Los Angeles Transportation Management Center (LARTMC)

- The LARTMC serves forty three (43) distinct government functions and was designed with the technologies to support joint operations and act as the center for Intelligent Transportation Systems (ITS) and Emergency Response operations for the next 30 years.
• Over 525 miles of monitored freeway in District 7
• 1,280 Traffic Monitoring Stations (TMS)
• Over 12,000 Inductive Loops, 81 Speedinfo Sensors (plus misc. RTMS Radar and Sensys magneto resistive detectors)
- 125 CMS
- 960 RMS
- 15 HAR systems
- 485 CCTV
ATMS Features

- PC Browser user Interface
- CMS Travel Times
- CMS Message Library and History
- CMS Scheduler
- AMBER Alerts
- Electronic Message Board Control
- New VDS Interfaces (RTMS, Speedinfo, Sensys)
- Digital HAR Interface
- NTCIP CCTV Control w/presets
- Enhanced SWARM w/performance measures
- Duty Paging
- Event Management enhancements
- Automated CHP Event Interface
- New Crystal Reports
- External Agency Interface – RIITS
- CCTV Cameras to cell phones (via RIITS)
- Construction Project Impact Tracker
- Work Zone TMS features
Agenda

- Map Overview
- Traffic Data
- Field Device Control
- Travel Time
- Advanced Management Functions
- Reports
- Browse Edit
- Regional Integration
ATMS Application Web Page

Welcome to California

Caltrans District 7 ATMS

ATMS Map
Configuration
Reports
Administration
Const. Projects

ATMS Database
Browser and Editor

ATMS Database
Reports Application
ATMS
“Base Map”

• Map of Region
  • Depicts Roadways
    • Freeways, State Highways, Major & Minor Arterials
  • Shows Field Element Locations & Status
    • Induction Loops, Ramp Meters, CMS, CCTV, HAR & Beacons

• Overview of All ATMS Operations
  • Freeway Congestion
  • Ramp Metering Operations
  • Current and Scheduled Planned Event Operations
Functionality of Base Map

- Map Manipulation
  - Multiple Pan & Zoom Options
  - Map Overview
  - New Map
  - Legend
- Control of Map Layers
  - Automatic “Decluttering”
  - User Controllable Views
### Map - Layer Display

#### Table: Map Layers Display

<table>
<thead>
<tr>
<th>Map Layers</th>
<th>Visible</th>
<th>Control</th>
<th>Default</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freeway/Highway Shield</td>
<td></td>
<td></td>
<td>Default</td>
</tr>
<tr>
<td>Map Grids</td>
<td></td>
<td></td>
<td>Default</td>
</tr>
<tr>
<td>Freeway/Highway/Ramps</td>
<td></td>
<td></td>
<td>Default</td>
</tr>
<tr>
<td>Freeway/Highway/Ramp Text</td>
<td></td>
<td></td>
<td>Default</td>
</tr>
<tr>
<td>Primary Streets</td>
<td></td>
<td></td>
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<tr>
<td>Primary Street Text</td>
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<td>Secondary Streets</td>
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<td>Default</td>
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<tr>
<td>Secondary Street Text</td>
<td></td>
<td></td>
<td>Default</td>
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<tr>
<td>Minor Streets</td>
<td></td>
<td></td>
<td>Default</td>
</tr>
<tr>
<td>Minor Street Text</td>
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<td></td>
<td>Default</td>
</tr>
<tr>
<td>County Label</td>
<td></td>
<td></td>
<td>Default</td>
</tr>
<tr>
<td>Creeks/Streams/Rivers</td>
<td></td>
<td></td>
<td>Default</td>
</tr>
<tr>
<td>Pacific Ocean</td>
<td></td>
<td></td>
<td>Default</td>
</tr>
<tr>
<td>Parks, Mil Bases, Natl Forests etc</td>
<td></td>
<td></td>
<td>Default</td>
</tr>
<tr>
<td>City Area</td>
<td></td>
<td></td>
<td>On</td>
</tr>
<tr>
<td>County Boundaries</td>
<td></td>
<td></td>
<td>Default</td>
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</table>

#### Controls:

- All On
- All Off
- Default
- OK

**Los Angeles**

<table>
<thead>
<tr>
<th>Layer</th>
<th>Visible</th>
<th>Control</th>
<th>Default</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Default</td>
</tr>
</tbody>
</table>

**Default**

**On**

**Off**
Agenda

Map Overview
Traffic Data
Field Device Control
Travel Time
Advanced Management Functions
Reports
Browse Edit
Regional Integration

- Failure Management
- Data Normalization
- Real-Time Display
Phase I Failure Management Model

- Detects failures in the raw detector data
- Eliminates need for using historical data to determine status
- Segregates Detectors into Classes
- Segregates Freeway into Links with Similar Operating Characteristics
- Dynamic Thresholds
Loop Status State Diagram

- **NO RESPONSE**
  - Software

- **DISABLED**
  - Operator can Disable from any State
  - Software

- **OK**
  - Fail Thresh \( x \) Times
  - Pass Thresh \( z \) Times

- **SUSPECT**
  - Fail Thresh Test
  - Pass Thresh Test

- **HARD FAILED**
  - Pass Thresh \( q \) Times

- **SOFT FAILED**
  - Fail Thresh \( y \) Times
  - Pass Thresh \( z \) Times

- **Fail Daily Count Thresh**
## Occupancy Threshold Table

<table>
<thead>
<tr>
<th>Avg Occ</th>
<th>Low Thresh</th>
<th>High Thresh</th>
<th>Suspect to Soft</th>
<th>Soft to OK</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
<td>6</td>
<td>15</td>
<td>2</td>
</tr>
<tr>
<td>1</td>
<td>0</td>
<td>8</td>
<td>14</td>
<td>2</td>
</tr>
<tr>
<td>....</td>
<td>....</td>
<td>....</td>
<td>....</td>
<td>....</td>
</tr>
<tr>
<td>15</td>
<td>5</td>
<td>30</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>16</td>
<td>5</td>
<td>31</td>
<td>3</td>
<td>3</td>
</tr>
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<td>17</td>
<td>6</td>
<td>32</td>
<td>3</td>
<td>3</td>
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<td>30</td>
<td>10</td>
<td>40</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>....</td>
<td>....</td>
<td>....</td>
<td>....</td>
<td>....</td>
</tr>
<tr>
<td>100</td>
<td>25</td>
<td>100</td>
<td>2</td>
<td>7</td>
</tr>
<tr>
<td>Metering Ramp (excl. greenball)</td>
<td>1</td>
<td>99</td>
<td>10</td>
<td>2</td>
</tr>
<tr>
<td>Not Enough Data</td>
<td>1</td>
<td>100</td>
<td>16</td>
<td>2</td>
</tr>
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</table>
Data Normalization

- Occupancy is normalized so that occupancy better represents the same condition regardless of the detector characteristics.
Traffic Surveillance
- Real Time Data

• Freeway Congestion Overview on Map
  • Updated every polling cycle: 30 seconds
  • Station level display: Average estimated speed, volume or occupancy
  • Lane level display: volume, occupancy, estimated speed
  • Green, yellow, orange, red, gray color code

• Textual Data Display
  • Volume, Occupancy, Estimated Speed
  • Multiple Station Capability
## Vehicle Detection Station

<table>
<thead>
<tr>
<th></th>
<th>Red</th>
<th>Orange</th>
<th>Yellow</th>
<th>Green</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Speed</strong></td>
<td>0-20mph</td>
<td>20-35mph</td>
<td>35-50mph</td>
<td>50-70mph</td>
</tr>
<tr>
<td><strong>Volume</strong></td>
<td>18-1000 veh/30sec</td>
<td>9-18 veh/30 sec</td>
<td>0-9 veh/30 sec</td>
<td></td>
</tr>
<tr>
<td><strong>Occupancy</strong></td>
<td>30-100%</td>
<td>15-30%</td>
<td>0-15%</td>
<td></td>
</tr>
</tbody>
</table>

Gray: no valid data (multiple causes)
VDS Data Dialogue

Loop Status

Loop Location

Station Totals

Accumulated Loop Volumes (5, 15 min)

30 Second Loop Data
- Volume
- Occupancy
- Estimated Speed

<table>
<thead>
<tr>
<th>Lane</th>
<th>Status</th>
<th>Volume (15 Min)</th>
<th>Volume (5 Min)</th>
<th>Volume (30 Sec)</th>
<th>Occupancy</th>
<th>Estimated Speed</th>
</tr>
</thead>
<tbody>
<tr>
<td>HOV1</td>
<td>OK</td>
<td>107</td>
<td>39</td>
<td>3</td>
<td>1.6</td>
<td>65</td>
</tr>
<tr>
<td>ML1</td>
<td>OK</td>
<td>301</td>
<td>111</td>
<td>6</td>
<td>2.6</td>
<td>70</td>
</tr>
<tr>
<td>ML2</td>
<td>OK</td>
<td>324</td>
<td>119</td>
<td>13</td>
<td>6.1</td>
<td>70</td>
</tr>
<tr>
<td>ML3</td>
<td>OK</td>
<td>216</td>
<td>82</td>
<td>10</td>
<td>5.9</td>
<td>69</td>
</tr>
<tr>
<td>ML4</td>
<td>OK</td>
<td>106</td>
<td>39</td>
<td>4</td>
<td>2.0</td>
<td>70</td>
</tr>
</tbody>
</table>

ML Average:
- 7.9
- 8.8
- 8.2
- 4.2
- 69.6

ML Total:
- 947
- 351
- 33
Multiple Station Data Display

Adjacent VDS Data / 30-Second Volume

Freeway: I210 W

Data at: Jun 15, 2005 15:58:30

Lane | GRAND 2 | GRAND 1 | CITRUS | AZUSA 2 | AZUSA 1
--- | --- | --- | --- | --- | ---
Speed | 41.68 | 41.50 | 40.26 | 39.62 | 39.52
Vol | 10 | 6 | 5 | 4 | 3

Average: 65.0 | 14.0
Status: Some Loops Bad

Upstream | Primary VDS | Downstream
New VDS Sensors

- RTMS via loop emulator and FEPT
- Direct ATMS-to-RTMS Interface using InfoTek Wizard
- Direct ATMS-to-RTMS Interface using Airlink Modem
- Sensys Networks via snap server
- Direct ATMS-to-Sensys Interface
- Speedinfo via RIITS
New VDS Devices

VDS 6501
- LDS ID / Type: 769725 / Sens
- Status: All Loops Good
- VDS ID: 769732
- MS ID: 6501
- Line ID: 0
- Controller ID: 0
- County: Los Angeles
- Location: SR60 W
- Postmile: 10.91
- Cross Street: BECK 1

VDS 8012
- LDS ID / Type: 769604 / RTM
- Status: All Loops Good
- VDS ID: 769604
- MS ID: 8012
- Line ID: 892
- Controller ID: 1
- County: Los Angeles
- Location: 15 S
- Postmile: 47.68
- Cross Street: S/O OLD ROAD 2

VDS 2199
- LDS ID / Type: 717008 / RTM
- Status: Some Loops Bad
- VDS ID: 717008
- MS ID: 2199
- Line ID: 73
- Controller ID: 19
- County: Los Angeles
- Location: 110 E
- Postmile: 6.73
- Cross Street: MOTOR

Table:

<table>
<thead>
<tr>
<th>Lane</th>
<th>Status</th>
<th>Volume (15 Min)</th>
<th>Volume (6 Min)</th>
<th>Volume (30 Sec)</th>
<th>Occupancy</th>
<th>Estimated Speed</th>
</tr>
</thead>
<tbody>
<tr>
<td>ML1</td>
<td>OK</td>
<td>390</td>
<td>91</td>
<td>8</td>
<td>4.9</td>
<td>55</td>
</tr>
<tr>
<td>ML2</td>
<td>OK</td>
<td>374</td>
<td>125</td>
<td>14</td>
<td>13.2</td>
<td>36</td>
</tr>
<tr>
<td>ML3</td>
<td>OK</td>
<td>341</td>
<td>125</td>
<td>14</td>
<td>11.4</td>
<td>42</td>
</tr>
<tr>
<td>ML4</td>
<td>H Failed</td>
<td>109</td>
<td>42</td>
<td>7</td>
<td>5.5</td>
<td>61</td>
</tr>
</tbody>
</table>

Table:

<table>
<thead>
<tr>
<th>Lane</th>
<th>Volume</th>
<th>Volume</th>
<th>Volume</th>
<th>Occupancy</th>
<th>Estimated Speed</th>
</tr>
</thead>
<tbody>
<tr>
<td>ML1</td>
<td>1393</td>
<td>481</td>
<td>54</td>
<td>88.8</td>
<td>45.5</td>
</tr>
</tbody>
</table>

ML Average: 9.3
ML Total: 900
Agenda

- Map Overview
- Traffic Data
- Field Device Control
- Travel Time
- Advanced Management Functions
- Reports
- Browse Edit
- Regional Integration

• CMS
• CCTV
• HAR
• RMS
Device Control

- Changeable Message Signs
  - Operational Status
  - Manual User Control
  - System Scheduled
- RMS
  - Operational Status (Mode, Rate)
  - Central Algorithm Configuration (SWARM)
- HAR & Beacons
  - Operational Status
- CCTV
  - Camera Selection (point and click)
  - Pan / Tilt / Zoom / Iris
  - Video Wall Control
  - Video Snapshot Configuration
Field Devices - Icon Display

<table>
<thead>
<tr>
<th>Legend</th>
<th>Name</th>
<th>Visible</th>
<th>Control</th>
<th>Default</th>
<th>Display</th>
<th>Filter</th>
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<tbody>
<tr>
<td></td>
<td>Changeable Message Signs (CMS)</td>
<td></td>
<td></td>
<td>Default</td>
<td>0.6</td>
<td>Normal</td>
</tr>
<tr>
<td></td>
<td>CCTV</td>
<td></td>
<td></td>
<td>Default</td>
<td>0.5</td>
<td></td>
</tr>
<tr>
<td></td>
<td>HAR</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>On</td>
</tr>
<tr>
<td></td>
<td>Vehicle Detector Stations (VDS)</td>
<td></td>
<td></td>
<td>Default</td>
<td>1.0</td>
<td>Speed</td>
</tr>
<tr>
<td></td>
<td>RMS, OnRamp Metered</td>
<td></td>
<td></td>
<td>Default</td>
<td>0.2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>OnRamp, Unmetered</td>
<td></td>
<td></td>
<td>Default</td>
<td>0.2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>OffRamp</td>
<td></td>
<td></td>
<td>Default</td>
<td>0.2</td>
<td></td>
</tr>
</tbody>
</table>
CMS Manual Control

CMS ID: 95
County: Los Angeles
Location: 15 N
Cross Street: OSBORNE ST
Postmile: 37.37
Type: MODEL 500
Status: Good

CMS DETAILS

Multiple CMS
Single CMS Detail

EDIT

2 Phase
1 Phase
Display Time: 2 Seconds
Immediate
Schedule

Phase 1

Phase 2

CMD Control

Nov 14, 2005
15:30 PM

Multiple CMS
Single CMS Detail

PLAN

CMS | Location | Cross Street | Status | Proposed | Current | CCTV
---|----------|--------------|--------|----------|---------|------
95 | 15 N     | OSBORNE ST   | Good   |          |         |      
1  | 405 N    | 135TH ST     | Good   |          |         |      
2  | 405 N    | MANHATTAN BCH BLVD | Good   |          |         |      
3  | J 10 E  | DORCHESTER AVE | Good   |          |         |      
4  | J 10 W  | WO CENTRAL AVE | Good   |          |         |      
5  | J 10 E  | EZO WASHINGTON BLVD | Good   |          |         |      
7  | SR101 S | WHITSETT AVE  | Good   |          |         |      
9  | J 10 S  | WO VOODCMA AVE | Good   |          |         |      
10 | J 10 S  | NINTH ST      | Good   |          |         |      
12 | SR101 S | MIRRO E AVE   | Good   |          |         |      
14 | J 10 E  | CRENSHAW BLVD | Good   |          |         |      
15 | H 10 W  | ALAMEDA ST    | Good   |          |         |      
16 | H 10 N  | GAGE          | Good   |          |         |      
17 | J 10 N  | WASHINGTON BLVD | Good   |          |         |      
18 | J 10 E  | WESTERN AVE   | Good   |          |         |      
19 | J 10 S  | BEL AIR CREST RD | Good   |          |         |      

View
- Summary
- Meg Details
- Schedule

Add
Add All
Delete
Select All
Deselect All
Send
Blank
Reset
CMS System Scheduler

Enter message start and end time

Start Time: Tue 15:00   Duration: 6 hr 0 min

End Time: Tue 21:00

A message is scheduled for this sign.

EDIT

2 Phase 1 Phase

Display Time: 2 Seconds

Immediate At 15:00

Phase 1

SCHEDULE

TEST MESSAGE

Phase 2

OK

Cancel

Preview
Clear
History
Library
CMS Scheduler Detail

CMS Control

Nov 15, 2005
10:13 AM

Multiple CMS Single CMS Detail

PLAN

<table>
<thead>
<tr>
<th>CMS</th>
<th>Location</th>
<th>Phase 1</th>
<th>Phase 2</th>
<th>Start</th>
<th>End</th>
<th>Operator</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>I210 W</td>
<td>SCHEDULE TEST MESSAGE</td>
<td></td>
<td>15:00</td>
<td>21:00</td>
<td>test17</td>
</tr>
</tbody>
</table>

View

Summary
Msg Details
Schedule

Add
Add All
Add Active
Delete
Select All
Deselect All
Clear Sched

2 Phase
1 Phase

Display Time: 2 Seconds

Immediate
At 15:00

Phase 1
SCHEDULE TEST MESSAGE

Phase 2

OK

Preview
Clear
History
Library
## CMS Message History

<table>
<thead>
<tr>
<th>Location</th>
<th>Cross Street</th>
<th>Phase 1</th>
<th>Phase 2</th>
<th>Start</th>
<th>End</th>
<th>Du...</th>
<th>Operator</th>
</tr>
</thead>
<tbody>
<tr>
<td>81</td>
<td>I210 W</td>
<td>YYYYYYYYYYYYYYYYY</td>
<td>TESTING 1 TESTING 2</td>
<td>2005.06.23 16:37</td>
<td>2005.06.23 16:39</td>
<td>00:01</td>
<td>testd7</td>
</tr>
<tr>
<td>81</td>
<td>I210 W</td>
<td>YYYYYYYYYYYYYYYYY</td>
<td>TESTING 1 TESTING 2</td>
<td>2005.06.23 16:39</td>
<td>2005.06.23 16:39</td>
<td>00:00</td>
<td>testd7</td>
</tr>
<tr>
<td>81</td>
<td>I210 W</td>
<td>TEST TEST1 TEST</td>
<td></td>
<td>2005.06.23 16:41</td>
<td>2005.06.23 16:41</td>
<td>00:00</td>
<td>testd7</td>
</tr>
<tr>
<td>81</td>
<td>I210 W</td>
<td>A TEST MESSAGE</td>
<td></td>
<td>2005.06.23 18:15</td>
<td>2005.06.23 18:25</td>
<td>00:10</td>
<td>testd7</td>
</tr>
<tr>
<td>81</td>
<td>I210 W</td>
<td>PHASE 1 MESSAGE</td>
<td></td>
<td>2005.06.24 08:56</td>
<td>2005.06.24 08:56</td>
<td>00:00</td>
<td>testd7</td>
</tr>
<tr>
<td>81</td>
<td>I210 W</td>
<td>2 PHASE PART 1</td>
<td>2 PHASE PART 2</td>
<td>2005.06.24 08:59</td>
<td>2005.06.24 08:59</td>
<td>00:00</td>
<td>testd7</td>
</tr>
<tr>
<td>81</td>
<td>I210 W</td>
<td>SCHEDULED 1 PHASE</td>
<td>SCHEDULED</td>
<td>2005.06.24 09:04</td>
<td>2005.06.24 09:05</td>
<td>00:00</td>
<td>testd7</td>
</tr>
<tr>
<td>81</td>
<td>I210 W</td>
<td>SCHEDULED 2 PHASE PART1</td>
<td>SCHEDULED 2 PHASE PART1</td>
<td>2005.06.24 09:07</td>
<td>2005.06.24 09:07</td>
<td>00:00</td>
<td>testd7</td>
</tr>
<tr>
<td>81</td>
<td>I210 W</td>
<td>TESTING AAA</td>
<td></td>
<td>2005.06.27 11:48</td>
<td>2005.06.27 13:24</td>
<td>01:35</td>
<td>testd7</td>
</tr>
<tr>
<td>81</td>
<td>I210 W</td>
<td>TEST AMBER ALERT</td>
<td></td>
<td>2005.06.27 13:38</td>
<td>2005.06.27 13:39</td>
<td>00:01</td>
<td>testd7</td>
</tr>
</tbody>
</table>
### CMS Message Library

<table>
<thead>
<tr>
<th>ID</th>
<th>Title</th>
<th>Phase1</th>
<th>Phase2</th>
<th>Last Modified</th>
<th>Operator</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>TEST MESSAGE - 2</td>
<td>TEST LINE 1</td>
<td>TEST LINE 3</td>
<td>2005.07.11 12:06</td>
<td>testd7</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TEST LINE 2</td>
<td>TEST LINE 4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>CONGESTION</td>
<td>CONGESTION AHEAD</td>
<td></td>
<td>2005.11.15 10:51</td>
<td>testd7</td>
</tr>
<tr>
<td>3</td>
<td>WINDY</td>
<td>GUSTY WINDS AHEAD</td>
<td></td>
<td>2005.11.15 10:51</td>
<td>testd7</td>
</tr>
<tr>
<td>4</td>
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<td>POOR VISIBILITY AHEAD</td>
<td></td>
<td>2005.11.15 10:51</td>
<td>testd7</td>
</tr>
</tbody>
</table>

5
6
7
8
9
10
Ramp Metering

• Manual Control
  • Traditional Time of Day & Local Responsive
  • Controller Memory Configuration

• Multiple “Automated” Modes
  • 3 Central Algorithms
    • Swarm 1 - Adaptive System-wide
    • Swarm 2a - Headway-based local responsive
    • Swarm 2b - Density-based local responsive
Flow of RMS Windows

- Select Metering Mode
  - MODE
    - Local TOD/LMR
    - Manual
    - SWARM
  - MANUAL RATE
    - 13 vpm/lane
    - 12 vpm/lane
    - 3 vpm/lane

- Configure SWARM Control
  - SWARM 1 Details
  - SWARM 2a Details
  - SWARM 2b Details

- Metering Rate Statistics

- Configure Controller Memory
  - All Memory
  - TOD Table
  - TOD Holiday
  - CRVOL Plans
  - Platooning Plans

- RMS Loop Enable/Disable

- Configure Controller Memory
  - Memory Page
  - Tables
  - Insert / Append / Edit

- Minimum Rate Control
  - TOD
    - Absolute Minimum
  - Default Rate Control
    - TOD
      - Absolute Maximum
  - SWARM Startup Strategy
    - Only during TOD
    - Anytime
Ramp Metering Control

RMS 1288

RMS ID: 716612
MS ID: 1288
County: Los Angeles
Location: I210 W
Postmile: 40.26
Cross Street: CITRUS
LDS ID: 715515
Status: Good

Data at: Jun 15, 2005 18:14:30
Metering Status: Not Currently Metering
Metering Mode: Local: TOD
Metering Rate: Off
Controller Override: None
% Violations: 0
Metered Lanes: 2
Ramp Lanes: 2
HOV Lane Location: None
Platoon Meter Ramp: No

Select Metering Mode
Configure SWARM Control
Metering Rate Statistics
Configure Controller Memory
Loop Enable/Disable...

Freeze Data

<table>
<thead>
<tr>
<th>RMS Type</th>
<th>Accumulated Volume</th>
<th>30 Second Data</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>15 Min</td>
<td>5 Min</td>
</tr>
<tr>
<td>OR</td>
<td>OK</td>
<td>116</td>
</tr>
<tr>
<td>PA</td>
<td>OK</td>
<td>116</td>
</tr>
<tr>
<td>DM</td>
<td>OK</td>
<td>118</td>
</tr>
<tr>
<td>QU</td>
<td>OK</td>
<td>106</td>
</tr>
</tbody>
</table>

Zoom to Area  OK
CCTV Interface

Video Wall Display Control
CCTV Functionality – NTCIP and Presets

- Iris Control
  - Auto
  - Open
  - Close

- Focus Control
  - Auto
  - Near
  - Far
CCTV Functionality – NTCIP and Presets

- Preset
  - 10 Positions
  - Preset 1 is Default
CCTV Snapshot Configuration
Digital HAR Interface

Digital HAR Interface
Electronic Message Board (EMB)
### EMB Event (for LARTMC)

![Electronic Message Board Control](image)

<table>
<thead>
<tr>
<th>CAD</th>
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<th>LOCATION</th>
<th>TYPE</th>
<th>LNS CLSD</th>
</tr>
</thead>
<tbody>
<tr>
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<td>W118@COLLINS DR</td>
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<td></td>
</tr>
<tr>
<td>1840</td>
<td>E2@SR 134</td>
<td>S:</td>
<td></td>
<td>34</td>
</tr>
<tr>
<td>1835</td>
<td>S5@PIONEER/IMPERI</td>
<td>I: JACKKNIFE 23</td>
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<td></td>
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<tr>
<td>1234</td>
<td>1810@FAIRFAX AVE</td>
<td>I: COLLISION 1234</td>
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<tr>
<td>1808</td>
<td>S5@PIONEER/IMPERI</td>
<td>I: JACKKNIFE 23</td>
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<tr>
<td>1544</td>
<td>W91@PARAMOUNT BLV</td>
<td>I: JACKKNIFE 345</td>
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<tr>
<td>2239</td>
<td>2038@WILMINGTON</td>
<td>I: JACKKNIFE 1235</td>
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</tbody>
</table>
Agenda

- Map Overview
- Traffic Data
- Field Device Control
- Travel Time
- Advanced Management Functions
- Reports
- Browse Edit
- Regional Integration

- Signing Configuration
- Signing Scheduler
- Target Selection
Congestion Signing/Travel Times

• Current Operations
  ✓ 50 signs
  ✓ 12 hours/day
  ✓ 7 days/week

• Non-contiguous Freeway signing
  ✓ Freeway-to-freeway pivots
Congestion Signing Configuration
# Congestion Signing Scheduler

![Scheduler Interface]

**Global Congestion Signing:**
- Activate
- Deactivate

**Activate Congestion Signing At Selected Hours:**

<table>
<thead>
<tr>
<th>Time</th>
<th>Mon</th>
<th>Tue</th>
<th>Wed</th>
<th>Thu</th>
<th>Fri</th>
<th>Sat</th>
<th>Sun</th>
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<tbody>
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<td>00:00</td>
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<tr>
<td>23:00</td>
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<td></td>
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<td></td>
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<td></td>
</tr>
</tbody>
</table>

**Buttons:**
- Apply
- Select All
- Deselect All
- Cancel
**Target Selection**

![Image of Target Selection interface](image)

**CMS ID:** 18 - Active
**County:** Los Angeles
**Location:** I10 E
**Cross Street:** WESTERN AVE
**Postmile:** 12.80
**Type:** MODEL 500
**Status:** Good

**Associate VDS:** 716057
**County:** Los Angeles
**Location:** I10 E
**Cross Street:** GRAMERCY
**Postmile:** 12.58
**Type:** ML
**Status:** No Response

### Select Up to 3 Target Locations

<table>
<thead>
<tr>
<th>Destination Target VDS</th>
<th>Target Description</th>
<th>Travel Time (min)</th>
<th>Select</th>
</tr>
</thead>
<tbody>
<tr>
<td>759280</td>
<td>CONV CTR</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>737158</td>
<td>SR60 E</td>
<td>7</td>
<td></td>
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<tr>
<td>737313</td>
<td>I-5 N</td>
<td>7</td>
<td></td>
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<td>737344</td>
<td>CSULA</td>
<td>11</td>
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<tr>
<td>717070</td>
<td>I-710</td>
<td>11</td>
<td></td>
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<tr>
<td>717127</td>
<td>SR19</td>
<td>17</td>
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<tr>
<td>717195</td>
<td>SR39</td>
<td>30</td>
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<tr>
<td>717232</td>
<td>CAL POLY</td>
<td>35</td>
<td></td>
</tr>
<tr>
<td>717236</td>
<td>I210/57</td>
<td>35</td>
<td></td>
</tr>
<tr>
<td>716181</td>
<td>I-210/71</td>
<td>36</td>
<td></td>
</tr>
<tr>
<td>717247</td>
<td>FAIRPLEX</td>
<td>38</td>
<td></td>
</tr>
</tbody>
</table>

[Caltrans logo]
Sample Travel Time Message

CMS ID: 11
County: Los Angeles
Location: SR60 E
Cross Street: INDIANA ST
Postmile: 1.92
Type: MODEL 500
Status: Good

Proposed: [Blank]
Current: TT_MGR
TRAVEL TO
RTE 605. 14 MIN
RTE 57.. 45 MIN

EDIT
2 Phase
Display Time: 2 Seconds
Immediate
Phase 1
Phase 2

Send >>
Blank >>
Reset >>

OK

Preview
Clear
History
Library
Agenda

- Map Overview
- Traffic Data
- Field Device Control
- Travel Time
- Advanced Management Functions
- Reports
- Browse Edit
- Regional Integration

• SWARM
• Incident Detection
• Event Management
System Wide Adaptive Ramp Metering

- Develops metering rates based on real time conditions
- SWARM 1 - Network
  - Looks at the complete system
  - Forecasts traffic conditions x minutes into the future
  - Changes metering rates now to avoid predicted future problems
- SWARM 2
  - Looks at local traffic conditions near ramp
  - Based on current data
  - SWARM 2a - Headway (time between vehicles)
  - SWARM 2b - Storage
SWARM 1 VDS Locations

Upstream Mainline VDS

Selected Metered On Ramp

Downstream Mainline Bottleneck VDS

Metering rates are determined based on conditions at downstream bottlenecks
SWARM 1 Forecasting

SATURATION DENSITY

Forcasted Density at Bottleneck

Reduction in density required during next Tcrit time periods

Corrective Trend at time t+1

Actual Density

Tcrit
RMS Advanced Management Dialog

[Image of RMS Advanced Management Dialog interface]

- RMS ID: 710211
- MS ID: 1296
- Line ID: 55
- Controller ID: 19
- County: Los Angeles
- Location: 1210 W
- Postmile: 35.12
- Cross Street: BUENA VISTA
- LDS ID / Type: 7152522 / 170
- Status: Good
- ATMS user ID: testid7

Below is a table showing accumulated volume and 30-second data:

<table>
<thead>
<tr>
<th>Loop Type</th>
<th>Loop Status</th>
<th>45 Min</th>
<th>5 Min</th>
<th>1 Min</th>
<th>Volume</th>
<th>Occupancy</th>
<th>Estimated Speed</th>
</tr>
</thead>
<tbody>
<tr>
<td>OR</td>
<td>OK</td>
<td>128</td>
<td>43</td>
<td>8</td>
<td>5</td>
<td>4.5</td>
<td>56</td>
</tr>
<tr>
<td>PA</td>
<td>OK</td>
<td>120</td>
<td>40</td>
<td>7</td>
<td>5</td>
<td>4.7</td>
<td>53</td>
</tr>
<tr>
<td>DM</td>
<td>Failed</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>6</td>
<td>9.2</td>
<td>33</td>
</tr>
<tr>
<td>QU</td>
<td>OK</td>
<td>143</td>
<td>48</td>
<td>10</td>
<td>6</td>
<td>11.0</td>
<td>27</td>
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<tr>
<td>RH</td>
<td>Suspect</td>
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<td>6</td>
<td>1</td>
<td>0</td>
<td>0.0</td>
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</tr>
</tbody>
</table>

Buttons:
- Metering Mode/Scheduler
- Configure SWARM Control
- Metering Rate Statistics
- Configure Controller Memory
- Loop Enable/Disable...
- View/Edit Comments

Freeze Data checkbox

Zoom to Area, OK buttons
RMS Scheduler - SWARM
Dynamic Bottlenecks
Performance Measures – RMS
Performance Measures – RMS

Ramp Metering System

PERFORMANCE MEASURES

Mainline:
- Volume, Occupancy, Speed at ML
- Volume, Occupancy, Speed at HOV
- Volume, Occupancy, Speed at ML and HOV
- Flow (Veh/15 min)

Ramps:
- Volume at Queue Loop
- Volume at Demand Loop
- Occupancy at Queue Loop
- Occupancy at Demand Loop

Districts:
- District 7
- 110 E
- 110 W
- 1105 E
- 1105 W
- 1110 N
- 1110 S
- 1210 E
- 1210 W
- 1405 S
- 1405 S
- 15 N
- 15 S
- 1605 N
- 1605 S
- 1710 N
- 1710 S
- SR101 N
- SR101 S
- SR110 E
- SR118 E
- SR118 W
- SR134 E
- SR134 W
- SR170 S
- SR2 E
- SR2 W
- SR57 N
- SR60 E
- SR60 W
- SR71 N
- SR71 S
- SR81 E
- SR81 W

Legends:
- Mainline:
  - Dynamic Bottleneck
  - ML Volume
  - ML Occupancy
  - ML Speed
  - HOV Volume
  - HOV Occupancy
  - HOV Speed
  - ML and HOV Volume
  - ML and HOV Occupancy
  - ML and HOV Speed
  - Flow
  - Capacity

Ramps:
- Volume at Queue Loop
- Occupation at Queue Loop
- Volume at Demand Loop
- Occupation at Demand Loop

Ramp Names:
- Blue: Not Currently Metering
- Orange: TOD Modes
- Green: SMART Mode
- Red: Default
Performance Measures – RMS
Metering Mode screen
Configure SWARM Control

Set controls that govern how SWARM rates are determined and implemented.
### Metering Rate Statistics

**Date:** Jun 15, 2005 7:19 PM  
**Data:** Jun 15, 2005 18:19:30

<table>
<thead>
<tr>
<th>Metric</th>
<th>Value</th>
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<tbody>
<tr>
<td>RMS ID</td>
<td>716612</td>
</tr>
<tr>
<td>MS ID</td>
<td>1288</td>
</tr>
<tr>
<td>County</td>
<td>Los Angeles</td>
</tr>
<tr>
<td>Location</td>
<td>I210 W</td>
</tr>
<tr>
<td>Postmile</td>
<td>40.26</td>
</tr>
<tr>
<td>Cross Street</td>
<td>CITRUS</td>
</tr>
<tr>
<td>LDS ID</td>
<td>715515</td>
</tr>
<tr>
<td>Status</td>
<td>Good</td>
</tr>
<tr>
<td>Metering Status</td>
<td>Not Currently Metering</td>
</tr>
<tr>
<td>Metering Mode</td>
<td>Local: TOD</td>
</tr>
<tr>
<td>Metering Rate</td>
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<tr>
<td>Controller Override</td>
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<tr>
<td>% Violations</td>
<td>0</td>
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<tr>
<td>Metered Lanes</td>
<td>2</td>
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<tr>
<td>Ramp Lanes</td>
<td>2</td>
</tr>
<tr>
<td>HOV Lane Location</td>
<td>None</td>
</tr>
<tr>
<td>Meter Head Location</td>
<td>Both</td>
</tr>
<tr>
<td>Platoon Meter Ramp</td>
<td>No</td>
</tr>
</tbody>
</table>

| Time-of-Day Rate         | Off   |
| SWARM1 (Network) Rate    | 30    |
| SWARM2a (Headway) Rate   | 30    |
| SWARM2b (Storage) Rate   | 30    |
| Absolute Minimum Rate    | 0     |
| Absolute Maximum Rate    | 30    |

[SWARM 1 Details...]
[SWARM 2a Details...]
[SWARM 2b Details...]
Configure controller memory
Memory page

![Memory page screenshot](attachment:image.png)

<table>
<thead>
<tr>
<th>Address</th>
<th>Contents</th>
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<tbody>
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<tr>
<td>0013</td>
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</tbody>
</table>

Last Download at: Unknown
Operator ID: 

Device ID: 717590
MS ID: 1213
County: Los Angeles
Location: SR134 W
Postmile: 8.76
Cross Street: HARVEY
LDS ID: 715473
Status: All Loops Good
**TOD Tables**

---

**Proposed**

<table>
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<th>Th</th>
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<th>S</th>
<th>Su</th>
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<th>2</th>
<th>A/B</th>
<th>A/B</th>
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**Most Recently Polled Date:** Apr 15, 2005 19:37

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<th>Rate</th>
<th>M</th>
<th>T</th>
<th>W</th>
<th>Th</th>
<th>F</th>
<th>S</th>
<th>Su</th>
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**Platooning Plans**

<table>
<thead>
<tr>
<th>Volts</th>
<th>Max Green</th>
</tr>
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<tbody>
<tr>
<td>Plan A</td>
<td>20</td>
</tr>
<tr>
<td>Plan B</td>
<td>0</td>
</tr>
</tbody>
</table>

**Critical Volume Plans**

<table>
<thead>
<tr>
<th>Plan</th>
<th>Critical Volume</th>
<th>Critical Occupancy</th>
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</thead>
<tbody>
<tr>
<td>Plan A</td>
<td>65</td>
<td>19.1 %</td>
</tr>
<tr>
<td>Plan B</td>
<td>0</td>
<td>0.0 %</td>
</tr>
</tbody>
</table>

---

**TOD Table**

- RMS ID: 716612
- MS ID: 1280
- County: Los Angeles
- Location: I210 W
- Postmile: 40.26
- Cross Street: CITRUS
- LDS ID: 715515
- Status: Good

- Metering Lanes: 2
- Ramp Lanes: 2
- HOV Lane Location: None
- Meter Head Location: Both
- Platoon Meter Ramp: No
- Last Download at: Feb 19, 2002 16:36
- Operator ID:

---

**Send/Poll TOD Table 1 and 2**

- **Send**
- **Poll**

---

**OK**
## TOD Holiday Tables

![TOD Holiday Schedule](image)

<table>
<thead>
<tr>
<th>RMS ID:</th>
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<tbody>
<tr>
<td>MS ID:</td>
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<td>County:</td>
<td>Los Angeles</td>
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<tr>
<td>Location:</td>
<td>I210 W</td>
</tr>
<tr>
<td>Postmile:</td>
<td>40.26</td>
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<tr>
<td>Cross Street:</td>
<td>CITRUS</td>
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<tr>
<td>LDS ID:</td>
<td>715515</td>
</tr>
<tr>
<td>Status:</td>
<td>Good</td>
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</table>

- Metering Lanes: 2
- Ramp Lanes: 2
- HOV Lane Location: None
- Meter Head Location: Both
- Platoon Meter Ramp: No
- Last Download at: Feb 19, 2002 16:36
- Operator ID:

### Proposed

<table>
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<tr>
<th>Inv</th>
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<td>JAN</td>
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### Most Recently Polled

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<th>Date</th>
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- [Insert](#)
- [Append](#)
- [Edit](#)
- [Delete](#)
- [Revert](#)

- [Send](#)
- [Poll](#)

[OK](#)
CRVOL plan

<table>
<thead>
<tr>
<th>Critical Volume Plans</th>
<th>Critical Volume</th>
<th>Critical Occupancy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plan A</td>
<td>85</td>
<td>19.1%</td>
</tr>
<tr>
<td>Plan B</td>
<td>0</td>
<td>0.0%</td>
</tr>
</tbody>
</table>

Send
OK
Platooning Parameters

![Platooning Plan Parameters](image)

- **Plan A**: Platooning Plans = 1, Veh/Cycle = 50, Max Green = 0
- **Plan B**: Platooning Plans = 0, Veh/Cycle = 0, Max Green = 0

[Send] [OK]
Automatic Incident Detection

- Uses APID: All Purpose Incident Detection algorithm
- Algorithm considers Prevailing Congestion Levels
- Algorithm Tuned for Each Mainline VDS
- Operator “Alarmed” for Potential Incident
APID

- Compare upstream and downstream stations for differences in occupancy
- Test individual stations for rates of increase and decrease in occupancy
- Test upstream stations for extraordinary increases in occupancy

Upstream detector: rising occupancy, falling speed
Downstream detector: extraordinary decreases in occupancy, rising speed

Traffic flow
Incident
Typical Event Management Process

1. INCIDENT DETECTED
2. CONFIRMED?
   - Yes: DEFINE INCIDENT CONDITIONS
   - No: FALSE ALARM
3. DEFINE INCIDENT CONDITIONS
4. GENERATE RESPONSE PLAN
5. MONITOR EVENT/CONDITIONS
6. CONDITIONS CHANGED?
   - Yes: TERMINATED?
     - Yes: TERMINATE RESPONSE
     - No: MONITOR EVENT/CONDITIONS
   - No: MONITOR EVENT/CONDITIONS
7. TERMINATED?
   - Yes: TERMINATE RESPONSE
   - No: MONITOR EVENT/CONDITIONS
8. EVENT ENDED
Response Plan Generation

- Expert System Generated
  - Rules-based system for generating responses to a complex set of conditions
  - Provides a scaleable, adaptable solution
  - Developed utilizing agency expertise for operational responses
  - Aids operators in management of complex events
  - Standardized responses

- Operator Scripted
Response Plan Elements

**Freeway CMS**
- Selects which signs to use
- Determines exact message content

**Operator Actions**
- Request Sigalert
- Issue Traffic Advisory
- Advise TMT Leader
- Notify Headquarters Communications
- Advise Maintenance
- Recommend to Dispatch FSP
- Contact TMC Senior and Lead Officer
- Notify Duty Officer
- Advise Local Agencies
- Advise Adjacent Districts

**ATMS Response Plan**
- Record which HAR is used and message content

**ATIS Advisories to Web Page**
- Interface to output advisories to WEB Page

**HAR notepad**
Expert System Response Plan Generation

**Operator-Input Details**
- Location
- Time
- Event Type
- Details
  - Blockage Pattern
  - # of Vehicles
  - # of Injuries/Fatalities
  - Other attributes

**System-Generated Properties**
- Time of Day
- Clearance Time
- Traffic Impact
  - High
  - Medium
  - Low

**Response Plan**
## Traffic Impact: Peak Period

### Clearance Time (min)?
- 0-29
- 30-59
- 60+

### Lanes Blocked
<table>
<thead>
<tr>
<th></th>
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<th>MAINLINE</th>
<th>HOV</th>
</tr>
</thead>
<tbody>
<tr>
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<tr>
<td>2+</td>
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<tr>
<td>One</td>
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<tr>
<td>None</td>
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<table>
<thead>
<tr>
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<th>MAINLINE</th>
<th>HOV</th>
</tr>
</thead>
<tbody>
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<td></td>
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<tr>
<td>2+ or 1 of 2</td>
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<td></td>
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<tr>
<td>One</td>
<td></td>
<td></td>
<td></td>
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<table>
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<th>MAINLINE EXIT/CONN</th>
<th>MAINLINE</th>
<th>HOV</th>
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<td>1+</td>
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</tr>
<tr>
<td>None</td>
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</tr>
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</table>

### Incident Type
- Load Fire
- Vehicle Fire
- Any
- Others

- Adj. Fire
- Wind
- Flood
- Out. Rwy Gawk.
- Fog
- OPP. Dir. Gawk.
- Sweeping
- Post Incident
- Others

<table>
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<tr>
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<td>L</td>
<td>H</td>
<td>L</td>
<td>M</td>
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<td>H</td>
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<td>M</td>
<td>M</td>
<td></td>
</tr>
</tbody>
</table>
Automated CHP Event Interface

CHP Event icons
CHP Functionality

- Event Summary
  - CAD Code Field
  - CAD # Field
  - CHP Events

- CHP Events
  - Unconfirmed events
  - Located on map if valid coordinates
  - Listed in CHP section of Event Summary window
CHP Functionality

- CHP Events
  - Unconfirmed events
  - ATMS Operator to confirm location/event
  - Icon changes to ATMS red confirmed icon
  - CHP CAD Comments continue to populate
CHP Functionality

- CHP Events
  ✓ Comments continue from CAD log.
Duty Page

From the toolbar, launch the general Duty Page

- General Paging
- Scheduling
- Predefined Messages
- History
Duty Page

• General Paging
  ✓ Able to select Recipients/Groups
  ✓ Able to select predefined messages
  ✓ Able to enter message
  ✓ Tally of number of characters
  ✓ Able to schedule messages
Duty Page

- General Paging - History
  ✓ Recently sent pages.
  Includes all pages, whether event or general
Duty Page

- Event Duty Page
  - 3 types
    - Initial (only one)
    - Update (multiple)
    - Final (only one)
  - Response Plan element
  - Duty Page Officer automatically assigned

Initial Message---vlee NB 5 at MAGIC MTN PKWY. #2, #3, #4 lanes blocked. 2 vehicles involved, vehicle types are cement truck, big rig, passenger car. Incident type is spill, jackknifed, collision. Est. duration until 06/23 19:02 MTC and TMT responding. - TMC Teresa
AMBER alert

Can select all signs and send messages with single mouse click
Agenda

1. Map Overview
2. Traffic Data
3. Field Device Control
4. Travel Time
5. Advanced Management Functions
6. Reports
7. Browse Edit
8. Regional Integration
Types of Reports
(36 total reports)

- Traffic Data Reports
- Traffic Data Plots
- System Performance Reports
- Special Applications Reports
- Ramp Metering Reports
New Reports (Crystal)
New Reports (Crystal)

SYSTEM PERFORMANCE REPORT

MAINLINE SPEED & OCCUPANCY

- Mainline Speed
- Mainline Occupancy

Freeway: 60-W
Start Postmile: 0.00
End Postmile: 999.00
Start Date: 8/8/2007 12:00:00AM
End Date: 8/8/2007 7:00:00PM
Printed Date: 1/31/2008
Last modified: 1/18/2008
### TRAFFIC DATA REPORT
#### 30 Second Loop Data

**FROM:** 07-19-2005 09:00:00  
**TO:** 07-19-2005 09:30:00  
**VDS ID:** 705555

**VDS DESCRIPTION:** LA-31-W, PW: P 12.40 CHICANE

<table>
<thead>
<tr>
<th>DAY</th>
<th>ML 1</th>
<th>ML 2</th>
<th>ML 3</th>
<th>ML 4</th>
<th>TOT STATION</th>
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<tbody>
<tr>
<td><strong>TUESDAY</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>09:00:30</td>
<td>3</td>
<td>4.3</td>
<td>7.2</td>
<td>3</td>
<td>11.0</td>
</tr>
<tr>
<td>09:01:00</td>
<td>4.4</td>
<td>2.7</td>
<td>3.5</td>
<td>1.1</td>
<td>10.7</td>
</tr>
<tr>
<td>09:01:30</td>
<td>3.6</td>
<td>0.3</td>
<td>6.3</td>
<td>0.2</td>
<td>10.4</td>
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<tr>
<td>09:02:00</td>
<td>7.2</td>
<td>2.3</td>
<td>7.8</td>
<td>0.2</td>
<td>18.5</td>
</tr>
<tr>
<td>09:02:30</td>
<td>6.9</td>
<td>8.3</td>
<td>12.2</td>
<td>0.2</td>
<td>32.6</td>
</tr>
<tr>
<td>09:03:00</td>
<td>9.8</td>
<td>12.3</td>
<td>16.4</td>
<td>0.2</td>
<td>41.6</td>
</tr>
<tr>
<td>09:03:30</td>
<td>9.8</td>
<td>12.3</td>
<td>16.4</td>
<td>0.2</td>
<td>41.6</td>
</tr>
</tbody>
</table>

**AVG:** 8.4  
**EST:** 8.4

---

**STATUS:**  
- Absent  
- Isolated  
- Not Available  
- Not Applicable

**Notes:**  
All values are suspect until verified by engineer.
Sample Special Applications Report: CMS Message Approval

<table>
<thead>
<tr>
<th>CMS ID</th>
<th>DATE</th>
<th>ACTIVATION TIME</th>
<th>DEACTIVATION TIME</th>
<th>MESSAGE DURATION</th>
<th>MESSAGE</th>
<th>MESSAGE APPROVED</th>
<th>TIME DISPLAYED</th>
<th>EVENT ID</th>
<th>OPERATOR ID</th>
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<td>07-02-2005</td>
<td>14:32:06</td>
<td>15:04:54</td>
<td>00:32:48</td>
<td>LINE 1</td>
<td>S 605 CARPOOL LN</td>
<td>97244</td>
<td>shello</td>
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<td></td>
<td></td>
<td></td>
<td>LINE 2</td>
<td>CLSD AT DRCK</td>
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<td></td>
<td>LINE 6</td>
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</tr>
<tr>
<td>94</td>
<td>07-02-2005</td>
<td>14:32:06</td>
<td>15:04:54</td>
<td>00:32:48</td>
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<td>97244</td>
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<td>74</td>
<td>07-02-2005</td>
<td>15:04:54</td>
<td>09:00:51</td>
<td>17:55:57</td>
<td>LINE 1</td>
<td>ARRIVE ALIVE</td>
<td>97244</td>
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<td>DON'T DRINK</td>
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<td>AND DRIVE</td>
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</tbody>
</table>
Agenda

Regional Integration

Advanced Management Functions

Travel Time

Field Device Control

Traffic Data

Map Overview

Reports

Browse Edit

Regional Integration
Browser and Editor

- Allows user to view information from the database
- Filters can be used to narrow the number of records to be viewed
- Users with proper access privileges may edit information
Segment Travel Time Calculations:
Where a VDS has missing data, data from the nearest “good” upstream VDS and the nearest “good” downstream VDS will be used to estimate a speed for the “bad” VDS, provided that the maximum span distance between the “good” VDSs does not exceed:

- 1.5 (0.0 - 6.0) miles

Section Travel Time Calculations:
Travel time calculations are not available if the contiguous distance within a section with “bad” or missing data equals or exceeds:

- 5 (0.5 - 10.0) miles

Travel time calculations are not available if the ratio of “good” segment lengths to overall section length is less than:

- 66 (0.1 - 0.9)
Defining Travel Time Targets
Configure Travel Time Calculation
Agenda

- Regional Integration
- Browse Edit
- Reports
- Advanced Management Functions
- Travel Time
- Field Device Control
- Traffic Data
- Map Overview
All Regional Freeway, Arterial, Bus, Rail, and Emergency Response data
RIITS - Los Angeles Real Time Traffic - Microsoft Internet Explorer

Regional Integration of Intelligent Transportation Systems

RIITS - Caltrans-D7
Sign #102

11/02/2004 11:34 AM
210 West @ WHEATLAND

High Winds
RTE 118 THRU

Avg. Speed: 60 mph
HOV: 56 mph

1-10 West @ TEMPLE CITY

Freeways
City Streets

Map Legend

- Video - Live
- Video - Snapshot
- CMS - Active
- Event - Unscheduled
- Event - Scheduled
- Bus - Active
- Bus Timepoint
- Metro Train
- Metro Rail Stop
- Metro Blue Line
- Metro Gold Line
- Metro Green Line

Freeway Speeds

- 0 - 19 mph
- 20 - 34 mph
- 35 - 60 mph
- > 61 mph
- No Data Available

City Street Speeds

- 0 - 16 mph
- 11 - 29 mph
- 30 - 44 mph
- > 45 mph
- No Data Available
**Caltrans Freeway Data Set**

<table>
<thead>
<tr>
<th>Freeway Congestion Data:</th>
<th>Freeway Changeable Message Sign Data:</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 Route</td>
<td>0 Route</td>
</tr>
<tr>
<td>0 Cross street</td>
<td>0 Cross Street</td>
</tr>
<tr>
<td>0 Direction</td>
<td>0 ID</td>
</tr>
<tr>
<td>0 Lane Count</td>
<td>0 Geo-location (lat/long)</td>
</tr>
<tr>
<td>0 ID</td>
<td>0 Display Content</td>
</tr>
<tr>
<td>0 Geo-location (lat/long)</td>
<td>0 Operational Status</td>
</tr>
<tr>
<td>0 Occupancy Value (average of all mixed-flow lanes)</td>
<td>0 Travel Times</td>
</tr>
<tr>
<td>0 Volume Value (average of all mixed-flow lanes)</td>
<td></td>
</tr>
<tr>
<td>0 Speed Value (average of all mixed-flow lanes)</td>
<td></td>
</tr>
<tr>
<td>0 Speed Value (HOV lane)</td>
<td></td>
</tr>
</tbody>
</table>
## Caltrans Freeway Data Set

### Event Data:
- ID
- Route
- Cross Street 1
- Cross Street 2
- Direction
- City
- Event Type
- Vehicle Type
- Vehicle Count
- Injury Level
- Contact Name
- Contact Phone Number
- Event Responders (highway patrol, county fire, hazmat, etc.)
- Severity
- Start Date
- Start Time
- Clear Date
- Clear Time
- Event Status

### Freeway CCTV Data:
- ID
- Route
- Cross Street
- Geo-location (lat/long)
- Snapshot image file name
- Streaming Video
Current Information Service Providers

- ClearChannel (Airwatch)
- Eeminder
- Fox-TV
- Inrix
- KABC-TV
- KKTV Fox-11
- KCOP UPN-13
- Mobility Technologies (traffic.com)
- Jaytu Technologies (sigalert.com)
- Traveler Advisory News Network
- TrafficGauge, Inc.
- Westwood One
CCTV to Cell Phones

- 3rd Dimension (www.freetrafficcams.com)
Coming Soon

- Work Zone TMS Features
- Dynamic Lane Management
Variable Speed Limit Signing

When variable speed limit signs such as this are used to alert motorists to slowed or stopped traffic, the incidence of rear-end collisions occurring in work zones is reduced.
Dynamic Lane Management
Dynamic Lane Management
Questions