

# Importance of Pavement Preservation- *The Caltrans Perspective*



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# Presentation Outline

- **Background**
- **Budget/Economic Recovery/Funding**
- **Green Technologies**
- **Effective Pavement Preservation**
- **Importance of Partnering**
- **Challenges**
- **Summary**





## Background

- **Pavement preservation efforts in Caltrans began in the 90's**
- **Caltrans is now recognized as national leader in pavement preservation, but still does not have an effective PMS**
- **Caltrans is using innovative technologies to reduce energy and emissions (pavement preservation, warm mixes, recycling).**

**Caltrans is working on a new Pavement Management System**



## Background (cont)

- **Caltrans philosophy is to keep good pavements good and repair distressed pavements with more cost-effective strategies**
- **Combination of preservation and repair strategies is needed to accomplish the overall goals**
- **Caltrans established the CP2 Center at Chico State in 2006**



## Background (cont)

- **Caltrans has 50,000 lane miles of freeways and highways**
  - 40,000 in fair to good condition
  - 10,000 in poor condition
- **Caltrans needs to reduce the distressed mileage while protecting the mileage in good condition**

**5-year maintenance plan has been implemented**



## Budget Issues/Barriers

- **California has a \$42 billion debt and it is growing**
- **Preservation competes against capacity improvements and reconstruction of poor roads**
- **Preservation is a line item in the Caltrans budget, \$206 million in FY08/09. It is based on benefits achieved**
- **California needs to increase SHOPP \$\$ for transportation infrastructure**

**California is working to resolve a \$42 billion debt**



## Economic Recovery

- **Caltrans is ready for the stimulus package**
- **Project delivery to be accelerated- 30, 60,90 and 180 days**
- **Caltrans expects to get about 10% of the \$40 billion being proposed for the highway infrastructure**
- **It is still not clear how these funds will be allocated-paying off bonds or funding new projects**



## Bond Projects

- **Proposition 1B projects funded by the Pooled Money Investment Account (PMIA)**
- **California cannot sell these bonds because of the state budget deficit**
- **It needs a budget now so it can sell bonds**
- **If the budget is not resolved soon, Caltrans could use the stimulus funding to payoff the outstanding bond projects**



## Future Funding

- **Pavement Preservation**
  - Line item in the state budget-\$206 million
  - It is expected to grow as long as benefits are clearly demonstrated
- **Pavement Rehabilitation**
  - SHOPP funding-now about the same as pavement preservation
  - 2010 programming cycle estimates \$6.2 billion in needs, but only \$1.5 billion in programmed projects



## Effective Pavement Preservation

- **Caltrans is moving from worst-first to pavement preservation**
- **Caltrans is in the process of documenting the economic and environmental benefits of pavement preservation**
- **5-year maintenance plan was developed to increase pavement preservation efforts**



# Caltrans 5-year Maintenance Plan

- **Provides a needs-based preservation plan**
- **Identifies pavement backlogs**
- **Illustrates alternatives**
  - **Current funding**
  - **Steady state plus reduced backlog in 5 and 10 years**
- **Estimates cost-benefit ratio**
- **Estimates dollars and lane miles that would be delayed in the SHOPP**



# Caltrans 5-year Maintenance Plan

- **Allocated**
  - 2004/05 allocation was \$76 million
  - 2007/08 allocation was \$206 million
  - 2008/09 allocation is now \$206 million
  
- **Encumbered**
  - 2004/05 delivery was \$111 million
  - 2007/08 delivery was \$253 million

**Caltrans is delivering more than allocated**



# Green Technologies

- **Benefits**
  - Lower the carbon footprint
  - Reduce the effect on climate change
- **Types of green technologies used by Caltrans**
  - Pavement preservation
  - Warm mixes
  - In-place recycling

**Assembly Bill 32**



## California Actions

- **Executive Order S-3-05- Established GHG emission reduction targets and the Climate Action Team.**
  - **1990 levels by 2020 (25% below business as usual)**
  - **80% below 1990 levels by 2050.**





# California Actions

- **AB 32: The Global Warming Solutions Act of 2006**
  - Established a first-in-the-world comprehensive program of regulatory and market mechanisms to achieve real, quantifiable, cost-effective reductions of greenhouse gases.
  - 2020 goal of 1990 GHG emissions
- **Automobile emissions standards (at EPA...)**
- **Low Carbon Fuel Standard**
- ***and other requirements...***

**Long standing reputation for leadership in environmental issues**



# Pavement Preservation Treatments

- **Benefits**
  - Cost effective
  - Reduce emissions
  - Reduce energy costs
- **Types**
  - Fog and rejuvenating seals
  - Chip seals
  - Slurry Surfacing
  - Many others



## Warm Mixes

- **Admix or technology that allows hot mix asphalt to be produced at temperatures 50 to 100F lower than currently used**
  - **Reduces emissions**
  - **Reduces dependence on petroleum products**
  - **Improves work environment**



# Warm Mix-Demonstration Projects

- **Morro Bay , California**
  - Polymer modified and windrowed
  - 3 warm mix technologies used
- **Point Arena Project**
  - Long hauls
  - Cool weather





# Warm Mixes-Planned Projects

- **District 11-Imperial**
  - These will involve 3-4 different technologies
  - Will be used with a RAC-O project
  - The Center will be involve with this study
- **Other projects-??**



# Recycling Asphalt Pavements

- **Surface recycling**
  - CIR
  - HIR
  - Hitone
- **Full Depth Reclamation**
  - Cold Foam
  - Emulsions
  - Lime and Cement





## Surface Recycling

- **CIR- Caltrans and local agencies are using this process to recycling the upper 2-4 inches of the pavement**
- **HIR- Caltrans is exploring the use of this process. It has placed some pilot projects**
- **Hitone process- This Japanese process was tried this construction season**



## Full Depth Reclamation

- **Caltrans and local agencies have used this process using**
  - Cold foam
  - Emulsions
  - Cement and Lime
- **Local agencies are using the Zipper to help encourage this business**



# Successes Through Partnering

- **Annual Pavement Preservation Conference**
- **Maintenance Technical Advisory Guides – *Flexible Pavements and Rigid Pavements***
- **Joint Training- *Development and Delivery***
- **Specification Development**
- **Innovation Process and Evaluation, including a major recycling initiative**



## What is next in Caltrans?

- **Reducing the carbon footprint**
  - Recycling initiative
  - Increased use of warm mixes
  - Increased use of pavement preservation
- **Improving network performance through improved pavement management and preservation**
- **Increased use of innovative techniques**



# Continuing Challenges

- **Coping with our aging infrastructure and the budget deficit**
- **Securing stable funding for future projects**
- **Convincing others that investing in good pavements is the best solution**

**Working to resolve a \$42 billion deficit**



## Summary

- **Caltrans is committed to pavement preservation and partnering**
- **Caltrans is committed to be a leader in the deployment of pavement technology and innovation**
- **Caltrans has also implemented a major recycling initiative**
- **All of this will be impacted by the budget deficit and the stimulus package**