



*October 24<sup>th</sup>, 2012*

*Cody Worden*

*NWPMA Fall Conference – Vancouver, WA*



# Overview of Western Pavement Solutions

- Who we are
- What we do
- Where we work



***Protecting roads  
for today and  
tomorrow's drivers***

# Who is Western Pavement Solutions?

- *Launched in February, 2012*
- *Based in Las Vegas, NV*
- *Part of the Colas Pavement Preservation Group*
  - *Created to address agencies needs of deteriorating infrastructure with limited budgets.*
  - *Responsible Solutions- For every \$1 you invest in Pavement Preservation, you save \$6-10 in reconstruction.*
    - *“The need to do more with less”*
- *Licensed in 9 states west of Continental Divide*



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# What services does WPS offer?

- *Three Divisions*
  - *Surfacing*
  - *Emulsions*
  - *Recycling/Reclamation*



*The ONLY provider in the western US to offer ALL of these services*



# Surfacing Division

- **SURFACING DIVISION**
  - *Fog Seals*
  - *Slurry Seals*
  - *Chip Seals*
  - *Cape Seals*
  - *FiberMat®*
  - *UltraWear®*
  - *Microsurfacing*





# Emulsions Division

- *Performance Emulsions, a subsidiary of WPS, is a Colas Solutions Provider of Engineered Emulsions.*
- *E-COLPACK™-*
  - *Portable Emulsion Plant*





# Recycling/Reclamation Division

- *Grinding/Milling*
- *Cold In-Place Recycling (CIR)*
- *Cold Central Plant Recycling (CCPR)*
- *Full Depth Reclamation (FDR)*
- *Soil Stabilization*







# The Extra Tool in the Pavement Preservation Toolbox





# What is FiberMat®

- **FiberMat®** is a combination of specifically engineered fiberglass strands encapsulated within two layers of a polymer modified emulsion that is 100% recyclable.
  - = Waterproofing membrane (0.4-0.6 Gal/SY)
  - = The ability to withstand stresses and give enhanced tensile properties.





# History of FiberMat

*Creating roads  
that respect the view*

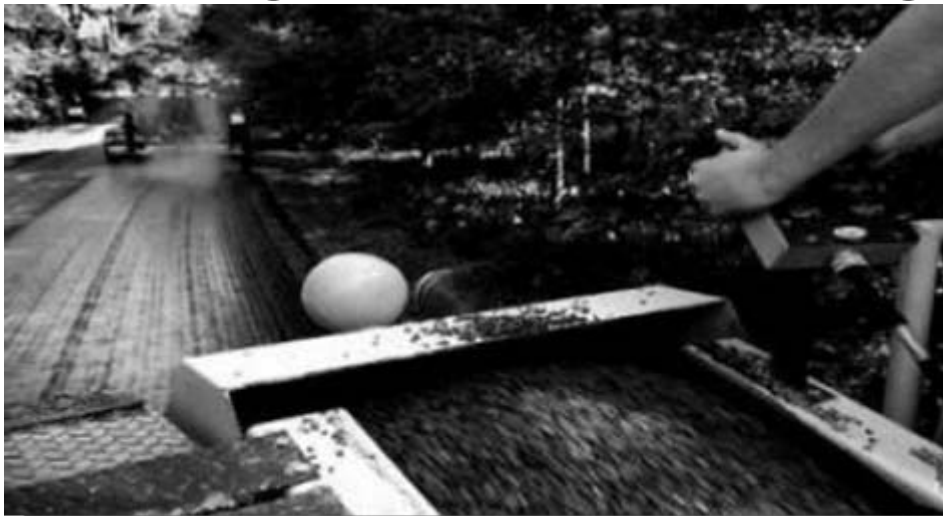


- When was it developed?
- Where is it today?



# History

- Developed in the UK over 20 years ago
- Used as a SAMI and Wearing Course
  - Used in traditional chip seal, decorative finishes, bridge decks, textile and grid markets



**FIBRE·DEC**





# History

- Evolution of the FiberMat<sup>®</sup> Machine...PAST

4 foot machine-mounted=  
small jobs, low production



8 ft. truck-mounted= larger  
jobs, higher production





# Today's Machine

- Brought to US in 2003
- Up to 40,000 SY without recharging
- Up to 250' per minute
- Steerable
- Speed Sensitive Tires adjusts application rate of emulsion and fiber
- Computer controlled
- 13"-13ft. Wide
- Currently, 15 machines in US

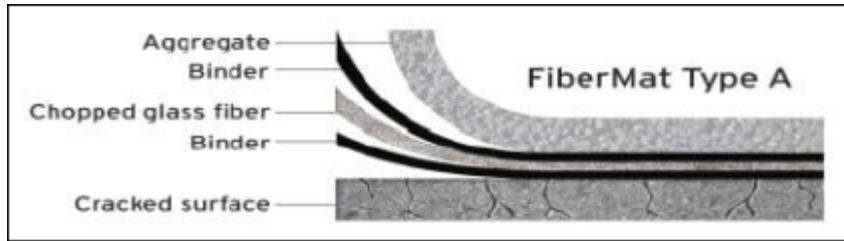




# Types of FiberMat

## FiberMat Type A

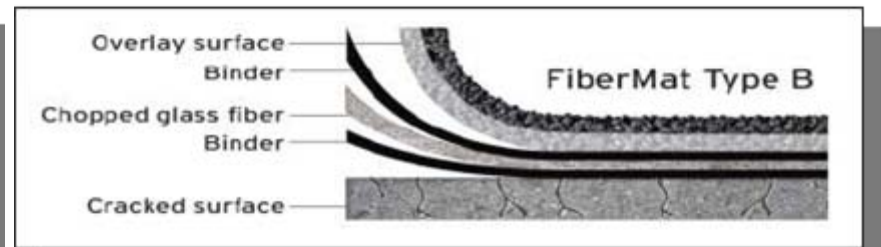
Surface Treatment Overlay (SAM)



A sustainable alternative to a conventional chip seal. The finished product is a skid-resistant wearing course.

## FiberMat Type B

SAMI with Fiber Reinforcement



Overlaid with HMA, WMA, ARHM, Slurry Seal, MicroSurfacing, or an Ultra Thin Bonded Wearing Course like UltraWear®



# Difference

## FiberMat<sup>®</sup> Type A

- Uses a Polymer Modified Asphalt Emulsion
  - 0.35-0.55 gal/sy
- Fiberglass
  - 2-3 oz/sy
- Aggregate
  - 17-25 lbs/sy
  - 1/4", 3/8", 1/2" Chip and/or combination

## FiberMat<sup>®</sup> Type B

- Uses a Polymer Modified Asphalt Emulsion
  - 0.4-0.6 gal/sy
- Fiberglass
  - 3-4 oz/sy
- Aggregate
  - 10-15 lbs/sy
  - 1/4" or 3/8" aggregate

\*Specifications can be tailored to meet customers needs and Pavement Condition Index.





# Executive Summaries

M. Thompson October 2007

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**Evaluation of FiberMate Type B as a Stress Absorbing Membrane Interlayer to Minimize Reflective Cracking in Asphalt Pavements**



by

Arif Chowdhury, P.E.  
Assistant Research Engineer  
Texas Transportation Institute

And

Joe W. Button, P.E.  
Senior Research Fellow  
Texas Transportation Institute

Texas Transportation Institute  
Texas A&M University  
College Station, Texas  
September 2007

Thompson 7-11-2007

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**EVALUATION STUDY OF FIBERMAT® TYPE B INTERLAYER SYSTEM FOR ROADWAY PAVEMENT REHABILITATION**

*Original report prepared by*  
**Ghassan R. Chehab, Ph.D.**  
Assistant Professor  
&  
**Carlos J. Palacios**  
Graduate Research Assistant

Pennsylvania Transportation Institute  
The Pennsylvania State University



# Advantages

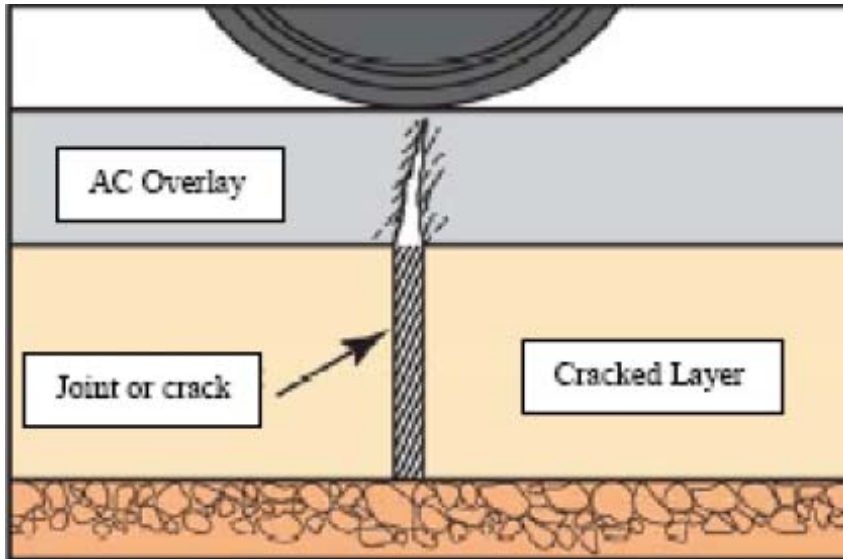
- Significantly reduces and delays recurrence of reflective cracking
- Matrix of Fiber aids in Chip Retention
- Waterproofs and seals aged pavement
- Fast, continuous application saves time and money
- Increases tensile strength and flexibility
- Can be used on all traffic volumes
- Economical in terms of whole life cycle costs



# Advantages

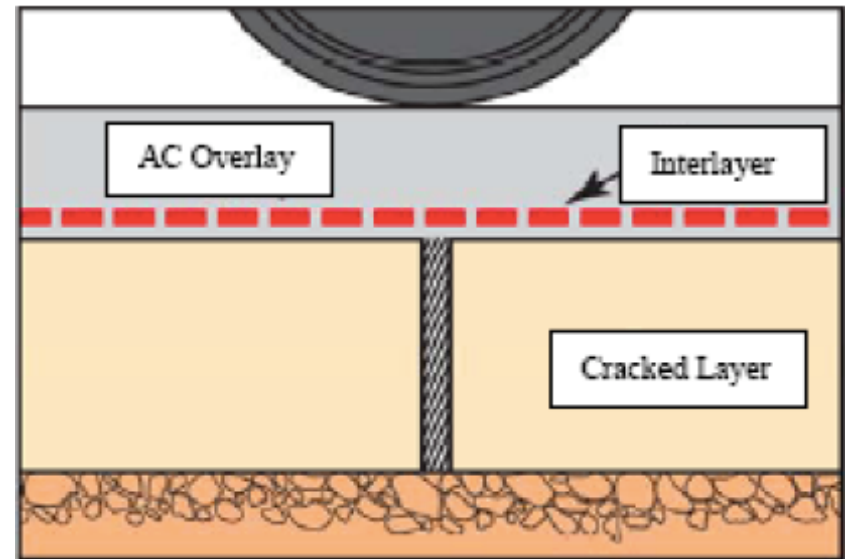
- Bonds well to concrete and asphalt
- Opens to traffic in minutes
- 100% RECYCLABLE unlike most other geotextiles
- More Eco-Friendly than similar treatments
- Less energy required than compared to similar treatments
- Better ROI- for every \$1 you spend on Pavement Preservation you save \$6-10 in Rehabilitation

## No Interlayer



Vertical cracking WILL reappear through newer overlaid pavement if underlying pavement is cracked.

with



Significantly delays the onset of cracking by distributing them horizontally, all while waterproofing the underlying pavement structure.



# Technical Reports

- Nottingham University, UK (1987)
- Ulster University, Ireland
- LCPC, Autun, France
- New South Wales Road Transportation Authority, Australia
- RILEM (1996)
- World Congress on Emulsions (10/2006)
- Penn State – PTI report on FiberMat Type B (3/2007)
- Texas A&M – TTI report on FiberMat Type B (10/2007)
- CTAA – Niagara Falls (11/2007)
- RILEM, Chicago, IL June 2008



# Technical Reports

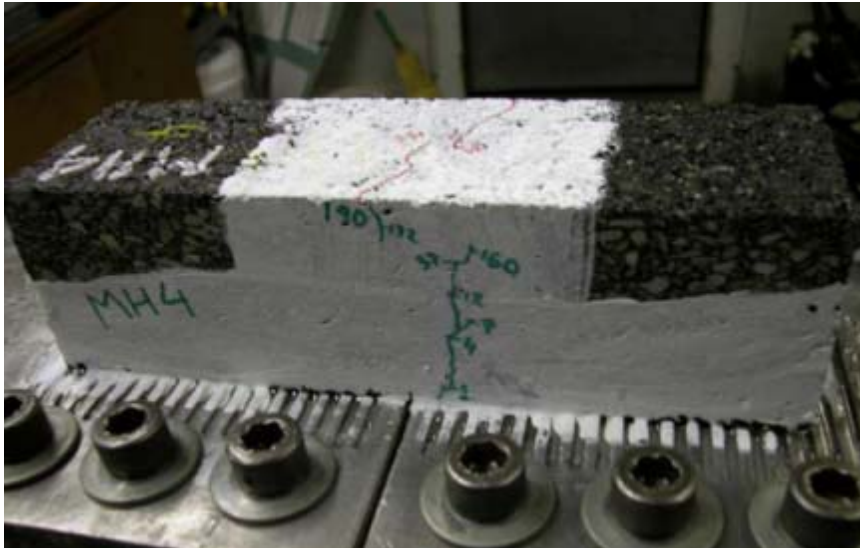
Research performed at Nottingham University concluded that FiberMat<sup>®</sup> :

- Has sufficient tensile strength and flexibility to absorb movements in the pavement structure
- Can reduce/prevent reflective cracking.
- Reduces the magnitude of the resulting strain of underlying lateral movement in the overlay by spreading it over a greater area.
- Dissipates stresses through the fiberglass horizontally rather than vertically.

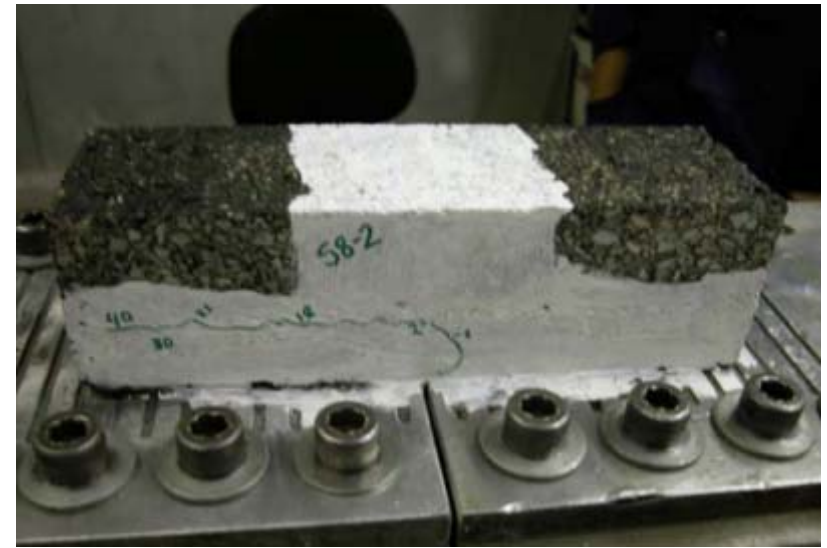


*Texas Transportation Institute  
Texas A&M University,  
September 2007*

**Control Section**



**FiberMat® Type B**

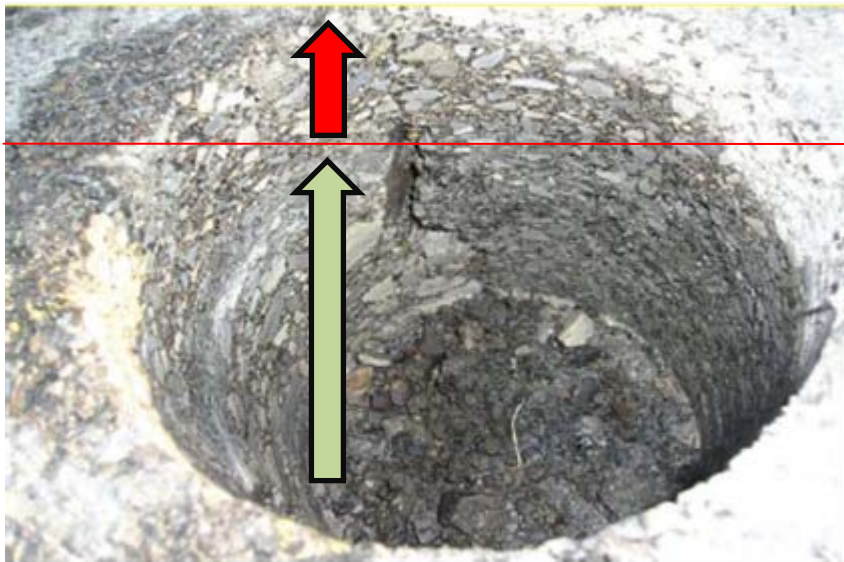


*“Generally, specimens containing FiberMat® improved cracking resistance in the small overlay testers **3 to 4 times more** than control samples. The large overlay FiberMat® samples survived **14 TIMES MORE** compared to the control.” (TTI, 2007)*



*Pennsylvania  
Transportation Institute  
Penn State University, July 2007*

**Control Section**



**Crack propagates through overlay**

**FiberMat® Type B**



**Crack Terminates**

*“Conditions during testing included temperatures that yielded freeze and thaw cycles. After one million cycles of MMLS3 traffic load, **NO CRACKS WERE OBSERVED** under the MMLS3 wheel path for the FiberMat Type B section.”*





# Projects to Date since 2010

- Caltrans, District 9 Test Strip- (July 21, 2010)
  - On Highway 6, 25 miles north of Bishop
- County of San Bernardino Test Strip (August 2010)
  - Stoddard Wells Road and Interstate 15
- NDOT Test Strip
- City of Calabasas (Sept. 1, 2011)
  - 50,000 sq. yds.
  - Overlaid with Type II Slurry Seal
  - Featured in California Asphalt Magazine
- Sunland Asphalt (May 2012)
  - Desert Mountain, Scottsdale, AZ
  - 80,000 sq. yds.
- Placer County, CA (June 2012)
  - 135,000 sq. yds. in Granite Bay Community
- Washoe County, NV (August 2012)
  - 205,000 sq. yds. in Gerlach, NV
  - Placed over Cold In-Place Recycling
  - Overlaid with Type III Slurry Seal
  - To Be Featured in Winter 2012 FP2 Newsletter
- More than 16 Million Square Yards placed in US to date with 15 machines.





# Case Studies



- City of Calabasas
- San Bernardino County Department of Public Works



# Cul-de-Sacs

- What is a major cause of Pavement Deterioration in Cul-De-Sacs?





# City of Calabasas Cul-De-Sac Case Study

Type II Slurry Seal over FiberMat® vs. Type II Slurry Seal without FiberMat®



Work was performed in September, 2011. These pictures were taken in July 2012- (10 months)



# City of Calabasas Cul-De-Sac Case Study

Type II Slurry Seal over FiberMat® vs. Type II Slurry Seal without FiberMat®



Work was performed in September, 2011. These pictures were taken on July 2012- (10 months)



# SBCDPW Case Study

- Why Victorville?

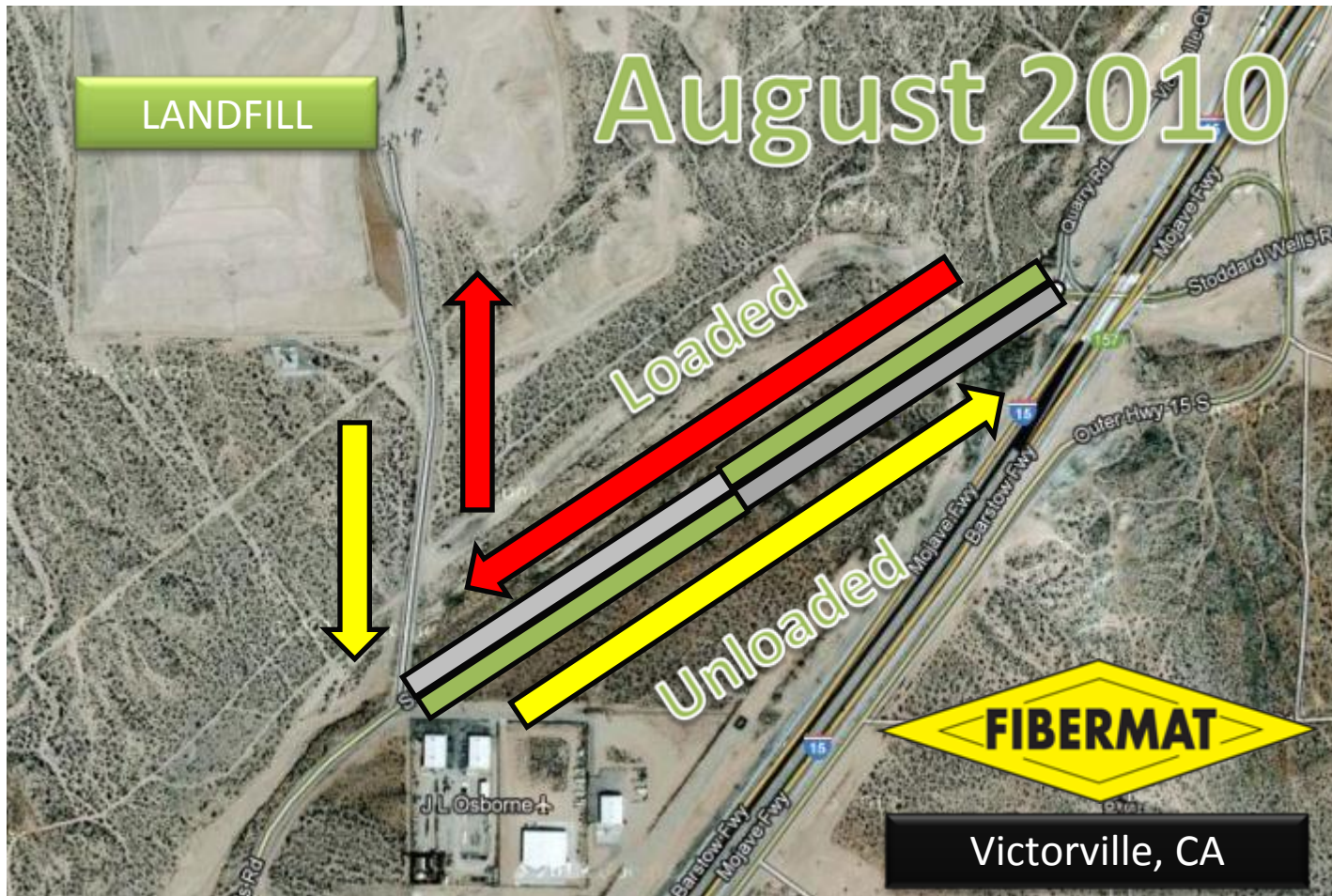
“Located 2,875 feet above sea level, Victorville is located in the high desert climate which provides a taste of all seasons, from winter snow to spring blossoms and summer sunshine.

The weather is usually delightful. Temperatures range from *below freezing* up to *110 degrees* in the summer. The annual rainfall in the desert is about **3.9 inches a year** -- which means low humidity throughout the year.”

-Source- [City of Victorville Website](#)



# SBCDPW Case Study









# CP2 Article (March, 2012)

- *As Quoted from CP2 Newsletter*

*“We used FiberMat in August 2010 on Stoddard Wells Road in the high desert area. We had decided to use conventional chip seal on one lane and FiberMat on the other so we could compare FiberMat against conventional chip seal. After 15 months in November, 2011, we had a field review and discovered that the reflective cracks on the FiberMat lane are still sealed, and the conventional chip seal lane has reflective cracks that have penetrated completely through. We feel that FiberMat is comparable in price or can be cheaper than conventional chip seal when you consider the extra years of service life you will add to your road when you use FiberMat. We consider FiberMat to be a valuable tool in our tool box and plan to use it much more in the near future for sealing our roads and also using it as a SAMI.”*

*-Medhat Matta, Pavement Management Engineer, San Bernardino Public Works*



## • Conclusion



- Cost-effective
- Data shows it works
- Backed by the world's leader in Road Construction, Pavement Preservation, and Emulsions Manufacturing
- 100% Recyclable
- To see video of FiberMat<sup>®</sup>, search for:

“*FiberMat*” on 

**Office Address:**  
5050 E. Russell Road  
Las Vegas, NV 89122  
888-755-2388  
[info@westernpavementsolutions.com](mailto:info@westernpavementsolutions.com)

**THE PERFORMANCE DIFFERENCE**

Legend:  
CONTROL (white)  
REHABILITATION (grey)  
PP (green)

7-10  
\$3

CONTACT US