Improving PMS by Adding A Pavement Preservation Component

Ding Cheng, Ph.D., P.E.
CP2 Center, CSU, Chico
www.cp2info.org/center

California Chip Seal Association Conference

Sacramento, CA
February 9-10, 2012
Presentation Outline

- Components of PMS
- Importance of adding PP into PMS
- Method of adding PP into PMS
- California Pavement Preservation Database
- Pavement treatment selection using MTAG approach
- Conclusions
Typical Modules of a PMS

- NETWORK INVENTORY
- COLLECTION OF CONDITION DATA
- PAVEMENT CONDITION INDEX (PCI)
- PERFORMANCE MODELS
- TREATMENT RULES
- PRIORITIZATION
- NETWORK OPTIMIZATION
Pavement Distress Types

- Commonly collected by DOT
  - Cracking
  - Rutting
  - IRI

- Preservation needs more data
  - Weathering/Raveling
  - Bleeding
  - Patching
  - Binder aging
Benefits of Pavement Preservation

- Extend life or serviceability of road
- Lower life-cycle costs
- Increase customer satisfaction
- Less impact to public
- Improve safety
- Environmentally friendly
- Sustainability
Effect of Treatment Timing on Costs

- **$1-2.00**
- **$3-6.00**
- **$10-20.00**
- **$20-100.00**

**AGE**

- **PCI**
  - **Good**: 40% of time
  - **70% of time**
  - **90% of time**

- **Poor**:

**Window for Preservation**
Pavement Treatments Comparison

Years of Service, yr

Pavement Condition Index, PCI

Do Nothing
Reconstruction
PP
Rehab
Levels of Integrating PP into PMS

- Requires resources:
  - Staff
  - Expertise
  - Funds
  - Data

- Network-Level Integration
- Project-Level Integration
- Network- and Project-Level Integration

- Obtain Administrative Support
- Funding Level
Network Level Integration

- One or more PP treatment families
- Use average cost and family performance curve
- Recommend funding allocation
- General recommendation on project programming
- No recommendation on final PP treatment
- Minimize resources required
Project Level Integration

- Detailed PP treatment toolbox
- Use real cost and individual performance curve
- LCCA or multi-objective comparison analysis
- Recommend PP project treatment
- No system wide funding allocation analysis
- Moderate to high resources required
Network and Project Level Integration

- Network-Level Integration
- Project-Level Integration
- Recommend PP Project Treatment
- Recommend Funding Allocation

Feedback Loop:
- Highest Resources
- Required
California Pavement Preservation Database

- Stores project information, treatment type
- Tracks performance and store surveys over the years
- Shares knowledge among agencies and industry
- Google mapping capability
- Potential for developing performance curves and estimating treatment lives.
SUMMARY

- Benefits of Pavement Preservation (PP)
- Adding PP into PMS
- California Pavement Preservation Database
- Pavement Treatment Selection using MTAG approach
THANK YOU

Dr. Ding Cheng
Director
CP² Center
530-588-0155
dxcheng@csuchico.edu

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