

# Caltrans Research Highlights

*Presented by*



**Caltrans**<sup>®</sup>

*The California Department of Transportation*

# CALTRANS RESEARCH PROGRAM

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## 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:



## University Transportation Centers:



## National Engagement:



# SAFETY HIGHLIGHTS: COZEEP/MAZEEP EVALUATION

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



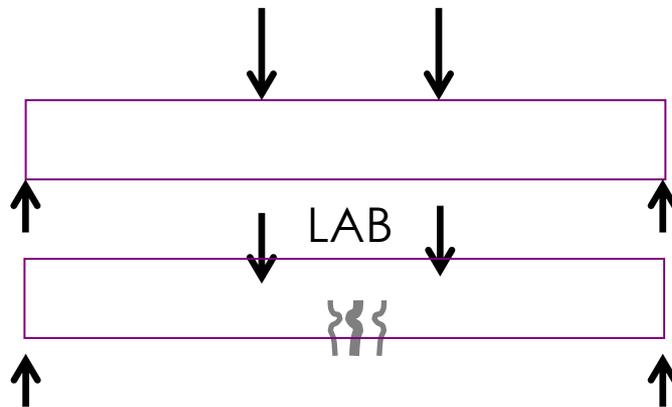
“Use of CHP in work zones to influence driver behavior resulting in reduction in speeds and increased work zone conspicuity with the goal of improving highway safety.”

# SYSTEM PRESERVATION HIGHLIGHTS: PAVEMENT DESIGN SUPPORT



FIELD

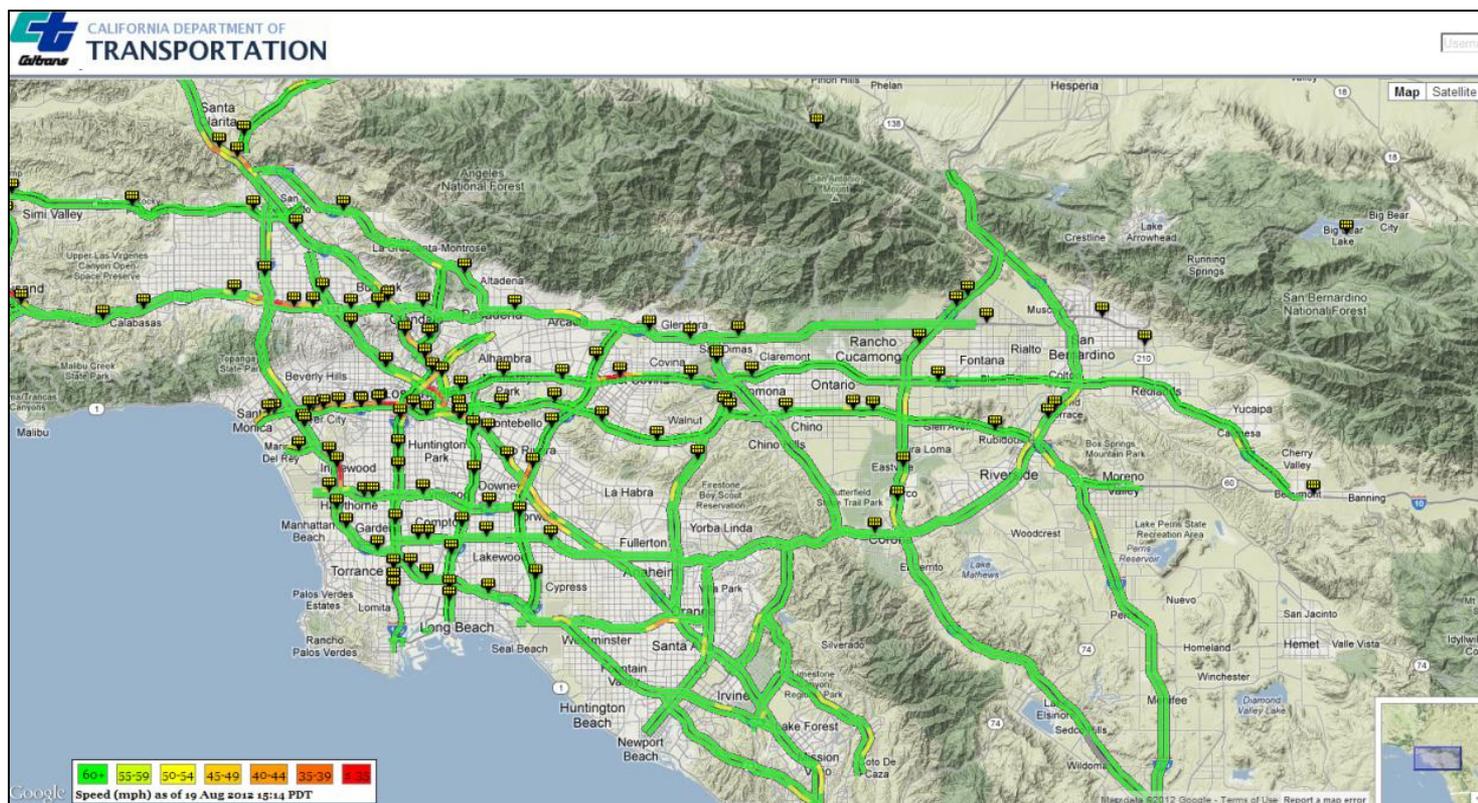
- Evaluated pavement cracking in Red Bluff and Weed, CA
- These were only the 2<sup>nd</sup> and 3<sup>rd</sup> projects of their kind in the State
- Results provide for ME Long Life projects on I-5 in Red Bluff and Weed, CA



Pavement Cracking  
Evaluated Using Flexural  
Beam Test

# SYSTEM MANAGEMENT HIGHLIGHTS: 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

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- 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 HIGHLIGHTS: 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

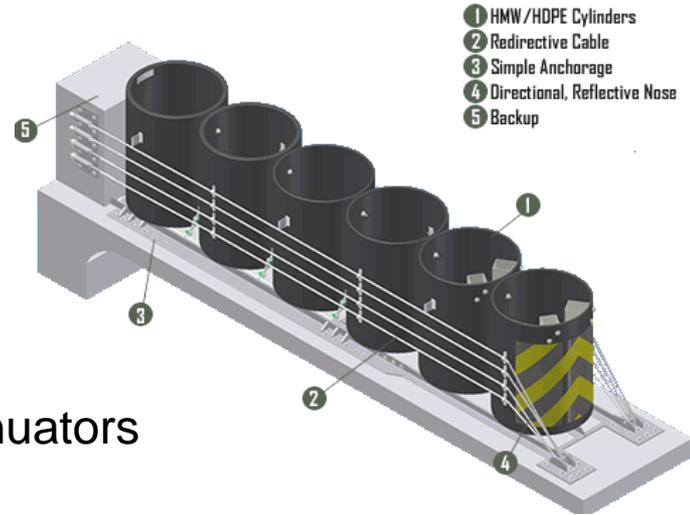


*Concrete Barrier Type 80*



*California ST-20S Bridge Rail*

# PRODUCT EVALUATIONS HIGHLIGHTS



Severe Duty Crash Attenuators



Crash Testing

# RESEARCH PRODUCTS

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- 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

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Visit the Caltrans  
Division of Research and Innovation at:  
[www.dot.ca.gov/research](http://www.dot.ca.gov/research)

