



To accompany the DRAFT 2009 Annual Pavement Report.

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How much is maintained? Putting maintained miles into Perspective (end-to-end distances)

Jurisdiction	Paved Miles	From Merced to:
Atwater	98	Tulare (100 mi.)
Dos Palos	23	Turlock (26 mi.)
Gustine	23	Turlock (26 mi.)
Livingston	44	Modesto (40 mi.)
Los Banos	128	Delano (132 mi.)
Merced	282	Los Angeles (275 mi.)
County of Merced	1,727	VERY FAR

Theoretical air distance from **LA to Chicago** is approx. 1,748 miles.

If you lay maintained miles end-to-end, you can compare them to approximate travel distances from Merced (using Mapquest.com).

In the case of the County of Merced, it would be the theoretical air distance from L.A. to Chicago.

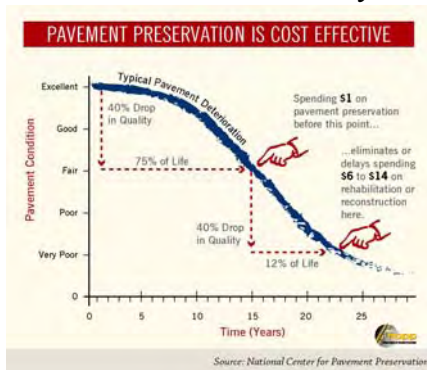
How much is maintained & What are their worth (estimated asset value)?

The estimated value of Merced County's paved streets and roads is about **\$1.8 BILLION**.

Jurisdiction	Paved Miles	Worth (\$)
Atwater	98	\$ 76 Million
Dos Palos	23	\$ 18 Million
Gustine	23	\$ 18 Million
Livingston	44	\$ 34 Million
Los Banos	128	\$ 98 Million
Merced	282	\$ 218 Million
County of Merced	1,727	\$ 1.3 Billion

Assuming reconstruction cost per mile, quick calculations of hypothetical asset values for each jurisdiction could be made.

Life of Paved Roadway

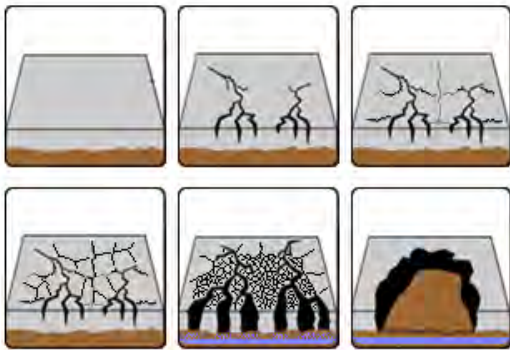


For most of the pavement life, deterioration is fairly gradual...deterioration speeds up, as depicted on graph

as significantly steeper slope, if pavement left untreated.

If water penetrates the surface into underlying soil, then pavement failure seems more likely.

Deterioration of Paved Roadway



For most of the pavement life, deterioration is fairly gradual...deterioration speeds up if pavement left

untreated (dried surface leads to cracking, which starts to propagate under continued loadings). With faster

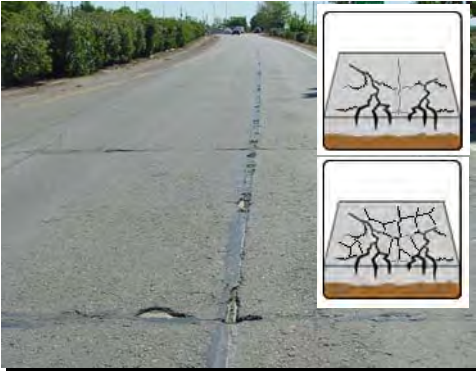
deterioration, pavement crackings become worse to the point of water penetration to the soil. If water penetrates

into the soil, then pavement failure seems more likely due to further damage caused by freeze-thaw process of "frost heaving."

Linear Cracking



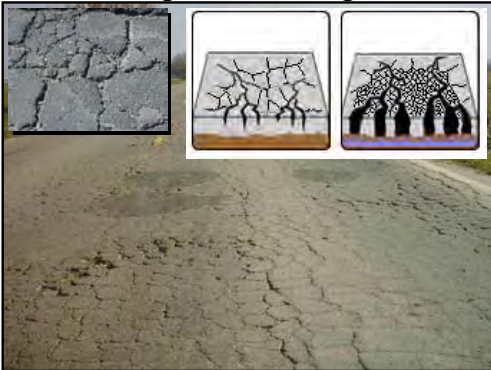
Block Cracking 1



Block Cracking 2



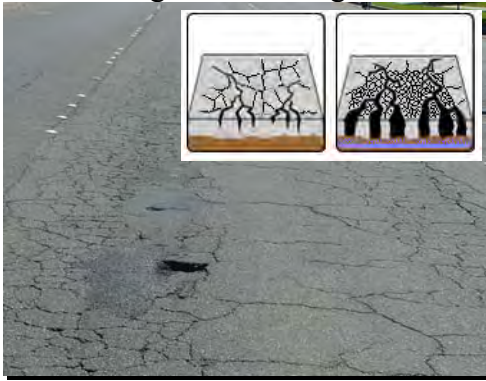
Alligator Cracking 1



As block cracking becomes more severe under traffic loadings to form smaller blocks, which are called fatigue cracking or "alligator" cracking (because they resemble the scales of an alligator).

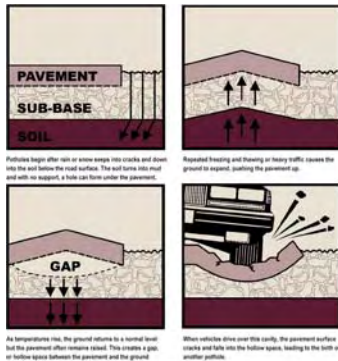
As shown, traffic has dislodged some pieces of broken asphalt, leaving a pothole, which allows for the harmful penetration of water.

Alligator Cracking 2



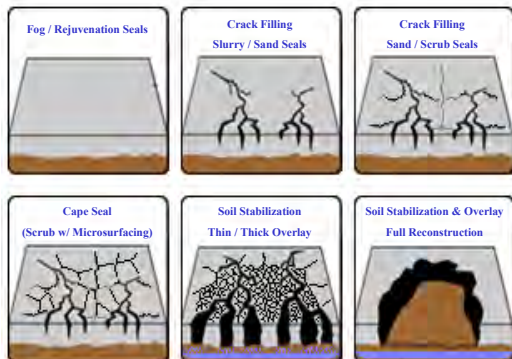
Alligator cracking is shown again. Another pothole is formed as traffic again dislodges loose, broken asphalt.

“Frost Heaving”: Penetration of Water



When water penetrates the surface to the soil, the freeze-thaw process of "frost heaving" further damages the pavement. Soil water expands in low temps (freeze) and contracts with rising temps (thaws). This process creates a gap, btwn the pavement surface and sub-base, that will collapse under continued traffic loadings. This is also how potholes are created.

Treatments: Various Pavement Conditions



Based on observed pavement conditions, what treatments would likely be appropriate are shown.

Why must we keep our roadways in good repair?

- Safety (potholes could cause driver to lose control)
- Saves motorists annually from “poor road expense” (Fresno: \$461; Modesto: \$538)
- Promotes our economy by providing serviceable system for moving people and freight (Ag: \$36.6 Billion industry that generates \$100 Billion in econ. actv.)
- Would be very expensive to replace (\$1.8 Billion)

AASHTO: American Assoc. of State Highway & Transportation Officials
 TRIP: The Road Information Program (National Transp. Research Group)

Public safety is a high priority.

Annual costs to motorists from AASHTO/TRIP 2009

"Rough Roads" report.

California AG industry (US Dept of Ag. 2007)

According to UC Davis reseach, for every \$1 billion in farm sales, there are 18,000 jobs created in the state).

From previous slide with estimated asset value.

What is the biggest problem facing Pavement Maintenance?

<<<< “SHOW ME THE MONEY!!!” >>>>

Not enough money “annually” to address the needs of pavement systems.

Jurisdiction	Annual Revenue	Preventative Maintenance	Rehab./Reconstruct.	Total Need
Atwater	\$ 1.1 M	\$ 2.5 M	\$ 12.8 M	\$ 15.3 M
Dos Palos	\$ 0.2 M	\$ 0.7 M	\$ 9.1 M	\$ 9.8 M
Gustine	\$ 0.2 M	\$ 0.2 M	\$ 7.0 M	\$ 7.2 M
Livingston	\$ 0.6 M	\$ 1.1 M	\$ 4.7 M	\$ 5.8 M
Los Banos	\$ 1.3 M	\$ 3.1 M	\$ 17.7 M	\$ 20.8 M
Merced	\$ 2.8 M	\$ 4.0 M	\$ 23.3 M	\$ 27.3 M
County of Merced	\$ 7.7 M	\$ 10.9 M	\$ 89.0 M	\$ 99.9 M

What nationally-accepted strategy is employed to overcome this dilemma?

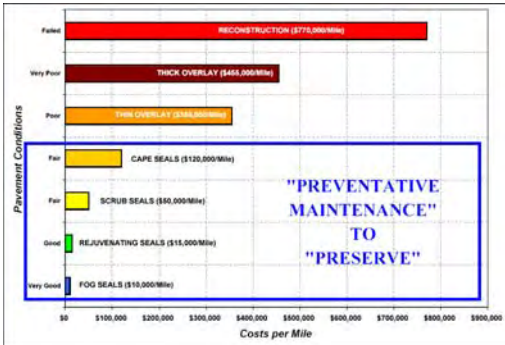
<<<< PRESERVE! PRESERVE! PRESERVE! >>>>

Doing “Preventative Maintenance” first is cost-effective strategy to keep good roads from costly “Rehabilitation and Reconstruction” sooner.

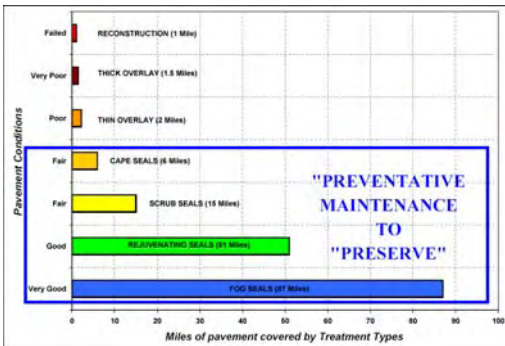
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} “Preventative Maintenance”
To
} “Preserve”

“Preventative Maintenance” costs **LESS!!!!**

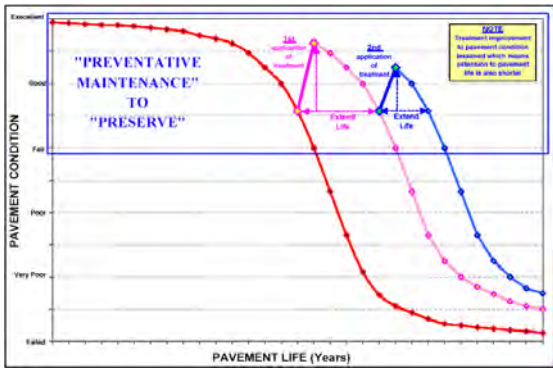


“Preventative Maintenance” means **MORE!!!!**



Since preventative maintenance costs **LESS**, you can **MORE** with your limited funds.

“Preventative Maintenance” extends **LIFE!!!!**



Preventative maintenance preserves "good" roads by extending life.

Preserve “Good” roadways while catching up on “Deferred Maintenance” of “Poor” roadways with any Additional Funding(s)

MORE \$\$\$\$ → “Deferred Maint.”

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“Preserve” Catch Up

If more monies are available, beyond those required for preventative maintenance needs, then deferred maintenance (major rehabilitation / reconstruction) could be caught up.

Annual Sources of Funding for Local Streets & Roads (LSRs)

FY 2008-2009

Jurisdiction	RSTP	LTF	Prop 42	HUTA
Atwater	\$242,000	\$72,000	\$233,000	\$441,000
Dos Palos	\$45,000	\$14,000	\$43,000	\$85,000
Gustine	\$47,000	\$16,000	\$44,000	\$90,000
Livingston	\$116,000	\$43,000	\$117,000	\$223,000
Los Banos	\$300,000	\$89,000	\$305,000	\$572,000
Merced	\$685,000	\$155,000	\$682,000	\$1,268,000
County of Merced	\$1,084,000	\$215,000	\$3,045,000	\$4,275,000

<< AT RISK >> FY 2009-2010 Transit First State Borrow State Grab

The insecurity of annual sources of funding for Local Streets and Roads (LSRs).

Local Transportation Fund (LTF) sets transit needs as priority. Remaining funds apportioned to jurisdictions.

Prop 42 (sales tax on gas) borrowed by State in FY 03/04 & FY 04/05. Fund could be borrowed by State again.

Highway Users Tax Account (HUTA) grab by State for 2 fiscal years was proposed to shore up State Budget Deficit. Passed Senate. Killed in Assembly.

Special Funding Sources for Local Streets & Roads (LSRs)

Jurisdiction	Prop 1B	ARRA
Atwater	\$444,000	\$1,101,000
Dos Palos	\$400,000	\$201,000
Gustine	\$400,000	\$208,000
Livingston	\$415,000	\$551,000
Los Banos	\$1,090,000	\$1,439,000
Merced	\$2,467,000	\$3,218,000
County of Merced	\$6,280,000	\$3,474,000

Mostly spent on “deferred maintenance” (catching up)

Use of Special Funding

City of Merced:

Cold Foam Asphalt Stabilization & Overlay

OLIVE AVENUE RECONSTRUCTION:

- New technology to reconstruct roadway
- Grind existing pavement surface (for thicker sub-base)
- Apply cold foam asphalt (quicker set time) to bind aggregates as existing surface is being pulverized
- Compact and grade recycled surface
- Finish rolling operation with slushing (compaction)
- Sweep off any loose rocks

- Asphalt Overlay on stronger/thicker sub-base

Use of Special Funding

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Use of Special Funding

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