

MANAGED LANES

Managed Lanes: An Overview of Current Issues

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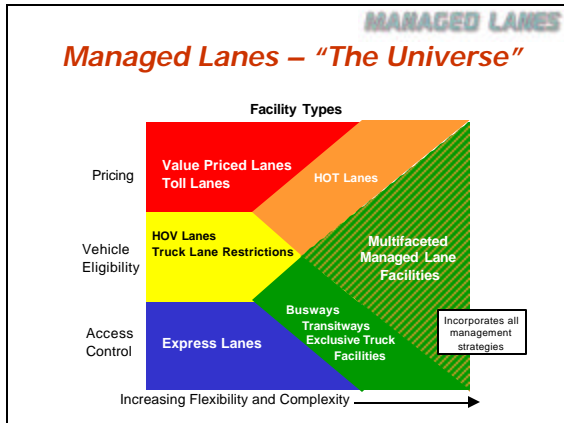


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Today's Presentation

- Managed Lanes in the United States
- Design, Access, and Operations
- Enforcement Challenges
- Active Management
- Research and Resources





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Managed Lanes: Operational

- IH-15 FasTrak in San Diego
- SR-91 Express Lanes Orange County, CA
- IH-10 and US 290 QuickRide in Houston, Texas
- NJ Turnpike Dual-Dual Roadway




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Managed Lanes: HOV to HOT Conversions

- Denver I-25
- Minneapolis I-394
- Alameda County, CA I-680
- Miami I-95
- Seattle SH 167




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Managed Lanes: Projects Under Development

- Maryland State Highways - toll lanes
- Denver C-470 - toll lanes
- Capital Beltway – toll/HOT lanes, Washington D.C.
- Portland SH 217 - HOT lanes
- Utah Statewide ML Plan



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#1: Design, Access, and Operations

- Access directly impacts usage
- Limitations may result in less than optimal design
- Issues to consider
 - ✓ Right-of-way
 - ✓ Overall design
 - ✓ Enforcement
 - ✓ Traffic control
 - ✓ Cost
 - ✓ Incident management
 - ✓ Safety
 - ✓ Pricing
 - ✓ Flexible operations and user groups




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How should access points be spaced?

Design Year Volume Level	Allow up to 10 mph Mainlane Speed Reduction for Managed Lane Weaving ?	Intermediate Ramp?	Recommended Minimum Weaving Distance Per Lane (feet)
Medium (LOS C or D)	Yes	No	500
		Yes	600
	No	No	700
		Yes	750
High (LOS E or F)	Yes	No	600
		Yes	650
	No	No	900
		Yes	950

Source: Venglar et al, TTI, 2002




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When should a direct connect ramp be considered?


Freeway Volume	Maximum Weaving Volume (before considering direct managed lane access ramps)
Moderate (LOS C or D)	450 vehicles/hour
High (LOS E or F)	350 vehicles/hour

Source: Fitzpatrick et al, TTI, 2003




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#2: Enforcement Challenges



- Critical for long-term success
- Occupancy enforcement difficult to automate
- Pricing complicates operation
- Public policy and legal challenges
- Concern that occupancy requirements will go away



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Successful Strategies

- Proactive management essential
- Routine & special enforcement with dedicated personnel
- Automated enforcement
- Combination
- Still have problems





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Emerging Technologies




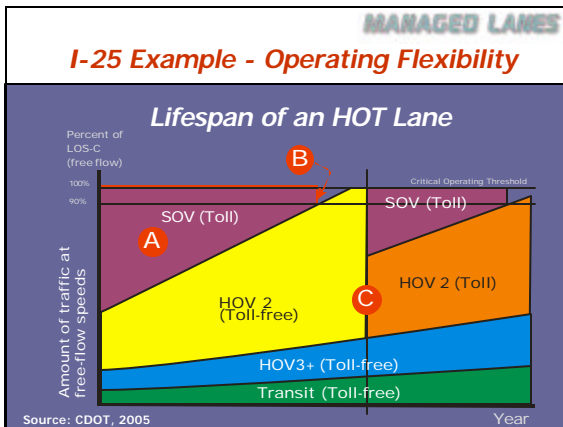
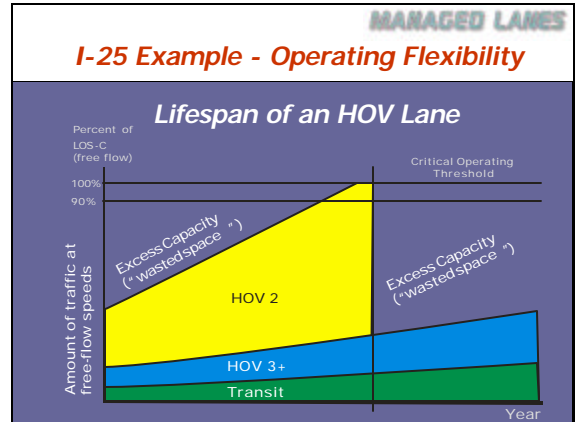
- Future lies with in-vehicle technology
- Off-the-shelf systems exist
 - ✓ Count and record vehicle occupancy
 - ✓ Communicate to roadside
- Pilot deployment needed
- Institutional issues
 - ✓ Privacy, legal, auto industry roll-out, cost



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#3: Active Management


- Challenge - Maximize the use of a facility without allowing it to become congested
- Solution – Use performance monitoring to maintain travel speed/time by varying toll rates and occupancy or user group

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Active Management


- Travel time maintenance or similar measure of effectiveness
- Facility use hierarchy
- Performance monitoring
- Information system for users



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Other Issues: Up Next!


- Effectiveness and Public and Political Support
- Traveler Information Needs
- Implementation Challenges



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Related Research

- FHWA Managed Lanes
 - ✓ Cross-cutting study and primer
 - ✓ Planning and project development
 - ✓ Traffic control and signing
 - ✓ Program plan for future research needs
- AASHTO Guides for HOV and Park-and-Ride Facilities
- Texas Department of Transportation



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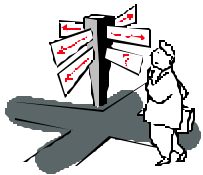
Web Resources

- FHWA Managed Lanes Initiative
✓ http://ops.fhwa.dot.gov/Travel/traffic/managed_lanes/index.htm
- Value Pricing Pilot Program
✓ <http://www.valuepricing.org>
- TRB HOV Systems Committee
✓ <http://www.hovworld.com>
- Texas Managed Lanes Research
✓ <http://managed-lanes.tamu.edu>



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