PAVEMENT PRESERVATION

“Doin’ whatcha can with whatcha got.”

PAVEMENT PRESERVATION

Pavement preservation is set of maintenance practices that...

• extend pavement life
• improve safety and motorist satisfaction
• save public tax dollars

TOOLS IN THE TOOLBOX

• Crack Filling / Crack Sealing
• Chip Seal – Single & Double
• Quick Set Slurry Seal
• Cape Seal – Chip Seal followed by Slurry Seal
• Micro-Surfacing
• Paver Placed Surface Treatment (NOVA Chip)

STAGES OF PAVEMENT LIFE

GETTING AHEAD OF THE CURVE

STAGES OF PAVEMENT LIFE

PROJECT LEVEL: ONE ROAD AT A TIME

Stretch the period of life a pavement remains in serviceable condition for the traveling public.

Improve and stabilize condition level at a lower unit cost per lane mile.
PROJECT LEVEL: EXAMPLE

Rehabilitation
• Assumes Pavement has remaining life
• Asphalt Concrete Maintenance
  • Repair
  • Reinforcement
• No Base or Sub-Base Maintenance
  • Base is adequate
  • Base improvements deferred

Reconstruction
• Pavement has little or no remaining life
• Base and/or Sub-Base is inadequate
  • Poor quality materials
  • Insufficient thickness w/ respect to sub-grade or traffic

REHABILITATION VS. RECONSTRUCTION

Two important questions:
• Does the AC pavement have remaining life?
• Is there an adequate base?

NETWORK LEVEL: DEALING WITH THE SYSTEM

Application of engineering and fiscal management

Utilize cost-effective treatments and existing funds to control the future condition of pavement networks.

BASIC ENGINEERING APPROACH

Start with a forensic road investigation
• Traffic Analysis
• Surface Distress Evaluation
• Materials Tests
• Choose Rehabilitation or Reconstruction

Develop Alternatives (CIR, FDR, Remove/Replace)
Pavement Design (AASHTO or Asphalt Institute)
Life Cycle Cost Comparison

BUILDING BLOCKS OF PAVEMENT PRESERVATION

• Crack Fill - $1,500 to $4,000 per mile turn-key
• Surface Treatment
  • #1A Chip Seal - $8,000 per mile turn-key
  • Slurry Seal - $16,000 per mile turn-key
  • Micro-surfacing - $28,000 per mile turn-key
• Minor Rehab
  • Prep and Surface Treatment - $28,200
  • Crack Fill - $1,500 per mile turn-key
  • Box Out & Inlay Patch - $18,700 per mile
  • #1A Chip Seal - $8,000 per mile turn-key

PAVEMENT PRESERVATION VS. PAVEMENT MANAGEMENT

Pavement Preservation is a goal
• Utilize cost-effective treatments and existing funds to control the future condition of pavement networks

Pavement Management is a process
• Systematic & analytical process to achieve the Pavement Preservation goal
**PAVEMENT MANAGEMENT PROCESS**

- Develop Pavement Data Base
  - Road Inventory
  - Pavement condition
  - Road Repair Techniques and Costs
- Determine Most Cost Effective Treatment
- Prioritize Road Repair Needs
- Develop Road Funding Needs
- Compare Needs to Available Funds
- Develop Funding Strategies
- Develop Road Maintenance Plan
- Link Road Plan and Annual Construction Plan
- Execute Road Projects in Accordance with Plan

**DEVELOP A DATABASE**

**Manual Records**

**Computer Software Program**

- RSMS
- Paver
- Road Manager
- Stantec Pavement Management System

**ROAD CONDITION RATING**

**SPECIFY REPAIR TYPES & COSTS**

Routine Maintenance
- Crack Fill
- Box Out Patching
- Surface Patching

Preventive Maintenance
- Chip Seals
- Slurry Seal
- Microsurfacing
- Novachip
- Thin Hot mix overlay

- Minor Rehabilitation
  - T&L Pave and Surface Treat
  - Patch, Crackfill, Surface Treat
  - Patch, Crackfill, Thin Overlay

- Major Rehabilitation
  - Thick AC Overlay
  - Mill and Overlay
  - Cold-in-Place Recycle and Resurface
  - Reconstruction
    - Dig out and Replace
    - Full Depth Reclamation

**SELECT APPROPRIATE REPAIRS**

For each road section....

- Based on visible cracking
- Ride Quality & Roughness
- Cross Section & Shape

Computer Software can help

- Decision Trees
- Pavement Condition Scores
- Experience and knowledge is crucial

**PRIORITIZE ROAD REPAIRS**

- Traffic
- Ride Quality & Roughness
- Importance of Road
- Pavement Condition
**INFORMATION & REPORTS**

- Road Condition Information
- Road Repairs & Costs
- List of Road work needed

**BUDGET PLANNING**

- Compare roadwork needs with funds available
- Develop medium to long range plan

**ANNUAL WORK PLANNING**

- Select candidates from the Pavement Management Reports & Output
- Develop Maintenance List
- Develop Rehab & Reconstruct Project list

**CONCLUSIONS**

- Pavement Preservation
  - Doing whatcha can with watcha got
  - Utilize all the tools available for the right uses
- Project Level Decisions
  - The right repair for the right road at the right time
  - Apply basic engineering – Forensic Investigations, AASHTO Design
  - Incorporate preventative maintenance techniques to stretch life of major rehab & reconstruction
- Network Level Planning
  - Implement Lifecycle Plans for your system
  - Implement Pavement Management to “Tie it all together”

**PAVEMENT PRESERVATION**

Questions?