



# I-880 ICM Systems Engineering Management Plan

Presented by  
Metropolitan Transportation Commission (MTC)



April 5, 2011

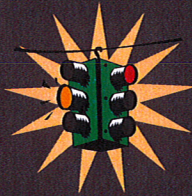
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Systems Engineering Management Plan



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## Today's Corridors: Independent Systems

Arterial Signal  
Systems



Freeway  
Systems



Rail  
Systems



Bus  
Systems



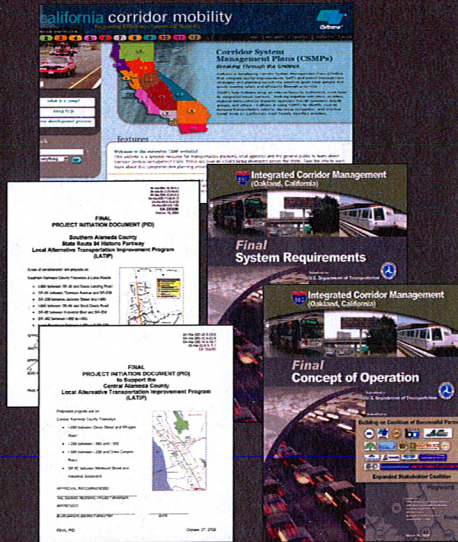
- Efforts to date to reduce congestion have focused on optimization of individual systems
- Leverage investments in ITS
- There are tremendous opportunities to integrate operations to manage total corridor capacity

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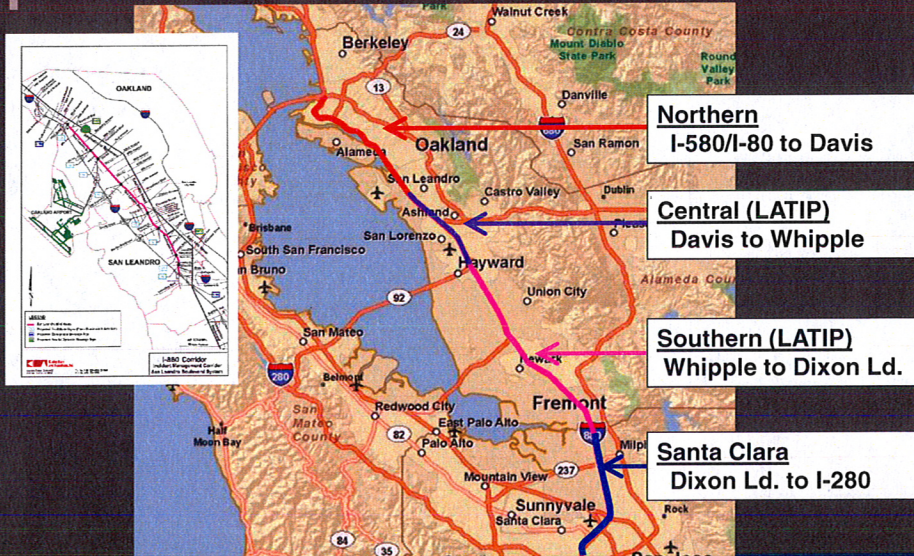
# Existing Plans and Reports

- Corridor System Management Plan (CSMP) for I-880, Caltrans (June 2010)
- Central Alameda County Local Alternative Transportation Improvement Program (Central LATIP) – Final Project Initiation Document, ACCMA (November 2009)
- State Route 84 Historic Parkway Local Alternative Transportation Improvement Program (SR-84 LATIP) – Final Project Initiation Document, ACTA (October 2009)
- I-880 Integrated Corridor Management Final Concept of Operation[s] (ICM ConOps), Caltrans, MTC, ACCMA, AC Transit, & BART (March 2008)
- I-880 Integrated Corridor Management (ICM) Final System Requirements, Caltrans, MTC, ACCMA, AC Transit, & BART (March 2008)
- East Bay SMART Corridors Program ACCMA



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# ICM Approach: Segment Centric

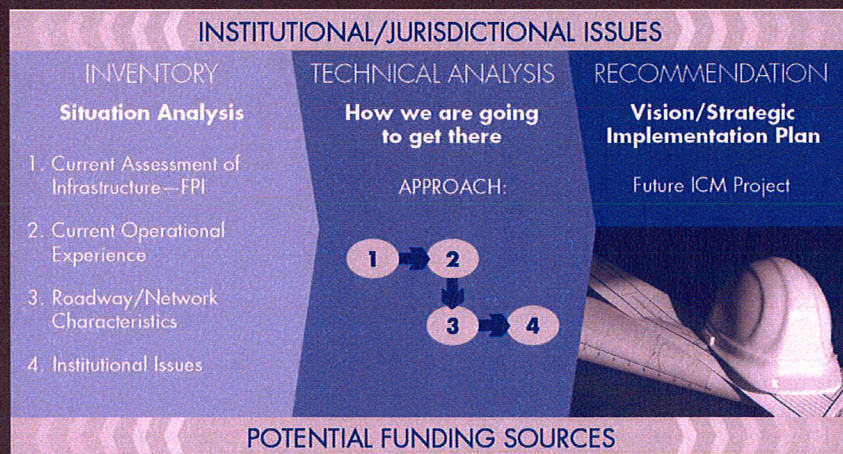


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# Interstate 880 Integrated Corridor Management Systems Engineering Plan

- Inventory of Existing Services & Deficiencies
- Technical Analysis
  - ICM Strategy Implementation Feasibility
  - Concept of Operations (CONOP)
  - Systems Engineering Management Plans (SEMP)
  - Performance Evaluation Plan
- Implementation Plan

# Successful ICM Management Plan



## Potential Strategies



- Real time data sharing and response
  - Data Exists – what is the strategy to use it?
  - Dynamic ramp metering
- Demand management
  - Spread peaks
  - Arterial management
  - Transit/Parking/HOV (move more people, not vehicles)
  - Manage goods movement
- Manage incidents
  - Reduce detection, response, and recovery time
- Special generators
  - Advance planning

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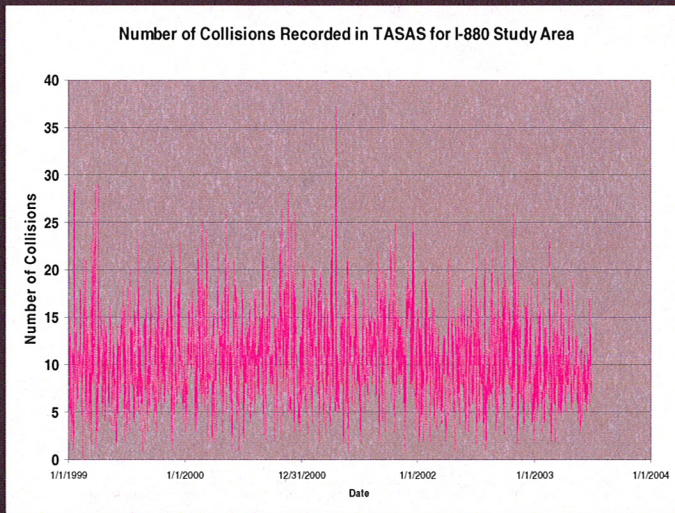
## ICM CONOPS Approaches

- Principles
  - Apply systems engineering approach
  - User needs and constraints driven
  - Derive a set of prioritized and progressively deployable strategies
    - Operationally and technically feasible
    - Address institutional constraints
    - Offer maximum cost/benefit ratio
    - In compliance with ITS architecture and standards

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# Traffic congestion caused by incidents is a major problem



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# June 26, 2008 NB I-880 JSO Marina Blvd.



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## October 22, 2008 SB I-880 at 16<sup>TH</sup> Ave.



Peter DaSilva / Special to The Chronicle



Michael Mazer / The Chronicle

## Initial Pilot Project

- Incident Management Corridor
  - International Blvd. E. 14<sup>th</sup> Street
  - San Leandro Boulevard System
- Project Acceleration due to
  - Availability of CMAQ Funding
- Project will include
  - Conceptual & Systems Engineering
  - Necessary Caltrans & Local Approvals



## Incident Management Pilot System

- Detection & Verification
  - CCTV
- Management & Coordination
  - Trailblazer Signs
  - Changeable Message Signs
  - Arterial Dynamic Message Signs
- Emergency Pre-emption



Arterial DMS

## Project Schedule

- Start Phase 1 - Spring 2011
- Complete Phase 1 – December 2012
- Kick-off meeting with TAC – May 2011

## Questions

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Arterial DMS

## Arterial Incident Management Strategy

### Benefits:

- Enhance arterial/transit/freeway signage and signal coordination
- Upgrade antiquated signal equipment
- Implement Adaptive Traffic Controls
- Enable remote management

### Challenges & Solutions:

- O&M; RTP Bay Area Plan
- Constrained Resources; TMC & Upgraded equipment

## Next Steps

- Obtain support of local jurisdictions
- Convene stakeholders meeting
- Maximize synergy from construction CT TMP

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