

I-405 Freeway (OC Line to LAX) HOV to HOT Conversion Feasibility Study

Streets & Freeways Meeting
September 19, 2013



Metro

Study Background

- Sept 2010 Motion by Directors Dubois, Knabe, & Villaraigosa:
 1. Evaluate LA County Traffic Impact of OCTA I-405 HOT Lane Project (completed)
 2. Review Environmental Impacts of OCTA I-405 HOT Lane Project (completed)
 3. Determine Feasibility of Extending OC I-405 HOT Lane from OC Line to LAX (Feasibility Study underway)

Study Purpose

➤ Objective:

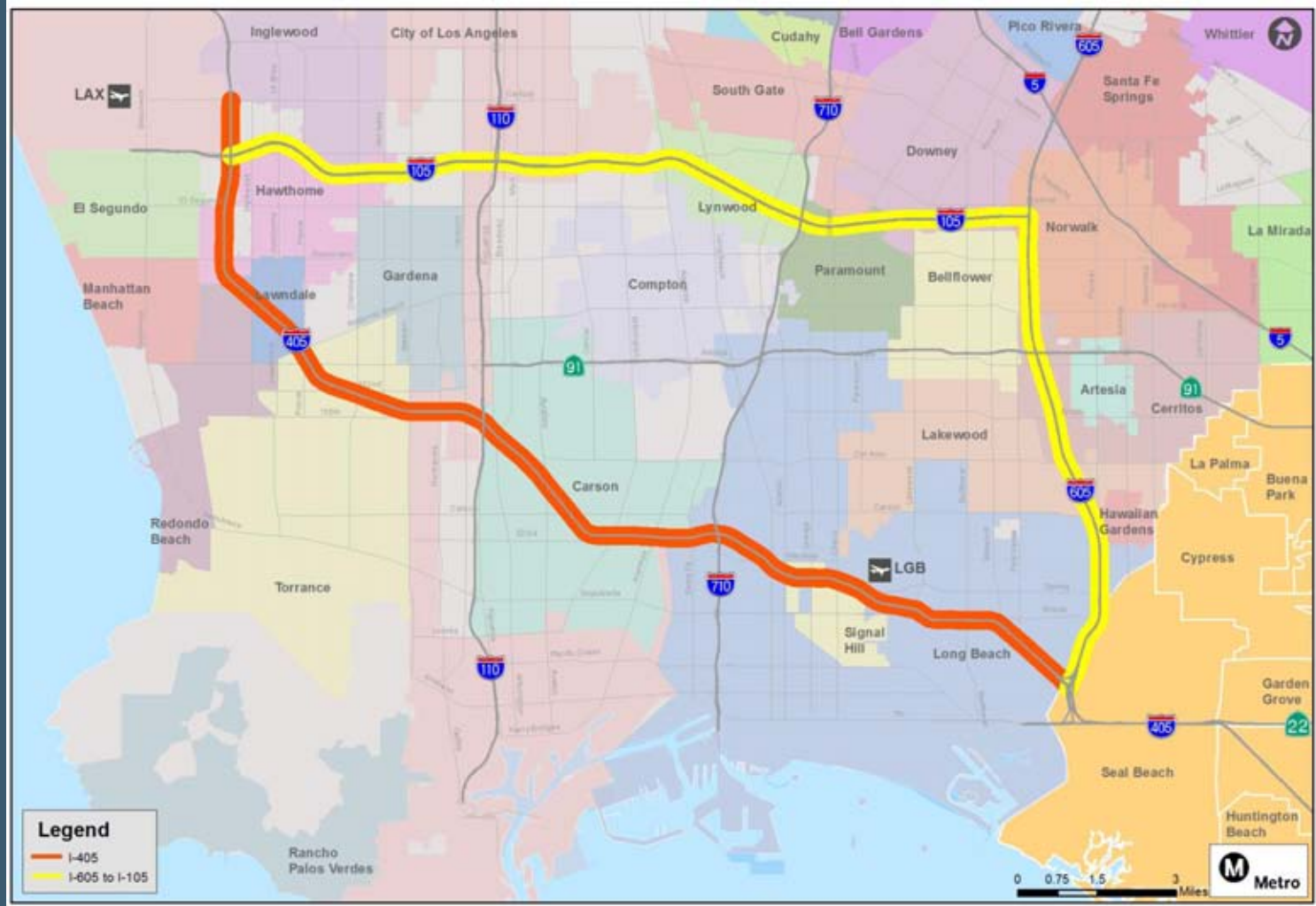
Evaluate feasibility of HOT Lanes on I-405 between Century Blvd. and I-605 and prepare an initial concept of operations

➤ Considerations:

- **Continuity and Inter-County Coordination** with OCTA's I-405 Improvement Project
- **Federal performance requirement** for HOV lanes per MAP-21
- **High travel demand** may call for raising minimum occupancy requirement and/or second HOT lane



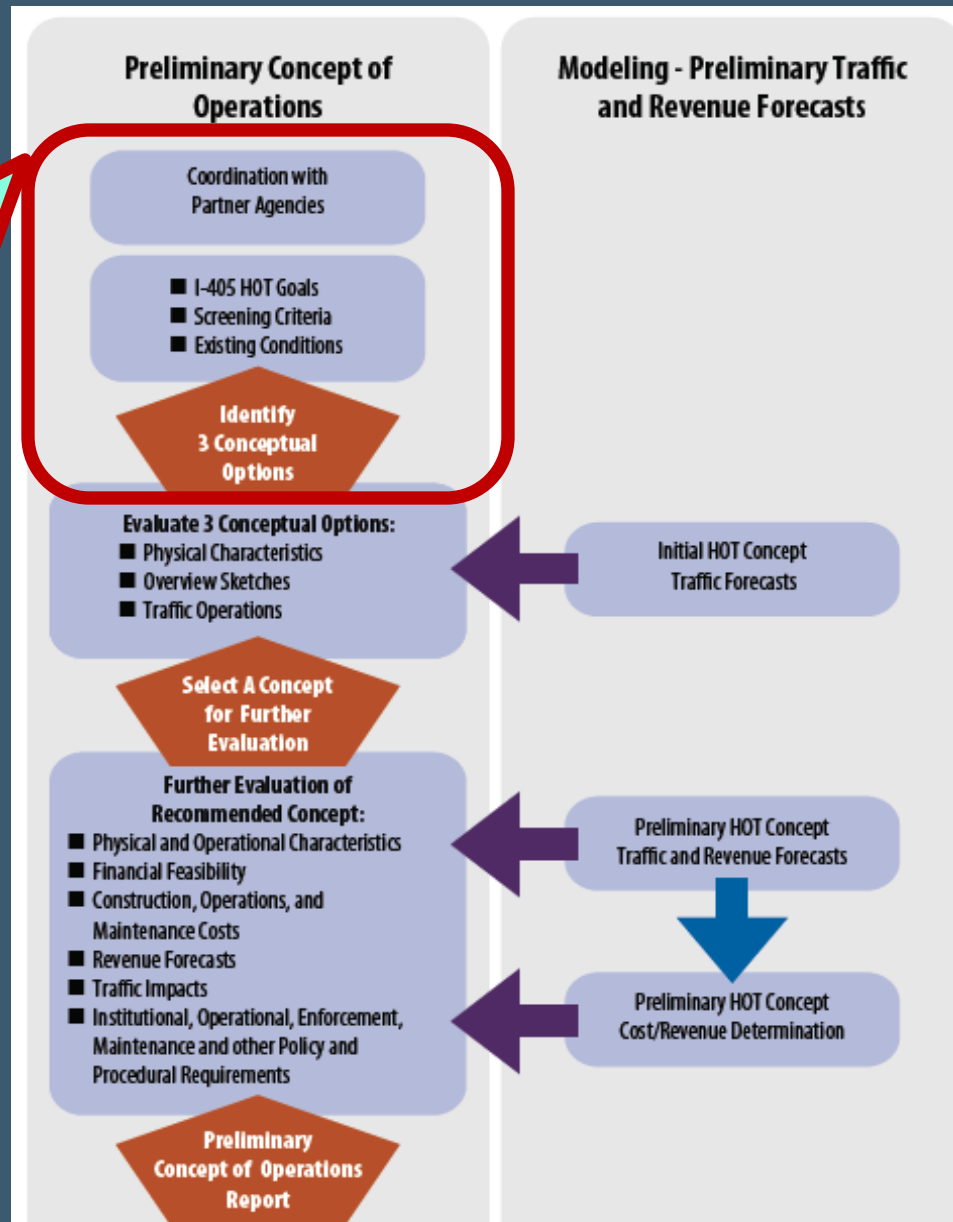
Study Corridors



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Project Status

- ◆ Existing conditions and constraints
- ◆ Establish screening criteria
- ◆ Base year model setup
- ◆ Identify 4 conceptual alternatives and operating options



Existing Conditions Analyzed

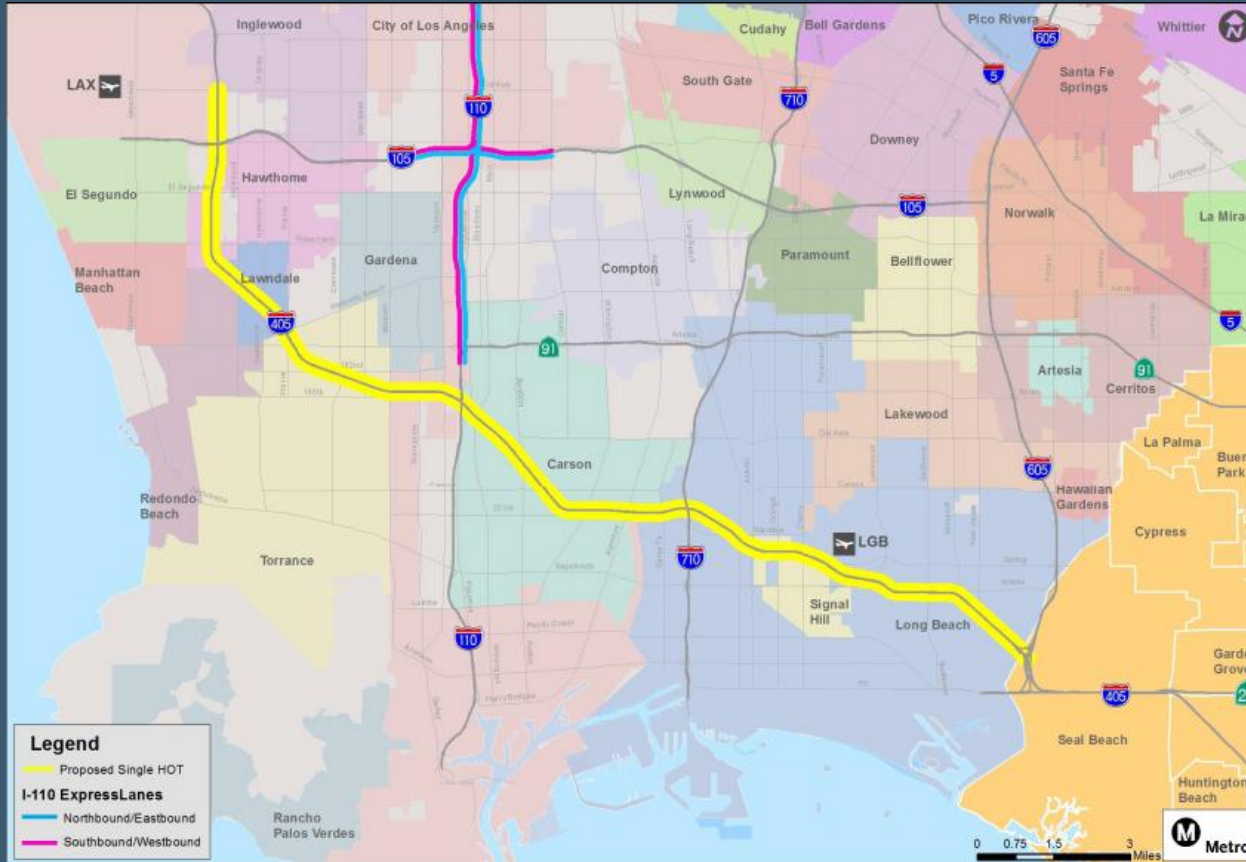
- **Physical Conditions:**
 - Mixed Flow Lane
 - HOV Lane
 - Shoulders and Buffer Widths
- **Operational Characteristics:**
 - Traffic Volumes
 - Speeds
 - Travel Time
 - Accident Data
 - Transit service

Corridor Opportunities and Constraints

- **Constraints:** I-405 has limited ROW, limited locations for widening within the existing ROW way. HOV lane volumes approaching capacity and speeds at or below 45 mph.
- **Opportunities:** I-605 and I-105 there is a potential for widening within the existing ROW. HOV lane has available excess capacity that can be offered to single occupants and speeds could be maintained above 45 mph through tolls. Infrastructure connectivity and continuity to I-110 from I-105 and to I-605 from I-405.



Conceptual Alternative #1 (I-405 Corridor Single HOT Lane)



Description:

- Convert existing HOV lane to single HOT Lane in each direction on I-405 (between OCL and LAX)

LOS Constraint:

- 45 mph

Pricing Method:

- Dynamic pricing (\$0.25 per VMT min toll and \$1.40 max toll)

Carpool Policy:

- HOV2+ and HOV3+ toll free

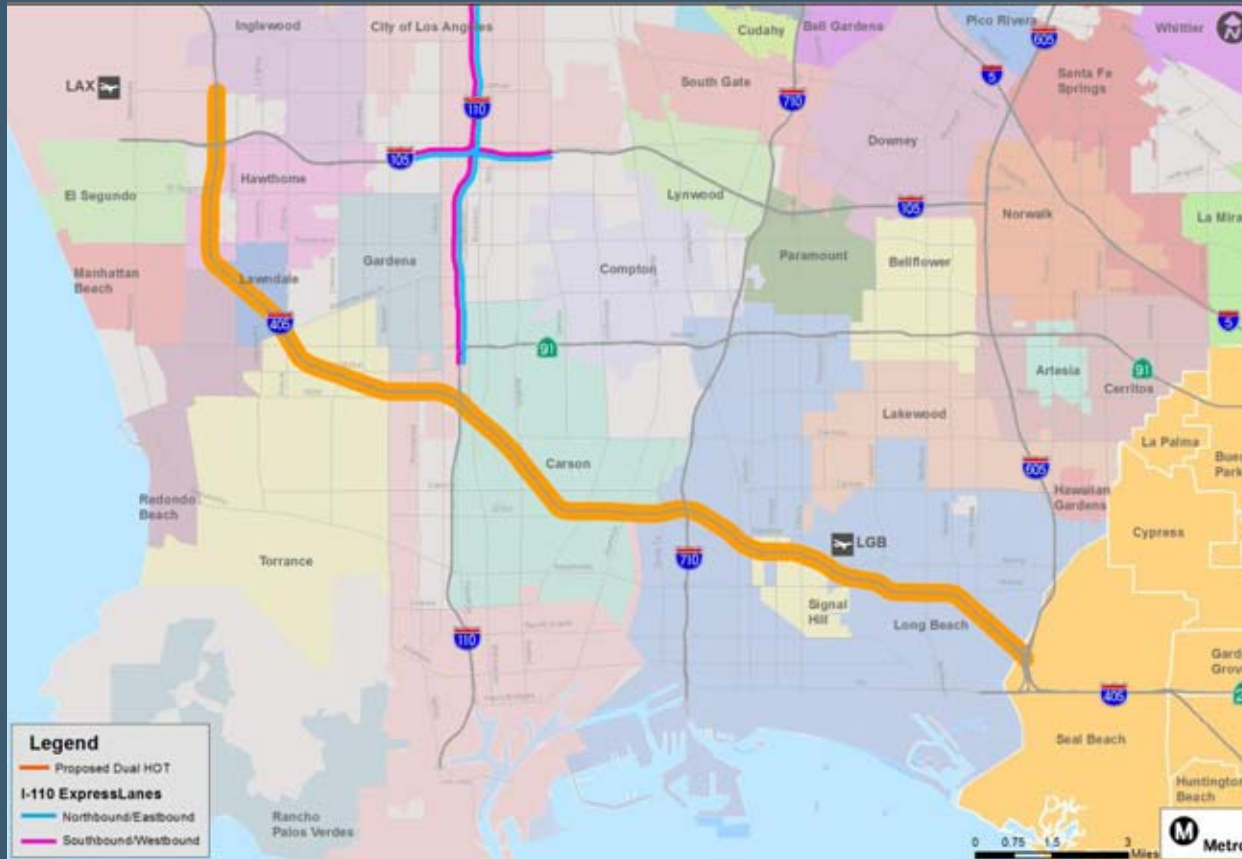
Lane Eligibility:

- All vehicle classes except heavy duty trucks

Access:

- Limited access (existing HOV locations)

Conceptual Alternative #2 (I-405 Corridor Dual HOT Lanes)



Description:

- Add new HOT lanes adjacent to existing HOV lanes and convert HOV lanes to dual HOT lanes in each direction on I-405 (between OCL and LAX)

LOS Constraint:

- 45 mph

Pricing Method:

- Dynamic pricing (\$0.25 per VMT min toll and \$1.40 max toll)

Carpool Policy:

- HOV2+ and HOV3+ toll free

Lane Eligibility:

- All vehicle classes except heavy duty trucks

Access:

- Limited access (existing HOV locations)

Conceptual Alternative #3 (I-605/I-105 Combined Corridor HOT Lanes, No Direct Connectors)

Description:

- Convert existing HOV lane to single HOT Lane in each direction on I-605 (between I-405 and I-105) and dual HOT lanes on I-105 (between I-605 and I-405)
- Without direct HOT connectors at I-605/I-105

LOS Constraint:

- 45 mph

Pricing Method:

- Dynamic pricing (\$0.25 per VMT min toll and \$1.40 max toll)

Carpool Policy:

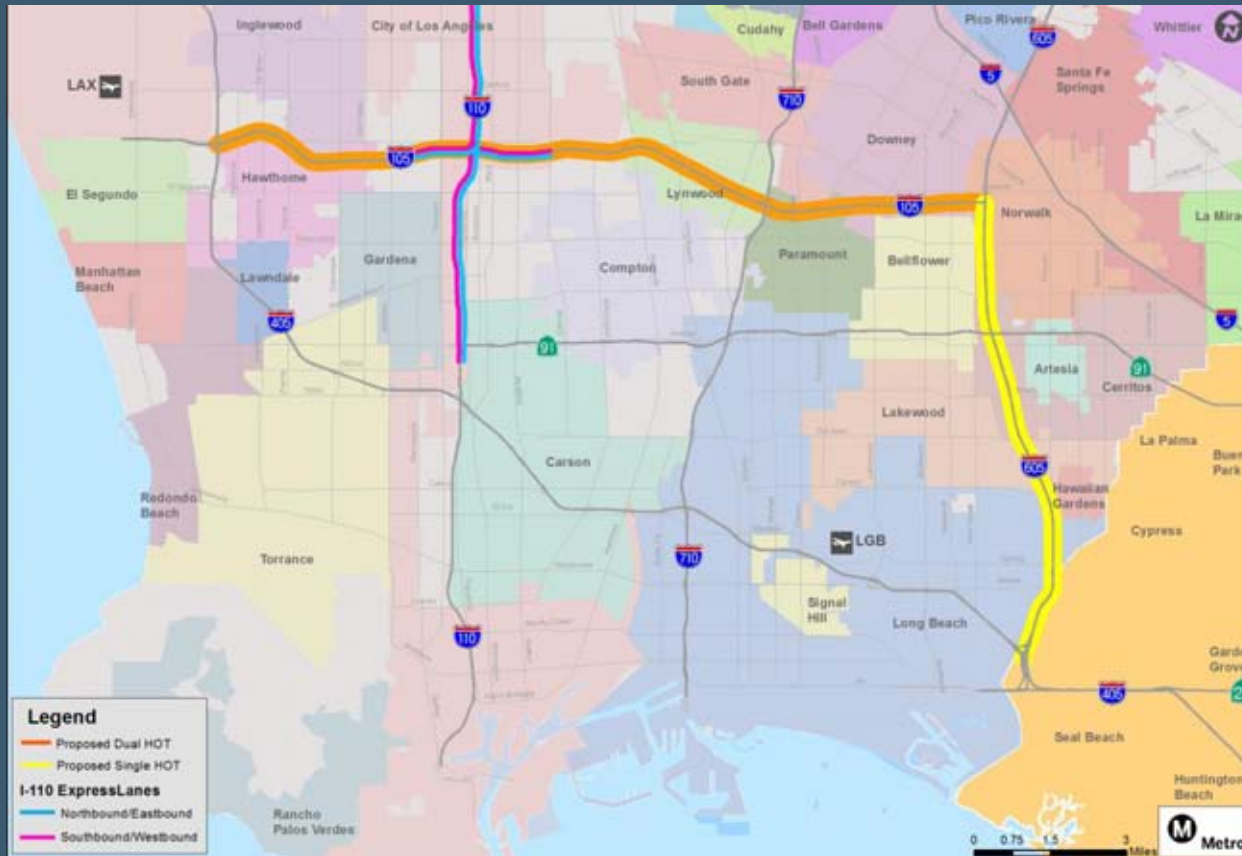
- HOV2+ and HOV3+ toll free

Lane Eligibility:

- All vehicle classes except heavy duty trucks

Access:

- Limited access (existing HOV locations)



Conceptual Alternative #4 (I-605/I-105 Combined Corridor HOT Lanes, With Direct Connectors)

Description:

- Convert existing HOV lane to single HOT Lane in each direction on I-605 (between I-405 and I-105) and dual HOT lanes on I-105 (between I-605 and I-405)
- With direct HOT connectors at I-605/I-105

LOS Constraint:

- 45 mph

Pricing Method:

- Dynamic pricing (\$0.25 per VMT min toll and \$1.40 max toll)

Carpool Policy:

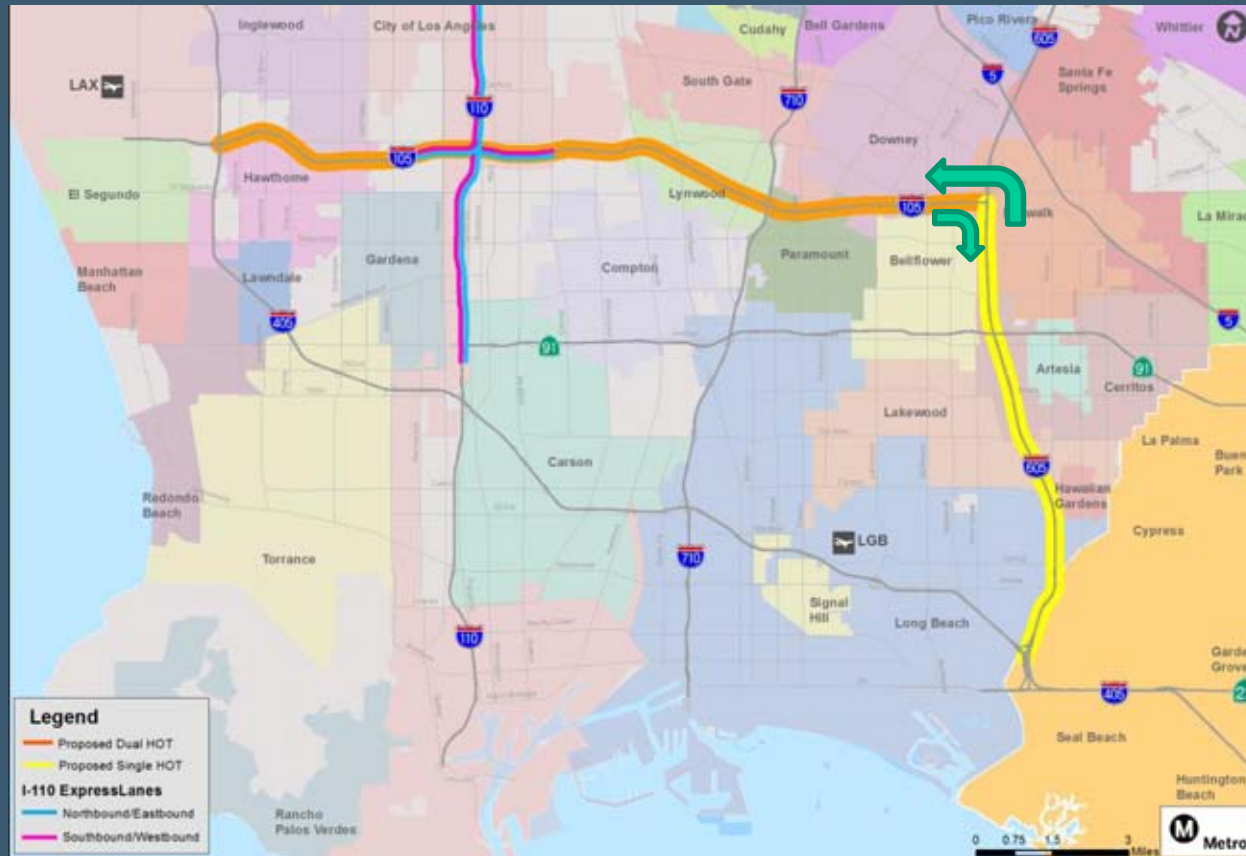
- HOV2+ and HOV3+ toll free

Lane Eligibility:

- All vehicle classes except heavy duty trucks

Access:

- Limited access (existing HOV locations)



Screening and Evaluation of Alternatives

- **Goal:** To determine the Alternative to be used in the preparation of the Preliminary Concept of Operations.
- **Objective:** Screen up to four HOV to HOT conversion alternatives according to traffic and revenue performance, constructability and feasibility to meet Metro's LRTP goal of improved mobility

Screening Criteria

- A. Presence of Congestion and Potential for Travel Time Savings
- B. HOV and HOT Demand
- C. Corridor Travel Characteristics
- D. Constructability – factors will include:
- E. Connectivity
- F. Impacts on adjacent general purpose lanes and ramps
- G. Transit Benefits

Sample Screening Evaluation Matrix

Evaluation Criteria	HOT Alternatives			
	Baseline	Alternative A	Alternative B	Alternative C
A Presence of Congestion				
A1 AM Peak Period Speeds < 35 mph				
A2 PM Peak Period Speeds < 35 mph				
A3 AM Peak Period v/c > 1.0				
A4 PM Peak Period v/c > 1.0				
A5 AM Peak Travel Time Savings > 30 s/pm				
A6 PM Peak Travel Time Savings > 30 s/pm				
B Demand				
B1 AM Peak Lane Volume < 1,500 vphpl				
B2 PM Peak Lane Volume < 1,500 vphpl				
C Travel Characteristics				
C1 AM Peak Average Trip Length > 5 mins				
C2 PM Peak Average Trip Length > 5 mins				
D Constructability				
D1 ROW Availability				
D2 Pavement Availability				
D3 Structural Limitations				
D4 Signage Structure Limitations				
D Connectivity				
D1 Proximity to other facilities				
D2 Freeway-to-freeway direct connectors				
D3 Direct access ramps				
D4 Park and ride				
E Impacts				
E1 AM Peak speed differential > 20 mph				
E2 PM Peak speed differential > 20 mph				
E3 AM Peak facility bottlenecks				
E4 PM Peak facility bottlenecks				
Alternative Summary (Average of Each Measure)				

Next Steps

1. Refine and develop schematic plans
2. Prepare traffic and revenue forecasts
3. Identify potential environmental constraints
4. Identify operational concept and policy considerations
5. Determine overall concept feasibility
6. Stakeholder Meetings (tentative dates)
 - September 2013 (Concept Development)
 - November 2013 (Screening & Evaluation Results)
 - December 2013 (Preliminary ConOps)