ITS CA/OCTEC Joint Meeting

February 25, 2016

Enhancing Performance-Based Decision Making

Project Overview

- Project Background
- Stakeholder outreach
- Project Goals
- Define Performance Measures
- Gap Analysis
- Concept of Operations

Project Background

- Metro's and Countywide investments
  - Call for Projects Signal Synchronization and Bus Speed Improvement Mode
  - Arterial-based Intelligent Transportation Systems (ITS)
  - Transportation System Management (TSM) deployments
- Therefore…
  - Arterial performance monitoring

Project Purpose & Approach

Project Purpose

- To develop a Concept of Operations for a countywide arterial performance measurement framework
- Gain understanding of technical, institutional and operations considerations
- Components of a framework

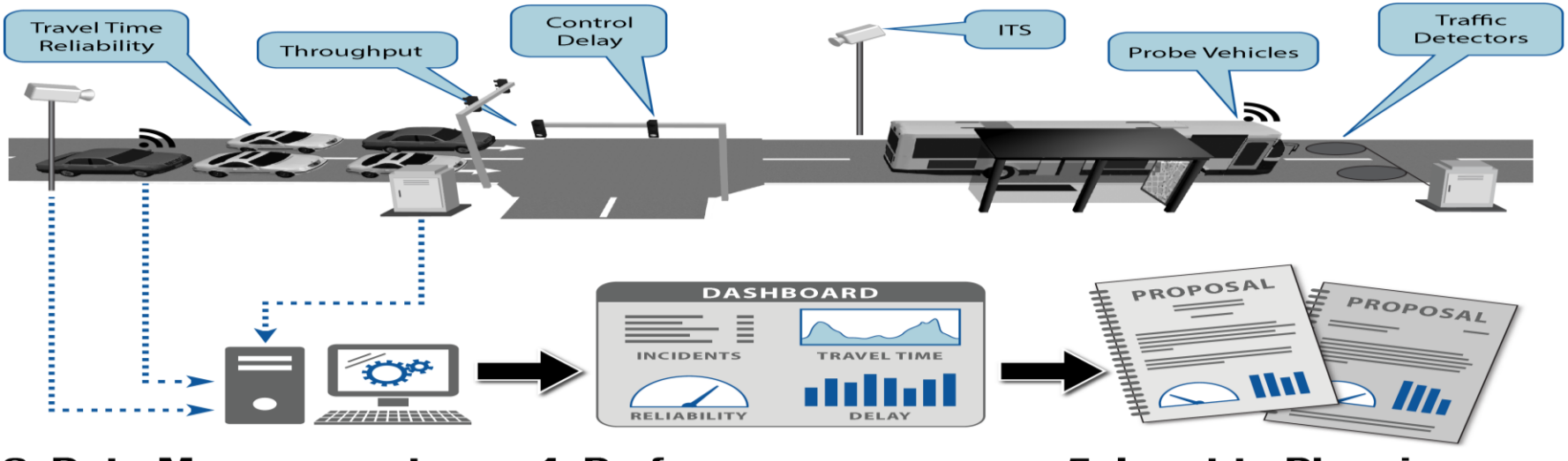
Components of a framework

1. List of Performance Measures

Transportation System Management (TSM) projects make up a large portion of LA Metro's investments. As these are often focused on improving arterial traffic flow, the performance metrics that LA Metro gathers must also be applicable to arterials. Example metrics include travel time reliability, vehicle throughput, transit on-time performance, and control delay.

2. Data Collection/Sources

There are a variety of sources available to LA Metro that have the data needed for calculation of arterial performance metrics. These sources are both public and private, and include detector data, transit vehicle location data, probe vehicle data, and Intelligent Transportation Systems (ITS) data (e.g., CCTV).



3. Data Management

Integrating data into a single, coherent system requires working with different vendors/owners, interfacing with various database systems, and accommodating a range of data formats and types. Data quality validation tools will need to be developed, and strategies for bridging gaps in the data will need to be identified.

4. Performance Measurement Tool

When the backend data management system is complete, a performance measurement tool or dashboard is then implemented to generate usable, actionable information from the data. Summary reports on performance are among the outputs provided by this tool.

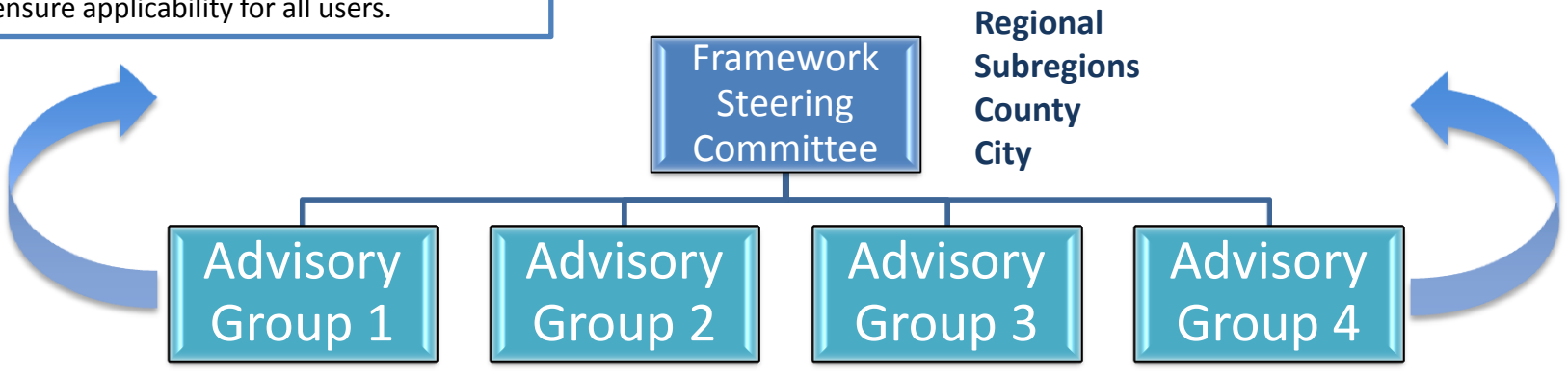
5. Input to Planning Processes

Data-driven planning processes are made possible by performance measurement tools. In this step, internal business processes are updated to take advantage of the new performance measurement tool: projects are prioritized and evaluated based on quantifiable performance metrics and outcomes.

Stakeholder Engagement

Stakeholder Engagement

FRAMEWORK STEERING COMMITTEE
- Guide the project and review key deliverables to ensure applicability for all users.



TECHNICAL ADVISORY GROUPS
- Provide input on goals and objective
- Document user needs and requirements
- Input into the gap analysis

Consensus Building Schedule

Arterial Performance Measurement Framework Goals

Benefits

- Consistent Performance data
- Identify transportation deficiencies
- Highlight project successes
- Cross-jurisdictional traffic management
- Convey benefits and improvements from signal synchronization and other operations projects
- Project planning

Performance Measures

- Vehicle Hours of delay
- Person Hours of Delay
- Truck Hours of Delay
- Travel-time variability
- Travel-time reliability
- Vehicle Miles Travelled
- Average Travel Speed
- Average Travel Time

Data Needs

Data Needed	Potential Data Sources
Travel Time	Purchased vendor probe data, local agency Bluetooth detectors, Sensys detectors, and SMART Signal deployments.
Speed	Local agency in-pavement loop detectors, video image detection cameras, and radar detectors.
Volume	FHWA HPMS files, Caltrans traffic count volume files, and local agency volumes collected by traffic signal systems.
Vehicle Occupancy	SCAG regional travel demand model, and U.S. Census travel data.
Roadway Characteristics	Includes link identification, probe data TMC identification, and segment length. Caltrans Roadway Characteristics Inventory, regional GIS shapefiles with road characteristics data, and local agency roadway inventory.

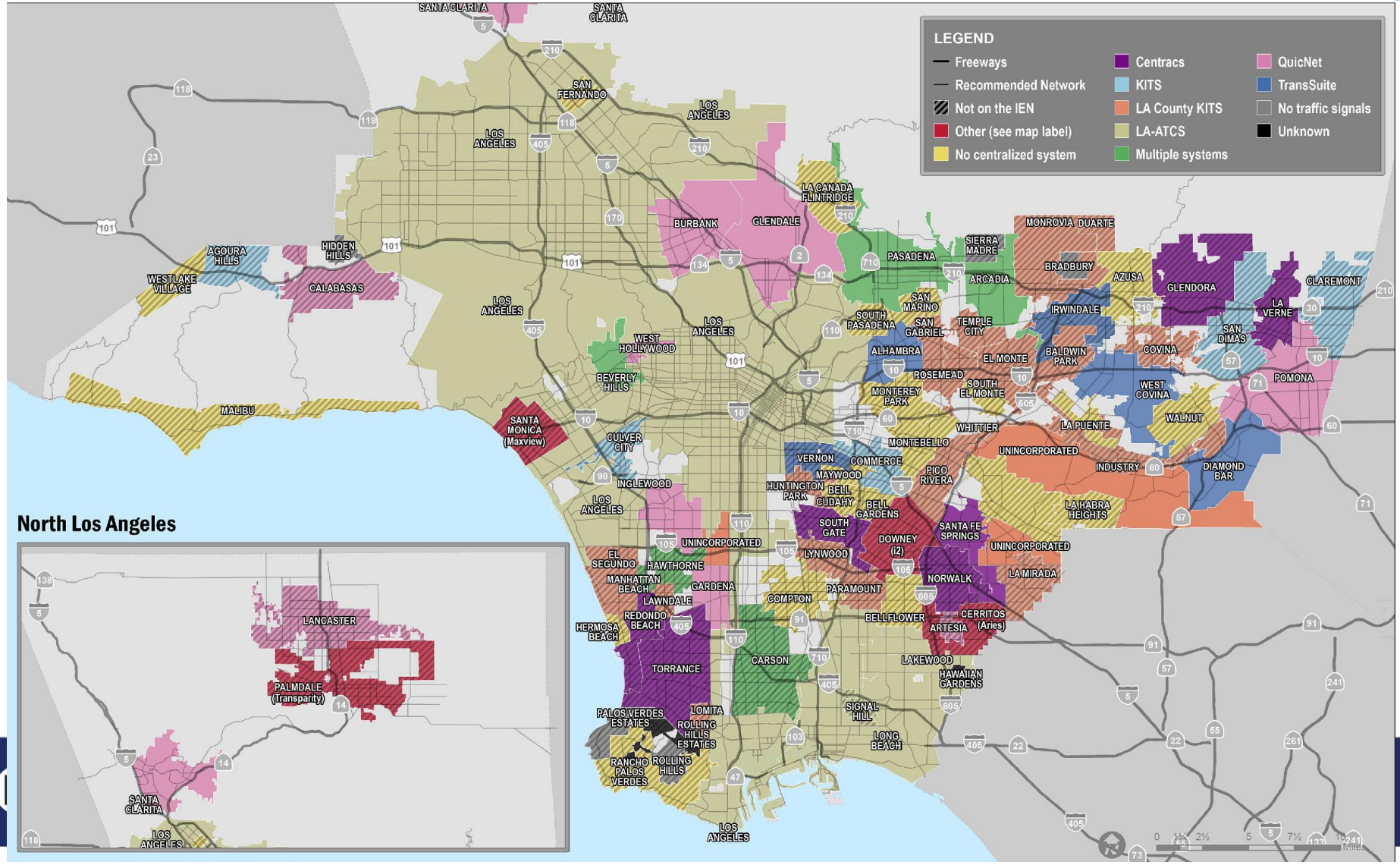
Gap Analysis

Gap Analysis

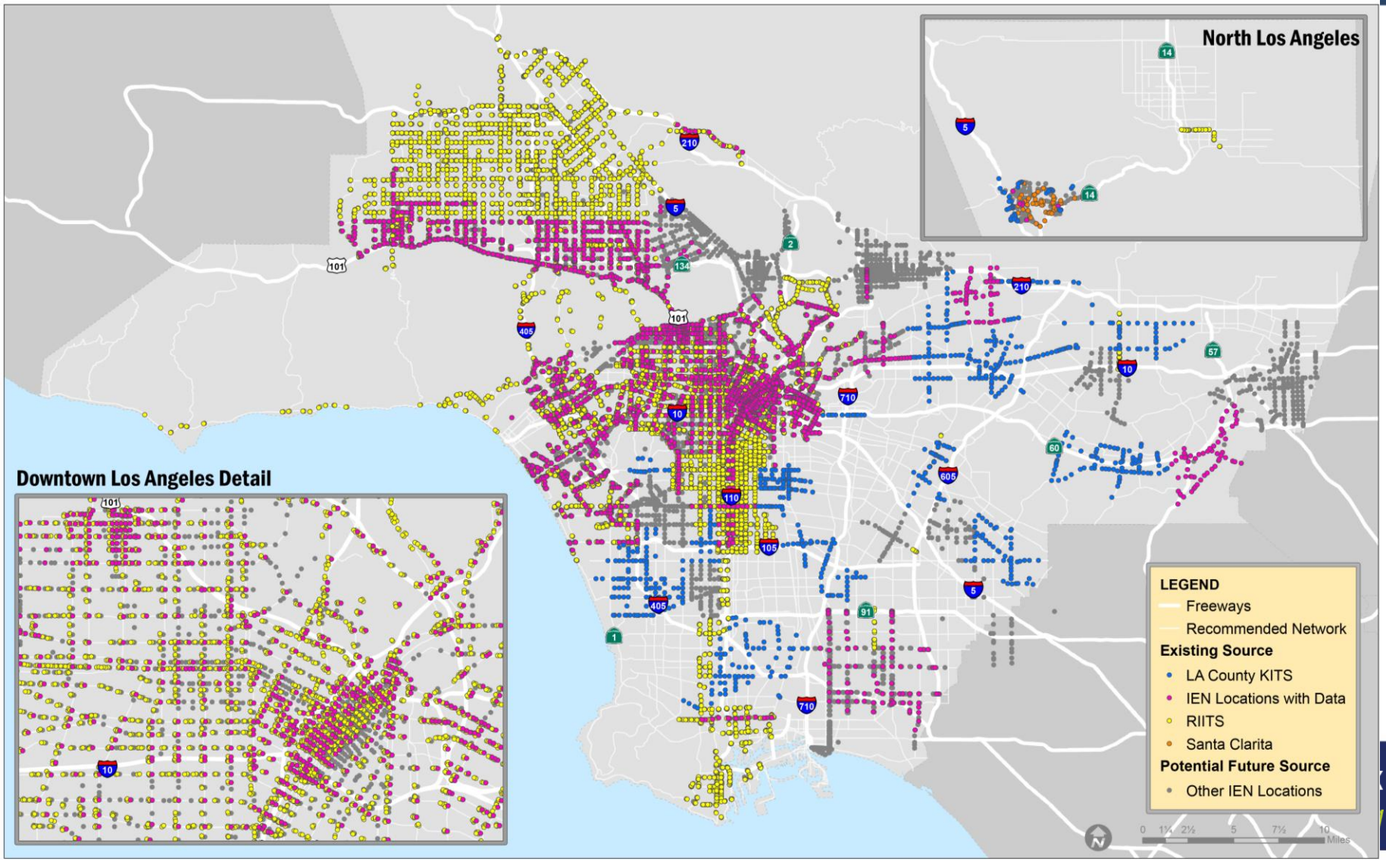
- Focuses on
  - Data Collection/Sources
  - Data Management

- Data Categories
  - Travel time
  - Speed
  - Volume
  - Vehicle occupancy
  - Road characteristics

Map of Centralized Signal Systems by City



Confirmed Existing and Potential Future SPEED Data Locations with Consistent Reporting



Concept of Operations

Outline

2 • Framework Definition and Need

3 • Use Case Scenarios

4 • Options to Meet Framework Needs

5 • Recommendations

6 • Phased Deployment Plan

A • Appendix A. Additional System Requirements

Implementation Plan Phases

1. Proof of Concept
2. Build Framework based on third party data
3. Build Fully Functional Framework System

Concept of Operations Conclusions

There was sufficient interest in and agreement with the concept

It is feasible to develop an Arterial Performance Measurement Framework

Where are we now?

Phase 1: Proof of Concept

Thank You !

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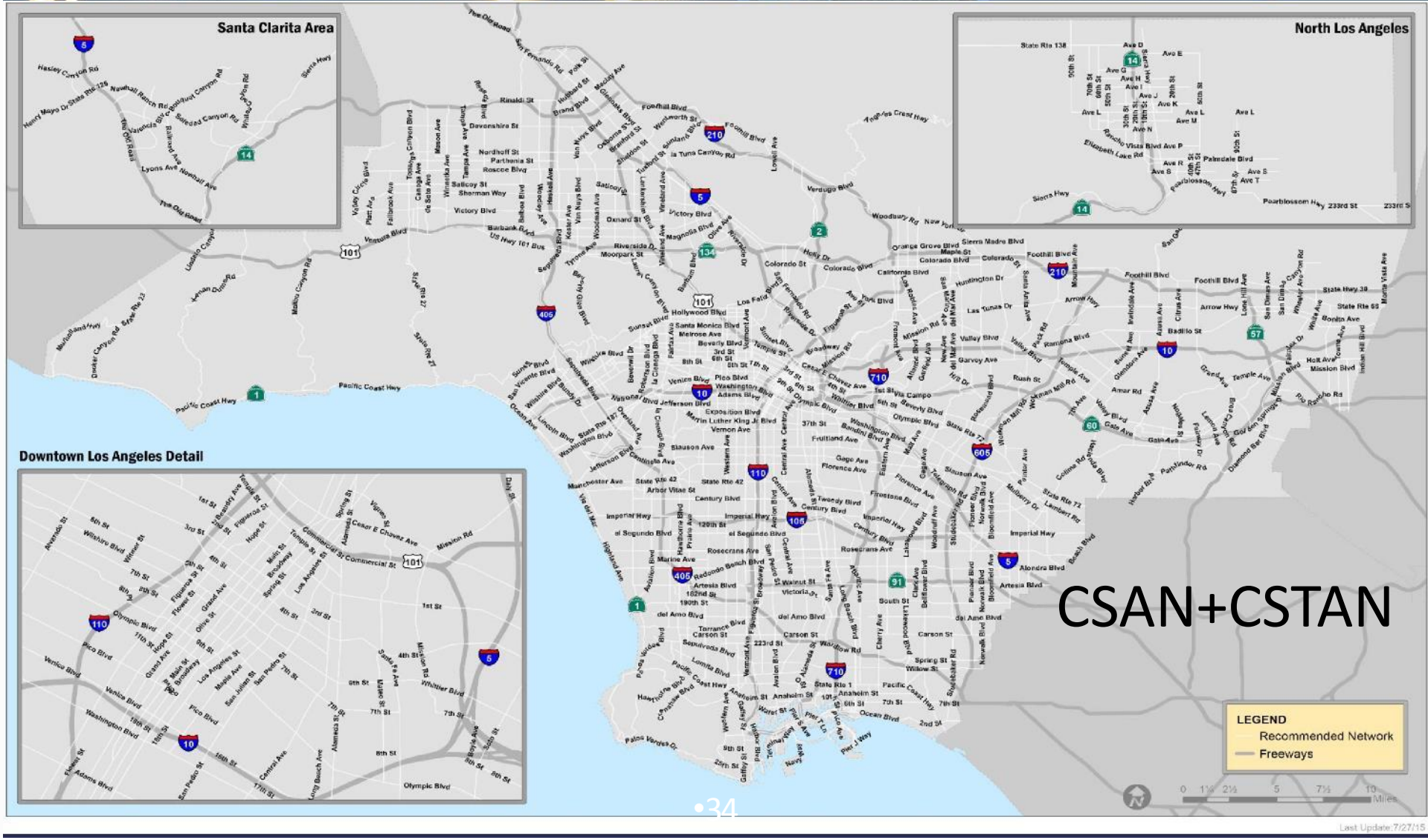
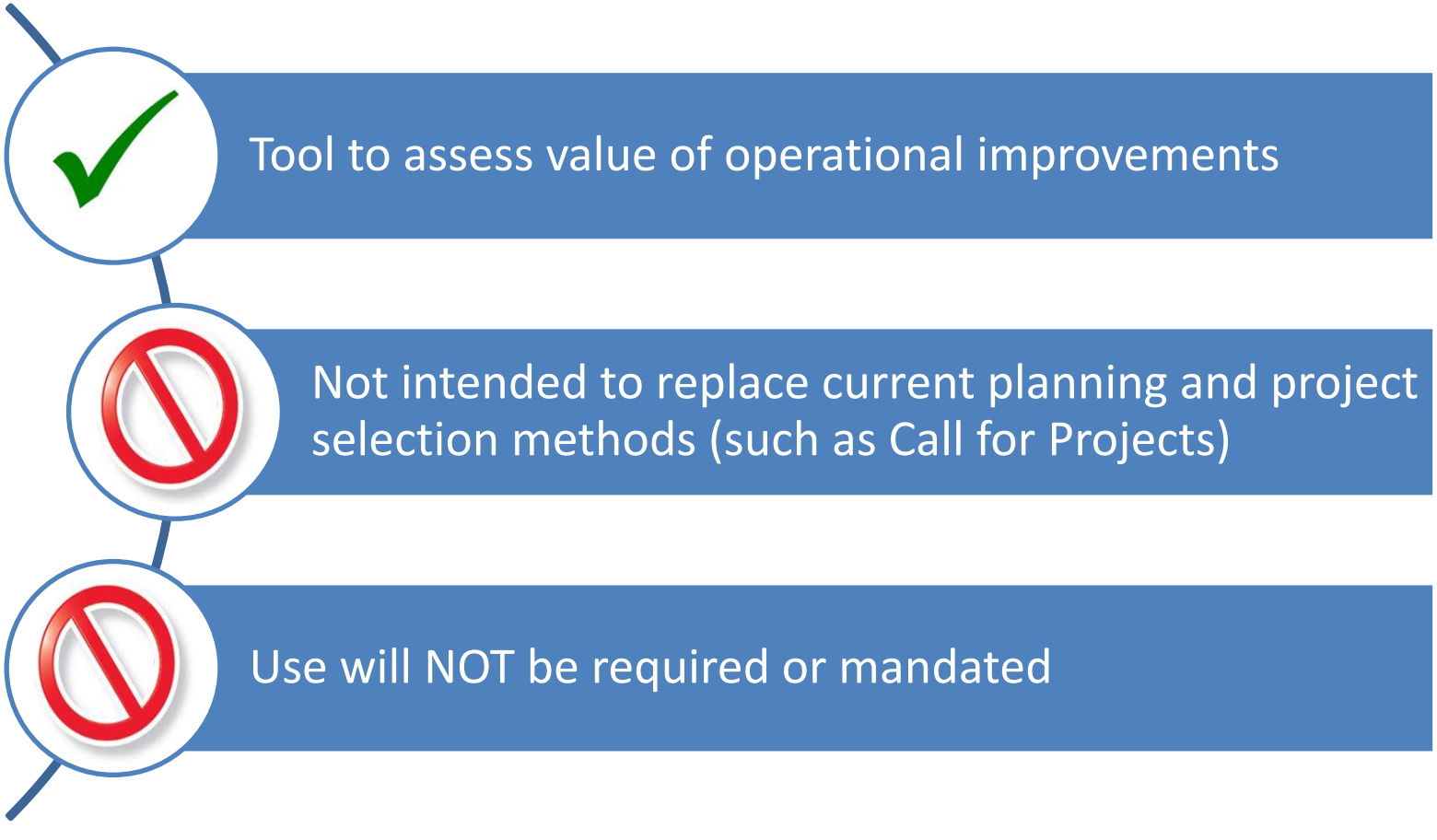
Network


Santa Clarita Area
North Los Angeles
Downtown Los Angeles Detail
CSAN+CSTAN
LEGEND
Recommended Network
Freeways

Gaps Summary and Recommendations

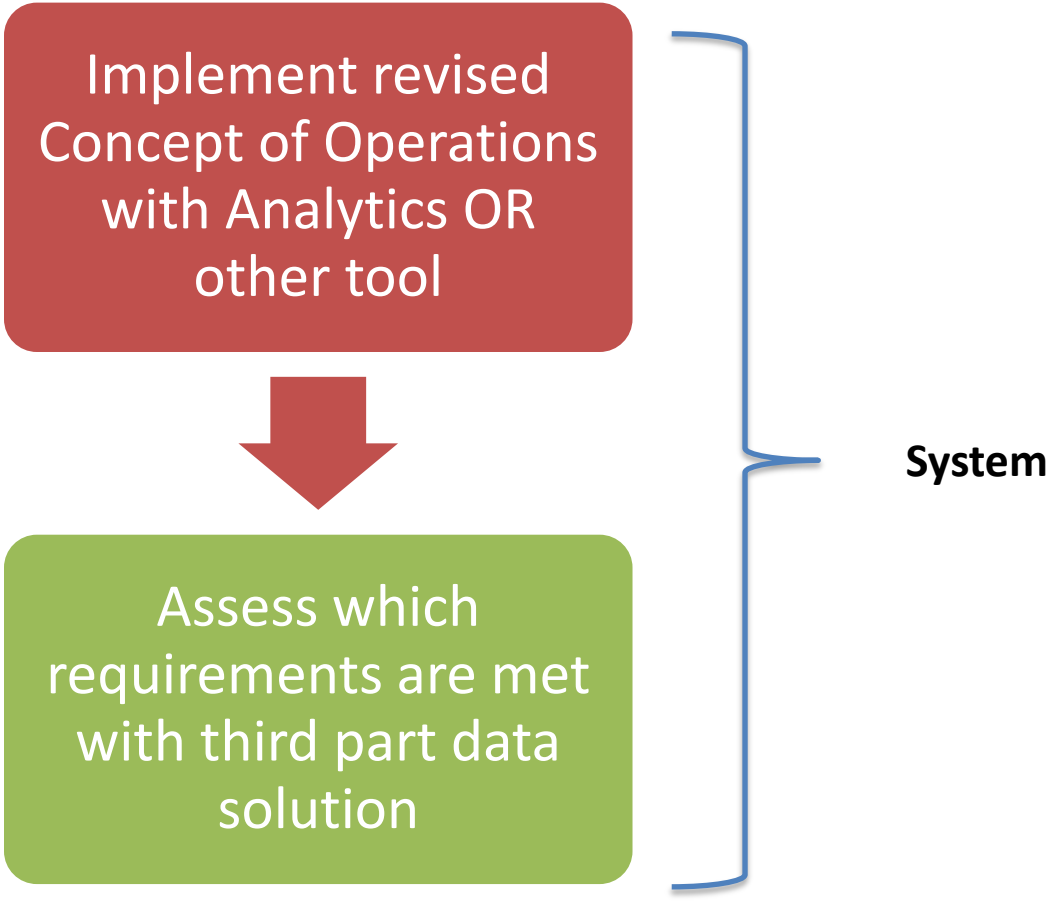
- Speed
  - 77% of overall network has some speed data coverage, 58% of network has speed source less than 2 miles away
  - Use third party data combined with coverage data
- Volume
  - 87% of network has some level of coverage, 72% of network has a source less than 2 miles away
  - Use volume data and address gaps by working with cities to provide data to IEN or RIITS
  - Consider use of SCAG volume from travel demand model

Provision of Input into Planning process



Phase 1: Proof of Concept

Phase 2- Framework based on Third Party Data



Phase 3: Fully Functional System