

**Arizona**  
**Pavement Materials Conference**  
**November 16 and 17, 2022**

**The Tale of Two Durango's  
Multi-Layer Case Studies And More**

**Jeff Smith – Cactus Asphalt/AGC Pavement Preservation Committee**

Had a detailed multi-layer system presentation at this conference in 2014. Eight years later we are now seeing the use of these systems finally growing. This is a “worst first” concept, we also need to continue focus on keeping “good pavements good”. Its all part of a comprehensive pavement preservation program!

# **City of Phoenix – Innovative Pavement Preservation**

September 2019 - Durango Street

PMAR SAMI and CSS Hot Mix

Two Layer - Pavement Preservation System

# Pavement Condition Prior to Multi-Layer System

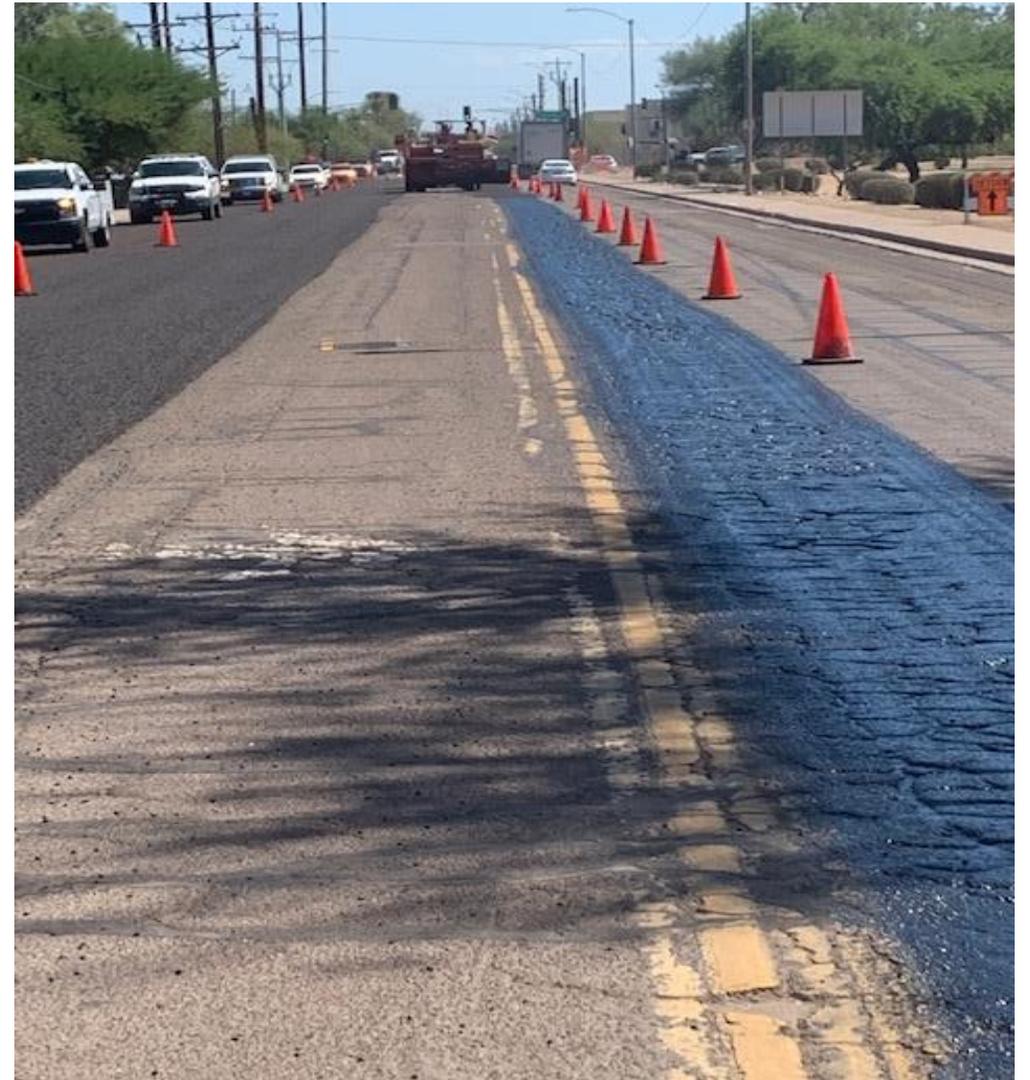




## Edge Milling 1½ Inch Depth



# First SAMI Application in Wheel Paths



## Second SAMI Application Entire Surface



# CSS Hot Mix Placement



# Compaction



**Before Condition**



**After Two Months**



# Before Condition



# After Three Years



# Pinal County – Innovative Pavement Preservation

June 2021 – Durango Road (Arizona City)

PMAR HV/RAB LV Double Chip Seal With Fog Seal

Two-Layer Pavement Preservation System

## Before Double Chip/Fog Seal



# 1 Inch Edge Milling

















**Before Condition**



**After Two Years**



# Other Multi-Layer Systems

## **Cape Seal**











# Ultra Thin Bonded Wearing Course (UTBWC)

# What is UTBWC

- **Hot Mix Asphalt Surface Treatment**
  - Preventative Maintenance
  - Corrective Maintenance
  - Over PCC or Asphalt Pavement
- **Single Pass System**
  - Polymer Modified Emulsion Membrane
  - Thin Gap-graded Hot Mix
  - Placed with special equipment



Specially Engineered  
Equipment

The Paving Machine must have the capability of spraying the PMEM, applying the Modified Hot Mix Asphalt Overlay and leveling the surface of the mat in one pass.



Compaction - Two passes, Seven Ton Double Drum Rollers before mix temperature drops below 195 degrees F.







# Re-Cap: Multi-Layer Pavement Preservation Systems

Single Chip Seal/Fog Seal or Seal Coat

Double Chip Seal/Fog Seal or Seal Coat

Cape Seal/Reverse 3-Layer Cape Seal

Scrub Seal/Various Types of Surface Treatments

Double Micro/Slurry

SAMI/Various Types of Overlay

UTBWC

Others?



# What are Your Alternatives?

These Pavement Preservation Systems can be Cost Effective Initially and at the same time have improved Life Cycle Cost Benefit.

