



Foothill Transit

Connected Corridors

I-210 Pilot Project

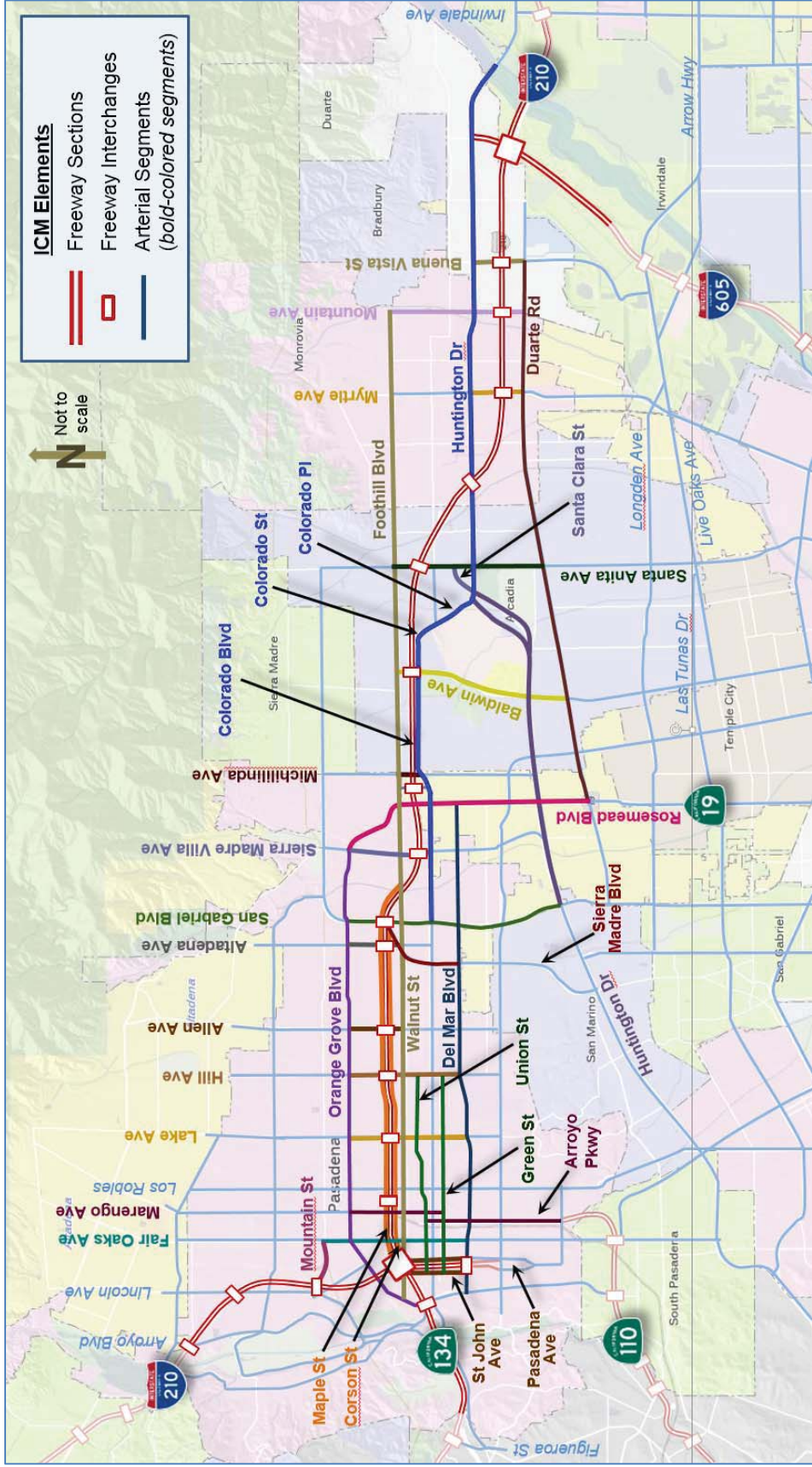
Advancing Traffic Control through Big Data & Connectivity
IPAM Program – UCLA



October 7, 2015

Samson Teshome, P.E., PMP
Pilot TMS Corridor Manager
California DOT, Los Angeles

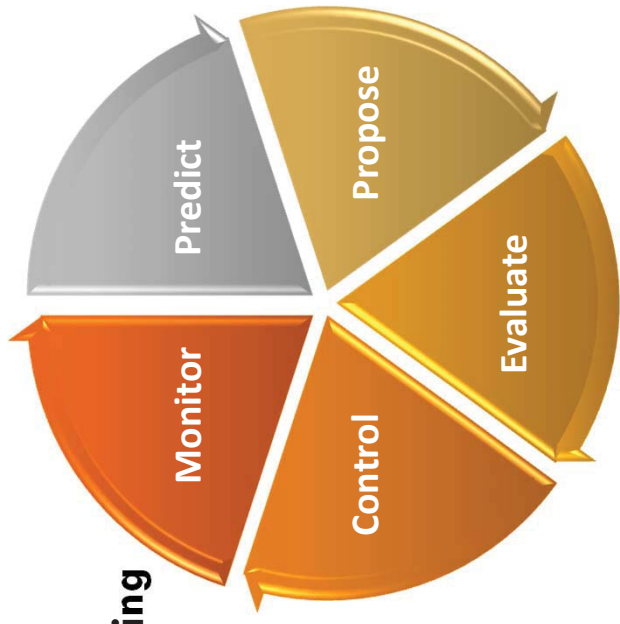
Our Corridor: The I-210



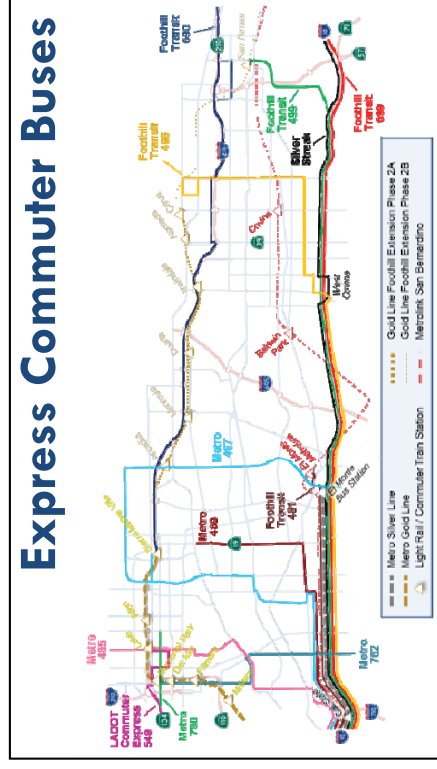
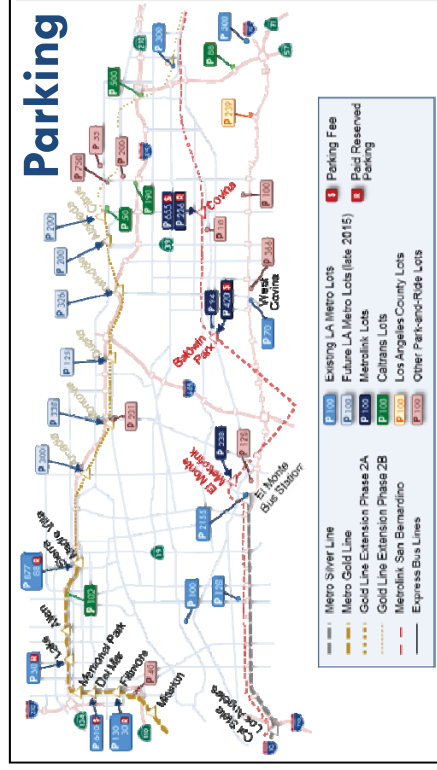
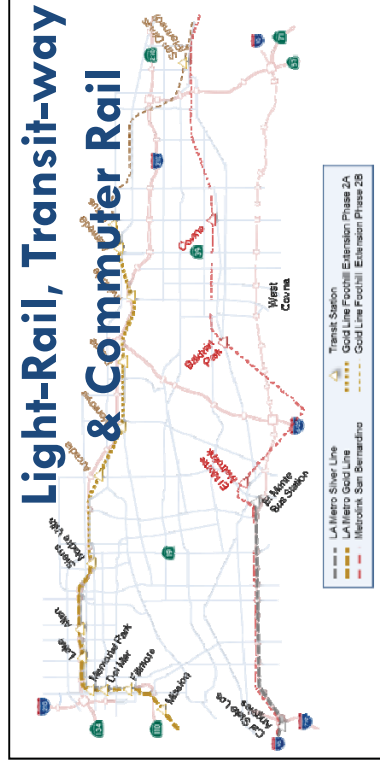
Why do we need Connected Corridors?



- Proactively manage multiple modes through and along the corridor
- En-route traveler information
- Pre-trip traveler information
- Dynamic Rerouting
- Freeway coordinated adaptive ramp metering
- Signal coordination on arterials with freeway ramp metering
- Regional arterial management
- Real-Time multimodal decision support
- Network traffic prediction
- On-line simulation analysis
- Real-time response strategy assessment



I-210 Project Corridor Assets



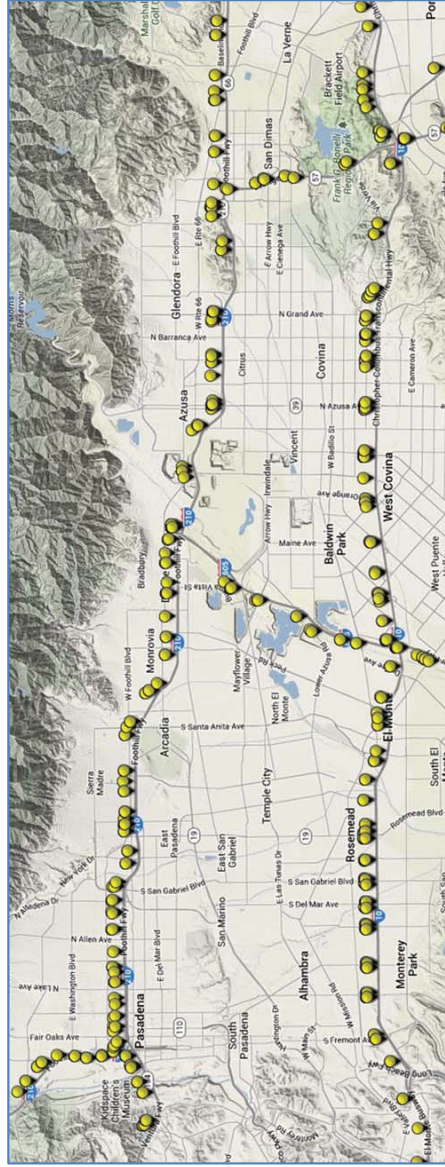


Traffic Monitoring - Freeway Sensors

□ Mainline sensors



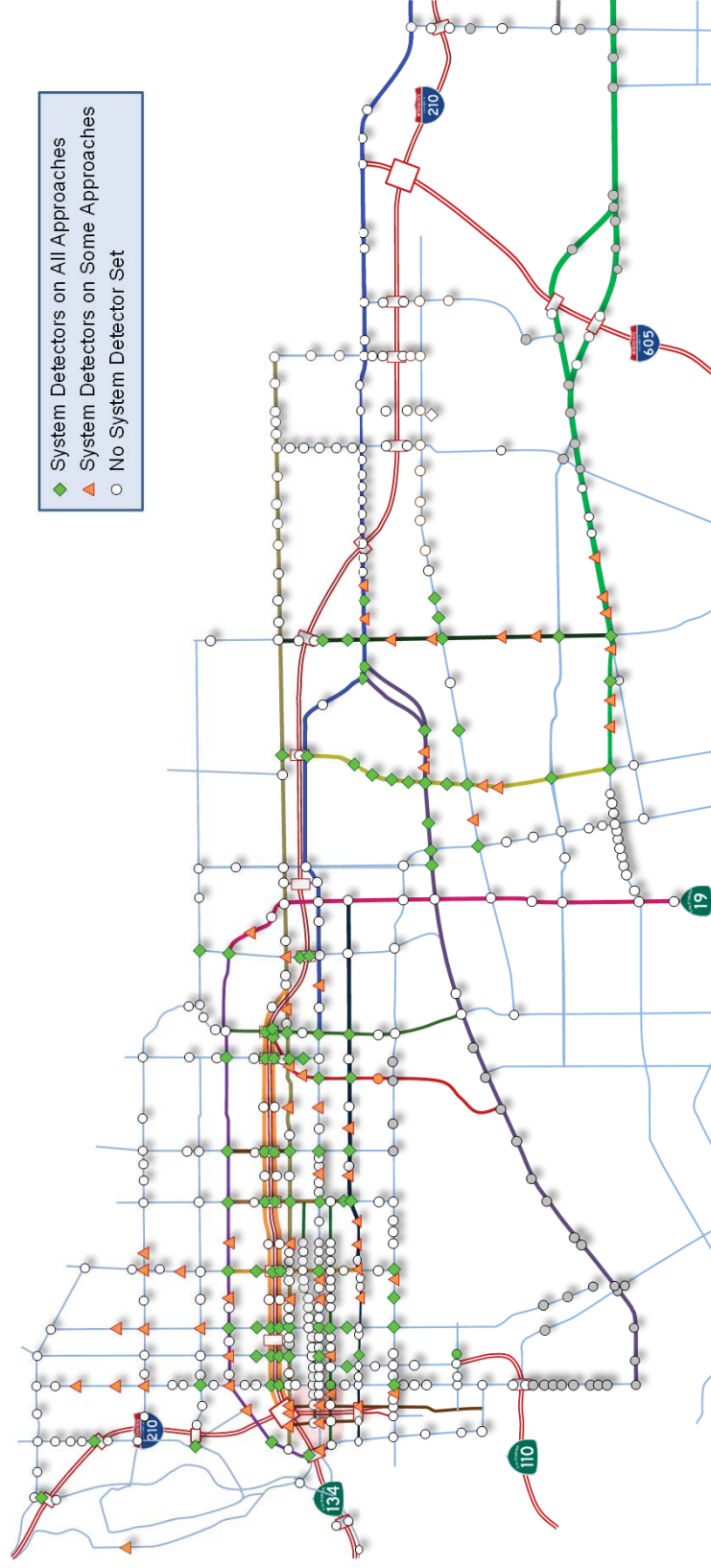
□ On-ramps, off-ramps and connectors



Traffic Monitoring – Arterial Sensors



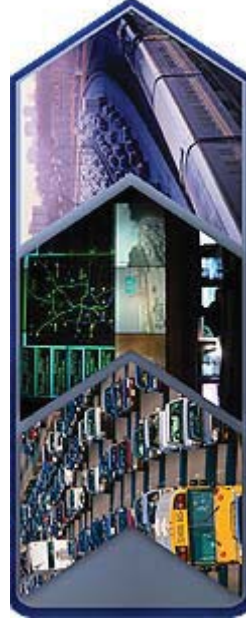
Existing arterial traffic detection stations



Current Road Network Operations



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- **Transportation Infrastructure Not Fully Utilized**

With teamwork more can be accomplished.

- **Traveler Information Needs Upgrading**

Traffic information is fragmented, not very timely or not available at all when you need it most.

- **Networks Are Independently Operated**

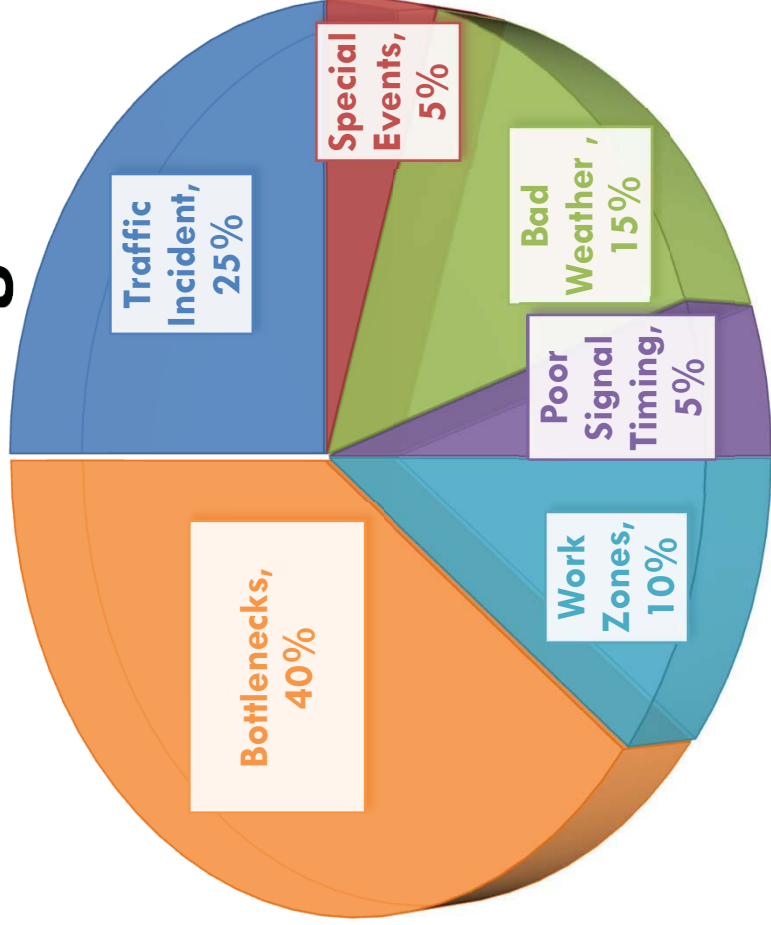
Previous efforts to "reduce congestion" have focused on improving individual networks.



Corridor Operational Conditions

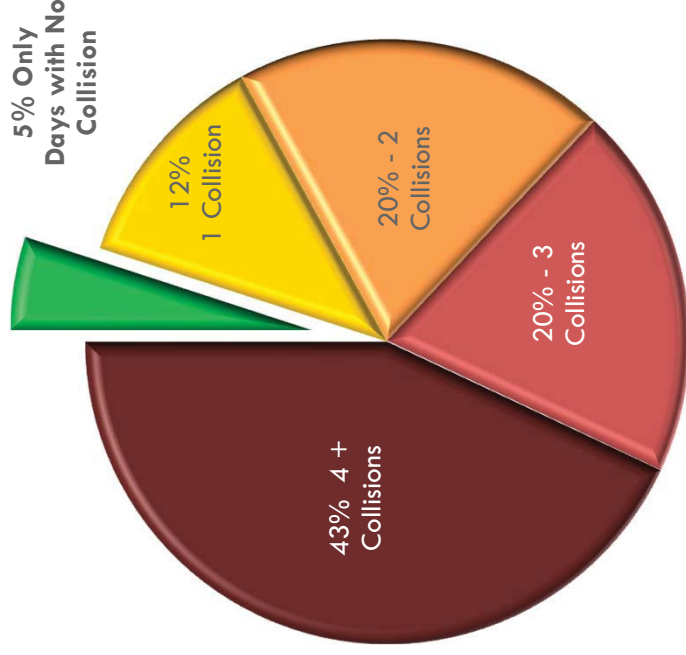


Sources of Congestion



Source: Traffic Congestion and Reliability Final Report (2010)

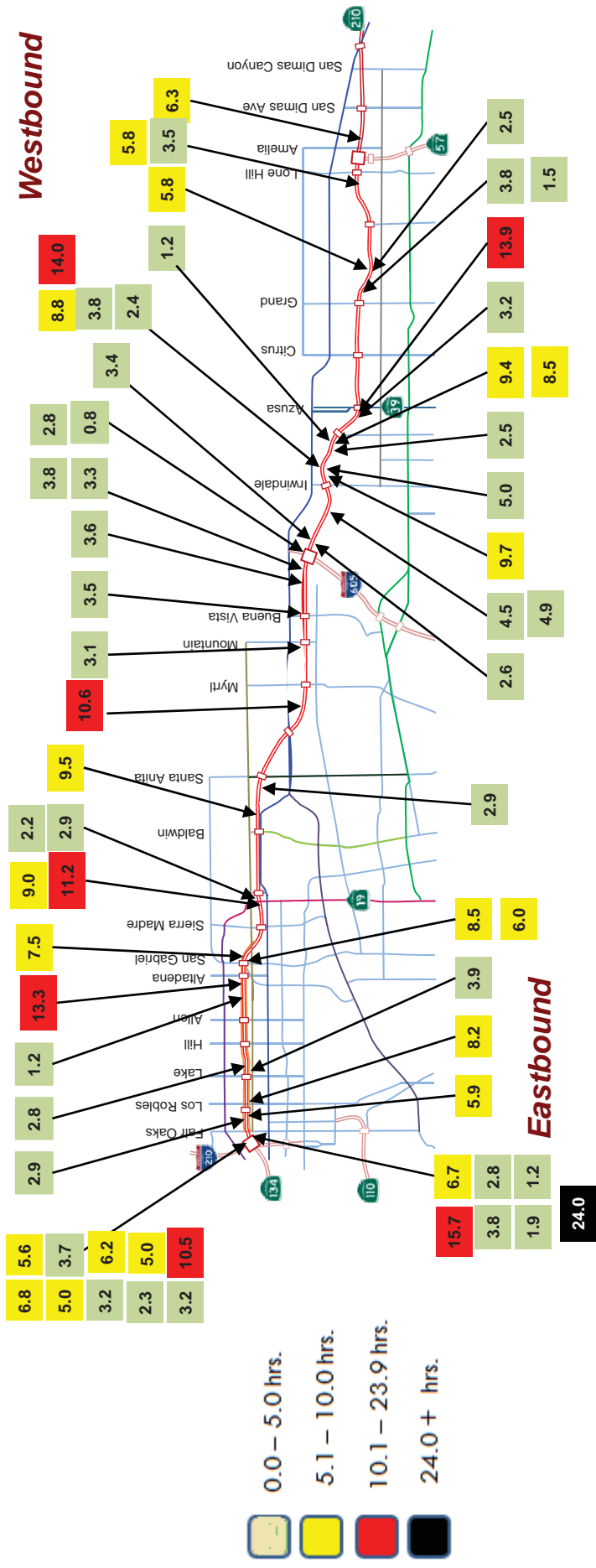
Traffic Incidents



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



Major Incidents on I-210 (2013 – 2014)



- 0.0 – 5.0 hrs.
- 5.1 – 10.0 hrs.
- 10.1 – 23.9 hrs.
- 24.0 + hrs.

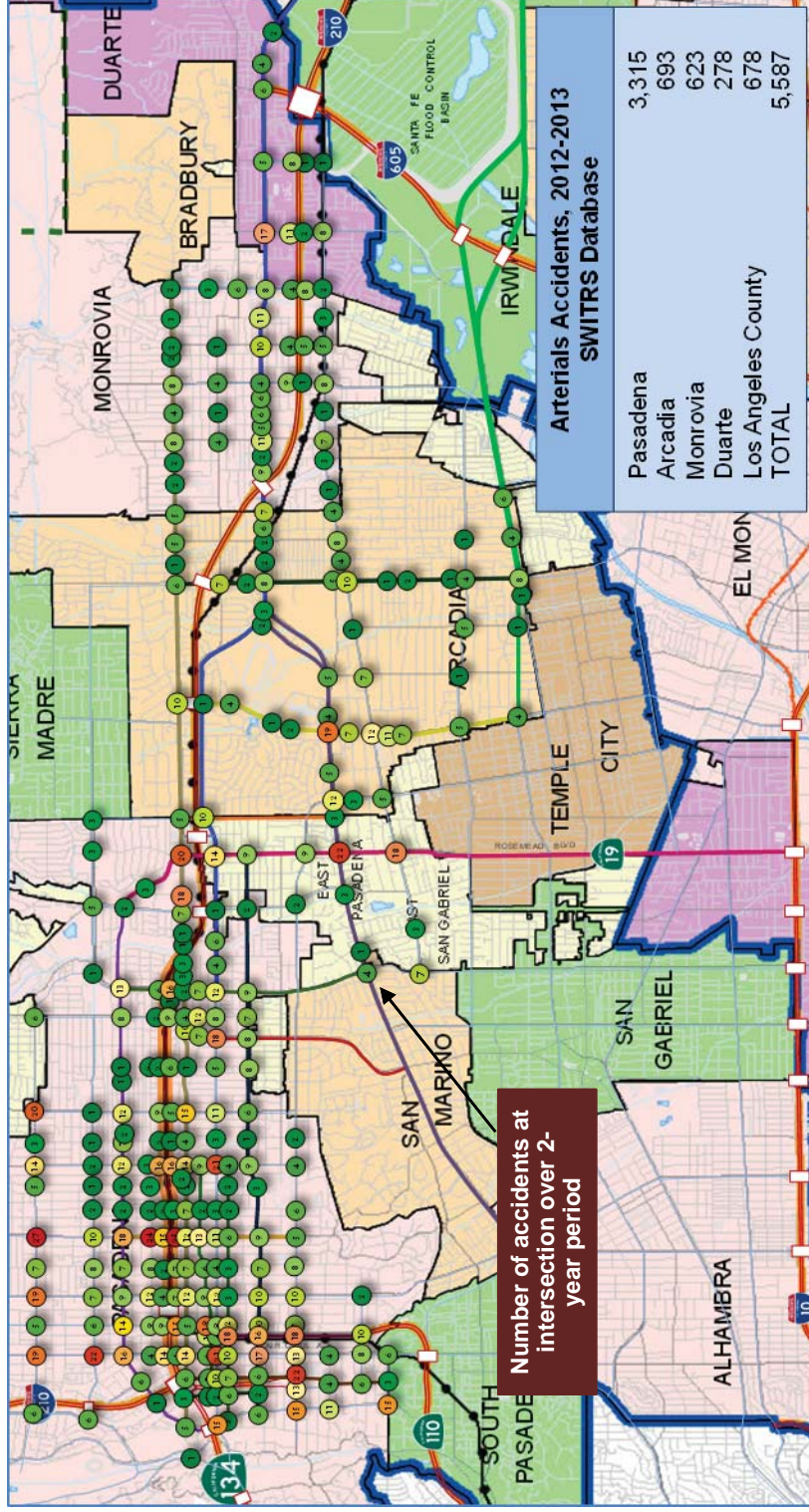
□ In 2013 a total of approximately 6,000 incidents were reported within the project limits. (500 per month)



Corridor Operational Conditions



Accidents along corridor arterials



Number of accidents at intersection over 2-year period

E/B 210 @ Allen Ave Track

Incident

DEVELOPING
STORY

Big Rig Crash

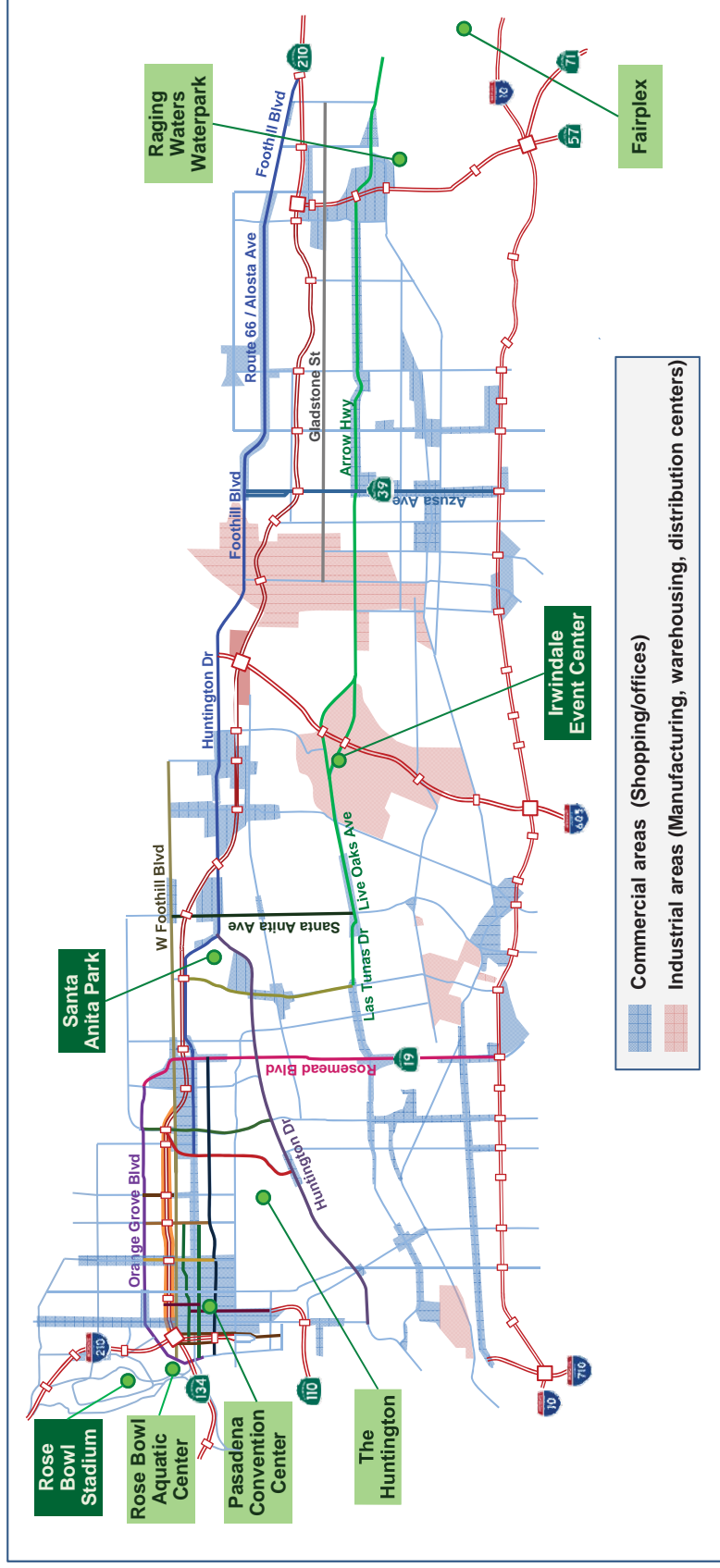
5:04 74°



Corridor Operational Conditions



- Several important event venues generating large traffic volumes

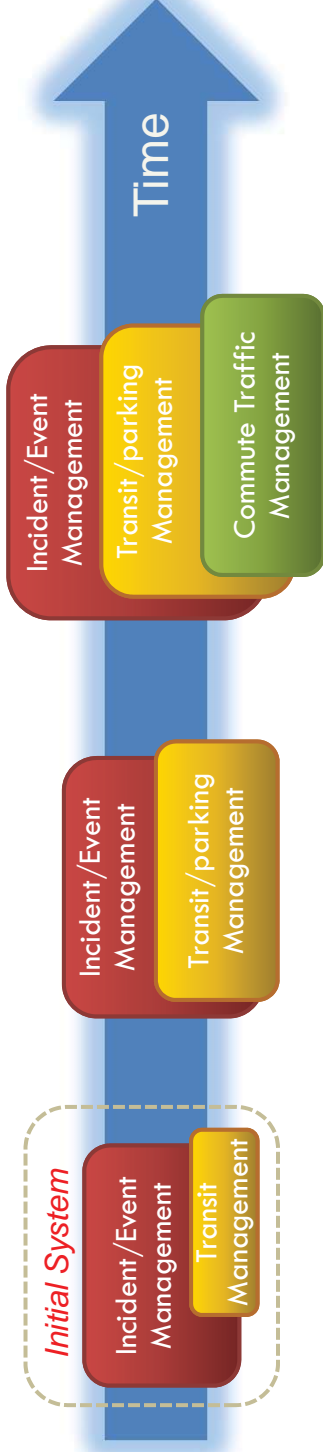


I-210 Pilot Project Goals and Objectives



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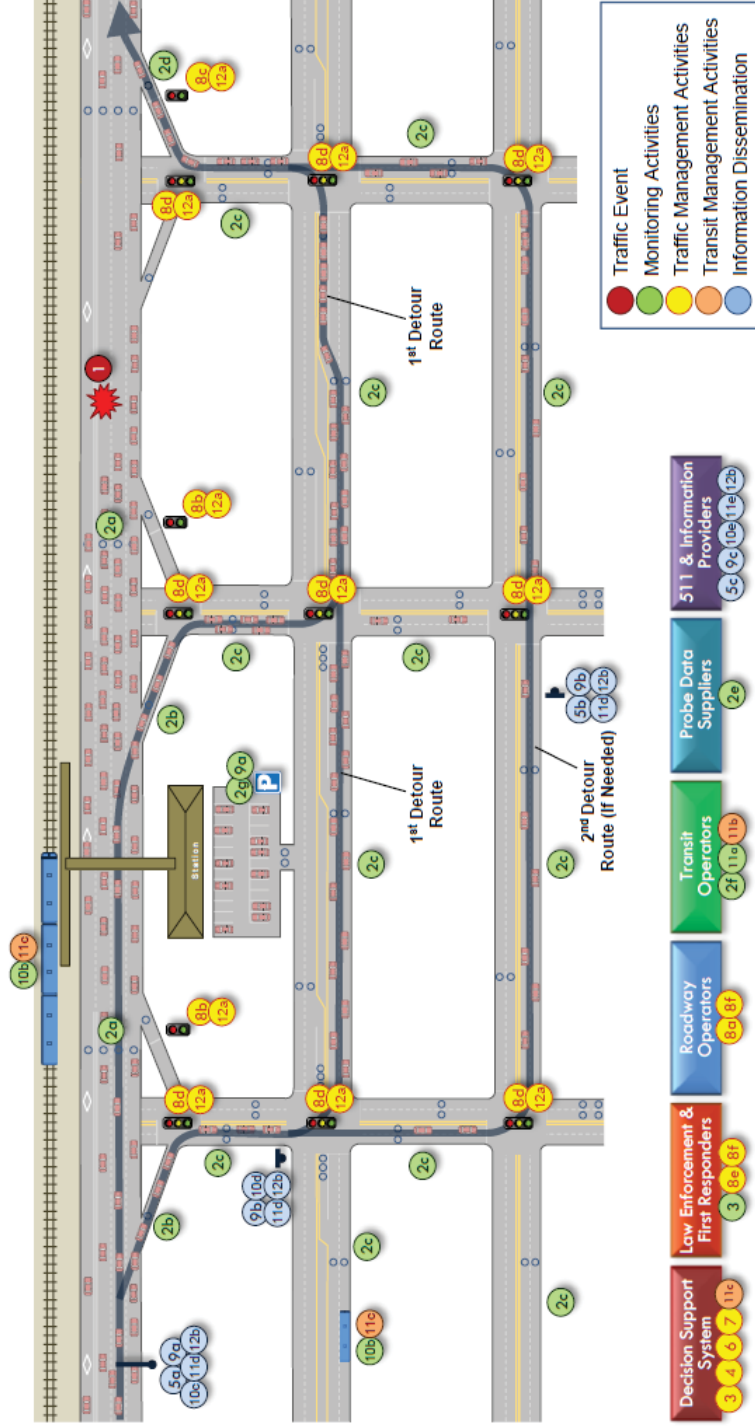
- Initial focus is on managing incidents/events, with gradual expansion to demand management and commute congestion



- Develop a pilot system that can be replicated on other corridors and be a model for other corridors in the state and country



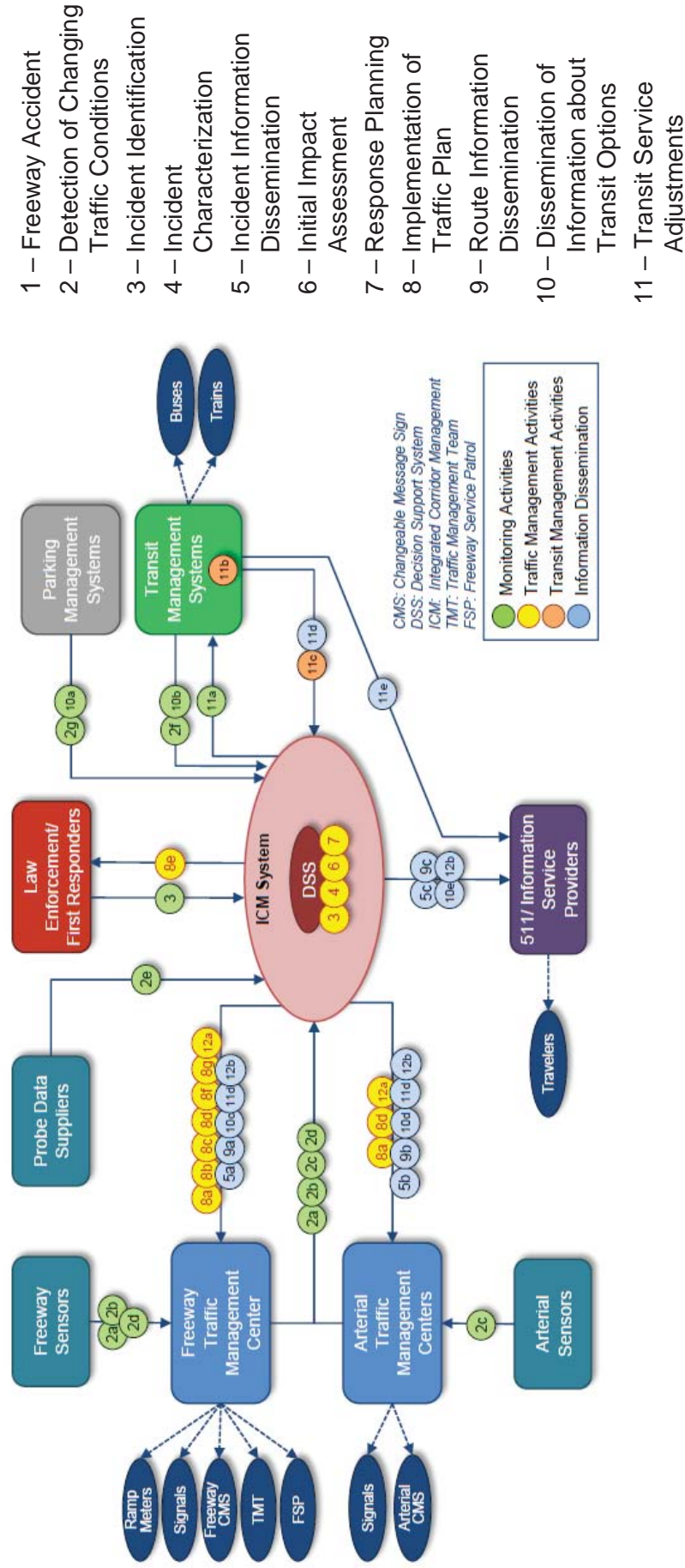
Major Freeway Incident



- 1 – Freeway Accident
- 2 – Detection of Changing Traffic Conditions
- 3 – Incident Identification
- 4 – Incident Characterization
- 5 – Incident Information Dissemination
- 6 – Initial Impact Assessment
- 7 – Response Planning
- 8 – Implementation of Traffic Plan
- 9 – Route Information Dissemination
- 10 – Dissemination of Information about Transit Options
- 11 – Transit Service Adjustments



Major Freeway Incident



ISP's Web Portal <http://www.dot.ca.gov/cwwp/>



Developed Documents



System Inventory & Needs Assessment

Partners for Advanced Transportation Technology
 Institute of Transportation Studies
 University of California, Berkeley

Connected Corridors: I-210 Pilot Integrated Corridor Management System
Corridor Description, System Inventory and Needs Assessment
 December 12, 2014

Project Management Plan

Partners for Advanced Transportation Technology
 Institute of Transportation Studies
 University of California, Berkeley

Connected Corridors: I-210 Pilot Integrated Corridor Management System
Project Management Plan
 April 21, 2016

Systems Engineering Management Plan

Partners for Advanced Transportation Technology
 Institute of Transportation Studies
 University of California, Berkeley

Connected Corridors: I-210 Pilot Integrated Corridor Management System
Systems Engineering Management Plan
 June 4, 2015

Concept of Operations

Partners for Advanced Transportation Technology
 Institute of Transportation Studies
 University of California, Berkeley

Connected Corridors: I-210 Pilot Integrated Corridor Management System
Concept of Operations
 June 18, 2015

Signed Project Charter

Connected Corridors I-210 Pilot Project Charter

The purpose of the Project Charter ("Charter") is to establish a mutual understanding concerning the Connected Corridors I-210 Pilot project. The Charter is a key document in the project management process. It provides a clear and concise statement of the project's purpose, objectives, and scope. It also serves as a communication tool for the project team and stakeholders.

Objectives:

- Develop a clear and concise statement of the project's purpose, objectives, and scope.
- Establish a mutual understanding concerning the Connected Corridors I-210 Pilot project.
- Provide a clear and concise statement of the project's purpose, objectives, and scope.
- Establish a mutual understanding concerning the Connected Corridors I-210 Pilot project.

Project Purpose:

Connected Corridors is a collaborative effort led by Caltrans to research, develop, test, and deploy a framework for corridor transportation management that are managed in the state and its partners. The program is aimed at improving transportation research and innovation, including products and services that improve the efficiency, safety, and security of the transportation system.

Comment: Connected Corridors I-210 Pilot Project Charter - FINAL, REVISED COPY from 10/2015



ICM Core System Elements



Data Integration /
Fusion Engine

Business Rules Engine

Corridor
Visualization

Real-Time Network
Prediction

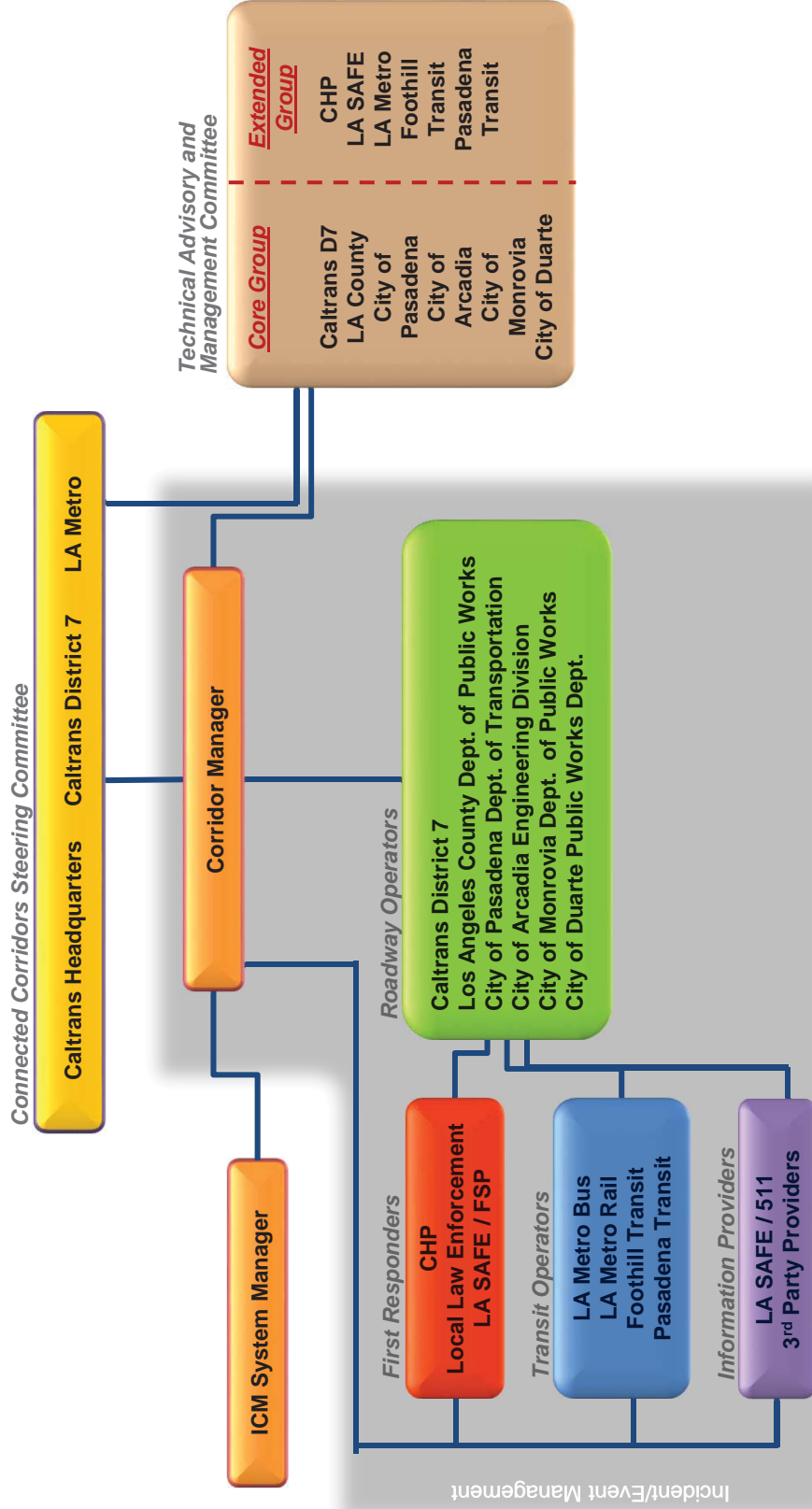
Response Plan
Evaluation Engine

Automation
Workflow Engine

Performance
Data Warehouse



Institutional Framework



Anticipated Benefits



- **New decision-making tools**
- **Implementation of performance-based corridor-wide strategies**
- **Enhanced coordination of activities between Caltrans, local traffic management agencies, transit agencies, and first responders**
- **Complementary multi-jurisdiction, multi-modal forum for addressing corridor issues**
- **Reduced decision times to respond to incidents**
- **Reduced impacts of incidents and events on corridor mobility**
- **Improved safety along freeway, freeway ramps, and arterials**
- **Improved transit service during incidents and events**
- **Increased attractiveness of transit services**
- **Enhanced traveler information**
- **Improved traveler experience**
- **Potential improvements in air quality**
- **Promotion of future ICM system enhancements or deployments**



CALTRANS MISSION, VISION & GOALS

MISSION: Provide a safe, sustainable, integrated and efficient transportation system to enhance California's economy and livability.

VISION: A performance-driven, transparent and accountable organization that values its people, resources and partners, and meets new challenges through leadership, innovation and teamwork.

GOALS: Safety and Health, Stewardship and Efficiency, Sustainability, Livability and Economy, System Performance and Organizational Excellence



Thank You!



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California DOT, Los Angeles