CAWS
Caltrans Automated Warning System
FOG CAUSES PILEUPS
OVERVIEW

- Dense Fog Occurs Regularly In the San Joaquin Valley Without Warning Causing Hazardous Driving Conditions from October to April
- Mossdale Y Is An Ideal Site for An Active Fog Warning System Due to Converging Traffic Pattern And High Incidence of Dense Ground Fog
- Deployment of CAWS Was Completed In The Summer of 1996
- CAWS Was Activated In November of 1996
Caltrans Automated Warning System (CAWS)

PRIMARY FUNCTIONS

• Detect The Presence of Reduced Visibility
• Detect The Presence of Congested Traffic on The Highway
• Automatically Activate Changeable Message Signs (CMSs) to Provide Advanced Warning to Drivers
Caltrans Automated Warning System (CAWS)

AUTOMATED FEATURES

• A Network of Remote Meteorological Stations
• A Network of Traffic Speed Detection Stations
• A Network of Self-Illuminated CMSs
WEATHER MONITORING SYSTEM

- Nine Remote Weather Monitoring Stations Along Interstate 5 And Highway 120
- Weather Data Carried Over A Network of Dedicated and Leased Telephone Lines to Stockton Traffic Management Center (TMC)

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Caltrans Automated Warning System (CAWS)

WEATHER STATION COMPONENTS

1. Wind Vane
2. Anemometer (Wind Speed)
3. Rain Gauge
4. Visibility Sensor
5. Network Controller
6. Radiation Shield (Temperature)
Caltrans Automated Warning System (CAWS)

AUTOMATED MESSAGES FOR FOG

- Visibility Can Change Dramatically

Visibility at 500 Feet

Visibility at 200 Feet
Caltrans Automated Warning System (CAWS)

AUTOMATED CMS

• Nine Automated CMSs Along Interstate 5 And Highway 120

• CMS Data Carried Over A Network of Dedicated And Leased Telephone Lines from Stockton Traffic Management Center (TMC)

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Caltrans Automated Warning System (CAWS)

SAMPLE FOG WARNING ON CMS
Thirty-Six Duplex Loop Detection Stations Spaced At 1/2 Mile Intervals on Interstate 5 And Highways 99 And 120

Traffic Count And Speed Data Carried Over A Network of Dedicated And Leased Telephone Lines to Stockton Traffic Management Center (TMC)
Caltrans Automated Warning System (CAWS)

AUTOMATED MESSAGES FOR SPEED

• Fixed CMS Messages for Traffic Speed Warning

- Speed < 35 mph
- Speed < 11 mph
Caltrans Automated Warning System (CAWS)

AUTOMATED MESSAGE FOR WIND

- Fixed CMS Message for High Wind Warning

![High Wind Warning Sign]

Wind Speed > 25 mph
Caltrans Automated Warning System (CAWS)

SYSTEM DIAGRAM

STOCKTON TMC

Weather Station

Sign View

TMS

Images of weather station, sign view, and TMS.
Caltrans Automated Warning System (CAWS)

BENEFITS

• One of The Most Advanced Systems
• Reduced Traffic Incidents Due to Limited Visibility
• Advanced Warning of Congested Traffic Conditions
• Provides Real-Time Information to Stockton TMC And Motorists
WHERE DO WE GO FROM HERE?

• Loragen Corporation Transportation Electronics Group - San Luis Obispo
  – Assessment of Impact of System on Driver Behavior During Limited Visibility Conditions
  – Assessment of Long Term Impact of System on Accident Rates And Losses

• Caltrans - District 10, Electrical Systems Branch
  – Real Time Data Available to Public
  – Road Studs on SR 12