Potential ICM Strategies
General ICM Goals

- Promote collaboration among corridor stakeholders and system coordination
- Improve system awareness
- Improve traveler information
- Increase corridor throughput
- Reduce congestion
- Improve travel time reliability
- Improve safety
- Reduce environmental impacts
Categories of ICM Strategies

- Improving infrastructure monitoring
- Improving travel demand monitoring
- Enhancing information dissemination
- Improving traffic operations
- Improving responses to incidents/events
- Increasing use of public transportation
- Influencing travel demand
- Enhancing infrastructure (if possible)
Improving Infrastructure Monitoring

1. Real-time system monitoring
   - Status of traffic management devices
   - Traffic flow conditions
   - Transit operations
   - Parking facilities
   - Weather

2. Integration of new data sources
   - Data from third-party providers (e.g., INRIX, Navteq)
   - Probe vehicle data
   - User-generated content from third-party applications (e.g., Waze)
Improving Demand Monitoring

1. Predicting near-future traffic demand
   • Comparison of real-time data to historical travel/traffic information
   • Simulation tools

2. Using probe data to assess origin-destination flow patterns
Enhancing information dissemination

1. Enhancing access to information
   - Inter-agency data sharing capabilities
   - Data clearinghouses
   - Information service provider access to relevant data
   - Mobile traveler information applications

2. Enhancing richness of information
   - Provision of real-time traffic/travel information
   - Incorporating traffic projections into disseminated information
1. **Dynamic ramp metering**
   - Traffic-responsive metering with queue control
   - Coordination of metering rates across ramps
   - Coordination with nearby arterial signals

2. **Enhanced traffic signal control**
   - Traffic-responsive (or real-time) control
   - Cross-jurisdiction signal coordination

3. **Congestion/hazard information systems**
   - Freeway congestion warning system
   - Ramp queue warning system
   - Variable advisory speeds
4. **Lane management systems**
   - Dynamic HOV restriction control
   - Hard shoulder running
   - Dynamic merge control at freeway on-ramps
   - Dynamic lane use at signalized intersections
   - Use of curb parking lanes as additional travel lanes
   - Reversible lane system along arterials

5. **Decision support tools**
   - Evaluation of impacts of proposed management strategies
   - Development of recommended response plans

6. **Coordination of maintenance activities across jurisdictions**
Improving response to incidents/events

1. Enhanced tracking of implemented responses
2. Coordinated, multi-agency response processes
3. Expanded Freeway Service Patrol
4. Dynamic travel advisories
   - Alternate routing information on changeable message signs
   - Dynamic trailblazer signs along arterials to guide traffic back to the freeway
5. Dynamic transit adjustments
   - Route deviations around major incidents
   - Additional transit services to alleviate the impacts of major incidents
   - Use of private parking facilities as temporary park-and-ride facilities
6. Enhanced traffic signal control
   - Implementation of timing plans designed to minimize queues
   - Preemption to emergency vehicles
Increasing Use of Public Transportation

1. **Preferential treatments**
   - Transit signal priority
   - Transit only lanes along arterials/at intersections

2. **Coordinated transit schedules to facilitate transfers between various modes**

3. **Dynamic transit services**
   - Service frequency adjustments based on observed/projected travel demand and traffic conditions
   - Dynamic connection protection at transfer points
   - On-demand transit ride service
   - Dynamic ridesharing service
Influencing Travel Demand

1. Enhanced trip queries
   - Comparative trip time estimates across alternate routes/modes
   - Alternate departure times offering potential time savings

2. Dynamic navigation systems
   - Alternative routes around major incidents/road closures
   - Guidance to parking facilities with open spaces

3. Dynamic pricing systems
   - HOT lanes
   - Parking facilities

4. Dynamic access restrictions
   - HOV lanes
   - Truck access to freeways

5. Incentives to promote time/mode shifts
Improving infrastructure

1. Add HOV bypass lanes on freeway ramps
2. Conversion of existing HOV lanes into HOT lanes
3. Minor improvements to interchanges or intersections to improve flow operations (e.g., lane restriping)
4. Minor improvements to intermodal station to facilitate drop off/pick up activities
5. Many other options if $$$, right-of-way, political will are available