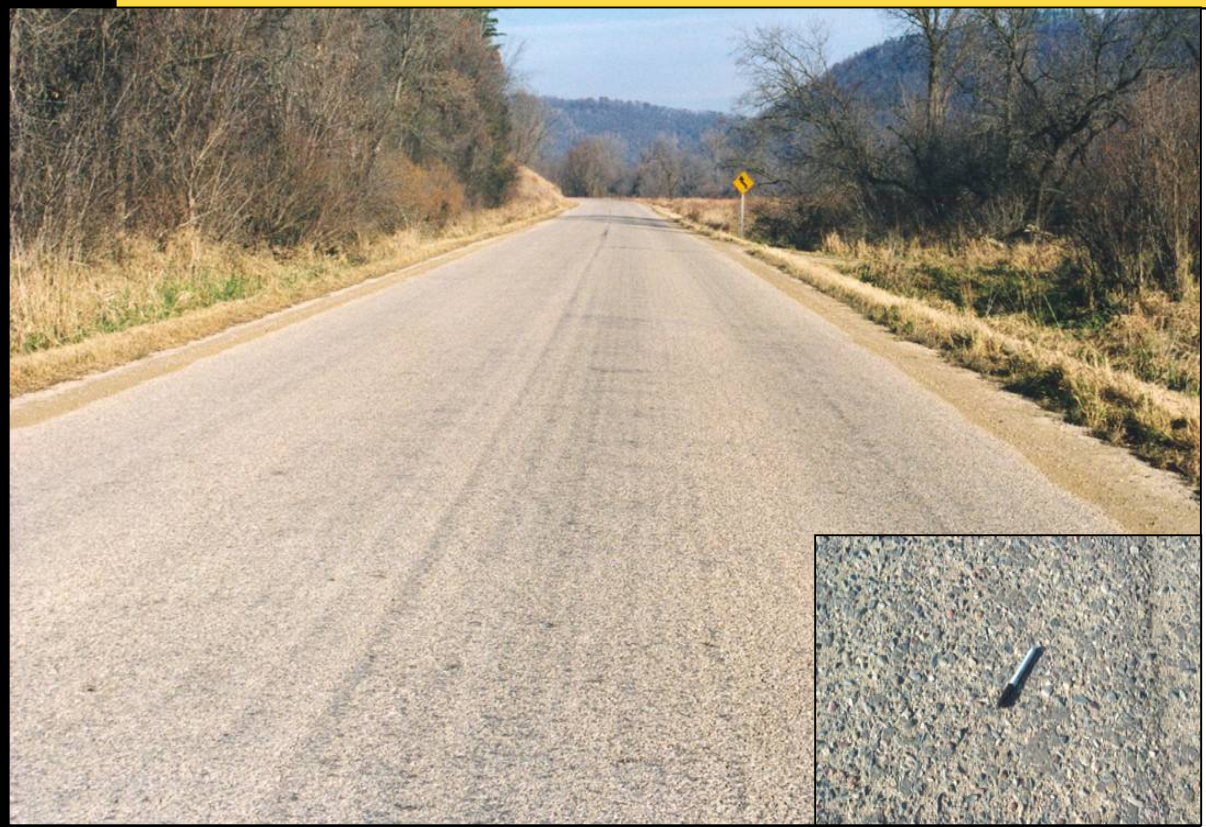
Otta Seal



Otta seal roadway surfacing.

Photo Source: Minnesota DOT

Traffic Range:

Typical AADT < 400 for a single Otta seal.
Typical AADT<2,000 for a double Otta seal.

Life Expectancy:

4 to 8 years for single Otta seal. 8 to 15 years for double Otta seal.

Unit Price:

Material & Installation: \$2.00 to \$2.70/m^2 (\$1.70 to \$2.30/yd^2) for a double Otta seal.

Appearance:

Initially, appearance is influenced by the aggregate color. With time and traffic, the black bituminous binding agent moves up through the aggregate, creating a look similar to cold mix asphalt concrete.

Advantages:

Less strict aggregate requirements.

Limitations:

Loose chips can be windshield hazard; Limited use in United States.

Product Description: An Otta seal is an asphalt surface treatment constructed by placing a graded aggregate on top of a thick application of relatively soft bituminous binding agent. The binder works its way into the aggregate with rolling and traffic.

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Otta Seal

Otta seal construction.

Photo Source: Minnesota DOT

Otta seal surfacing.

Photo Source: Minnesota DOT

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Sand Seal

Sand seal construction.

Photo Source: Telfer Oil Company / Golder Associates Inc.

Traffic Range:

Typical AADT<400 when placed on aggregate base. Typical AADT<2,000 when placed on existing HACP.

Life Expectancy:

2 to 6 years (average 3 years).

Unit Price:

Material & Installation: $0.60 to $1.50/$m^2$ ($0.50 to $1.25/$yd^2$).

Appearance:

Appearance is influenced by the black bituminous binder and, to a lesser extent, by the sand color.

Advantages:

Can enrich dry, weathered, or oxidized surfaces and seal small cracks, and improve skid resistance; Can be used in aggregate poor areas.

Limitations:

Use and experience varies by region; Not as durable as chip seals.

Product Description: A sand seal is a thin asphalt surface treatment constructed by spraying a bituminous binding agent and immediately spreading and rolling a thin fine aggregate (i.e. sand or screenings) cover. A sand seal is basically the same as a chip seal except that finer aggregate is used in the cover.

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Scrub Seal

Brooms used to scrub fine aggregate into surface cracks.

Photo Courtesy of: Western Emulsions

Traffic Range:

Typically AADT<1,500.

Life Expectancy:

2 to 6 years (average 3 years).

Unit Price:

Material & Installation: $0.60 to $1.60/$m^2$ ($0.50 to $1.30/$yd^2$).

Appearance:

Appearance is influenced by the black bituminous binder and, to a lesser extent, by the sand aggregate color.

Advantages:

Brooming and brushing process more effectively seals cracks than other surface treatments.

Limitations:

Use and experience varies by region.

Product Description: A scrub seal is constructed by spraying emulsified asphalt onto an existing pavement, dragging a broom across the surface to scrub the emulsified asphalt into the surface cracks, spreading sand over the emulsified asphalt, dragging another broom over the surface to scrub the fine aggregate into the surface cracks, and rolling the surface with a roller.

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Scrub Seal

Scrub seal surfacing.

Photo Source: Western Emulsions

Scrub broom used in construction process.

Photo Source: Western Emulsions

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Slurry Seal

Slurry seal surfacing. Photo Source: FHWA-CFLHD

Traffic Range:

Typical AADT<200 for Type I, AADT<1,000 for Type II, and AADT<5,000 for Type III slurry.

Life Expectancy:

3 to 8 years (average 5 years).

Unit Price:

Material & Installation: $0.90 to $1.80/$m^2$ ($0.75 to $1.50/$yd^2$).

Appearance:

Black color with fine surface texture; appearance is similar to HACP. Color can be modified by the use of pigments in the slurry mix.

Advantages:

Uniform appearance; Smoother surface than chip seals.

Limitations:

Requires special equipment.

Product Description: Slurry seals are a cold-mixed thin surface treatment constructed of a mixture of emulsified asphalt, dense-graded crushed fine aggregate, mineral filler or other additives, and water. Slurry seals are applied at the thickness of the largest aggregate in the mix; 3 mm (1/8 in.) for Type I, 6 mm (1/4 in.) for Type II, and 9 mm (3/8 in.) for Type III slurry.

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Slurry Seal

Slurry seal surfacing.

Photo Source: FHWA-CFLHD

Slurry seal placement.

Photo Source: FHWA-CFLHD

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Ultrathin Friction Course

Ultrathin friction course surfacing.

Photo Source: FHWA-CFLHD

Traffic Range:

No limitations. Typically used for AADT>1,000.

Life Expectancy:

Typically 10 to 12 years.

Unit Price:

Material & Installation: $7.25 to $8.00/$m^2$ ($6.00 to $6.70/$yd^2$).

Appearance:

Appearance is black with a very fine surface texture.

Advantages:

Provides excellent skid resistance; Reduces tire/road noise and vehicle splash/ spray; Provides a very durable riding surface for high volume roads.

Limitations:

Relatively new technology in United States; High initial cost; Specialty paver required.

Product Description: An ultrathin friction course is constructed of a thin layer of gap graded, coarse aggregate hot-mix asphalt concrete that provides a smooth, durable, and skid-resistant surface. The hot-mix asphalt layer is bound to the existing surface with a polymer modified emulsion that is specifically designed to seal the existing surface and bond the new mix to the existing surface.

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Ultrathin Friction Course

Ultrathin friction course.

Photo Source: KOCH

Ultrathin friction course construction.

Photo Source: FHWA-CFLHD

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