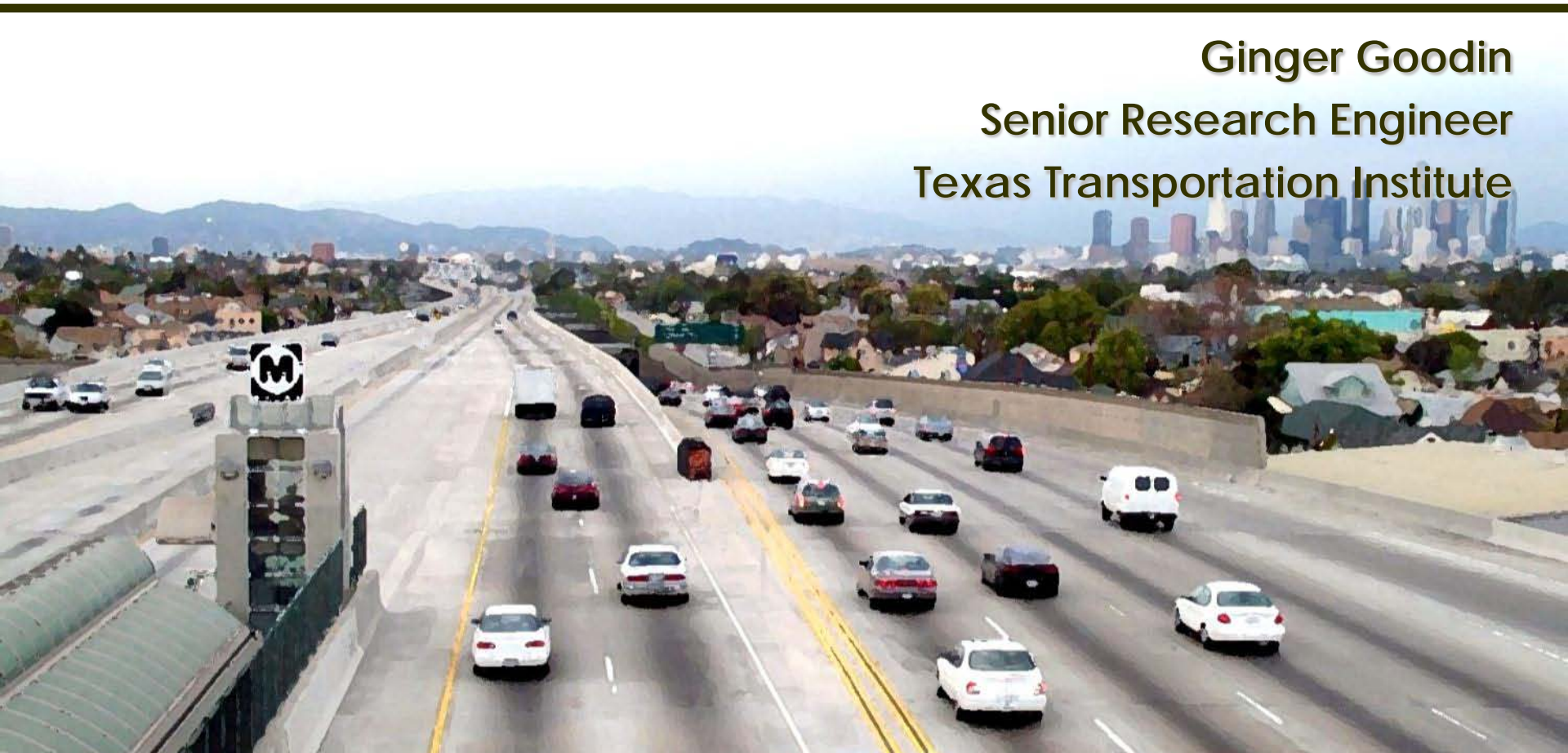


Managed Lanes Overview

2012 Road Vehicle Automation Workshop

Ginger Goodin
Senior Research Engineer
Texas Transportation Institute



An aerial photograph of a multi-lane highway with traffic, a city skyline in the distance, and a sign with the letter 'M' on the left side of the road.

Topics

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

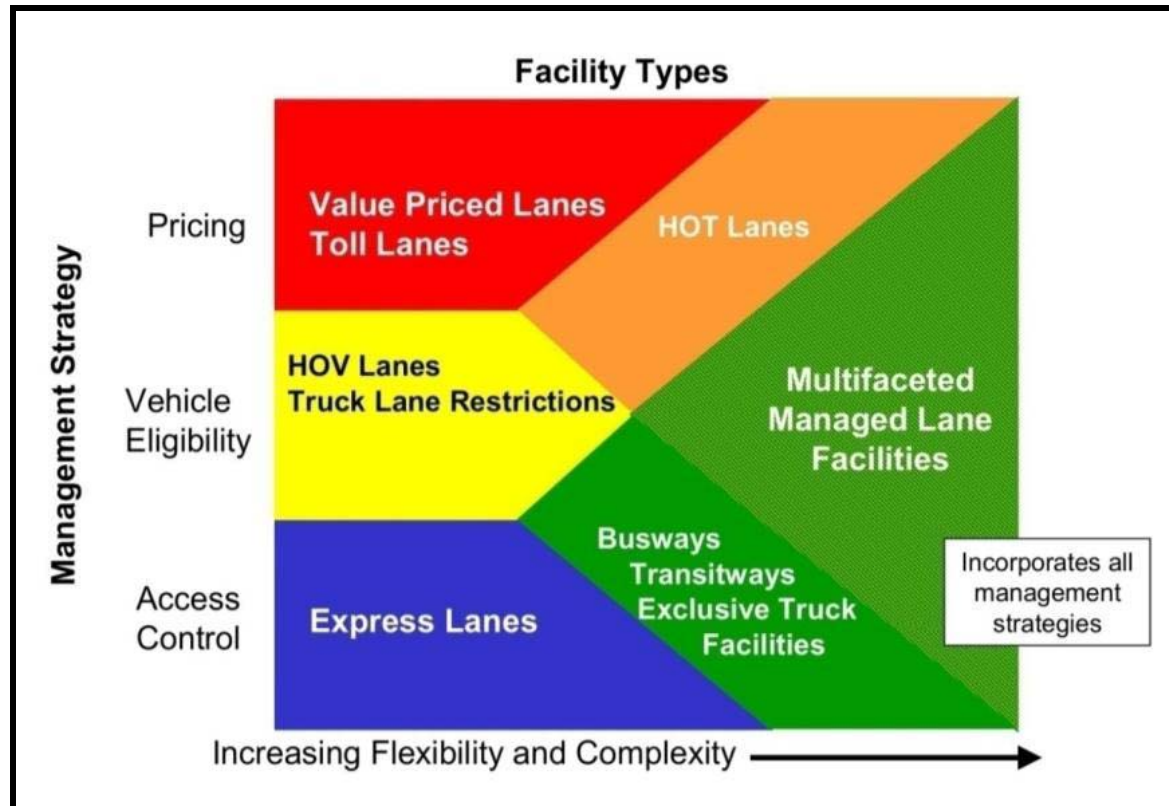


Themes

- ◆ “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

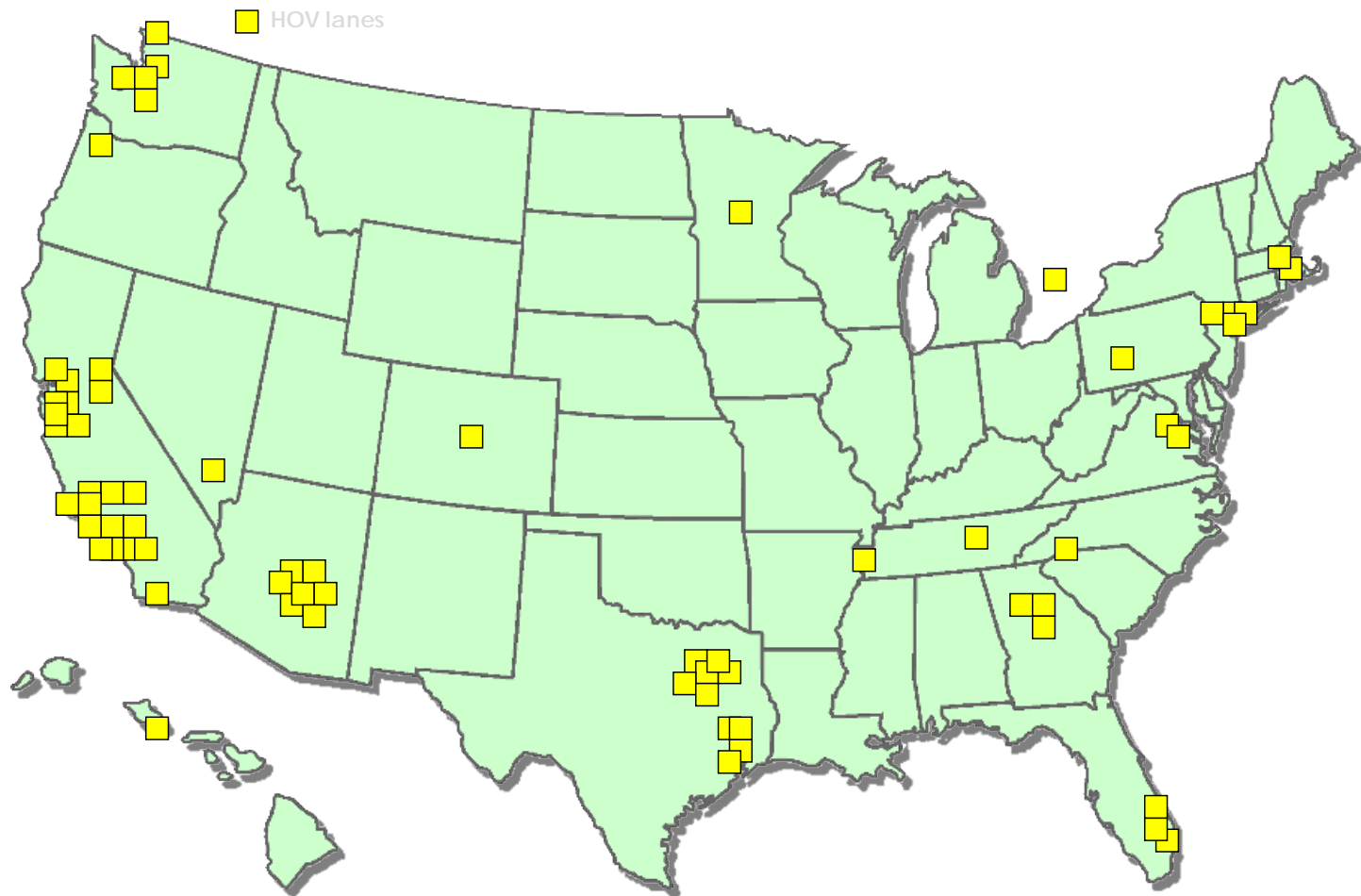
Managed Lanes Concept

- ◆ Dedicated lanes
- ◆ Can take many forms
- ◆ Offer higher level of performance
- ◆ Projects customized to meet local area needs



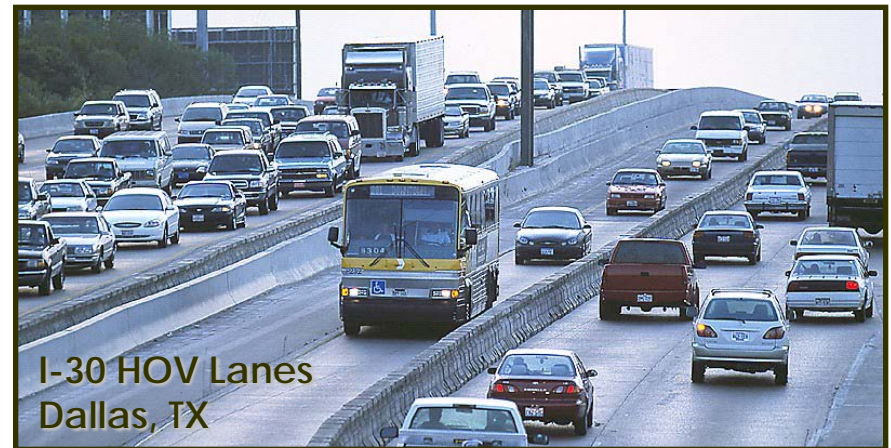
High Occupancy Vehicle Lanes

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

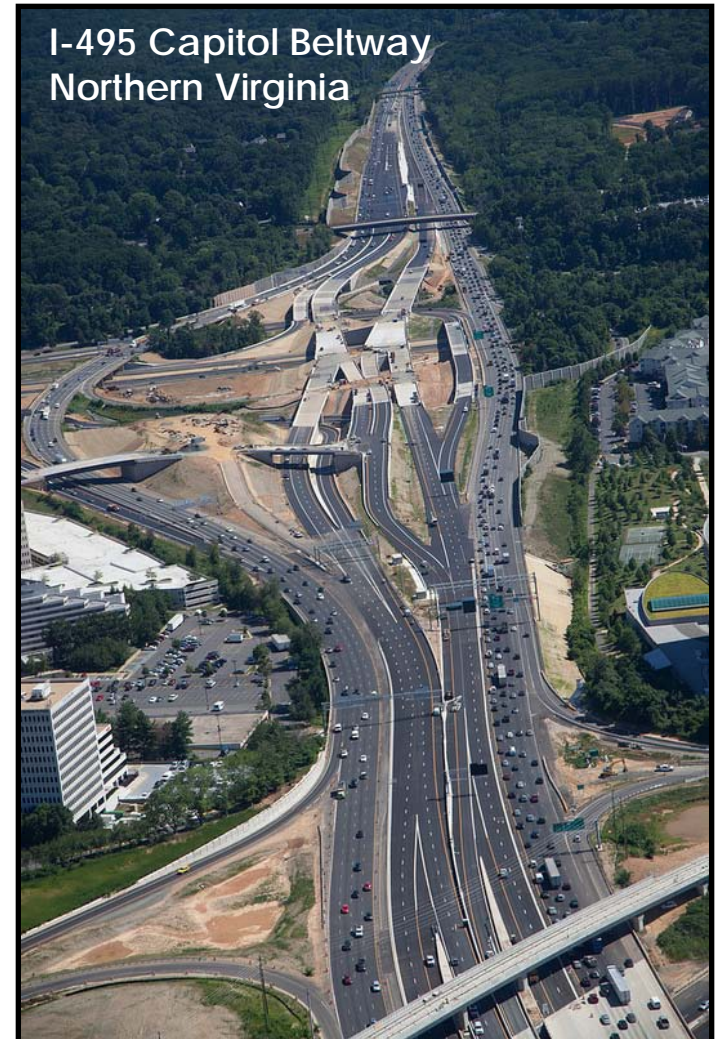


Express Toll Lanes

- ◆ Additional lane capacity
- ◆ May not provide HOV discount



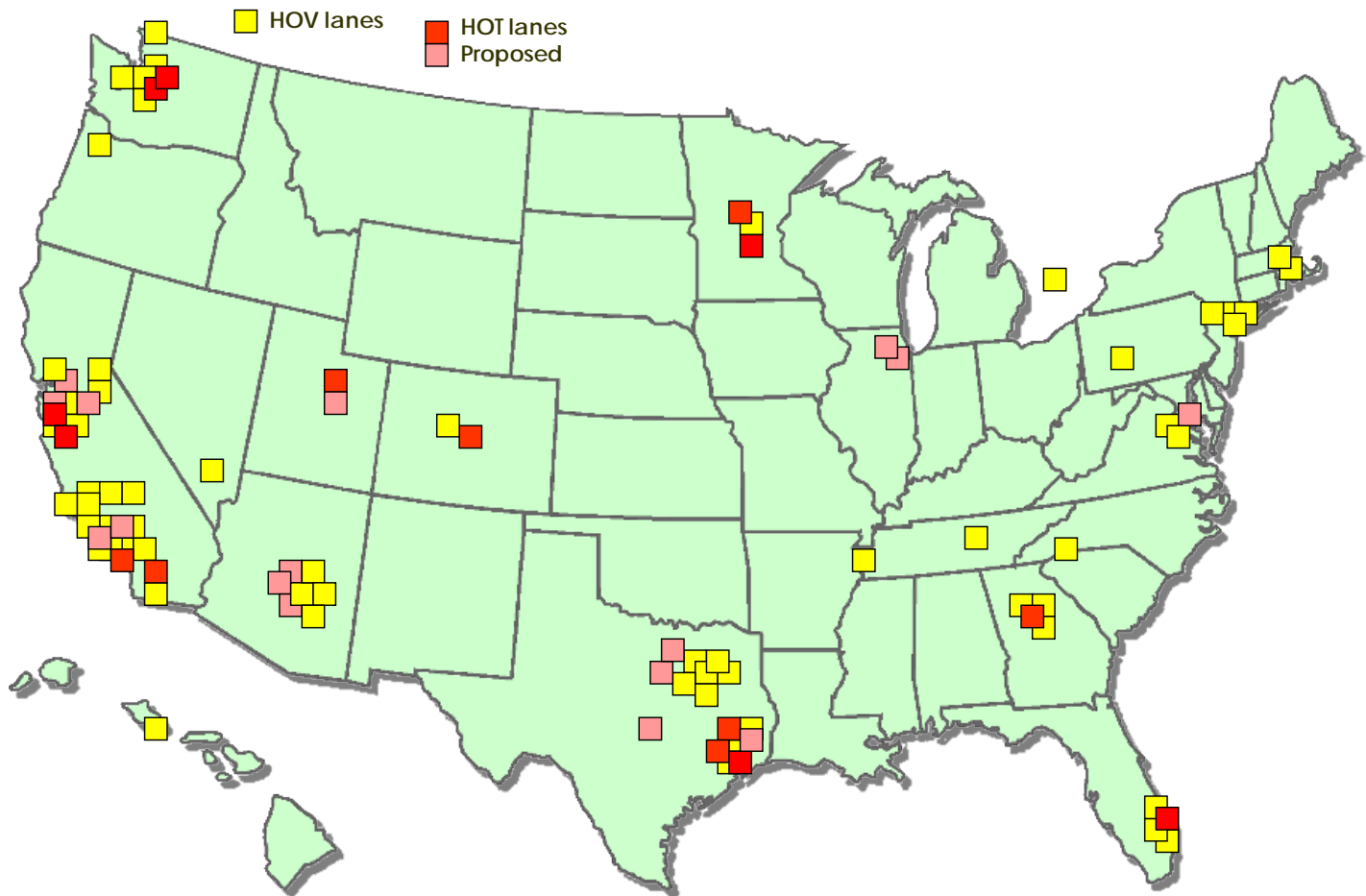
IH-10 Katy Freeway
Houston, Texas



I-495 Capitol Beltway
Northern Virginia

HOT and Express Toll Lanes

Fifteen projects in U.S. currently use pricing



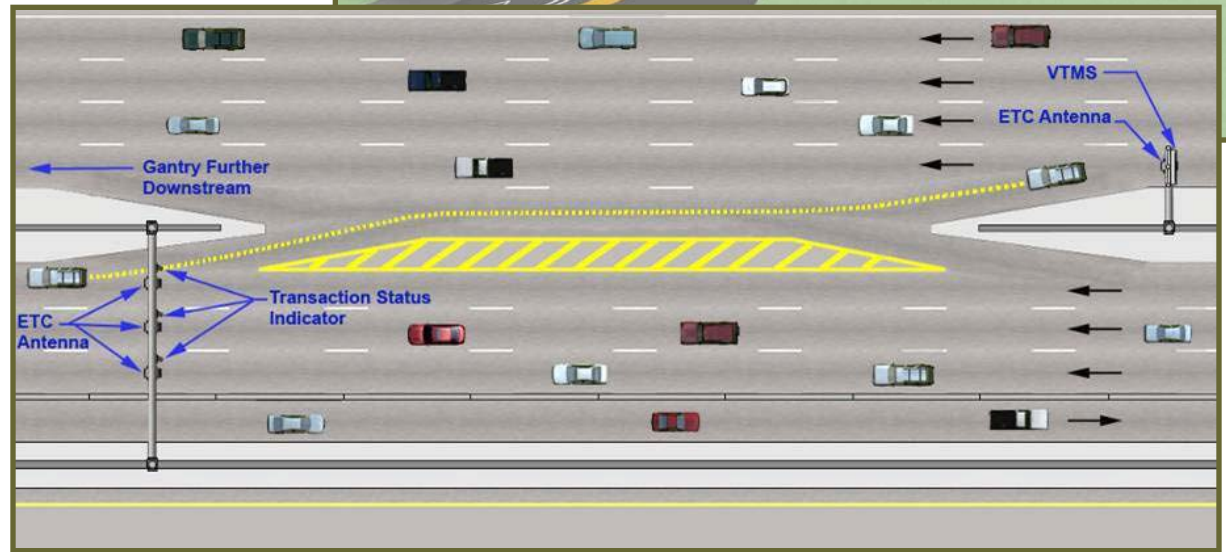
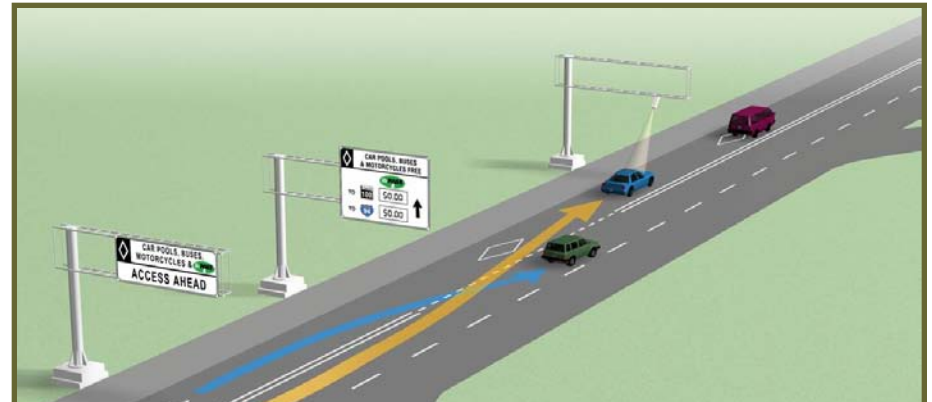
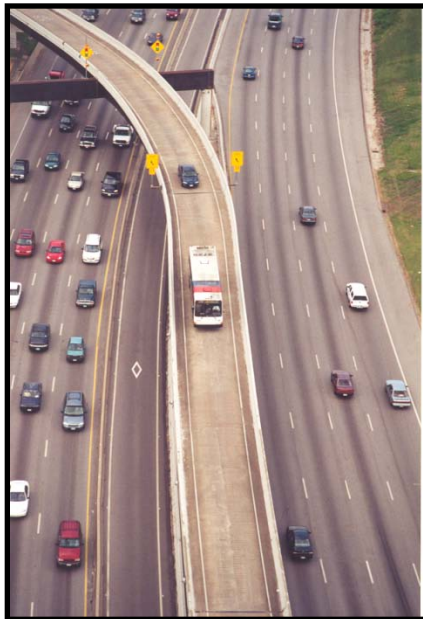


Managed Lane Policies

- ◆ 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



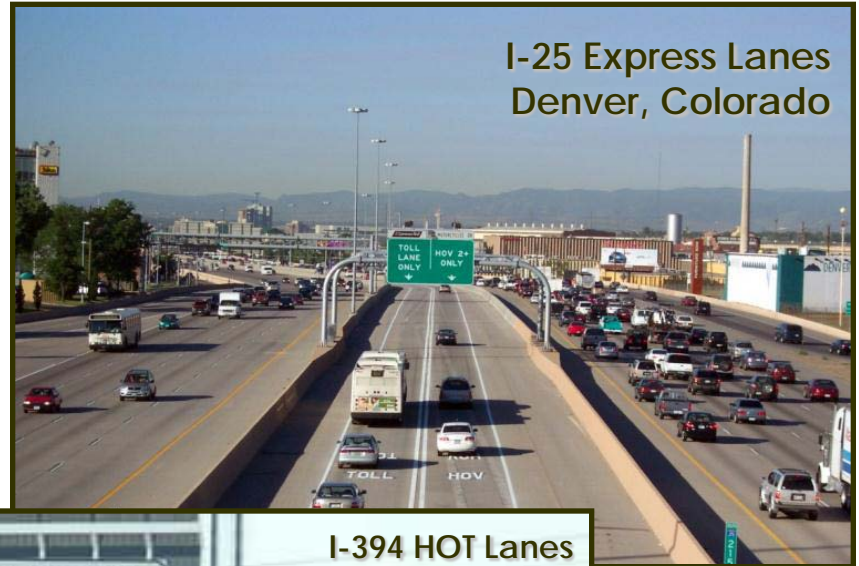
Lane Separation

- ◆ Concrete barrier
- ◆ Plastic pylon
- ◆ Painted buffer

SR-91 Express Lanes
Orange County, CA



I-25 Express Lanes
Denver, Colorado



I-394 HOT Lanes
Minneapolis, MN



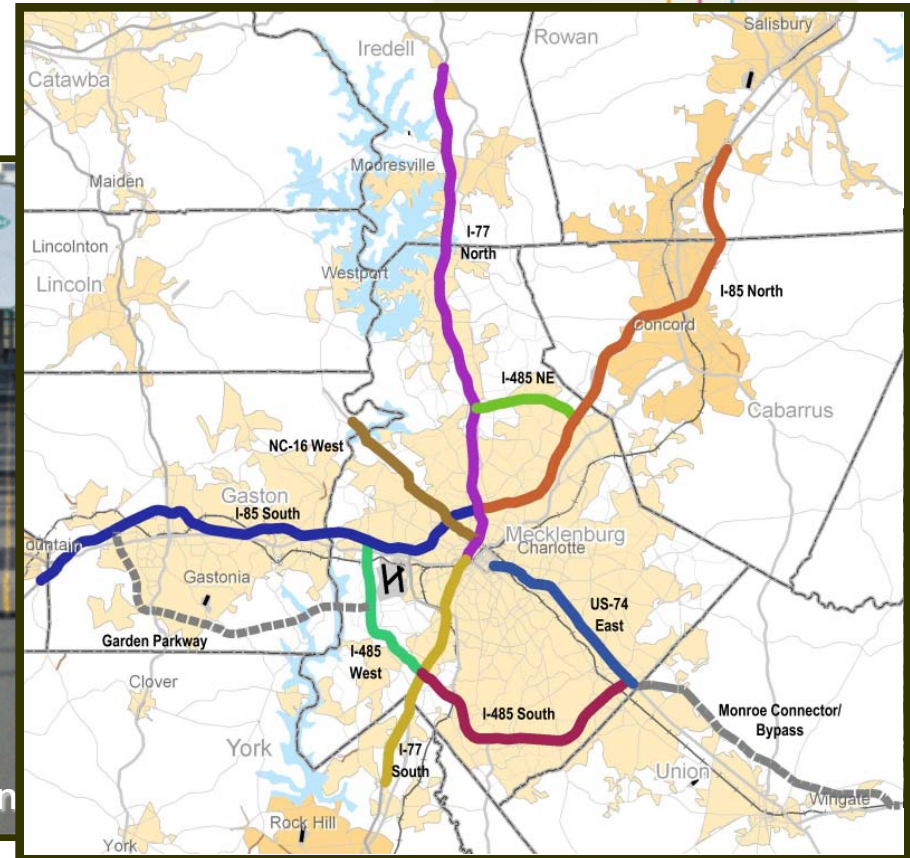
Operations

- ◆ Tolling and enforcement
- ◆ Dynamic lane assignment
- ◆ Networks

METRO EXPRESSLANES

M Metro
Customer Service Center
Call 911 (in LA County)
877-224-6711
(Outside LA County)

- 1 solo driver
- 2 person carpool
- 3+ person carpool





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

AHB35 TRB Managed Lanes Committee

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