


DEALING WITH COMPOSITE PAVEMENTS



Composite Pavements
Construction Practices,
Selection and Costs,
Various Alternative
Rehabilitation Techniques



Composite Pavement;
Defined as a rigid pavement
section with an overlay of
flexible HMA pavement (or
White Topping)



Tips if you are planning on creating a new composite pavement



1. Make all needed repairs
2. Mill or grind surface
3. Apply a HEAVY tack coat
4. Cracks migrate at 1" /year
5. Use polymer mod. Mixes
6. Saw and seal over joints

Common Failure Types:

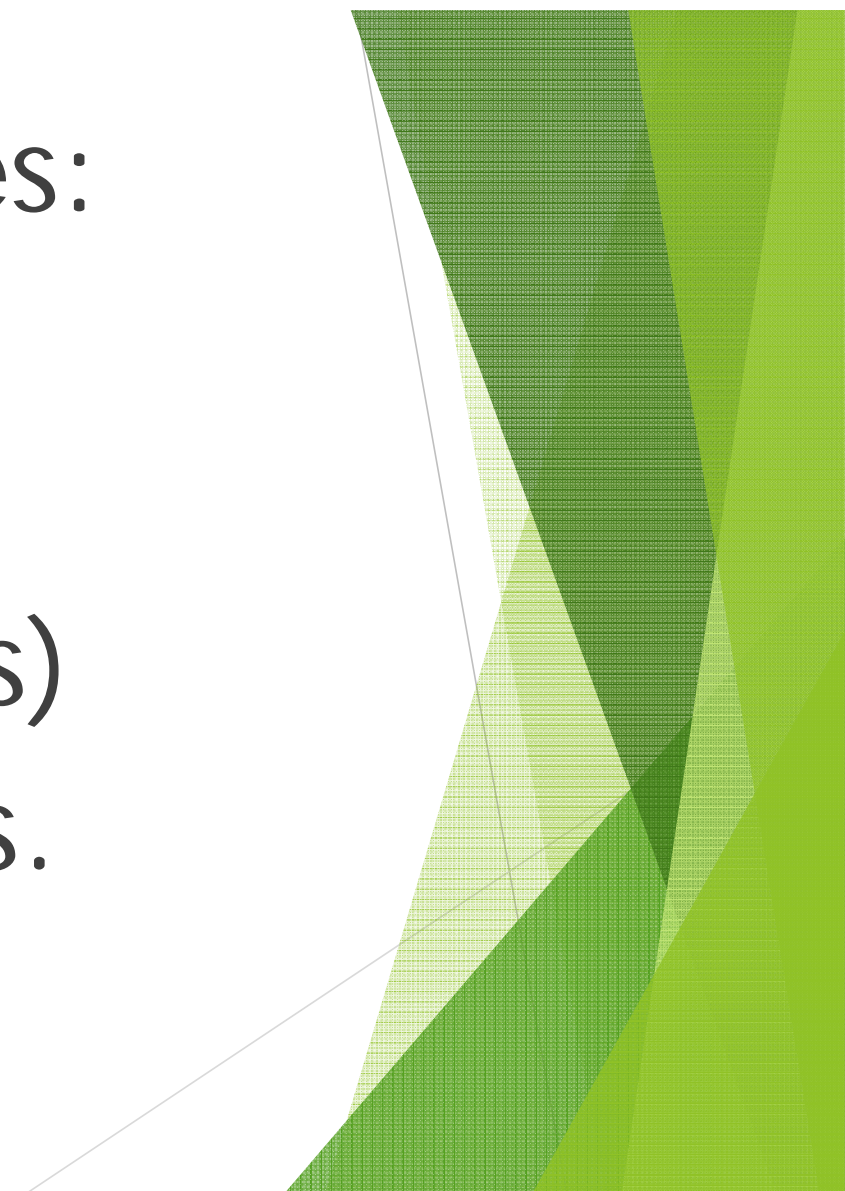
Rutting


Raveling

Heaving (at the joints)

Cracking - Thermal vs.

Reflective





Total Reconstruct	2000K
Rubblize	1000K
Crack/Break and seat	800K
HMA Crack relief	650K
HMA and Mesh	300K
Fill/Fill HMA	150K
P.M. Resurface	35-75K
Detail 7/8 Joints	25-50K

All choices except the complete reconstruction most likely involve a need to address joint repairs in the concrete.



MDOT study 1985
MDOT EOC 1995
Detail 8's "cost effective"
Should use a higher %
Effect of recommendation?
2-3 times the cost
Still fails 12-15 years out
Load transfer loss




All choices should also
include a discussion on
sub-surface drainage
Existing?
Proposed?



Reconstruct	30yr	\$66,000
Rubblize	20yr	\$38,000
Crack Relief	15yr	\$29,000
Mill/Fill	12yr	\$14,000
P.M.	7yr	\$11,500





Reconstruct	30yr	(20)	\$72,000
Rubblize	20yr	(14)	\$42,000
Crack Relief	15yr	(11)	\$29,000
Mill/Fill	12yr	(10)	\$11,500
P.M.	7yr	(10)	\$ 9,500

Old 27 12.5 miles
M-55 North to county line
Narrow at 21' paved
10' gravel shoulders
Heaved construction
Joints at 70' spacing
Various "fixes" used
Worse road in the county





Widen for safety
Add 4' paved shoulders
Repair joints (details 7's)
Test joints constructed (12)
Mill to remove 1/2" ruts
Resurface with high volume
Ultra-thin pavement
Maintain cracks over time







Trench and HMA shoulders	\$550K
Detail 7 joint repairs	\$315K
1/2" profile mill	\$ 80K
High volume Ultra-thin	\$715K
CL III shoulders	\$ 65K
Striping/signing	\$ 20K
(1/2 RCRC costs F.A. 250K)	\$140,000/MI

Future Cost Requirements:

Crack seal 3 year cycle \$25,000

Resurface (alternating P.M.)

10 year cycle 450K-750K

30 year additional costs

\$1,450,000 + \$1,750,000

\$3,200,000/12.5 mi = \$256,000

\$8,500/yr/mi (LCCA)



QUESTIONS??

