CDOT AIF PRESNTATION OUTLINE APRIL 16 2010

Pavement Management & Justifying the Need for Pavement Improvement Dollars:
Assume- that the audience understands the basic tenants of pavement preservation and the right treatment at the right time will extend the life of any pavement. Emphasize that the wrong treatment at the wrong time is not pavement preservation, and that this has been and in some case continues to be the preferred process for delivering projects (i.e. Worst First). A paradigm shift is required, and this is a hard sell to the public, policy makers, engineers, and industry. The "needs" far exceed budgets, or any conceivable practical budget, so to obtain the best system we need to shift the mix of projects being delivered, and deliver more functional preventative maintenance projects on roads that are in good and fair condition.

- Overview of CDOT Network 2009 Data:
  - Pavement Preservation Candidates:
    - Good (RSL 11 plus)- 31%
    - Fair (RSL 6-10)- 19%


Final DRAFT 2009
GFPP0 vs 2008 GFPP(

  - Major Rehabilitation and Reconstruction Candidates:
    - Poor (RSL 1-5)- 19%; cost to rehab or reconstruct $5.2 B (2008 Data)
    - Poor Zero (RSL = 0)- 31%; cost to rehab or reconstruct $8.4 Billion (2008 Data)
    - Total to Replace all Poor- $13.6B


Simple Model
Maintain, Grow 1 to 5

  - Projected 20 yr budget for CDOT Surface Treatment Program (STP) is $ +/- 3.8 Billion) (2008 Data).


DRAFT-Final 20-yr
Projections with 100 a

  - Identify the GAP- What is needed to achieve 60% GF , and what is projected with anticipated revenues.
    - Estimate of 20 Yr Budget required to maintain current condition of 50% GF- $9.8 B
    - Estimate of 20 Yr Budget required to reach 60% GF- $11.6 B
    - Estimate of 20 Yr Budget required to reach 75% GF- $16.0 B
  - Define Pavement Preservation (PP) as a strategy, and preventative maintenance (PM) functional treatments as they pertain to PP.
  - Pavement Management and Pavement Preservation go hand in hand.
    - Pavement Management Program need to include treatments and new technologies (i.e. Thin Lift Overlays, Perpetual Pavements, Shingles, Warm Mix Asphalt) into their process and have these types of projects be committed in the planning process.
- Challenges of determining "value" of functional preventative maintenance treatments
  - Value is calculated using benefit cost ratios

- Costs are easier to calculate, but can vary by treatment depending upon contracting method (i.e. in house or contractor)
- Benefit has many more variables, including:
  - Condition of roadway at application
    - If the roadway is poor it should then the application should not be considered in the calculation of benefit as a PM functional preventative maintenance treatment.
  - Traffic
    - When is the use of harder aggregate justified? How can the benefit of the more expensive treatment be measured?
    - Calculating user costs for minor treatments.
  - Environment
    - PM treatments need to be placed in the proper environment. PM treatments using the wrong emulsion, binder or crack sealants/filler will either fail or provide reduced performance.
  - Calculating Added Remaining Service Life Years
    - How are new technologies evaluated
  - Past experiences- how to purge the memory of bad projects
    - Thin overlays are tried and true, lost of experience, we know how they work, and can predict the expected performance
    - but … we need less expensive treatments and unfortunately we have had some bad experiences that keep us from trying these types of treatments again in the right place and at the right time.
- The Current CDOT Pavement Management System has focused on Major Rehab and Reconstruct Benefits
  - Need more data, experience and tracking of PM treatments to estimate added life (i.e. benefit)
  - Returns on treatments can vary significantly, some chip seals will provide 1-2 years added life, but some can provide 7-10 years
  - Inexpensive PM Treatments are challenged to compete with relatively more expensive treatments that have a higher return
- Functional PM Treatments rarely address ride or structural capacity, and as such are limited in showing measurable returns beyond sealing or hiding cracks.

- Need for common terminology, specifications, inspection, and best management practices, to increase value of treatments.
- Promoting Pavement Preservation
  - Easy sell to materials engineers and pavement managers
  - Harder sell to policy makers
  - Functional PM treatments are not “sexy”, these types of projects will most likely not get you promoted
  - Safety- CDOT does not consider safety in its Pavement Management decision process. Functional PM treatments can improve safety, but we do not have the ability to measure the value of the added safety.
- Challenges for increasing :

- Funding- Assume budgets remain the same, then a shift in project delivery is required.
- More Functional PM treatments are required as a percentage of the projects and lane miles being treated
- May require a "tiered" approach. This type of project has been identified by many State DOTS (Nevada, Washington, Utah)
- Will require training of staff at all levels, shift from a few robust projects on poor roadways with significant long term value to the specific segment of roadway, to a new dynamic of less robust treatments and more miles on good and fair roadways.
    - Currently CDOT delivers 5-10% functional pm treatments
    - PM system recommends 17-25%, regardless of budget
- Industry needs commitments to reduce risks associated with ramping up to provide more PM treatments
    - Increased demand for PM treatments should increase the number of suppliers and contractors in the market