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 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 ARTERIAL SYSTEM FOR CONGESTION ANALYSIS – iPeMS
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
Data provided in TMC “link” format
<table>
<thead>
<tr>
<th>Average Speed Range</th>
<th>Map Segment Color</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 to 10 mph</td>
<td>Black</td>
</tr>
<tr>
<td>&gt;10 to 14 mph</td>
<td>Magenta</td>
</tr>
<tr>
<td>&gt;14 to 18 mph</td>
<td>Bright Red</td>
</tr>
<tr>
<td>&gt;18 to 22 mph</td>
<td>Orange</td>
</tr>
<tr>
<td>&gt;22 to 24 mph</td>
<td>Yellow</td>
</tr>
<tr>
<td>&gt;24 to 26 mph</td>
<td>Light Green</td>
</tr>
<tr>
<td>&gt;26 mph</td>
<td>Dark Green</td>
</tr>
</tbody>
</table>
AM Speeds & Slowing
PM Speeds & Slowing
PM Speeds & Slowing

- Heavy Truck Area
- Atlantic Avenue Corridor
- Downtown LB And Ocean Blvd
- I-5 Corridor and Ramp Interchanges
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

Specifications:
- Based on 2011 data
- Data from all Tuesdays, Wednesdays, and Thursdays in January, February, March, and April 2011
- Speed data from NAVTEQ

Arterial Intersection Collision Locations
- Top 50

Average Speed
- 0 - 10 mph
- 10 - 14 mph
- 14 - 18 mph
- 18 - 22 mph
- 22 - 24 mph
- 24 - 26 mph
- 26+ mph
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

AM

PM

Innovation for better mobility
Congestion Analysis Score

- 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

Gold line = Final Concept

Red line = No Build

Significant Congestion Reduction

Innovation for better mobility
Next Steps

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