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A Brief Introduction to Full-Depth Reclamation with Portland Cement

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Definition of Reclamation

A method of flexible pavement reconstruction that utilizes the existing asphalt, base, and subgrade material to produce a new stabilized base course for an asphalt, chip seal, or concrete wearing surface.

A new cement recycled base will be stronger, more uniform, and more moisture resistant than the original base, resulting in a long, low-maintenance life

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SC Route 97
SCDOT's first FDR project

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SC Route 97, 1994

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Present day, 28 years after FDR

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SC Route 97, 1995

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Present day, 28 years after FDR

What's new in FDR technology?

Paver-laid FDR

- Issues with conventional FDR:
  - Final ride quality is dependent on skill of the motor grader operator.
  - Standard 8-foot width of reclaimer requires two passes to reclaim a 12-foot lane.
  - Fugitive cement dust can be an issue for sensitive areas.

Paver-laid FDR

- High-density paver used for RCC can also be used to place FDR.
- Mixing can be done using a milling machine with mixing capabilities.

Cracks from successive reclaimer passes

Paver-laid FDR

Paver-laid FDR

Paver-laid FDR

"Imported" FDR

- FDR process can be used to create base for new location at significant cost savings.
- Contractor can bring in virgin stone, milled asphalt, or crushed concrete and place on grade.
- Reclaimer mixes stone, subgrade, and cement to create a base that is functionally equivalent to FDR.
- Blend is typically 50:50 new material and subgrade.
- Virginia DOT has done much research on this and recently widened I-64 in the Williamsburg area and I-66 outside the DC Beltway using this technique.