Winter Highway Maintenance in Northern Arizona
Northcentral District Facts

- 23,000 Square Miles (Larger than 8 US States)
- 3330 Travel Lane Miles (4592 MLM)
- 9 Maintenance Units
- 93 Maintenance Employees
- 5 Different Counties
- 5 National Forests
- 6 Cities
Major Winter Maintenance Activities

- Snow Operations *
- Incident Response *
- Pavement Repair *
- Crack Sealing *
- Drainage / Erosion
- Shoulder Buildup
- Guardrail Repair
- Fence Repair
- Etc., Etc.
Snow Operations
Winter Conditions

- Flagstaff Average Snowfall = 103” per year
- Average 34 Days of snow
- Over 220 Freeze/Thaw Cycles per year
- December and January
  - Average High Temperature 42 deg F
  - Average Low Temperature 17 deg F
- 2016 / 2017 Winter
  - Close Average Winter with 98” of Snow
  - 17 Different Storms (many multiple days)
Snow Operations

- 63 Plows in the District
- 12 hr Shift for Snow Plow Operators
- Snow Operations requires District wide and State wide Support
- 50 Loaners and Volunteers from Other Areas
- Road Block and Motorist Assist Crews
Incident Response in the Winter
Pavement Preservation Cycle

The Right Treatment at the Right Time
Reality

- 1995 Pavement Preservation Project – I-40

2005 – 10 years

2010 – 15 years

2013 – 18 years

2015 – 20 years

2016 – 21 years
February 2017 – 22 years after last pavement project.

Pavement Preservation Project in Summer of 2017 replaced this area.
Pavement Repair

- Aging Pavement System
- Severe Weather
- Heavy I-40 Truck Traffic
- Rapid Deterioration after Design Life
Pavement Repair

- Preventative – Flush Coat and Crack Sealing
- Reactive – Pothole repair, Spot Repairs, Overlays
- Goal for Maintenance to increase Preventative Strategies
Crack Filling and Sealing

- Prioritized Winter Maintenance Activity
- Polymerized Asphalt Material
- Clean and fill
- Wide Cracks In Old Pavements
Pot Hole Repair

- Winter of 2016 / 2017
- Clean
- Dry (as much as possible)
- Place
- Compact
Pot Hole Repair

- Change in Repair Last Winter (when time allows)
  1) Tack
  2) Compaction with a Steel Wheel Roller
Asphalt Hot Box

- Hot Plants Close in the Flagstaff Area for winter
- Long Haul to get Asphalt Mix from other Areas
- 4 CY Hot Box – New Equipment
Asphalt Recycler – 1 CY Capacity
Pavement Spot Repairs

- Mill and Replace is becoming common practice
- Small areas with reoccurring issues
- Last Longer than Cold Mix Overlays
- Less Exposure for Maintenance Personnel
- Higher Costs $$$
- Maintenance On-Call Contract for larger areas
Spot Repairs
Overlays – Cold Mix
Challenges

- Longer cycle time for Pavement Projects
- Funding
- Personnel Turnover / Burn-out
- Equipment / Materials
Winter Damage to Interstates Last Winter
Opportunities

- Full Depth Pavement Reconstruction Projects
- Devil Dog – I-40 – MP 156 – 161
- Cataract Lake – Parks – MP 161 – 179 (6 Miles of Reconstruction)
Devil Dog I-40 – MP 156 - 161
Opportunities

- Equipment and Training for Personnel
- Measurements and Continuous Improvement
- Continue to Implement Pavement Preventative Maintenance Strategies
- Balance Reactive and Proactive Approach
Upcoming Pavement Rehab Projects

- I-40 – Parks to Riordan - Current
- I-40 – Cataract Lake to Parks - FY 18
- I-17 – County Line to I-40 (NB only) – FY 18
- I-40 – System Interchange to Walnut Canyon – FY 20
- SR 89A – Sedona City Limits to MP 386
- SR 179 – I-17 to Village of Oak Creek
- SR 64 – Pipe Line Road – Air Park
Thank You!

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