



# Managed Lanes 101

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# Managed Lanes Defined

- Lanes that are proactively managed in response to changing operating conditions in order to achieve improved efficiency and performance.
  - Management techniques:
    - Eligibility
    - Access
    - Pricing
  - Includes:
    - High-occupancy vehicle (HOV) lanes (carpool lanes)
    - High-occupancy/ toll (HOT) lanes
    - Express Toll Lanes
- Express Lanes
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# Why Have Managed Lanes?

- Manage demand for limited roadway capacity
- Provide reliable travel times
- Encourage transit and carpool usage
  - Air quality management tool
- Benefit existing mixed flow lanes
  - Not a “take-a-lane”
  - Shifting traffic frees up capacity in MFLs



# California - A History of Firsts

- One of the first states to test and adopt managed lanes
- First state to develop design and operational guidelines
- First state to embrace a system of managed lanes
- Strong legacy of performance monitoring
- First demonstration of pricing



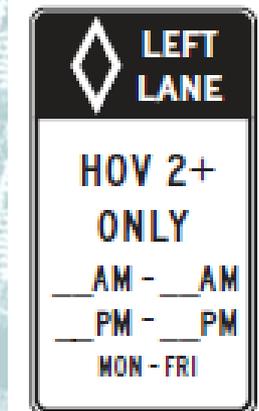
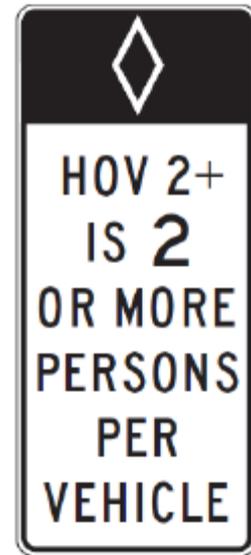
# Managed Lanes Today



- Operating
  - 1483 lane-miles HOV
  - 221 lane-miles HOT
- In Development
  - 817 lane-miles HOV
  - 1330 lane-miles HOT

# Managed Lanes Today (Cont'd)

- Predominantly HOV-2 requirements
- Single occupant plug-in hybrids & clean-air vehicles allowed
- Tolled vehicles allowed on 7 facilities
- Full time, limited access in southern California
- Part-time, continuous access in northern California



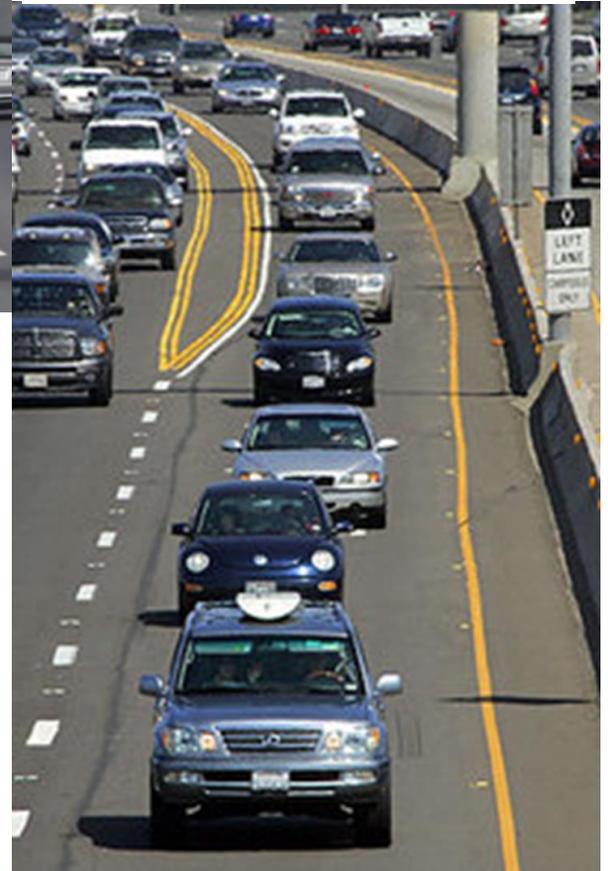
## Buffer Separation



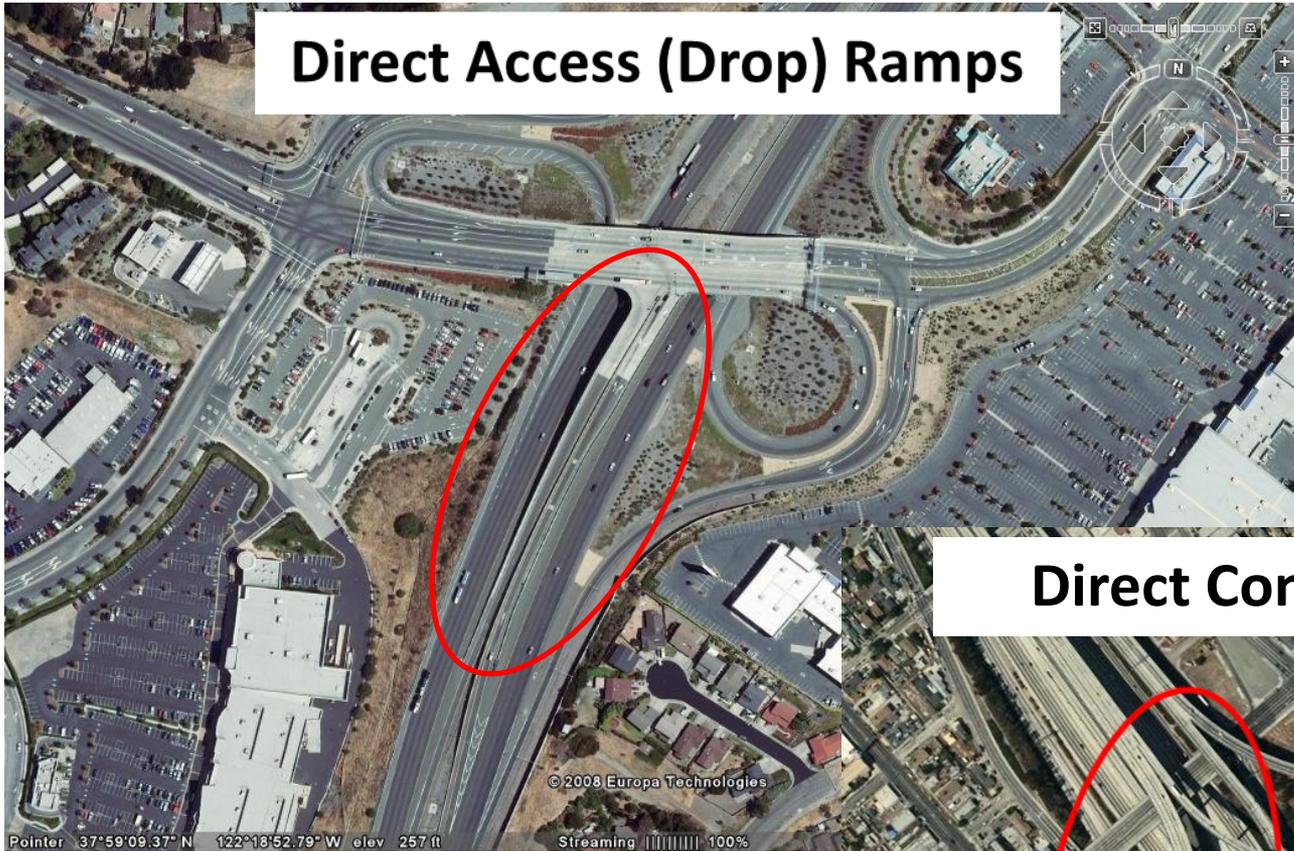
## Barrier Separation



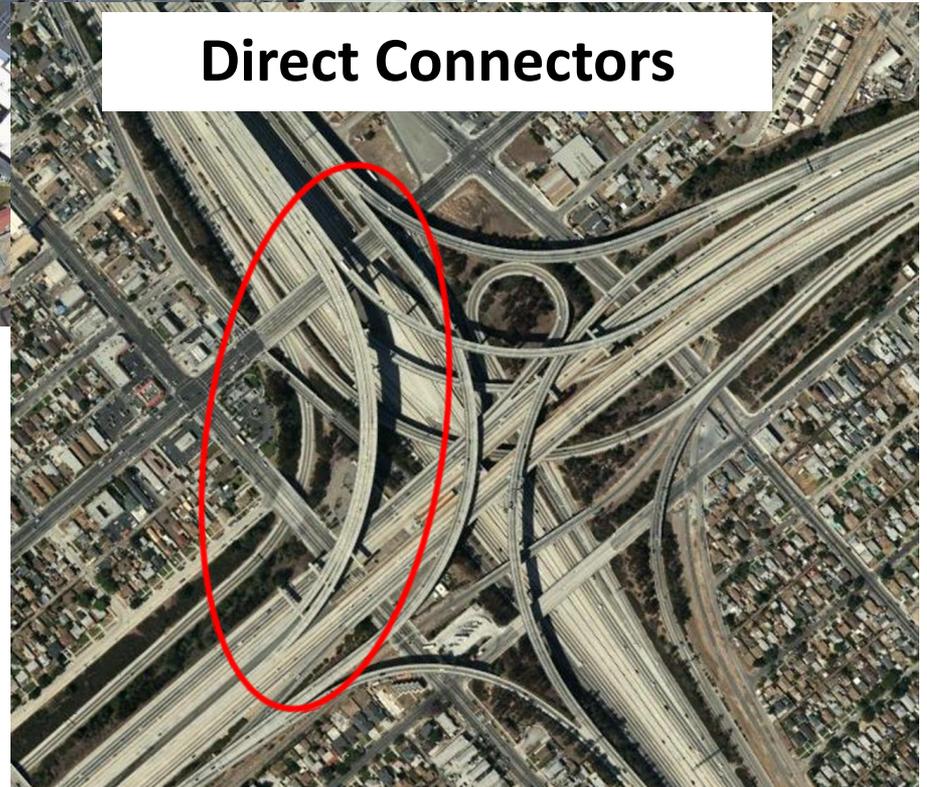
## At-Grade Access



# Direct Access (Drop) Ramps



# Direct Connectors



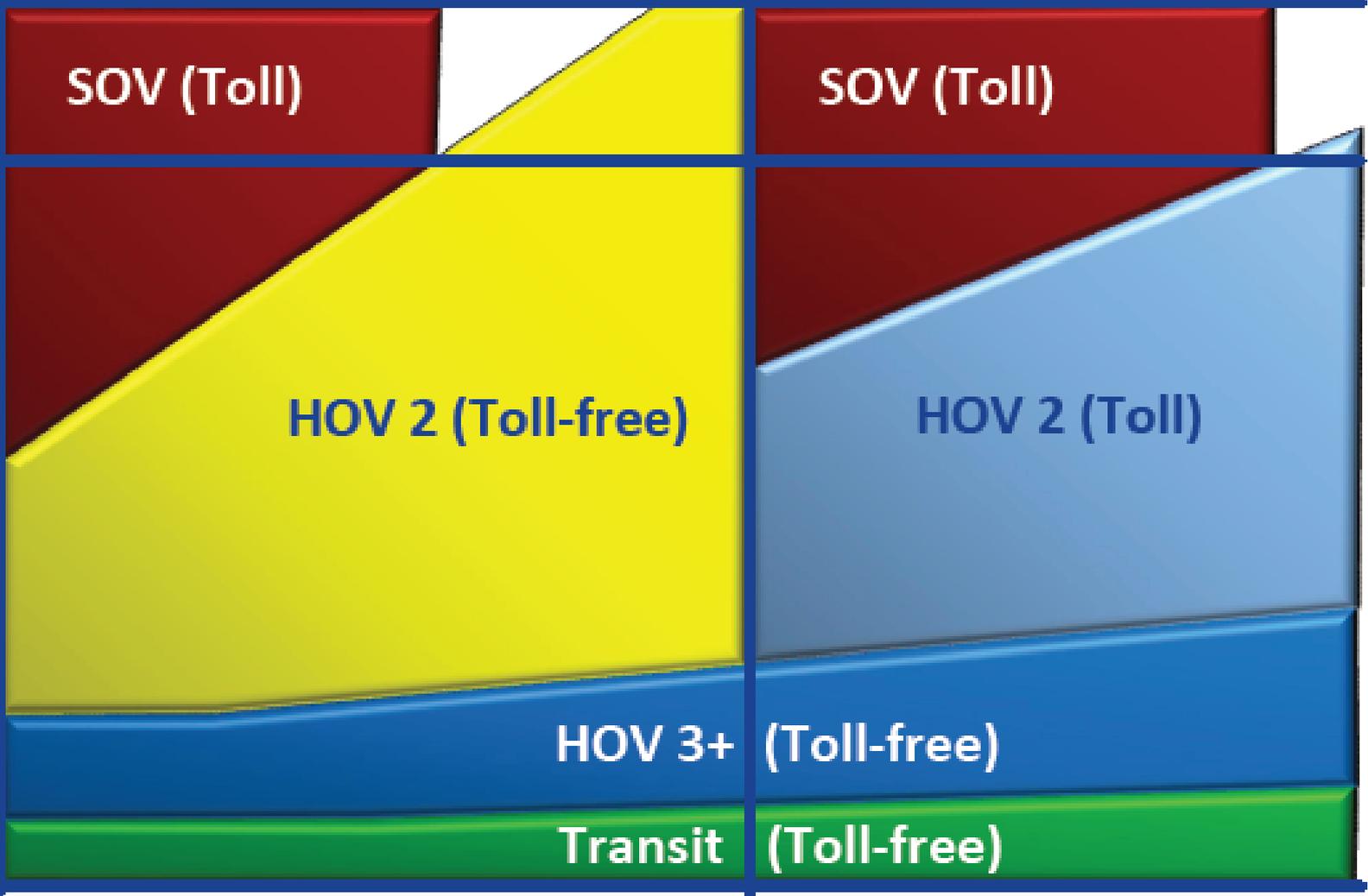
# Why Use Tolling?

- Pay for costs of developing and operating projects
  - Traditional use for tolling
- Optimize facility performance
  - Pricing manages the demand on a toll facility
  - Pricing encourages modal or travel time shift
  - Paying users reduce congestion in mixed flow lanes as they shift over to toll lanes
  - Raising occupancy on HOV lanes improves performance but could result in underutilization and add to congestion in other lanes

Congestion  
Point

Beyond this point, Congestion

Amount of traffic at free-flow speeds



Year



**Toll Rate Signs**



**Access Signs**



**Tag Reader & Enforcement System**

# Planning for the Future

- Protect the investment made in the system
- Get the most productivity out of the system
- Prepare for growth
- Addressing Performance Issues
- Statewide Policy on Managed Lanes
- New Managed Lane Guidelines



# Addressing Performance Issues

- Federal performance standard for HOV lanes used by low-emission, zero-emission or tolled vehicles
  - Nearly 60 percent of system is failing
  - Increased growth in LEVs and ZEVs
  - Need to find a solution that allows LEVs and ZEVs to continue to have access
- High violation rates
  - Enforcement by CHP is difficult and not a high priority
  - Automated enforcement tools show some promise
- Access control preferences
  - Operational and safety challenges

# Statewide Managed Lanes Policy

- DD43-R1
  - Completed May 2015
  - 2-1/2 years to develop
- Lays out expectations for Caltrans and regional partners on the development and operation of managed lanes
  - Design
  - Setting and Changing Operational Policies
  - Use of toll revenues
  - Cooperative Agreements

California Department of Transportation *Serious drought.  
Help save water!*

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*Deputy Directive* Number: DD-43-R1

Refer to Director's Policy: DP-08, Freeway System Management; DP-23-R1, Energy Efficiency, Conservation, and Climate Change; DP-26, Intelligent Transportation Systems; DP-27-R1, Bus Rapid Transit Implementation Support

Effective Date: 05/29/2015

Supersedes: DD-43 (07/01/1995)

Responsible Program: Traffic Operations

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*TITLE* *MANAGED LANE FACILITIES*

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*POLICY*

The California Department of Transportation (Caltrans) uses managed lanes on the State Highway System (SHS) as a sustainable transportation system management strategy. Managed lanes are used to promote carpooling and transit usage, improve travel-time reliability, reduce greenhouse gas emissions, and maximize the efficiency of a freeway by increasing person and vehicle throughput while reducing congestion and delay.

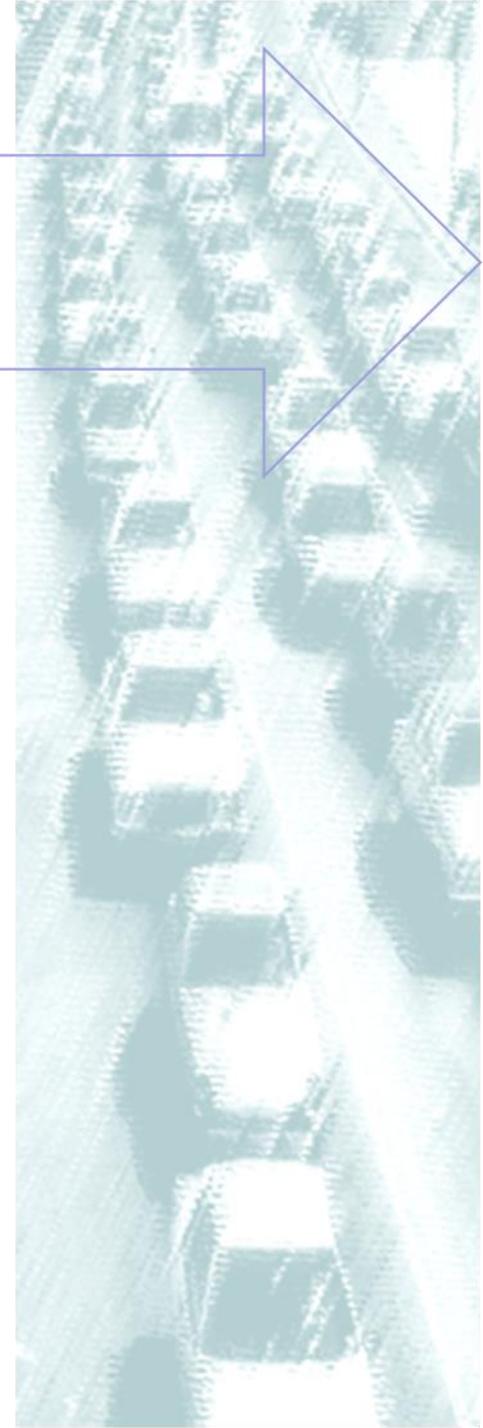
Each district that currently operates, or expects to operate, managed lanes within the next twenty years shall prepare, in cooperation with regional transportation agencies and other stakeholders, a Managed Lanes System Plan (MLSP). The MLSP shall contain a list of each managed lane facility that is currently in operation or planned for operation within the next twenty years. Each district shall review and update its MLSP biennially and ensure that future managed lanes are included in regional transportation plans and other system planning documents.

Managed lanes are designed and operated in a manner that will not degrade the overall mobility and safety performance of the freeway. All appropriate guidelines, policies, procedures, and standards, including Caltrans' *Highway Design Manual* design criteria, shall be applied when planning, designing, and operating managed lanes. Design features and operational strategies for managed lanes, and any changes to those features or strategies, shall be

"Provide a safe, sustainable, integrated and efficient transportation system to enhance California's economy and livability."

# Managed Lane Guidelines

- Update to 2003 HOV Guidelines
- Convert out of metric
- Address the use of pricing
- Update design guidance
- Updated traffic control device guidance
- Enforcement strategies





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Questions or Comments?

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