

Pavement Preservation & Maintenance



**Presented to
Rocky Mountain
Pavement
Preservation
Partnership**

**Boise, ID
October 20th.
2010**



Without pavement, we are
stuck



Statistics We Should Know:

Federal = 3%

State = 20%

Local = 77%

2/3 are Paved (1/3 Unpaved)

94% have an Asphalt Surface



Challenges

- **Gain Support from the Elected Officials.**
 - Novi residents have been waiting for Novi Road improvements for many years. Now it is becoming a reality, thanks to my relentless lobbying efforts. The litigation is near completion. Tri-Party funding is still available to assist Novi residents with a majority of the costs associated with the construction. of Novi Road improvements between Ten Mile Road and Grand River Avenue, over the railroad tracks. Watch for construction to start in the near future. Oakland County, CA
 - During the past four years, Commissioner Birkman has helped to lower the County's tax rate, increased county services, and improve traffic congestion with new roads within the County. Instead of empty campaign promises, Commissioner Birkman delivered. Williamson County, Texas
 - But I believe more needs to be done to improve the roads in Precinct 2. The citizens of Kyle, Buda, Uhland, Niederwald, and the rest of the Precinct need better roads to link up with the improvements that are now underway to IH-35, FM 1626, SH 21, and FM 150. Hays County, Texas
 - "We need to focus on infrastructure needs in this country," Barela declared. New Mexico



Challenges

- **Public Demands on Government.**
- **Funding Constraints.**
- **Select the right treatment for the road.**
- **Show early benefit.**

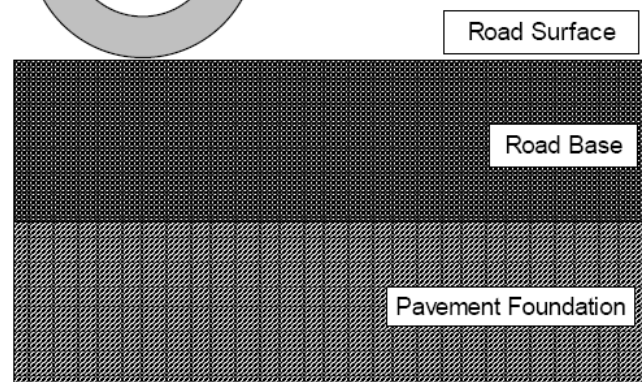
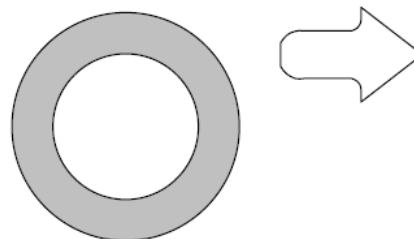


Road Failures



Factors contributing to road failures

Moving Wheel Load



Main Structural Elements

Skid Resistant Surface

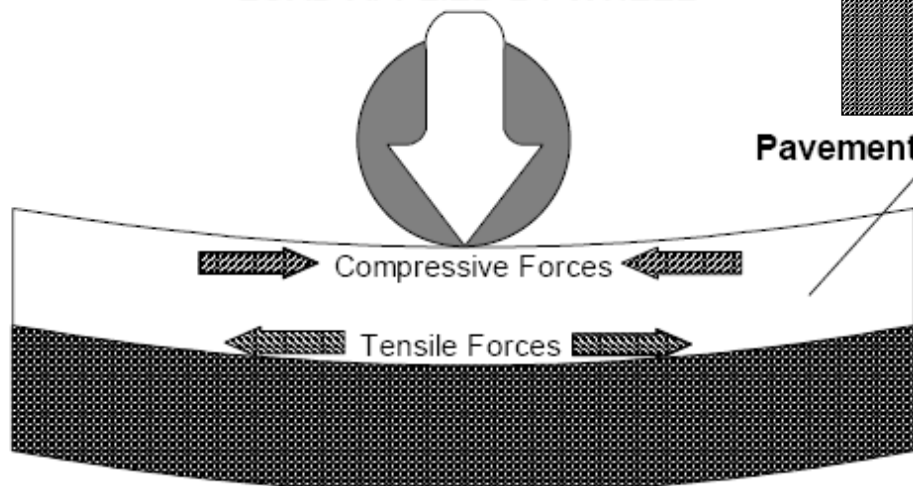
High Stiffness

Crack Resistant

Deformation Resistant

Well Drained

LOAD APPLIED BY WHEEL



Pavement Structure

Subgrade

ESAL's?



- One 18 Wheeler = Almost 2 ESAL
- Less than 500,000 ESAL
- Less than 35 trucks/day
- One Truck = 8400 cars

ESAL's?



Swagster.com



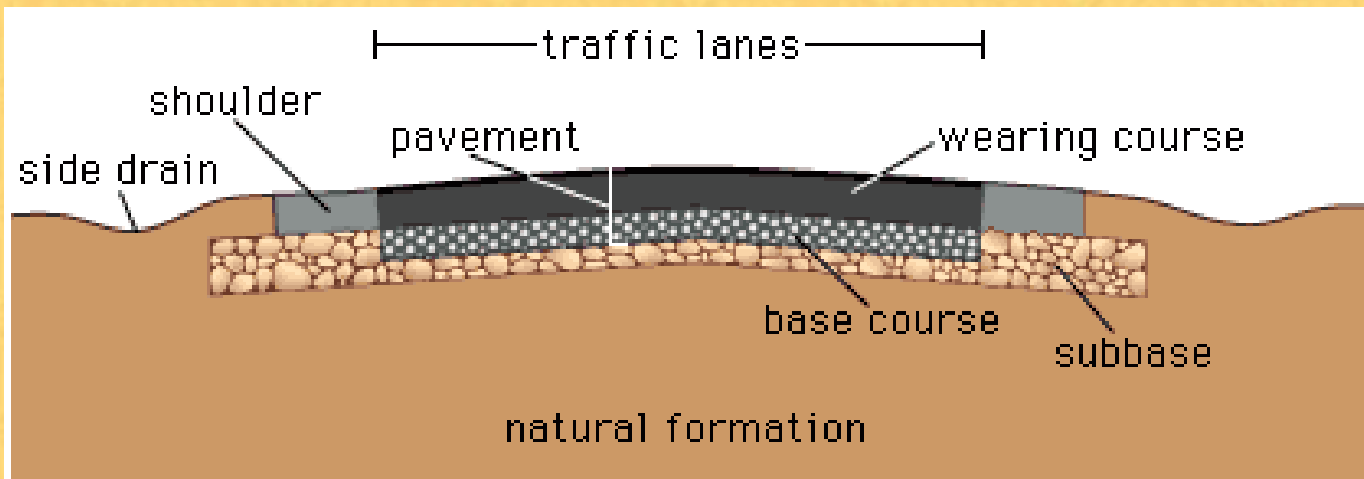
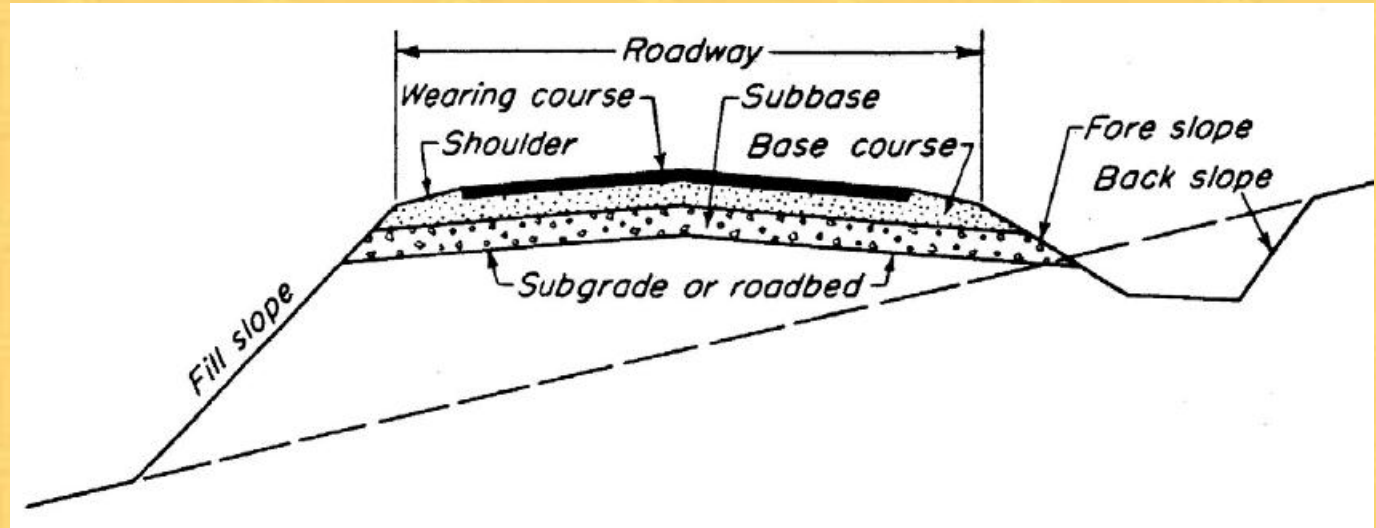
Drainage



Water ponding at the edge of roadway.



Roadway Section



The Challenge

- Preservation & Maintenance Plan.



Pavement Preservation

- Experience shows that spending \$1 on pavement preservation before that point eliminates or delays spending up to \$28 dollars on future rehabilitation or reconstruction costs.



Pavement Management A Whole Life Approach

- **Pavement Preservation has to think outside the box**
 - **It's not about just about doing the right action at the right time AFTER the pavement is built**
 - **It's about being an advocate for the right action from the very start of the process through the end of the life-cycle**



The Challenge

- Customer Inconvenience.
- Right Material and Product to use.
- Budget Constraints.



Cost-Effectiveness of Treatments

Treatment	Unit Cost	Unit	Comments
Crack Sealing	\$2,740	lane-mile	*Crack sealing items only
Micro Surfacing	\$23,713	lane-mile	*Micro surfacing items only
Fog Sealing	\$1,697	lane-mile	* Mobilization not included
Chip Sealing	\$19,881	lane-mile	****state contract
Overlays	\$15,694	lane-mile	*Per one inch mat thickness
Hot Insitu Repaving	\$43,648	lane-mile	* Pavement resurfacing and hot mix only
Plant Mix Wearing Course/Overlay	\$34,249	lane-mile	
Cold Milling	\$6,336	lane-mile	*per one inch depth of milling

Note: Unit costs do not include items such as mobilization, traffic control, hauling



Type of Treatment

Pavement Treatment	Extended Service Life
Fog Seal	2 to 5 Years ^a
Crack Filling	Up to 2 Years ^b
Crack Sealing	Up to 3 Years ^b
Chip Seal	3 to 7 Years ^b
Slurry Seal	3 to 7 Years ^a
Microsurfacing	3 to 6 Years ^b
Thin Hot Mix Overlay	3 to 5 Years ^b
1.5" Hot Mix Overlay	5 to 10 Years ^b

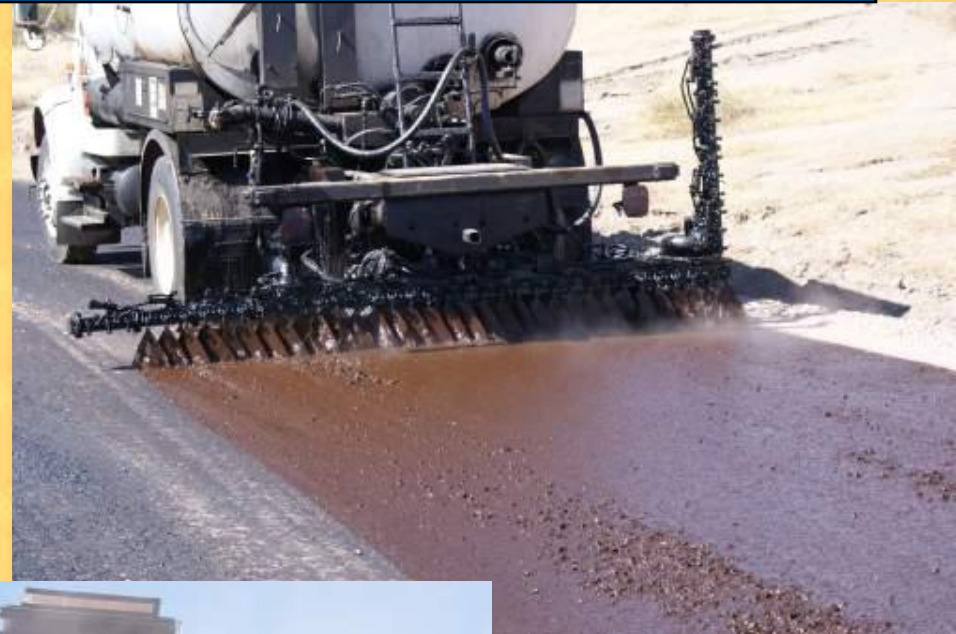
Fog Seal



Crack Filling



Chip seal



Sandwich Seals

- emulsion sandwiched between two layers of aggregate
- one-sized aggregate applied at 70%-80% of coverage rate, then rolled
- emulsion 1.2 to 1.5 times normal chip seal rate
- second course of smaller aggregate applied & rolled





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Mike Wade Modified SS

- Prime and open to traffic the same day
- Thicker more durable seal
- Longer service life





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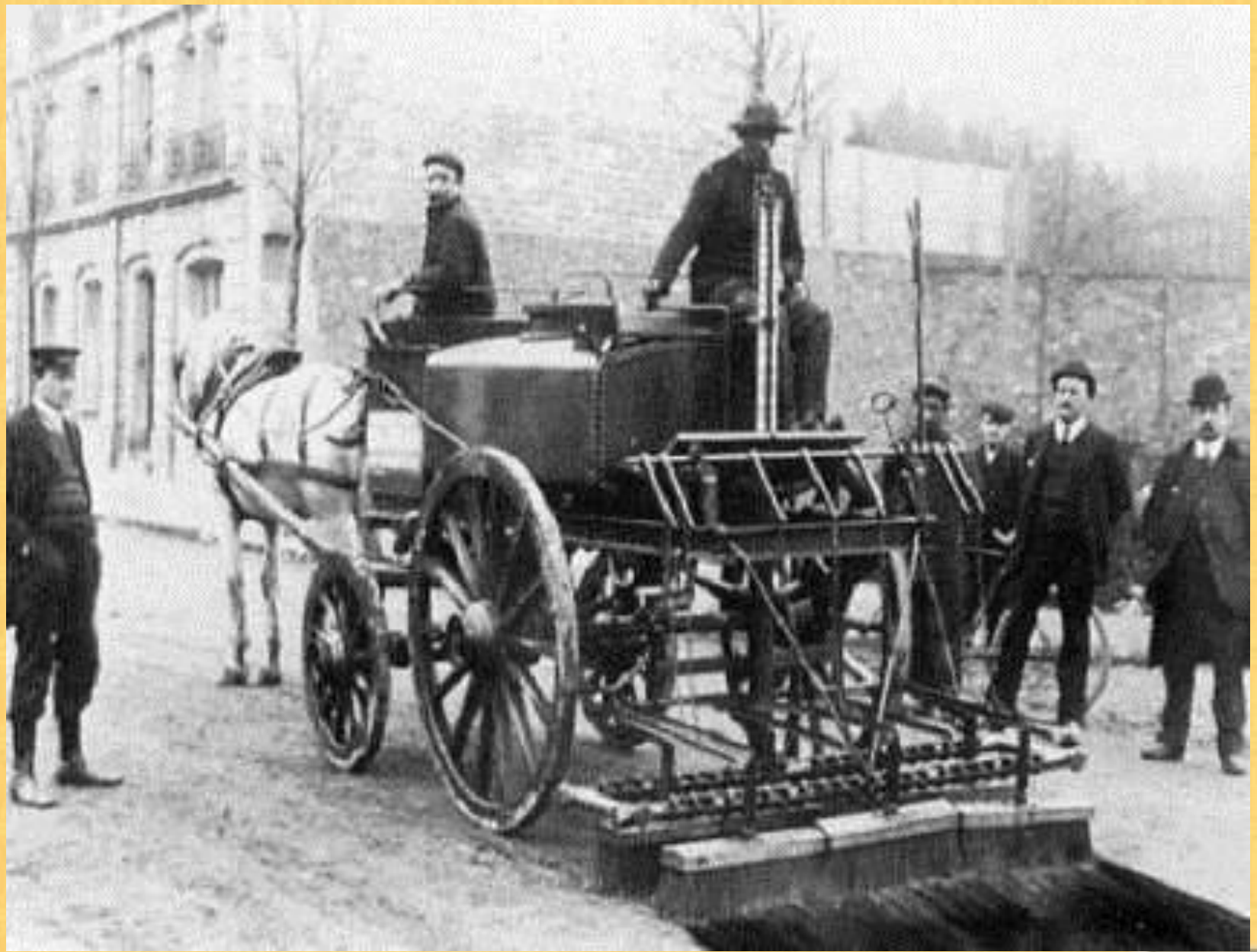
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Scrub Seal

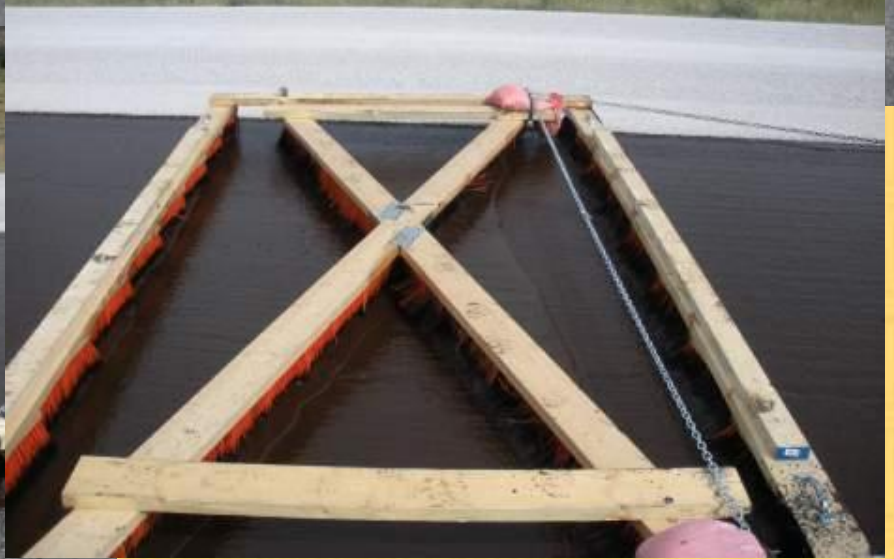




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Scrub Seal with Millings



Scrub Seal with Millings



Scrub Seal with Millings



Scrub Seal with Millings



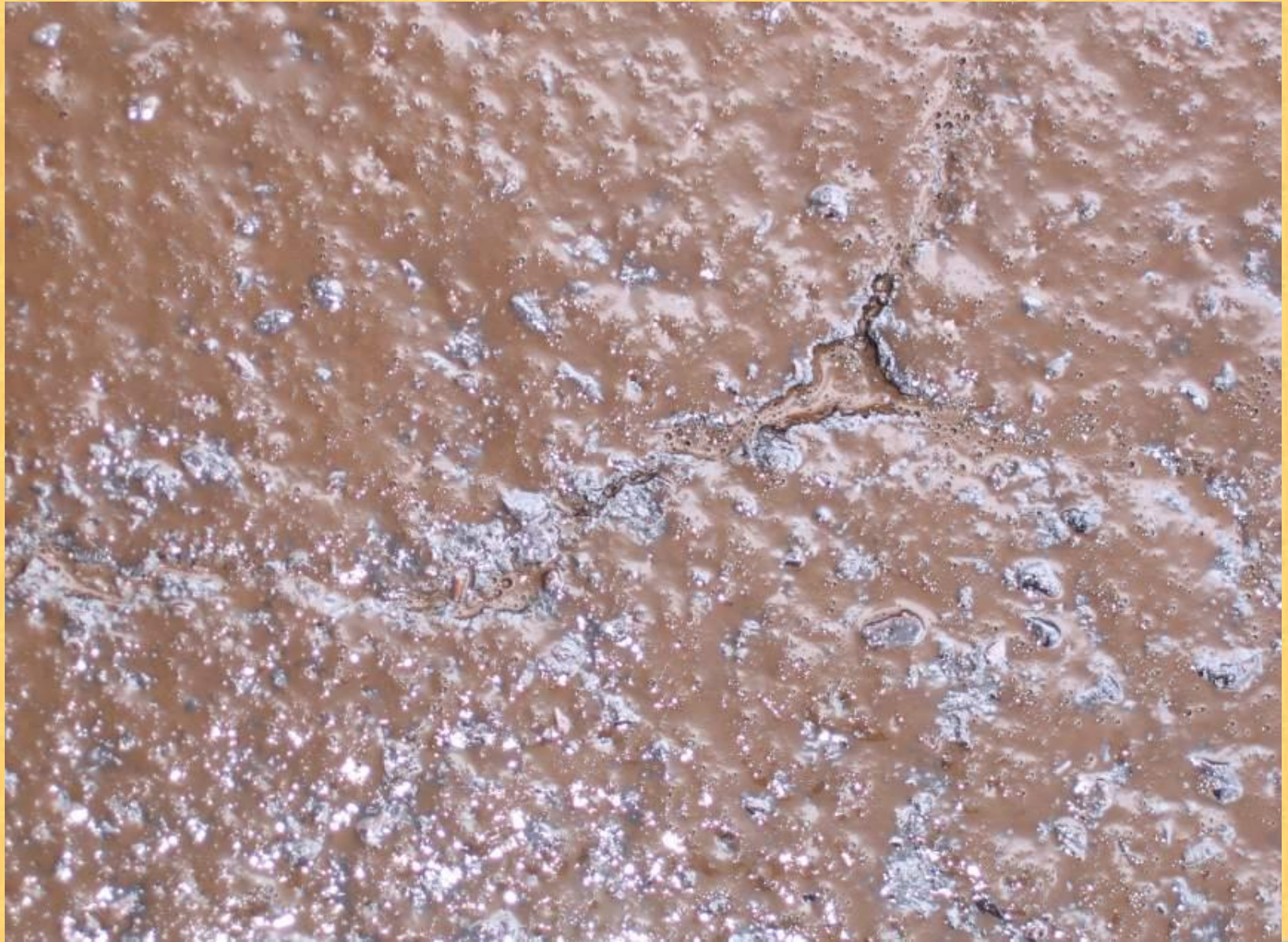
Sand Seals

- application of asphalt binder followed by sand cover aggregate
- rapid or medium setting emulsions
- most common on low-volume roads
 - some moderate- to high-volume roads



Sand Seals





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Cape Seals

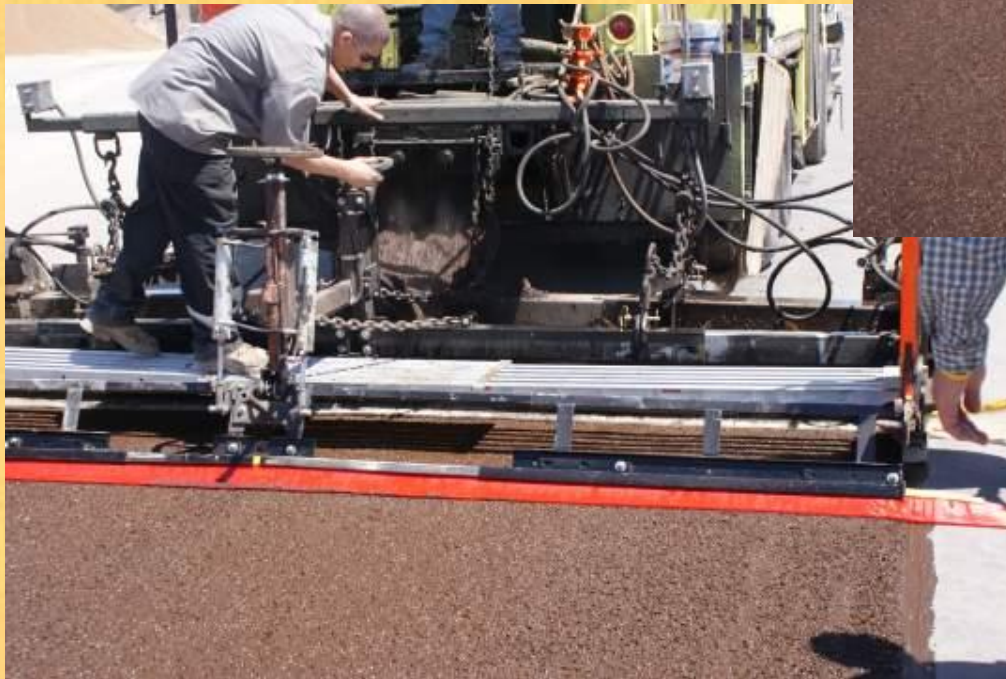
- name from Cape Province of South Africa
- chip seal followed by slurry seal or micro-surfacing
 - chip seal allowed to cure
 - broomed
 - slurry or micro applied





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Micro-Surfacing



Micro-Surfacing



Micro-Surfacing



Hot Mix Warm Lay



Hot Mix Warm Lay



Overlay with Millings



Cold In-Place Recycling



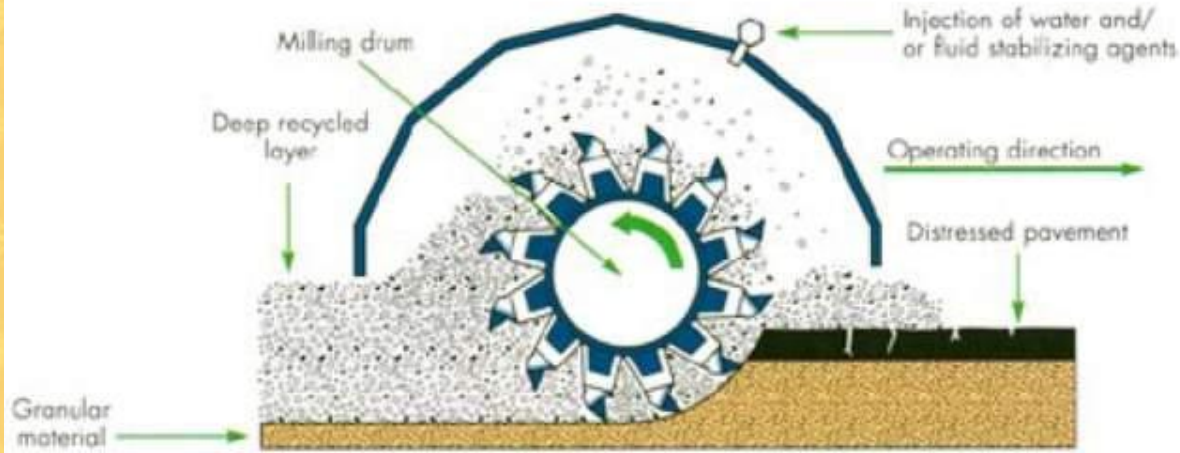
Cold In-Place Recycling



Full-Depth Recycling



FDR'S PULVERIZATION AND MIXING PROCESS



Full-Depth Recycling



Full-Depth Recycling



Hot In-Place Recycling



Now what?



Tools

- NMDOT State Contracts



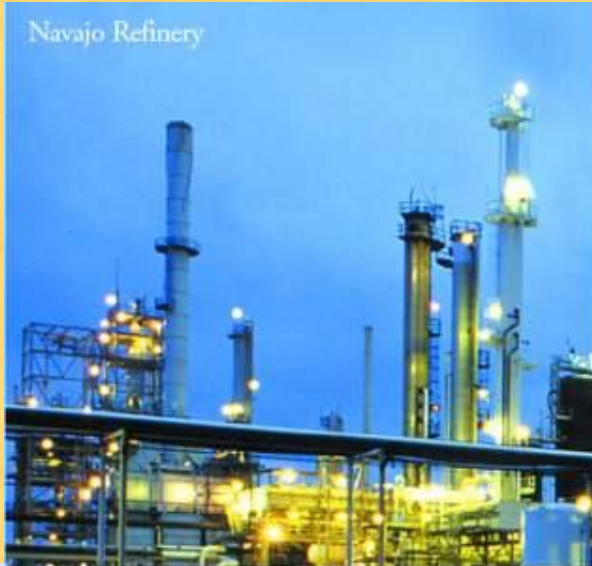
Resources

- <http://www.pavementpreservation.org/>
- NMDOT Maintenance Manual
- Holly Asphalt Company
- Rocky Mountain Pavement preservation Partnership.



Holly Asphalt Company

Albuquerque, New Mexico



- mo.moabed@hollycorp.com





***Chips fall where they
may.....
but we make them stick!***

Thank You

