



# MODULE 2: TSMO Strategies

# Work Zone Management



## Several strategies and technologies are available.

- Traveler information & portable DMS (delays, alternate routes)
- Variable speed limits
- Automated speed detectors, warning signs & enforcement
- Dynamic lane merge systems

## Demonstrated benefits include:

- Reduced crashes
- Reduced work zone traffic
- Reduced delays



# Traffic Incident Management (TIM)

- Planned and coordinated process to detect, respond and clear incidents and crashes quickly and safely
- Multi-disciplinary activity involving DOTs & emergency service providers
- TIM reduces the duration of traffic incidents (30%-50%)
  - Reduces congestion
  - Improves reliability
  - Improves safety - reduces secondary crashes
  - Improves safety – first responders



# National Traffic Incident Management (TIM) Responder Training Program

- TIM Training is an interactive, hands on training bringing together police, firefighters, tow operators, medical personnel and other incident responders.
- Over 277,000 responders trained.
- Established a national network of TIM training champions.
- Foster relationship building both in-State and State-to-State.
- Institutionalizing the training - Public safety academies in 20 States have adopted training.

This training available through SHRP2



# Safety Service Patrols and Incident Response Trucks

## Part of Comprehensive TIM Program

- Provides specially equipped response trucks and trained operators
- Assists stranded motorists and clearing debris
- Provides traffic control during traffic incidents

## Example Benefits

- Cleared 80% of incidents within 10 minutes
- Average Benefit/Cost Ratio of 12.4:1
- Most favorable public response



# Planned Special Event Management

## Effective event management requires agency collaboration and coordination

- Planning and protocols
- Day-of-event activities
- Post-event activities

## Benefits:

- Reduced delays to motorists attending (and not attending) the event
- Reduced demand
- Improved safety
- Lasting impression on attendees





# Road Weather Management

## Reduces the impact of adverse weather conditions on travelers

- Data collection
- Data assimilation and analysis
- Information dissemination



## Example Benefits

- Low visibility warning system.
  - Crash rates during fog conditions reduced 70% – 100%
- Wet pavement detection & advisory system reduced crashes by 39%
- B/C ratio for automated wind advisory in Oregon = 4:1
- KC Scout now testing IMRCP System for predicting travel conditions and proactive response



# Traveler Information

- 511 Web and Voice
- Dynamic message signs (DMS)
- Radio and television traffic reports
- SmartPhone apps
- Social media tools
- Commercial traffic conditions and prediction services

Services may be provided by private sector.



## Example Benefits

- 511 customer satisfaction of 68% - 92%
- Route-specific travel times: 5% -13% increase in on-time performance (i.e., reliability)





# Ramp Management

**Metering** - traffic signals on ramps to dynamically control the rate at which vehicles enter a freeway

- Smooth the flow of traffic onto the mainline

## Example Benefits

- Metering increases freeway throughput 13% - 26%
- Metering decreases crashes 15% - 43%
- Greatest benefits occur when applied corridor-wide.



# Active Transportation and Demand Management (ATDM)

Broad operational philosophy – an integrated approach for dynamically and pro-actively managing and influencing travel demand and traffic flow

Uses a combination of the real-time operational strategies:

- Those previously noted
- Managed Lanes
- Active Traffic Management
- Integrated Corridor Management
- Dynamic pricing



# Managed Lanes

## Lane(s) where use is based on:

- Vehicle type / eligibility
- Pricing
- Access control

## Examples:

- HOV lanes
- HOT lanes
- Bus-only lanes
- Express toll lanes
- CAV Lanes

## Demand and capacity managed on a pro-active basis

- Price
- Eligibility requirements



In Minneapolis (HOV lanes converted to HOT lanes)

- Peak hour corridor throughput increased 5%
- No change / slight increase in speeds
- General reduction in speed differentials (HOT/GP lanes)



# Active Traffic Management (ATM)

Dynamically manage congestion based on prevailing traffic conditions

- Dynamic speed displays
- Dynamic lane control
- Queue warning
- Dynamic shoulder running

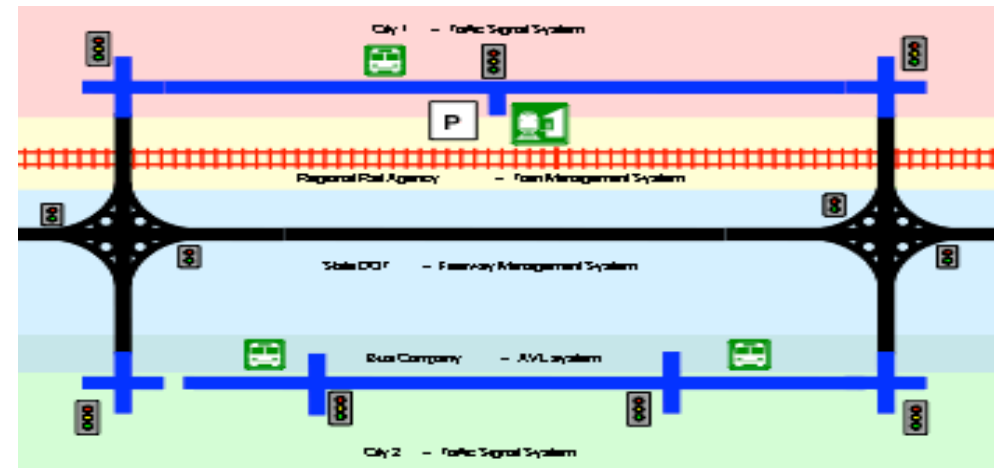
Relatively new to US - European Experience

- Throughput increased by 3% - 7%
- Decrease in incidents by 3% - 30%
- Emissions decreased 2% - 8%
- Benefit / Cost ratio of 3.9 : 1



# Integrated Corridor Management

- Corridors offer opportunities to optimize the entire system.
- ICM is the operational coordination of multiple transportation networks and cross-network links.
- Integrated traveler info
- Improve the operational efficiency of network junctions
- Cross-network route & modal shifts
- Capacity and demand



## Example Benefits

- ICM along I-15 in San Diego: estimated B/C ratio of 9.7:1
- Simulation of ICM: B/C ratios of 7.1:1 to 25.1:1

