

Region 3

February 21, 2018

David Eller, Region 3 Transportation Director



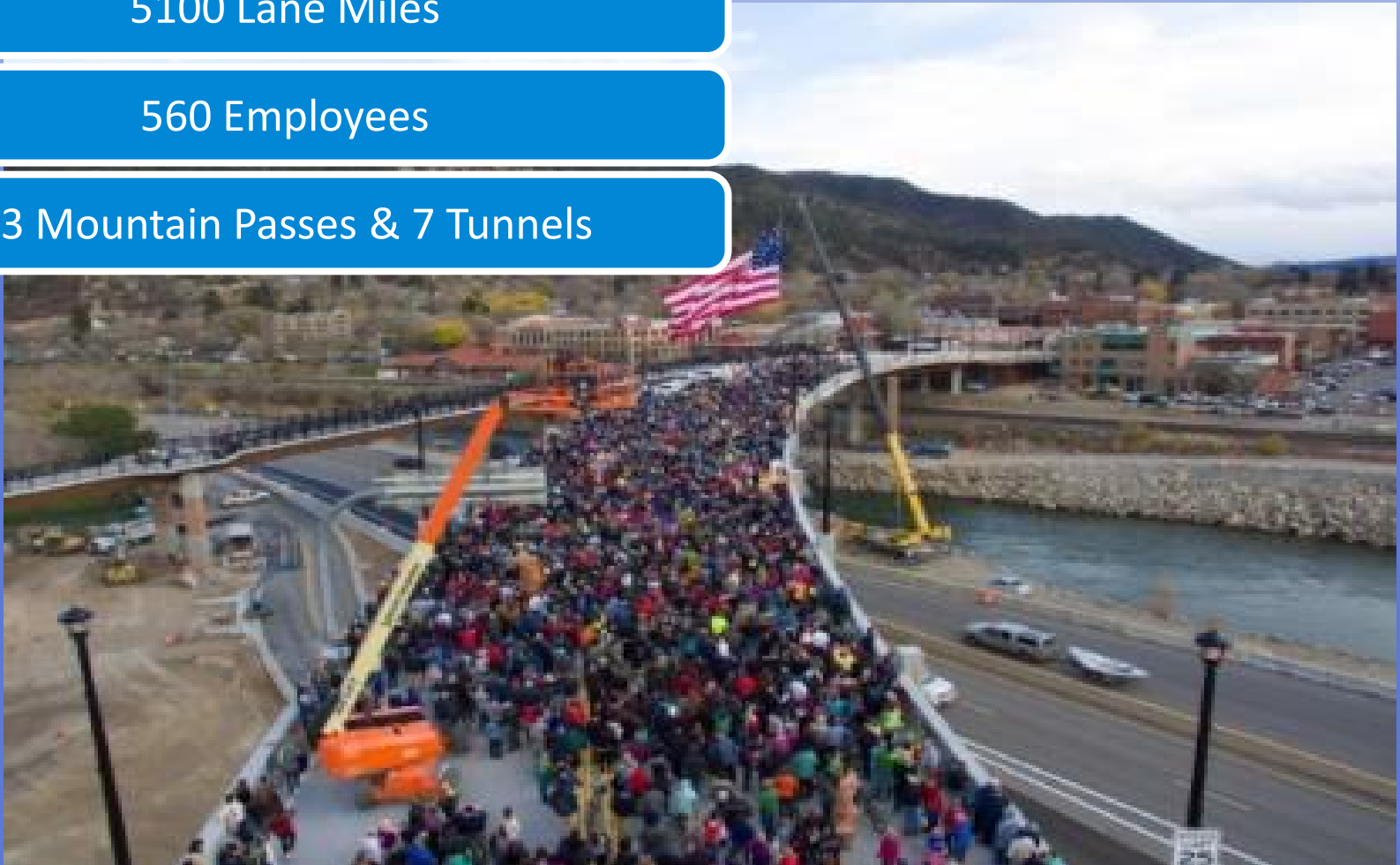
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5100 Lane Miles

560 Employees

13 Mountain Passes & 7 Tunnels





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Safety First

Work Zone Safety Intrusion Alarm System

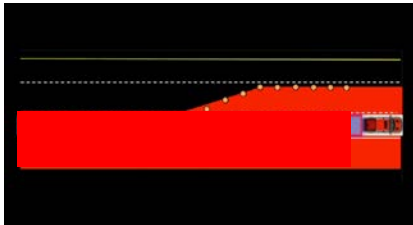
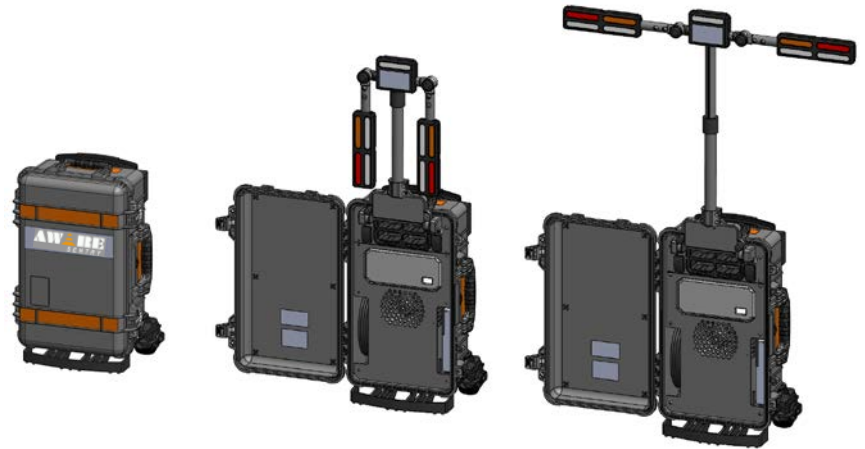
Notifies both workers and drivers when an errant vehicle enters a restricted area such as an active lane closure of a project.

The AWARE system was tested on projects in Region 3 in 2016. It was only active for a few days, but the Department realized the potential is so massive that we feel compelled to start the implementation.



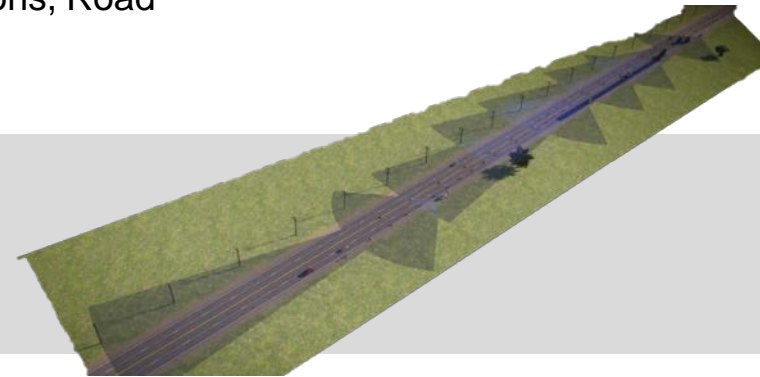
3 Basic Applications

🚧 **Stationary Situation** – Flagging Station, Maintenance Crews, Lone Worker



🚧 **Merge** – MOT (cone) Trucks, Striping Operations, Sweeping Operations, Road Rangers, School Buses

🚧 **Active Work Zones** – Paving, Milling, or Construction Operations within (non-protected) lane closure



AWARE

 **Oldcastle** Materials



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Work Zone Safety Intrusion Alarm System

Actually there are many systems out there, but so few are actually being tested and implemented on CDOT projects.

2017 Pilot Specification in Region 3 - Systems will be tested on multiple construction projects in Region 3 West Program area this upcoming summer. Projects will allow for various types of systems (Radar, Pneumatic, Kinematic, etc.) to be used on projects to aid the Department in determining which system works best for different traffic control operations.

CDOT will work with the contractor on shared cost of these traffic control devices.





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Pavement Management

Innovative approaches to stretch pavement budgets and pavement life

1. Continue to Explore Reduced Cost Paving such as Cold In-Place and Hot In-Place Recycling.
2. Increasing demand for preventative maintenance.
3. Thin lift treatments to maintain functionality.





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CIP History at CDOT
Pavement Management

Long History of CIPR in Region 3

SH 92 at MP 0-4, Delta East in 2003

I-70 at MP 22-37, Fruita to Clifton in 2004

US 50 at MP 105-109, Cerro Summit in 2005

SH 65 at MP 10-21, Cedaredge North in 2007

I-70 at MP 5-12, West of Mack in 2007

SH 125 MP 69.7-75.4 & SH 127 MP 0-9. North Walden 2007

SH 133 at MP 0-12, North of Hotchkiss in 2008

Current Approach to CIPR

US 50 167-181, 154-156 E. & W. Gunnison 2015

SH 149 MP 56-70 Spring Creek Pass 2016

US 50 MP 127-139 Blue Mesa 2017



It is a treatment that can save money and address deeper issues that an overlay will not address and would result in premature failure.



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Preventative Maintenance
Pavement Management

Preventative Maintenance Approach

Studies show that the sooner you place a preventative maintenance treatment, the more the pavement life is extended.

We strive to place a preventative maintenance treatment on all large investment projects as soon as practical. (Goal 5-10yrs)

We have placed a goal on our Materials Unit to have at least two preventative maintenance projects at all times. Which is usually about 10% of our pavement funding.

We do recognize that to have a successful preventive program we must have a continuous program. Contractors that tool up to do these types of projects need a consistent program to stay competitive.

Statewide we added \$10M of funding statewide and we seen some challenges in getting bidders for product or placement in short notice.



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Thin Lift Treatments
Pavement Management

Thin Lift Treatments

Due to funding constraints in transportation and the need to maintain drivability life on more lanes miles, we have been placing more thin asphalt lifts on our projects in an attempt to maintain the functionality. We know from watching maintenance patches perform on low volume roads these functional overlays can provide 7-10 years of life.

The hurdles are density testing and smoothness. Thin lifts often result in variability in densities due to both previous rutting/irregularities and density gauge reading from the underlying mat.

Legacy specifications may not correlate with thin lift applications. R3 approach has been to look at things such as formal roller pass studies for the density testing. We are also evaluating the results from smoothness data in an effort to better determine if current specifications are appropriate. These discussions need to continue as we may need new specifications that can be utilized for thin lifts.



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Region Materials

Some continuous challenges in Region 3

1. Eliminating Transverse Thermal Cracking
2. Geological Impacts





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Addressing Thermal Cracking

Thermal Cracking

- Many older pavements (prior to PG binders)
- Challenges in desert climate with huge temperature swings (cold/dry climate)
- Thermal Cracks are number one cause for major rehabilitation in R3

Options we are studying:

- CIPR for existing pavements
- Timely preventive maintenance treatments
- pavement interlayers
- increasing asphalt content
- reduced lime
- asphalt fibers



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Geo-Impacts

Geological Concerns

- Land slides are common in mountains - often associated with drainage and poor draining soils.
- Differential settlements are too common in new construction and lead to premature pavement failures.
- Often projects experience swelling shale/clays, collapsing soils and consolidation all within a few miles of one another
- Consolidation can often be 10' plus depth which is impractical to repair.

Solutions:

- Expensive patching and leveling
- FDR and Overlay
- Deep Soil Injection/Compaction
- Removal, Base Prep, and New Pavement

None of which are predicted or expected in a typical Pavement Management Program.





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Questions ?

