

# Louisiana Parish Engineers



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**Corrective  
Asphalt  
Materials**  
CAM, LLC

# Corrective Asphalt Materials

❖ **What are Rejuvenators?**

❖ **Why are they used?**

❖ **When to use them!**

# WHAT'S IN A BARREL OF OIL?

BY PERCENTAGE

**35.8%**  
Petrol

**22.2%**  
Waxes,  
lubricants,  
polishes

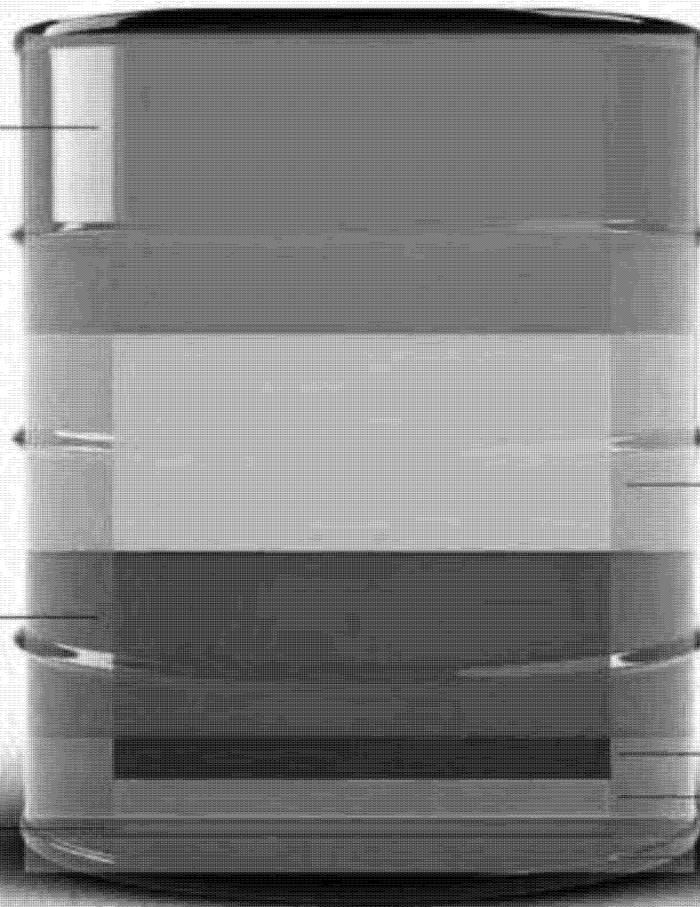
**2.3%**  
Asphalt  
(for tar)

**25.9%**  
Diesel

**5%**  
Marine fuel

**4.7%**  
Jet fuel

**4.1%**  
Petro-chemical  
feedstocks\*



# The Components of Asphalt

## ASPHALT CONSISTS OF TWO MAIN FRACTIONS:

Asphaltenes: They are the bodying agent in asphalt and when an asphalt ages their content increases causing the asphalt to become brittle.

Maltenes: They are the oil fractions of the asphalt. The four fractions each have a function in defining the reactivity or aging characteristics of the asphalt.



# Pavement Preservation Journal

## Spring 2020

WHAT ARE MALTENES? Regardless of any asphalt's geochemistry, maltenes are one of only two core molecular components common to all asphalts. As the resinous and oily fractions found in asphalt binder, maltenes are the medium that imparts to asphalt pavements their flexibility, fluidity and adhesion properties. The other core component is the colloid or filler known as asphaltene, which imparts to asphalt binder its structure.

# REJUVENATORS

**Asphalt rejuvenators are petroleum-derived additives and modifiers that aim to revitalize, provide sealing, and restore the physical and chemical properties of aged asphalt by replacing the Maltene fraction.**





# Why Rejuvenators?

## Exploring the Concept

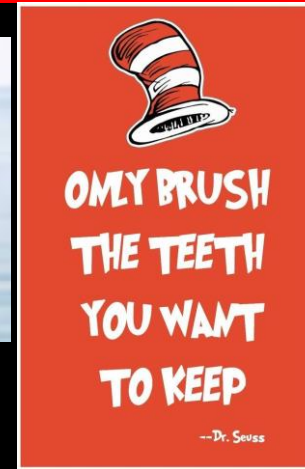
**Preservation is practiced in our personal life.  
Early intervention thwarts major problems and  
saves money.**

### Examples:

- Regular oil changes in our car
- Re-roofing the house before leaks occur
- Preventive medicine & physical fitness



# “Worst First” doesn’t make much sense



A stitch in time saves nine

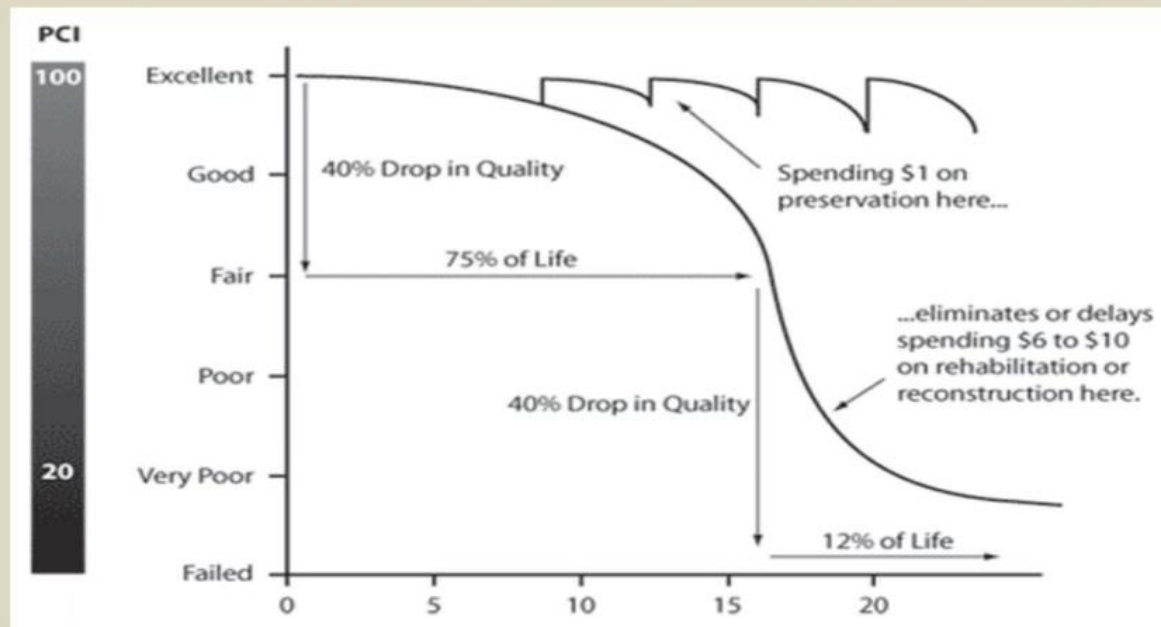
- Meaning:
- We can use this proverb to say that it is better to spend a little time to deal with problems or act right now than wait. If we wait until late, things will get worst, and it will take much longer to deal with them.





# A Big Reason Why to use Rejuvenators

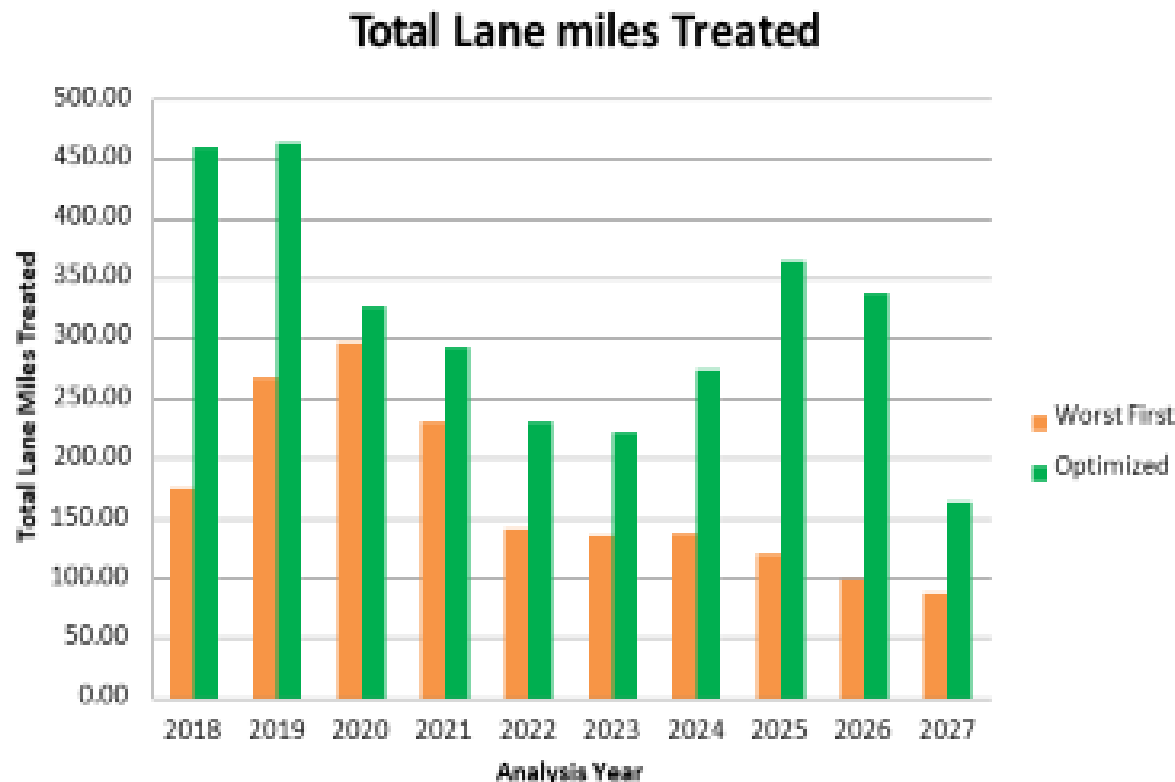
**FHWA has been preaching preservation**



# Worst first delivers worst results too

## Example: Worst First vs. Unconstrained Analysis

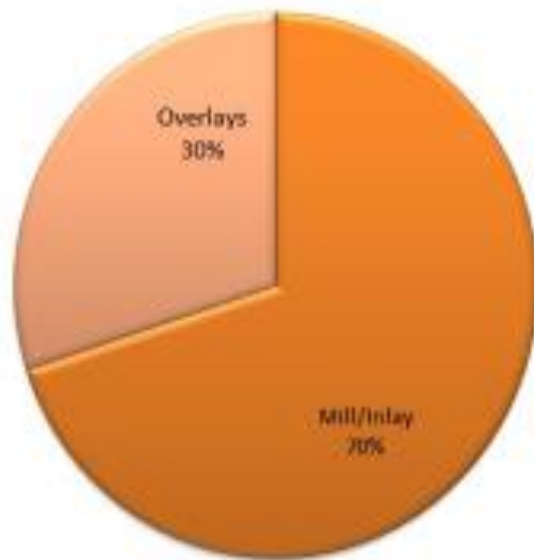
Basic data: 10yr analysis, \$15M yearly budget



# Polk County, Florida example

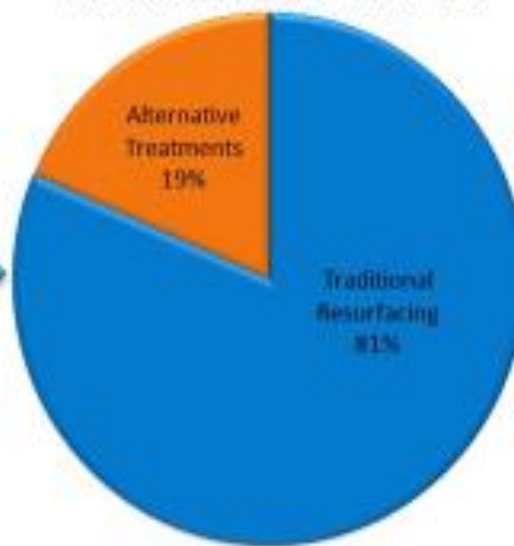
## PMS impacts on Metrics

Treatment Breakdown  
prior 2015



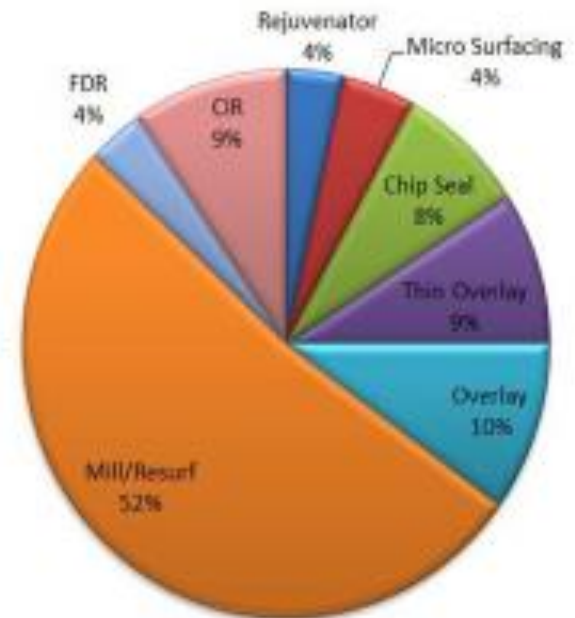
60-75 CL miles avg  
(\$10-12M)

Treatment Breakdown FY15-16



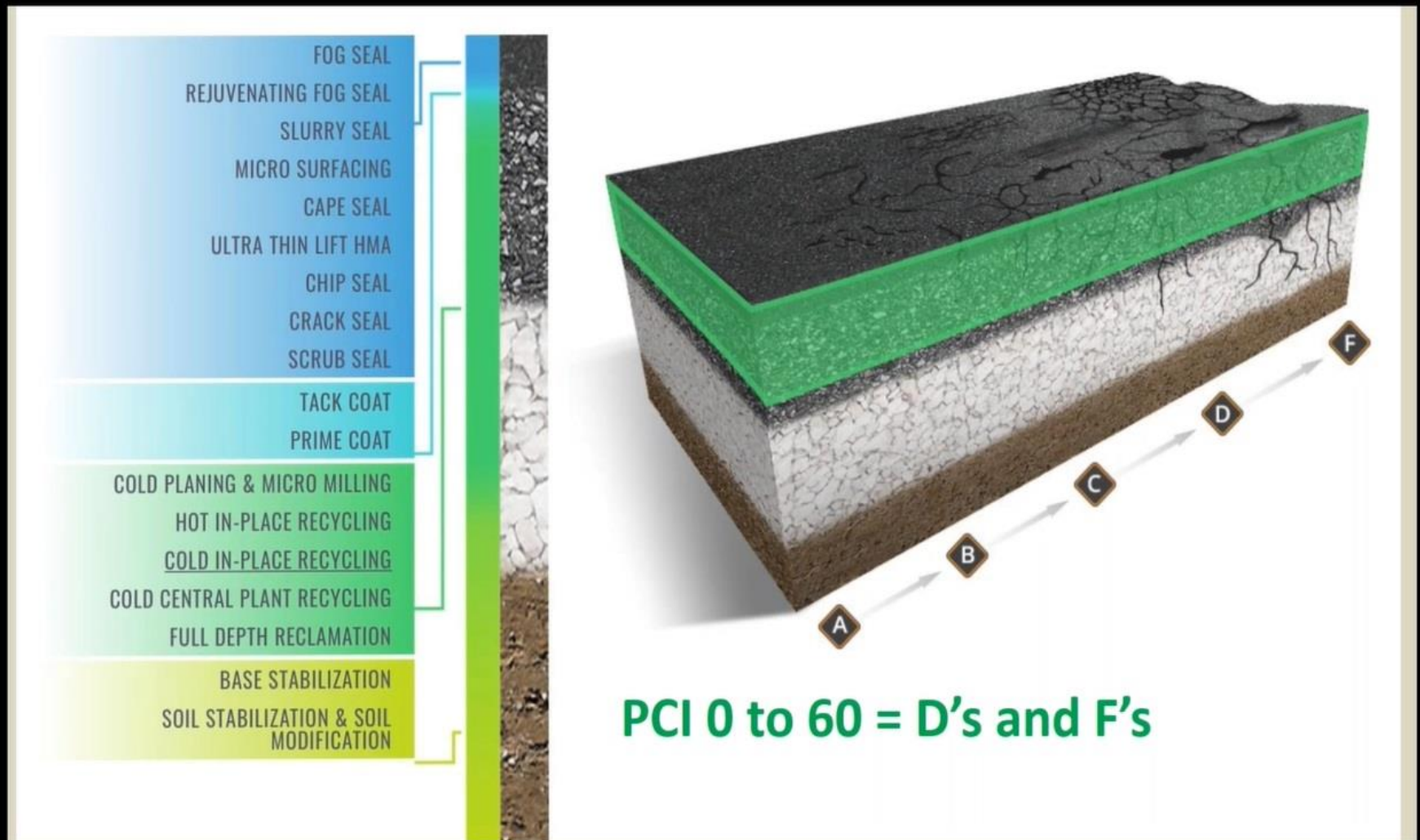
96 CL miles (\$12M)

Treatment Breakdown FY17-18



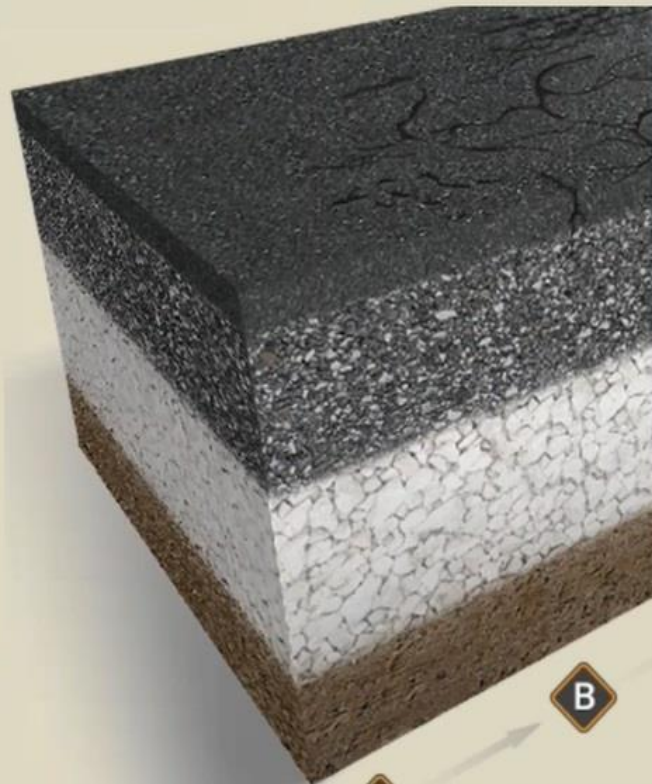
165 CL miles  
(\$15M)

# Many options for Maintenance



# Rejuvenators are applied here!

On good roads?



A

Graphic from PPRA

B



# Treated vs. Untreated Northern IL (8 years post treatment)



- Elmhurst side – paved in 2007, treated in same year
- Berkley side – paved in 2008, no treatment
- Photo was taken in 2015



# Treated vs. Untreated 18 years post treatment



Untreated

Village of Yorkville, IL

Treated



# Treated vs. Untreated 18 years post treatment

Treated

Village of Yorkville, IL