

SR 710 North Study

Technical Advisory Committee Meeting No. 13 – November 13, 2013

Stakeholder Outreach Advisory Committee Meeting No. 9– November 14, 2013



Agenda

- Public Outreach Activities
- Update on Parts 2 and 3 – Project Report and Environmental Studies Documentation
 - Recap of TAC No. 12 and SOAC No. 8
 - Discussion on Value Analysis Study
 - Update on Preliminary Engineering and Environmental Technical Studies
 - Next Steps

Ground Rules

- Q&A after each section of the presentation
- Focus questions on information presented
- General comments and Q&A at the end

Public Outreach Activities



Continue Outreach Activities Throughout Duration of the Study

- Outreach activities include one-on-one meetings with community leaders, outreach to academic institutions, major employers, roundtable discussions with Study Area stakeholders, and *All Communities Convening* Open Houses and Information Sessions

Summary of Outreach Activities October – November 2013

Continue structured outreach activities to engage stakeholders throughout the study area

- Attended South Pasadena Special City Council meeting with Supervisor Michael Antonovich
- Attended Senator Carol Liu's Legislative Breakfast meeting in South Pasadena
- Attended roundtable briefings with major facilities throughout the Study Area
- Provided briefing to the East Los Angeles Empowerment Congress

Summary of Outreach Activities October – November 2013

Participated in Community Information Sessions

- City of Alhambra 5th Council District – Emery Park Briefing
- East Los Angeles Community Specific Information Session



Summary of Outreach Activities October – November 2013

Participated in Outreach on College Campuses



Cal State Los Angeles

Update on Parts 2 and 3 - Project Report and Environmental Studies Documentation



Recap of TAC No. 12 and SOAC No. 8

- Public Outreach Activities
- Update on Parts 2 and 3 – Project Report and Environmental Studies Documentation

Feedback Received During TAC No. 12/ SOAC No. 8

- Why weren't all of the comments from the ACC meetings included in the presentation?
- Like to know the pros and cons of the extension of St. John Avenue and removal of connection to Pasadena Avenue
- What would be the distribution of traffic if the freeway tunnel is not built?
- Could we discuss where tunnel traffic is going to (O-D)?
- Could we compare travel in BRT to travel in cars?
- Provide engineering analysis to support the location of ventilation towers

Feedback Received During TAC No. 12/ SOAC No. 8

- Discussion on depths of stations and tunnels for LRT
- Could we tell how much faster the drive would be with each alternative?
- Would like to see the results for toll tunnel
- Could you provide ridership data for BRT?
- Is change in behavior of younger generation included in the traffic analysis?
- What would be the affected parking for BRT?
- Request additional stops for LRT alternative
- Are noise measurements made at community centers and libraries?

Value Analysis Study



Overview

- Metro SR 710 Program
- Two Value Analysis (VA) Workshops
 - March 11th – 14th
 - March 25th – 27th
- Participants
 - Independent team of Metro, Caltrans, and consultant staff
 - Industry expertise
 - Transit, roadway, geotechnical, tunneling, environmental, construction, maintenance, alternative project delivery, advanced traffic management, finance, cost estimating, VA facilitation

Value Analysis Study Approach

- The approach emphasizes the interrelationship between cost and performance and can be quantified and compared in terms of how they contribute to overall value.
- Key Features
 - Focus is on essential project objectives
 - Embraces creativity and new relevant ideas
 - Well defined decision making process
 - Identification of key issues and concerns
 - Project performance requirements
 - Organized framework to identify potential alternatives
 - Earlier decision making resulting in cost effectiveness

Value Analysis Study Process

- **Seven-Phase Process**
 - Information Phase
 - Function Phase
 - Speculation Phase
 - Evaluation Phase
 - Development Phase
 - Presentation Phase
 - Implementation Phase

VA Study Workshop

Key Project Issues

- **Lack of Regional N-S Connections**
 - Results in cut-through traffic on local arterial streets
 - Exacerbates local congestion
- **High Levels of Congestion on Freeways and Local Streets**
 - Results in increased costs and travel time for all
 - Results in pollution and degradation of the quality of life
- **Inadequate Regional Transit**
 - Limited service in this densely populated area
 - Regional transit connections would improve livability
- **Community Impacts**
 - High level of public interest in potential impacts from all alternatives
 - Cumulative Impacts - Secondary

VA Study Workshop

Potential Project Risks

- Actual Traffic Levels and Ridership
- Tolling Feasibility
 - Achieving potential revenue goals
- Construction Costs
- Adverse Impacts to Right of Way (ROW)
- Tunneling Technology

VA Study Workshop

Anticipated Outcomes

- Increase the Value of the Project
 - Look for opportunities to increase the functionality of the project
- Identify Opportunities for Cost Savings
 - Look for opportunities to optimize each potential alternative for cost effectiveness
 - Fully respect the functionality and commitments on the project
- New Alternatives or Combinations of Alternatives
 - Review combinations of alternatives that may not have been developed before
- New Technologies
 - Alternative technologies that may have not been considered

VA Study Workshop

Study Alternatives

- No Build
- Transportation System Management/
Transportation Demand Management
(TSM/TDM)
- Bus Rapid Transit (BRT) Alternative
- Light Rail Transit (LRT) Alternative
- Freeway Tunnel Alternative

VA Study Workshop

Ideas for Enhancements to Study Alternatives

- New Access
- Streetcar Component
- Cost Effectiveness & Optimization
- Alternative Project Delivery
- Technologies
 - Variable Speed Control – Congestion Management

VA Study Proposals For Consideration

- TSM/TDM Proposals (2) – TSM1, FT10
- BRT Proposals (2) – BRT1, BRT2
- LRT Proposals (6) – LRT1 – LRT6
- Freeway Tunnel Proposals (7) – FT1 – FT7
- Project Delivery Proposals (2) – FT8, FT9
- Strategies:
 - LRT-S1 - Combine LRT1, 2 & 3
 - FT-S1 - Combine FT1 & 2
- New Build Alternatives:
 - Hybrid Streetcar Proposal – BRT3
 - Add BRT to Freeway Tunnel Proposal – BRT-A1

VA Study Proposals for Transportation System Management and Bus Rapid Transit

- TSM1 – Peak Direction HOV Lane
- BRT1 – Guided BRT + Info Technologies
- BRT2 – Multimodal Transit Centers + Single Freeway Tunnel

VA Study Proposal TSM1 Peak Direction Arterial HOV Lane

Advantages

- Encourages carpooling and transit
- Increases peak period capacity

Disadvantages

- On-street parking impacts
- Reduce capacity in mixed-flow lanes
- Initial cost increase:
\$5.1 million

Typical Cross Sections



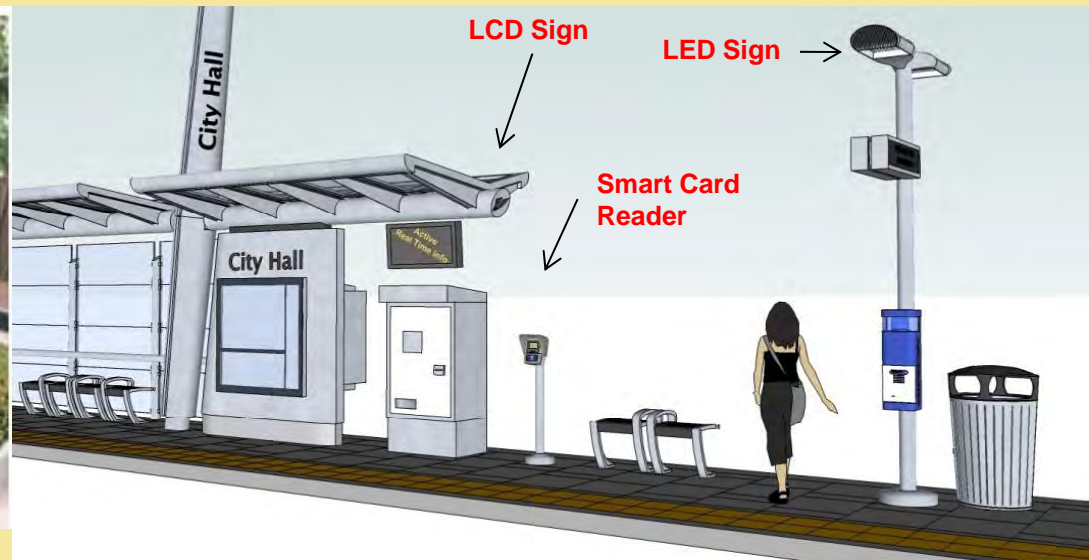
VA Study Proposal BRT1: Guided BRT with Enhanced Technology

Advantages

- Increase reliability
- Reduce travel times
- Improve passenger amenities

Disadvantages

- Less routing flexibility
- Enforcement required
- Initial cost increase: \$7.2 million



VA Study Proposal BRT2 Multimodal Transportation Centers

Advantages

- Encourage alternate mode use
- Enhances freeway tunnel option
- Reduce arterial congestion

Disadvantages

- Reroute BRT alignment
- ROW impacts
- Initial cost increase:
\$111 million



VA Study Proposals for Transit

- **BRT3 - Streetcar on BRT-6A Alignment**
- **LRT1 – At-grade LRT section along I-710 median**
- **LRT2 – Valley Boulevard over LRT + consolidate maintenance and storage facility (MSF)**
- LRT3 – Terminate LRT at Arroyo Seco/Fair Oaks Avenue
- LRT4 – LRT at-grade along Sheffield Avenue
- LRT5 – Hybrid LRT: Elevated from south and at-grade north of Mission Road
- **LRT6 – Terminate LRT Tunnel at Mission Street near Gold Line**

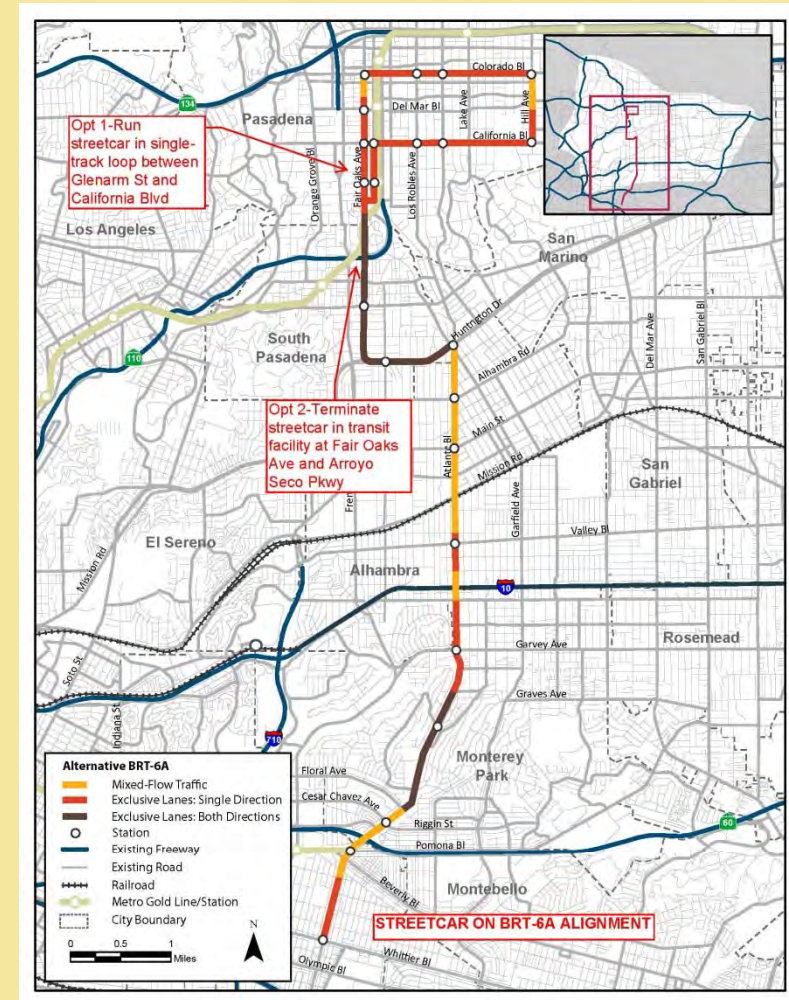
VA Study Proposal BRT3 Streetcar on BRT-6A Alignment

Advantages

- Spacing of stops like BRT
- Operates in mixed traffic
- Complements Gold Line
- \$1.7B savings vs. LRT

Disadvantages

- Requires maintenance and storage facility (MSF) and ROW



VA Study Proposal LRT1 LRT in Median of I-710

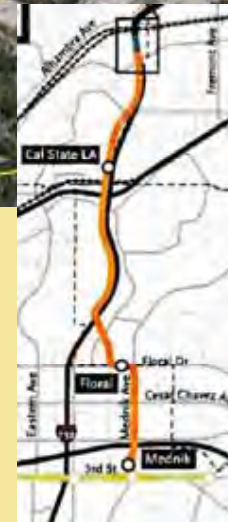
LRT at-grade along median of I-710, transitioning to elevated structure west side of I-10/710 Interchange

Advantages

- Reduce ~0.6 miles elevated light rail track
- Improve LRT operation
- Less structural maintenance
- Lower seismic risk
- Less fire hazard from hillside
- Initial cost savings: \$29.4M

Disadvantages

- Requires freeway widening
- Reconstruct shoulder structural roadway
- Construct bridge over 710/I-10 IC
- Conflict with median columns at IC



VA Study Proposal LRT2 Valley Boulevard over LRT Alignment and Maintenance Facility

Advantages

- Consolidates MSF site
- Reduces bored tunnel
- Yard Tracks same level
- Reduces material to be exported
- Initial cost savings: \$71M

Disadvantages

- Valley Boulevard on structure
- ROW Impacts to abutting properties



VA Study Proposal LRT6

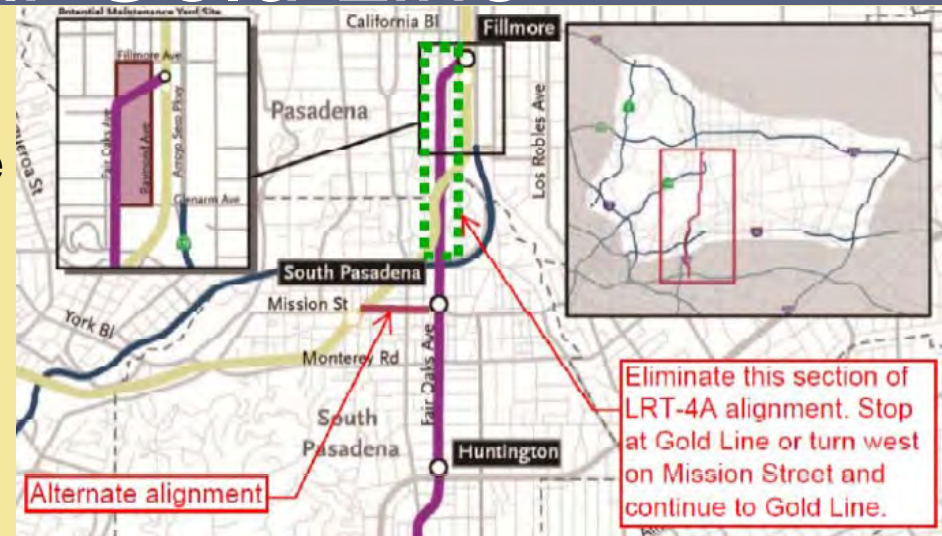
Terminate LRT Tunnel at Mission Street near Gold Line

Advantages

- Shortens tunnel length by nearly 1 mile
- Eliminates overlap between LRT- 4A and Gold Line
- Connects to existing Gold Line station at Mission Street
- Initial cost savings: \$262M

Disadvantages

- May need additional parking structure
- Alignment goes under existing single-story building



VA Study Proposals for Freeway Tunnel

- **FT1 – Single-bore Tunnel with Variable Tolling**
- **FT2 – Car-Only Freeway with Reduced-Diameter Tunnels**
- **FT4 – Add Local Access to SR 710 at North Project Terminus**
- **FT4A – Raise Tunnel Profile at North Portal Saving Earthwork**
- FT5 – Terminate South Portal of Tunnel North of Mission Rd
- FT6 – Precast Elements for Tunnel Roadway Decks and Walls
- FT7 – Cut-n-Cover Freeway Tunnel with Landscaped Deck
- FT8 – Implement Freeway Tunnel via Alternative PPP Delivery
- **FT9 – Construct Freeway Tunnel via “Early Contractor Involvement”**
- FT10 – Network-wide Congestion Management by Vehicle Speed Control

VA Study Proposal FT1 Single Bore Tunnel

Proposal FT-1: Express Tunnel

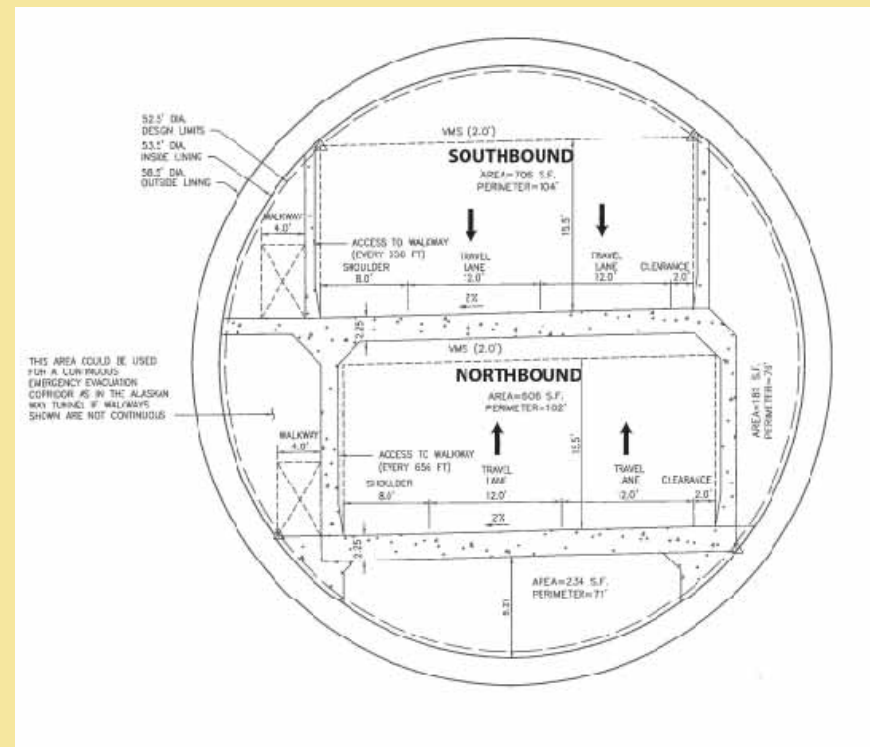
- Two lanes in each direction, stacked in single tunnel
- Variable toll depending on real time demand, like I-10, I-110, SR 91 Express Lanes
- Major cost savings:
\$2.5 billion (45%)

➤ Advantages

- More likely to be financeable
- Reduced environmental impacts
- Profitability
- Second future tunnel

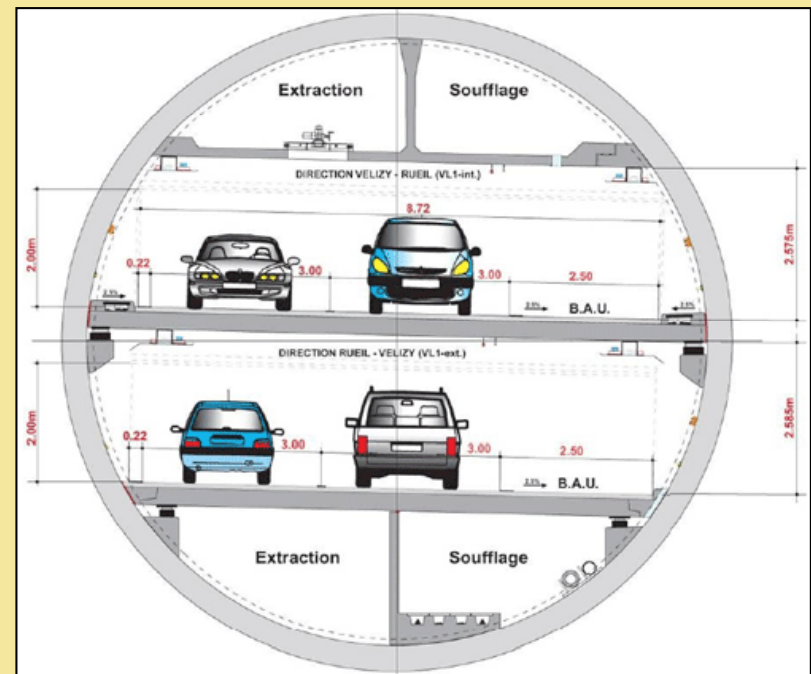
➤ Disadvantages

- Reduced capacity
- Reduced revenue potential



VA Study Proposal FT2 Car-Only Freeway Tunnel

- Similar Tunnel Arrangement Used in France (Paris A86)
 - 34.1ft Internal Diameter (ID) tunnel
 - 8.4ft vertical clearance, 9.8 ft traffic lanes + 8.2 ft shoulder
- Requires Less Vertical Clearance
- Reduced Tunnel Diameter by 6'
- Suggested Tunnel Configuration:
 - 46.5 ft ID tunnel
 - 10 ft vertical clearance
 - 11 ft traffic lanes
 - 8 ft shoulder (+ 2 ft clear)



VA Study Proposal FT2 Car-Only Freeway Tunnel

Advantages

- Less environmental impacts
- Reduces tunnel excess material & construction time
- Potential initial cost savings: \$584 million
- Reduced design fire size (<30MW)

Disadvantages

- Continues to require trucks to use existing roadways
- Reduced potential for toll revenues (no trucks)
- Special low clearance maintenance/response vehicles required
- Adverse visual affects for motorist (claustrophobic)

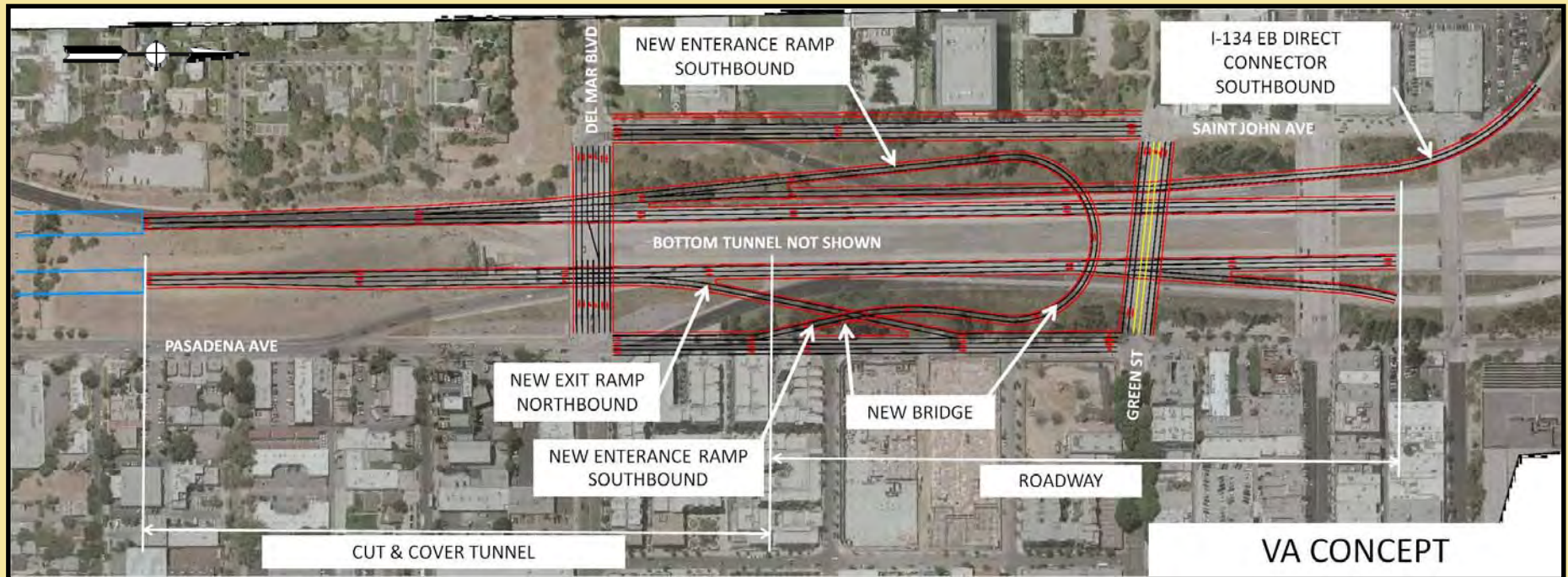
VA Study Proposal FT4 Additional SR 710 Access Located at the North Project Terminus

Advantages

- Additional SR 710 Access
- Improves connectivity for local access

Disadvantages

- Local street congestion
- Environmental
- Cost increase: \$47 million



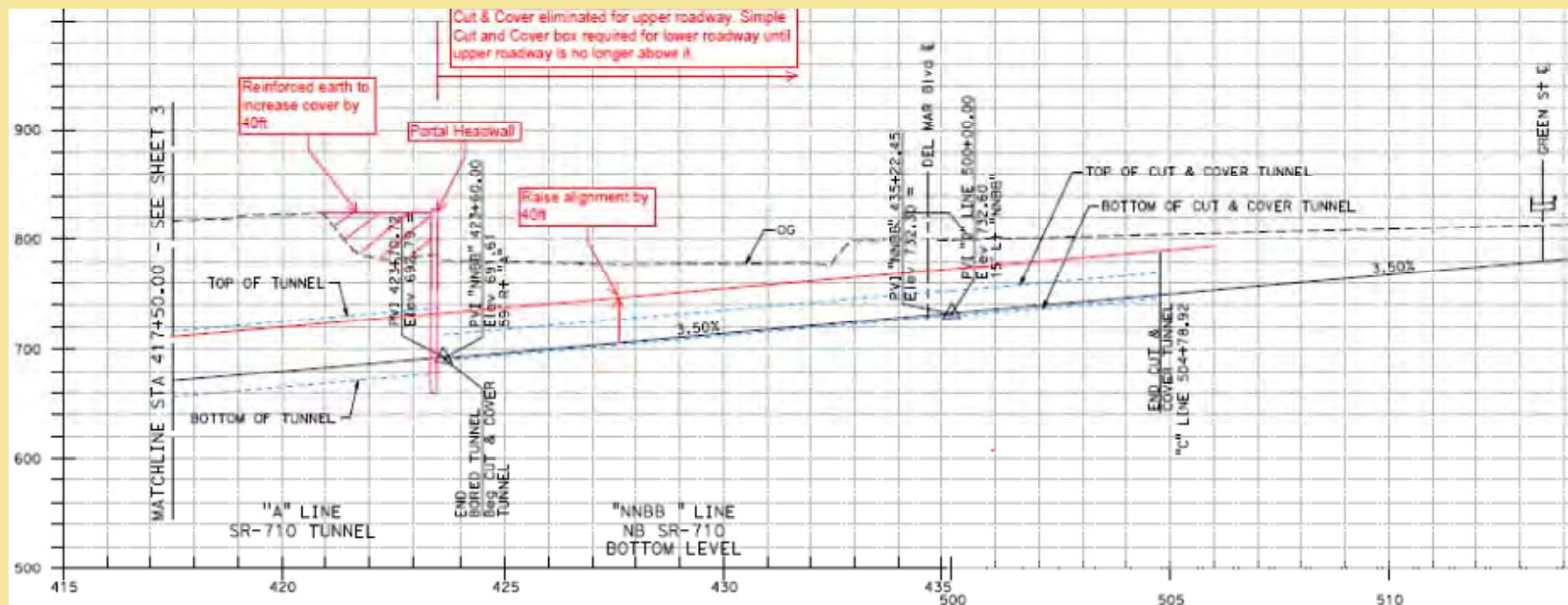
VA Study Proposal FT4A Raise Profile North Portal Approximately 40 ft.

Advantages

- Cost savings:\$198 million
- Eliminates the majority of cut and cover tunnel
- Existing bridges could remain

Disadvantages

- Environmental impacts
- Additional ground improvements



VA Study Proposal FT9

Early Contractor Involvement (ECI)

Potential Value Added Approach for All Alternatives

Advantages

- Captures industry feedback
- Lowers risk pricing by owner
- Agreed upon risk allocations
- Fosters contractor-owner communications
- Considerations for Construction Management/General Contractor and Design Build alternative delivery approaches

Disadvantages

- Limits construction input to just 1 contractor
- Option could eliminate a future bidder
- Cost competitiveness could be reduced

Summary of VA Study Recommendations

VA Proposals	Accepted	Accepted with Modifications	Rejected	Further Study Needed
TSM1 - Peak Direction HOV Lane		★		
BRT1 – Guided BRT + Info Technologies		★		
BRT2 – Multimodal Transit Centers + Single Fwy Tunnel				★
BRT3 – Streetcar on BRT-6A Alignment			★	
LRT1 – At-grade LRT section along I-710 Median			★	
LRT2 – Valley Blvd over LRT + Consolidate MSF		★		
LRT3 – Terminate LRT at Arroyo Seco/Fair Oaks			★	
LRT4 – LRT At-grade along Sheffield Avenue			★	
LRT5 – Hybrid LRT: Elevated from south and At-grade north of Mission Road			★	
LRT6 – Terminate LRT tunnel at Mission St near Gold Line			★	

Summary of VA Study Recommendations

VA Proposals	Accepted	Accepted with Modifications	Rejected	Further Study Needed
FT1 – Single-bore Tunnel with variable Tolling	★			
FT2 – Car-only Freeway with reduced-diameter Tunnels		★		
FT4 – Add local access to SR 710 at north Project Terminus		★		
FT4A – Raise Tunnel Profile at north portal saving Earthwork	★			
FT5 – Terminate south portal of Tunnel north of Mission Road			★	
FT6 – Precast Elements for Tunnel Roadway Decks and Walls				★
FT7 – Cut-n-Cover Freeway Tunnel with Landscaped Deck			★	
FT8 – Implement Freeway Tunnel via alternative PPP Delivery				★
FT9 – Construct Freeway Tunnel via “Early Contractor Involvement”				★
FT10 – Network-wide Congestion Management by Vehicle Speed Control		★		
VA Strategies:				
LRT-S1 – Combine VA Proposals LRT1, LRT2 and LRT3			★	
FT-S1 – Combine VA Proposals FT1 and FT2			★	
VA Alternative:				
BRT-A1 – Add BRT to Freeway Tunnel with Enhanced Technologies		★		

VA Implementation

- Recommendations provided to Study Team for consideration
- Study Team evaluated recommendations and reached a resolution
- Accepted proposals have been incorporated
- VA Report is being finalized based on final disposition and will be available early 2014

Update on Preliminary Engineering and Environmental Technical Studies



Continue Refinements to Build Alternatives

- Transportation System Management (TSM)/Transportation Demand Management (TDM)
- Bus Rapid Transit (BRT) with TSM/TDM
- Light Rail Transit (LRT) with TSM/TDM
- Freeway Tunnel with TSM/TDM

Preliminary Engineering Update

TSM/TDM Alternative

- Refining design to incorporate VA recommendations
- Developing stage construction overview
- Developing construction schedule & equipment needs
- Coordinating with environmental team
- Developing cost estimates

Preliminary Engineering Update

BRT Alternative

- Refining design to incorporate VA recommendations
- Conducting parking surveys to evaluate effects on parking
- Refining/enhancing bus stations & locations
- Confirming other bus station amenities
- Refining bus service plans
- Developing landscape concepts
- Developing cost estimates

Preliminary Engineering Update

LRT Alternative

- Refining design to incorporate VA recommendations
- Refining maintenance yard design
- Developing cost estimates
- Assessing the parking need at each station based on demand

Preliminary Engineering Update

Freeway Tunnel Alternative

- Refining design to incorporate VA recommendations
- Continuing with Fact Sheets for non-standard features
- Developing tunnel drainage system
- Developing construction schedule & equipment needs
- Coordinating with environmental team
- Developing cost estimates

Environmental Studies Update

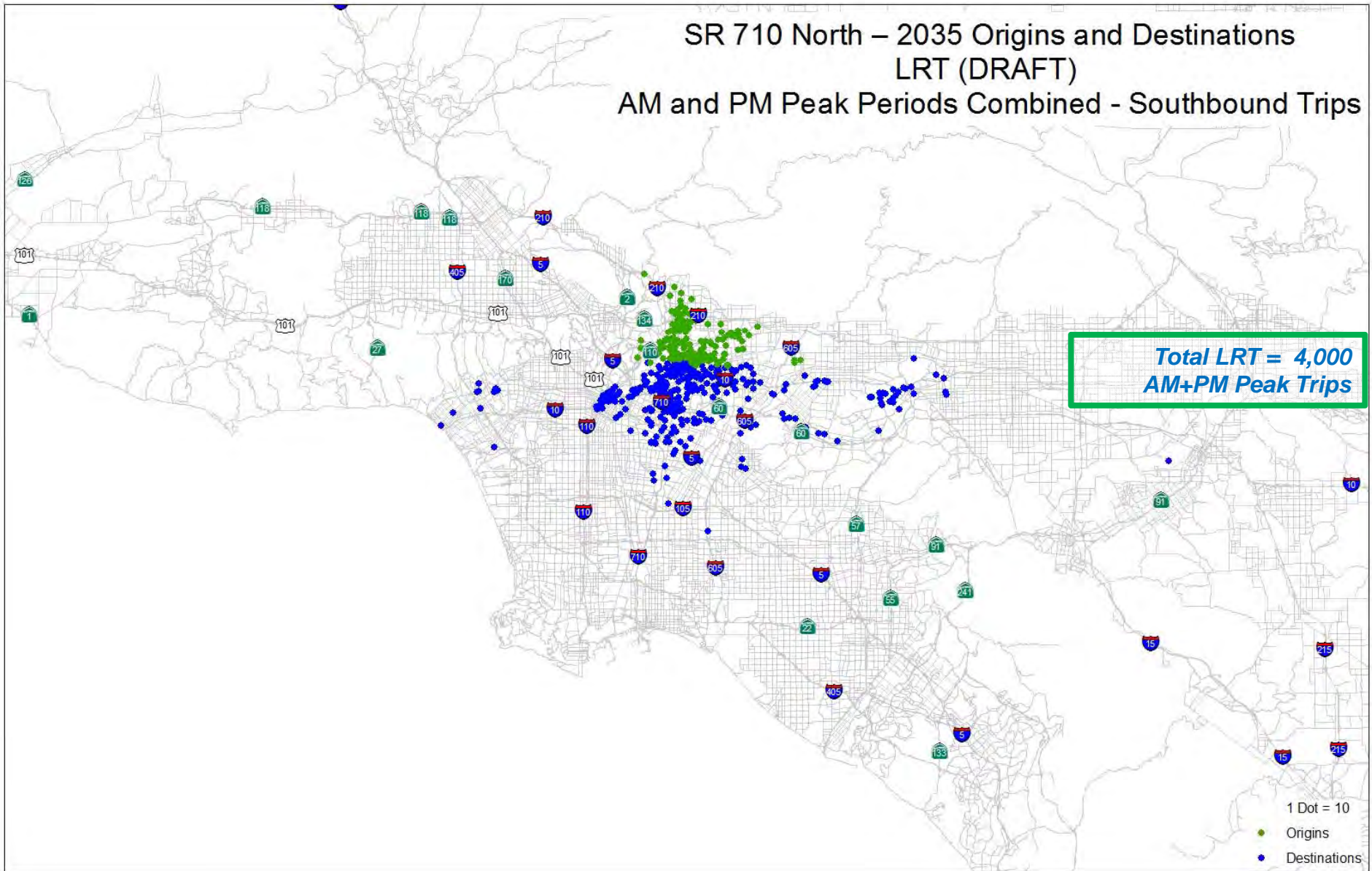
Technical Studies

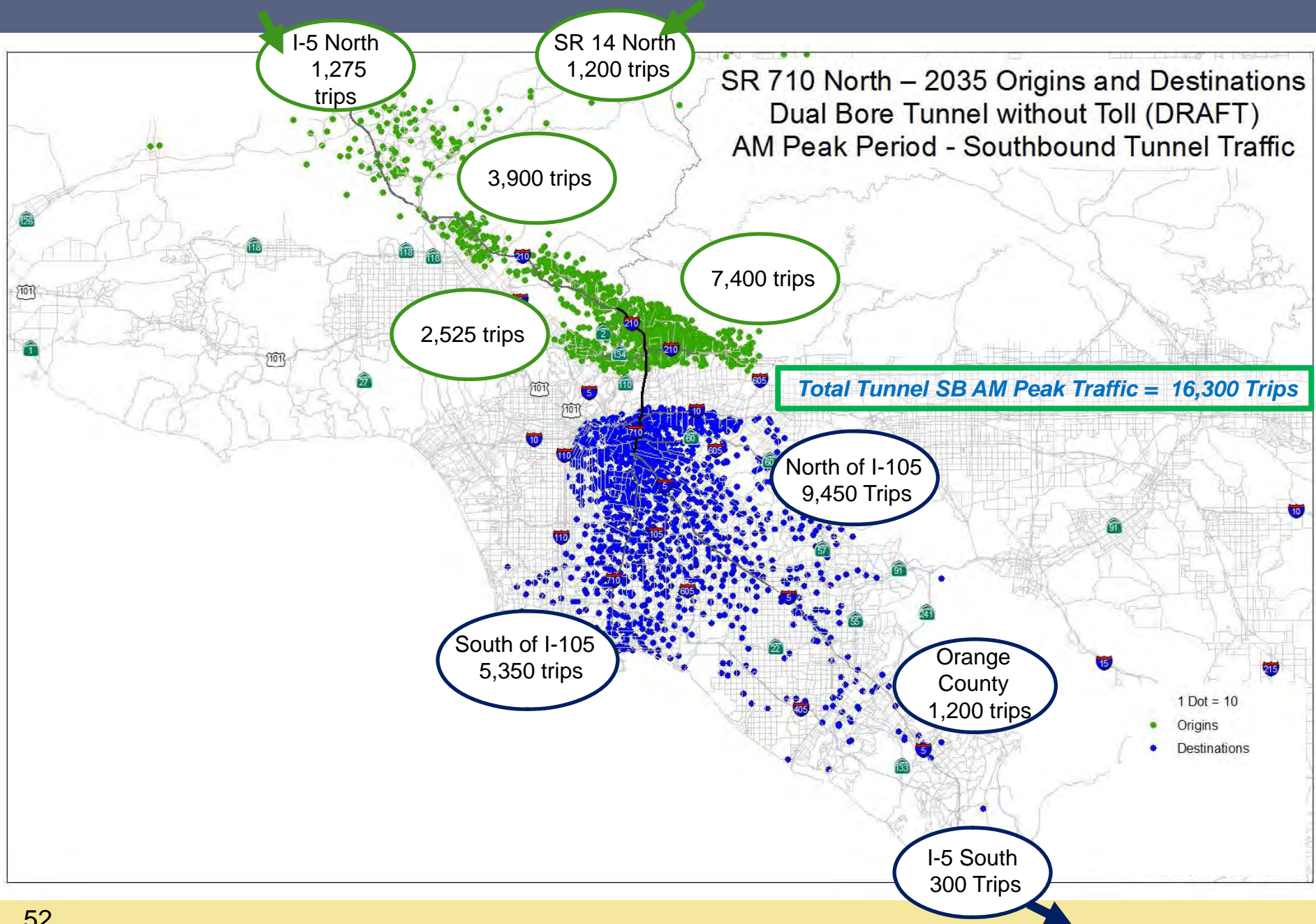
- Fieldwork is essentially complete
- Draft technical studies in review by Metro and Caltrans:
 - Stormwater Data Report, Paleontological Identification Report/Paleontological Evaluation Report, Location Hydraulic Study, Drainage Report, Geologic Hazards Evaluation Report
- Remaining draft technical studies in progress
- Follow-up meetings
 - SCAQMD
- Incorporating refinements to design
- Initiate preparation of sections of the DEIR/DEIS

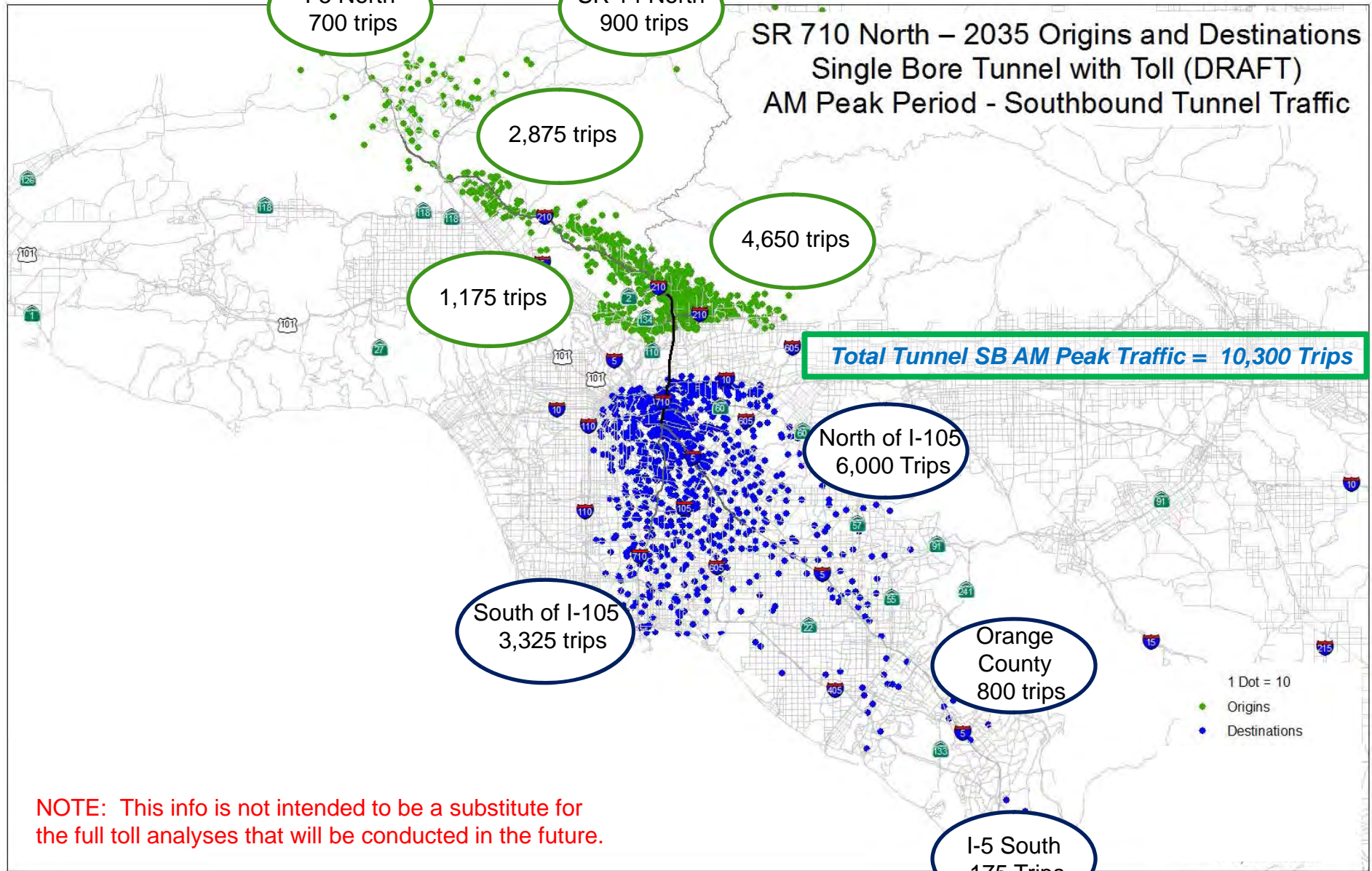
Traffic Analysis Status

- Future (2035) Travel Demand Model Runs for Environmental Analysis Complete
- Travel Forecast Results for 2035 Assessed
- Future Operations Models (for Level of Service) in Progress
- Transit, Parking, Bike/Ped Assessments Initiated

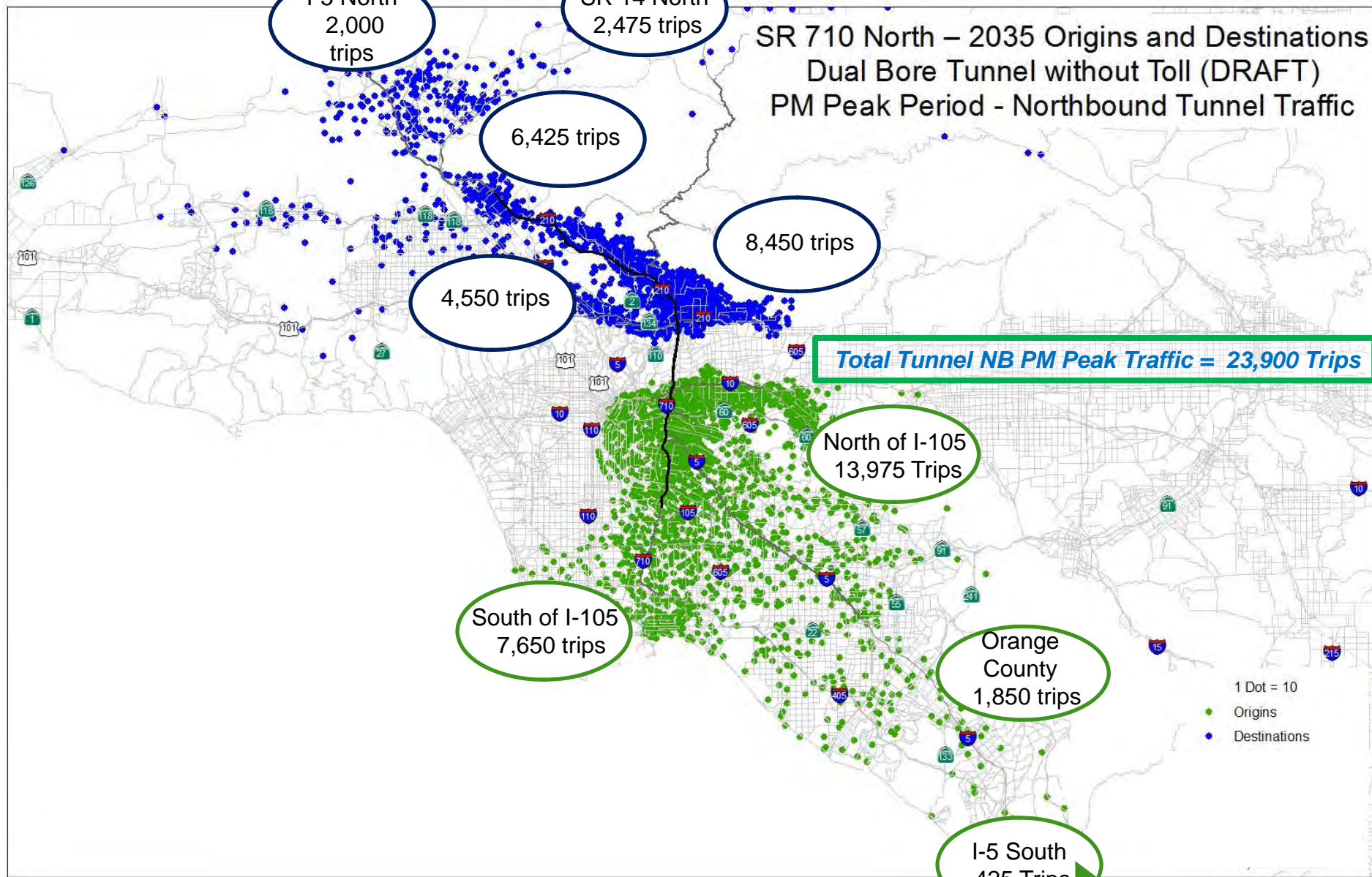
SR 710 North – 2035 Origins and Destinations
LRT (DRAFT)
AM and PM Peak Periods Combined - Southbound Trips

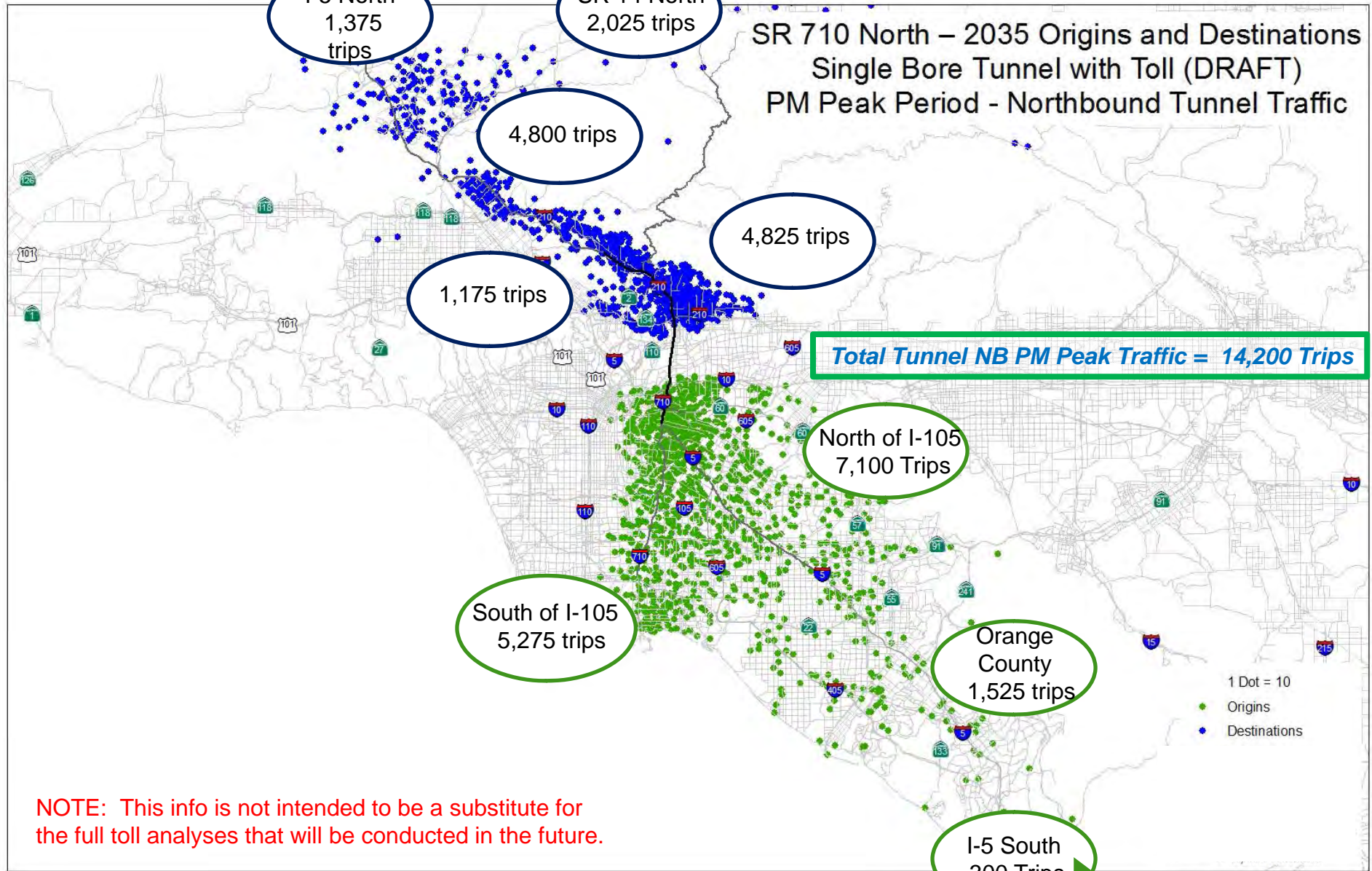






NOTE: This info is not intended to be a substitute for the full toll analyses that will be conducted in the future.



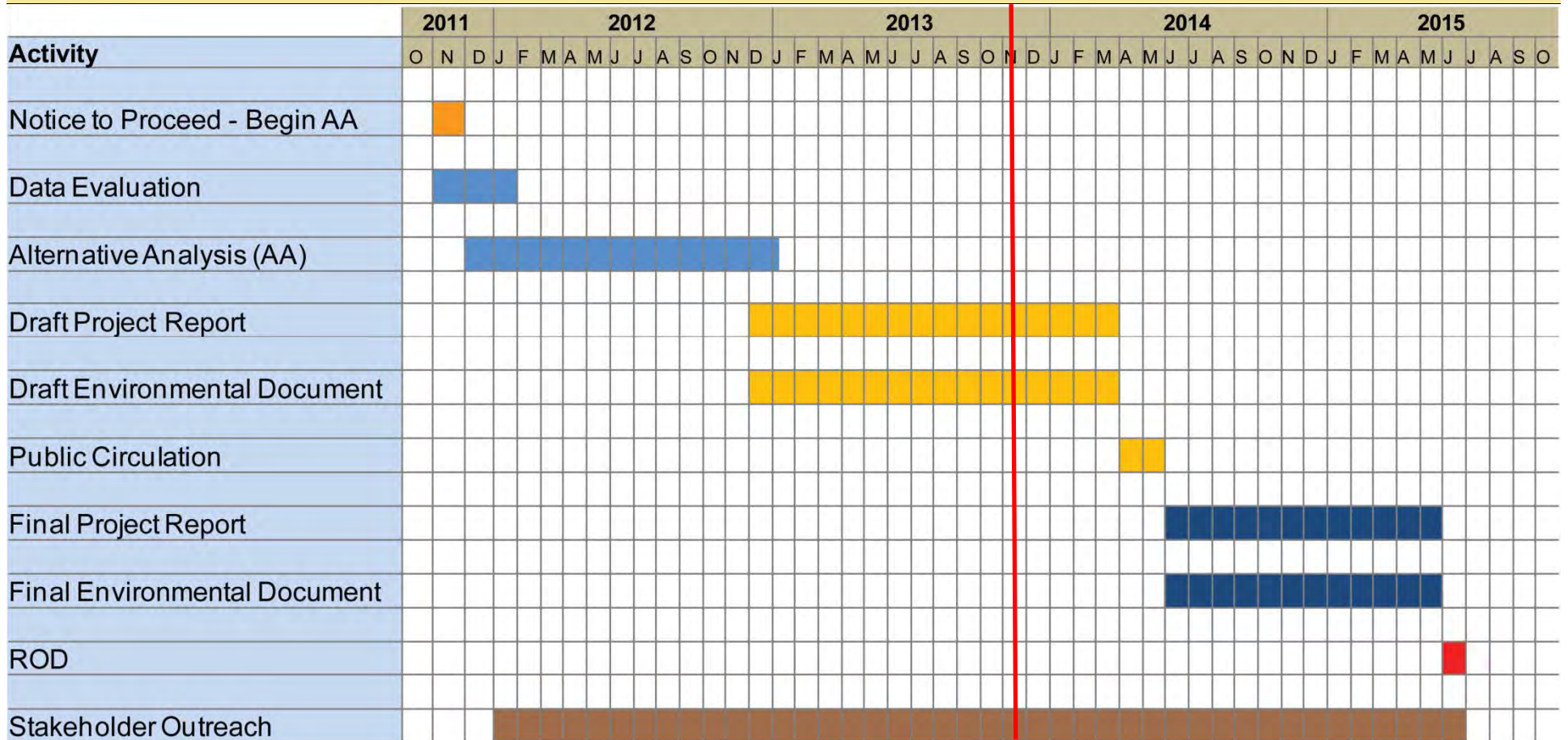


NOTE: This info is not intended to be a substitute for the full toll analyses that will be conducted in the future.

Next Steps



Study Schedule



Next Steps

- Continue to Evaluate Performance of Build alternatives
- Continue with Technical Studies
- Continue with Preliminary Engineering
- Continue preparation of the Draft Environmental Document

Tentative Meeting Dates for TAC/SOAC

- TAC: February 19th, 2014
- SOAC: February 20th, 2014

Open Discussion

