Pavement Program – Division of Maintenance

Mechanistic-Empirical Pavement Design

What is M-E Design?

- The use of solid mechanics to model the reactions of the pavement to traffic loads, temperature and water content changes, and then relating these reactions to damage and distresses (e.g., cracking, rutting, faulting, etc)

Why M-E?

- Current methods are very limited to specific loads, soils, materials, climate, and practices
- M-E allows designs to adapt to higher loads and tire pressure, various climate conditions, emerging new materials, and innovative construction technologies

Implementation

Tools
1. **Asphalt pavement design (CalME,CalBack):** Completed and enhancements ongoing 2. **Concrete pavement design (MEPDG):** Approved to purchase DarWin-ME from AASHTO is released
Characterization
1. **Default materials library:** Available and updated periodically 2. **Traffic:** Database available but need to update with Traffic Ops 3. **Climate:** Database available and updated as new weather data becomes available 4. **Performance:** Database available and to be updated when PMS data becomes available
Communication and Training
1. **Software users manuals:** Available and undergoing pilot testing 2. **HDM-section on M-E use and standards:** Draft by July 2011 3. **Users guidelines:** Drafted and currently under review (Target October 2011) 4. **Training materials (in-class/web based):** To be developed FY 2011/12 5. **Personnel:** Will need trainers and M-E fluent engineers for technical support
Test Methods
1. **Field testing protocols:** 1st draft under review (Target October 2011) 2. **Laboratory material testing:** Use ASTM or AASHTO (Target June 2012) 3. **Identify new laboratory equipment needs & training:** By June 2012
Pilot Projects
1. **3 projects on LA 710 (From Route 1 to Fire Stone)** 2. **North Red Bluff project (Teh-5-PM 36.5-41.5)** 3. **Weed project (Sis-5-PM 19.0/25.3)** 4. **Coordinating with Districts for additional projects**