Managed Lanes Overview
2012 Road Vehicle Automation Workshop

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Topics

- Definition
- Projects
- Policy, Design and Operational Features
- Future
- Research Needs
Themes

- “Managed Lanes” are broadly defined
- No two managed lane facilities are exactly the same, even within the same region
- While HOV lanes are the most prevalent form of managed lane, the future will be priced and dynamically operated lanes
Managed Lanes Concept

- Dedicated lanes
- Can take many forms
- Offer higher level of performance
- Projects customized to meet local area needs
High Occupancy Vehicle Lanes

Currently over 130 HOV facilities in North America, 4000 lane miles
HOV Lanes

- Most single, concurrent flow lanes with buffer
- Most allow vehicles with 2 occupants, some have increased to 3+ in peak hours
- Some projects are reversible flow or contraflow
- About 45% operate 24/7, 55% operate part time
High Occupancy Toll Lanes

Tolling technology enables.....

- Better HOV lane utilization - “sell” excess capacity
- Variable pricing to regulate demand and maintain speeds
- Generation of revenue to offset costs
Express Toll Lanes

- Additional lane capacity
- May not provide HOV discount

IH-10 Katy Freeway
Houston, Texas

I-495 Capitol Beltway
Northern Virginia
Fifteen projects in U.S. currently use pricing
Managed Lane Policies

- Policy board decides:
  - Type of managed lane(s)
  - Performance expectations
  - What vehicle groups get access, in what priority
  - How toll rates are set and who gets charged
  - How it gets funded and where revenue goes
  - Roles and responsibilities of partnering organizations
    - State DOT
    - Regional transportation authority
    - Transit agency
    - Private developer
Access Design

- Slip ramp (direct merge)
- Merge lanes
- Direct connection
Lane Separation

- Concrete barrier
- Plastic pylon
- Painted buffer
Operations

- Tolling and enforcement
- Dynamic lane assignment
- Networks
Future of Managed Lanes

- Financial constraints and role of private sector
  - New capacity = tolled capacity?
- Managed lane networks
- Dynamic lane operations
- Automated occupancy-based tolling
- In-vehicle information – pricing, access, allowable speed
Research Needs

- Geometric design guidance
- Driver behavior
- Driver information
- Network planning, design and operation
- Intelligent vehicle/managed lane interaction
- Public understanding and acceptance