Current Trends in Traffic Congestion Mitigation

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Agenda

- Background - The Congestion Problem
- Addressing the Problem
- Funding Congestion Mitigation Activities
- Moving Forward (Reauthorization)
- What You Can Do
- Resources
Crisis of Congestion

A Tax on the Nation

- **Commuting costs**: Each motorist stuck in traffic wastes on average 38 hours and 26 gallons of fuel every year – at a cost of $710* per person annually.

- **Quality of life**: Reduced air quality, less time with family and friends.

- **Productivity**: Delays to trucks and unreliability of delivery times increase costs for businesses and reduce economic competitiveness.

*Texas Transportation Institute, 2007 Urban Mobility Report
Crisis of Congestion
Wasted Hours Across America

- Congestion has increased dramatically over the past 23 years in the 437 U.S. urban areas. During this time the number of hours lost each year by an average driver to congestion increased from 14 to 38.*
- In the 13 largest cities, drivers now spend the equivalent of almost 7 work days each year stuck in traffic.*

*Texas Transportation Institute, 2007 Urban Mobility Report
Peak-Period Congestion on the National Highway System: 2002

Note: Highly congested segments are stop-and-go conditions with volume/service flow ratios greater than 0.95. Congested segments have reduced traffic speeds with volume/service flow ratios between 0.75 and 0.95.

Peak-Period Congestion on the National Highway System: 2035

Note: Highly congested segments are stop-and-go conditions with volume/service flow ratios greater than 0.95. Congested segments have reduced traffic speeds with volume/service flow ratios between 0.75 and 0.95.

Solving the Congestion Problem

- Shape Demand
- Bring Supply and Demand into Alignment -- Congestion Pricing
- Operate System at Peak Performance
- Improve the Reliability of Freight Movements
- Invest in New Physical Capacity
Congestion Pricing – Bringing Supply and Demand into Alignment

- Failure to properly price travel on highways is a root cause of congestion.
  - The price of highway travel (gas taxes, registration fees, etc.) bears little or no relationship to the cost of congestion.
  - Unlike other public utilities, the public expectation is that the “service” is free or does not change with changes in demand.
- Rationing transportation services via pricing is more efficient than rationing by delay.
HOT Lanes

**HOT lane** is an HOV lane that allows vehicles not meeting minimum occupancy requirement to use the lane by paying a toll, except for motorcycles and bicycles.

Existing HOT Lanes
- I-15 FasTrak, San Diego, CA
- I-10 QuickRide, Houston, TX *
- US290 QuickRide, Houston, TX
- I-394 MnPASS, Minneapolis, MN
- I-25 Express Lanes, Denver, CO
- I-15 Express Lanes, Salt Lake City, UT
- SR 167 HOT Lanes, Seattle, WA
- I-95 Express lanes, Miami, FL
How has the public reacted to HOT lanes?

Public acceptance has been high on early projects

**I-394 MnPass**
- 95% satisfaction with all electronic tolling
- 85% satisfaction with traffic speed in lane
- 76% satisfaction with dynamic pricing

**San Diego I-15**
- Approve 88%
- Disapprove 11%
- Don’t Know 1%

**FasTrak Customer**
- 95% satisfaction with all electronic tolling
- 85% satisfaction with traffic speed in lane
- 76% satisfaction with dynamic pricing
Urban and CRD Partnerships

- Seattle
- Minneapolis - St. Paul
- San Francisco
- Los Angeles
- Atlanta
- Miami
Miami Urban Partner

- Create 21 miles of HOT lanes on I-95 from Fort Lauderdale to downtown Miami
  - Raise HOV limit from HOV2+ to HOV3+
  - Expand 10-lane highway to 12 lanes (by reducing the width of the existing lanes from 12 to 11 feet and using a portion of the shoulder)
- $62.0 million
- Project well underway (north-bound segment opened in mid-November 2008; second phase complete fall 2009)
Minneapolis – St. Paul Urban Partner

- Create 15 miles of continuously priced lanes on I-35W between downtown Minneapolis and the southern suburbs
  - Existing HOV lanes converted to dynamically-priced HOT lanes
  - Existing HOT lanes extended
  - Convert narrow bus-only shoulder lanes to wider Priced Dynamic Shoulder Lanes
- $133.3 million
- Legislative authority in place
- In operation by Sept 2009
Variable pricing on the State Route 520 floating bridge
- King County crossing that currently carries about 160,000 people per day between Seattle and its Eastside suburbs.
- Tolls on the existing bridge are intended to help pay for the new bridge.

$138.7 million
- Tolling policy legislation signed Mar 2008; actual tolling authority still to come
- Implementation of variable tolling by Sept 2009
San Francisco Urban Partner

- Parking technology deployment and variable pricing implementation
- Upgrade regional 511 information system to provide real-time pricing, parking, and transit information.
- $87 million
Los Angeles CRD

- Convert the HOV lanes on I-10 and I-110 to dynamically-priced HOT lanes
- Enhanced transit to support successful and equitable operation of congestion pricing
- Funds provided; expanded capacity to be provided via infrastructure expansion
- $210.6 million
Atlanta CRD

- The Atlanta project will convert the High Occupancy Vehicle (HOV) lanes on the 13.6 mile I-85 Northwest Expressway to High Occupancy Toll (HOT) lanes managed through value pricing
  - Increase HOV occupancy from 2 to 3 per vehicle
  - Charge a variable fee to allow otherwise ineligible cars to travel in the managed lanes.
- $110 million
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Operating the System at Peak Performance

- Traffic Signal Timing
- Incident Management
- Traveler Information
- Work Zone Management
- Bottleneck Reduction

Source: U.S. Government Accountability Office (GAO)
Traffic Incident Management

- Advance move-it laws
- Establish quick clearance policy agreements
- Promote full function service patrols
- Data integration
- Performance measures / goals
Work Zone Mobility

Work Zone Final Rule Compliance - Focus on Traffic Management Plans

- Better understand, anticipate and plan for the impacts.
- Do so early in the program delivery process.
- Consider solutions that go beyond the immediate location of the work zone.
- Integrate this thinking in the agency/DOT culture.
Traveler Information

- 511
- Real Time System Management Information Program
  - Capability of monitoring, in real-time, traffic and travel conditions on major highways and sharing information with travelers
  - SAFETEA-LU Section 1201 directs implementation in all States. NPRM to establish program published in January 2009
- Travel Times on Dynamic Message Signs
  - 42 cities nationwide
  - 30 of the 40 largest urban areas
511 Deployment Status

Accessible by **53.6%** of Population

**January 2009**

- **Green** = 511 Operational (“Live”)
- **Shaded** = Expected “Live” by 2009

**Accessible by 70% of Population in 2009**

**D.C.**
Travel Time

Upper to I-95 NY approx 5 min
Lower to I-95 NY approx 10 min

Travel Time To
I-405 10-12 min
HWY 26 12-15 min
Improved Traffic Signal Timing

- Of 330,000 traffic signals in USA, about 75 percent could operate more efficiently – National Report Card score of “D”.

- Low cost approach to congestion reduction – BCRs as high as 40:1.

- Denver Regional Council of Governments:
  - Partnership between the MPO and 30 traffic signal operating agencies to coordinate signals on major roads.
  - Reduced delay by more than 41,000 vehicle hours/day.
Active Traffic Management (ATM)

- Dynamically managing & controlling traffic based on prevailing conditions
  - Manage & operate in real-time
  - Distribute current roadway & traveler information
  - Deploy range of operational strategies & control plans
  - Use of integrated systems & coordinated response
Examples of ATM Applications

- Integrated corridor management
- Speed harmonization
- Temporary hard shoulder use
- Dynamic signing/rerouting
- Adaptive ramp metering/junction control
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Improving the Reliability of Freight Movement - Examples

- Electronic Freight Management
  - Applies web technologies to improve the information flow between supply chain partners
  - Preliminary results indicate a 12% improvement in travel time from Hong Kong to Columbus (96 to 80 hours)
- Cross-Town Improvement Project (C-TIP)
  - Traffic reduction strategy shares information among truckers & railroads to maximize revenue-generating trips and eliminate unproductive truck trips through an urban environment; being developed for testing in Kansas City
- Truck Parking Initiative
  - Using ITS to identify, quantify & disseminate the number of available parking spaces at public & private parking facilities along congested I-95 and I-5 (CA) corridors
Funding Congestion Mitigation Activities

- Broadly eligible in core Federal-aid programs
- CMAQ
- Tolling / pricing revenue
ARRA Considerations

- Congestion mitigation / operations activities eligible either as stand alone projects or part of larger investments
- Need particular focus on work zone issues
Looking Forward (Reauthorization)

- Funding issues will dominate debate
- Addressing congestion problems will remain a key performance issue, including how we handle freight needs
- Performance management will be a key theme
- Flexibility and simplification will be key themes
- Ditto for innovation, including research, pricing, innovative financing
What You Can Do

- Ask questions about the Congestion Management Process in large urban areas
- Move it / quick clearance laws / policies
- Enabling legislation for tolling, pricing, variable speed limits, automated enforcement
- Move programs to performance basis
- Don’t forget about freight movement
- Don’t buy the sound bites
For More Information

Visit

www.ops.fhwa.dot.gov/