

11TH ARIZONA PAVEMENTS/MATERIALS CONFERENCE

November 19 – 20, 2014
Arizona State University
Tempe Arizona

Session 4: Pavement Preservation

Multi Layered Pavement Preservation Systems

Jeff Smith – Cactus Asphalt
jsmith@cactusasphalt.com

Considerations

- ▣ Pavement Condition
- ▣ Pre-maintenance Activity (If Any)
- ▣ Scrub Seal Type
- ▣ Chip Seal Type (Binder? Application Rate?)
Aggregate Gradation (Pre Coat?)
- ▣ Slurry or Micro
- ▣ Overlay Type
- ▣ Climate (Binder Grading)
- ▣ Traffic (Amount, Trucks?)
- ▣ Performance Expectations
- ▣ Budget Issues

Considerations Continued

- ▣ Initial Cost vs. Life Cycle Cost
- ▣ Individual Project Variables
- ▣ Construction Conditions
- ▣ Other Alternatives?
- ▣ Limitations
- ▣ Are you Reactive or Proactive?

Candidate for Multi Layer?



Good To Very Bad



Candidate for Multi Layer?



Candidate for Multi Layer?



Mandatory Pre-Maintenance









Types of Multi Layered Systems

- ▣ Scrub Seal/Chip Seal
- ▣ Cape Seal
- ▣ Double Chip Seal
- ▣ Three Layer Cape Seal
- ▣ Two Layer Overlay System
- ▣ Other Uses

Scrub Seal/Chip Seal













Cape Seal











Double Chip Seal











Three Layer Cape Seal















Two Layer Overlay System

Better Known as “SAMI”













Other Multi Layer Usage

Dirt Road/Prepared Base Chip Seal Applications

Double Emulsion Chip Seal











Hot Applied Chip Seal







Projects

Scrub Seal/Chip Seal

Before – August 2004



After – December 2011 (7 Years)



7 Years of Performance, Now 10



Cape Seal

Before – March 2003



After – June 2008 (5 years)



5 Years of Performance, Now 10



Double Chip Seal

Before – June 2006



A wide-angle view of a paved road leading to a building with a dome and a fenced sports area. The road is dark asphalt and has the word "STOP" painted in white letters across its width. On the left side of the road, there are large green trees and a small metal cart. On the right side, there is a fenced-in sports area, possibly a tennis court, with a chain-link fence. In the background, a building with a prominent red dome and blue accents is visible, surrounded by more trees. A red octagonal stop sign is located on the right side of the road near the sports area.



4 Years of Performance, Now 8 Years



Double Chip Seal

Extreme Phase Construction

Asphalt Rubber Chip Seal – Circa 1998 (16 Years Old)









Performance Expectations? Another 16 Years?



Triple Cape Seal

Before – February 2005



After – March 2013 (8 Years)



8 Years of Performance, Now 10 Years



Two Layer Overlay System

Before – September 2008







After – January 2013 (5 years)



5 Years of Performance, Nearly 7 Years



Sometimes We Try To Fix The Impossible!



Will This Work?



Not so Well! Performance After 4 Years



**What About
a
Pavement Condition Matrix?
For
Arizona?**

Might Look Something Like This Draft . . .

Pavement Condition Range	Qualified Treatments	Cost Range
100 - 90	Various Fog Seal Applications	\$0.50 - \$0.75 Per Square Yard
90 - 70	Crack Seal/Patching/Scrub Seal Various Fog Seal Applications Slurry Seal/Micro Surface	\$0.50 - \$2.00 Per Square Yard \$0.50 - \$0.75 Per Square Yard \$1.50 - \$3.75 Per Square Yard
70 - 50	Crack Seal/Patching/Scrub Seal Slurry Seal/Micro Surface PMRE/CRS-2P Chip Seal PG-TR Chip Seal Cape Seal (Various) Double Chip Seal (Various) Conventional Overlay	\$0.50 - \$2.00 Per Square Yard \$1.50 - \$3.75 Per Square Yard \$1.75 - \$3.00 Per Square Yard \$2.25 - \$3.25 Per Square Yard \$4.00 - \$6.00 Per Square Yard \$4.00 - \$7.50 Per Square Yard \$6.00 - \$10.00 Per Square Yard
50 - 30	Crack Seal/Patching/Scrub Seal Asphalt Rubber Chip/Cape Seal Double Chip Seal (Various) Hot in Place Recycling/Seal Three Layer Cape Seal (Various) SAMI/Rubber Modified Overlay Mill and Fill	\$0.50 - \$2.00 Per Square Yard \$3.75 - \$7.00 Per Square Yard \$4.00 - \$7.50 Per Square Yard \$6.00 - \$12.00 Per Square Yard \$8.00 - \$12.00 Per Square Yard \$8.00 - \$12.00 Per Square Yard \$12.00 - \$20.00 Per Square Yard
30 - 0	Crack Seal/Patching/Scrub Seal SAMI/Rubber Modified Overlay Cold in Place Recycling/Seal Reconstruction	\$0.50 - \$2.00 Per Square Yard \$12.00 - \$14.00 Per Square Yard \$12.00 - \$20.00 Per Square Yard \$45.00 - \$75.00 Per Square Yard

Any Questions?



Let's Have Lunch!