2013 Alaska Asphalt Pavement Summit

Thin Film Surface Treatment Technologies

- Research and Evaluation
- Innovation in Materials
- Innovation in Application Equipment
- Pavements Selection
- Materials Selection
- Tack Coats
- Thinking Outside the Box

Research and Evaluation.

- Foundation for Pavement Preservation's "Spray Applied Polymer Surface Seals" 2007 Lessons Learned Workbook.
- US Army Corp of Engineers "Runway Preservations Systems" Study
- DOD Comprehensive Evaluation, ONR, NAVFAC
- Many Other State and Private industry Materials Research and Evaluations Projects

Foundation for Pavement Preservations 2007

- Conclusions of this study state:
- "Field observations all confirmed that a defined application strategy of fog seals is a cost-effective tool for pavement preservation."
- "Fog sealing decreased friction, but original skid resistance returned over time. Sanding after application increased the friction levels significantly."
- "The sealers were generally inexpensive and yet effective in providing protection to pavements and prolonging service life."

US Army Corp of Engineers.

- "an effective pavement sealer that can be used as an effective preventive maintenance technique"
- Best material tested for retaining aggregate
- Most effective material tested at preventing aging in asphalt Marshall specimens
- "did not change (harden) with aging"
- "a major benefit in regards to durability"

Source: "Evaluation of Runway Preservation System ", J. Kent Newman, PhD, Army Corp Eng, WES, Research and Development Center

DOD Comprehensive Evaluation, ONR, NAVFAC

- Greater than 75% of asphalt pavement distresses on DOD airfields are due to environmental causes (weathering); the leading cause of increased maintenance costs and foreign object debris (FOD). With aggressive early asphalt preventative maintenance these costs could be significantly reduced and pavement readiness increased.
- Review of the MicroPAVER data from these airfields indicates application of some materials significantly reduced the rate of pavement deterioration. In some cases, the useable life of the treated airfield pavement doubled.

Innovation in Sealing Materials

- Penetrating/Rejuvenating Sealers
- Faster Break and Cure Times
- Longer Lasting Modified Materials
- New (non coal tar) Fuel Resistant Sealers
- Cold Weather Materials Development
- Construction Joint Treatments

Application Equipment Improvements and Innovation.

Two-pass Sand Application

One Pass With Sander Mounted on Distributor Truck

Distributor Mounted Air Activated Sand Broadcasting

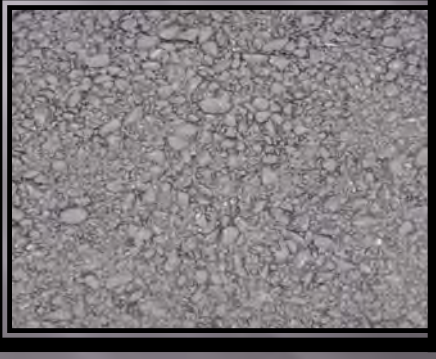
Curb Edging Innovations

Pavements Selection

- Troubled New Pavements.
- Airfield Pavements.
- Grooved Airfield Runways.
- PFC's (porous friction courses) Runways.
- Mainline Roadways with good surface texture.
- Rural or Residential Surface Streets.
- Shoulders, Especially those with Rumble Strips.
- Chip Seals, Slurry Seals and Micro's as They Age.

Troubled New Pavements

BEFORE TREATMENT



AFTER TREATMENT

Airfield Pavements

Grooved Airfield Runways

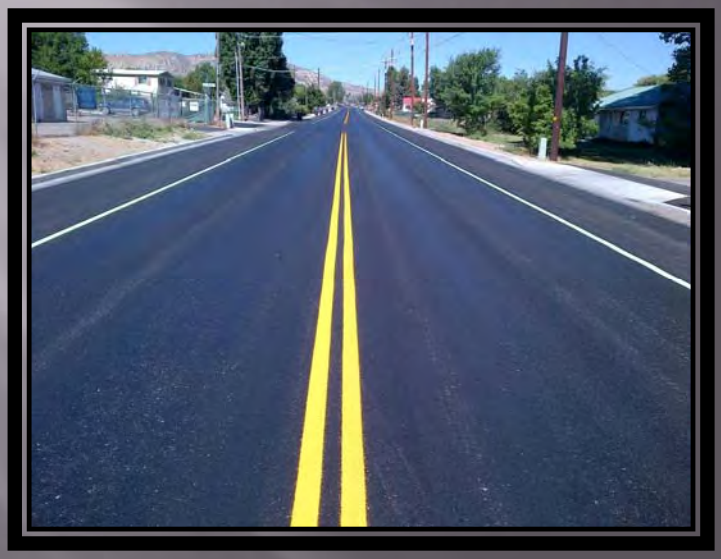
PFC Pavements Treatment

13 YEAR OLD PFC 1 DAY AFTER TREATMENT

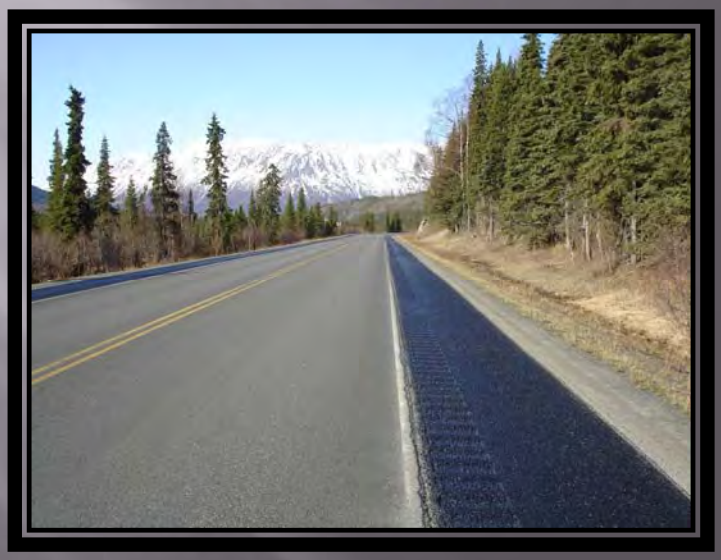
17 YEAR OLD PFC 4 YEARS LATER

Mainline Roadways

Rural or Residential Roads



Shoulders



Product Selection

- Safety First.
- Performance History on the Product.
- Weather During Application.
- Goals to be Achieved From Treatment.
- Traffic Volumes and Activities.
- Cost.
- Product Availability.
- Project and Application Support.

Keeping it Simple

PENETRATING SEALER

SURFACE COATING

Tack Coats.

- Studies Have Been Done.
- Specs Need to Be Reviewed.
- Field Inspections Need to Improve.
- Surface to be Tack Treated Should be Considered.
- Milled Surfaces Show a Good Bond or Bad Bond form Prior Tack Coats.

Think Outside The Box

- Thin Film Treatments are Very Environmentally Sound.
- Seek Information From Local Suppliers About Their Products and There Best Uses.
- Don't Assume That A Problem Can't be Solved With a Specialty Liquid Application.
- Give Suppliers a Chance to Demo New Products.
- Attend Workshops and AEMA Meetings Whenever Possible.

Questions?