



# I-210 Pilot Project

## Planning and Deploying ICM Projects

presenting at

### JOINT ITE WORKSHOP, SO CAL



**Friday, March 8, 2019**

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**District Traffic Manager**  
**Caltrans D7**

## 210 Freeway in Arcadia reopens after big rig crash

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- ❑ **The 210 Freeway WB in Arcadia was closed for several hours.**
- ❑ **Happened around 11:50 PM Friday night near the Baldwin Ave.**
- ❑ **Big rig was involved in a multi-vehicle accident.**
- ❑ **Early Saturday morning, Caltrans announced a total closure.**
- ❑ **By about 7:30 AM, traffic was allowed through the express lane.**
- ❑ **All lanes were reopened at about 8 AM.**



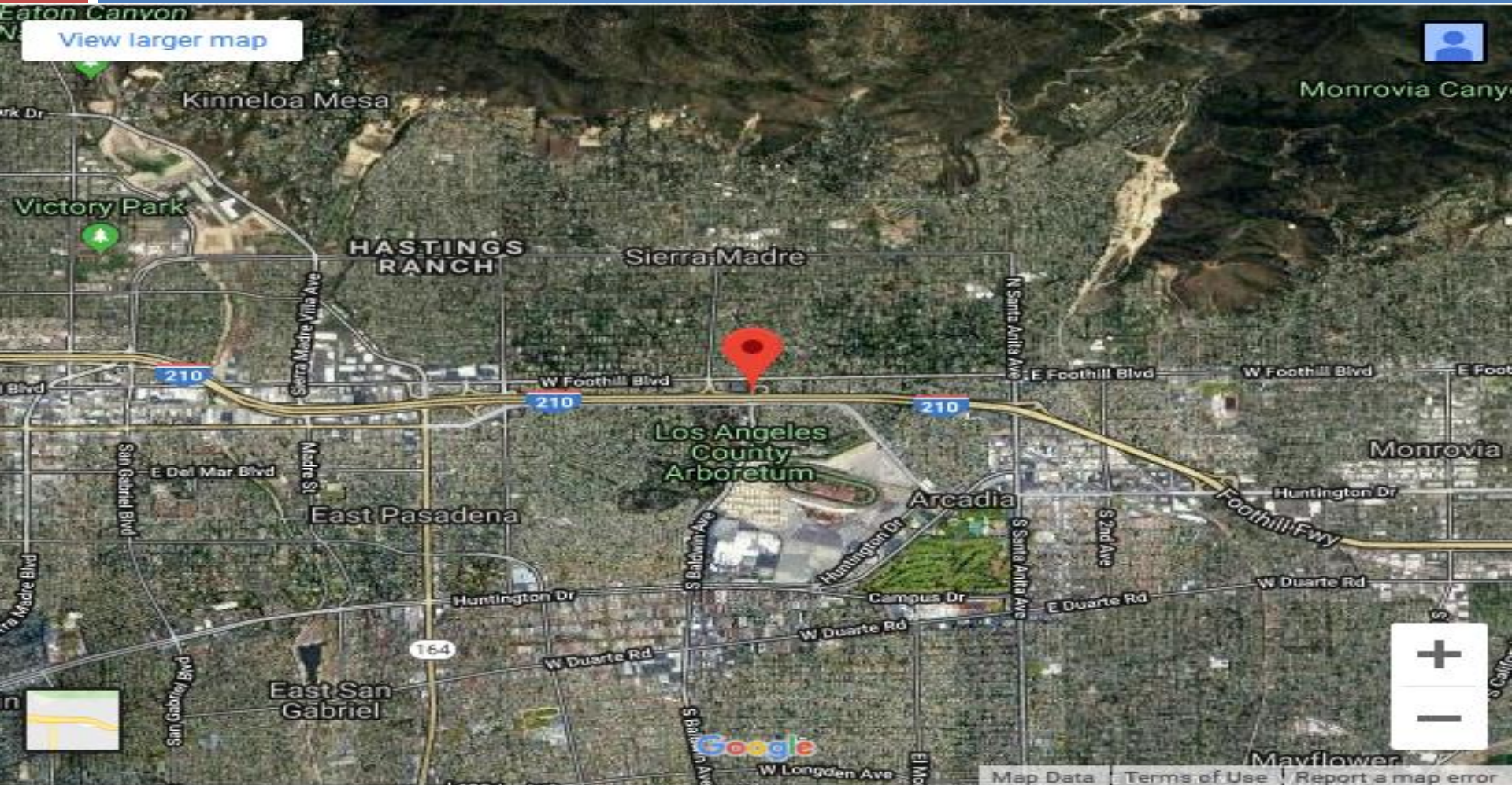


# ACCIDENT

3 CMS: W210 AT BALDWIN queue over 1 mile  
4 RT LANES BLKD

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[View larger map](#)



# What is ICM?

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- Presently, corridors are operated independently by different agencies.
- Efforts are focused on the performance of individual facilities
- Rather than identifying opportunities to integrate operations that will optimize overall corridor performance.



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- Presently, corridors are operated independently by different agencies.
- Efforts are focused on the performance of individual facilities
- Rather than identifying opportunities to integrate operations that will optimize overall corridor performance.
  
- The vision of ICM:
  - Minimize the impact of incidents on traffic,
  - Move people and goods more efficiently,
  - Optimize System Capacity



# Institutional collaboration, and Proactive technology integration

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- ❑ ☐ Establishment of relationships and fostering of collaboration
- ❑ ☐ Integration of multi-modal data within corridor
- ❑ ☐ Standardization of data collection
- ❑ ☐ Interoperability of ITS infrastructure
- ❑ ☐ Development of specific strategies and incident response plans
- ❑ ☐ Optimization of traffic throughput and minimize congestion.





# Connected Corridors Statewide Program

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- **A statewide program focused on:**
  - ▣ Bringing ICM to major corridors
  - ▣ Improve multimodal mobility
  - ▣ Growing Caltrans leadership in TSM&O
  - ▣ Showcasing new technologies and processes
  - ▣ Delivering an ICM implementation on the I-210 in LA
  - ▣ Providing a solution that is affordable, replicable and scalable
  
- **Challenges:**
  - ▣ Funding and Costs/ Procurement
  - ▣ Work force skills
  - ▣ Technical Complexity and Risk
  - ▣ Partnership with Stakeholders



# CC Call out in California 2040 Plan



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California Transportation Plan 2040

**GOAL 1: IMPROVE MULTIMODAL MOBILITY AND ACCESSIBILITY FOR ALL PEOPLE**

People want a transportation system that gets them where they need to go—safely, reliably, and at a reasonable cost, without sacrificing the environment, public health, or community character. Efficient delivery of goods and services are vital to the State's interests. Goal 1 aims to improve multimodal mobility and accessibility, which is best achieved by providing well-integrated multimodal options and well-managing the existing transportation systems to optimize performance.

To optimize performance of the existing system, specifically the local network component, the transportation sector should support efficient, well-designed, walkable communities at density levels sufficient to support reliable transit. To maximize the efficiency of the SHS, a broad suite of strategies must be

**CONNECTED CORRIDORS PROGRAM**

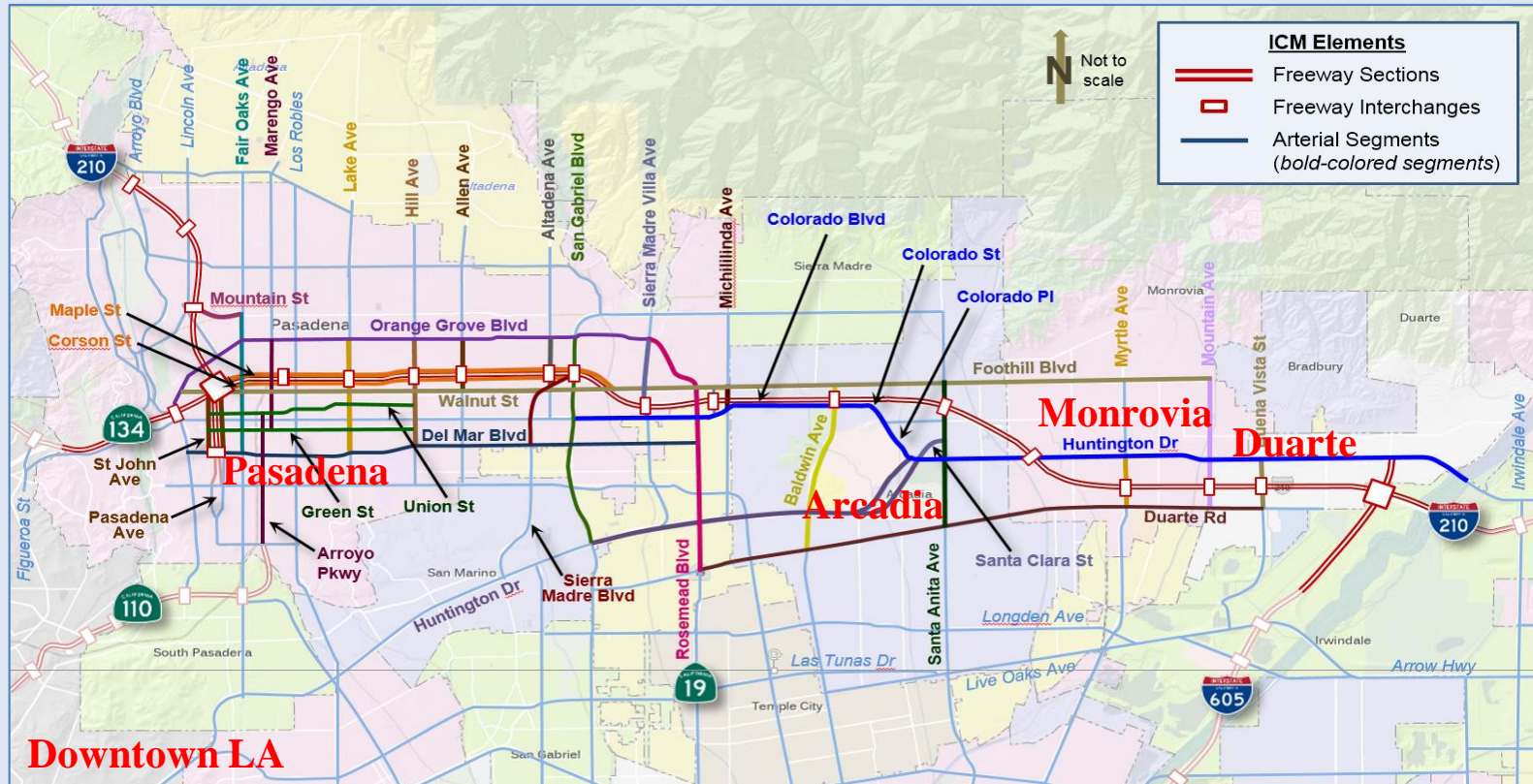
In collaboration with University of California, Berkeley's Partners for Advanced Transportation Technology, Caltrans is developing the Connected Corridors Program. The program will integrate new transportation management technologies with existing approaches for a coordinated transportation network with diverse traffic management options. A pilot site will assess the technical actions and policy changes needed to improve performance in congested State transportation corridors.

## Improve Multimodal Mobility and Accessibility





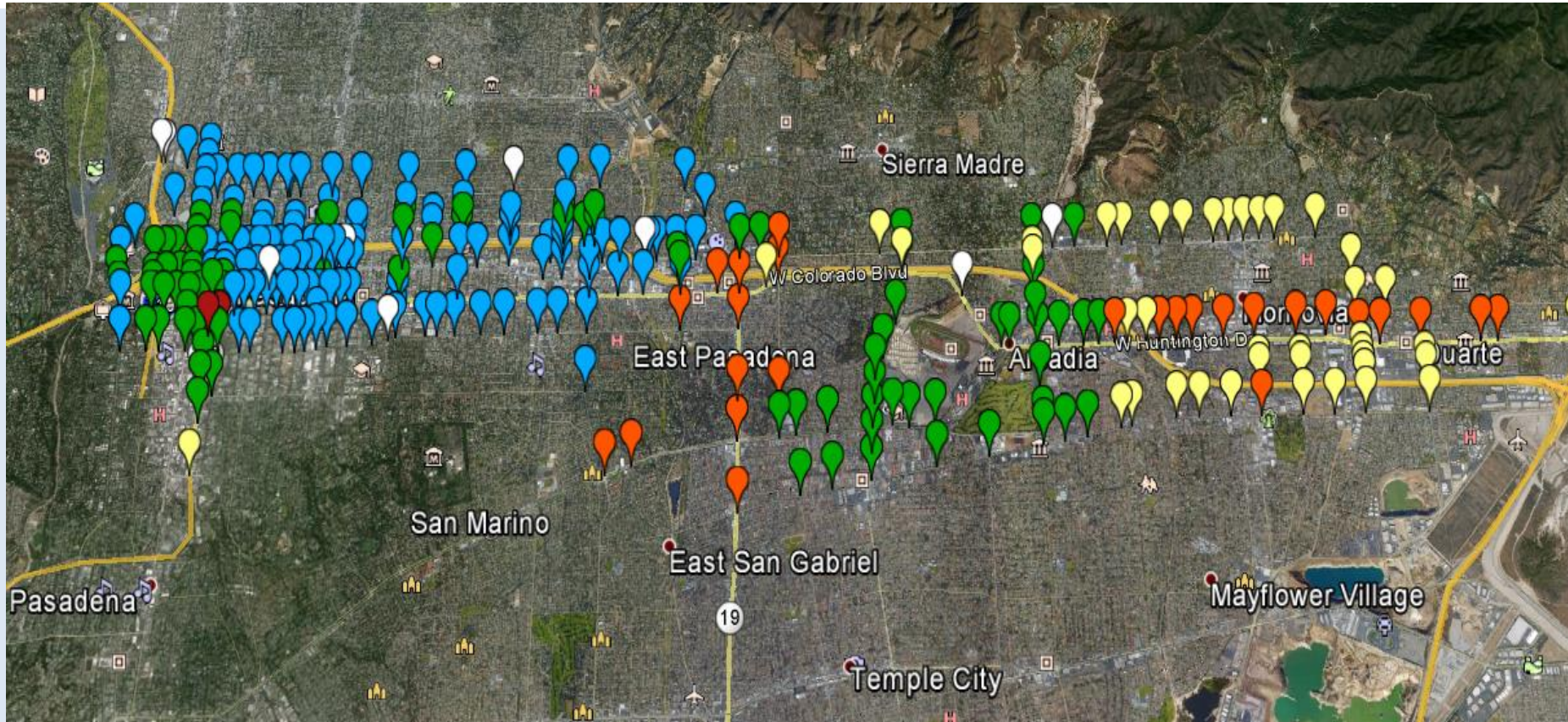
# Connected Corridors Pilot - The I-210 in LA





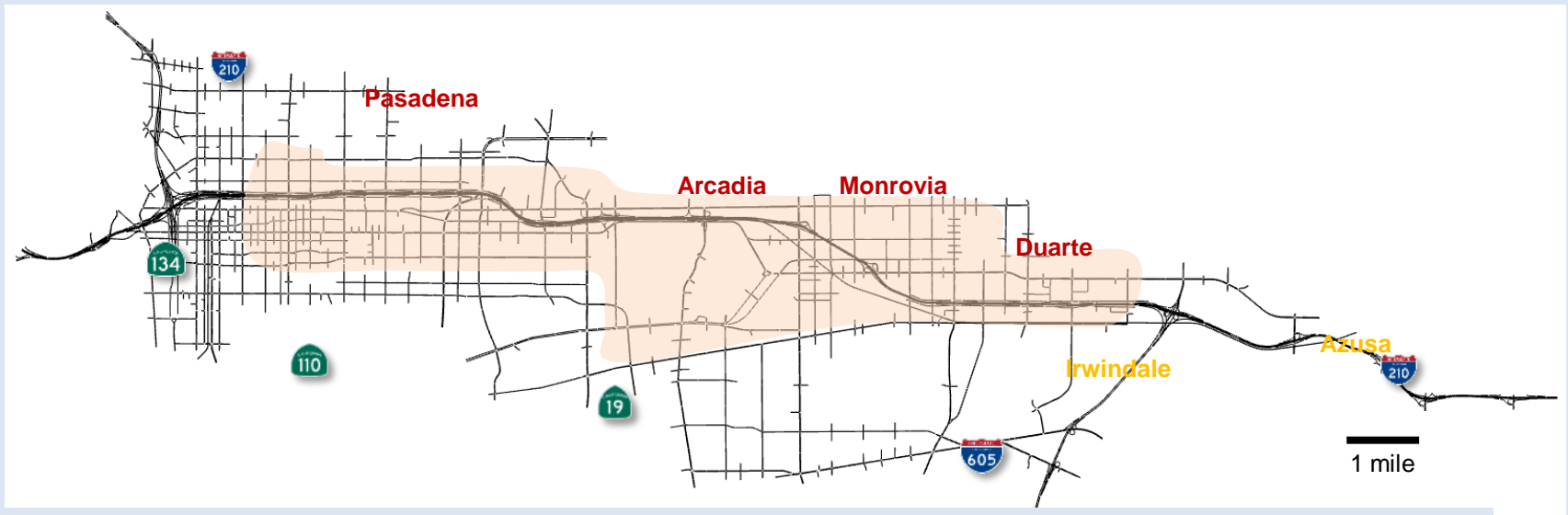
# Highly Instrumented Corridor

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# Aimsun Micro/Meso Model for Prediction – Cloud

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459 signalized intersections

45 freeway ramp meters

~1000 lane miles

~5000 traffic detectors

One of the largest, most well calibrated micro models in the world



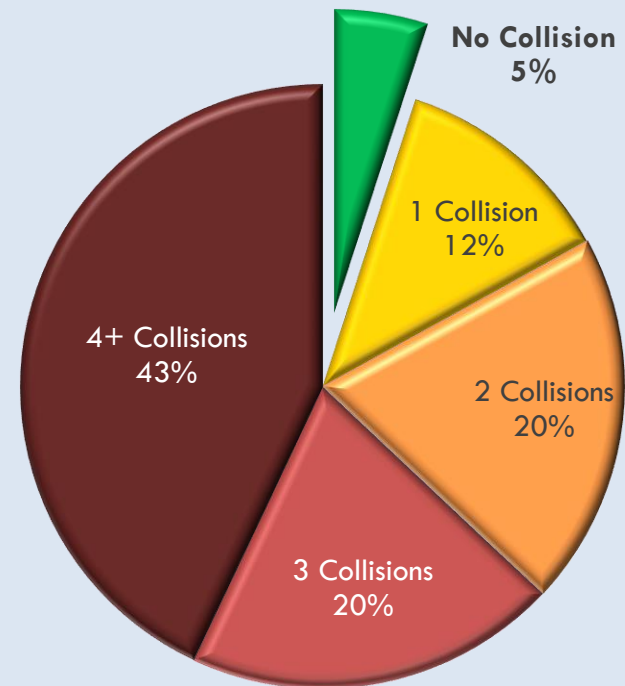
# Corridor Operational Conditions

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## □ Very few days without freeway incidents

- ▣ 95% of weekdays with incidents
- ▣ Typically between 5 and 20 incidents reported by CHP each day
- ▣ 55% of congestion is non-recurrent

*Number of Incidents per Weekday  
Caltrans TASAS Data 2012  
I-210, SR-134 to I-605*





# Connected Corridors Benefits

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- ❑ **Reduce Congestion and Delay**
- ❑ **Improve Safety**
- ❑ **Increase use of transit and ride sharing**
- ❑ **Reduce environmental impact**
- ❑ **Integrate third party transportation managers (Waze, Freight) into Caltrans real time management work flow**
- ❑ **Raise active involvement of travelers in system demand management**



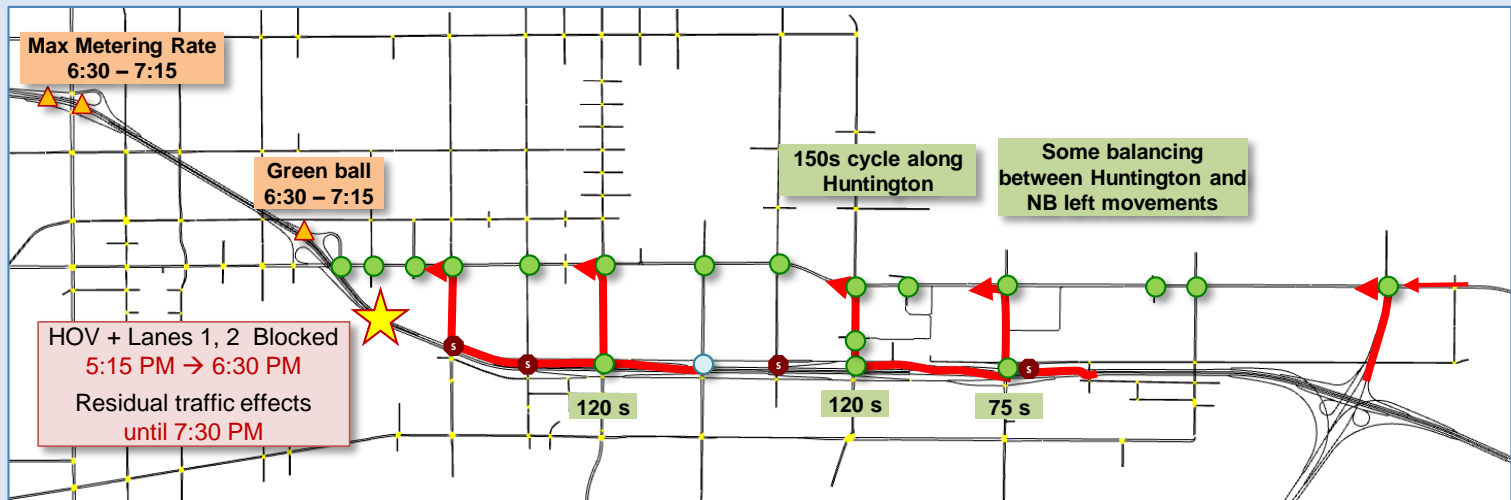
# Operation Scenario Example – Phase 1



# Benefit – From Simulation of Real Event

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- April 25, 2017 incident on I-210 WB near Huntington off-ramp in the off-peak direction



## Response Elements

- ▲ Modified ramp meters
- Modified signals

## Other Control Elements

- Signal not considered
- Stop-controlled intersection

## Evaluated Impacts

### Reduction in delays

- Freeway and Huntington: - 313 veh-hrs **-13%**
- Entire corridor: -1058 veh-hrs **-2%**

### Reduction in distance traveled (lesser need to seek long detours around incident)

- Entire corridor: - 2044 veh-miles

# What is required? Innovation across the board

## Connected Corridors

### People

- Corridor Manager
- Roadway Operators
- TMC Operators
- First Responders
- Travelers
- etc.

### Organizations

- Caltrans
- Metro
- LA County
- Cities
- Transit Agencies
- etc.

### Hardware

- Traffic Signals
- Ramp Meters
- CMS
- Traffic Sensors
- Probe Vehicles
- Bluetooth
- CCTV Cameras
- etc.

### Software

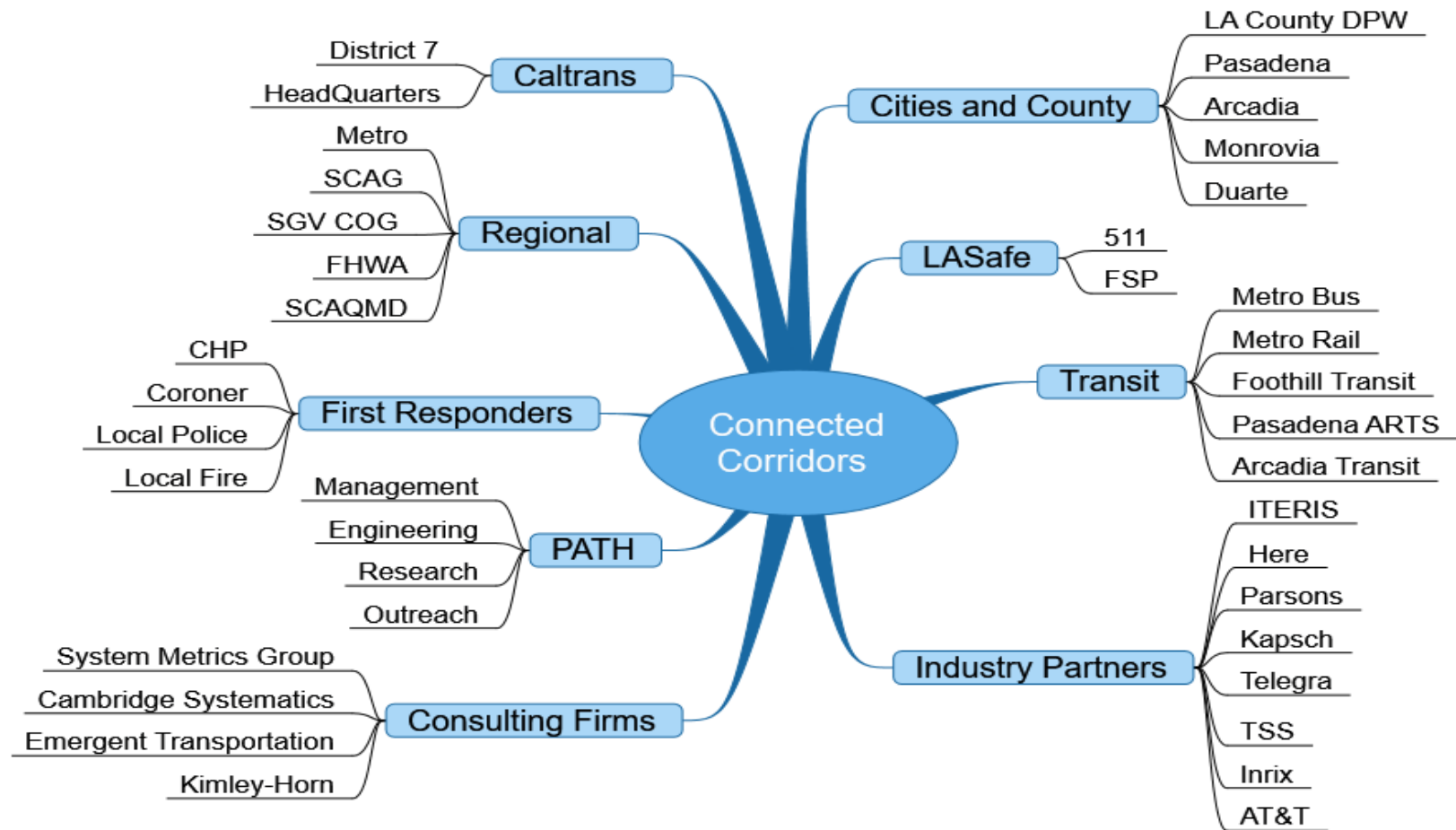
- Models
- Data Hub
- Decision Support
- Communication Networks
- etc.





# Connected Corridors Ecosystem

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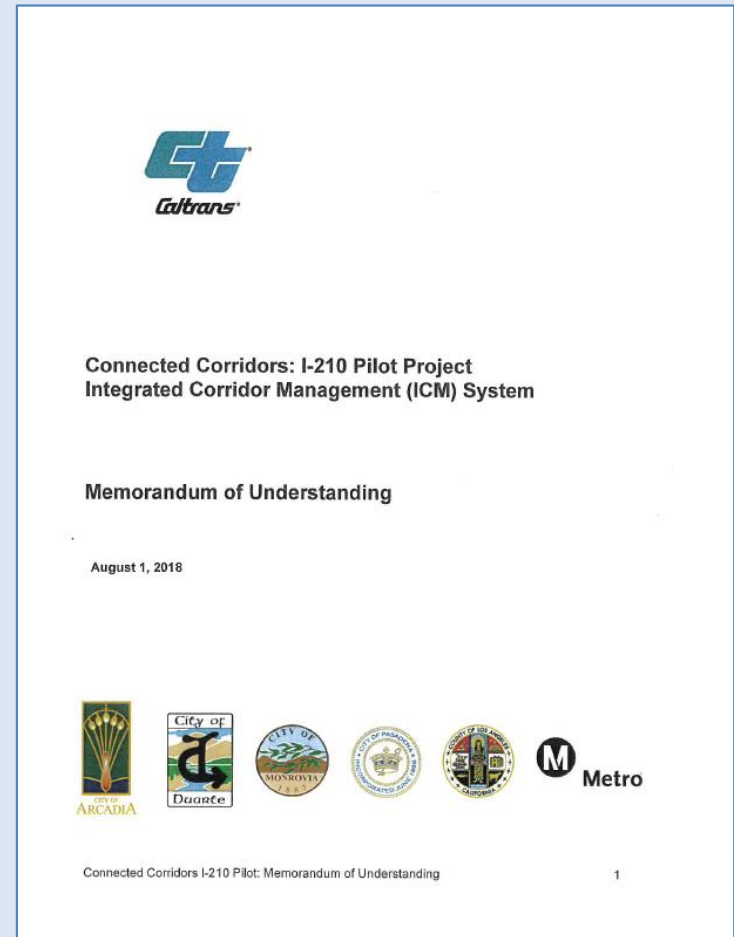
# Stakeholders and Systems



# Partnership Agreements

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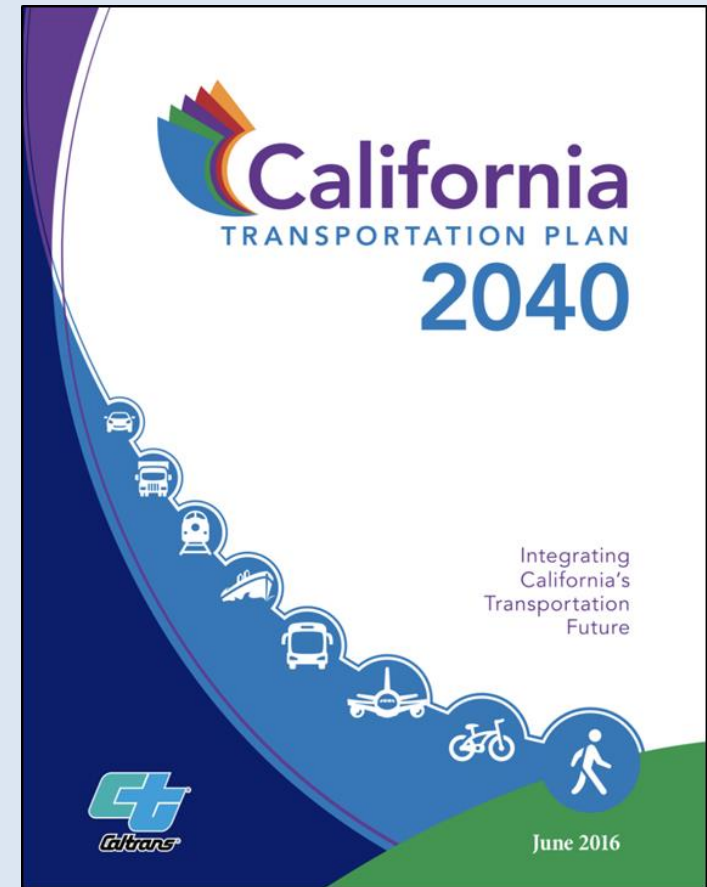
- **Operational**
  - ▣ Charters
  - ▣ Memorandums of Understanding
  - ▣ Maintenance Agreements
- **Definitional**
  - ▣ Corridor Selection
  - ▣ Concept of Operations
  - ▣ Requirements
- **Funding**
  - ▣ Metro Call for Projects



# The Role of Planning in Connected Corridors

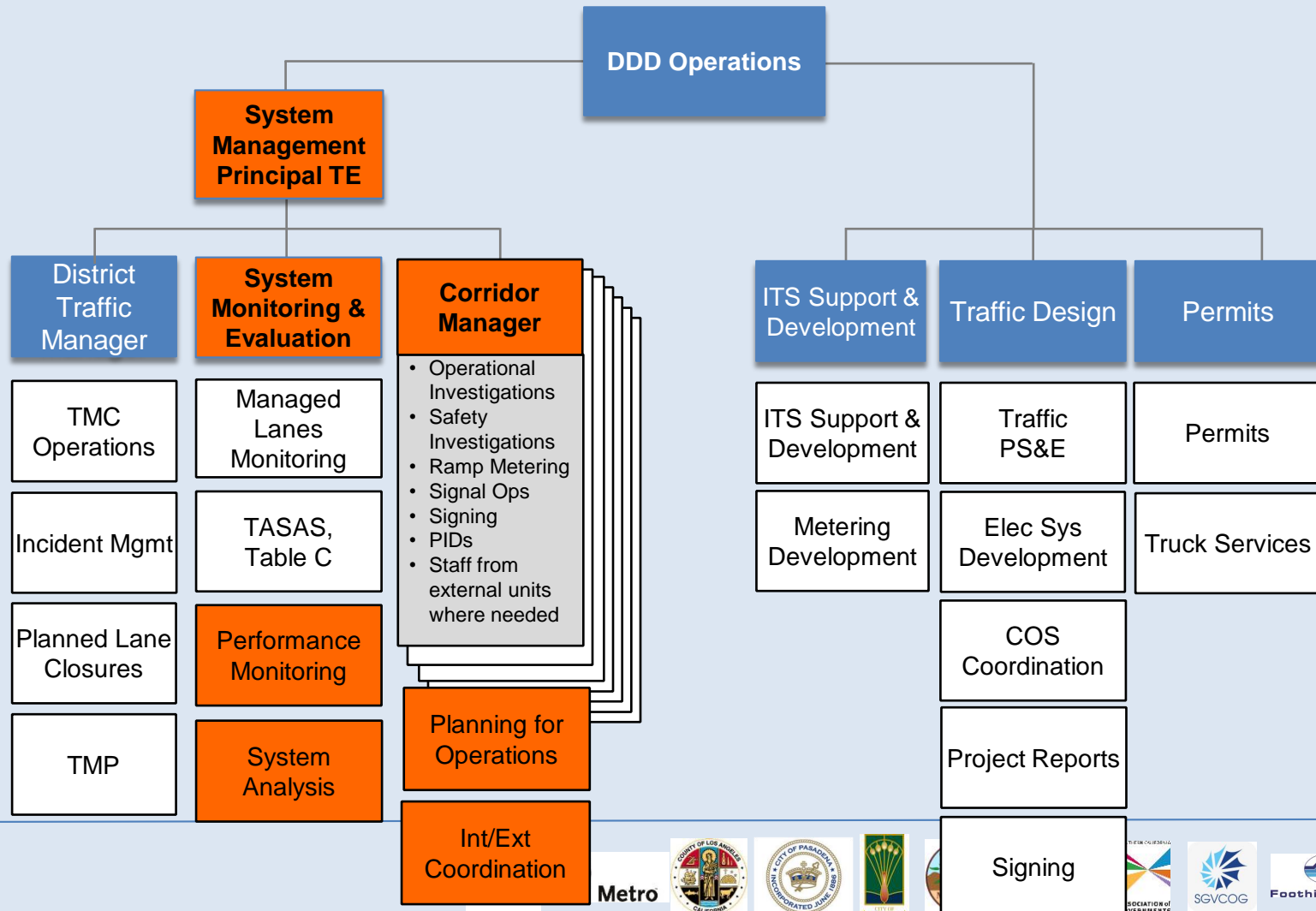
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- **Setting the vision**
- **Working with Regional Agencies**
- **Selecting Corridors**
- **Establishing relationships with local cities**
- **Allocating State funds**
- **Leading efforts for Regional Funds**





# Long-term TSM&O-focused Organization



# Schedule

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