I-81 Pavement Recycling
High Value Research Project

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Why We Should Recycle our Pavements

Construction
Fixes deterioration causes rather than symptoms
Build pavement layers using 100% recycled materials

Environment
MTO (Ontario) estimated 50 percent less greenhouse gases emitted

Economic
Nevada DOT saved $600 million over 20 years
Other studies show 30-50 percent cost savings
Full-Depth Reclamation

- Creates a stabilized base course
  - 4 to 12 inches
Cold In-Place Recycling

- Within the asphalt layers
  - 2 to 5 inches
Cold Central-Plant Recycling

- Similar to CIR
- Access to deeper layers
- Stockpiles of existing RAP
I-81 Pavement Recycling Project

I-81 SB Augusta Co.
MM 217.66 to 214.00
23,000 vehicles per day
28% Trucks
I-81 Pavement Recycling Project
### I-81 Pavement Recycling Project

<table>
<thead>
<tr>
<th>Left Lane</th>
<th></th>
<th>Right Lane</th>
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</thead>
<tbody>
<tr>
<td>4-inch New AC</td>
<td>4-inch AC</td>
<td>6-inch AC</td>
</tr>
<tr>
<td>5-inch CIR</td>
<td>8-inch CCPR</td>
<td>6-inch CCPR</td>
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<tr>
<td>Existing AC</td>
<td>12-inch FDR</td>
<td>12-inch FDR</td>
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<tr>
<td>Existing Aggregate</td>
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<tr>
<td>Subgrade</td>
<td>Subgrade</td>
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</tbody>
</table>

- **5-inch CIR**: Cold In Place Recycling
- **2-inch New AC**: New Asphalt Concrete
- **4-inch New AC**: New Asphalt Concrete
- **6-inch CCPR**: Cold in Place Recycling
- **6-inch AC**: Asphalt Concrete
- **8-inch CCPR**: Cold in Place Recycling
- **12-inch FDR**: Foamed Drainage Recycled
- **Existing Aggregate**: Existing Aggregate
- **Subgrade**: Subgrade
Prefabricated geocomposite retrofit edgedrains
Added beneath shoulder on each side

- AC
- CCPR
- FDR
- Subgrade

36in minimum
No. 8 aggregate
Edgedrain
Performance Testing Results

After 3+ years…

**Structural Capacity**
- Increased during first year, steady thereafter
- Greater than design values

**Ride Quality**
- Ranges from 45-55 inches per mile (IRI)

**Rutting**
- < 0.1 inches
2 years on track = ~7 years on I-81
2 asphalt overlay thicknesses
CCPR with and without a stabilized base (FDR)
Additional Information

http://vtrc.virginiadot.org/PubDetails.aspx?PubNo=15-R1
Resource Responsible Pavements