



Potential ICM Strategies

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General ICM Goals

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- **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

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- 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

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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

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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

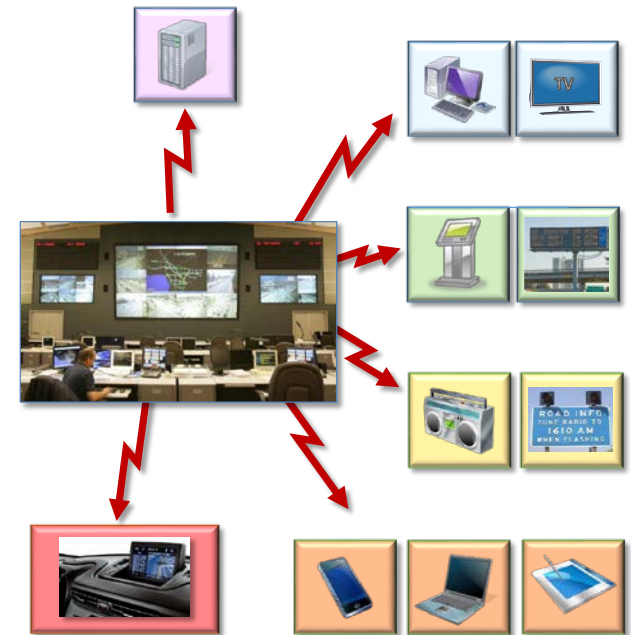
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1. Enhancing access to information

- 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



Improving Traffic Operations - 1

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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

Improving Traffic Operations - 2

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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

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- 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

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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

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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

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- 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***

