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I-710 Corridor Project EIR/EIS

metro.net

Traffic Operations Analysis Preliminary Findings

Transportation and Transit Subject Working Group
February 24, 2010

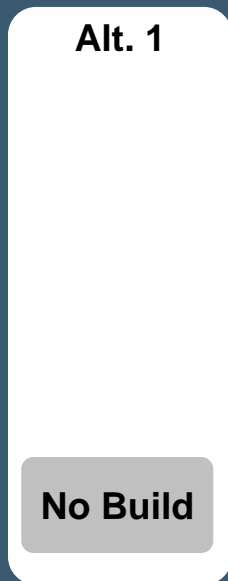


Traffic Operations Analyses

Review of Alternatives

Recommended Screened Alternatives

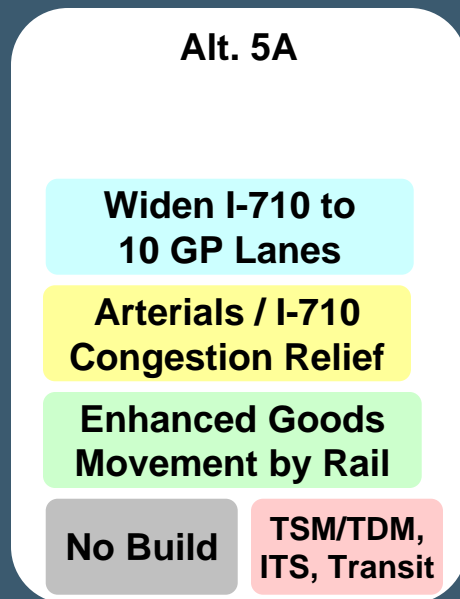
Alternative 1 (No Build)



- Required under CEQA and NEPA
- Represents the Future (2035) Baseline Condition
- Consists of Planned and Committed Projects, such as:
 - Clean Trucks Program
 - Expanded Pier Pass
 - Empty Container Management
 - I-710 Pavement Rehabilitation Project
 - Added Lanes to I-5 between the Orange County Line and I-605
 - Traffic Signal Coordination Projects on Key Arterials throughout the I-710 Corridor Study Area

Recommended Screened Alternatives

Alternative 5A (Widen to 10 General Purpose Lanes, No Freight Corridor)



- ☑ Includes Alternative 1, Alternative 2, and Alternative 4.
- ☑ Less impact than Alternative 6 and provides measurable benefits.
- ☑ Provides a basis for comparison of the benefits, cost and impacts of the freight corridor in Alternative 6.
- ☑ Can reevaluate and adjust the number of lanes based upon refined traffic forecasting.

Recommended Screened Alternatives

Alternative 6A

(Widen to 10 General Purpose Lanes, Plus 4 Freight Movement Lanes [Conventional Trucks])

Alt. 6A

**Freight Corridor
4 Lanes**

**Widen I-710 to
10 GP Lanes**

**Arterials / I-710
Congestion Relief**

**Enhanced Goods
Movement by Rail**

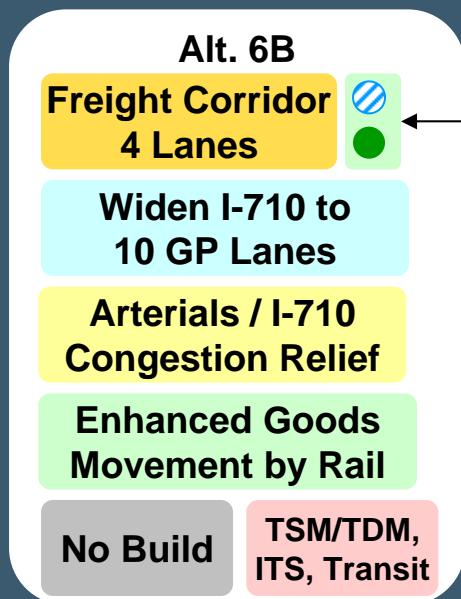
No Build **TSM/TDM,
ITS, Transit**

- ☑ Includes Alternative 1, Alternative 2, Alternative 4, and Alternative 5A.
- ☑ Consistent with the Major Corridor Study Locally Preferred Strategy.
- ☑ Assumes conventional diesel powered trucks will use the freight corridor.
- ☑ Can reevaluate and adjust the number of lanes based upon refined traffic forecasting.

Recommended Screened Alternatives

Alternative 6B

(Widen to 10 General Purpose Lanes, Plus 4 Freight Movement Lanes [Zero Emission Trucks])



☑ Includes Alternative 1, Alternative 2, the advanced technology component of Alternative 3, Alternative 4, and Alternative 5A.

☑ Assumes zero emission trucks will use the freight corridor. Zero emission trucks may be externally or internally powered. **Zero Emission Trucks**

☑ The freight corridor will follow highway design alignment and loading standards.

☑ The freight corridor will be designed to allow for possible future conversion to a fixed guideway, zero emission system. **Electric Fixed Guideway**

☑ Consistent with the Major Corridor Study Locally Preferred Strategy.

☑ Can reevaluate and adjust the number of lanes based upon ₆ refined traffic forecasting.



Traffic Operations Analyses

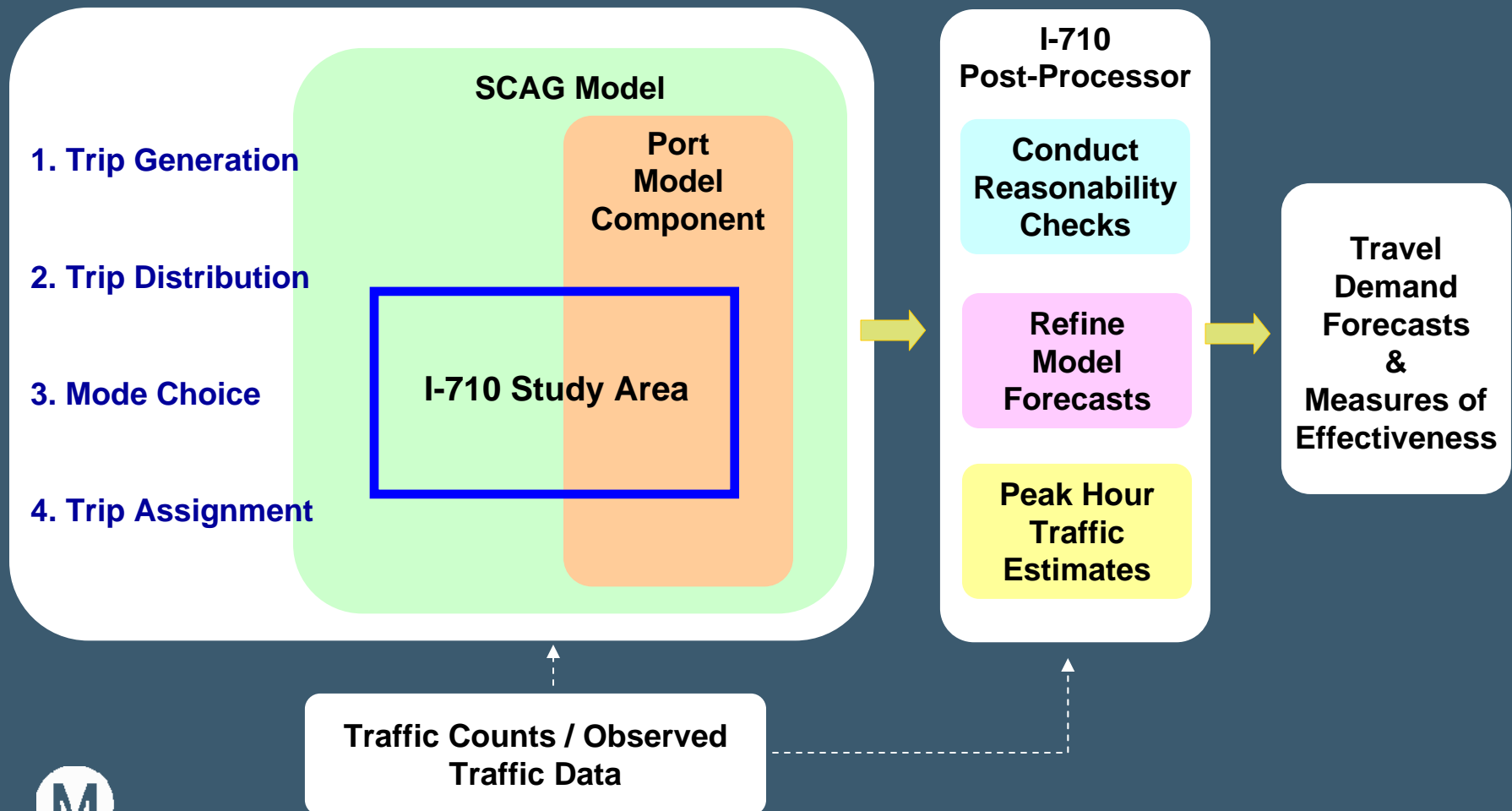
Review of Traffic Forecasting Model

Purpose of Traffic Forecasting and Analysis

- Utilize the traffic operations analysis to evaluate and refine geometric design of the alternatives
- Compare the mobility benefits of the alternatives
- Inform the environmental impact analyses of the alternatives
 - Air quality
 - Noise
 - Traffic and circulation benefits, impacts and mitigations
 - Energy

I-710 Traffic Forecasts: Process

I-710 Corridor Project Model Framework



Traffic Operations Analyses

Key Input Assumptions

Key Input – Socio-Economic Factors

Population and Employment

Socio-Economic Inputs		Year 2008	Year 2035	Numeric Change	Percent Change
Population	Region-Wide	18,905,000	24,050,000	5,145,000	27%
	I-710 Study Area	1,487,000	1,653,000	166,000	11%
Employment	Region-Wide	8,115,000	10,284,000	2,169,000	27%
	I-710 Study Area	594,000	637,000	43,000	7%

Source: Southern California Association of Governments (SCAG) Regional Travel Demand Forecast Model for Year 2035.

Key Assumptions – Port Activity

- Cargo Growth and Railroad Mode Share
 - 43 Million Annual Twenty-Foot Equivalent Units (TEUs)
 - 40% Direct Intermodal Rail
 - 26% On-Dock Rail
 - No Near Dock Intermodal Yard Expansion (ICTF and SCIG)

Traffic Forecasting Findings

**What are the Key Findings
Regarding Future Traffic
Characteristics of the Alternatives?**

Average Daily Traffic on I-710

Alt. 1



Alt. 5



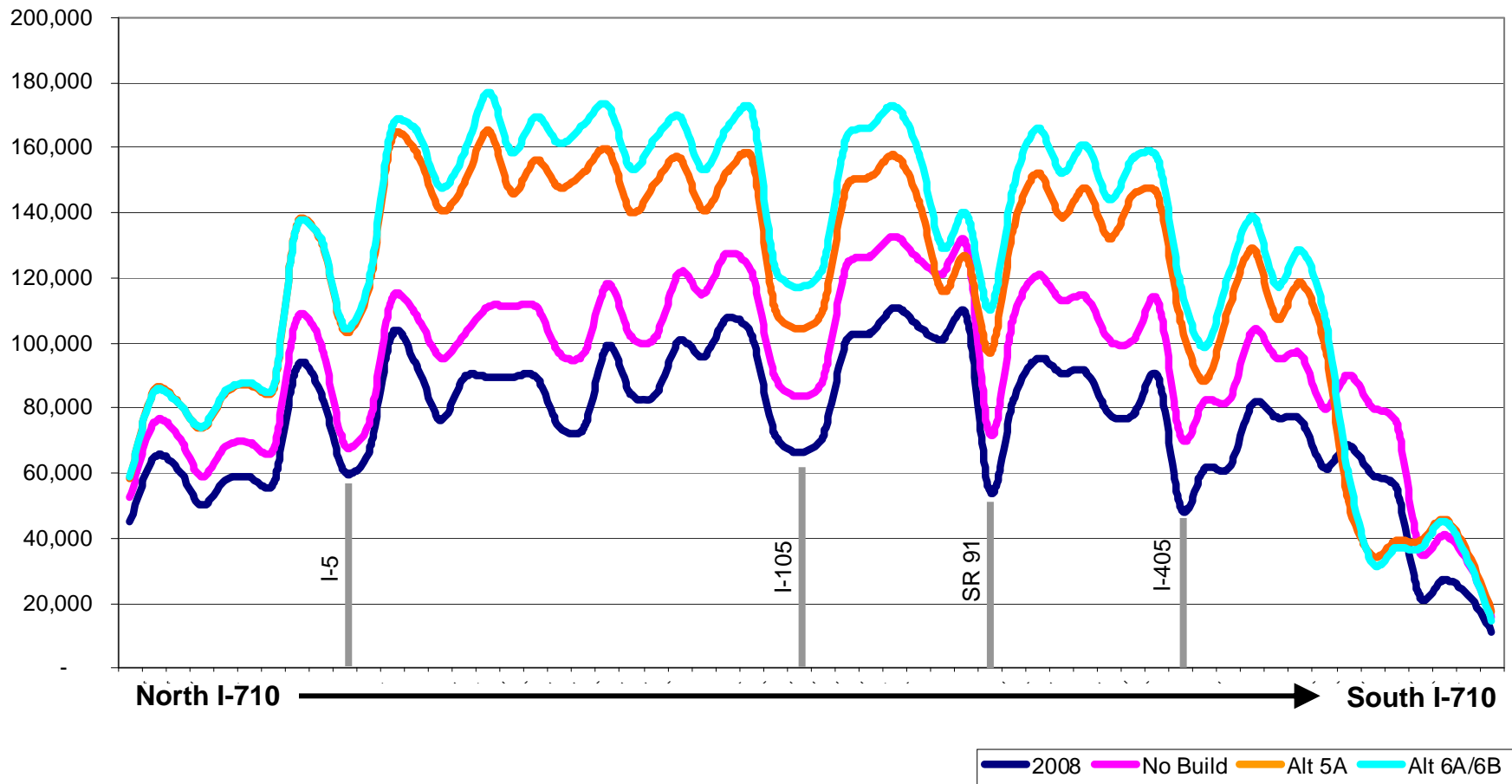
Alt. 6



Alternative 6 Reports Volumes on I-710 that Are Inclusive of the Freight Corridor

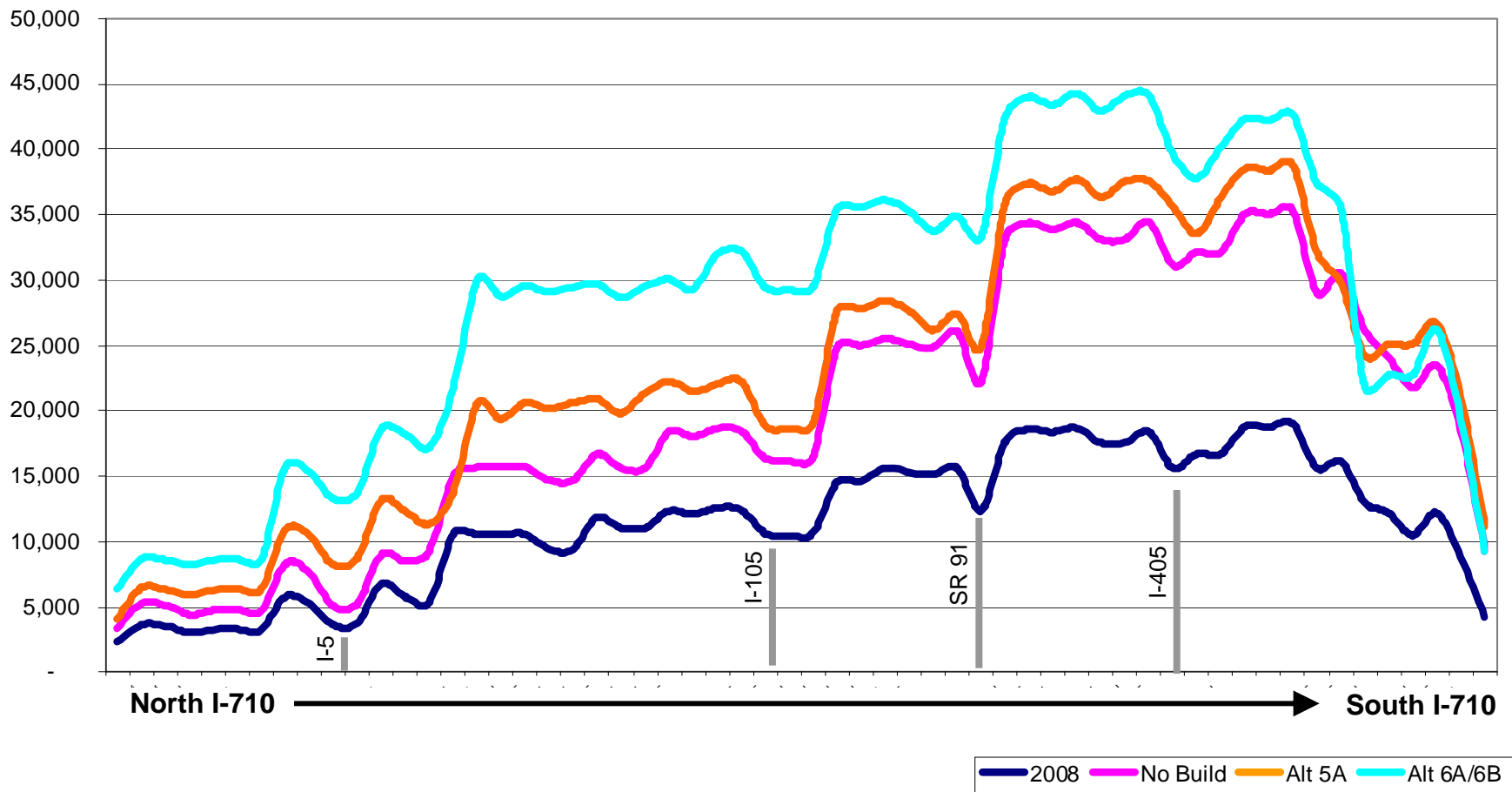
All Vehicles – Daily Traffic

Daily Traffic on I-710 (All Types of Vehicles, Southbound Direction)



All Trucks – Daily Traffic

Daily Traffic on I-710 (All Trucks, Southbound Direction)



I-710 Traffic Model Focus Area

Referred to
henceforth as
“Study Area”

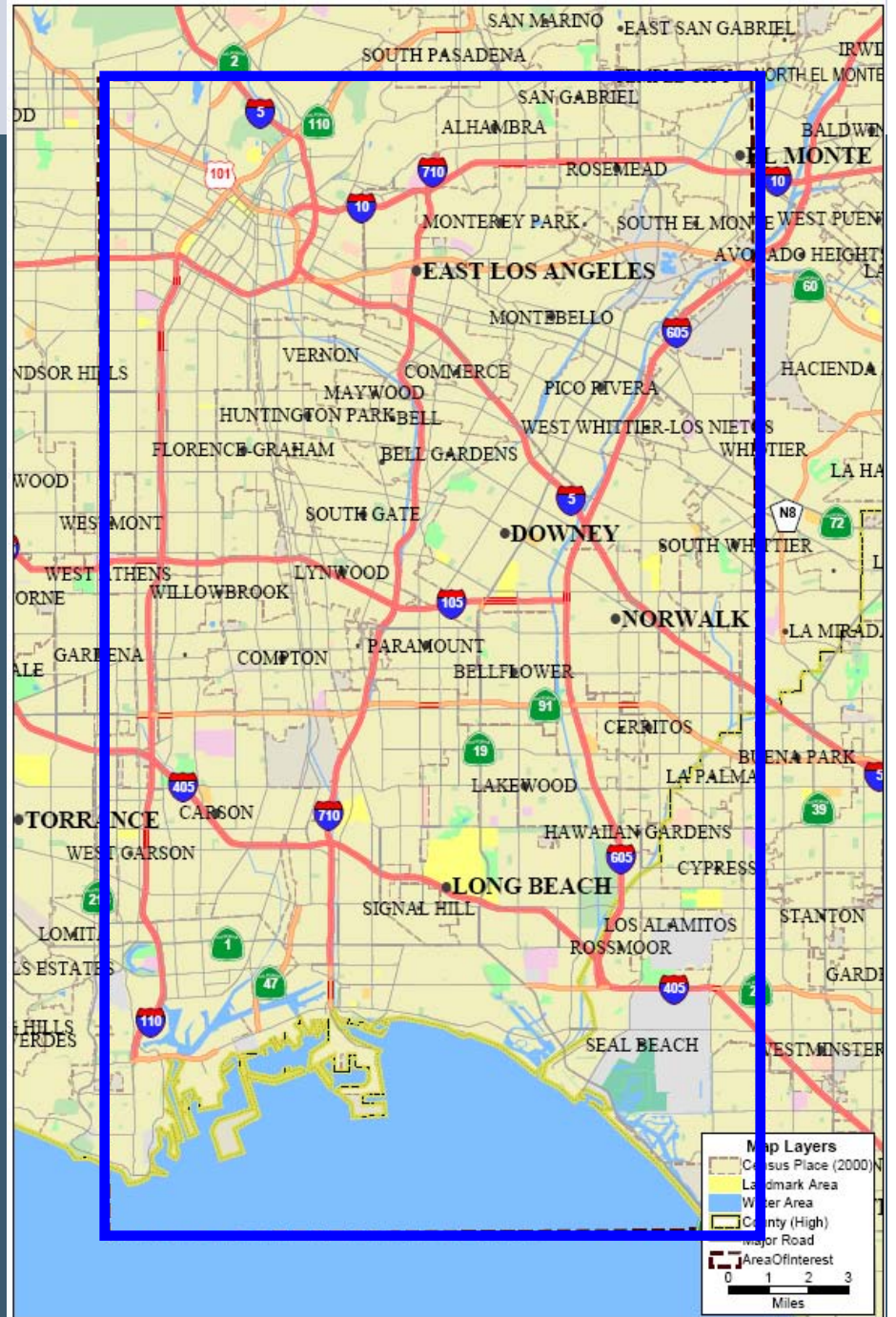
Reports Four Time
Periods:

AM Peak (6 AM – 9 AM)

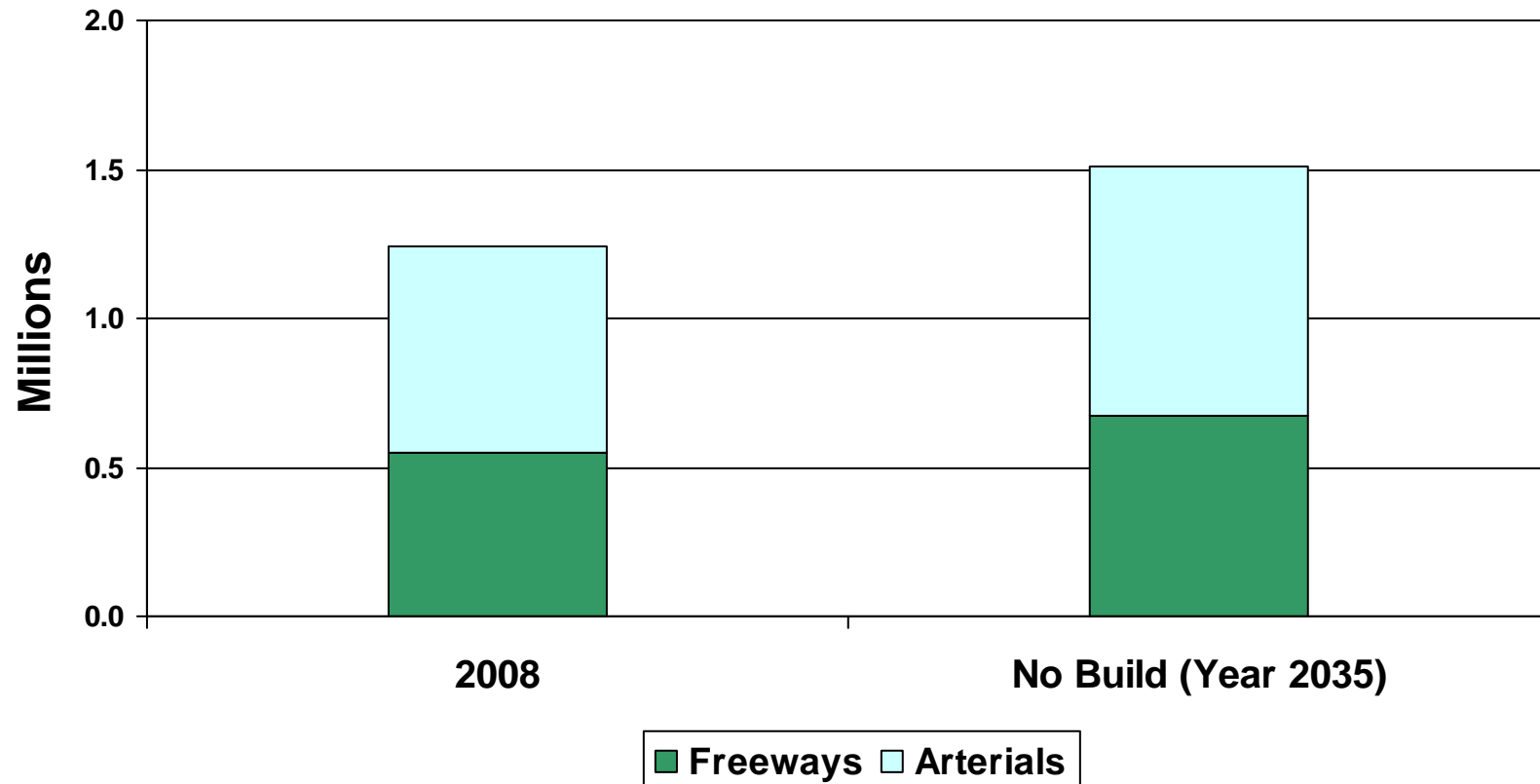
Midday (9 AM – 3 PM)

PM Peak (3 PM – 7 PM)

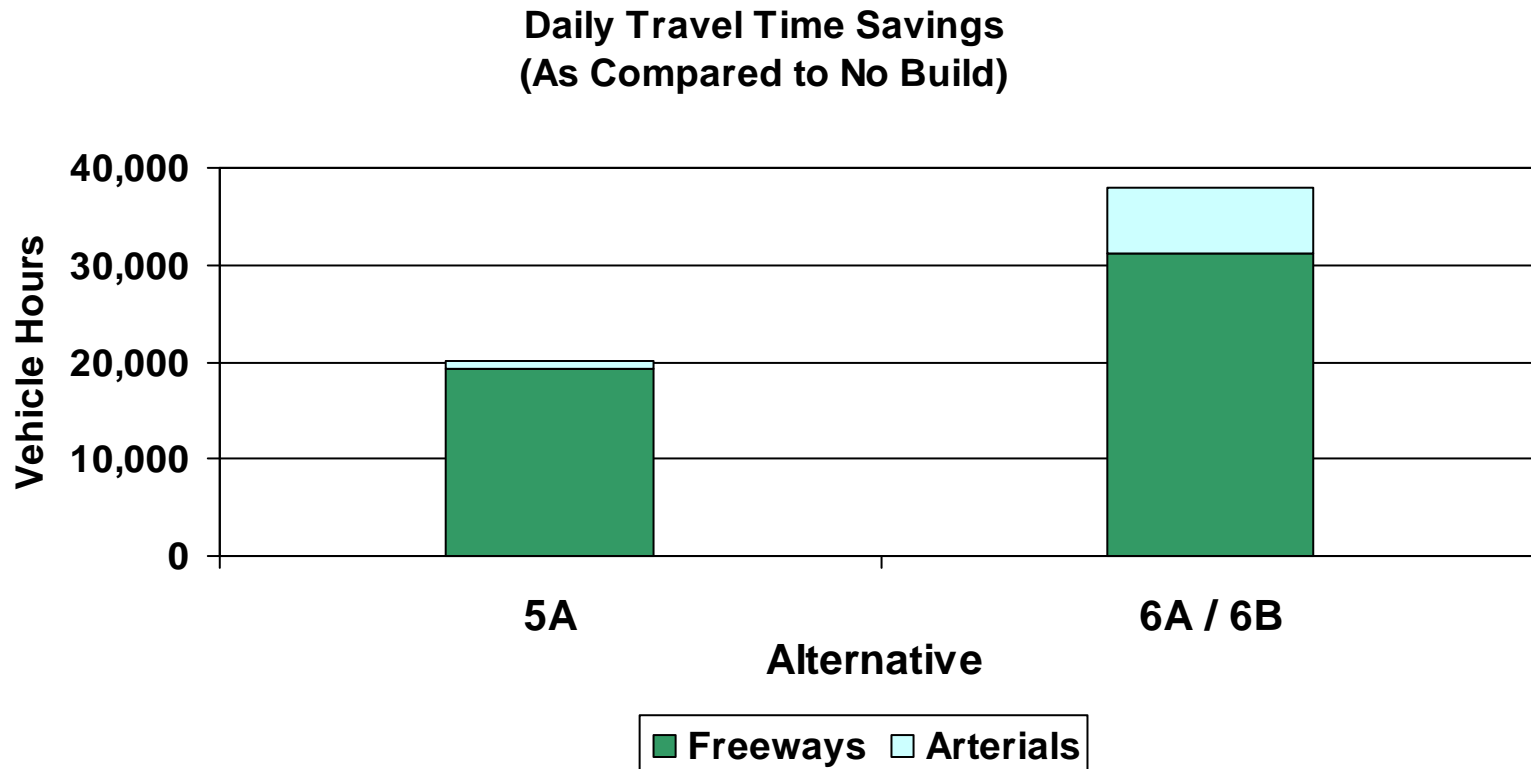
Night (7 PM – 6 AM)



I-710 Study Area Daily Vehicle Hours of Delay



I-710 Study Area Daily Travel Time Savings



Traffic Operations Analyses

Traffic Operations Analysis Overview

2035 Forecasted ADT Volumes

General Observations

- The total vehicle volumes for all vehicle types (auto, port truck, non port truck) along I-710 are higher in Alternative 5A compared to Alternative 1
- Similarly the volumes along I-710 in Alternative 6A/B are higher than Alternative 5A
- The volume increase is due to the increased mainline I-710 capacity provided in Alternative 5A compared to Alternative 1 and the added capacity of Alternative 6A/B over Alternative 5A

Traffic Operations Analyses

Traffic Operations Analysis Review

Traffic Operations Analyses

Freeway Operations

Traffic Operations Analysis of I-710

- Level of Service (LOS) Analysis on I-710
 - Uses Highway Capacity Manual Procedures
 - Includes Weave Analysis
 - Utilizes VISSIM (Traffic Simulation Software) in Select “Hot Spot” Locations
 - Includes Passenger Car Equivalent Factors to Account for Higher Capacity Demand of Trucks
 - Focuses on the Peak Hours (AM, PM, and Midday) in 2035

I-710 Freeway Existing Condition Analysis

Analysis Consists of:

- Freeway mainline (basic segments)
- Critical weaving areas
- Major merge and diverge areas
- On and off ramp locations
- Interchange Analysis (SYNCHRO)

Traffic Operations Analyses

Freeway Operations

Traffic Operations Analyses

Freeway LOS Results Overview

I-710 Freeway Existing (2008) Condition Analysis

Northbound I-710:

LOS E or F for:

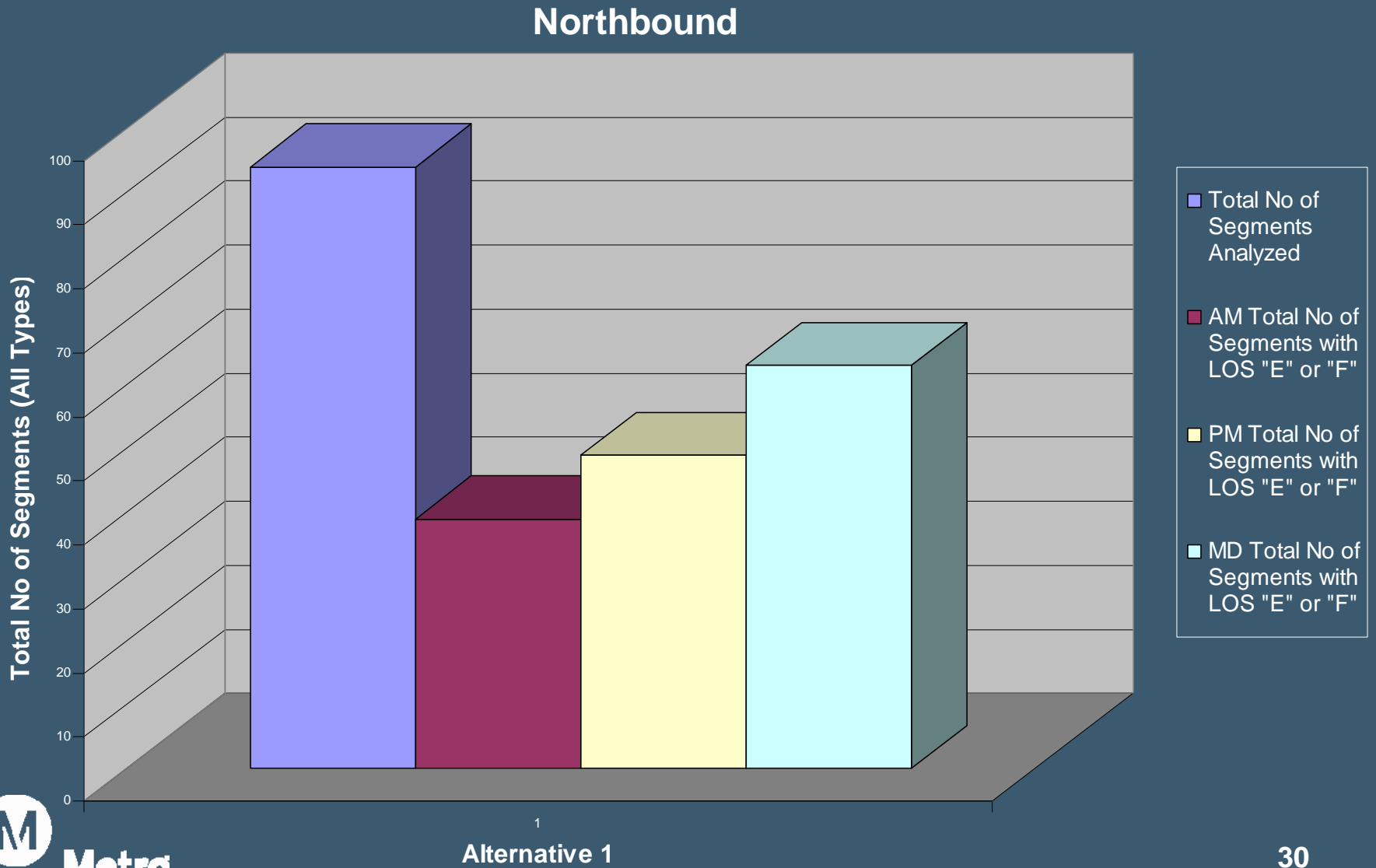
- 36 % of “Basic” Segments
- 26 % of Merge & Diverge Areas
- 50 % of the Weaving Areas

I-710 Freeway Existing Condition Analysis

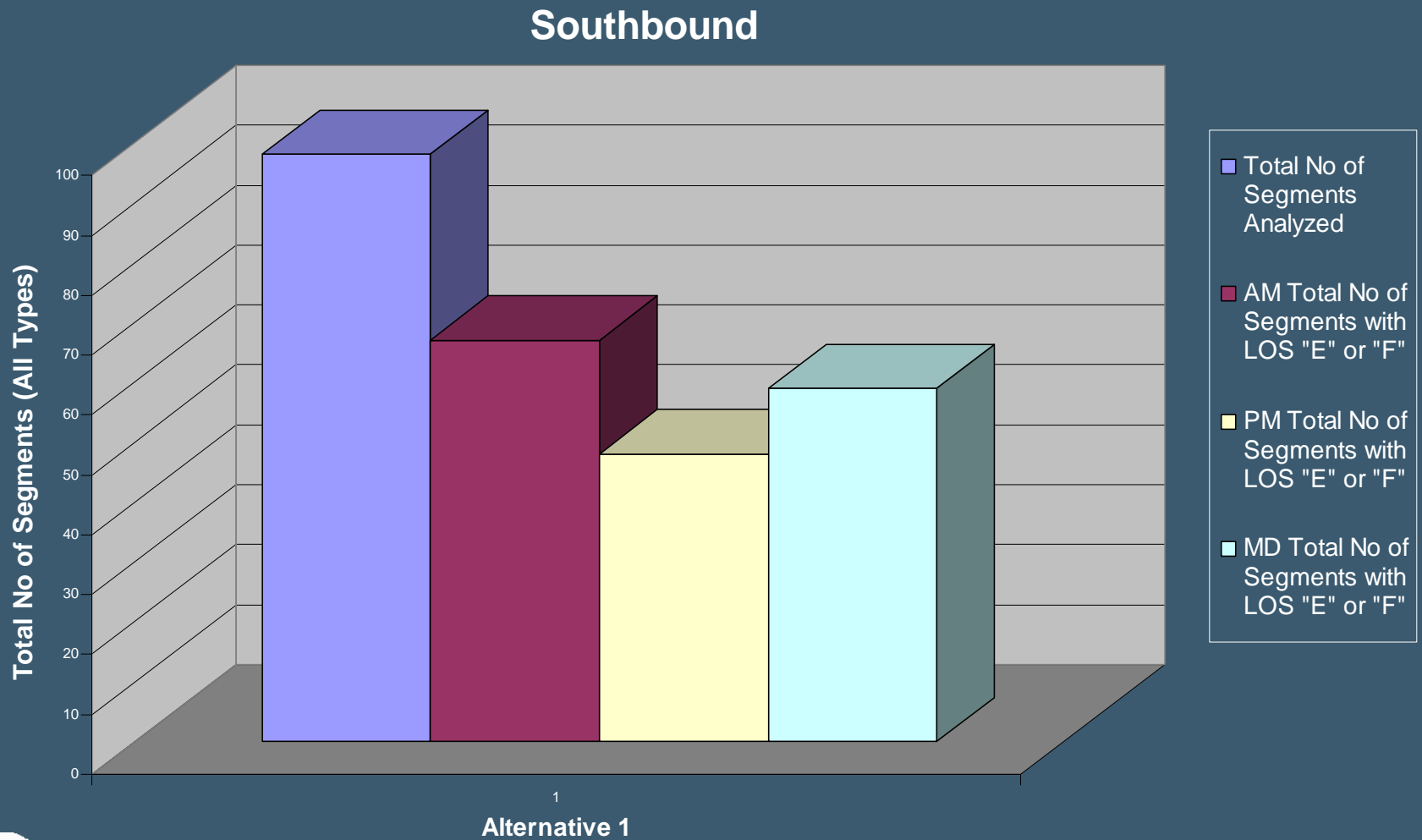
Southbound I-710:
LOS E or F for:

- 47 % of “Basic” Segments
- 41 % of Merge & Diverge Areas
- 60 % of the Weaving Areas

Alternative 1 LOS Summary



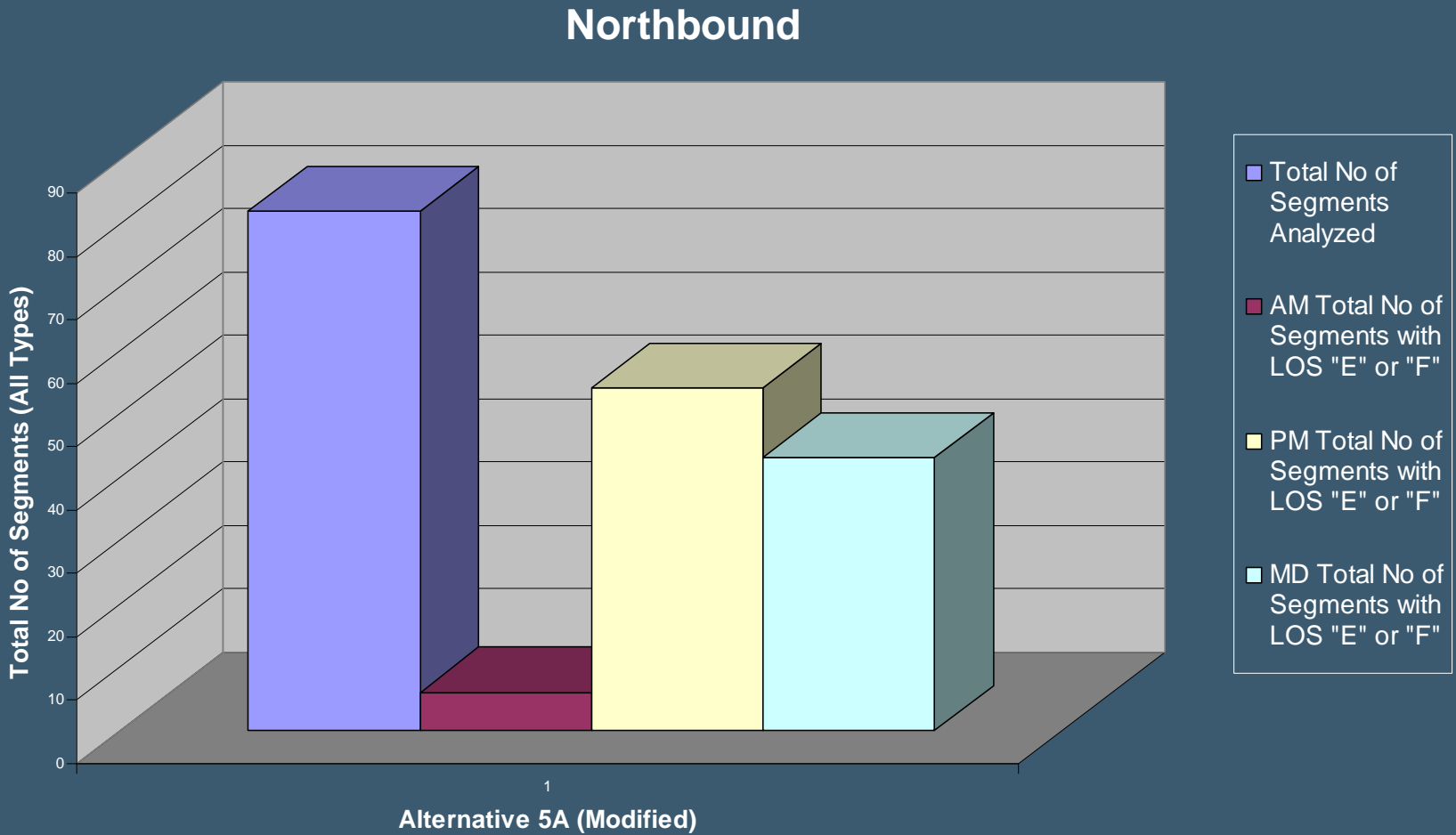
Alternative 1 LOS Summary



Alternative 1 LOS Analysis Results

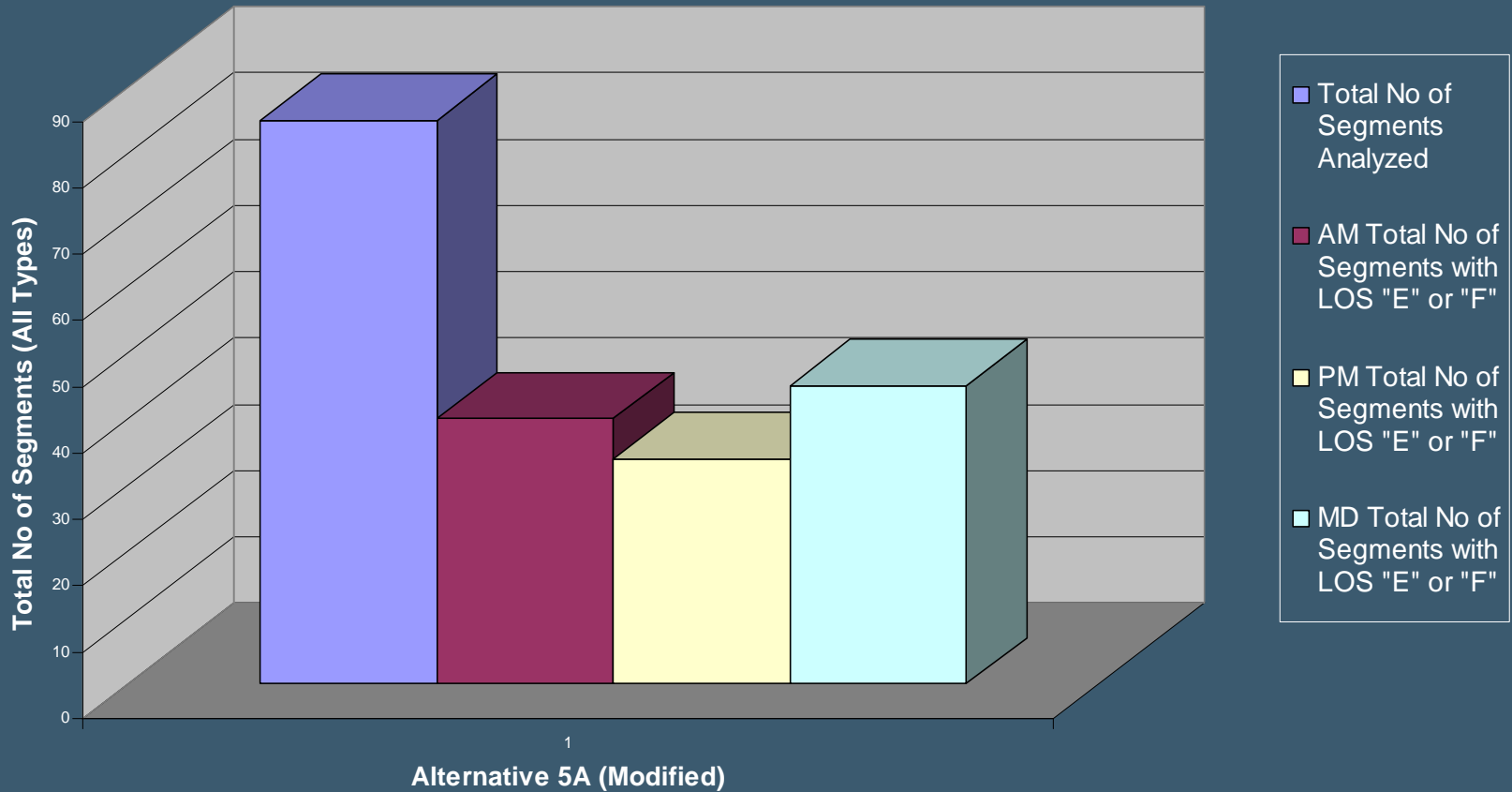
- Both Northbound and Southbound I-710 are Expected to Experience Severe Delay and Congestion
- Indicates Need for Improvements Along I-710

Alternative 5A LOS Summary



Alternative 5A LOS Summary

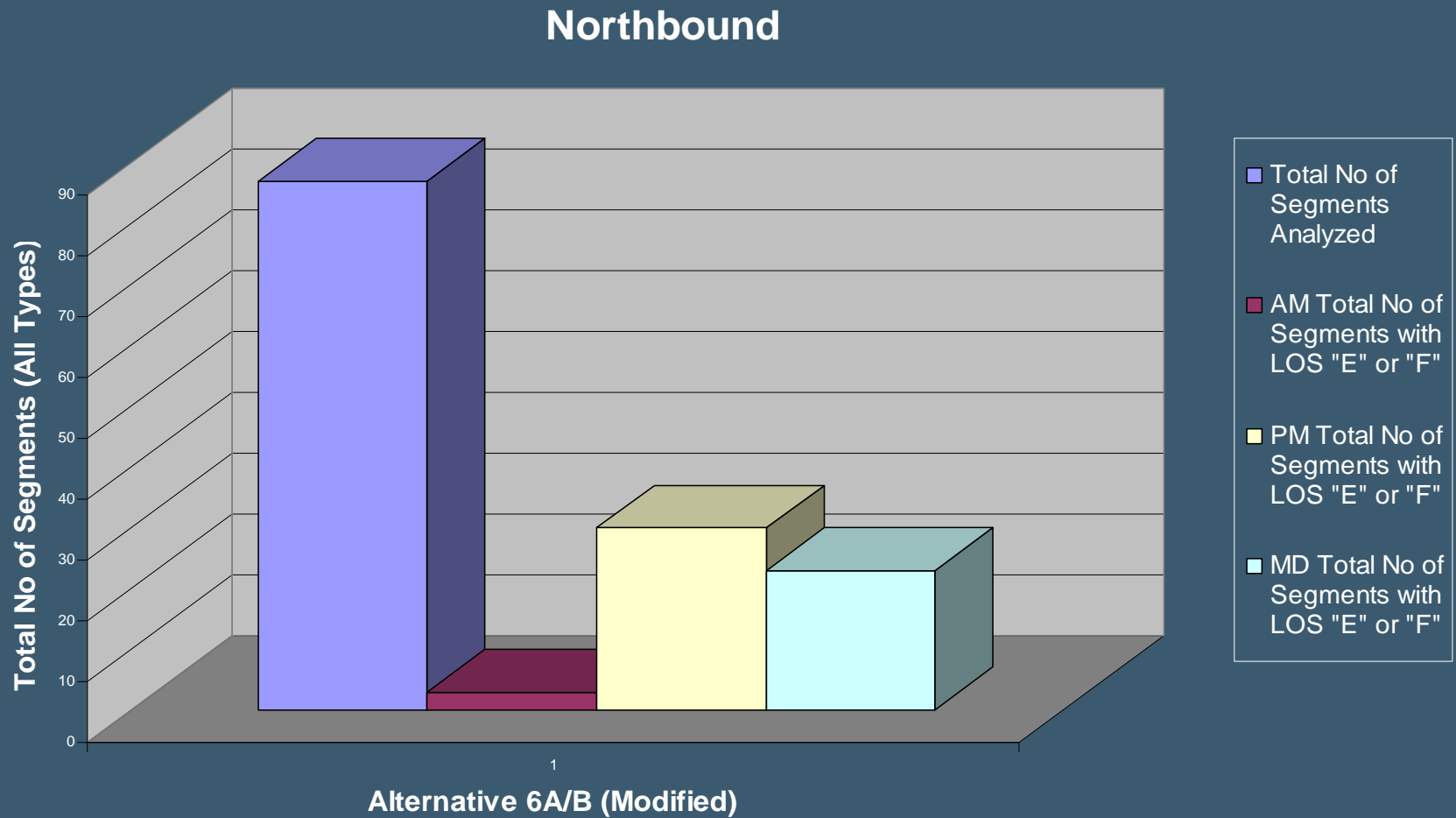
Southbound



Alternative 5A LOS Analysis Results

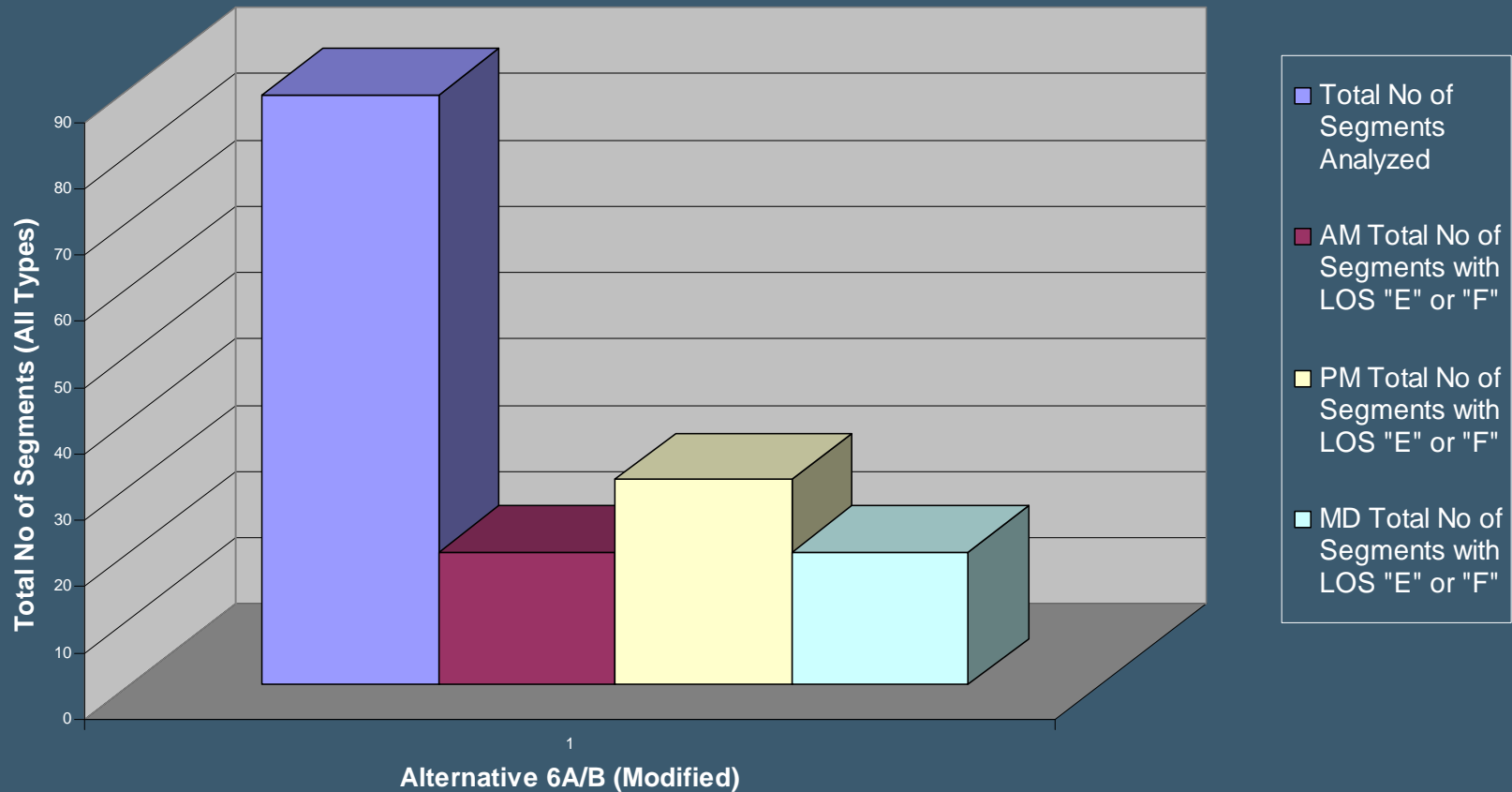
Traffic Operations Under Alternative 5A Improve Significantly for Both Northbound and Southbound Directions Compared to Alternative 1 (No Build)

Alternative 6A/B LOS Summary



Alternative 6A/B LOS Summary

Southbound



Alternative 6A/B LOS Analysis Results

Traffic Operations Improve Significantly for Both Northbound and Southbound Directions

- Compare to Alternative 1 (No Build)
- Compare to Alternative 5A

AM Peak Hour

I-710 General Purpose Lanes


LOS Results

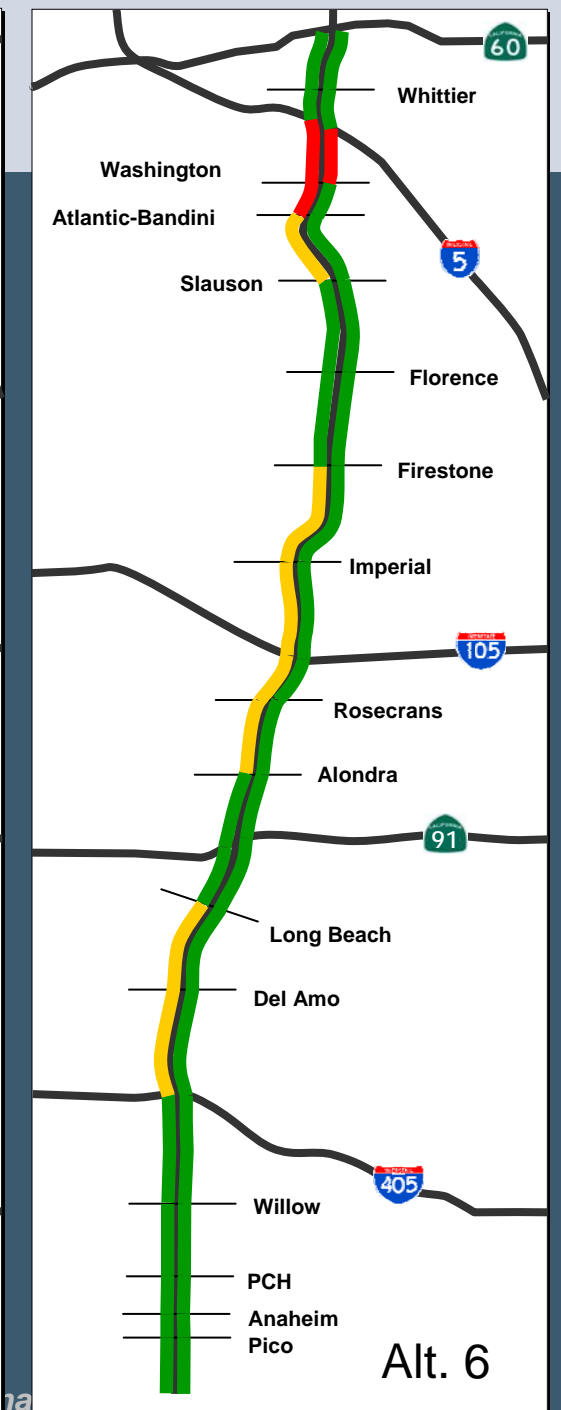
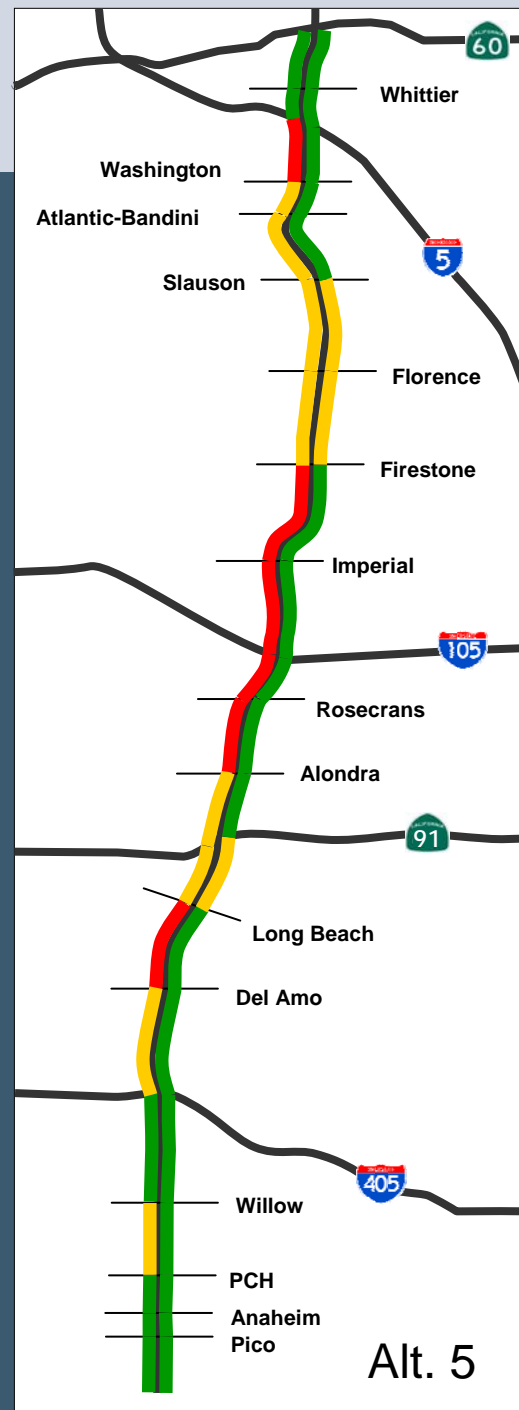
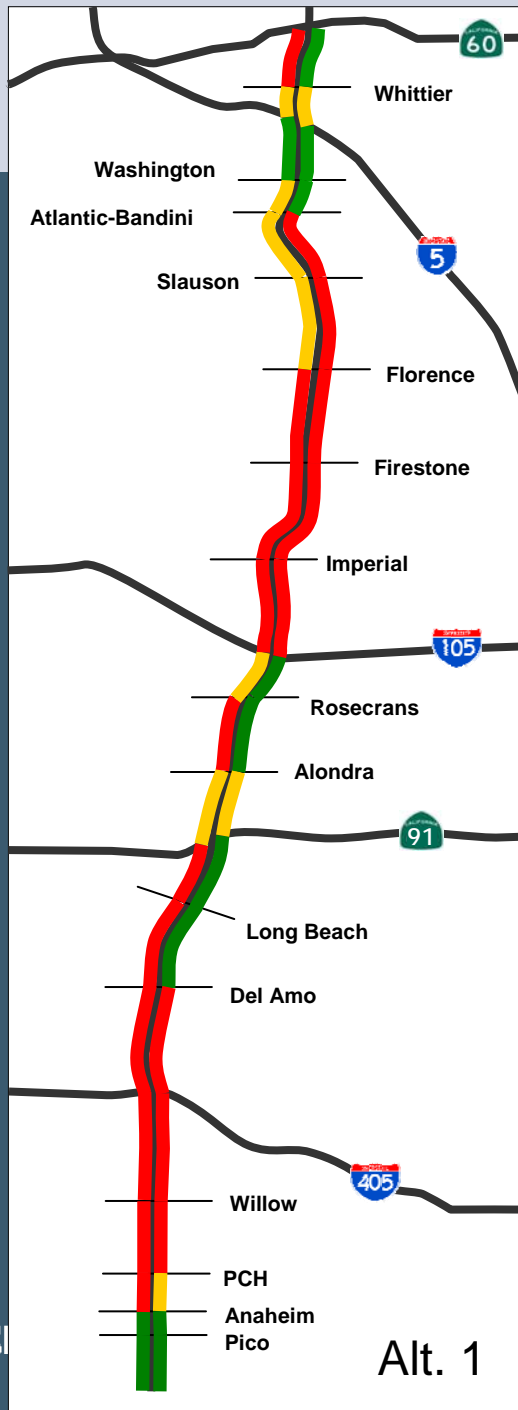
AM Peak Hour

Level of Service

LOS D or Better 

LOS E 

LOS F 



MD Peak Hour

I-710 General Purpose Lanes

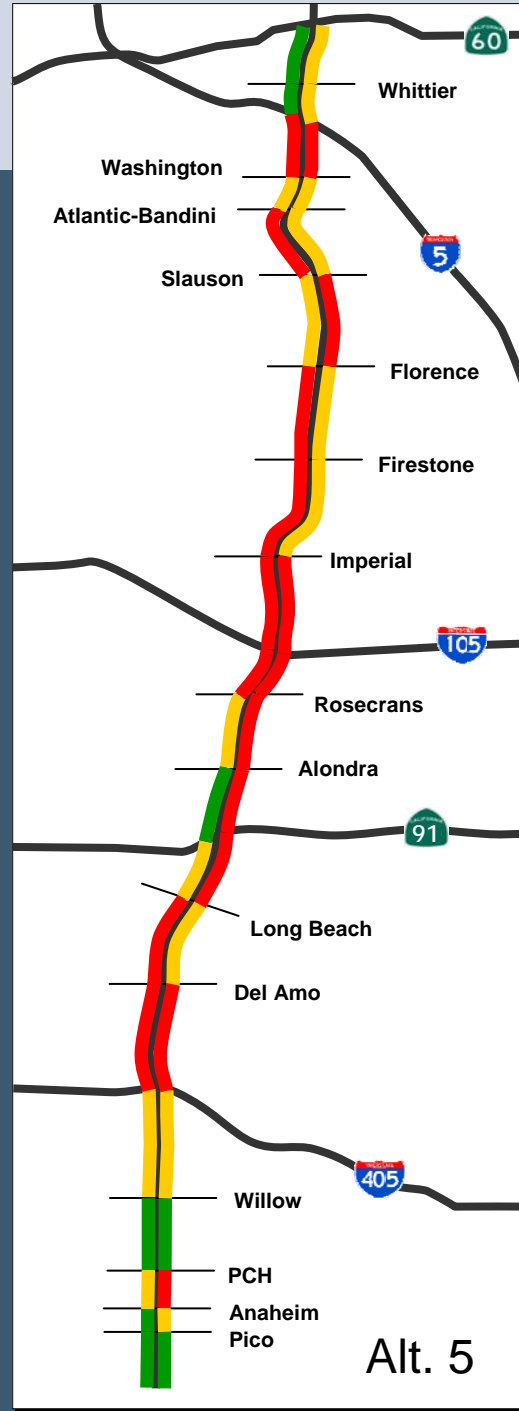
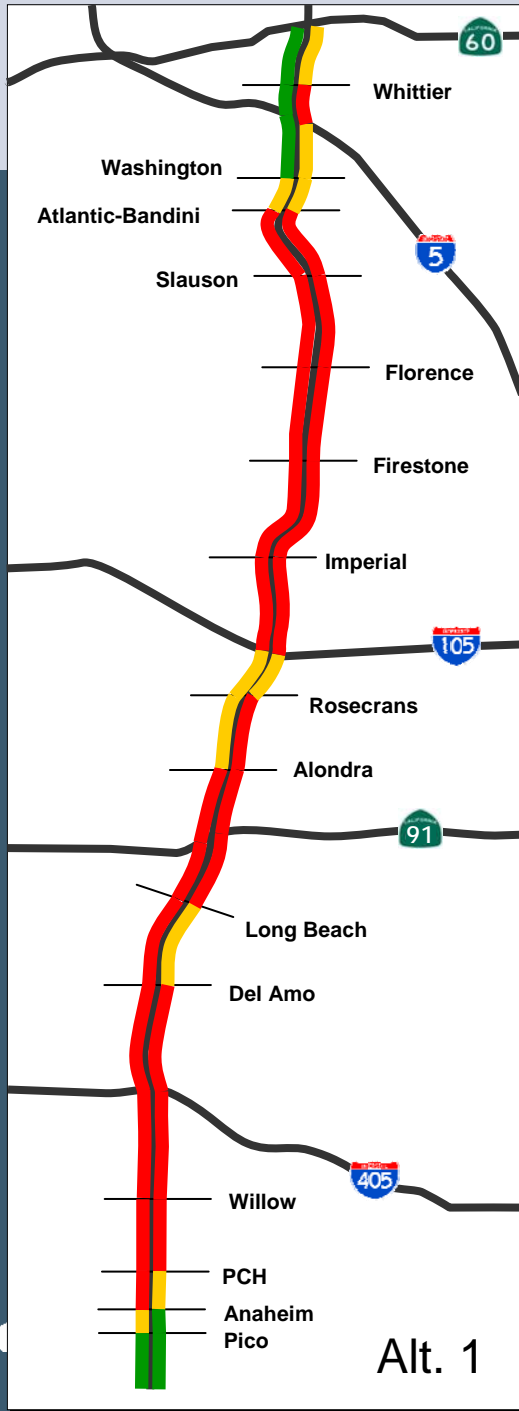
LOS Results

Level of Service

LOS D or Better 

LOS E 

LOS F 



PM Peak Hour

I-710 General Purpose Lanes

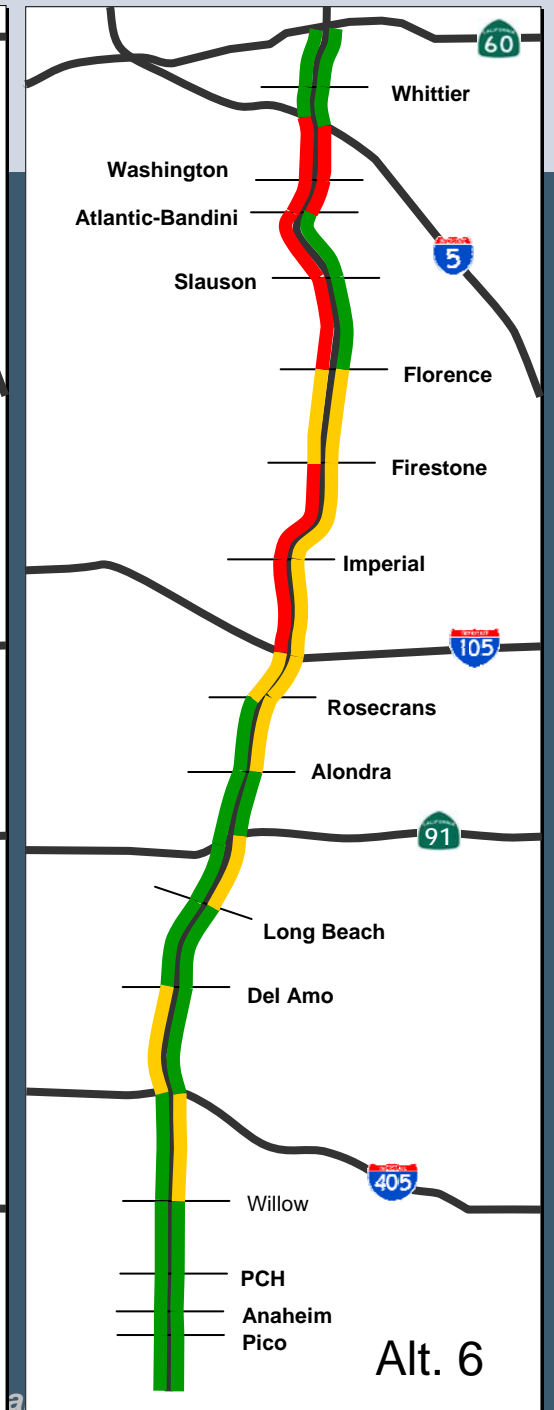
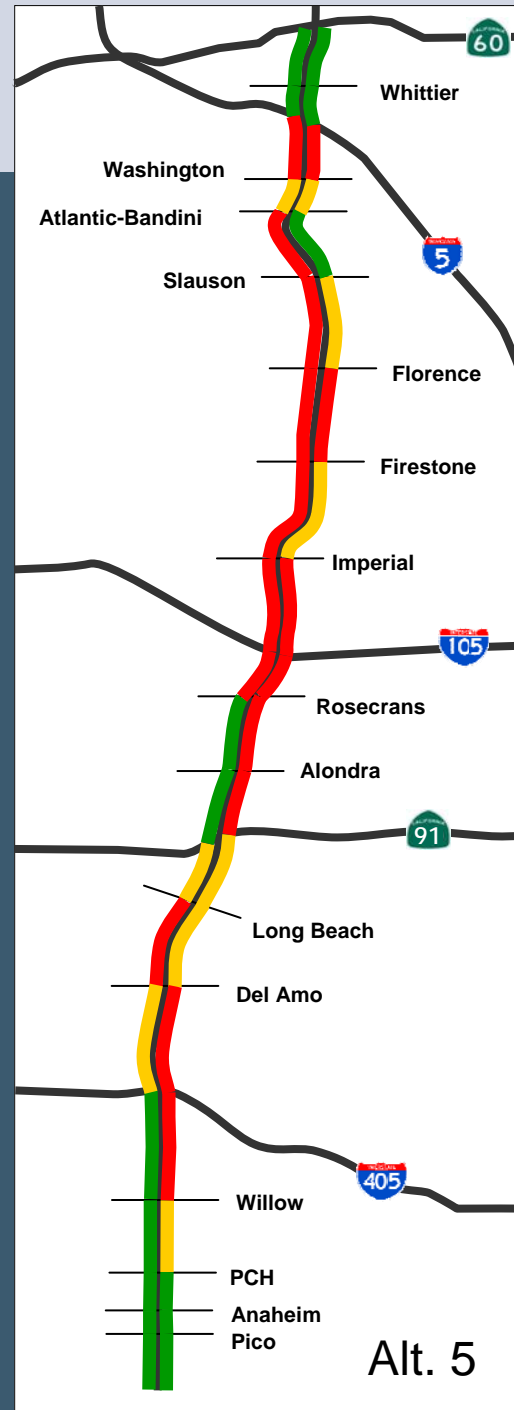
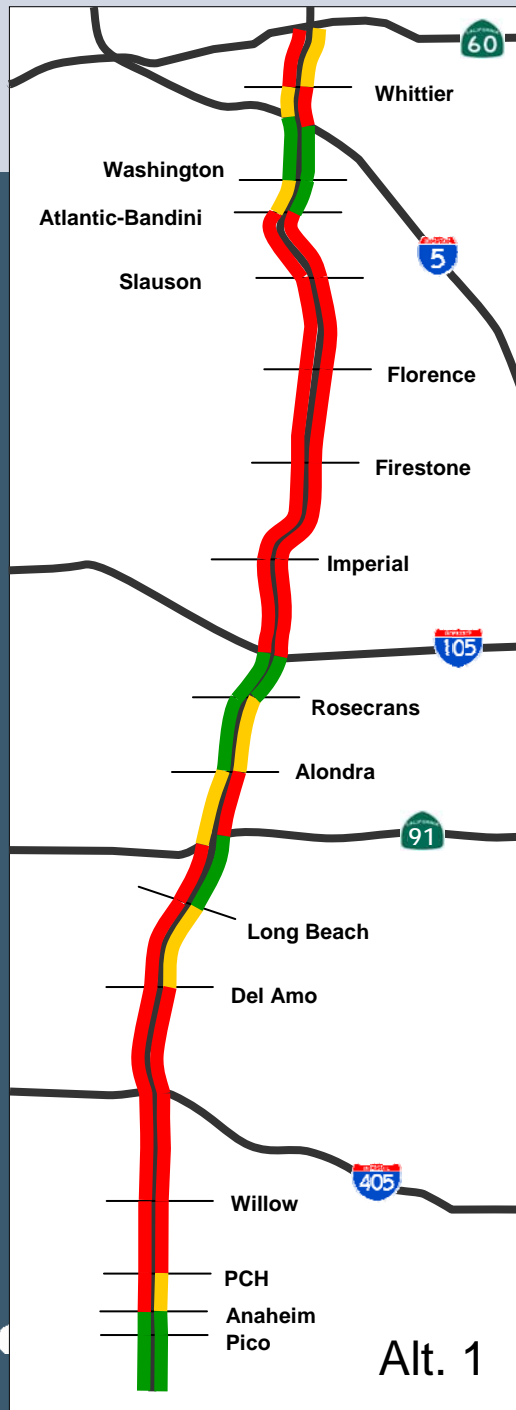
LOS Results

Level of Service

LOS D
or Better 

LOS E 

LOS F 



Alternative 6A/B Freight Corridor

Northbound Freight Corridor

- Only one basic segment (out of 6) and
- One merge/diverge area (out of 6) are expected to operate at LOS E or F

Alternative 6A/B Freight Corridor

Southbound Freight Corridor

- Only one basic segment (out of 6) and
- Two merge/diverge areas (out of 6) are expected to operate at LOS E or F

Traffic Operations Analyses

Arterial Impact Analysis

Existing Corridor (2008) Intersection Analysis

- Poor existing levels of service (LOS E or F) occur at:
 - 25 of the 141 intersections during AM peak hour
 - 4 of the 129 intersections during Midday peak hour
 - 32 of the 141 intersections during PM peak hour

Existing Intersection Analysis

- Several intersections along the following streets have been identified as operating at a LOS E or F, indicates a potential systematic capacity deficiency along these corridors:
 - Willow Street
 - Alondra Boulevard
 - Imperial Highway
 - Slauson Avenue
 - 223rd Street
 - Del Amo Boulevard
 - Rosecrans
 - Firestone Boulevard
 - Atlantic Boulevard

2035 Intersection Analysis

Alternative 1

- 142 intersections Analyzed
 - 124 I-710 study Intersections
 - 18 I-5 study intersections

Alternative 5A and 6A/B

- 151 intersections Analyzed
 - 133 I-710 study Intersections
 - 18 I-5 study intersections

Alternative 1 Intersection Analysis Results

- Poor Levels of Service (LOS E or F) occur at:
 - 43 intersections during the AM peak hour
 - 12 intersections during the MD peak hour
 - 59 intersections during the PM peak hour

Congestion Relief Improvements

- Turn pockets (such as left or right turn lanes) were added to reduce delay on 49 intersections with poor level of service (LOS E or F) under the congestion relief improvements
- Elements of Alternative 5A and 6A/B

Alternative 5A Arterial Intersections

- Poor levels of service (LOS E or F) occur at:
 - 16 intersections during the AM peak hour, compared to 43 for Alternative 1 (No Build)
 - 6 intersections during the Midday peak hour, compared to 12 for Alternative 1 (No Build)
 - 33 intersections during the PM peak hour, compared to 59 for Alternative 1 (No Build)

Alternative 6A/B Arterial Intersections

- Poor levels of service (LOS E or F) occur at:
 - 18 intersections during the **AM peak hour**, compared to 43 for Alternative 1 (No Build)
 - 7 intersections during the **Midday peak hour**, compared to 12 for Alternative 1 (No Build)
 - 36 intersections during the **PM peak hour**, compared to 59 for Alternative 1 (No Build)

Arterial Intersection Analysis Summary

Considering All Peak Hours

Existing Conditions:

- **40** Intersections are operating with poor LOS E or F

Alternative 1 (No Build) Conditions:

- **69** Intersections will operate with poor LOS E or F

Alternative 5A Conditions:

- **38** Intersections will operate with poor LOS E or F

Alternative 6A/B Conditions:

- **42** Intersections will operate with poor LOS E or F

Intersections Impacted by Project

14 intersections have been identified as impacted:

- Ocean Blvd/Magnolia Ave
- PCH/Atlantic Ave
- Del Amo Blvd/Santa Fe Ave
- Alondra Blvd/Long Beach Blvd
- Alondra Blvd/Garfield Ave
- Firestone Blvd/Garfield Ave
- I-710 SB Off/Rosecrans Ave
- PCH/Long Beach Blvd
- Willow St/Santa Fe Ave
- Alondra Blvd/Santa Fe Ave
- Alondra Blvd/Atlantic Ave
- Alondra Blvd/Paramount Blvd
- Slauson Ave/Eastern Ave
- Garfield Ave/Gage Ave

Impacted Intersections Location



Project No.: 20666378

Date: December 2000

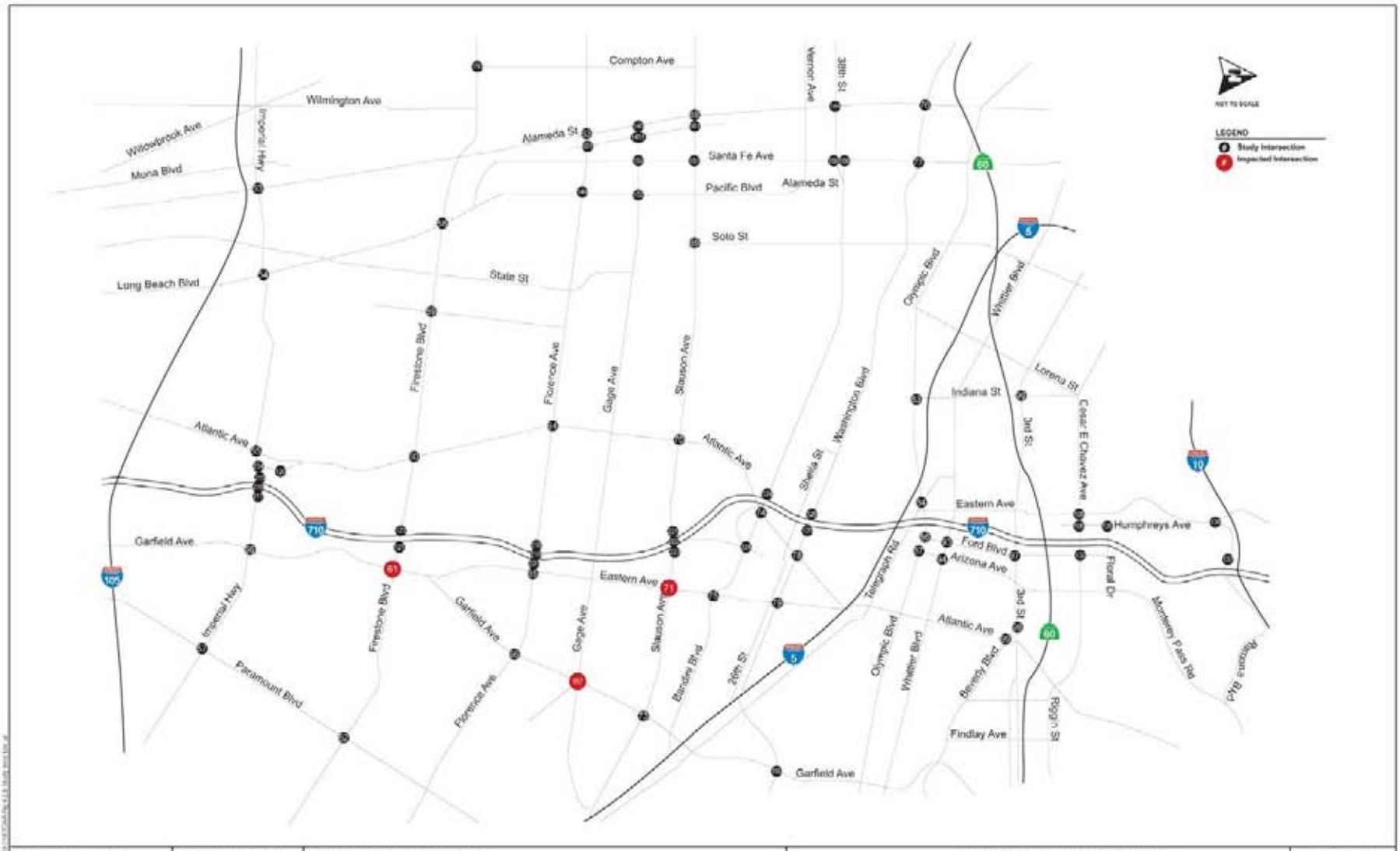
Project: I-710 CORRIDOR PROJECT

STUDY INTERSECTION LOCATIONS

Figure 4-2.a

URS

Impacted Intersections Location (Cont.)



Project No.: 29866378

Date: December 2009

Project: I-710 CORRIDOR PROJECT

STUDY INTERSECTION LOCATIONS

Figure 4-2.b



Traffic Operations Analyses

Conclusions

Summary

- I-710 is currently experiencing significant delay and congestion
- By the year 2035 (Alternative 1), the No Build condition is expected to deteriorate further
- Both Alternative 5A and 6A/B will improve traffic operations in the I-710 Corridor compared to No Build

Next Steps

- Consider further refinements of Alternative 6A/B to support better utilization of the Freight Corridor and relieve the I-710 General Purpose Lanes
- Evaluate Alternative 6A Freight Corridor “Enhanced” Capacity Scenario
- Evaluate Alternative 6B Freight Corridor “Enhanced” Capacity Scenario
- Include design modifications to accommodate each scenario