The Benefits of Pavement Preservation

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Topic Outline

• Historical Challenges
• Benefits of Highways
• Pavement Preservation Benefits
Historical Challenges

Variable Geography
Historical Challenges

Variable Geology
Historical Challenges

Variable Climate
Historical Challenges

Population Densities
Historical Challenges

Highway Funding

“At least we are consistently inconsistent.”
Benefits of Highways

• Democratization of Mobility
  Expanded options to travel within and between their communities.

• Expanded Residential Freedom
  People have reduced travel time and broader options in residential locations from their work.
Benefits of Highways

• **Expanded Employment Options**
  People can pursue employment across far larger areas.

• **Lower Retail Prices**
  Travel and shop wherever they like for bargains and larger selections.
Benefits of Highways

• Leisure Activities & Vacations
  People take longer trips on weekends and vacations.

• National Defense
  Provides ‘modal redundancy’ for the mobilization of troops and equipment.
Benefits of Highways

• **Increased Economic Growth**
  Lower transportation costs encourages job creation and promotes commercial expansion.

• **Higher Work Productivity**
  Improves travel time and reliability of workers.
Benefits of Highways

- More Trade and Exchange
  Expands the number of potential customers who can be reached.

- Lower Business Costs
  Lowers transport costs, increases reliability, and the exchange of goods and services.
Today’s Decreased Buying Power
1993 to 2017

- 1993: Let's build 100 miles of road
- 2017: Let's build 59 miles of road

Today's decreased buying power
Pavement Preservation Benefits
1. **Lower Frequency of Construction**
   - Reconstruction is the most expensive intervention and can totally consume an agency’s budget.
   - Preserving the pavement reduces the need for costly reconstruction.
2. **Increased Level of Service**

- Pavement condition is a measure of service for the motoring public.
- Agencies can achieve the best LOS by preserving their highway network.
3. Higher Average RSL

(RSL = remaining service life)

- Increasing network RSL is similar to banking resources and creating a funding reserve.
- A mix of fixes that includes pavement preservation will improve the RSL.
Cost of Delaying Pavement Preservation

Cost Per Lane Mile
Expenditure on Preservation

Good
Fair
Poor

Road User
Cost of not addressing the need early!

Timing Belt Replacement: $400

Engine Replacement: $2,500
Cost of not addressing the need early!

Teeth Cleaning: $75
Root Canal: $1,000
Pavement Preservation Benefits

4. **Lower Road User Costs**

- Roads in poor condition cause damage and wear to vehicles.
- Poor roads result in reduced vehicle speed, negatively affecting fuel consumption.
Pavement Preservation Benefits

5. Higher Travel Time Reliability

- Roads preserved in good condition are more likely to provide a reliable travel time.
- Reconstruction or rehabilitation require closures and detours, which can severely degrade travel time reliability.
Pavement Preservation Benefits

6. Reduced Travel Delays

Specific examples include:
- Reduced queues
- Decreased congestion
- Eliminated detours
Pavement Preservation Benefits

7. Less Energy Required

- Pavement preservation treatments require substantially less energy than for reconstruction or rehabilitation.

Saving Energy and Money
Pavement Preservation Benefits

8. Recycling

- Agencies can save costs by avoiding new materials and disposing of the present deteriorated pavement.
9. Greater Sustainability

- Allows the agencies to move closer to closing the gap between costs and resources.
10. **Diminished Vehicle Crashes**

- Less work zone time results in reduced injuries and deaths, that are intangible benefits to individuals, families and society.
Pavement Preservation Benefits

11. Decreased Noise Duration

- Apart from being a general nuisance, excessive noise can pose health problems especially with nighttime construction.
- Noise may violate compliance of local ordinances.
12. Less Greenhouse Gases

• Preservation generates less CO₂ emissions than reconstruction and rehabilitation.
Pavement Preservation Benefits

13. More Job Creation

- Greater portion of preservation dollars reach the employees, because less materials are used.
- Reconstruction and rehabilitation target a higher percentage of dollars for material costs.
Pavement Preservation Results

Chip Seal after 5 months
Pavement Preservation Results
Pavement Preservation Results
Pavement Preservation Training

- Free Web-Based Training → ISSA

http://slurry.org/education/industry-training-courses/web-based-courses/
Pavement Preservation Certification

- Treatments Currently Available for Certification
  - Slurry Systems (Micro Surfacing, Slurry Seal & Polymer Modified Slurry)
  - Chip Seals & Fog Seals
  - Crack Treatments
Pavement Preservation Certification

• **Areas Covered by Examinations**
  - Project Selection
  - Materials
  - Design
  - Equipment
  - Construction
  - Quality Assurance
Pavement Preservation Certification

- Personnel Passing Examination
  - Name entered in certification database accessible at https://www.tsp2.org/certification/
  - Issued a durable, non-transferable card stating their qualification.