

# Caltrans District 3 Regional Transportation Management Center (RTMC)

**Brian Simi, P.E.**  
**Mark Heiman, P.E.**



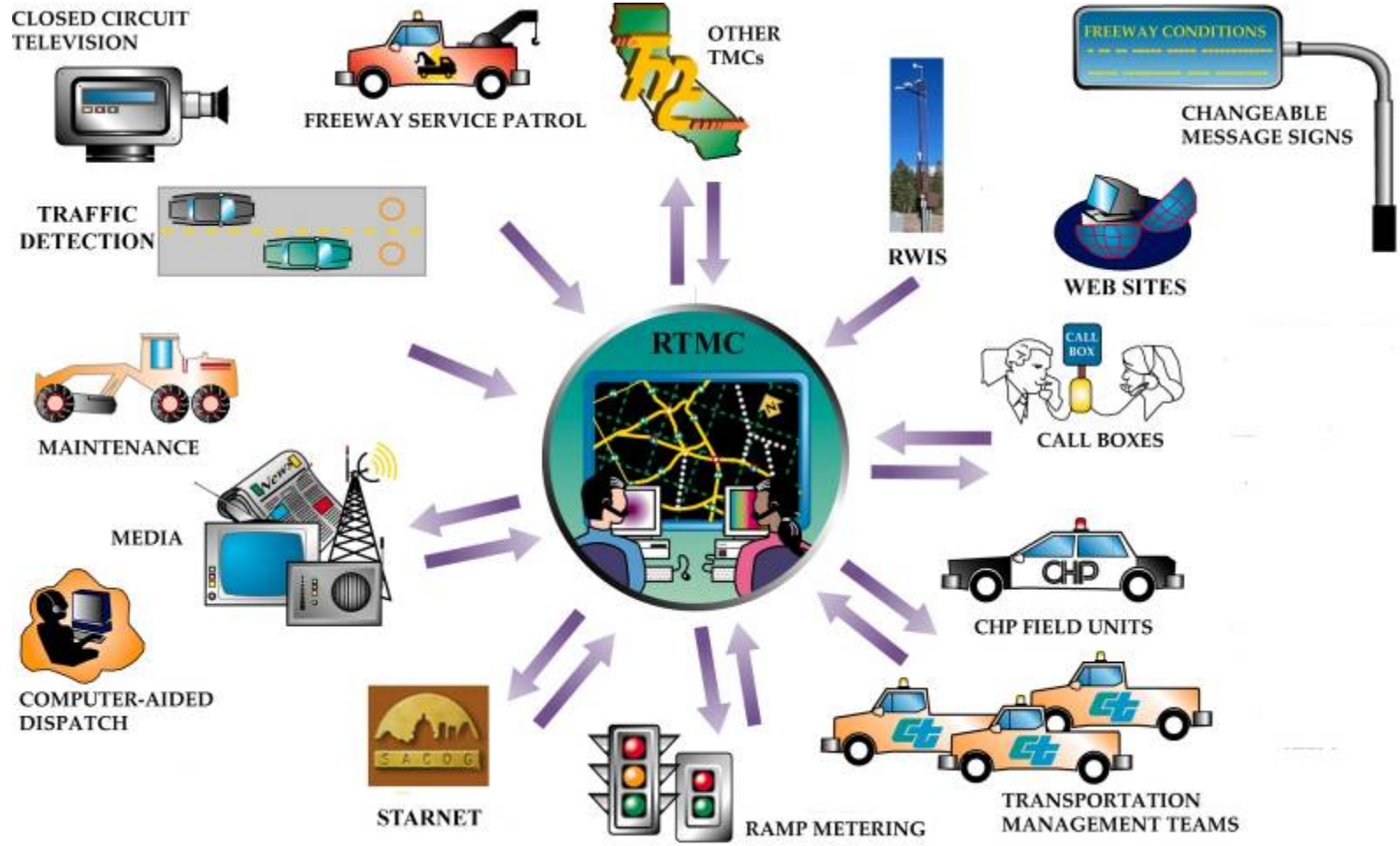
# RTMC Background and Setting



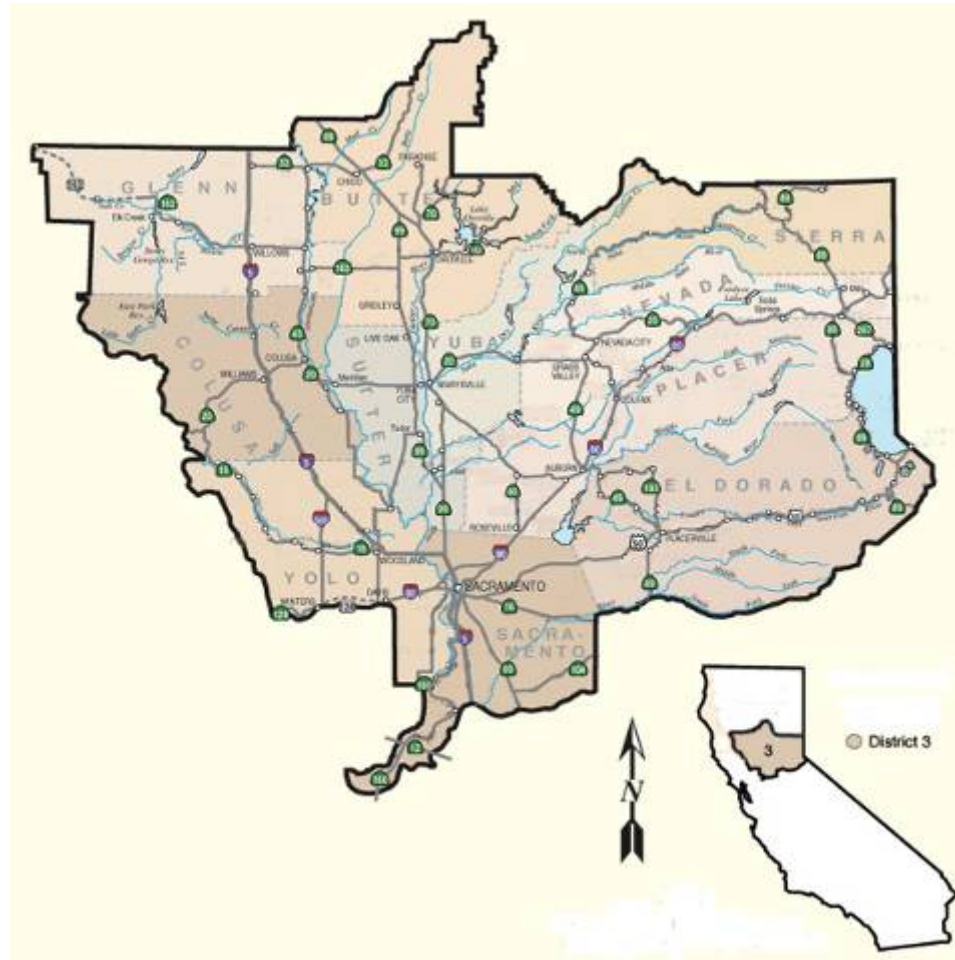
- Built in 2000 the RTMC is located in Rancho Cordova, CA 15 miles east of Sacramento
- Co-located with the California highway patrol Sacramento communication center
- Focal point for traffic information within district 3
  - Extensive network of cameras, CMS, HARs, RWIS
  - Provide traveler information through media
  - Primarily state and interstate highways
  - Dispatch for Caltrans resources



# RTMC Data Flows



# RTMC Covers Sacramento Metro Area and Mountainous Areas on I-80 and US-50



# Weather Conditions That Affect RTMC Operations

- Fog/Visibility
  - Sacramento Valley area prone to thick ‘tule’ fog during periods after heavy rain and low temperature
- High Winds
  - Several bridges exposed to high winds
- Frost
  - Frost and ice conditions can occur on longer viaduct sections during periods of cold weather
- Snow in Sierras
  - High Winds combined with Snow accumulation create white out conditions over mountain roadways

# Need for Enhanced Weather Integration and Anticipated Benefits

## Needs:

- Awareness of weather sources
- Better RWIS coverage and data
- Lack of standard procedures
  - No consistent documentation for operator actions
- Lack of training
- No consolidated information as a basis for an alert system
- No performance assessment

## Benefits:

- Timely and accurate weather information
- Consistent operations and procedures
- Proactive and effective response to weather related events
- Improved traveler information

# Self-evaluation: the Process

- Maintenance and Operations personnel tapped to provide data input into tool
- Divided into regions – valley and mountain
- Not trivial exercise but thorough results
- Two weeks to develop consensus and enter into tool

# Self-evaluation: the Results

- Key weather integrations strategies (combined)
  - Use of external weather information sources
  - Weather information coordination
  - Extent of coverage
  - Alert notification
  - Decision support
  - Weather/road weather data acquisition
  - Use of external weather information sources
  - Availability of weather information
  - Interaction with meteorologists
  - Frequency of weather forecasts

# Self-evaluation: the Benefits

- The organizational structure affects the RTMC's ability to attain "ideal" integration
- Internal RTMC operational actions
  - Notifications
  - Proactive
- Improved use of maintenance resources
  - Timely coordination of personnel
  - Efficient use of materials

# Self-evaluation: the Benefits

- Working through the self-evaluation process:
  - Showed there is room for improvement in the use of weather information by the RTMC
  - Increased participants' understanding of data flow requirements in the RTMC

# The Weather Integration Plan: Key Elements

- Frequency of road weather observations
- Extent of coverage
- Weather information coordination
- Alert notification
- Road weather data acquisition
- Use of external weather information sources
- Decision support

# The Weather Integration Plan: Implementation of Strategies

- Identify weather information sources
- Properly maintain/calibrate RWIS
- Develop procedures to assemble and assess weather information
- Identify, procure and install additional weather sites
- Establish alert thresholds
- Define alert mechanisms
- Create decision matrix and flow chart
- Define procedures for implementing advisories
- Implement alert approach
- Provide training
- Identify weather coordinator

# Lessons to Date From the Implementation Process

- Resource allocation is critical
- Good exercise to improve data quality
- Awareness of other weather related projects
- Operations more aware of available data

# Next Steps

- Identify all (new) weather information sources
- Refine needs for weather information and compare with what's readily available
- Deploy more sensors
- Repair or calibrate existing sensors
- Prepare/revise TMC procedures to address use of weather information
- Develop alert system to notify operators of weather conditions affecting the highway
- Training