think harder. concrete®

FULL-DEPTH RECLAMATION WITH CEMENT

INTEGRATED PAVING SOLUTIONS

WHAT IS IT?

Full-depth reclamation (FDR) with cement is a stabilizing pavement solution in which a deteriorated asphalt pavement and the underlying base materials are pulverized then mixed with cement and water to form a cement-treated stabilized base course. An FDR road can be completed with either an asphalt or concrete surface layer.

Why do it?

The recycled base will be stronger, more uniform, and more moisture resistant than the original base. The result is a long-term base that can help carry future traffic. FDR conserves virgin construction materials and makes smart, strategic sense by the reuse of past pavement investments.

The Process

FDR is a simple procedure and the process can often be completed in one day.

- **Sampling** - The road should be investigated to understand the existing materials. A laboratory evaluation of the existing pavement, base, and subgrade will help determine the desired amount of cement for the mix.
- **Pulverization** - The existing pavement is pulverized with a machine that resembles a large rototiller, usually to a depth of 6 to 10 inches. After pulverization the material is shaped to the desired cross-section and grade, and is ready for cement application.
- **Spreading** - The cement can be spread in either a dry or slurry form.
- **Mixing** - Water is often applied during the mixing process to facilitate compaction operations. The old road pavement will resemble a 'black gravel' and will bond easily to the hydrated cement.
- **Compaction** - The road is then compacted to the required density, usually with vibratory rollers. A pneumatic-tire roller may follow to finish the surface. Final compaction should take place no more than 2 hours after initial mixing of the cement.
- **Curing** - A sealant or water spray is used to keep the new base moist to gain the desired strength.
- **Surface** - A surface consisting of a thin bituminous chip seal, hot-mix asphalt, or concrete completes the rebuilt road.

When to use it

FDR is often the least-expensive strategy, on a first-cost basis, to rehabilitate low to medium volume asphalt roads with moderate to severe deterioration.

Pavements that are candidates for FDR cannot be rehabilitated with simple resurfacing because:

- The problem exists in the base or subggrade, moisture degradation, traffic overloads, or subgrade failure can cause the pavement base to fail.
- The existing pavement requires excess patching.
- The pavement structure is inadequate for current or future traffic.

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FDR can be used as a base for:

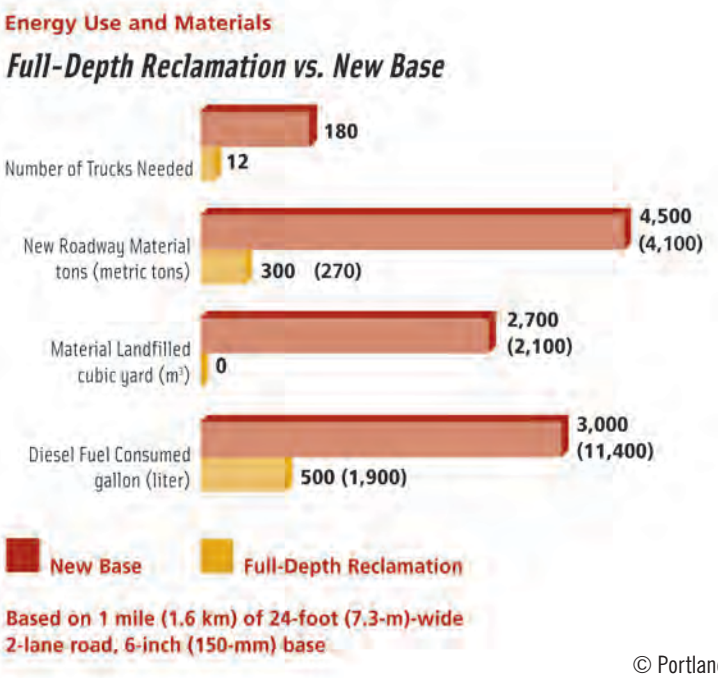
- High-volume streets and local roads
- Residential streets
- Airport runways, taxiways, and aprons
- Parking lots

Helps meet environmental goals

- Recycles used asphalt and conserves virgin raw materials.
- Reduces truck traffic because there is no need to haul in aggregate or haul out old material for disposal.
- Eliminates stockpiling or disposal of recycled asphalt pavement.

Features

- **Creates a safer road** - Eliminates rutting in the base layer.
- **Increases the stiffness and load-bearing strength of the base material.**
  - Higher load carrying capacity than granular bases
  - Continues to gain strength with age
- **Stretches budgets by utilizing previously purchased materials** - Recycling costs are normally 25 to 50 percent less than removal and replacement of the old pavement.
- **Corrects drainage problems** - Forms a moisture-resistant base that keeps water out and maintains higher levels of strength, even when saturated.



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