Caltrans Research Highlights

Presented by

The California Department of Transportation

CALTRANS RESEARCH PROGRAM

Mission:

- Improve mobility across California by developing innovations, performing applied research, and implementing solutions

Goals:

- Provide a safer and more efficient transportation system
- Manage and preserve transportation system assets
- Enhance Caltrans' business practices and procedures
- Leverage research resources through effective engagement with partners
- Manage research and innovation risks

CALTRANS RESEARCH PARTNERS

California Research Centers:

ITS Berkeley
Institute of Transportation Studies

AHMCT
ADVANCED HIGHWAY MAINTENANCE & CONSTRUCTION TECHNOLOGY RESEARCH CENTER

UCPRC
UNIVERSITY of CALIFORNIA | PAVEMENT RESEARCH CENTER
Davis • Berkeley

CALIFORNIA PATH

PEER
PACIFIC EARTHQUAKE ENGINEERING RESEARCH CENTER

University Transportation Centers:

National Engagement:

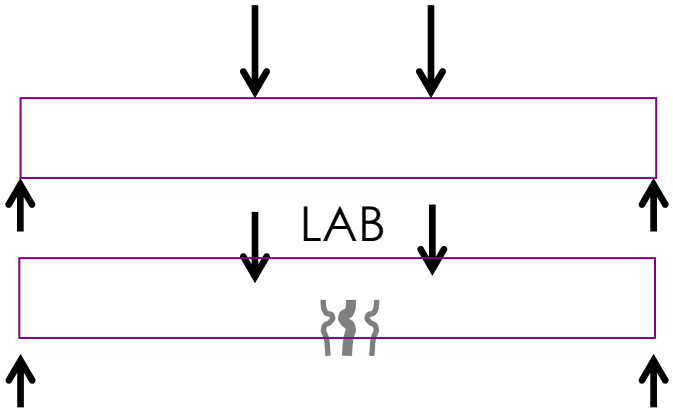
SAFETY HIGHLIGHTS: COZEEP/MAZEEP EVALUATION

- COZEEP: Construction Zone Enhanced Enforcement Program
- MAZEEP: Maintenance Zone Enhanced Enforcement Program

"Use of CHP in work zones to influence driver behavior resulting in reduction in speeds and increased work zone conspicuity with the goal of improving highway safety."

SYSTEM PRESERVATION HIGHLIGHTS: PAVEMENT DESIGN SUPPORT

FIELD

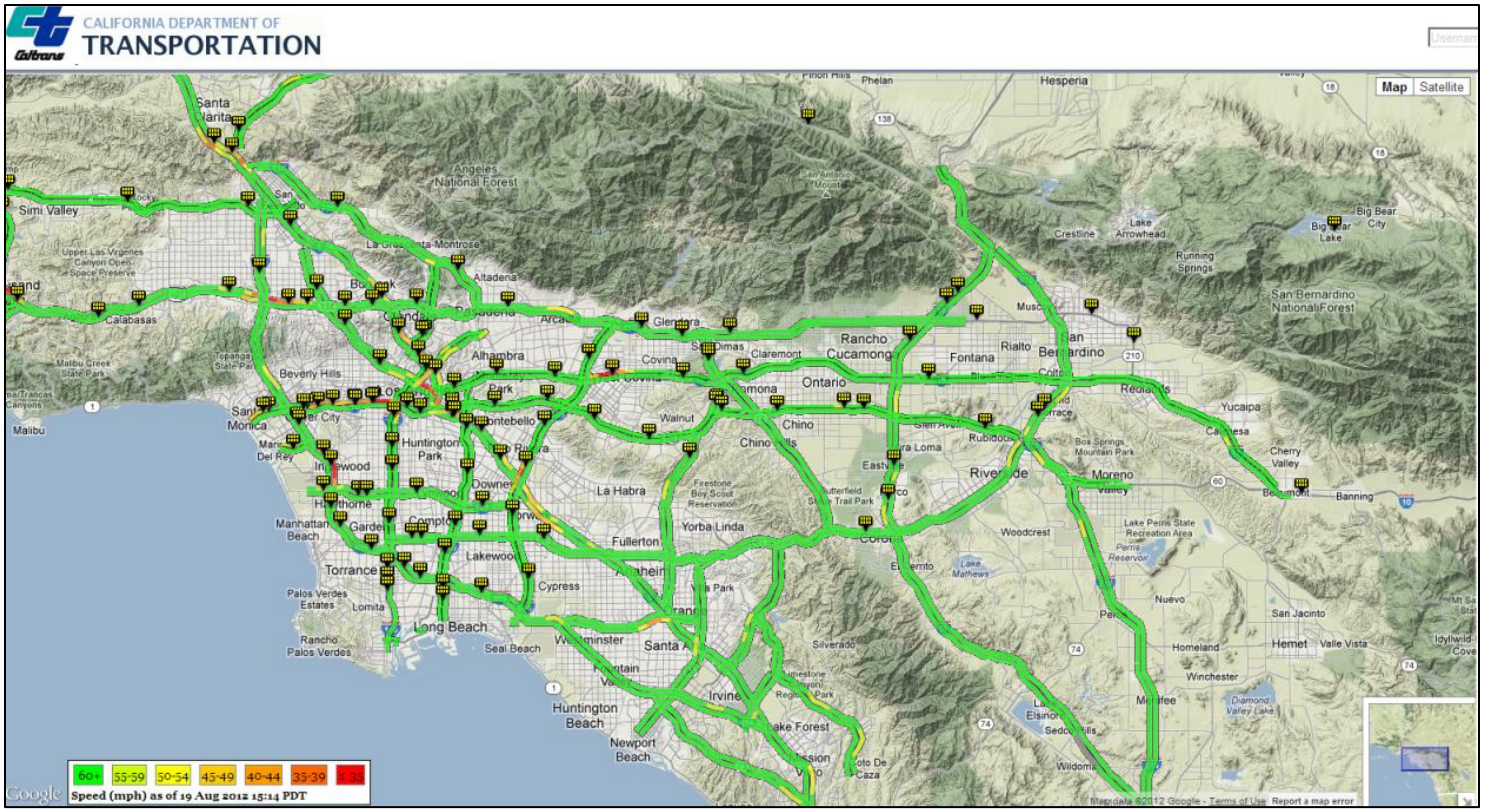


Pavement Cracking Evaluated Using Flexural Beam Test

- Evaluated pavement cracking in Red Bluff and Weed, CA
- These were only the 2nd and 3rd projects of their kind in the State
- Results provide for ME Long Life projects on I-5 in Red Bluff and Weed, CA

SYSTEM MANAGEMENT HIGHTLIGHTS: CALTRANS PERFORMANCE MEASUREMENT SYSTEM (PEMS)

- PeMS displays traffic data that is collected in real-time from over 25,000 individual detectors which span across all major metropolitan areas



Snapshot of PEMS in Districts 7 and 8

SYSTEM MANAGEMENT HIGHLIGHTS: SHAKECAST

- Provides hierarchical lists and maps of bridges most likely impacted
- Retrieves measured shaking data within minutes after an earthquake
- Compares shaking distribution with unique bridge vulnerabilities
- Emails info to responders within 10 to 15 minutes following event
- Suite of software that runs on a web server
- Provides additional tools on ShakeCast website

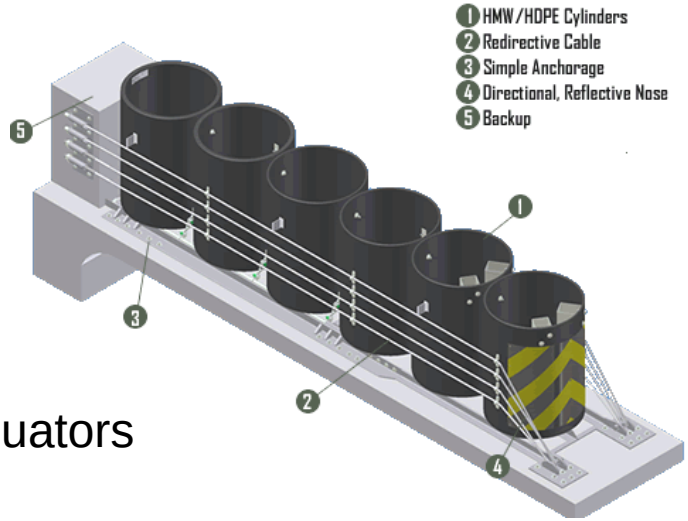
SYSTEM EXPANSION HIGHTLIGHTS: SEE-THROUGH BRIDGE RAIL

- Caltrans developed and crash-tested See-Through Bridge Rails which:
  - Protect the natural beauty of California's coastline
  - Minimize the impairment of views from the bridge
  - And create aesthetically pleasing views of the bridge from public areas

Concrete Barrier Type 80

California ST-20S Bridge Rail

PRODUCT EVALUATIONS HIGHLIGHTS



Severe Duty Crash Attenuators

Crash Testing

RESEARCH PRODUCTS

- New or improved:
  - Technical standard, plan, or specification
  - Manual, handbook, guidelines, or training
  - Policy, rule, or regulation
  - Business practice, procedure, or process
  - Tool or equipment
  - Decision support tool, simulation, model, or algorithm (software)
- Evaluation of new commercial products to determine if they meet Caltrans' needs

FOR MORE INFORMATION

Visit the Caltrans
Division of Research and Innovation at:
www.dot.ca.gov/research