



*High Strength Fibers for Asphalt Reinforcement*



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Ed Aban – City of Shoreline



**ALLIANCE**  
GEOSYNTHETICS

# Agenda

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- Latest Forta-Fi Project and Testing Updates
  - Northwest Usage
  - WSDOT Test Project
  - Oregon State University Testing
- Local Forta-Fi Project Experience
  - City of Oregon City – Matt Powlison
  - City of Shoreline – Ed Aban
- Q & A

Open forum...please ask questions!



# U.S. & Northwest Forta-Fi Usage

## State DOT Use:

- Washington DOT
- Idaho Trans. Dept.
- Oregon DOT
- Ohio DOT
- Illinois DOT
- Georgia DOT
- Pennsylvania DOT
- Alabama DOT
- New Jersey DOT
- Delaware DOT
- Idaho DOT
- Wyoming DOT
- Alaska DOT

## Washington:

- City of Lacey
- City of Bremerton
- City of Spokane
- City of Puyallup
- City of Othello
- City of Pullman
- City of Shoreline
- City of Tumwater
- City of Olympia
- City of Tacoma (Nov '17)
- Thurston County
- Snohomish County
- Clark County
- Kitsap County
- Skagit County
- King County
- Benton County
- Private sector

## Oregon:

- City of Portland
- City of Lake Oswego
- City of Tigard
- City of Sherwood
- City of Oregon City
- City of West Linn
- City of Medford
- City of Hillsboro
- City of Beaverton
- City of McMinnville
- City of Eugene
- City of Central Point
- Jackson County
- Marion County
- Multnomah County
- Lane County
- Douglas County
- Private sector

## Idaho:

- City of Chubbock
- Ada County
- Hagerman Highway District
- Private Sector

# Northwest Forta-Fi Usage

## ■ Forta-Fi Reinforced Tons since 2012:

- Washington: > 160,000 tons
- Oregon: >165,000 tons
- Idaho: >205,000 tons

## ■ Asphalt Producers:

- Washington: Lakeside, Granite, Miles Resources, Cemex, Tucci & Sons, Puget Paving, CWA, Inland, Shamrock, Motley Motley, Columbia
- Oregon: Knife River, Lakeside, Old Castle, Tidewater, Copeland S&G, Porter Yett, KF Jacobson, Eagle Elsner, Mt Hood, Baker Rock Products
- Idaho: Idaho Materials, Central Paving, Western, DePatco

## ■ Repeat Agencies:

- Thurston County(3 years), Lacey(3), Clark County(3), Medford(6), Portland(5), Oregon City(5), Beaverton(4), West Linn(3), Marion County(3), Jackson County(4), Central Point(3), Idaho DOT(4), ACHD (3)

# WSDOT Forta-Fi Test Project

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- US-97 in Yakima between Wapato and Toppenish, July 2017.
- 1.8” mill and overlay. Lots of existing cracking and rutting from heavy truck traffic and frequent freeze/thaw cycles.
- WSDOT will monitor the road for a few years before QPL consideration.
- Forta-Fi now classified by WSDOT as an “**Experimental Feature**” which means:
  - **WSDOT** approves the use of Forta-Fi in local agency projects.
  - **FHWA** has approved the use of Forta-Fi in projects.
  - **Federal funds** can be used on Forta-Fi projects.

# Oregon State University Lab Testing

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- Oregon DOT Level 3 ½” Dense Graded PG64-22 (6.4% and 6.8%)
  - Semi-Circular Bending Test (SCB)
  - Dynamic Modulus
  - Flow Number (40% Increase)

# Questions?



Questions or need additional information?  
Please email me at [lon@alliancegeo.com](mailto:lon@alliancegeo.com)

# Oregon City– Pearl St

Presented by Matt Powlison, City of Oregon City Project Manager

## **Project Overview:**

- Constructed in 2013
- Taper Wedge Grind with 2” Overlay
- Knife River – Asphalt producer
- S2 Contractors- Paver

## **Road Condition Prior to Project:**

- PCI of 20
- Classified As a Collector With Road Users Include Buses, Garbage Trucks, Cars
- Major Distresses Including Old Failed Utility Patches, Alligator Cracking, +20% Slope, Had Not Had Any known PM Since the Street Was Last Paved in the 70’s

## **Reasons for Including Forta-Fi Fiber in Project:**

- We thought this would be a great candidate to see if Forta-Fi Would Bring Value To a Failed Street We Couldn’t Afford to Rebuild
- Get More Life Out Of a 2” Overlay Without Using Fabric or Any Other Geotextile When Placed On a Failed Pavement
- Steep Slope +20%



# Oregon City– Pearl St

Presented by Matt Powlison, City of Oregon City Project Manager

## **Fiber Asphalt Mixing with Producer - How did it go?:**

- No issues

## **Fiber Asphalt Paving - How did it go?:**

- AC With Fiber Added Went Down Well. Contractor Didn't Care To Use It Calling It "Snake Oil"
- The Fiber Was Evident On the Tools Looking "Hairy"
- Crew Complained it Clumped When Raking
- We Had **NO** Problem Achieving Density on a 20+% Grade

# Before







# 2 Years after





4 Years after



# Oregon City– Pearl St

## Additional Cost for Fiber:

- \$10 per ton

## Summary on Using Fiber in this Project

- Minimal Cost for Great Benefit
- Placed On the “Worst” Street In Oregon City
- After 4 Years Little To No Cracking

## Questions?





# City of Shoreline – Meridian Ave North

Presented by Ed Aban, City of Shoreline Project Manager

## Project Overview:

- Constructed in May 2017
- 1.5" Mill & Overlay, 1780 tons
- Cemex – Asphalt producer and paving contractor

## Road Condition Prior to Project:

- Minor Arterial
- Pavement Distresses: longitudinal cracking starting to branch-out, block cracking, pavement delamination, edge cracking, pothole patching
- Existing pavement thickness is 2 ½" to 4"

## Reasons for Including Forta-Fi Fiber in Project:

- Original paving strategy – 2" mill and overlay
- Modified paving strategy – 1 ½" mill and overlay
- Avoid hitting the base layer that will trigger reconstruct
- Less overlay thickness but still attain strength equivalent to 2" overlay



# City of Shoreline – Meridian Ave North

## Fiber Asphalt Mixing with Producer - How did it go?

- No issues brought up

## Fiber Asphalt Paving – How did it go?

- No complaints from paving contractor during paving

## Additional Cost for Fiber:

- Approx. \$10 extra per ton

## Summary on Using Fiber in this Project

- Will monitor performance in the next 3 years

## Questions?



# Thank you for your time!



If you have questions about Forta-Fi - how does it work, how does it enhance the performance of your asphalt, how does it get mixed at the asphalt plant, etc. - please stop by the Alliance Geosynthetics booth at table #2.

Questions or need additional information?  
Please email me at [lon@alliancegeo.com](mailto:lon@alliancegeo.com)

