GATEWAY CITIES CONGESTION HOT SPOT STUDY AND STRATEGIC TRANSPORTATION PLAN

Presented by:

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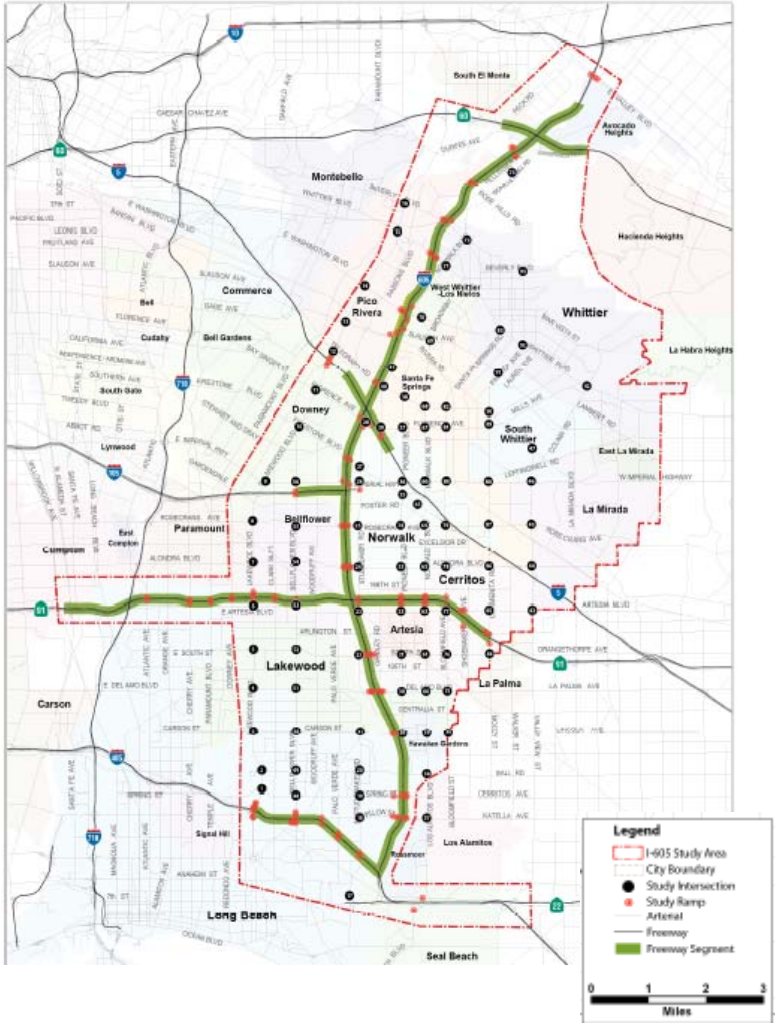
A project for the Gateway Cities Sub region and Metro Los Angeles funded by LA County Measure R

Background and Purpose of Study

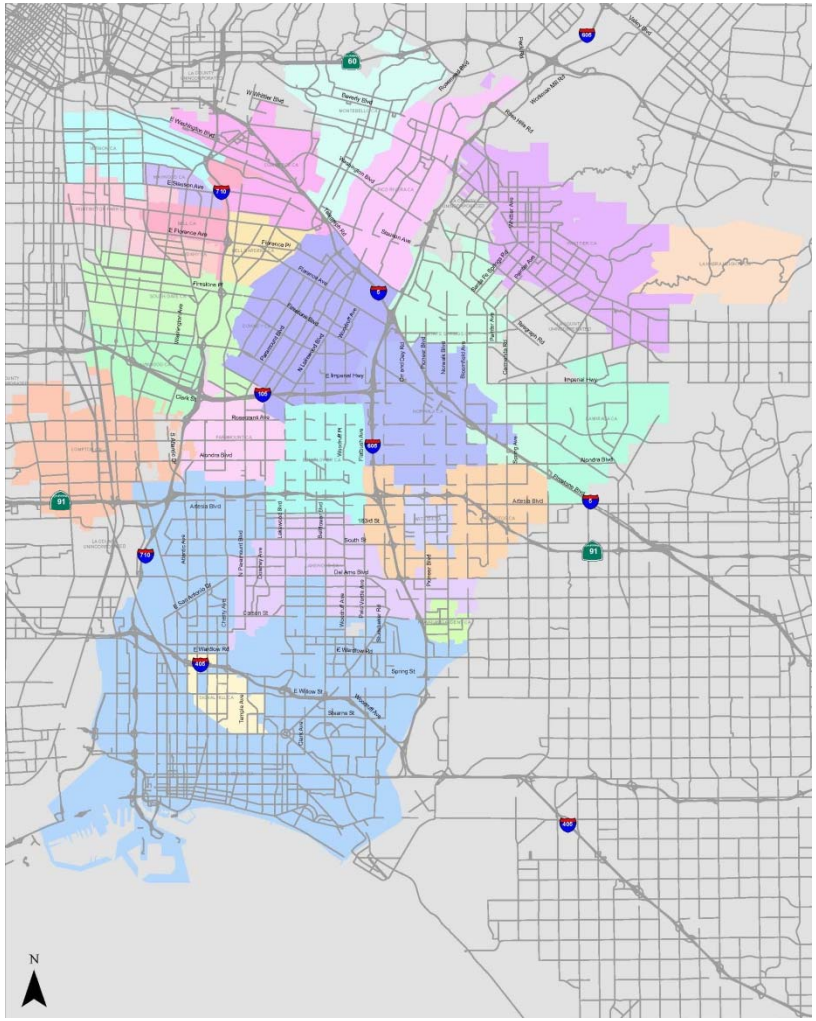
- Approx. $600 Million – Measure R
- Determine improvement locations
- Work within existing rights-of-way
- Consider freight movement
- Consider all modes
- Preserve/enhance quality of life
- Engage all cities/stakeholders

Phase 1 Study Area



Phase 1 covers about ½ of sub-region

Phase 2 Study Area



Phase 2 covers entire sub-region

- 2 million pop.
- 2,000 traffic sig.
- 100 miles freeway
- 1,000 miles of arterials

Unique Study Elements

- Extremely comprehensive analysis for all modes
- Use of freeway and arterial speed data
- Detailed accident analysis for freeway and arterials
- Congestion Analysis Score System Developed

Methodology

- Freeway Performance Management System Analysis
  - Sensor Speed data (PeMS)
  - Counts/Capacity Analysis
- Arterial Performance Assessment
  - Probe Vehicle Speed data (NAVTEQ/Nokia)
  - Counts/Capacity Analysis
- Detailed Accident Analysis
  - SWITRS (arterials)
  - TASAS (freeway)

Arterial System Analysis

- Traditional Approach:
  - Take traffic counts
  - Conduct level of service study
  - Identify LOS E/F locations
  - ✓ Money/effort is used for "good" LOS locations unnecessarily

UNIQUE APPROACH

USE HISTORICAL SPEED DATA ON ARTEIRAL SYSTEM FOR CONGESTION ANALYSIS – iPeMS

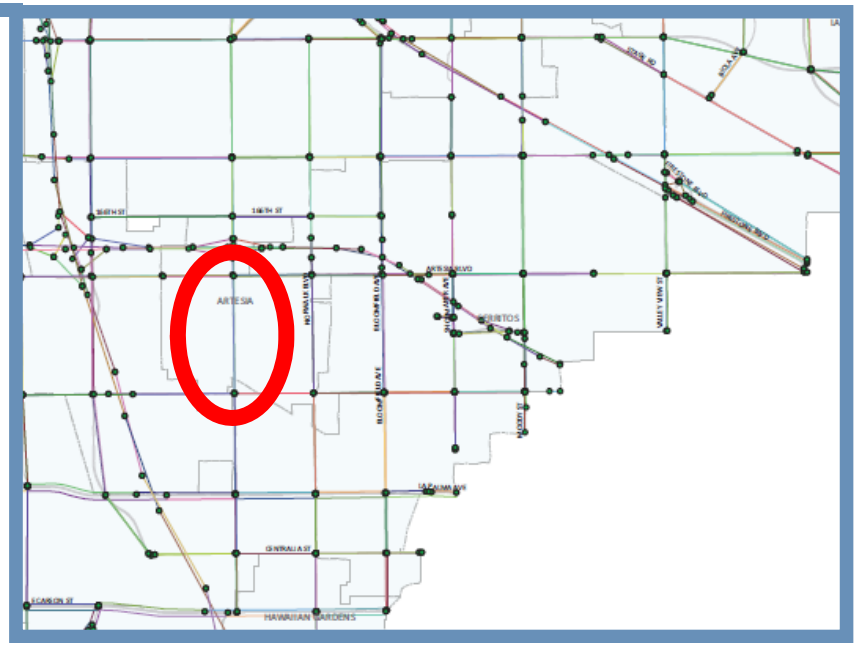
Arterial System Analysis

- ***New Approach:***
  - Use real time and historical speed data
  - Find actual slow speeds on arterial system
  - Then conduct focused LOS analysis
  - **"Tell the Story"** with speed/slowing data combined with LOS, accident data, truck volumes and other information sources

iPeMS Arterial Analysis using Probe Data

- Nokia “Probe” Speed Data for LA County
- Cell phone and GPS based
- “Actual” vehicles on arterial streets
- 2011 – all months
- Provided by day of week
- 15 minute increments

TMC Links

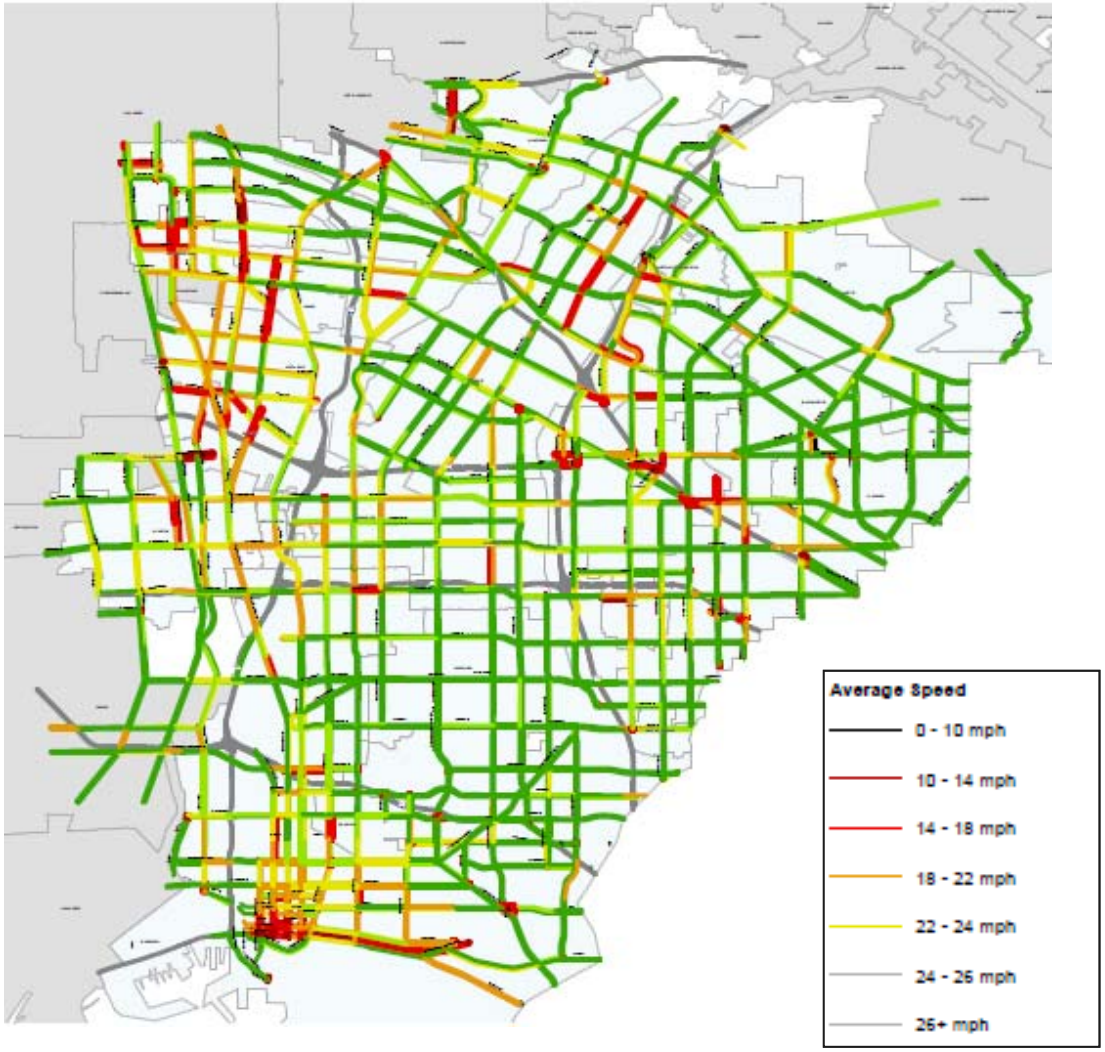


Data provided in TMC “link” format

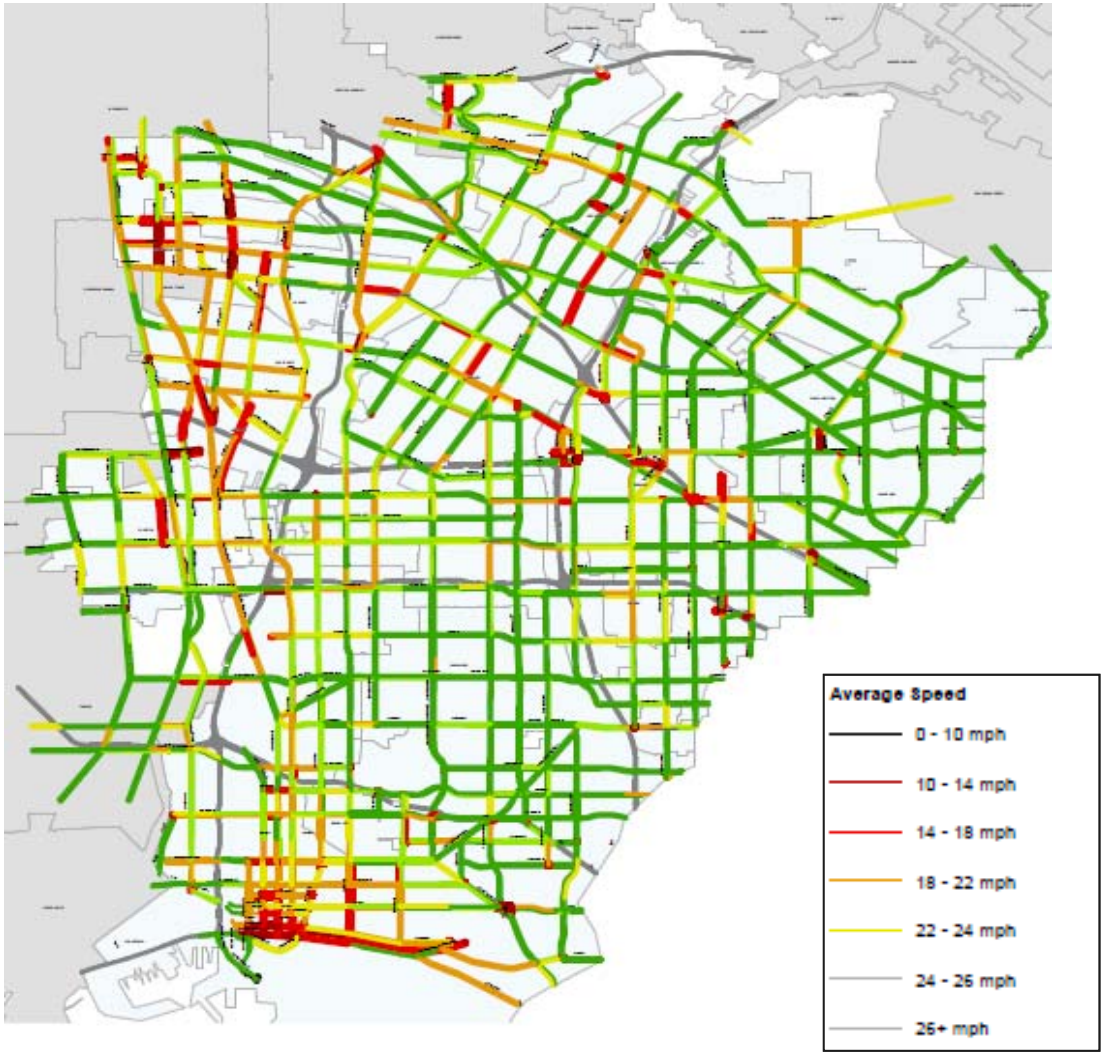
Speed Bins

Average Speed Range	Map Segment Color
0 to 10 mph	Black
>10 to 14 mph	Magenta
>14 to 18 mph	Bright Red
>18 to 22 mph	Orange
>22 to 24 mph	Yellow
>24 to 26 mph	Light Green
>26 mph	Dark Green

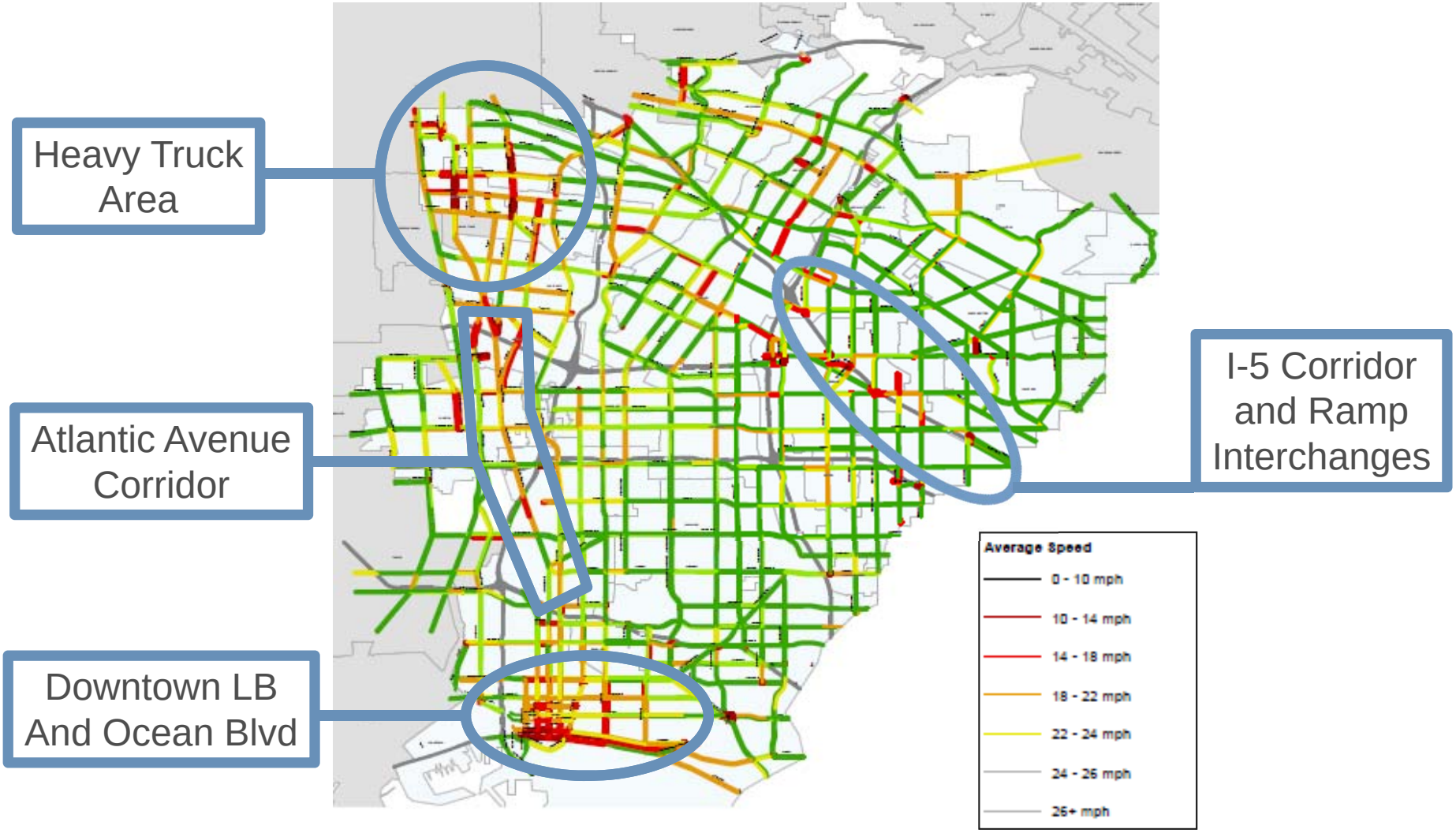
AM Speeds & Slowing



PM Speeds & Slowing



PM Speeds & Slowing



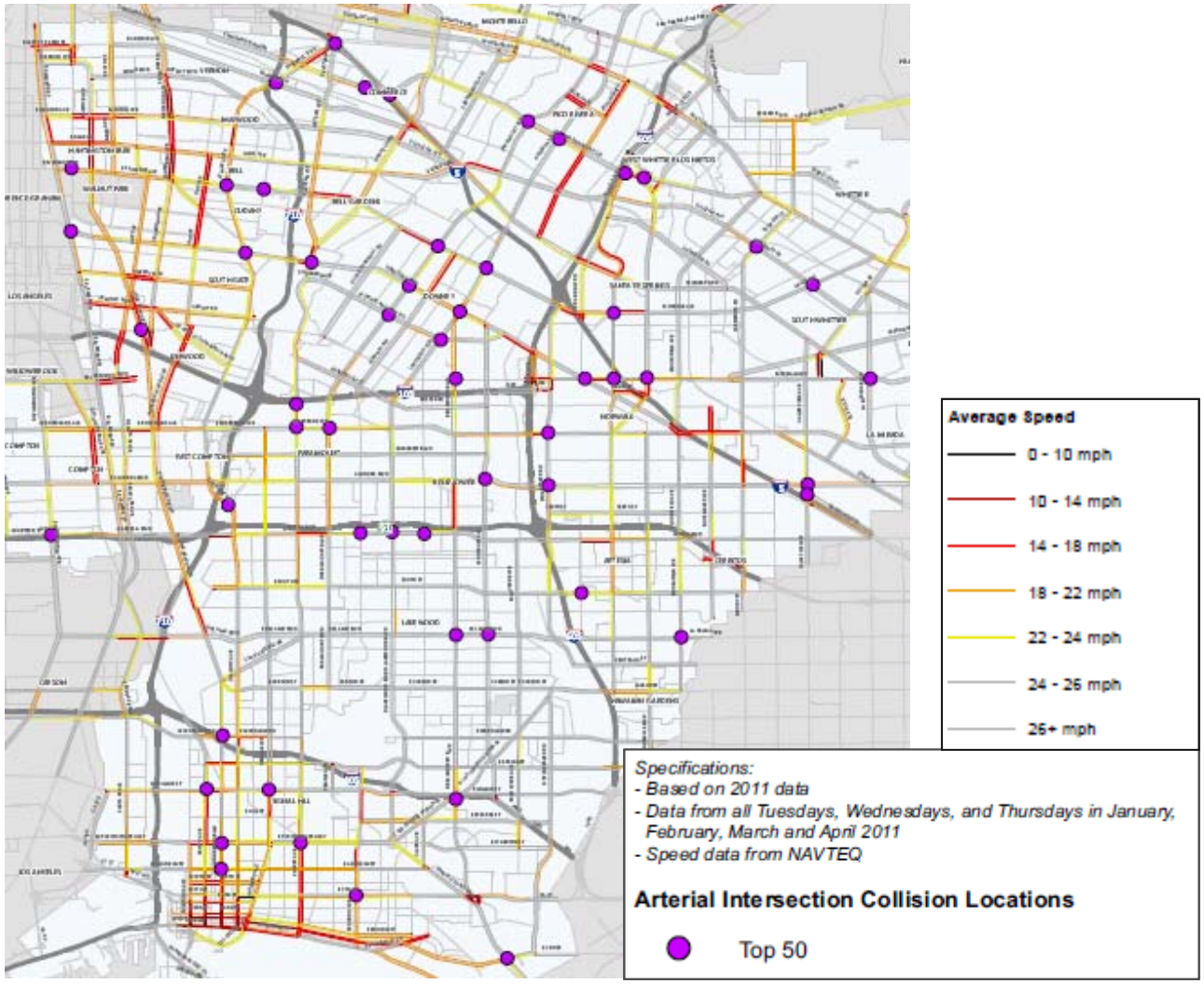
Slow Speeds in I-5 Freeway Corridor

Shows slowing at arterial interchanges with freeways

Next Steps

- Compare Slow Speed Areas to:
  - Intersection level of service E/F
  - High accident locations
  - High truck volumes
- Look for Correlations/Patterns
- Tell “Story” of Arterial Congestion

Slow Speeds & Collision Locations



UNIQUE APPROACH:

Assess Need Using Cumulative Congestion Score

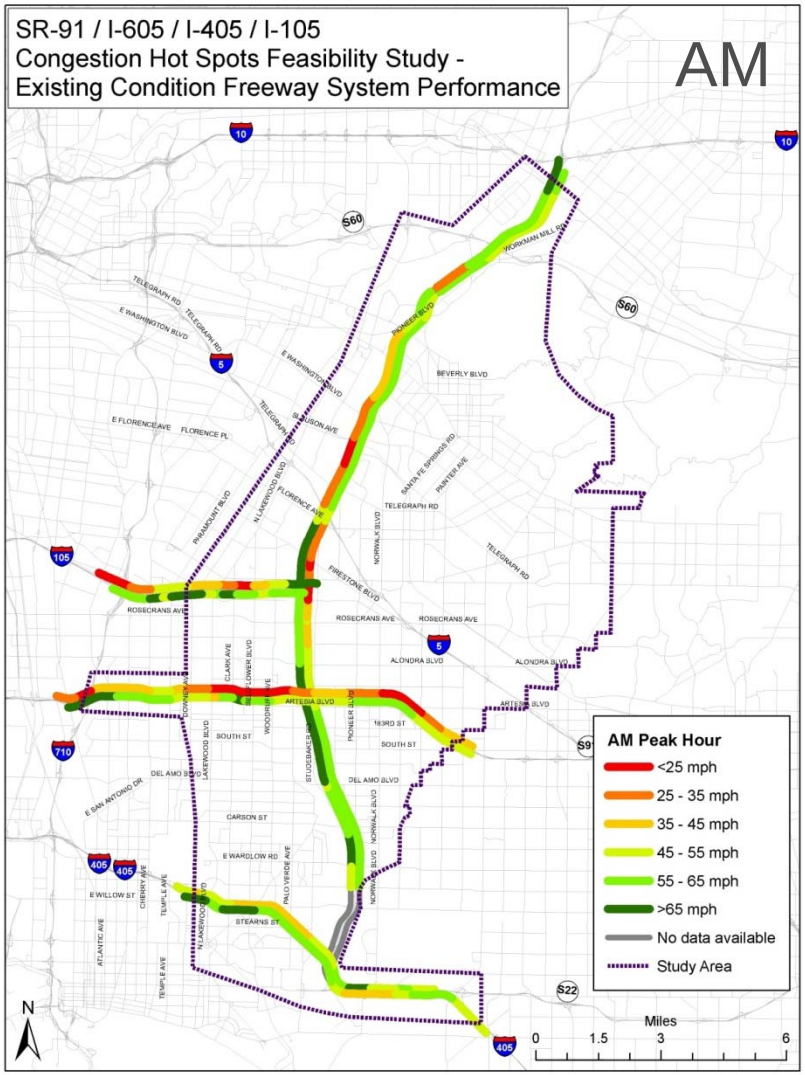
Cumulative Congestion Analysis Score

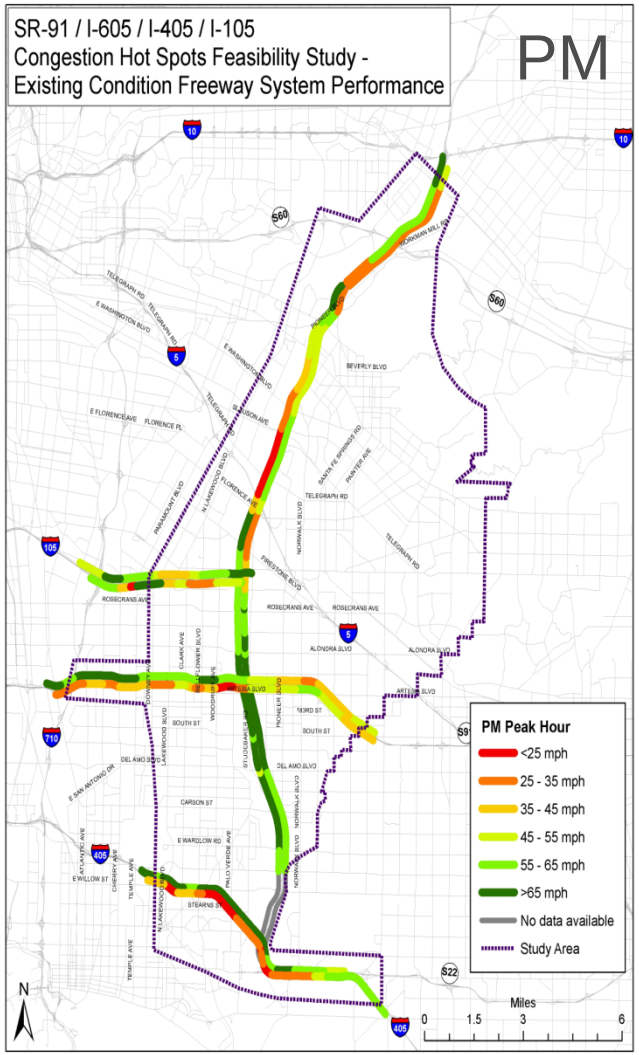
- No single measure accurately portrays conditions
- Congestion Score Combines multiple performance measures:
  - Highway Capacity Manual Level of Service
  - Travel Demand Model Level of Service
  - High Accident Locations
  - PeMS/NAVTEQ Speed Data
- Results in “Congestion Score” (1-12 scale)

Congestion Score Components

- Freeway Speeds
  - Under 35 mph – 3 points
  - 35-45 mph – 2 points
  - 45-55 mph – 1 point
  - Over 55 mph – zero points
- Level of Service (HCM and model)
  - LOS F – 3 points
  - LOS E – 2 points
  - LOS D – 1 point
  - LOS A-C – zero points
- Accident Locations
  - Over statewide average – 3 points
  - Under statewide average – zero points

Freeway PeMS Hot Spots





Congestion Analysis Score

Freeway Segments

Location	Existing Significant Potential Accident Location	No Build Cumulative Congestion Analysis Score		Adjusted Cumulative Congestion Analysis Score Concept A		Adjusted Cumulative Congestion Analysis Score Concept B		Adjusted Cumulative Congestion Analysis Score Concept C	
		AM	PM	AM	PM	AM	PM	AM	PM
I-405-Katella Ave		1	3	0	0	0	1	0	1
Katella Ave-Spring St		0	1	0	1	0	1	0	1
Spring St-Carson St		1	3	1	3	0	2	0	2
Carson St-Del Amo Blvd		1	2	1	3	0	2	0	2
Del Amo Blvd-South St		1	3	1	3	1	2	0	2
South St-SR-91		1	2	0	1	0	2	0	2
I-405 / SR-91 System Interchange		-	-	-	-	-	-	-	-
SR-91-Alondra Blvd		5	5	5	4	2	5	3	4
Alondra Blvd-Rosecrans Ave		5	4	1	2	2	3	2	3
Rosecrans Ave-I-105		2	2	1	2	4	2	4	2
I-405 / I-105 System Interchange		-	-	-	-	-	-	-	-
I-105-Imperial Hwy	YES ID 1	6	8	5	4	5	4	5	4
Imperial Hwy-Firestone Blvd	YES ID 1	6	6	6	7	7	7	7	6
Firestone Blvd-Florence Ave	YES ID 1	10	10	5	7	5	7	5	7
Florence Ave-I-5	YES ID 1	11	11	6	6	6	6	4	3
I-405 / I-5 System Interchange		-	-	-	-	-	-	-	-
I-5-Telegraph Rd		6	7	4	7	2	5	0	2
Telegraph Rd-Slauson Ave		5	5	3	5	2	3	2	3
Slauson Ave-Washington Blvd		3	4	2	4	3	5	3	5
Washington Blvd-Saranoga St		2	4	2	4	2	3	2	3
Saranoga St-Whittier Blvd		5	6	3	4	3	4	3	4

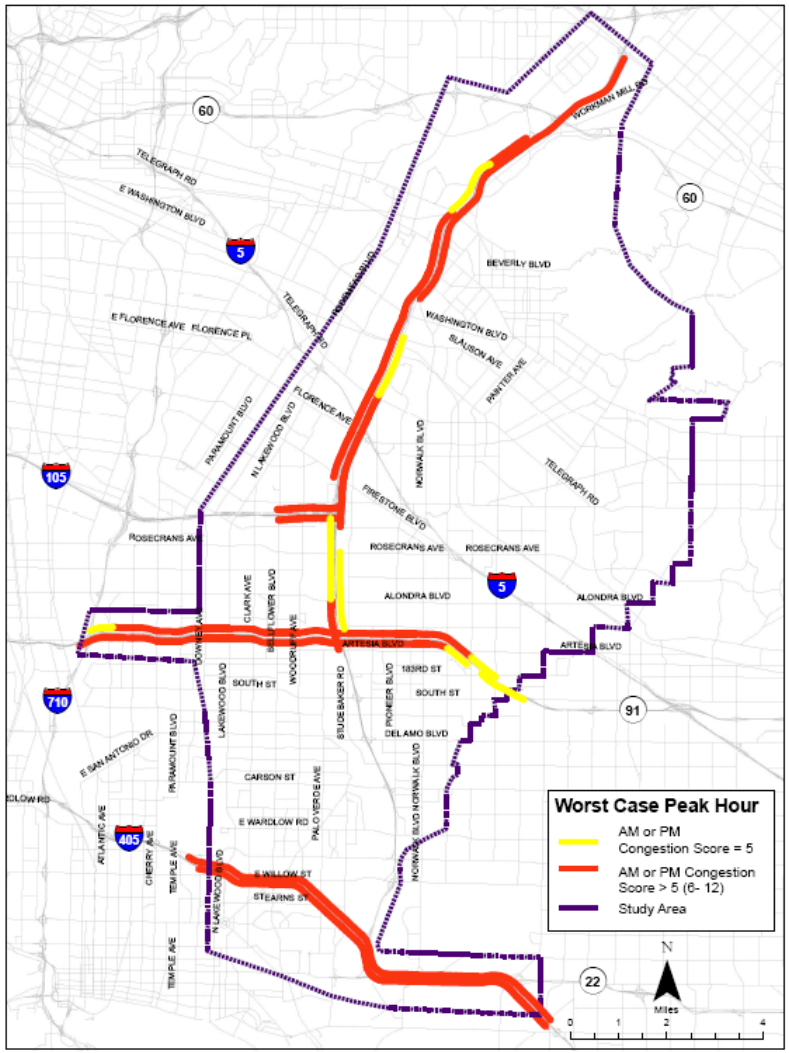
Congestion score less than 5

Congestion score = 5

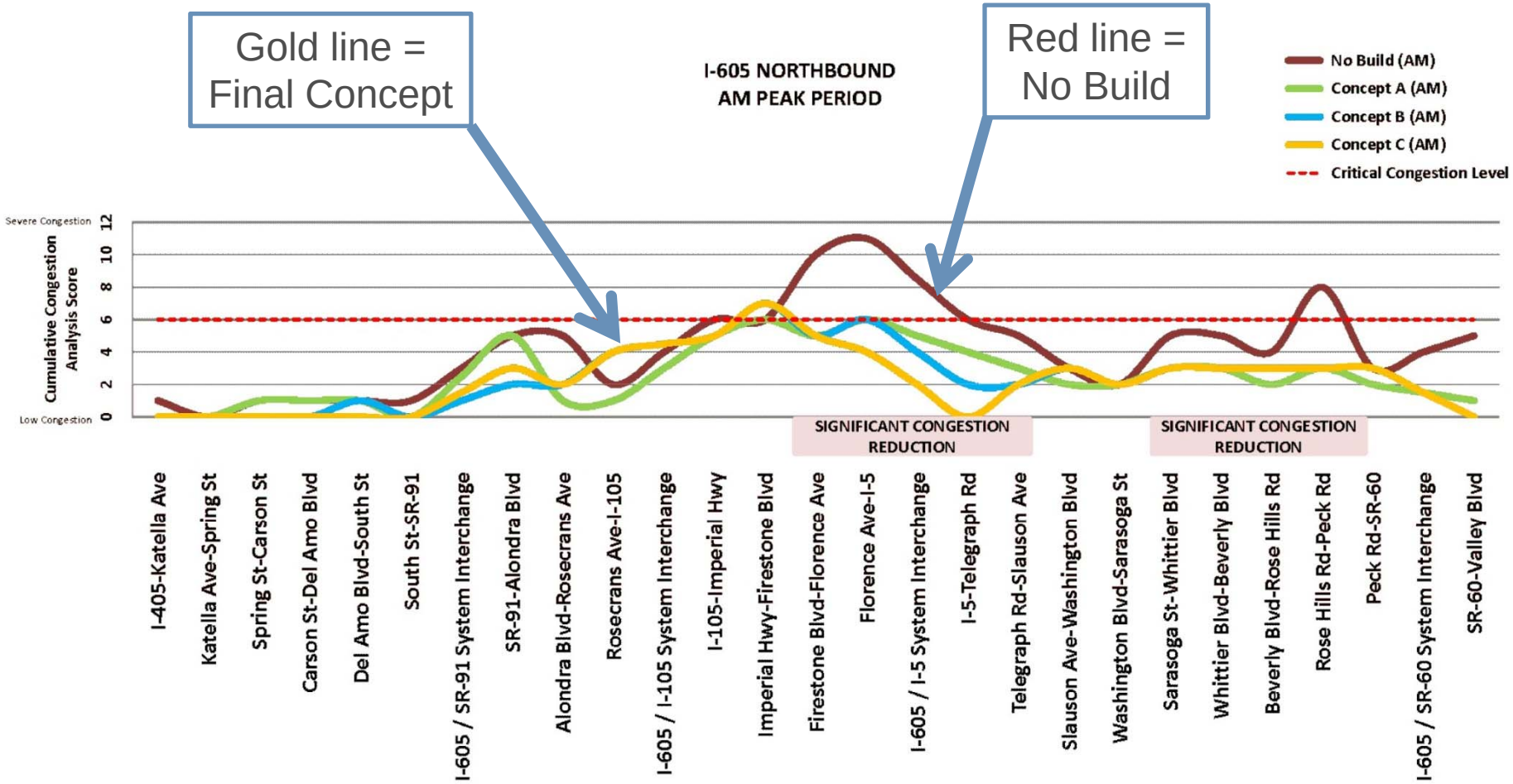
Congestion score 6 to 12 (priority need area)

Combined Congestion Analysis Summary

- **Worst Case Peak Hour summary – AM and PM**



I-605 Cumulative Congestion Analysis Score Comparison



Next Steps

- Finalize Concept Recommendations
- Conduct Project Studies with Caltrans and Cities
- Conduct Environmental Studies
- Allocate Funds to begin Design and Construction