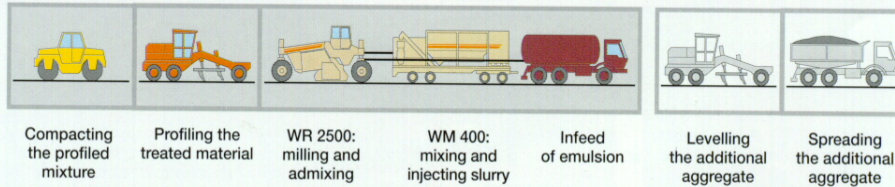
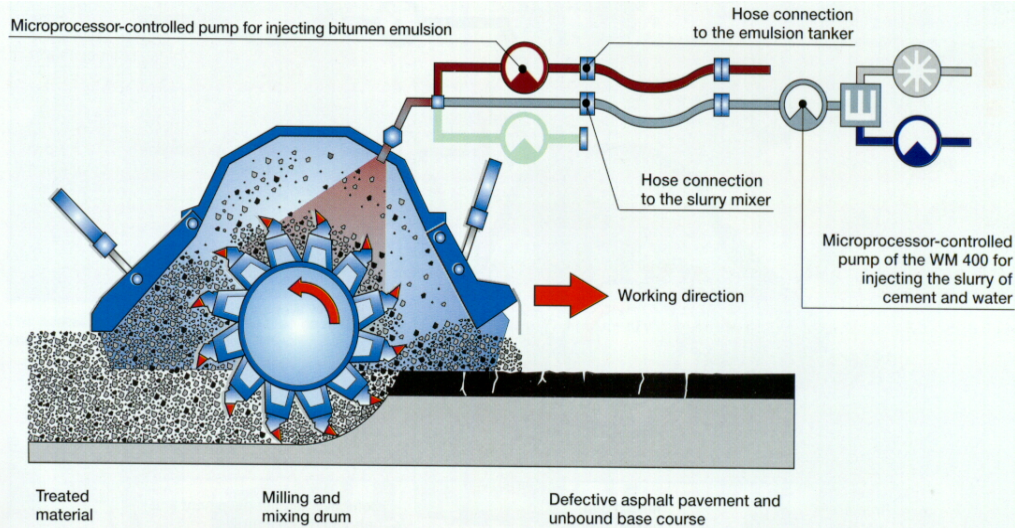


FDR-Emulsified Asphalt



FDR-emulsified asphalt construction process.

Photo Source: Wirtgen Group



Foamed asphalt base layer.

Photo Source: Golder Associates Inc.

Traffic Range:

No limitations on traffic volumes for base stabilization applications.

Life Expectancy:

8 to 12 years when covered by thin surface treatment. 15 to 20 years or longer when covered by hot-mix asphalt concrete.

Unit Price:

Material & Installation: \$4.80 to \$8.40/m² (\$4.00 to \$7.00/yd²) for 150 mm (6 in.) mixing depth.

Appearance:

Foamed asphalt generally is dark brown to dark gray in color.

Advantages:

Cost-effective; Suitable for use with marginal materials containing large amounts of fines; Small quantity of asphalt cement needed.

Limitations:

Not used as a roadway surfacing, except as a temporary surfacing; Relatively new technology.

Product Description: Foamed asphalt is a technique where asphalt cement is used to bind granular material. When hot asphalt cement comes in contact with cold water, the mixture expands and is separated into very fine droplets. The foamed material is mixed with the aggregate/RAP blend and coats the fines in the mixture to form a mortar that binds the coarse particles.

Foamed Asphalt

9.3



Foamed asphalt material in right lane.

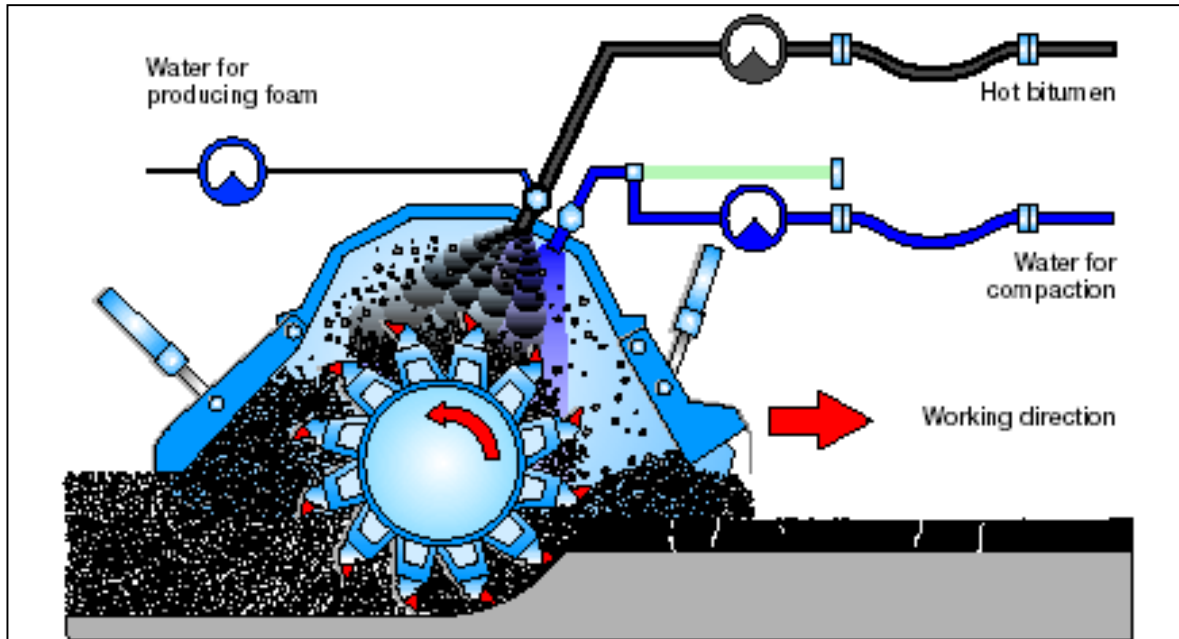
Photo Source: FHWA-CFLHD



Foamed asphalt equipment train.

Photo Source: Golder Associates Inc.

Foamed Asphalt



Foamed asphalt schematic.

Photo Source: Wirtgen Group



Pulverized roadway material.

Photo Source: FHWA-CFLHD

Traffic Range:

No limitations on traffic volumes for base applications.

Life Expectancy:

7 to 10 years with surface treatment; 15 to 20 years with HACP overlay.

Unit Price:

Material & Installation: \$2.00 to \$4.00/m² (\$1.70 to \$3.30/yd²) for 200 mm (8 in.) mixing depth.

Appearance:

Appearance is similar to a dark aggregate base material, with the asphalt coated particles visible on close examination.

Advantages:

In situ process; Reuses existing asphalt concrete and base material; Less expensive than other FDR alternatives because no additive is used.

Limitations:

Lower quality material than stabilized FDR materials; Some virgin aggregate base is generally needed to permit fine grading prior to paving.

Product Description: Full depth reclamation (FDR) or pulverization is a rehabilitation technique in which the full thickness of the asphalt pavement and predetermined portion of the underlying materials (base, and sometimes, subbase) are uniformly pulverized and blended to provide an upgraded, homogeneous base material.



Pulverization process.

Photo Source: FHWA-CFLHD



Pulverized material prior to compaction.

Photo Source: FHWA-CFLHD