



**Pavement
Technology, Inc.**
Real Science.
Real Results.



PlusTi™
Smog Eating Roads
A Better Way to Get There



Roadway Retrofit Maltenes Replacement Technology (MRT)





Real Science. Real Results.

Specialize in Asphalt and Concrete **Preventive** Maintenance

- Founded in 1972
- Based out of Westlake, OH
- Other Locations: Dayton OH
Tampa FL – Morrisville NC
- Manufacturing Plant — Mansfield, OH



Reclamite®
Rejuvenator



JointBond®
Joint Stabilizer



PlusTi®
*Photocatalytic
Pavements*





Real Science. Real Results.



- **Charlotte**
- **Gastonia**
- **Matthews**
- **Rock Hill**
- **Mooreville**
- **High Point**
- **Waynesville**

- **Raleigh**
- **Durham**
- **Cary**
- **Apex**
- **Garner**
- **Holly Springs**
- **Fuguay-Varina**



- **Greenville**
- **Wilmington**
- **Hope Mills**
- **St. James**
- **Carrboro**



Real Science. Real Results.

What is Maltene Replacement Technology (MRT)?

- Discovered in 1959 by Dr. Fritz Rostler
- Uses an exact molecular match to replace the maltenes lost to oxidation
- Rejuvenating asphalt has one purpose - replace what's lost
- Rather than dilute what's left
- Extends the life of binder by 4-5 years
- Can retreat pavement as many as 2-3 times

**Tame
Nature
Naturally**

**Real Science.
Real Maltenes.
Real Results.**

Corn, soy beans, oranges and petroleum are all derived from Mother Nature. When used according to Nature's Plan, we all benefit. Asphalt binder is a natural derivative of petroleum. Exposure to the natural environment damages a binder's maltene components through oxidation. The natural remedy for repairing that damage is Maltene Replacement Technology using Reclamite® asphalt rejuvenator.

GetMaltenes.com

 **Pavement Technology, Inc.**
Real Science. Real Results.



Components of Rejuvenators

First acidaffins

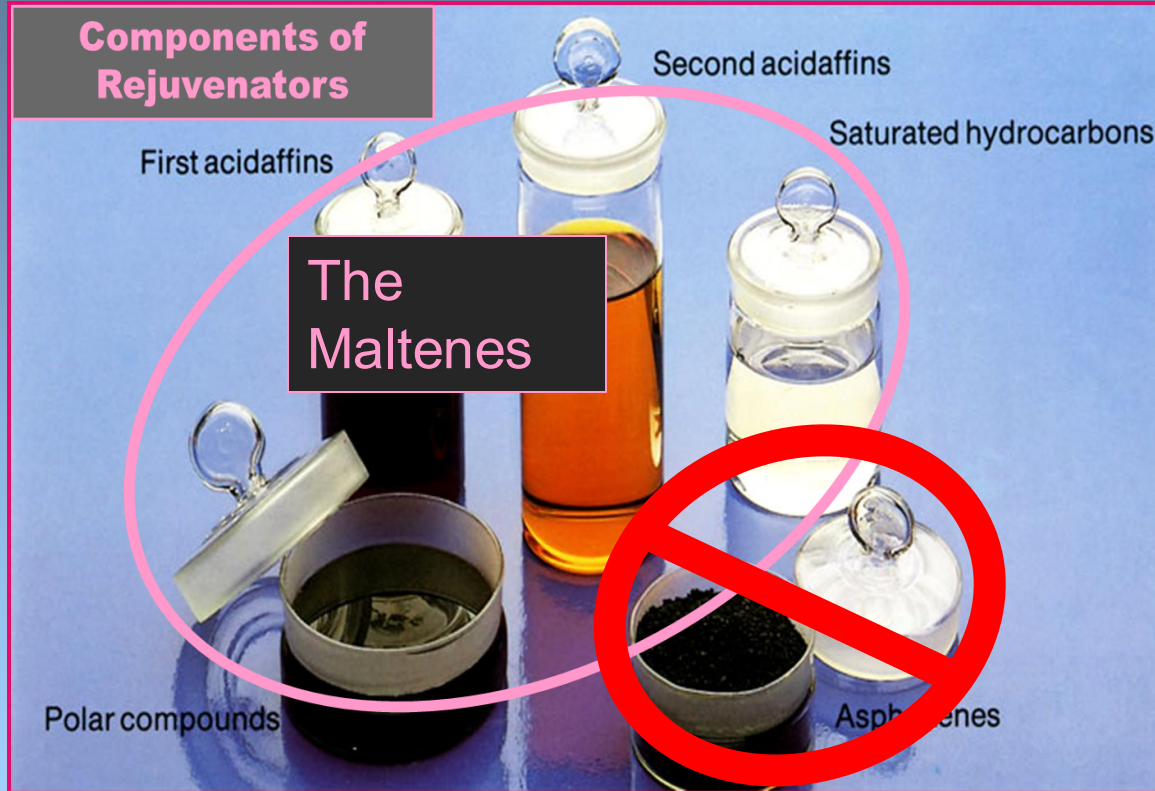
Second acidaffins

Saturated hydrocarbons

The Maltenes

Polar compounds

Asphaltenes

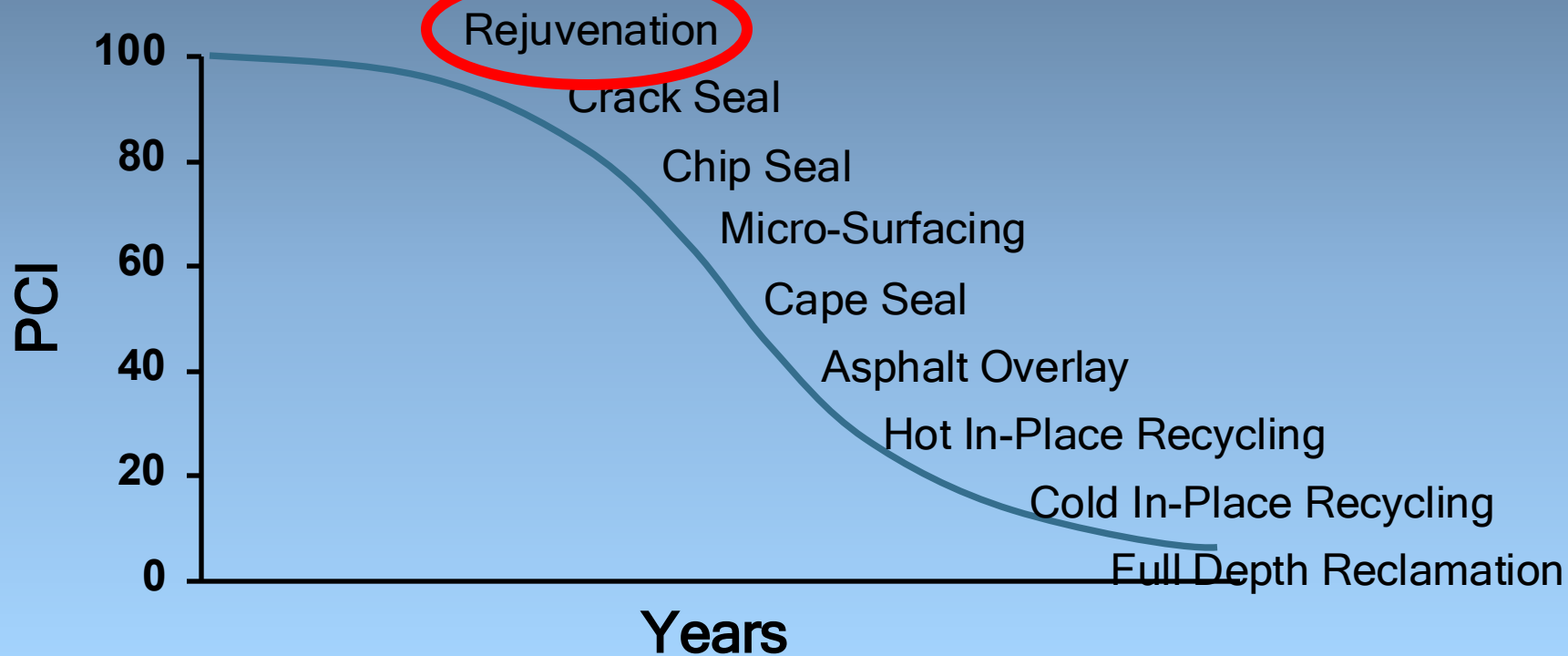




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Pavement Strategies





The first significant hardening of the asphalt cement takes place at the hot mix plant. During this short mixing time, the asphalt cement, which is in very thin films, is exposed to high temperatures ranging from 275 to 350° F.



Oxidation takes its toll

The roadway begins to deteriorate the moment it's paved. The viscosity of the asphalt binder can go from 10-15K poise when it's only a few months old to several hundred thousand after less than a decade.



Aging continues

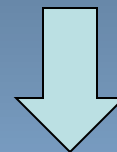


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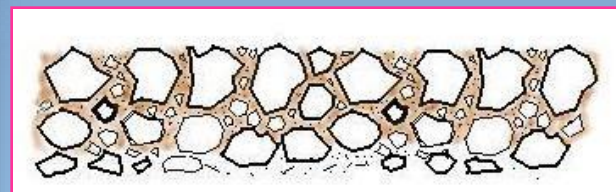




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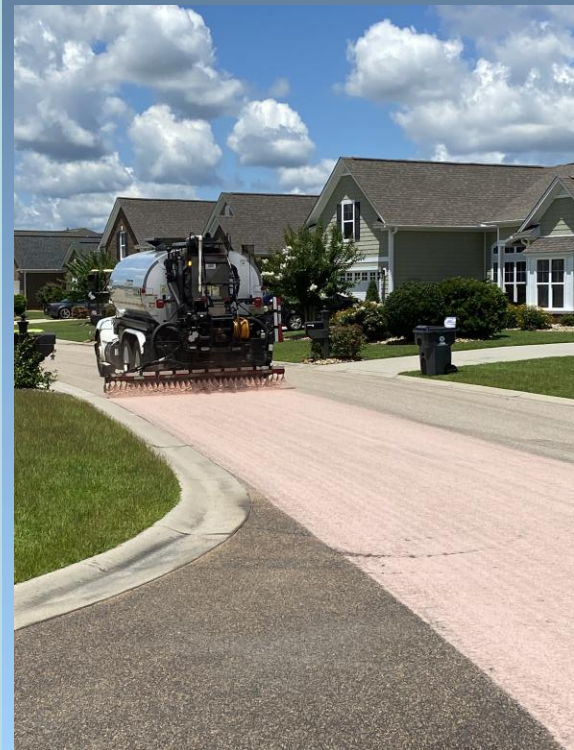


Penetrates into to the asphalt





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Goal
20-30 Minutes



Sweep remaining aggregate next day



Real Science. Real Results.

Real Science. Real Results.



Figure 3.14 Maltene Rejuvenator Study:
Seven Year Oxidation Rate Curves in
Charleston County (SC)¹⁰⁵
(in poises)¹⁰⁶



Source: Pavement Technology, Inc.; APART



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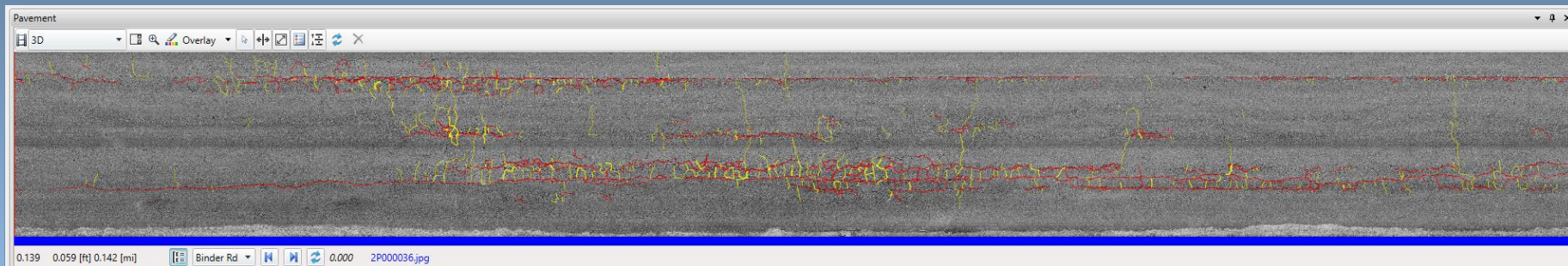




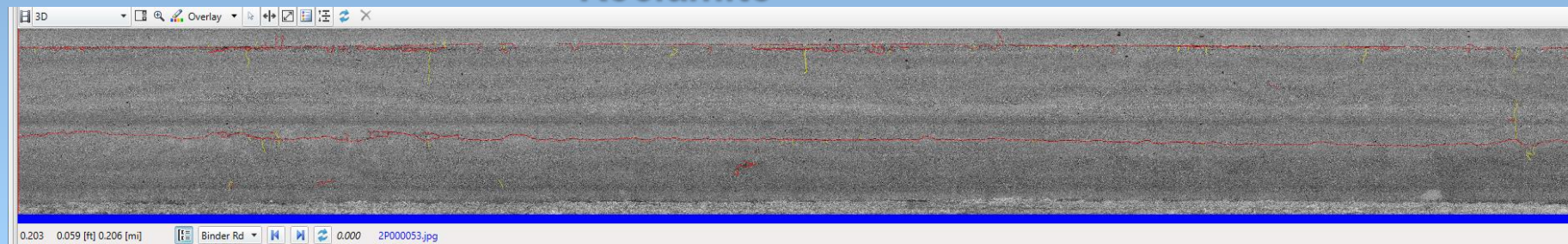
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Age: 20+ years

Resurfaced: 2000



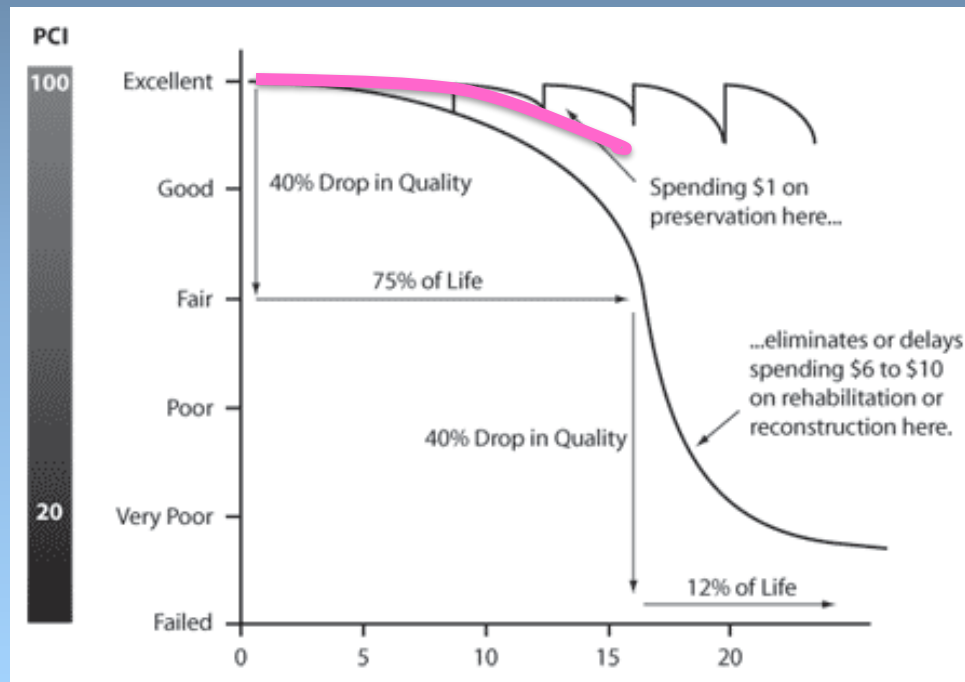
Reclamite® 2004





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FHWA has been preaching preservation





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Untreated

Treated

Untreated holding moisture

Treated pavement dries faster after rain

City of Dayton- Oak Dale treated in 2013



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9 Years later—Fall of 2022



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Reclamite 2004



Paved 2001-2003 no Reclamite

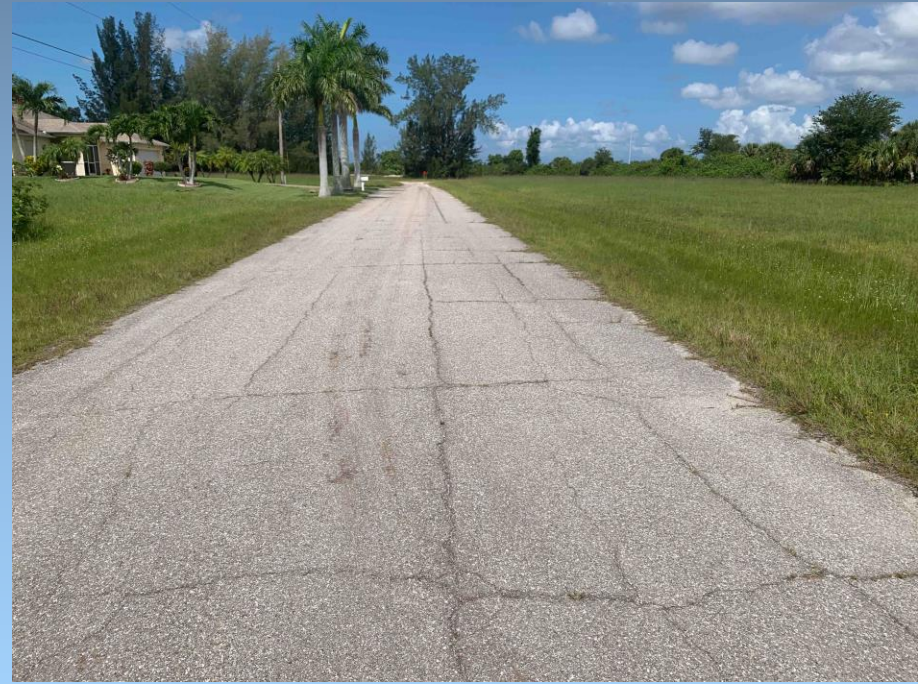




Reclamite 2005



Paved 2004-2006 no Reclamite





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Reclamite 2010



Paved 2007-2009 no Reclamite



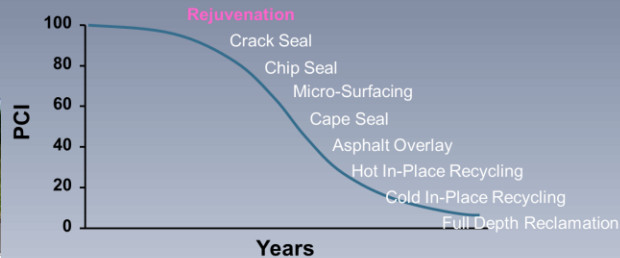


Reclamite 2011



Paved 2010-2012 no Reclamite







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Who is responsible for a
good project?





Good Jobsite Safety and Application





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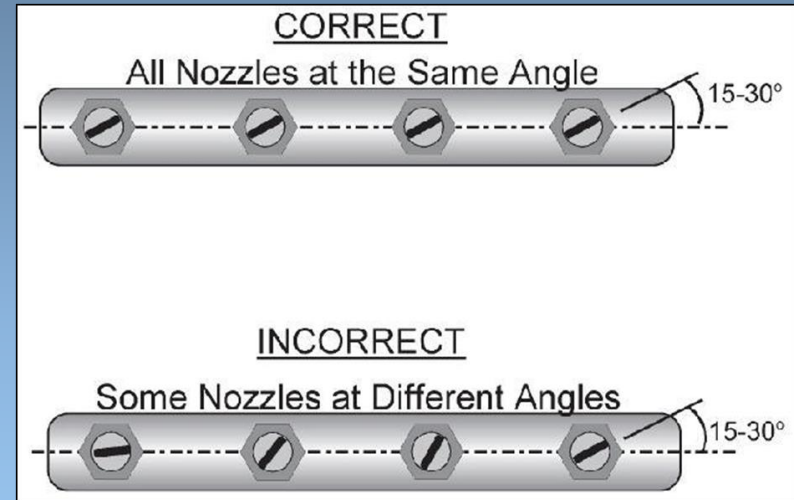
Application

- Ambient Temperature 50° F and rising
- Precipitation - Monitor weather and cease operations if necessary
- Pavement Surface should be dry and free of dirt and debris
- Spray bar – all nozzles are free of clogs and adjusted properly



Application

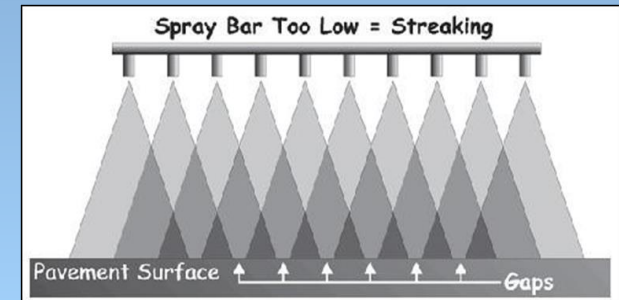
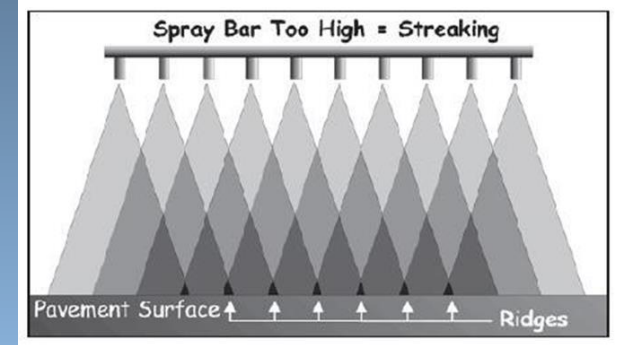
- Nozzle Adjustment
- Adjustment Tool Provides proper angle
- Spray Pattern – no interference





Application

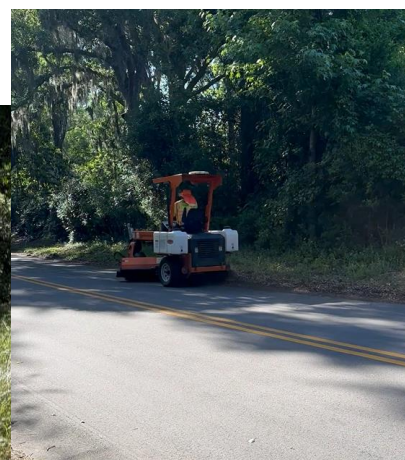
- Spray bar should be 1 foot off the ground
- Spray Pattern – too high or too low will cause streaking
- Bar pressure will also effect application appearance





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Pre-Cleaning



Stormwater Protection





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Test Shot – County Engineer, Inspector and Prime





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Minutes after test shot





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A few minutes later The edge needed additional material



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23 minutes, edge had double



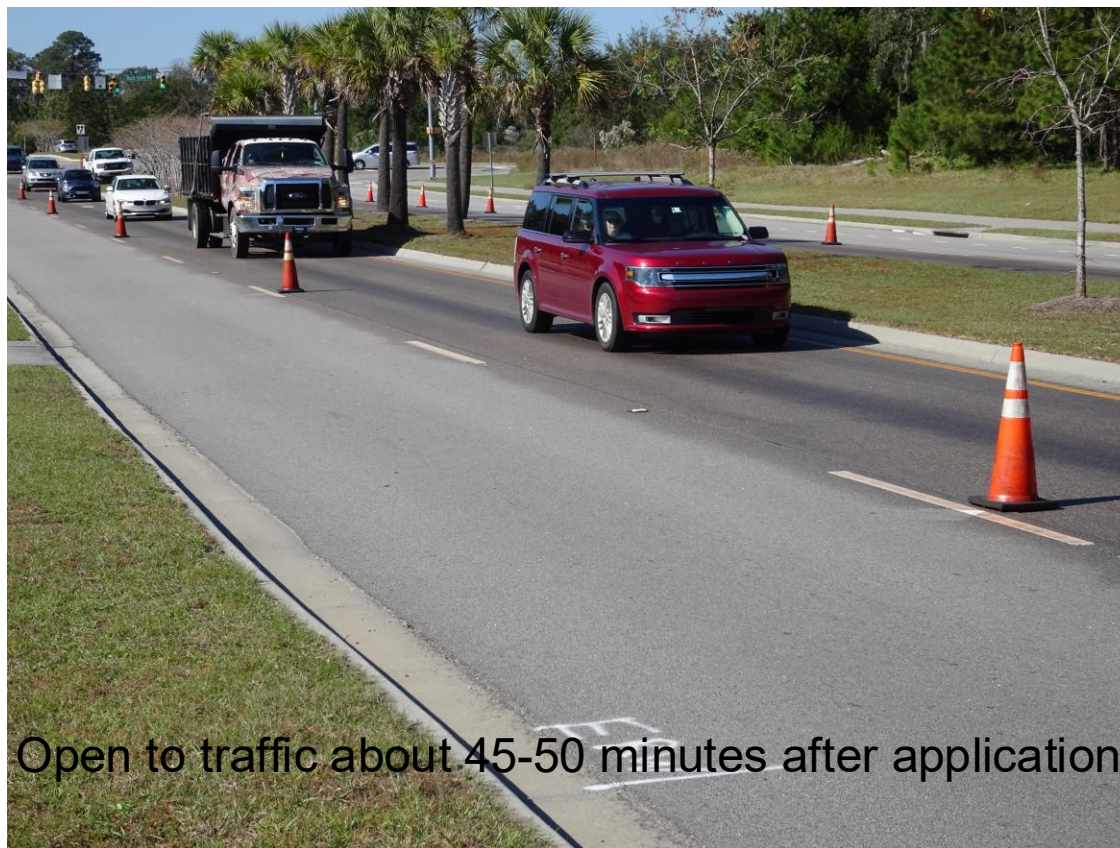
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Shaded Areas – slower absorption



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Open to traffic about 45-50 minutes after application

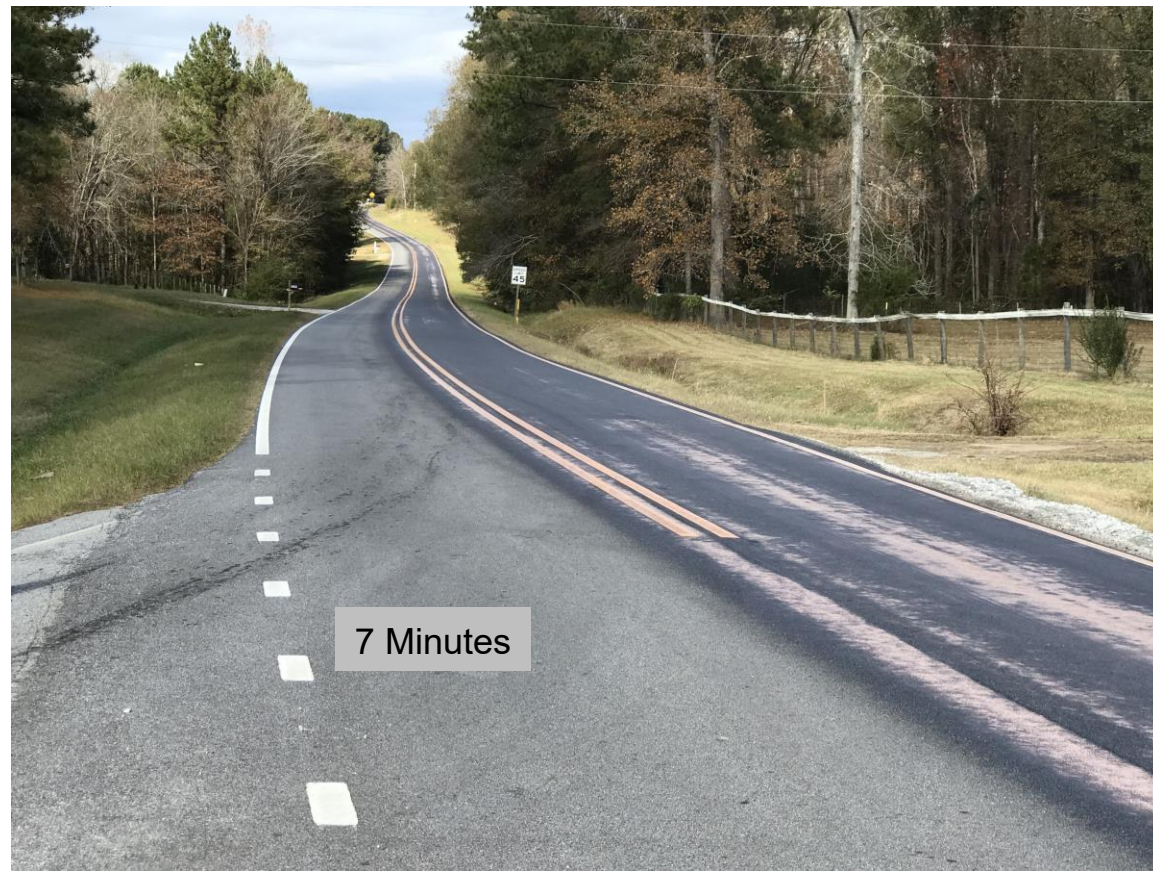


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Real Science. Real Results.



7 Minutes



Real Science. Real Results.





Real Science. Real Results.





Real Science. Real Results.



Less than 1 minute



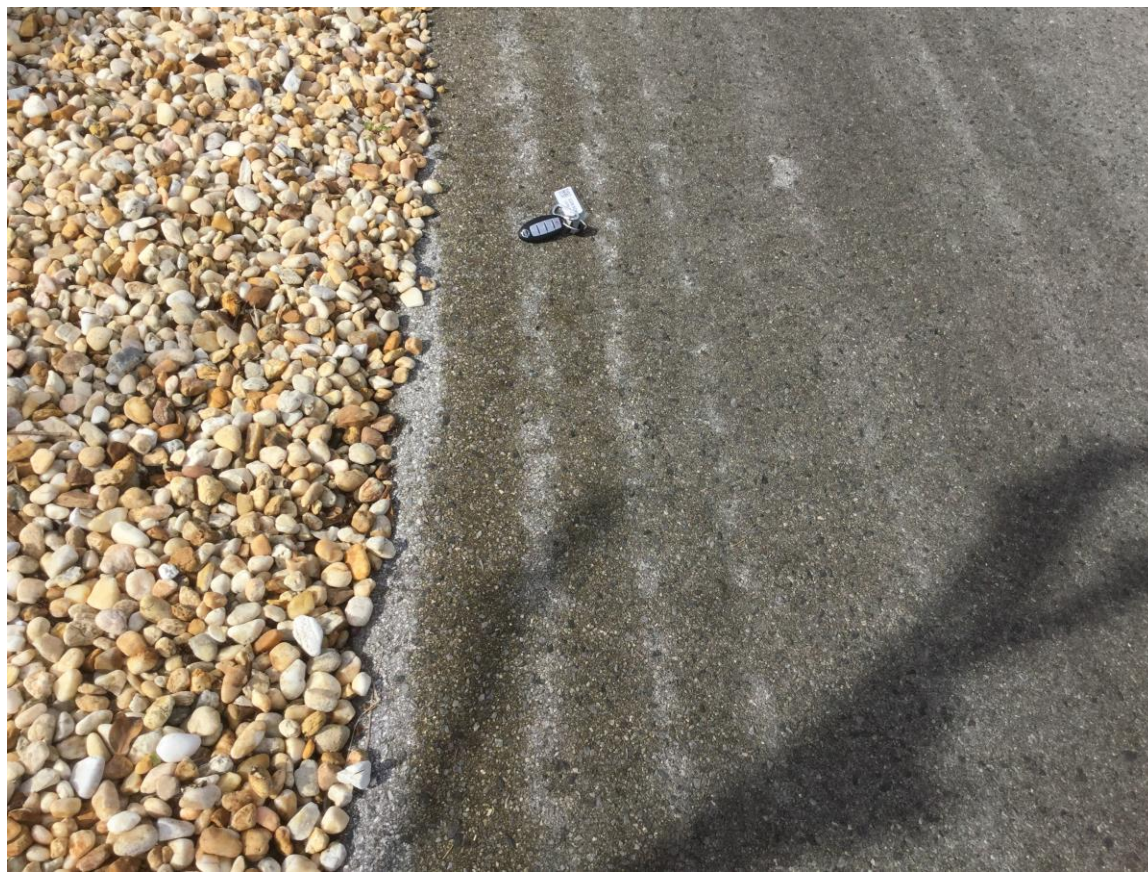
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Less than 8 minutes



Real Science. Real Results.





Real Science. Real Results.





Real Science. Real Results.





Real Science. Real Results.

Things That Will Cause Problems





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Real Science. Real Results.





Real Science. Real Results.







Goal: 20 to 30 minutes



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Results.





Real Science. Real Results.





Real Science. Real Results.





Real Science. Real Results.





Real Science. Real Results.



28 Days



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34 Minutes





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Questions?



PluSti™
Smog Eating Roads
A Better Way to Get There



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