

Matthew Stauch

Landsaver Environmental

A Division of Atlantic Construction Fabrics, Inc.

Atlantic Construction Fabrics, Inc.

- **Nationwide Geosynthetics and Specialty Products Manufacturer, Supplier, and Distributor**
- **Help Engineers design some of the largest and most difficult stabilization, geosynthetic reinforcement, and paving projects in the US.**
- **Teach geosynthetics products and uses to Consulting Engineers, DOT's, ACOE, States, Cities, and Counties.**
- **Conduct independent testing and partner with major universities and state DOT's for the improvement of unpaved and paved roads with the use of geosynthetic products.**

Landsaver Environmental

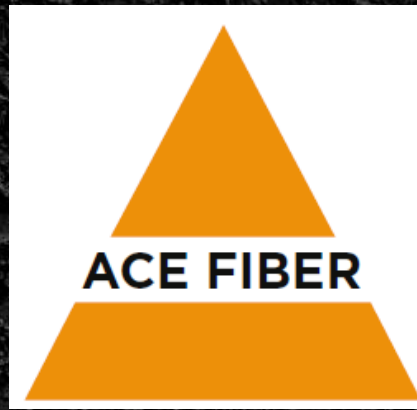
- **A Division of ACF specializing in product installation along the East Coast.**
- **Helping to specify and install paving fabrics, composite paving grids, and specialty interlayers for over 30 years.**
- **Advise Engineers on the product selection, support, and use of interlayers to improve the life of paved surfaces.**

Why are we here?

- To introduce the latest technology in pavement design for the extension of pavement life.
- To Improve pavement quality by reducing cracking, raveling, potholes, rutting, and shoving.
- To provide a solution for difficult paving problems on all paving projects.

What's unique about what you're going to see is:

It's not going to change anything in the paving or manufacturing processes currently used.



armor Your sphalt

Presented By:



SURFACE TECH
WE'VE GOT YOU COVERED

What Will ACE Fiber Do for You?

ACE Fiber Adds Big Value – Extends ESAL Life & Durability at Low Cost

- ▲ New Pavements
- ▲ Asphalt Overlays



Loves Travel Center – Sadieville, KY



Orcutt Garey Rd. – Santa Barbara, CA

ACE Fiber Not the First, But First to Work

Fibers Tried in Asphalt Concrete

- Asbestos
- Steel
- Mineral
- Cellulose
- Polyester
- Fiberglass
- Polypropylene

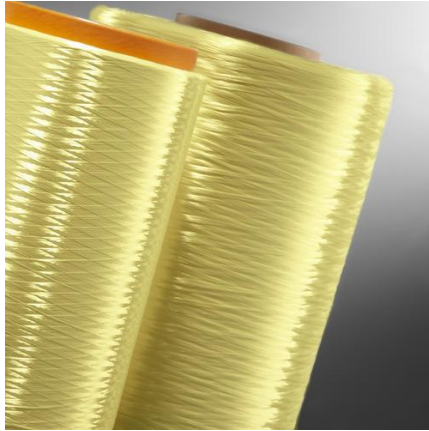
▲ **Aramid**



Typical What is ACE Fiber?

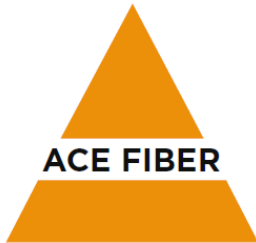
Aramid Fiber

(2.1 ounces / ton)



Sasobit® Wax

(2.1 ounces / ton)



(4.2 ounces / ton)



- ▲ 1-1/2" long Bundles
- ▲ 10,000 Fibers / Bundle
- ▲ 9.5M Fibers / ton of asphalt
- ▲ Wax Melts at 190° F
- ▲ Wax Soluble in Liquid Binder
- ▲ No Change to Design Mix
- ▲ No Extra Liquid Binder

Typical Why Aramid? Applications

Aramid is a high performance man-made fiber:

- ▲ High Strength (excellent strength-to-weight Properties)
- ▲ High Modulus
- ▲ High Dimensional Stability
- ▲ Excellent Heat, Cut and Chemical Resistance
- ▲ No Melting Point
- ▲ Low Flammability
- ▲ Non-Conductivity



Aramid is suitable for challenging applications:

- ▲ Ballistic Protection
- ▲ Heat & Cut Protection
- ▲ Automotive Industry (Brakes, Tires & Hoses)
- ▲ Ropes & Cables
- ▲ Optical Fiber Cables
- ▲ Conveyor Belts



Typical Why Aramid?

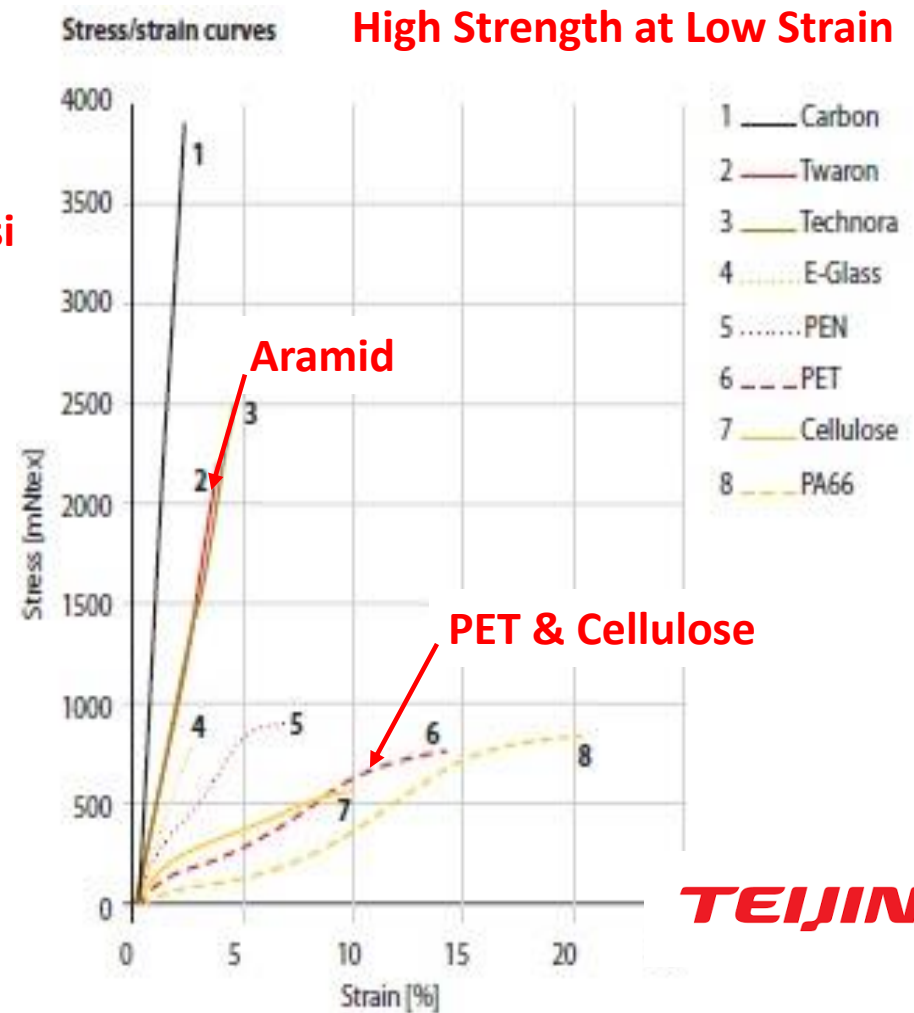
Twaron®

The power of Aramid

Density	(g/cm³)	1.44-1.45
Tensile strength	(GPa)	2.4-3.6
Tenacity	(N/tex)	1.65-2.5
Modulus	(GPa)	60-120
Elongation at break	(%)	2.2-4.4
Moisture	(wt%)	3.2-5
Glass transition	(°C) (°F)	- -
Decomposition or Melting	(°C) (°F) (°C) (°F)	500 932 - -

← = 400,000 psi
(5 x steel)
(1,780 kN)

← HMA = 400 F



How does Aramid Reinforce Asphalt?



ACE Fiber – Cracking Field Performance

ACE Fiber - Overlay Comparison

Owner: Butler County, Ohio

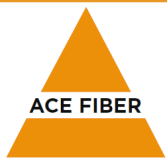
Project: West Chester Road - Overlay

Description: Side by side Comparison.

- 1.5" Surface, PG64-22 w/ ACE Fiber
- 1.5" Surface, PG64-22

Date Installed: July 2015

Date Pictures Taken: August 2016



ACE Fiber – Cracking Field Performance

Before – Prior to
1.5" Overlay

**Existing Crack Across
Both Lanes**

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6413 W Chester Rd, W
OH 45069

NO
PARKING
ANY
TIME

W Chester Rd

W Chester Rd

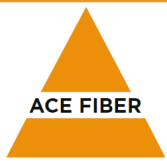
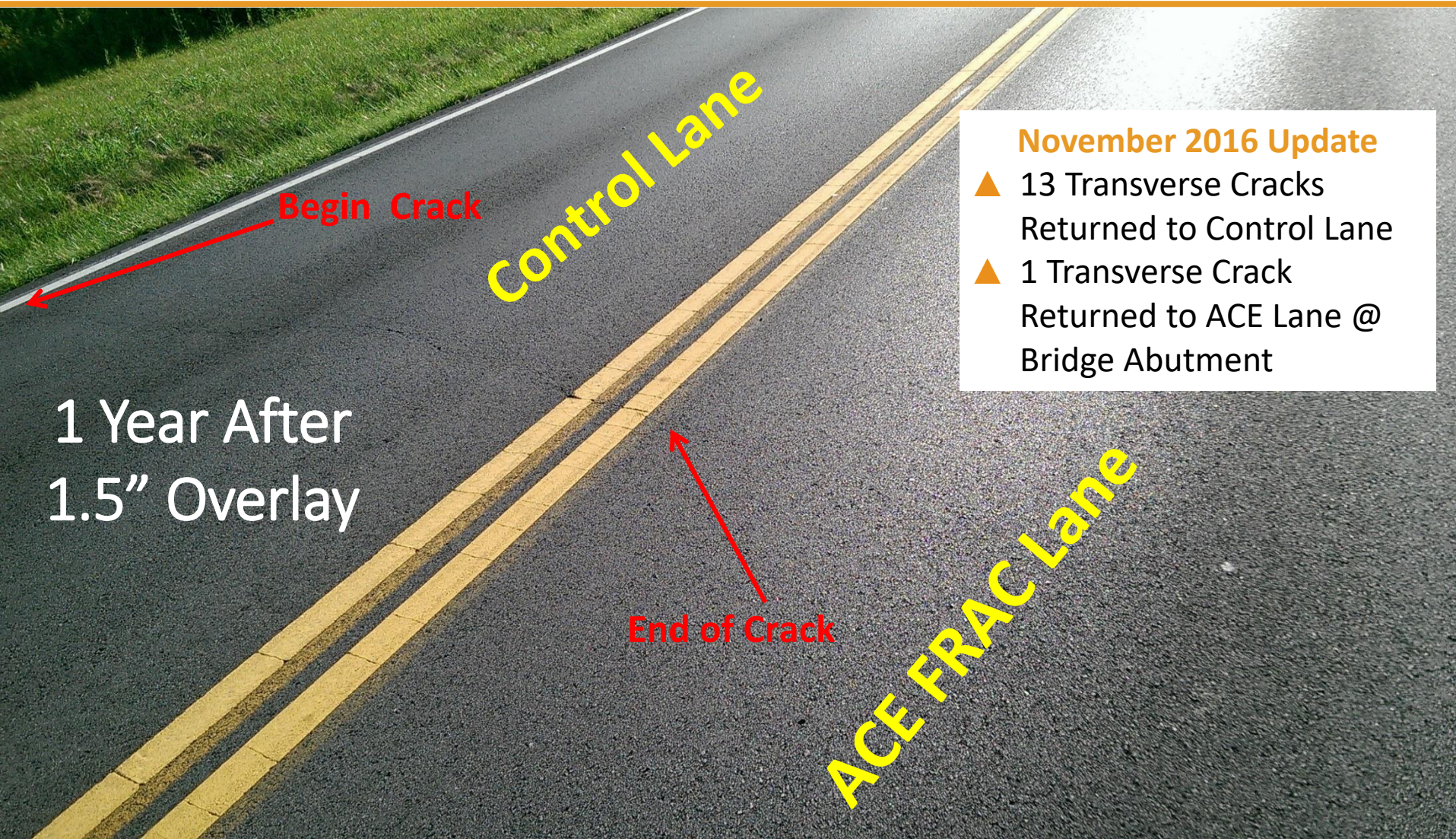


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ACE Fiber – Cracking Field Performance



ACE Fiber – Cracking Field Performance



How Is ACE Fiber Mixed into Asphalt?

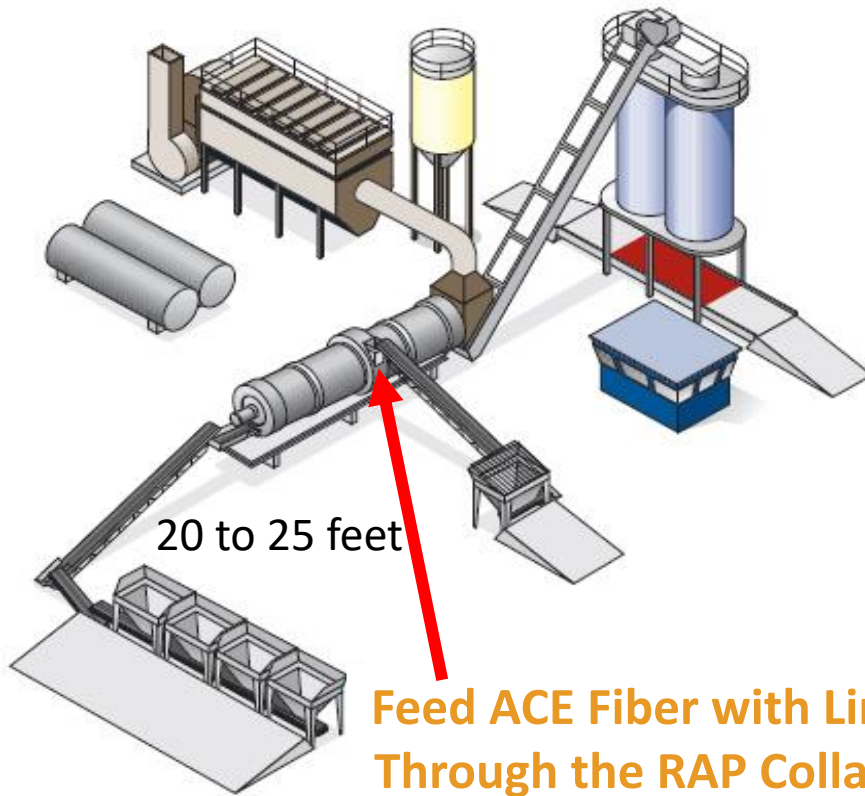
ACE Fiber Plant Production



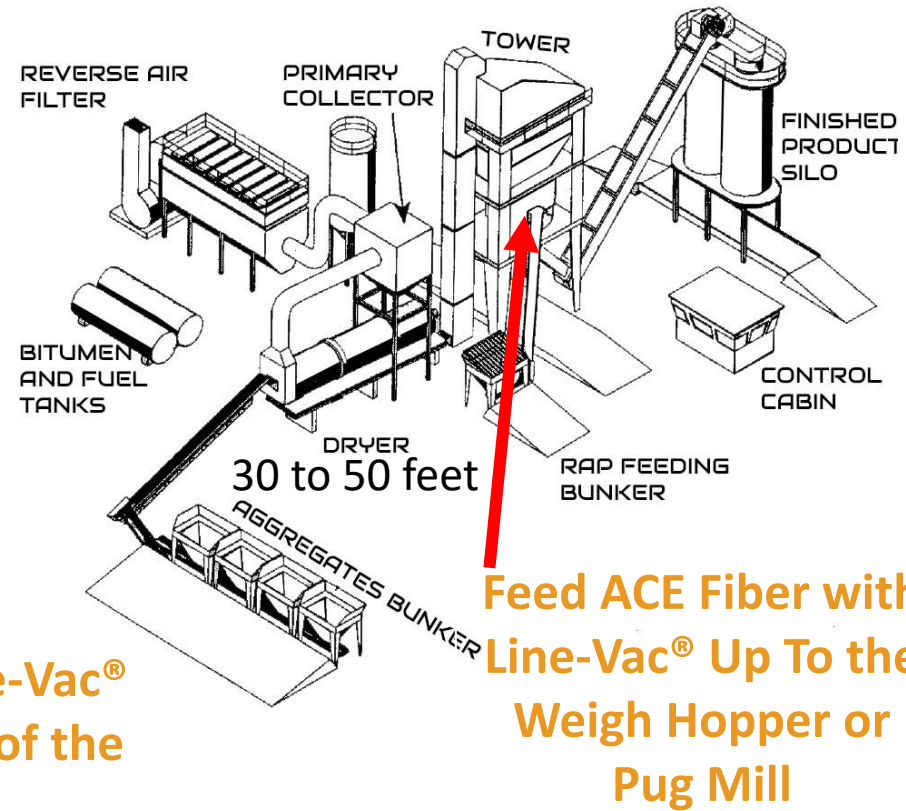
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ACE Fiber can be mixed at Batch or Drum Plants

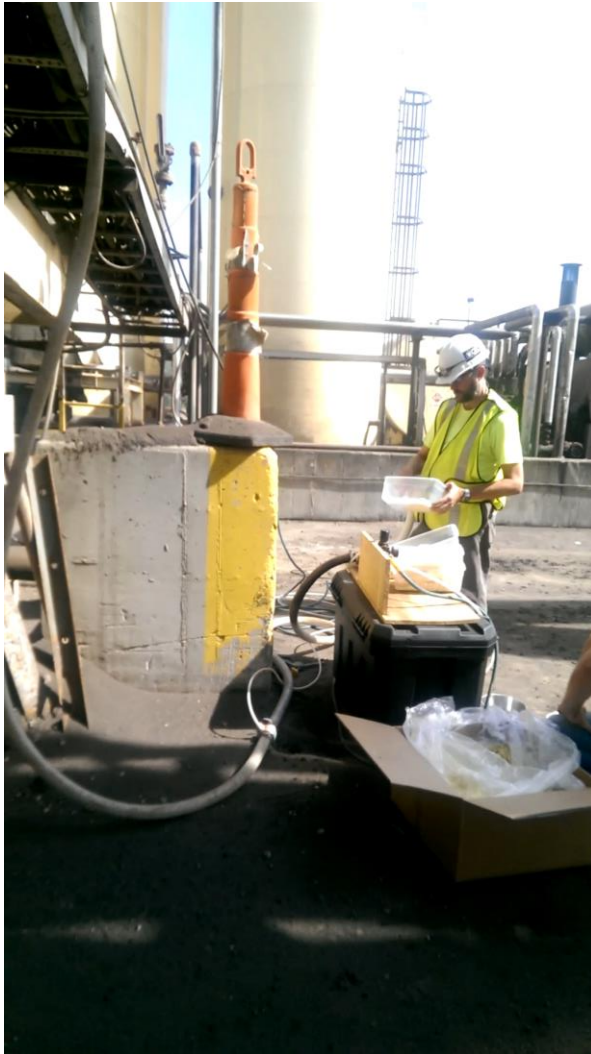
DRUM PLANT



BATCH PLANT



ACE Fiber Feeding is Accurate & Certified



Accurately
Metered
& Certified

Uniformly
Blended &
Verified



ACE Fiber Feeding is Accurate & Certified

Automated Dosing Machine



We provide dosing machines, certified technicians, and certified project reports.



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How is Asphalt Paving with ACE Fiber?

ACE Fiber Paving

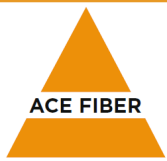


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ACE Fiber Does Not Change Paving Operations



No
changes to
Paving, Detailing or
Compacting



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How is Asphalt Paving with ACE Fiber?

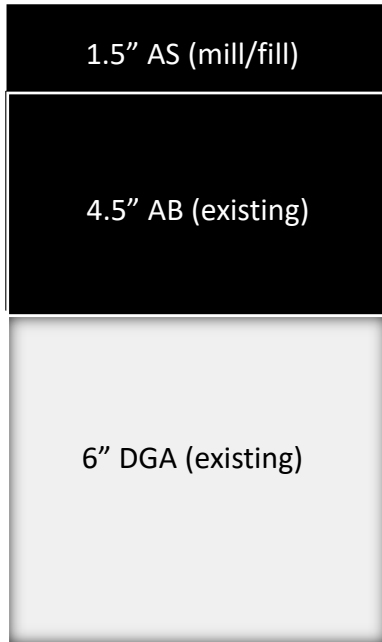
ACE Fiber Pavement Comparisons



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ACE Fiber - Adds Big Value at Low Cost - Using $\alpha_1 = +30\%$

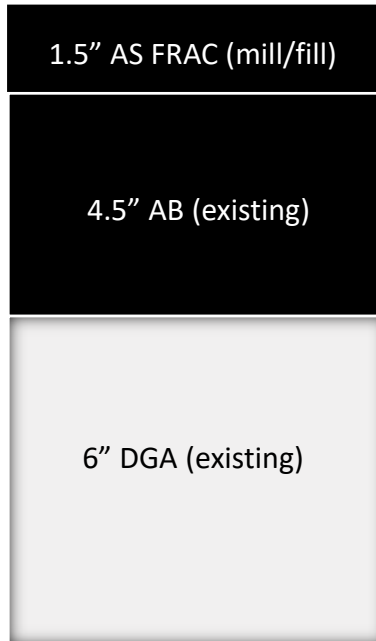
Standard 1.5"



\$60/ton asphalt

\$4.95 / SY

ACE FRAC (1.5")

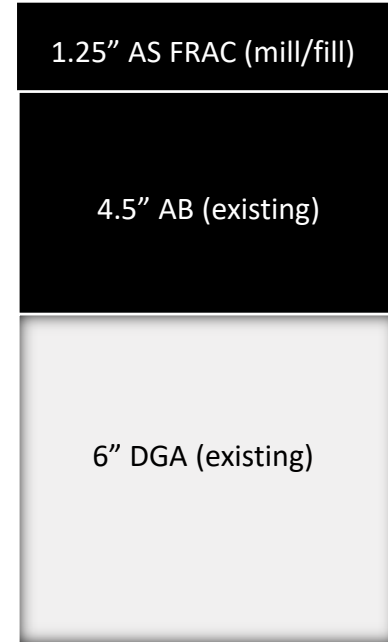


\$72/ton asphalt

\$5.94 / SY

+\$0.99 / SY cost
+91% ESAL life

ACE FRAC (1.25")

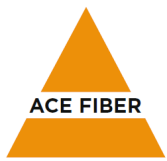



\$72/ton asphalt

\$4.95 / SY

+\$0 / SY cost
+20% ESAL life

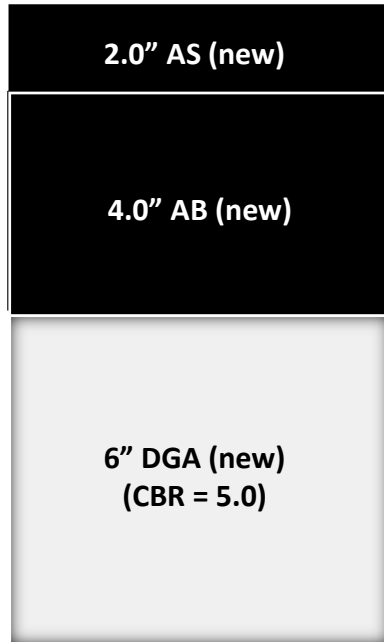
Overlays



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ACE Fiber - Adds Big Value at Low Cost - Using $\alpha_1 = +30\%$

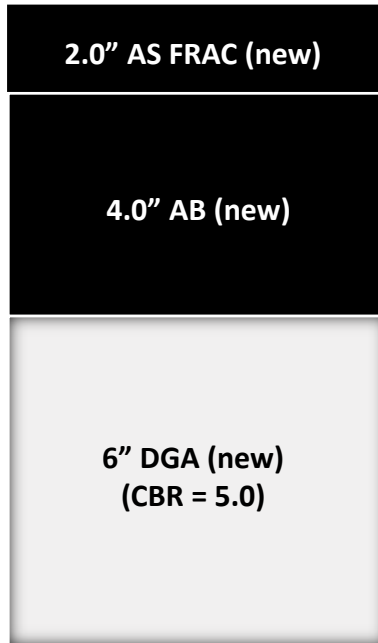
Standard 6.0"



\$60/ton asphalt

\$19.98 / SY

ACE FRAC (6.0")

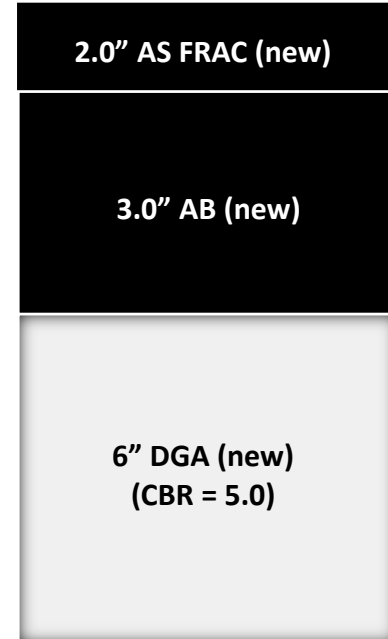


\$72/ton asphalt

\$23.98 / SY

+ \$4.00 / SY cost
+244 % ESAL life

ACE FRAC (5.0")



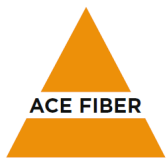
\$72/ton asphalt

\$19.98 / SY

+ \$0 / SY cost
+44 % ESAL life



New Pavements



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Where is ACE Fiber being used?

New Pavements

**DOT Projects in
OH, PA, KY, NC, SC, MD, MO,
CO, WY, UT, ID, OR, CA, TX,
FL, MD and others**

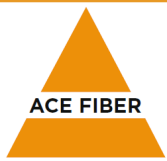
**Love's Travel Centers
Nation Wide**

Overlays

**FL, VA, MD, NC, SC, OH, PA,
KY, IN
Approved and In Use**

**Municipalities across the
US and Canada
On Paving Schedules**

Private Projects



What Will ACE Fiber Do for You?

ACE Fiber Adds Big Value – Extends ESAL Life & Durability at Low Cost

- ▲ New Pavements
- ▲ Asphalt Overlays

New Pavement

You're Next Project?

Overlay

You're Next Project?

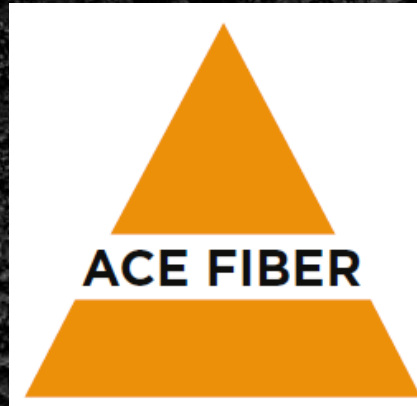


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What's The Cost?

1. Initial Cost of Material and Techs
2. Placement Cost (Unchanged)
3. Life Cycle Cost of Superior Pavement

What's In Your Asphalt ?



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