A Pavement Preservation Strategy for Local Roads
How do we decide which roads to fix when there is not enough money to fix everything?
Outline

• Pavement condition assessment.

• Key concepts for pavement preservation.

• Selecting projects under a preservation strategy.

• Three Steps to Implement a preservation strategy for local roads.
Pavement Surface Rating

10 – 9: Excellent
7 – 8: Good
6: Fair
<5: Poor
Pavement Surface Rating

10 – 9: Do Nothing
8: Crack Seal
7: PM Paving
6: Rehab
5: Major Rehab
<5: Replace
Pavement Surface Rating

Ride Quality (IRI)

Pavement Condition Index (PCI)
9/10 – Excellent
8 - Good
7 - Good
6 - Fair
5 - Poor
2 - Very Poor
1 - Very Poor
E-Score Hardware
State Highway System

Average Pavement Condition Rating

Average Surface Score

- '81: 6.82
- '83: 6.93
- '85: 6.92
- '87: 6.98
- '89: 7.00
- '91: 7.00
- '93: 6.88
- '95: 6.83
- '97: 6.81
- '99: 6.84
- '01: 6.74
- '03: 7.05
- '05: 6.98
- '07: 6.90
- '09: 6.93

'06 early paving Reg 4 effect
Pavement Condition History
1981 - 2009

% Lane Miles

Excel (9-10)
Fair (6)
Good (8)
Poor (5<)
Good (7)
Treatment Candidates

Preservation 55%

Rehabilitation 7%

Major Rehab / Reconstruct 1%

Monitor 43%

Crack Seal 4%
Pavement Management

Pavement Preservation Strategy
What are we trying to do with Preventive Maintenance?

- Seal cracks to keep water out
- Rejuvenate a weathered surface
- Prolong life of the pavement
- Non-structural
Pavement Performance Curve and Windows of Opportunity

- Do Nothing
- Non-Paving PM
- PM Paving
- Multi-Course
- Major Rehab/Recon

Costs:
- $1
- $4
- $16
Pavement Management

Why does pavement preservation work?
Typical Pavement Deterioration Curve from Surface Score History

Typical Pavement Deterioration Curve from Surface Score History
$100k - $150k/1m

Condition Rating

Years
Worst First

Lane Miles

Poor

Fair

Good

Excel
Poor
Fair
Good
Excel

Worst First

Lane Miles
Lane Miles

Pavement Preservation

Poor

Fair

Good

Excel
Far less expensive to keep good pavements good.

Treat the pavement early before distress becomes severe.

The time window is narrow for optimal performance.
Key Concept of Pavement Preservation
Pavement Preservation Tools

- Crack Sealing
- Chip Seal
- Quick-set Slurry
- Microsurfacing
- Paver-Placed Surface Treatment
- 6.3mm HMA
- Single Course HMA
- Mill and Fill
- Cold Recycling
Crack Sealing
Preservation Strategy

• Keep good pavement good.
• Choose the right treatment at the right time.
• Serve the most number of travelers with each dollar.
• Prioritize segments by cost effectiveness ($/VMT).
“Cost Effectiveness”
1. Enter Committed Projects
2. Create Work Plan
3. Review/Edit Work Plan
4. View Work Plan Report
5. Forecast Results

7. View/Edit Future Work Plan
8. Export Report Table

Start Over
### Select Segments to Include in Program

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Pavement Management

How do I implement a preservation strategy for my roads?
Step 1: Road Inventory

- Lay out Linear Reference
- Define road characteristics
- Create Rating Segments
  - Base on Maintenance history
  - Avoid short segments
Step 2: Condition Assessment

- Choose an assessment method
- Keep it simple
- Annual or biannual cycle
Step 3: Prioritization Strategy

- Preservation ($/VMT)
- Worst-first
- Minimum conditions
- System Tier
The End.
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