IMPORTANCE OF PAVEMENT PRESERVATION

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Population **25,674,681**

25 Districts

254 Counties

197,000 Lane Miles

489,893,915.0 VMT

(525,000 trips from Austin to Mexico City

Or 200 Trips to the Moon)
Evolving Demands

Highway usage is increasing

Truck traffic is increasing

Oil & gas activities across the state
Operating Revenues Can’t Keep Pace with Needs

Increasing Demands with Decreasing Resources
Condition of Texas Network

Percentage of Lane Miles in “Good” or Better Condition

Fiscal Year


84.35 85.22 84.96 84.37 84.22 85.28 87.02 87.34 86.69 86.76 86.27 85.94 86.97 86.66 86.47 88.30 87.19 86.92
Background

TxDOT has 197,757 lane miles of highways

166,056 in good condition “Condition Score>70”

24,994 in fair, poor, or very poor condition “Condition Score<70”

TxDOT hopes to reduce the mileage that is in not in a good condition while protecting the mileage in good condition
Background

TxDOT Implemented a 4 Year Pavement Management Plan.
The plan includes all aspects of pavement related work.
The plan allows the districts to plan for pavement preservation and rehabilitation.
Pavement Performance Curve

Condition Score vs. Age or Traffic

- Min. Acceptable Level
- Preservation
- Light Rehabilitation
- Medium Rehabilitation
- Major Rehab/Reconstruction
Pavement preservation is a program employing a network level, long-term strategy that enhances pavement performance by using an integrated, cost-effective set of practices that extend pavement life, improve safety and meet motorist expectations.
Pavement Preservation in Simple Words

Right Treatment

Right Pavement

Right Time
Pavement Preservation Concept

Pay Now or Pay Big Later
Why we need Pavement Preservation

Protect the investment.

Improve Level of Service.

Extend Pavement Life.

Reduce the overall life cycle costs.
Types of Pavement Preservation

- Preventive Maintenance
- Minor Rehabilitation (non structural)
- Routine Maintenance
Typical Treatments

Crack Seals
Seal Coats
Micro-surfacing/ Slurry Seals
Cape Seal
Hot in Place Recycling
Thin HMA Overlays
  SMA
  Type D & F
  CMHB-F
Contracted Seal Coats
   – About 16,000 lane miles per year

State Force Seal Coats
   – About 3000 lane miles per year
A simple key to Success of Pavement Preservation

Stop Worst First Philosophy
Expected Benefits of A Pavement Preservation Program

- Customer Satisfaction
- Informed Decision Making
- Improved Pavement Condition
- Improved Strategies & Techniques
- Lower Life Cycle Cost
- Improved Safety
Technology and Innovations
TVAR is the seal coat practice of varying the amount of seal coat asphalt being applied across the width of the pavement to better match the asphalt needs of the existing pavement surface.
Defining TVAR and Its Value
A common misconception is that TVAR reduces the amount of asphalt being placed on the roadway. TVAR actually increases the total amount of asphalt being used if prior practice has been to design the asphalt rate based only on wheel path conditions.
Wherever asphalt demand varies across the road

Asphalt type and grade are not factors when considering use of TVAR

Aggregate type is not a factor
Survey of TxDOT Districts

- 13 Districts Were Using TVAR as Standard Practice
- 3 Districts Used TVAR as Standard Practice in the Past but Don’t Anymore
- 1 District Was Currently Experimenting with TVAR
- 2 Districts Experimented with TVAR and Decided Not to Use It
- 8 Districts Reported No Use in Last Five Years
How a 3D scan works:

- Project a laser line on the surface
- A 2D digital camera looks the laser line from an angle
- Laser line will be distorted by the surface profile
- A special algorithm converts the distortion into height

Pavement Applications

- Surface Distress
- Rutting
- Texture
- Sealcoat QA
**TxDOT SealCoat Tool**

- Based on high resolution 3D technology
- Multi-function for sealcoat operation
- Aggregate property, digital board test
- Road Texture, embedment test

**Digital Board Test**

- Objective measure of board test
- True value of aggregate to void ratio
- Reference to operator
Aggregate Test
- Measure hundreds of stones in a scan
- True 3D aggregate modules
- Accurate measurement of aggregate
- Quick and simple operation

Embedment Depth Field Test
- Field test of embedment depth
- Base on true elevation measurement
- Continue operation for long coverage
Road Texture Measurement

- Pre-scan job site for macro texture
- Continue measure for the entire section

Field Application Ration

- Scan after the spreader
- Estimate application ratio
- Compare to the design requirement
Pavement preservation is important to protect our investment.

Pavement preservation can help us with the limited funding.

Help us demonstrate effectiveness to Tax Payers and legislators.