Agency Report – RMWPPP

Steve Saboundjian, Bob Trousil
Alaska Department of Transportation & Public Facilities

2023 NPPC, Indianapolis, IN
September 18, 2023

NATIONAL PAVEMENT PRESERVATION CONFERENCE
npc23
IMPACTS AND BENEFITS FROM PAVEMENT PRESERVATION

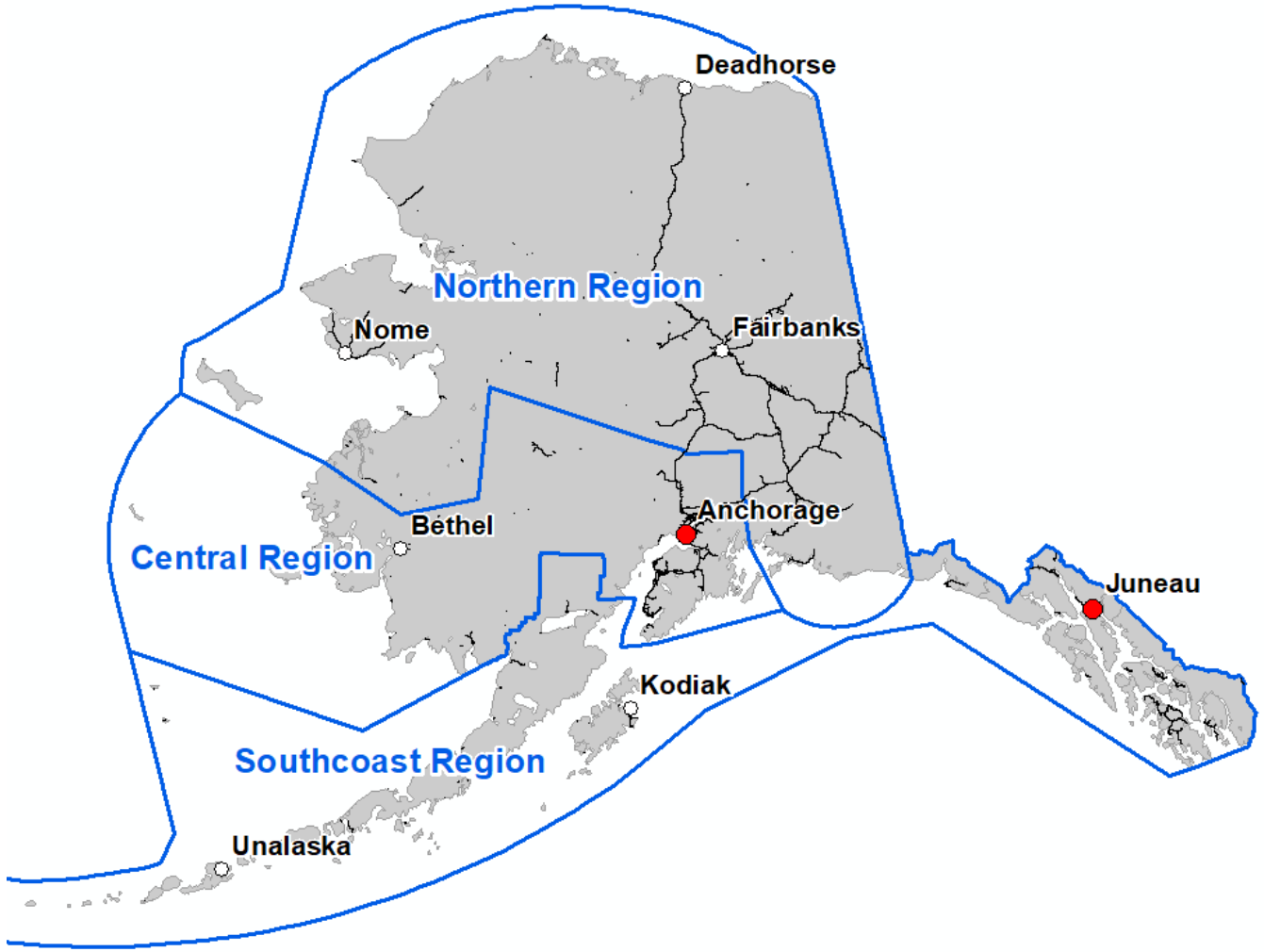
ncpp
National Center for Pavement Preservation
MICHIGAN STATE UNIVERSITY

AASHTO TSP2 PAVEMENT PRESERVATION

ROCKY MOUNTAIN WEST PAVEMENT PRESERVATION PARTNERSHIP
SOUTHEAST PAVEMENT PRESERVATION PARTNERSHIP
MIDWESTERN PAVEMENT PRESERVATION PARTNERSHIP
NORTHEAST PAVEMENT PRESERVATION PARTNERSHIP

Regions in Alaska

- **Three Regions**
  - Northern
    - Arctic environment – Unstable Permafrost – Thermal Cracking
    - Low Traffic Volumes
  - **Central**
    - Southcentral Alaska – Population Centers – Studded Tire Wear
    - High Traffic Volumes
  - **Southcoast**
    - Islands, rain forest environment
    - Some studded tire wear – Water Problems



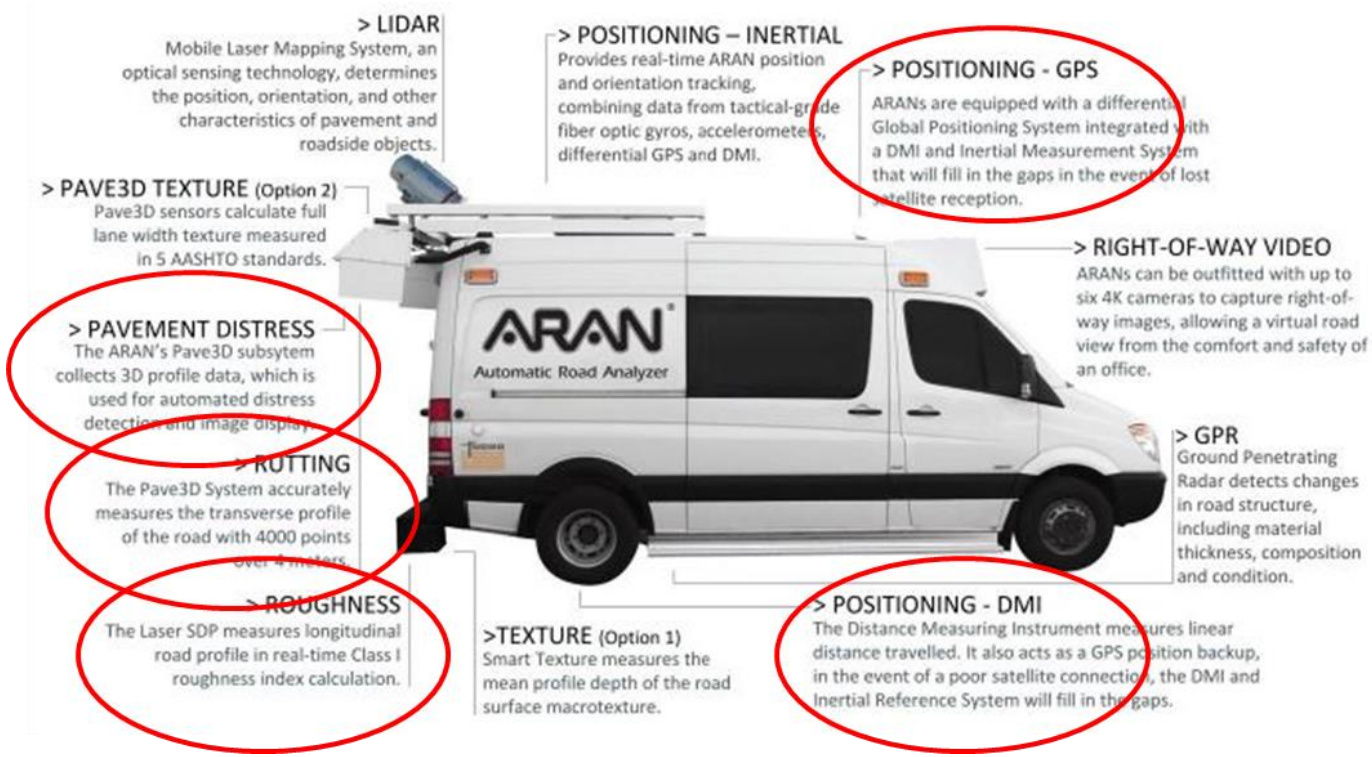
Alaska Road System

Region	System Class	Centerline Miles
Central	NHS	706
Central	Non-NHS	1,672
Northern	NHS	1,511
Northern	Non NHS	2,487
Southcoast	NHS	130
Southcoast	Non-NHS	1,124
Total	NHS	2,347
Total	Non-NHS	5,283
Grand Total		7,630

4,300 Paved CL Miles

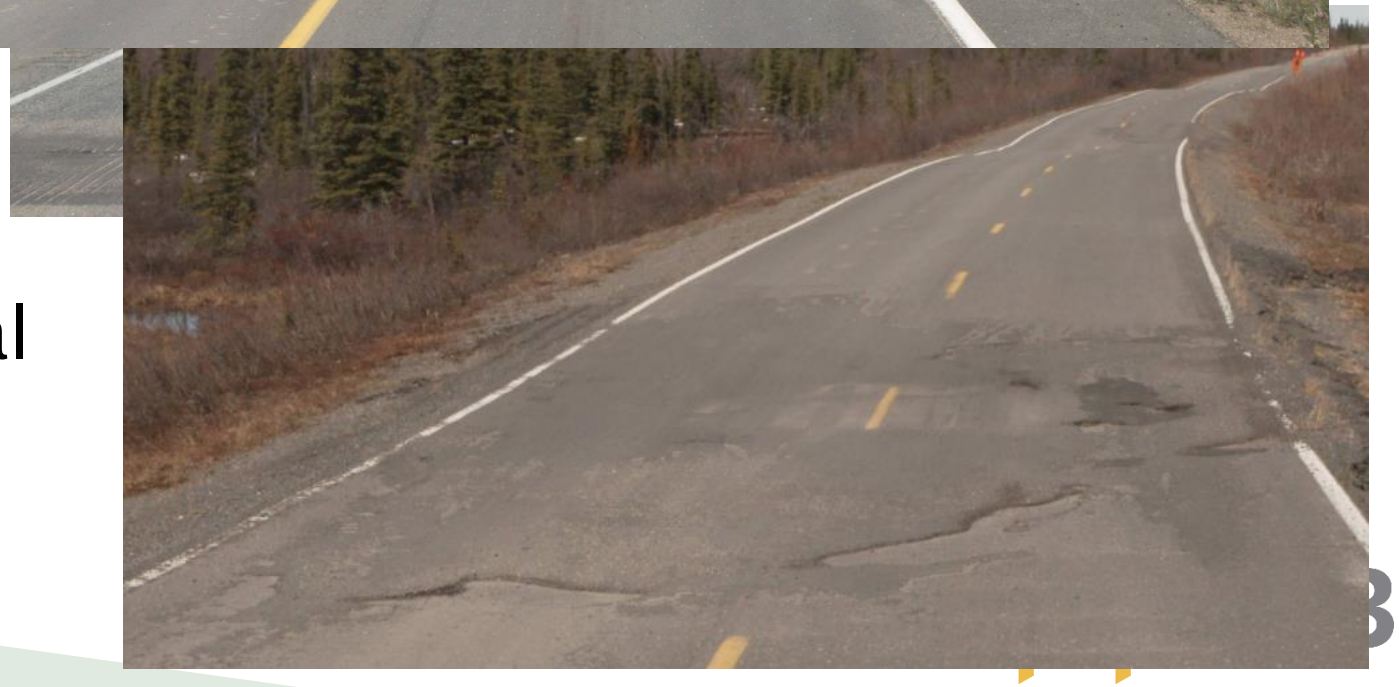
Pavement Management

- FUGRO *ARAN*
  - ~4,300 CL miles
  - Rut, IRI, Cracking, Patching and Raveling
- AgileAssets
  - Web-based PMS
  - Used for network wide analysis/recommendations



Northern Region Pavement Preservation

- Preservation Treatments
  - Patching
  - Banding Repairs
  - High Floats
  - Chip Seals
- Banding for Thermal Crack Repair
- High Floats/Chip Seals through Unstable Permafrost
- Reclaim and Double Chip Seal

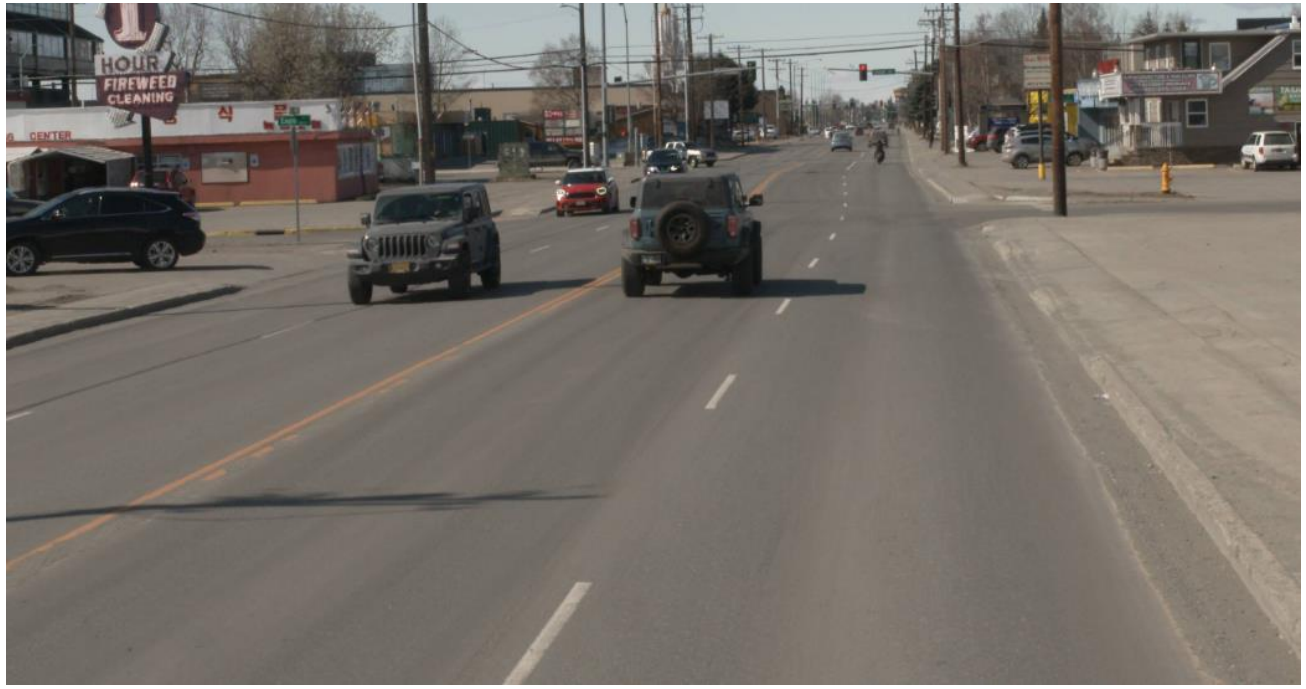


Northern Region Pavement Preservation

- Preservation Treatments
  - Reclaiming existing HMA and Base Course: CABC
  - Double Chip Seal: B/C chips (1-in / 0.75-in chips)
    - Pavement to chip seal projects (reclaim, double chip)
  - Single Chip Seal: E chip

Central Region Pavement Preservation

- Preservation Treatments
  - Mill/fill
    - High Traffic Volumes and Studded tire repair
    - Superpave Mix: PG64-40 + Hard Aggregates
    - Thin Lift HMA: 1-in Test Strip
  - Fog/Sand Seals
    - Low volume roads



Southcoast Region Pavement Preservation

- Preservation Treatments
  - Mill/fill
    - Studded tire repair
  - Non-NHS Annual Chip Seal Program
    - Apply on low volume roads, non-NHS
  - Sand seal test strip
  - Most issues are geotechnical – landslides/rockfall

Southcoast Region

- Specifications
  - Planning more thin lift (1”)
  - Upcoming sand seal projects (2024)
- Southcoast region
  - Interested in trying thin lift
  - Sand seal test strip

STATE OF ALASKA

DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES

PROPOSED HIGHWAY PROJECT

JNU EXPERIMNTL PREVENT. MNTNC USING SAND SEAL TECH, GLCR HWY

SAND SEAL APPLICATION
SFHWY00360/0003269

*Design Functional Class: Urban Collector Design Speed: 40 MPH AADT: 2648

Existing Conditions

- Surface: **SuperPave Type B, 2009**
- Binder Grade: **64-28**
- Ave IRI: **96.34**
- Ave Rut Depth, inches: **0.28**
- Ave Crack %: **0.56**
- Lane width, ft: **12**

Limitations

- Do not apply sand seal after September 15
- Sand seal shall only be applied when the existing pavement has been dry for at least 4 hours
- There is no rain forecasted within the curing period
- Pavement surface temperature is a minimum of 50°F

ESTIMATE OF QUANTITIES			
ITEM NUMBER	PAY ITEM	PAY UNIT	QUANTITY
404.2001.0000	EMULSIFIED ASPHALT SAND SEAL	SQUARE YARD	6,933
642.0001.0000	CONSTRUCTION SURVEYING	LUMP SUM	ALL REQUIRED
643.0002.0000	TRAFFIC MAINTENANCE	LUMP SUM	ALL REQUIRED
643.0023.0000	TRAFFIC PRICE ADJUSTMENT	CONTINGENT SUM	ALL REQUIRED
658.0001.0000	EROSION, SEDIMENT, AND POLLUTION CONTROL WITHOUT CGP COVERAGE	LUMP SUM	ALL REQUIRED
658.0002.0000	ESCP CHANGES BY DIRECTIVE	CONTINGENT SUM	ALL REQUIRED

BASIS OF ESTIMATE			
ITEM NUMBER	PAY ITEM	ESTIMATING FACTOR	ESTIMATED QUANTITY
404.2001.0000	EMULSIFIED ASPHALT SAND SEAL	–	6,933 SY
	EMULSIFIED ASPHALT	0.15 GAL/SY	1,040 GALLONS
	SAND	0.8 LBS/SY	5,546 LBS

Material Specifications: Emulsified Asphalt

- GSB 88
- Emulsion concentrate diluted 1:1 with hot water by volume
- Curing time, under recommended application conditions, shall not exceed 4 hours

Material Specifications: Sand Aggregate

- Dry, clean, angular, dust-free min Mohs hardness: 7
- Gradation Requirements:

Sieve	Percent Passing by Weight
No. 8	100
No. 16	90 - 100
No. 40	0 - 20
No. 100	0 - 2


CRC Computerized
Rate Control
BearCat

Twin Lakes Sand Seal

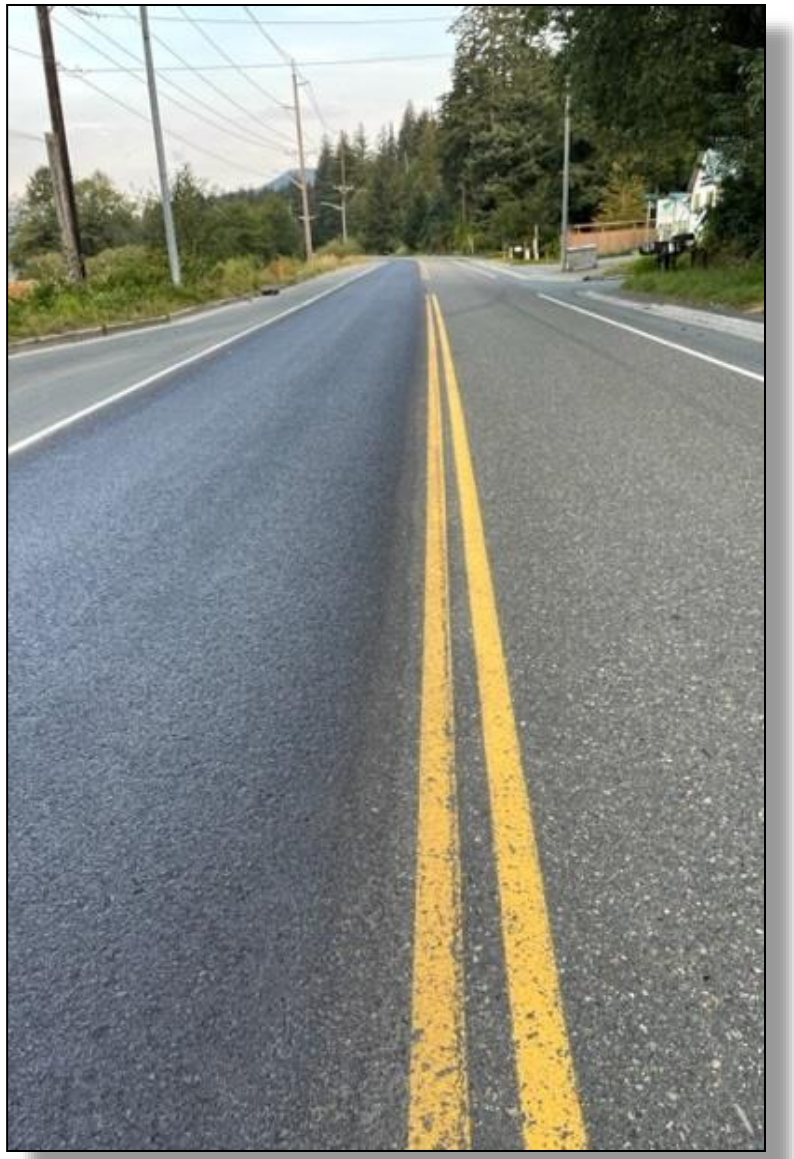
Cost Summary

							10 Lane-Mile Project	
Item	**Quantity**	**Unit**	**Unit Price**	**Cost**	**Cost per SY**	**Cost per Lane-Mile [2]**	**Est Total Cost**	**Est Cost per Lane-Mile**
Emulsified Asphalt Sand Seal	6933	SY	12.50	86,663	12.50	73,319	733,185	73,319
Mobilization/Demobilization	1	LS	30,000	30,000	4.33	25,381	65,000	6,500
Survey	1	LS	10,000	10,000	1.44	8,460	18,000	1,800
Traffic Maintenance	1	LS	30,000	30,000	4.33	25,381	75,000	7,500
SWPPP	1	LS	22,000	22,000	3.17	18,613	22,000	2,200
Construction Inpsection	- -	- -	40,000	40,000	5.77	33,841	100,000	10,000
Design/Environmental/ROW [1]	- -	- -	70,000	70,000	10.10	59,222	90,000	9,000
			Total:	288,663	41.64	244,215	1,103,185	110,319

Notes:

(1) these are fixed cost that remain largely the same due to economy of scale.

(2) Lane miles for this project = 1.182



Successes and What's Next

- Northern Region
  - Use chip seal and high float treatments on unstable embankments
  - 15 Miles of E chip on Richardson Highway in 2022
  - 18 Miles of pavement to chip seal (B/C chip) in 2022
  - Planning First Scrub Seal (2024/2025)
- Central Region
  - Planning more thin lift (1”)
  - Upcoming sand seal projects (2024)
- Southcoast region
  - Interested in trying thin lift
  - Sand seal test strip

Thank You!

Brett Nelson, Alaska DOT&PF