



Welcome

**California High-Speed Train Project
Anaheim to Los Angeles (A-LA) and
Los Angeles to Palmdale (LA-P) Sections
Project EIR/EIS**

**Alternatives Analysis
CHSRA Board Presentation
June 4, 2009**





Agenda

- Objectives
- Alternative Analysis Process
- A-LA Section Overview
- Project Alternatives / Design Options
- Upcoming Activities





Objectives

- Present results of A-LA Draft Alternatives Analysis Report:
 - Project Alternatives
 - Design Options in Key Areas
- Solicit Board Input to Prepare for Next Steps:
 - 15% Engineering Design
 - Environmental Impact Technical Reports
 - Draft EIR/EIS





Environmental Process

1. Initial Outreach	NOP/NOI	Scoping Meetings	Scoping Summary Report	Agency Outreach Plan
2. Project Definition	Alternatives Analysis	Project Definition / Description	Technical Reports	Impact / Mitigation Analysis
3. Draft EIR/EIS	Administrative Draft EIR/EIS	Draft EIR/EIS	Public Circulation of Draft EIR/EIS	Public Hearings
4. Final EIR/EIS	Selection of Preferred Alternatives	Response to Comments	Final EIR/EIS	ROD/NOD

Public Document

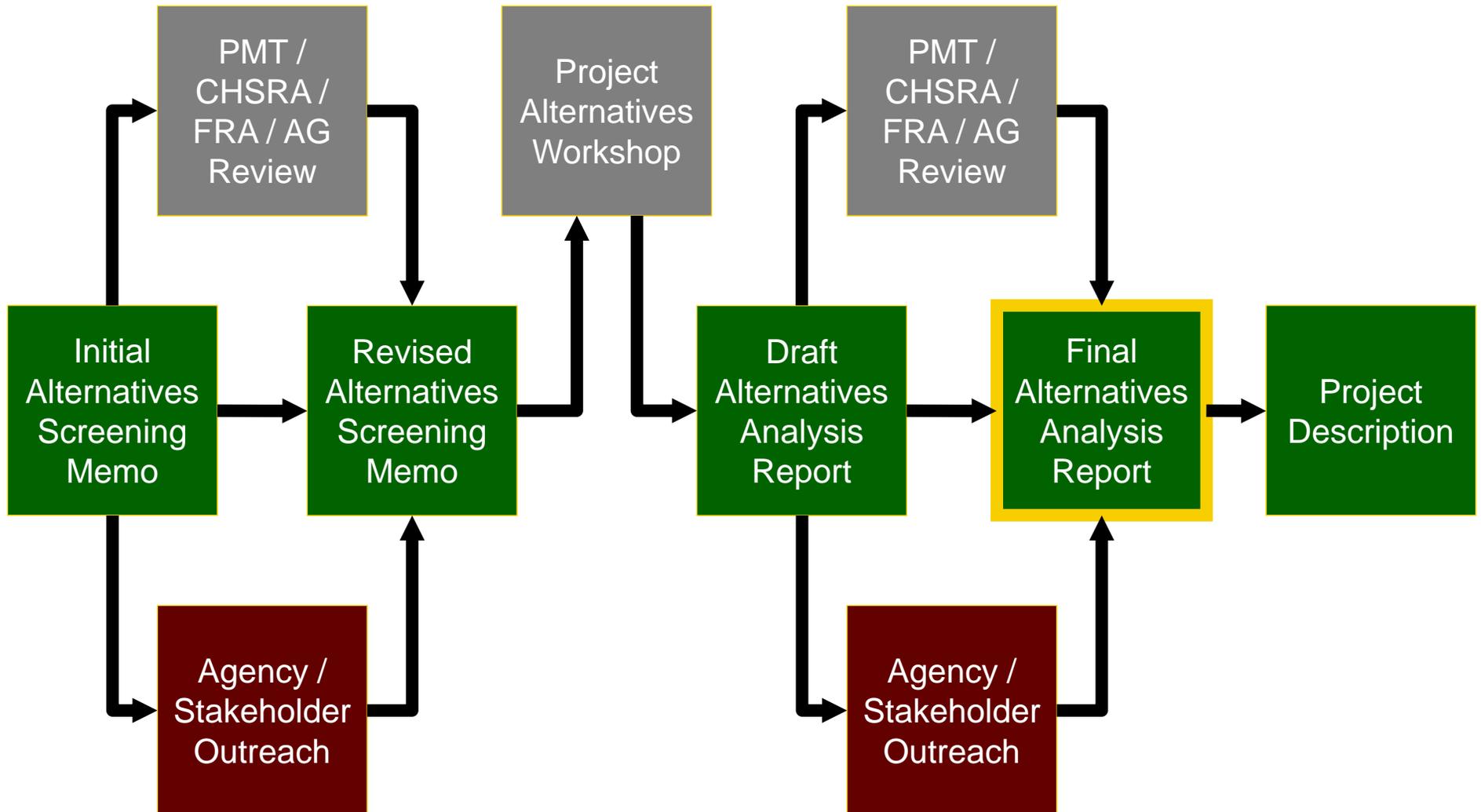
Technical Report

Outreach Activity





Alternatives Analysis Process





AA Evaluation Measures

- Operations
- Community Disruption / Impacts
- Travel Time
- Environmental Constraints / Impacts
- Constructability
- Intermodal Connections
- Development Potential
- Property Impacts
- Right-of-Way Constraints
- Capital and Operating Costs





Progress to Date

- **Spring 2007:** Project Scoping
- **Spring 2008:** Interagency Coordination Meetings
- **Fall 2008:** Corridor Cities Design Workshops
- **Winter 2008:** Pre-Draft 15% Design Completed
- **Spring 2009:** Alternatives Analysis & Environmental Technical Reports (Baseline Conditions) Completed





A-LA Overview





Section Overview





Project Alternatives

- Many aspects of A-LA Project set in Program EIR/EIS:
 - LOSSAN Corridor Alignment
 - 4-Track / Shared-Track Configuration
 - Stations at Anaheim, Norwalk, Los Angeles
- Project Alternatives focus on specific configuration of LOSSAN Corridor:
 - Number of Tracks
 - Shared Tracks vs. Dedicated Tracks
 - Station Options (Fullerton, Norwalk / Santa Fe Springs)

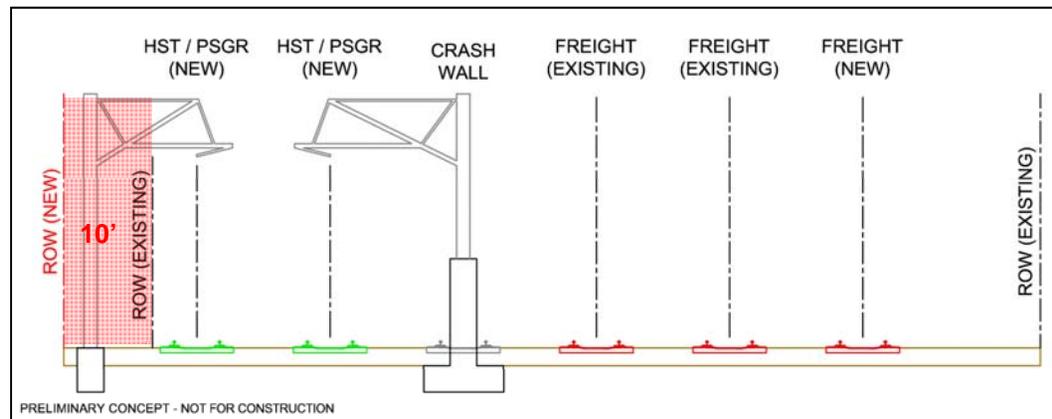




Shared-Track Alternative

- Selected Configuration for A-LA Section in 2005 Statewide Program EIR/EIS (4-tracks)
- High-speed trains share tracks with other corridor passenger operations (Amtrak & Metrolink)
- 5 Tracks required between Fullerton and LA (2-3 currently)
 - 2 HST / Metrolink + 3 Freight / Amtrak / Metrolink
- 2 Tracks required through Anaheim and along Los Angeles River

Typical Shared-Track Alternative Configuration – At-Grade

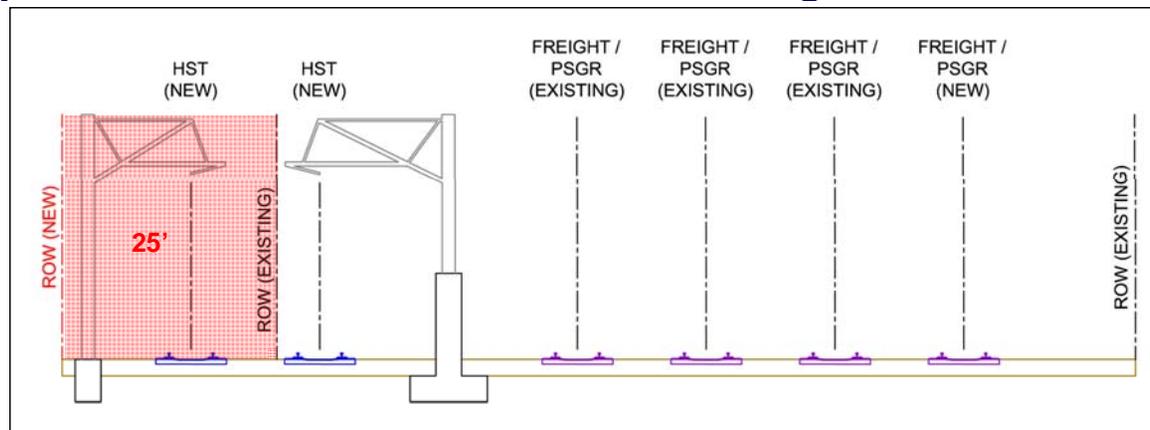




Dedicated HST Alternative

- Configuration of much of Statewide HST System
- High-speed trains run on dedicated tracks – No interactions with other services
- Requires space for 6 tracks between Fullerton and LA
 - 2 HST + 4 Freight / Amtrak / Metrolink (3 Current, 1 Future)
- 4 Tracks required through Anaheim and 2 along Los Angeles River

Typical Dedicated HST Alternative Configuration – At-Grade





Selected Alternative

- Dedicated HST Alternative selected as preferred alternative for several reasons:
 - **Capacity:** Can accommodate 5 HSTs per hour as assumed in HST Phase I Operating Plan.
 - **Compatibility:** Meets FRA's operations guidelines.
 - **Constructability:** Provides safety and operational enhancements with incremental additional ROW and infrastructure needs.





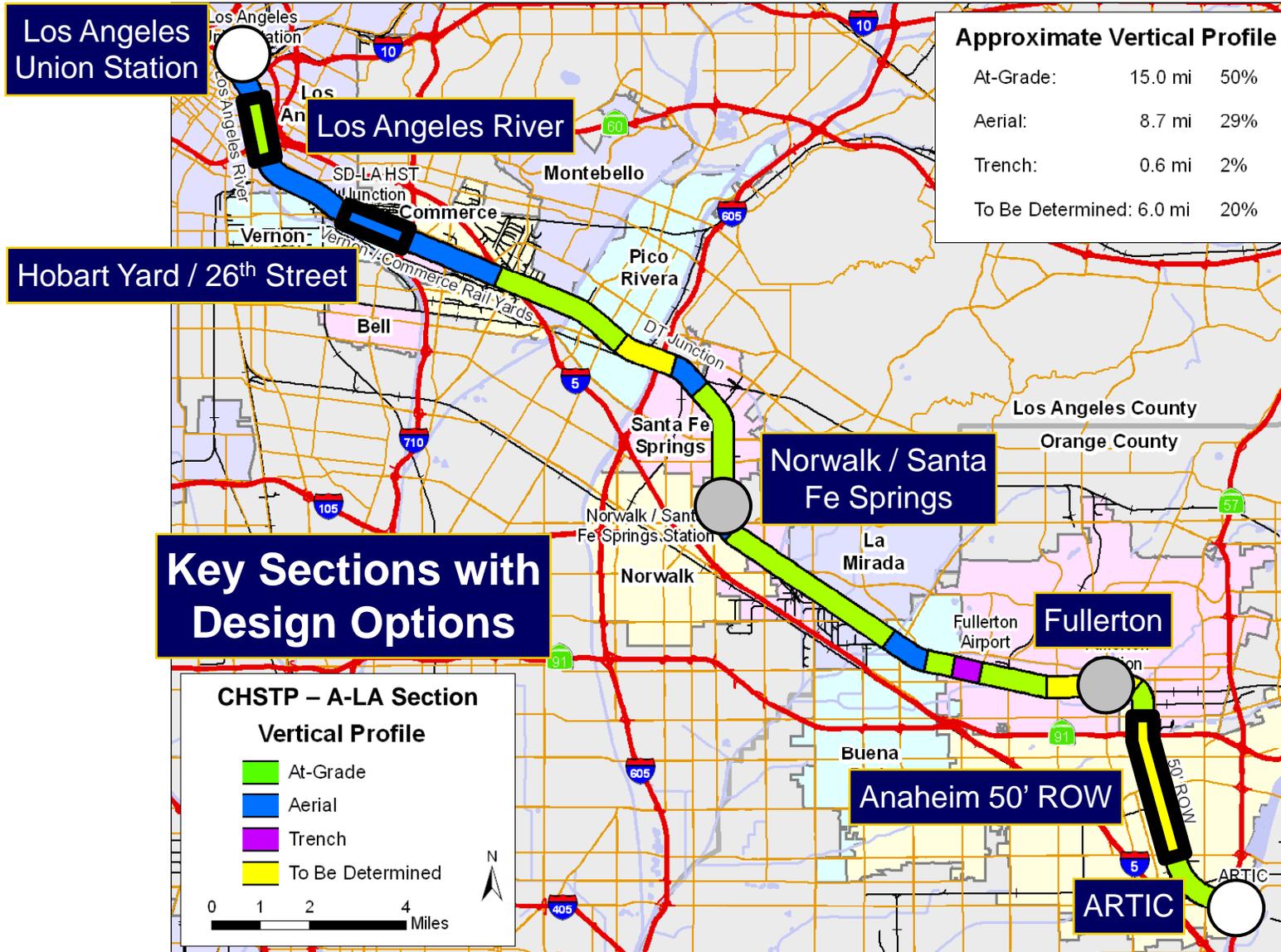
Design Options

- Design Options in Key Constrained Areas of Corridor:
 - Alignment Shifts to avoid ROW takes
 - Aerial Structures
 - Trenches
 - Tunnels
 - HST and/or Metrolink / Amtrak Stations



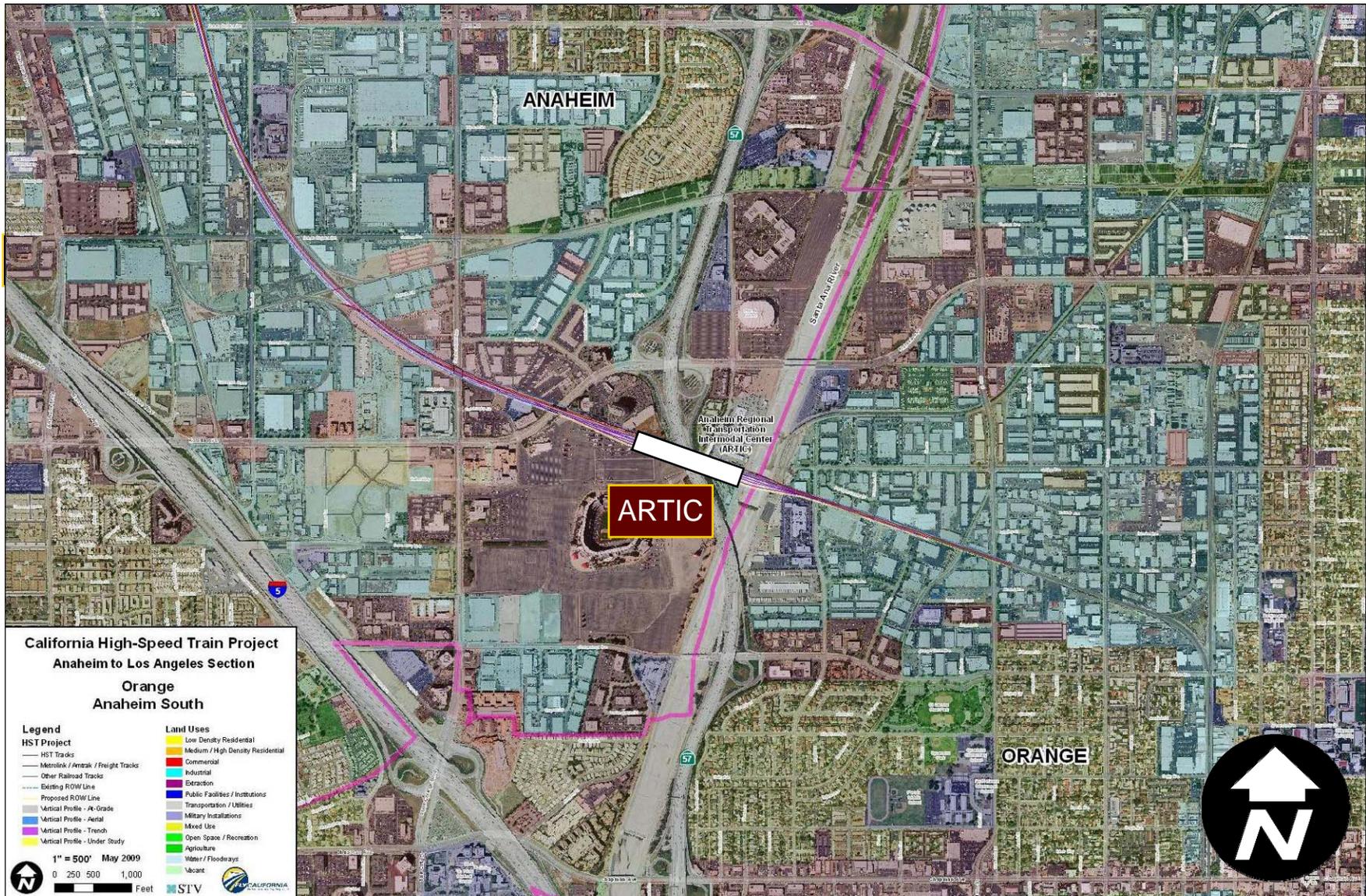


A-LA Selected Vertical Profile





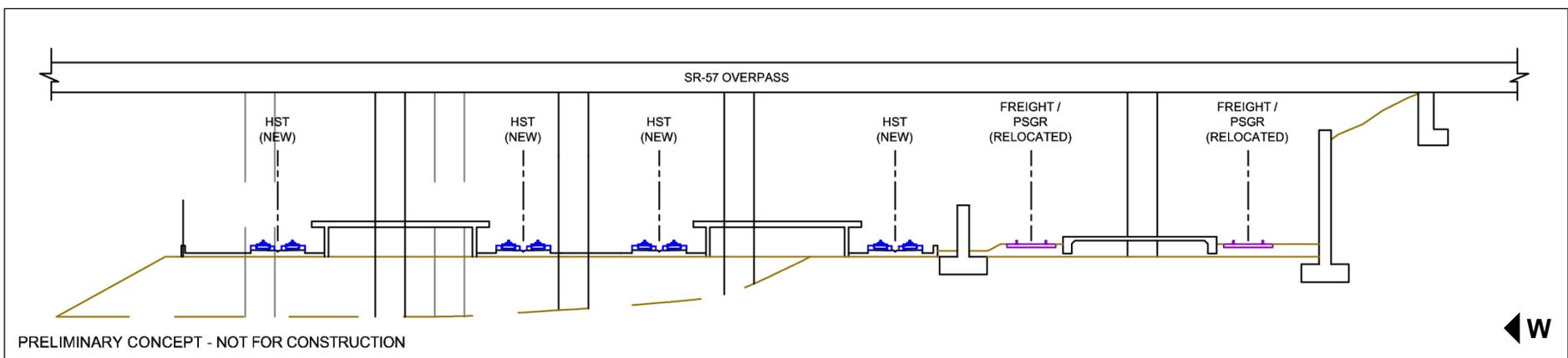
ARTIC





ARTIC

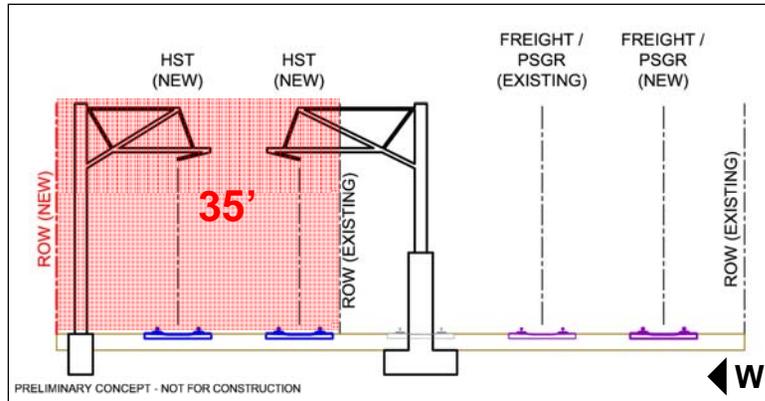
- HST Station at Planned Anaheim Regional Transportation Intermodal Center (ARTIC)
- Partnership with City of Anaheim / OCTA
- 4 HST tracks + 2 Metrolink / Amtrak



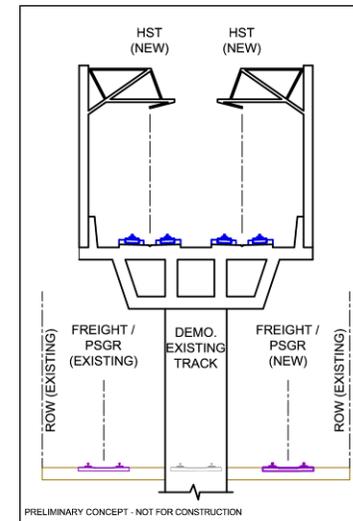


50' ROW Design Options

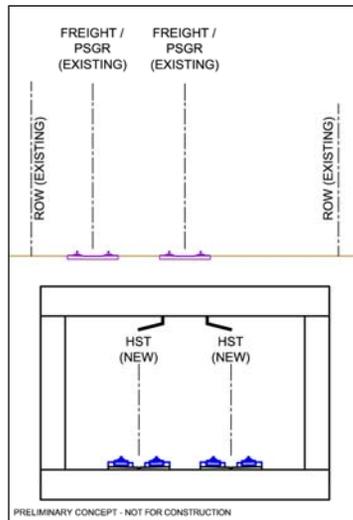
At-Grade with ROW Takes



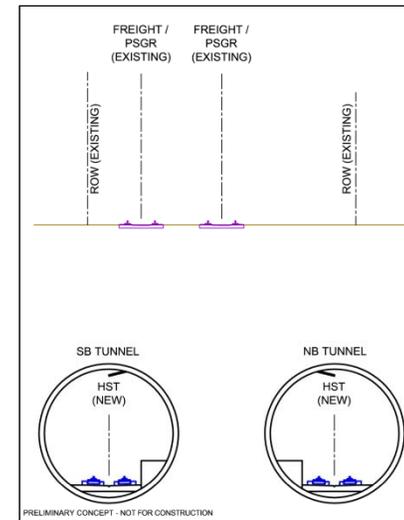
Aerial



Cut and Cover Tunnel



Deep Bore Tunnel





50' ROW Design Options

At-Grade with ROW Takes

- ROW Takes:
 - Citrus Park
 - Residential
 - Industrial
- Grade Separations / Crossing Closures for HST and Metrolink Tracks

Aerial

**Eliminate:
Constructability**

Cut-and-Cover Tunnel

**Eliminate:
Constructability**

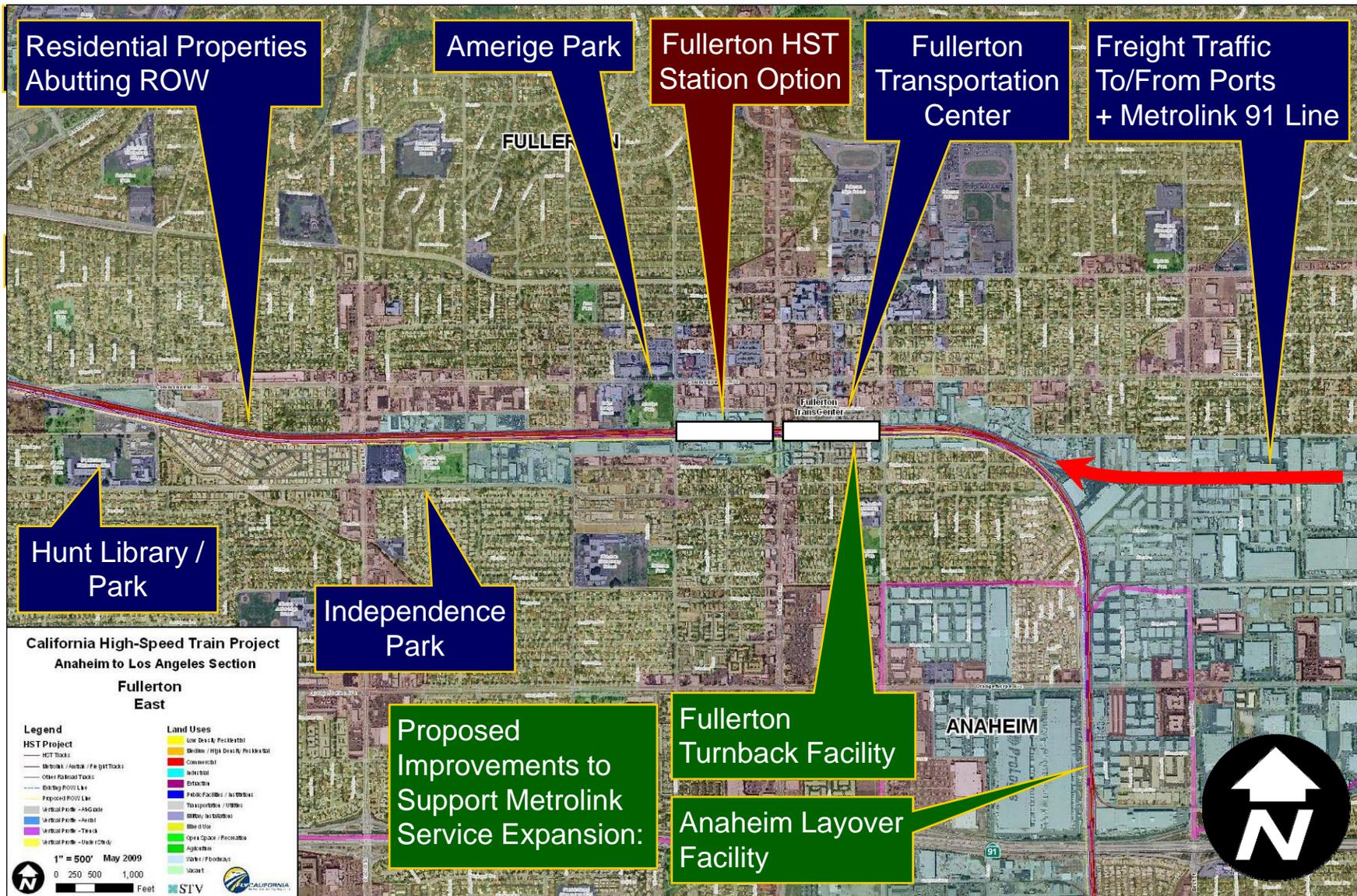
Deep Bore Tunnel

- ROW Takes at Tunnel Portal Areas
 - 2 temporary 30 to 40 acre sites
- Reduces possibility of future grade separations for existing at-grade Metrolink tracks





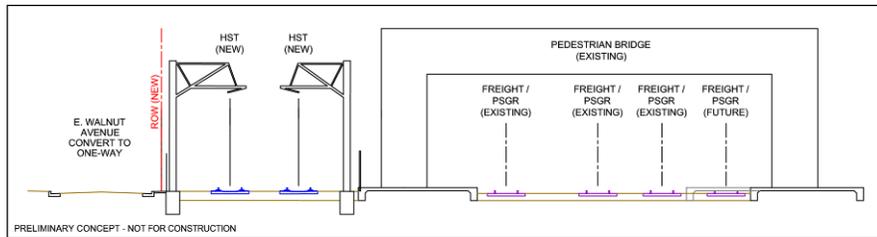
Fullerton Station



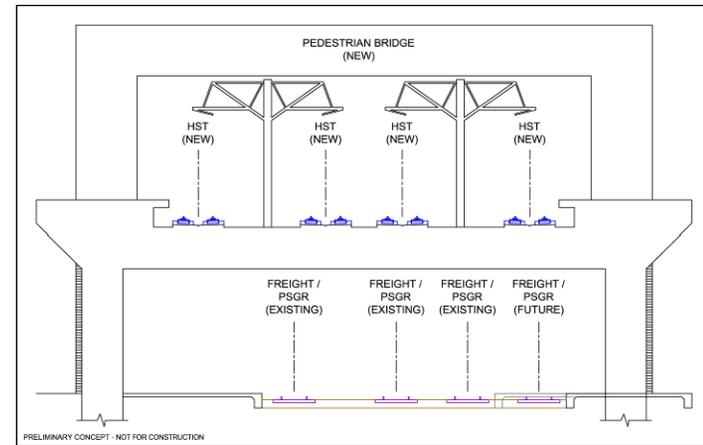


Fullerton Station Design Options

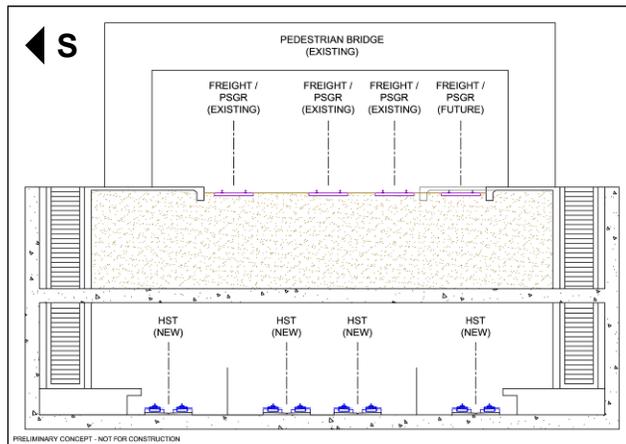
At-Grade (No HST Station)



Aerial HST Station



Deep Tunnel HST Station





Fullerton Station Design Options

At-Grade (No HST Station)

- At-Grade alignment to south of existing tracks / station
- ROW take issues to south of station (parking, existing street)

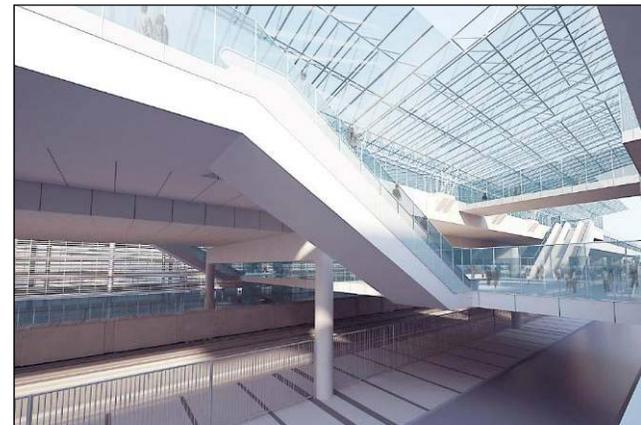
Aerial HST Station

- New aerial station to east of existing station directly above existing tracks
- Aesthetic, operations, constructability issues

Deep Tunnel HST Station

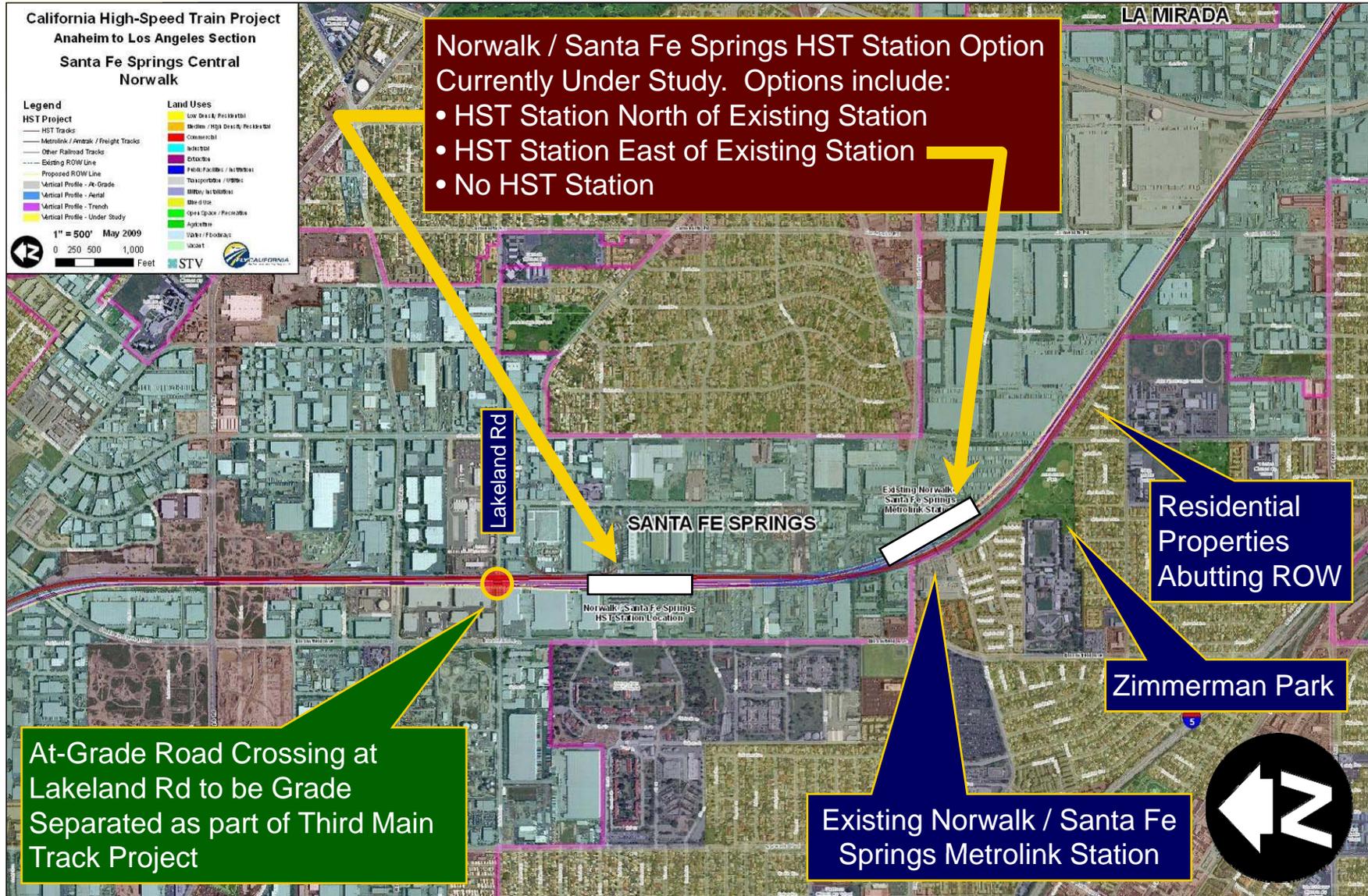
**Eliminate:
Constructability**

HST Station Concept





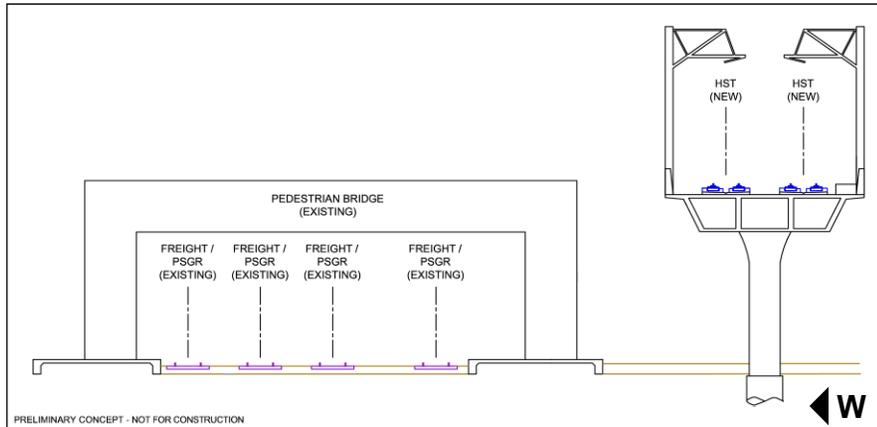
Norwalk / Santa Fe Springs Station



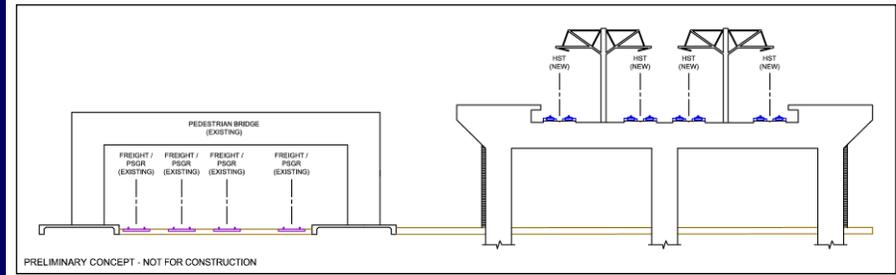


Norwalk / Santa Fe Springs Station Design Options

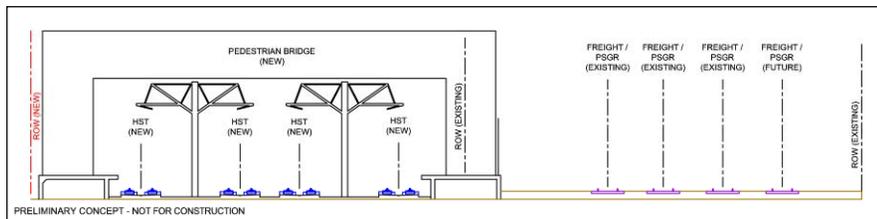
No HST Station



East HST Station



North HST Station





Norwalk / Santa Fe Springs Station Design Options

At-Grade (No HST Station)

- New HST tracks to east of existing station / tracks
- Requires modifications to Santa Fe Springs station parking area
- New flyover / higher speed curve in Imperial Highway area

East HST Station

**Eliminate:
Operations**

North HST Station

- HST Station north of Imperial Highway (and existing station)
- Minimal connections to existing Metrolink station (transfer activities expected to be minimal)

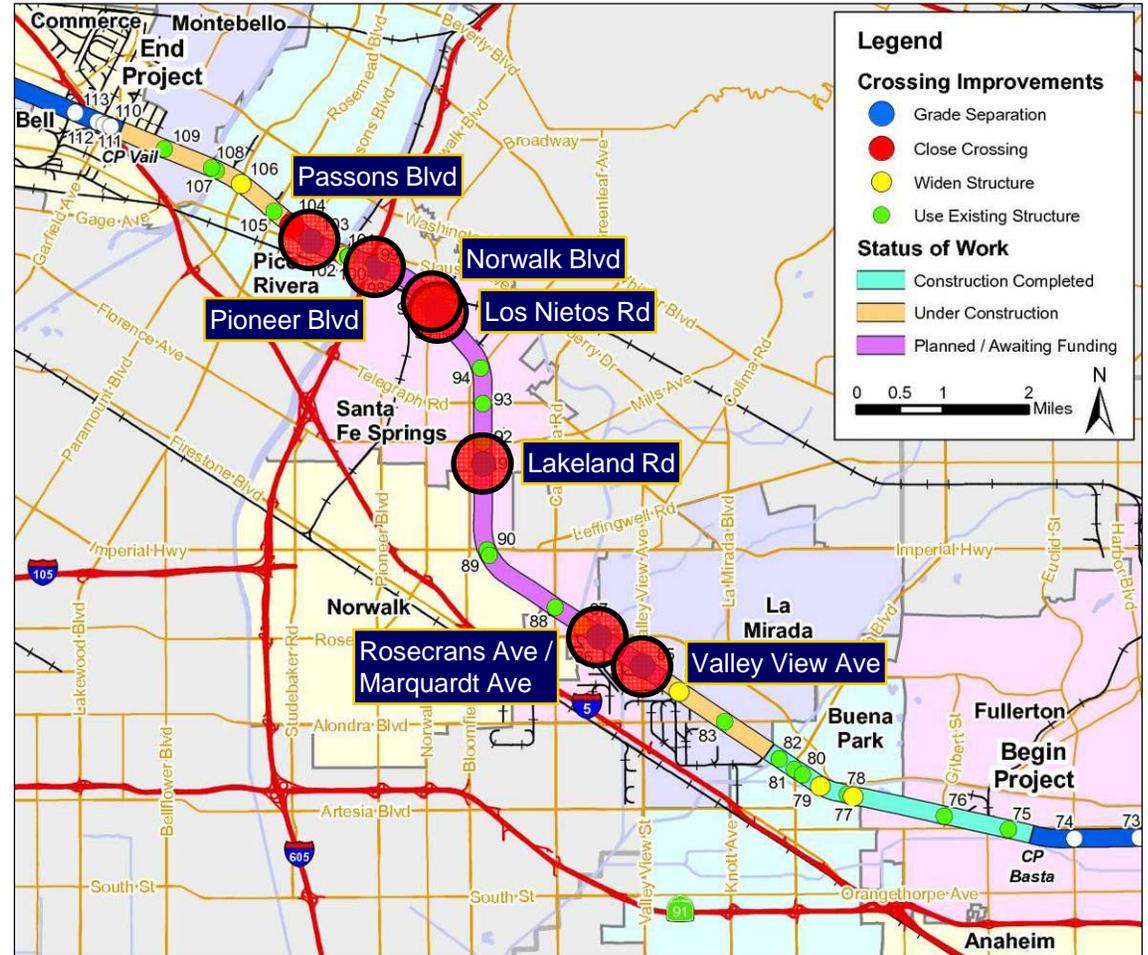
HST Station Concept





Grade Separations – LA County

- 7 Current At-Grade Crossings targeted for Separations
- Partially / Fully Funded as part of BNSF Third Main Track Project
- Designs modifications required for HST Alignment
- CHSRA is partnering with local cities to best integrate HST Alignment

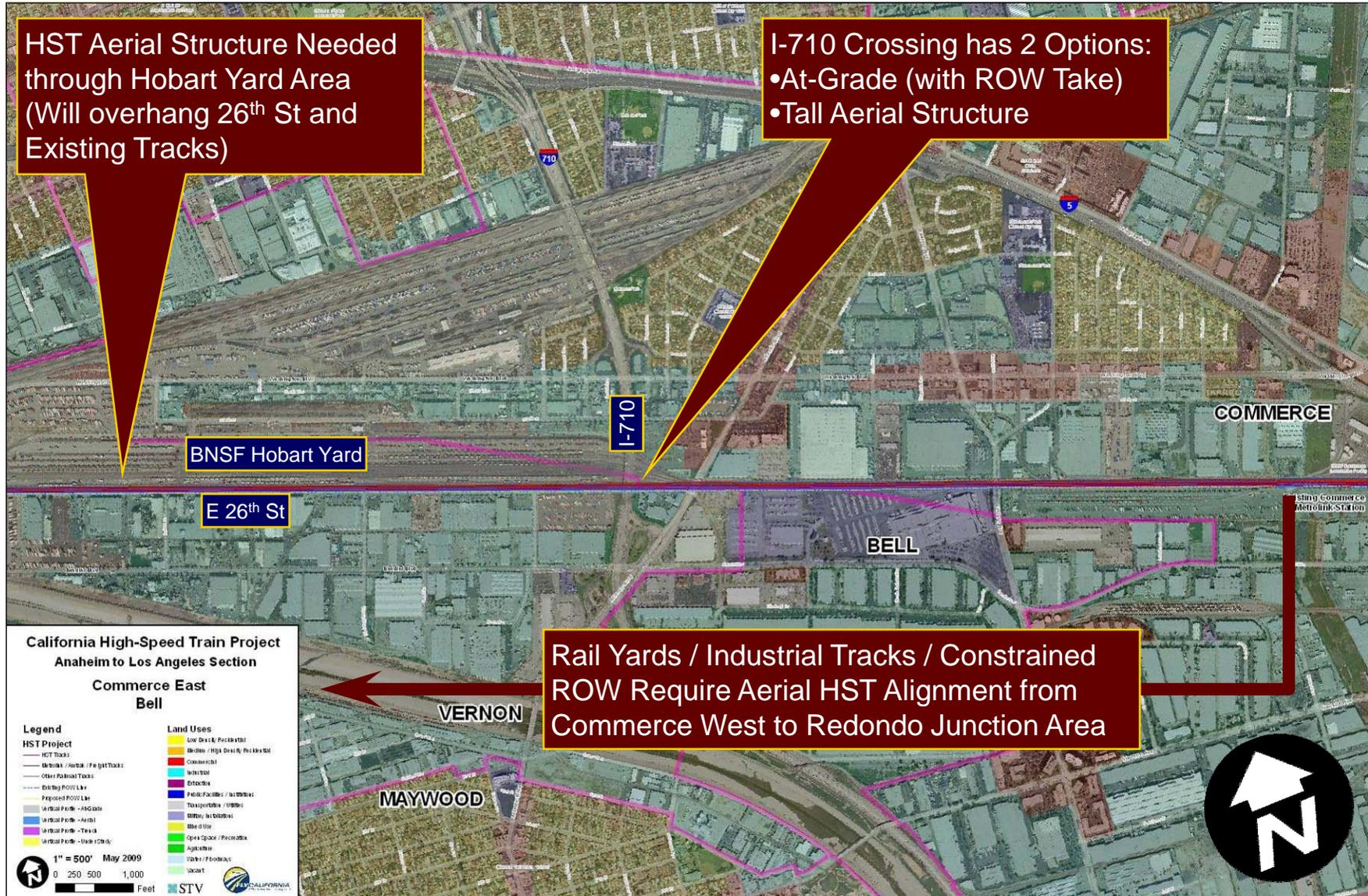




Commerce / Vernon Area

HST Aerial Structure Needed through Hobart Yard Area (Will overhang 26th St and Existing Tracks)

I-710 Crossing has 2 Options:
•At-Grade (with ROW Take)
•Tall Aerial Structure



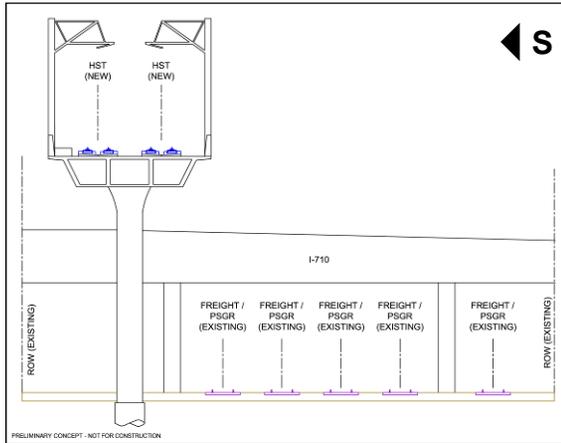
Rail Yards / Industrial Tracks / Constrained ROW Require Aerial HST Alignment from Commerce West to Redondo Junction Area



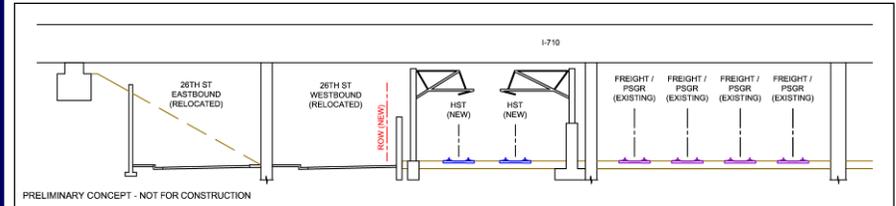


Commerce / Vernon Design Options

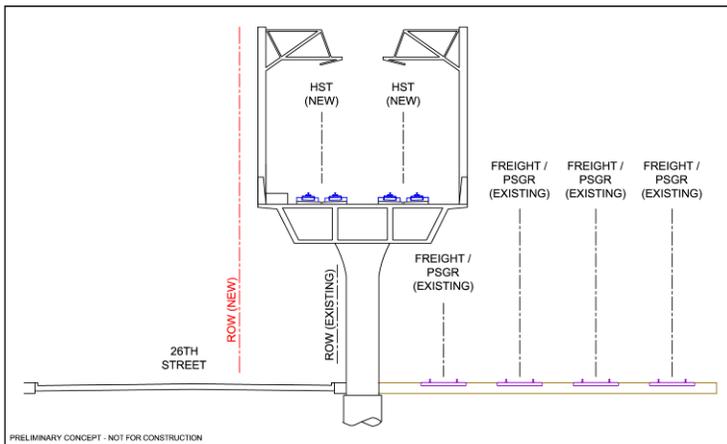
I-710 – Aerial



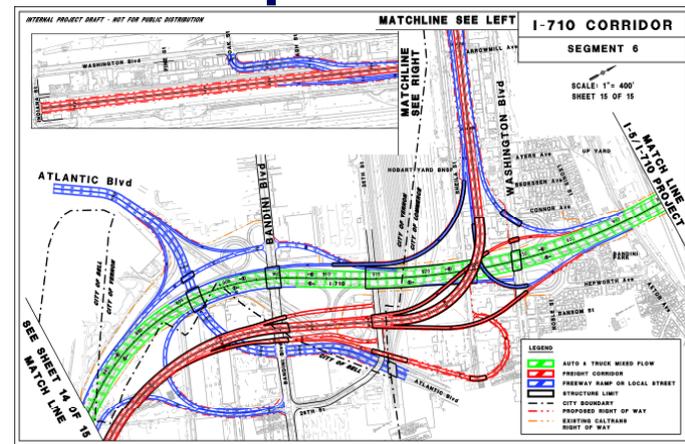
I-710 – At-Grade



26th St – Aerial



I-710 Expansion Plans





Commerce / Vernon Design Options

I-710 – Aerial

- Aerial HST structure will rise to clear I-710 overpass
- Implications for I-710 South Expansion project (large interchange planned in area)
- Ongoing coordination with Metro, Gateway Cities COG, Caltrans

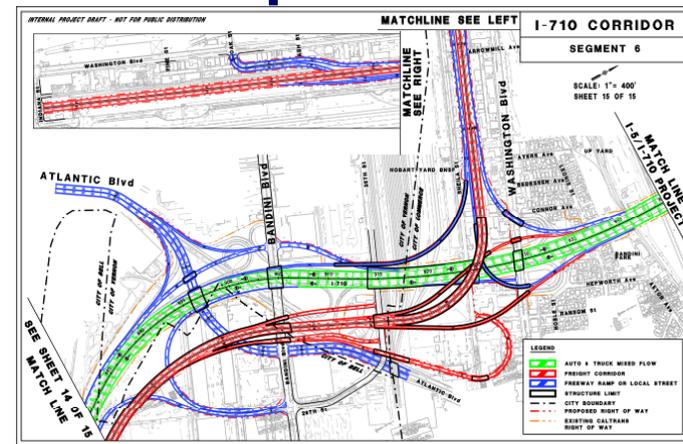
I-710 – At-Grade

**Eliminate:
Community Impacts**

26th St – Aerial

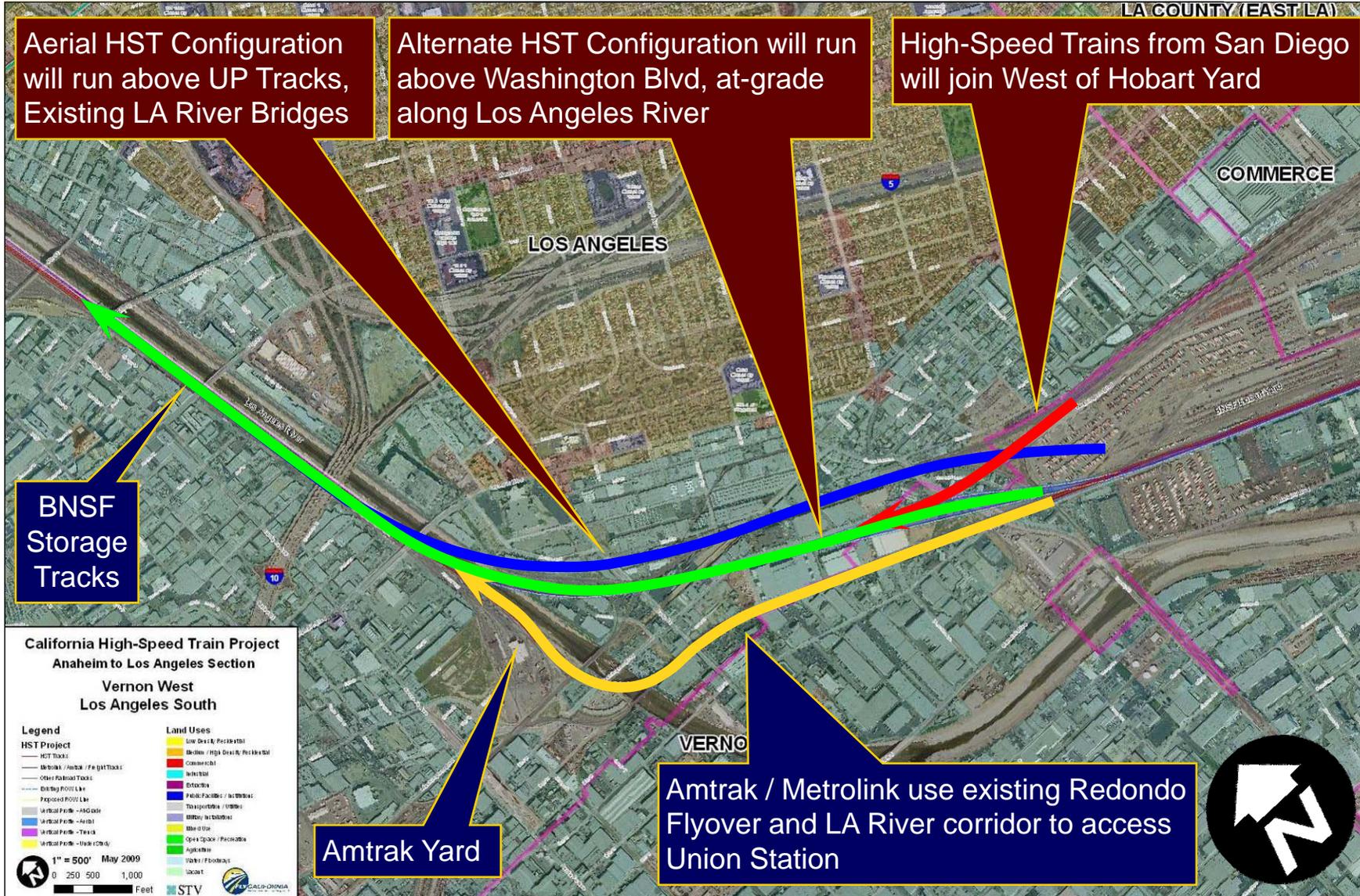
- Aerial structure avoids major impacts to existing tracks, BNSF Hobart Yard, 26th Street
- ROW takes lessened by aerial structure (smaller areas, easements instead of ROW takes)

I-710 Expansion Plans





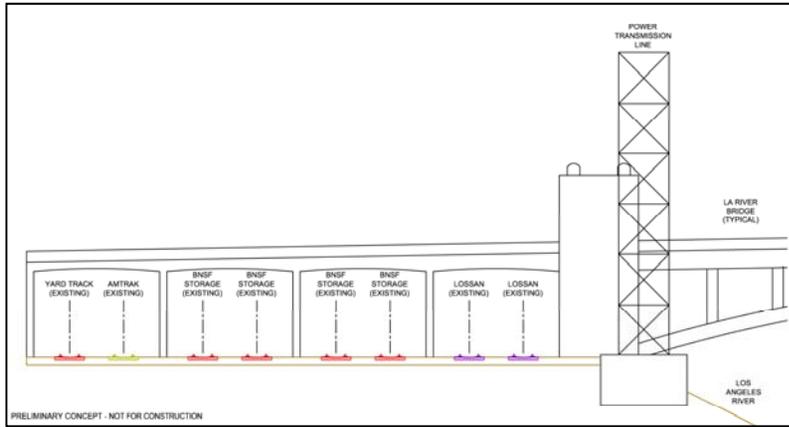
Los Angeles River



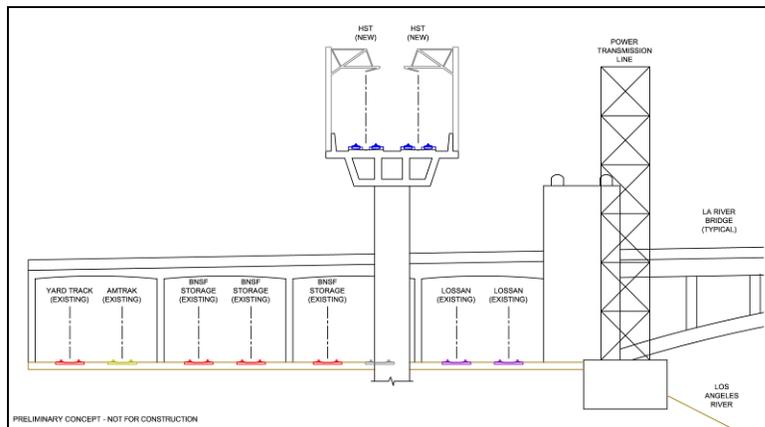


Los Angeles River Design Options

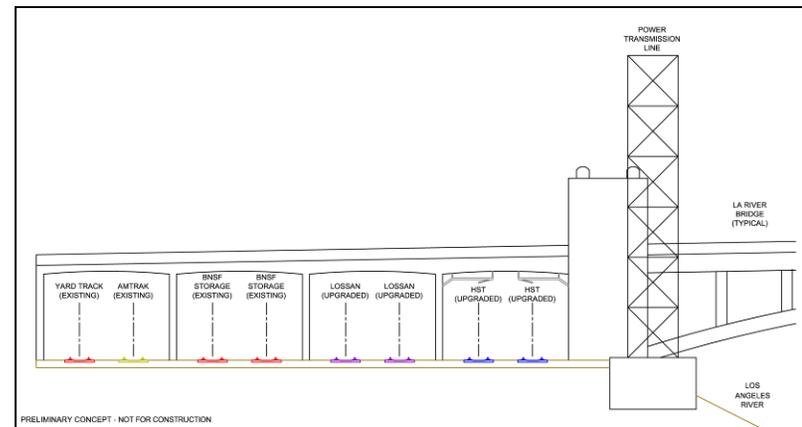
Existing Conditions



Aerial Option



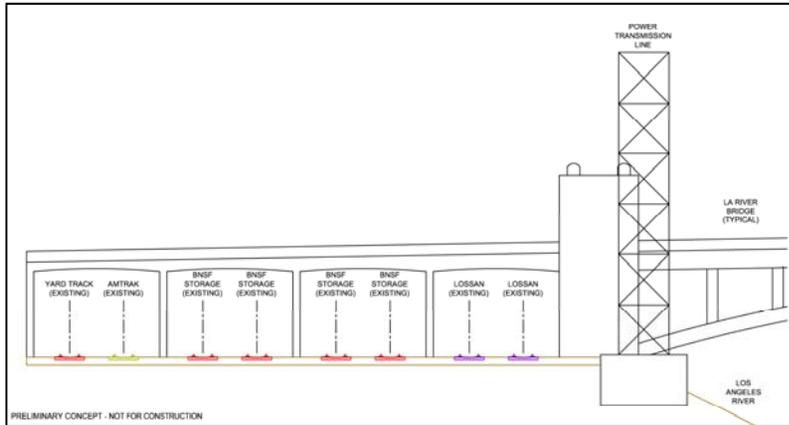
At-Grade Option



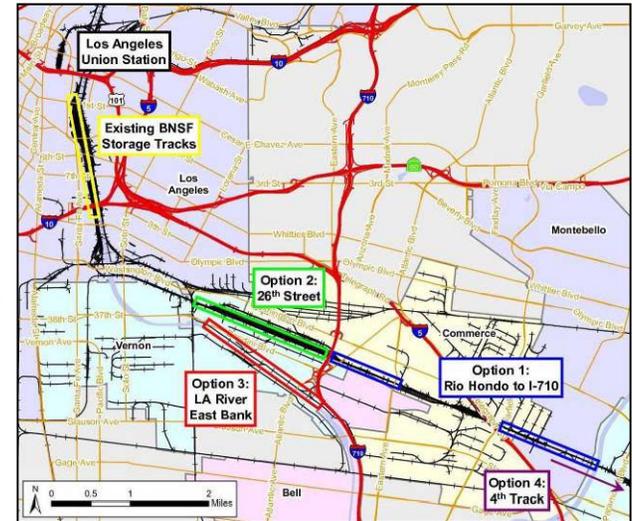


Los Angeles River Design Options

Existing Conditions



Storage Track Relocation



Aerial Option

**Eliminate:
Historic /
Visual Impacts**

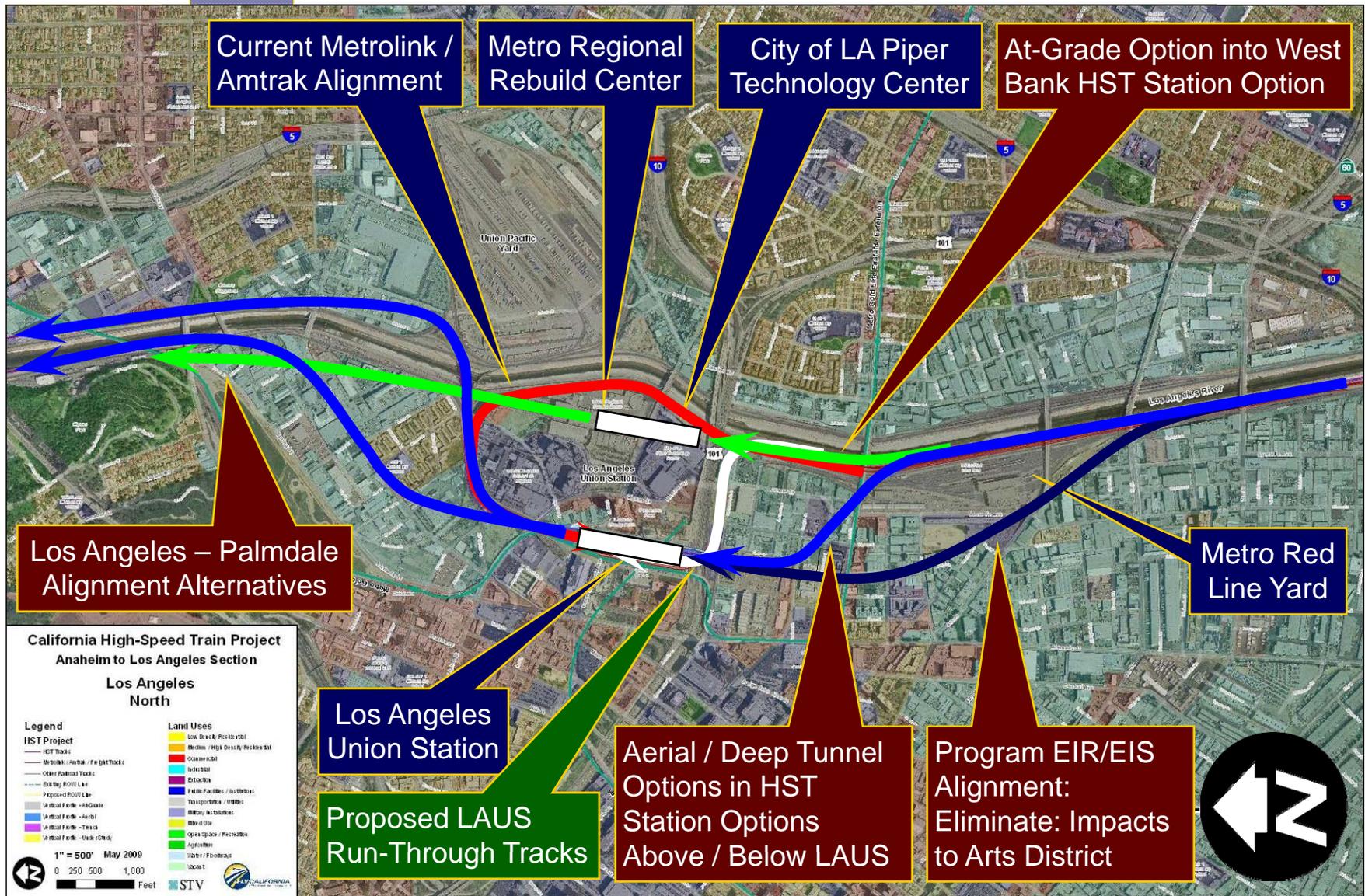
At-Grade Option

- HST alignment underneath existing historic LA River bridges
- Requires shift of existing LOSSAN tracks, relocation of BNSF Storage Tracks along River





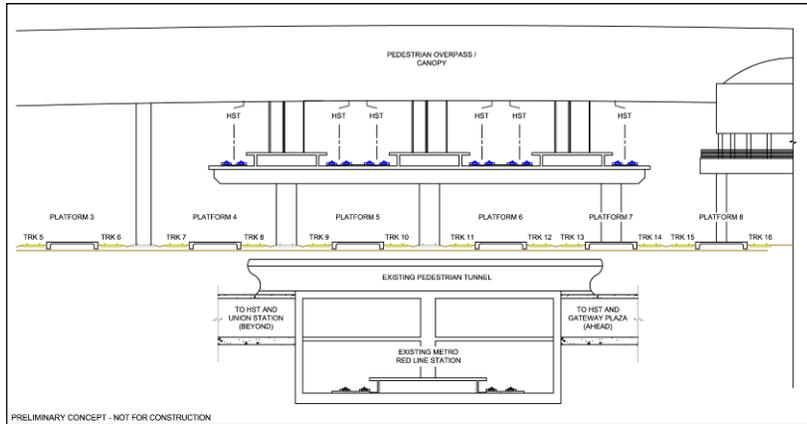
Los Angeles Union Station



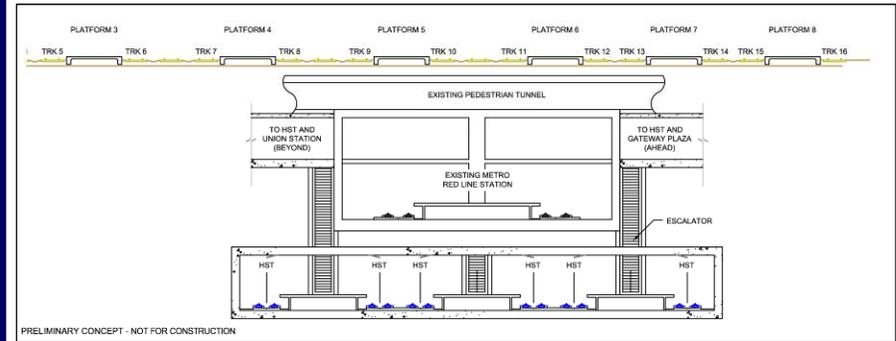


LAUS Design Options

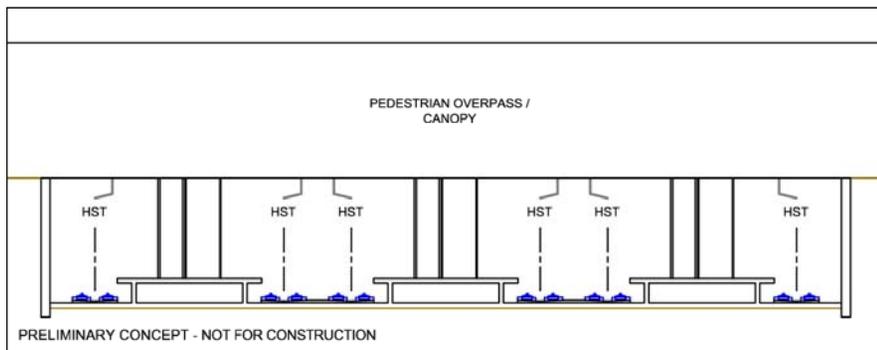
Aerial HST Station



Deep Tunnel HST Station



West Bank HST Station





LAUS Design Options

Aerial HST Station

- Community Issues to north / south of LAUS
- Focus on connections to existing transit lines (Amtrak, Metrolink, Metro)
- Railroad operations issues

Deep Tunnel HST Station

**Eliminate:
Constructability**

West Bank HST Station

**Eliminate:
Property / Community Impacts**

HST Station Concept





Schedule

Activities	2009				2010				2011		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	
Interagency Mtgs.			6/09								
Technical Reports			7/09								
Impacts / Mitigation			9/09								
15% Design					12/09						
30% Design										3/11	
Admin. Draft EIR/EIS					11/09						
Draft EIR/EIS							5/10				
Public Review							7/10				
Final EIR/EIS										6/11	
ROD/NOD		06/09									8/11



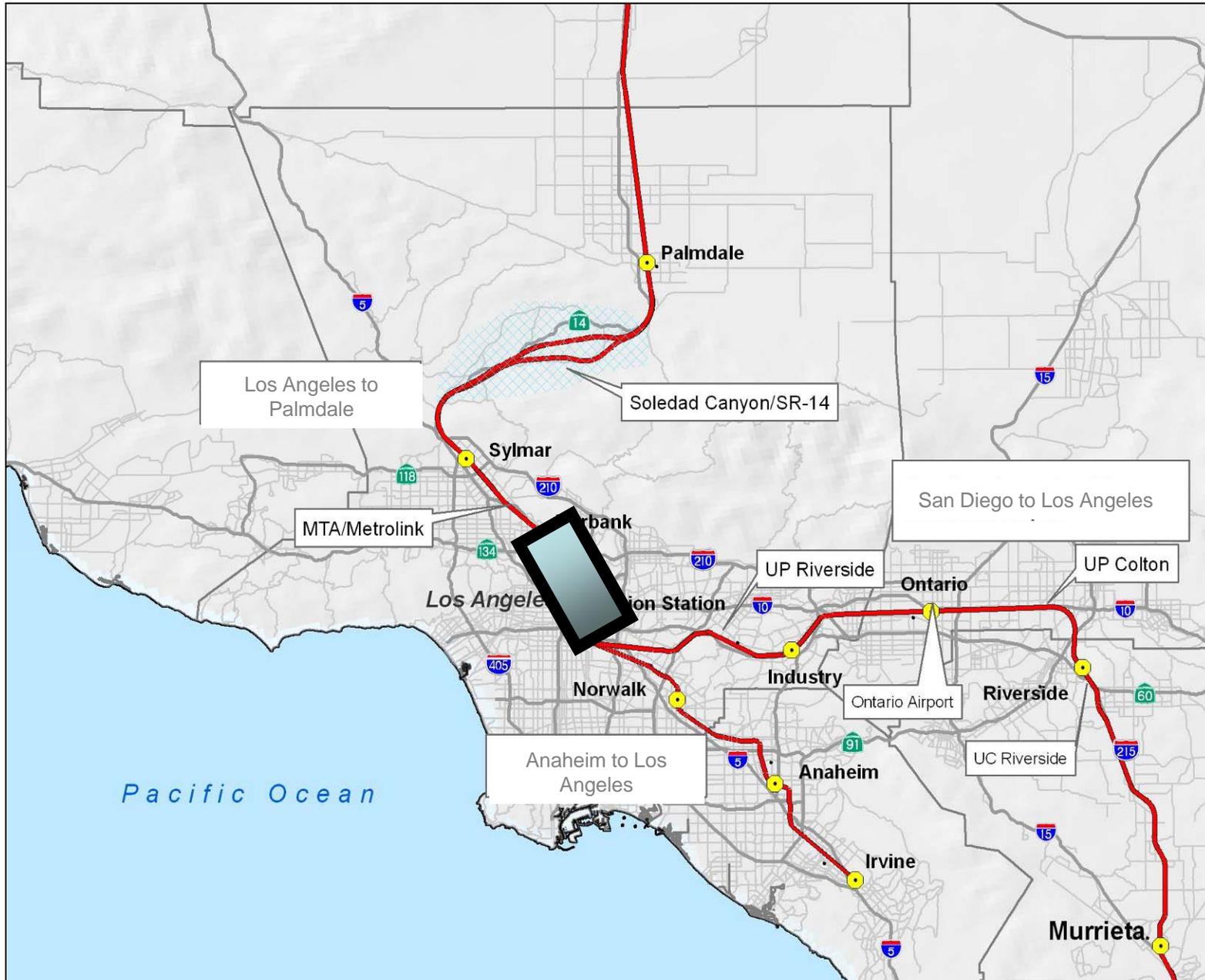


LAUS to SR134



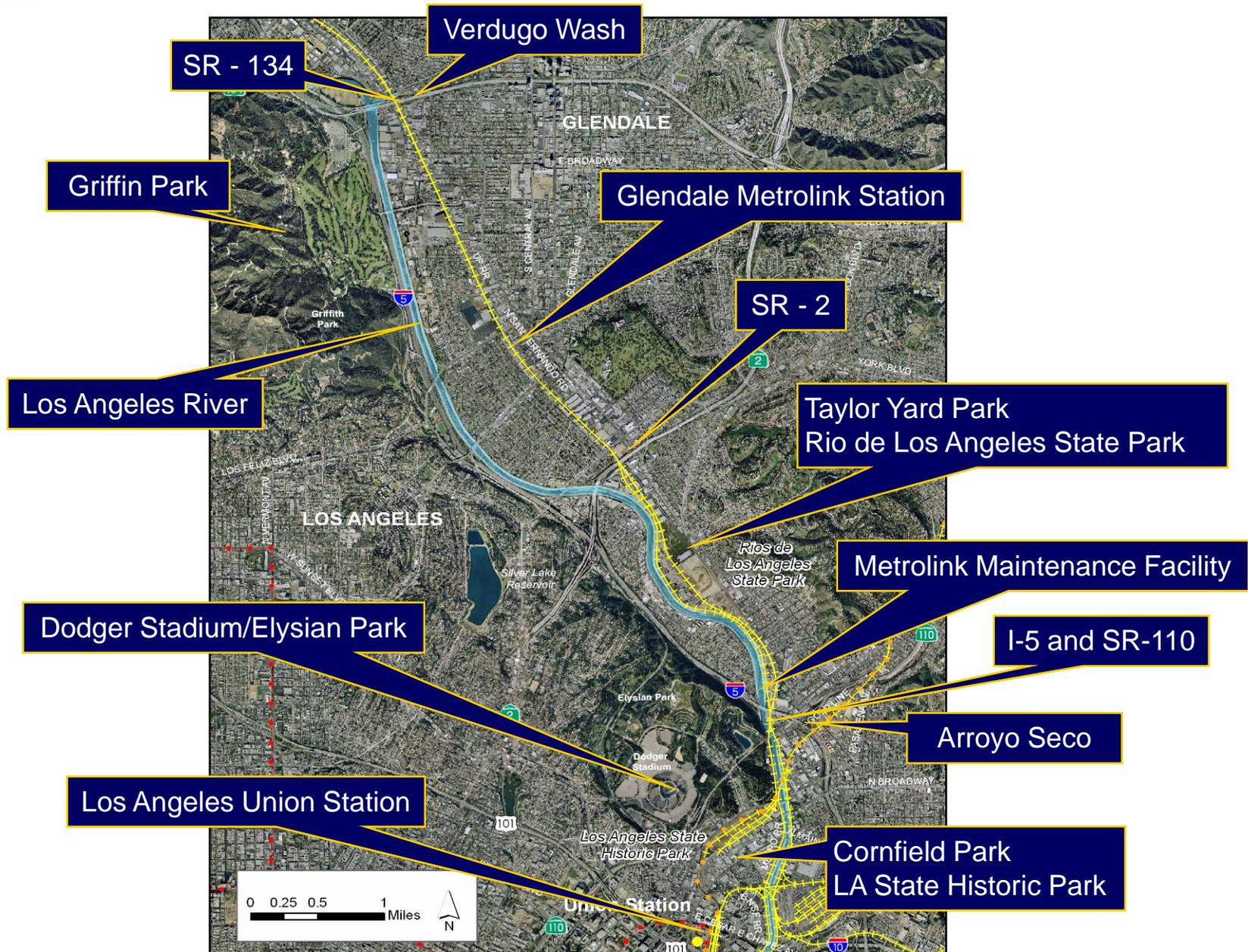


Southern California





Study Corridor

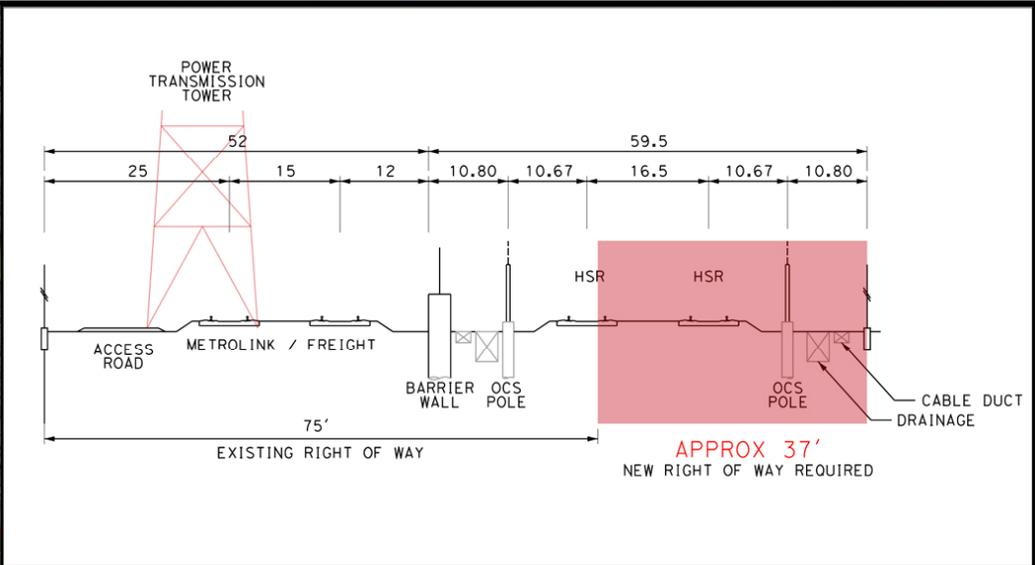
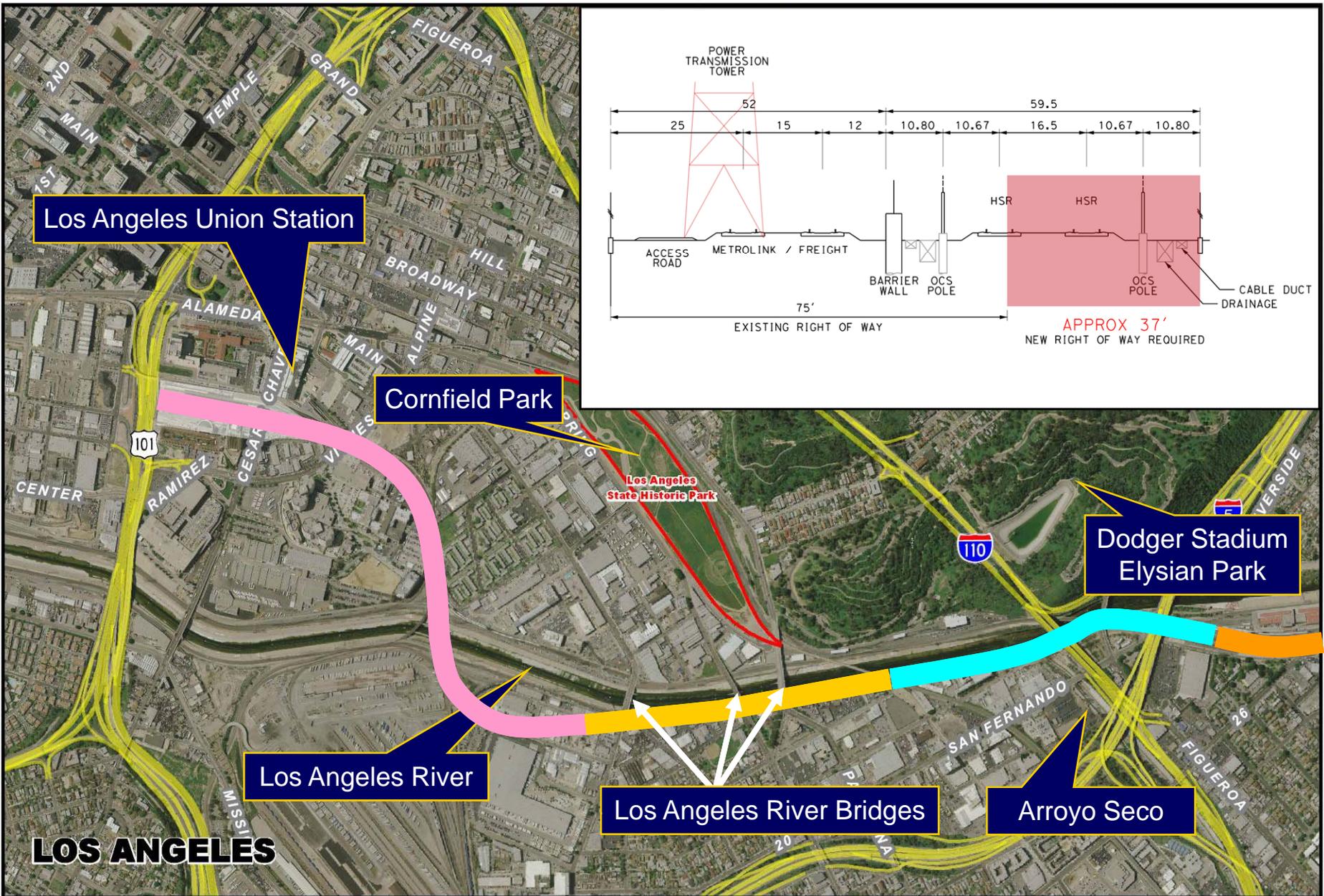




Key Constraints

- Key Constraints:
 - Los Angeles Union Station and tie into Anaheim to Los Angeles and San Diego Los Angeles Sections
 - Los Angeles River Revitalization Master Plan
 - Cornfield Park (State Historic Park Los Angeles)
 - Taylor Yard Park (Rio de Los Angeles State Historic Park)
 - Existing Road and Freeway Network and Grade Separations
 - Los Angeles River, Arroyo Seco and Verdugo Wash
 - Metrolink and Freight Operations
 - Land Use





Los Angeles Union Station

Cornfield Park

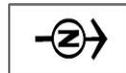
Los Angeles River

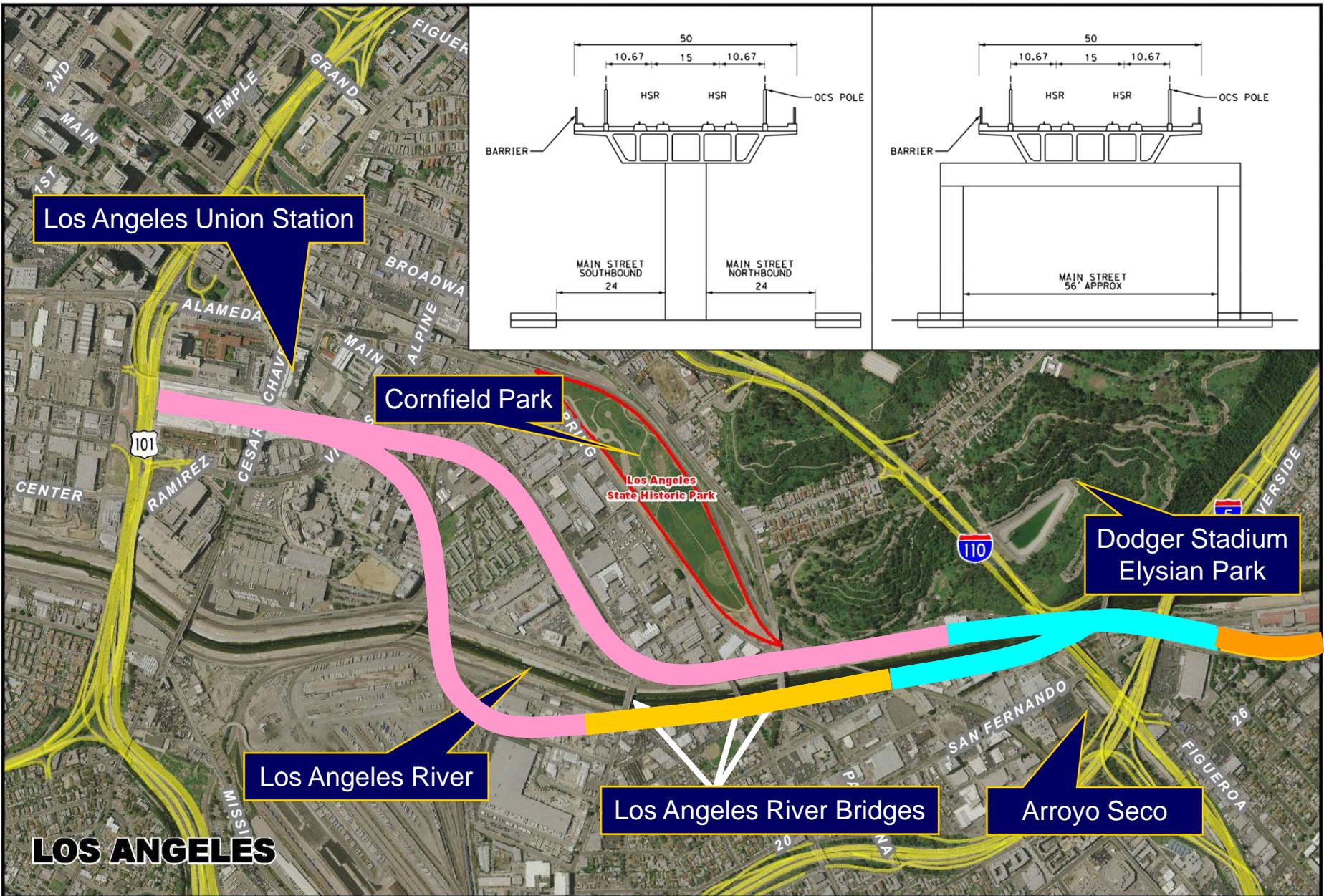
Los Angeles River Bridges

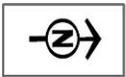
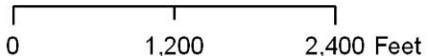
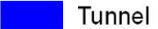
Arroyo Seco

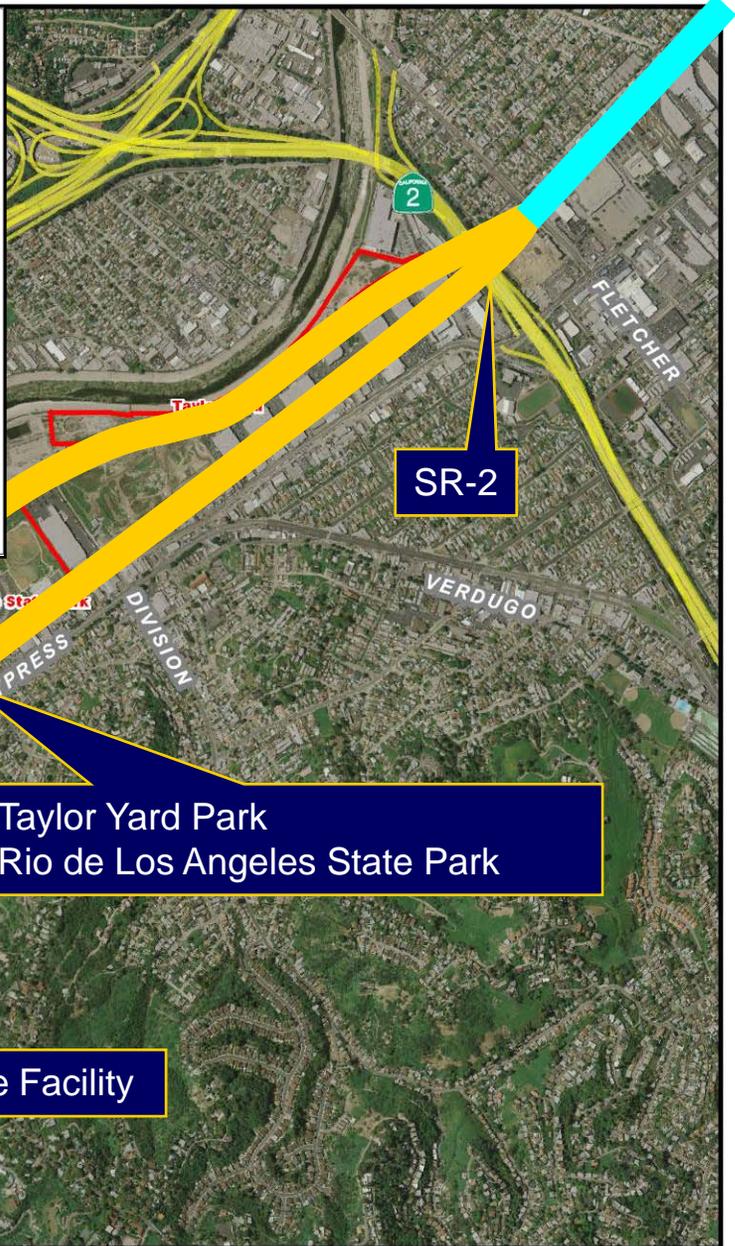
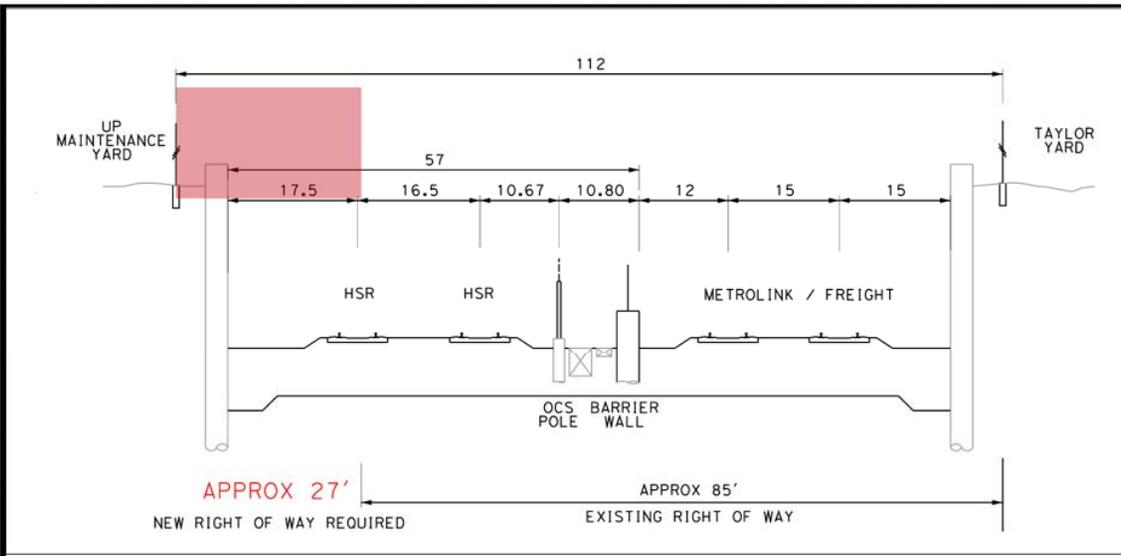
Dodger Stadium
Elysian Park

LOS ANGELES

 Viaduct	 Trench		0 1,200 2,400 Feet	Union Station to I-5 Alignment Alternatives 1 and 2 LAP1A East Bank
 At Grade	 Tunnel			



 Viaduct	 Trench			Union Station to I-5 Alignment Alternatives 3 and 4 LAP1A East Bank
 At Grade	 Tunnel			

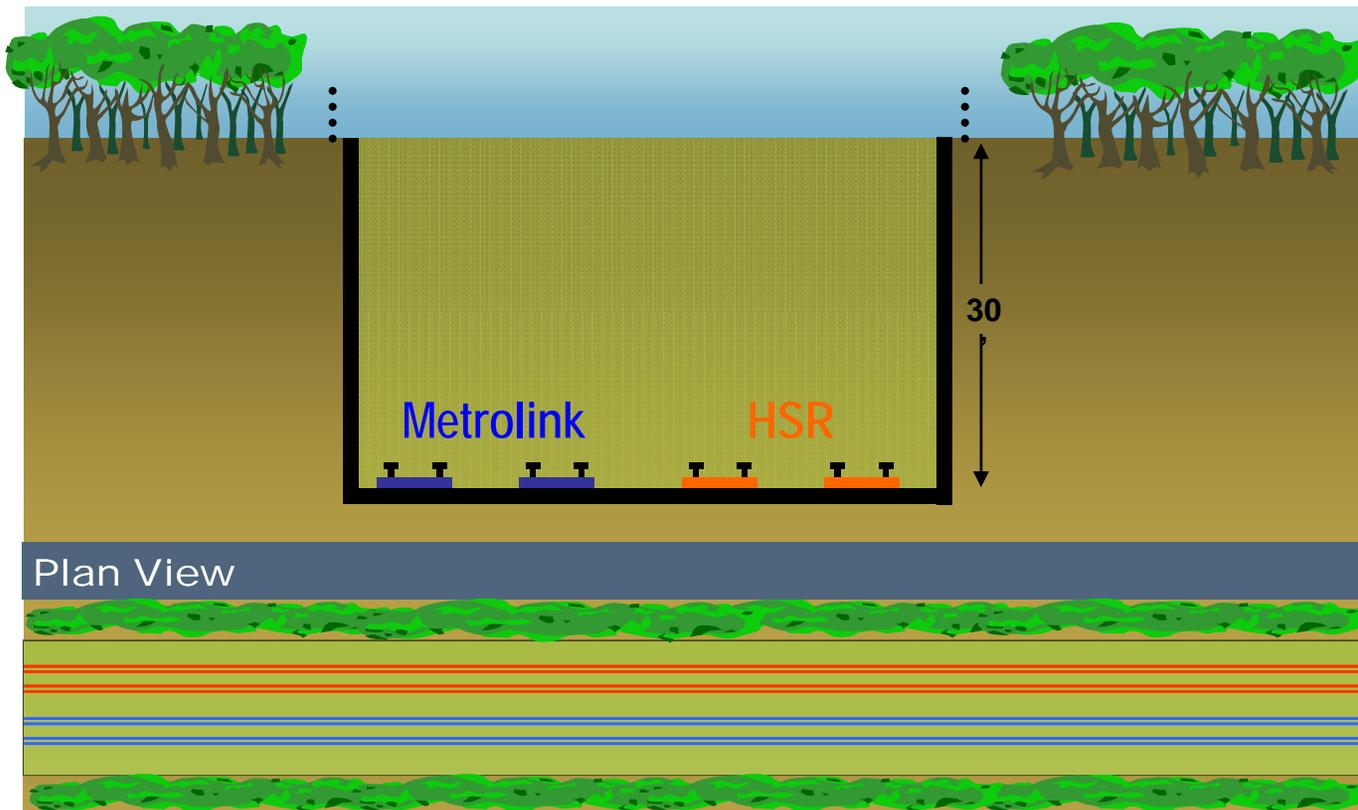


Viaduct	Trench	Right-of-Way	0 1,500 3,000 Feet	I-5 to SR-2 All Alignment Alternatives (1, 2, 3 and 4) Existing Metrolink or San Fernando Road
At Grade	Tunnel			



Potential Alignment Treatment

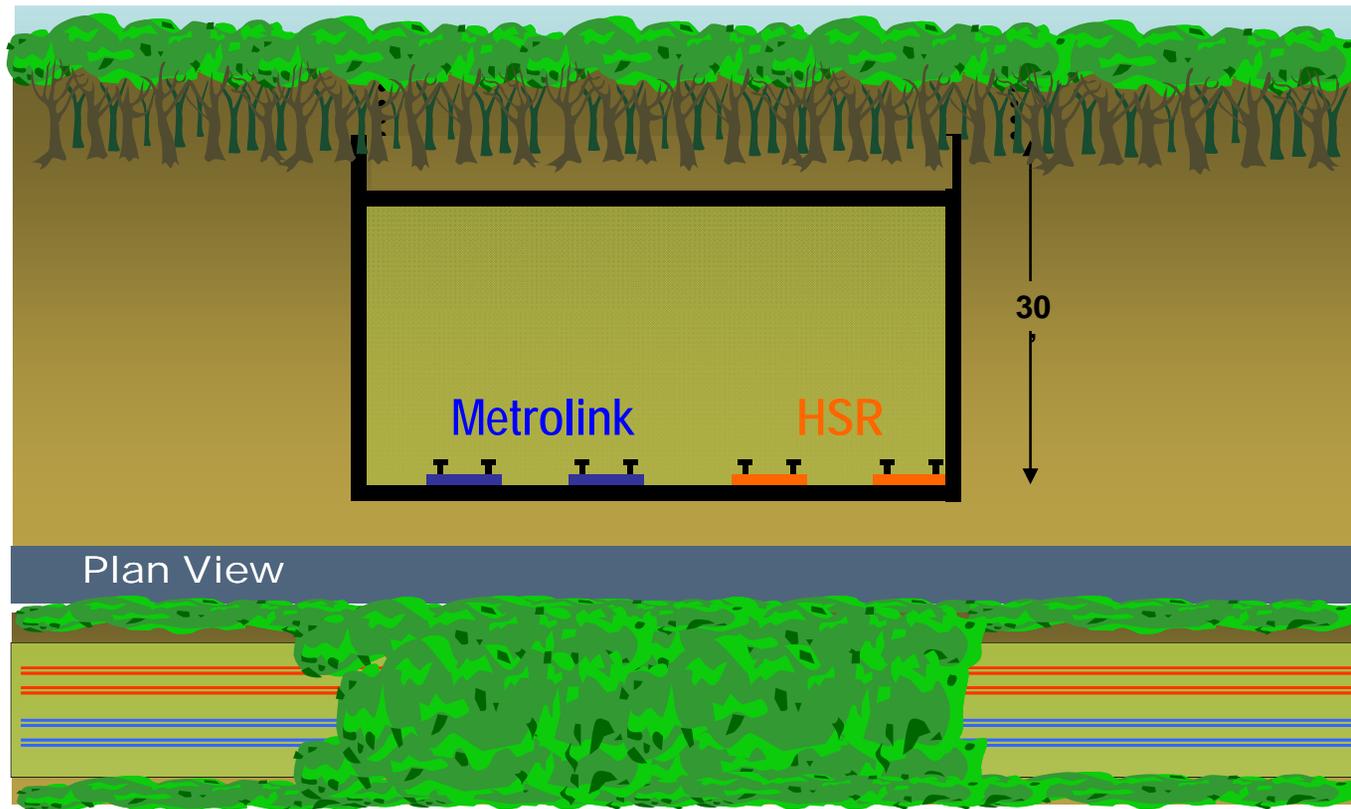
Open Trench





Potential Alignment Treatment

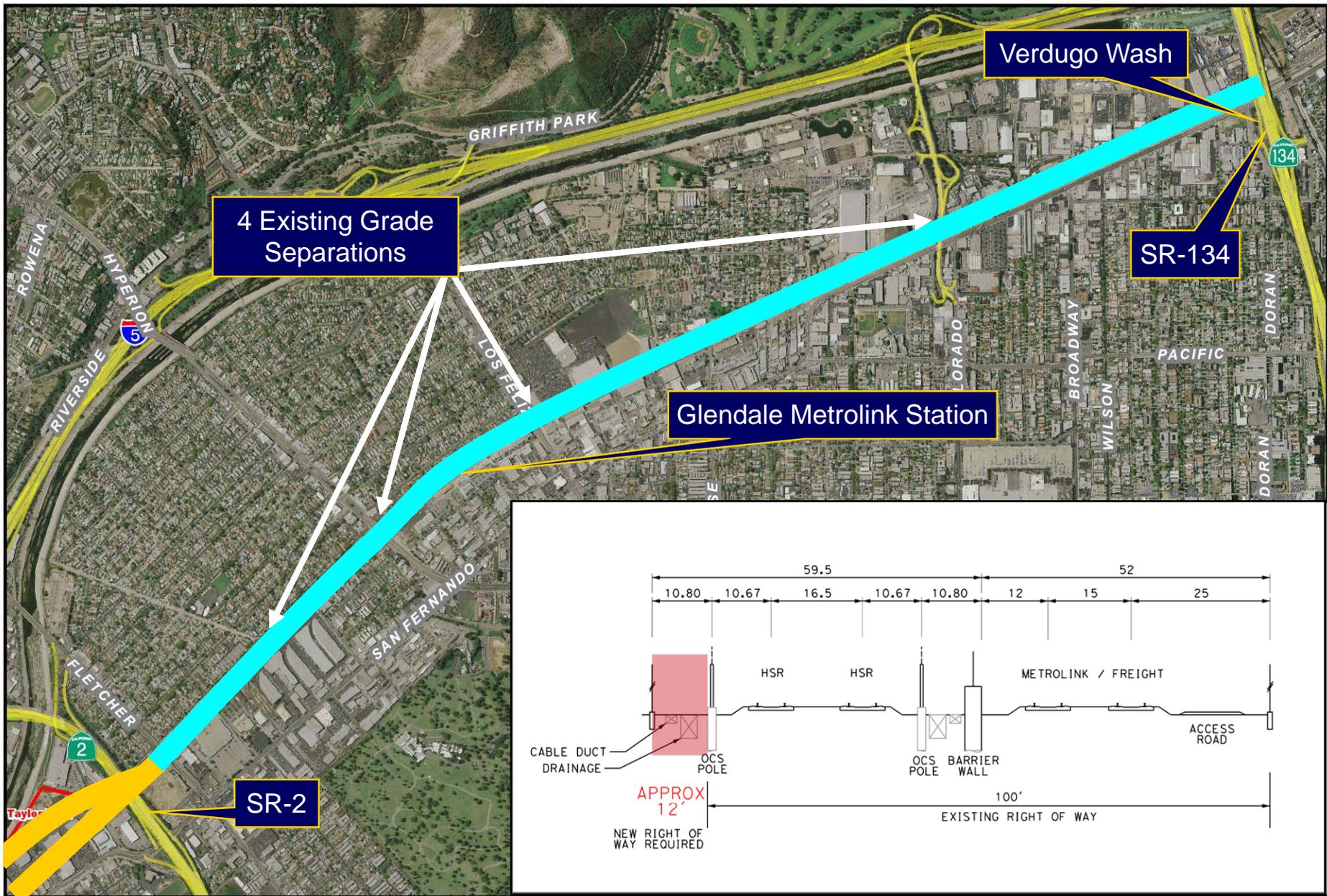
Covered Landscape





Rio de Los Angeles State Park





	Viaduct		Trench		0 1,500 3,000 Feet	SR2 to SR134 All Alignment Alternatives (1, 2, 3 and 4)
	At Grade		Tunnel			



Summary

	Alternative 1 East Bank/San Fernando Rd thru Park	Alternative 2 East Bank/Metrolink thru Park	Alternative 3 West Bank/San Fernando Rd thru Park	Alternative 4 West Bank/Metrolink thru Park
Travel Time	6M 30S	7M 20S	4M 46S	5M 36S
Union Station Access	Viaduct over Existing Rail Lines	Viaduct over Existing Rail Lines	Viaduct over Main Street and LA River Bridges	Viaduct over Main Street and LA River Bridges
Maintenance Cost	Slightly lower	Slightly lower	Slightly higher	Slightly higher
Right-of-Way	A. Relocation of Power lines along LA River B. Reconstruction of LA River Bridge abutments to allow clearance	A. Relocation of Power lines along LA River B. Reconstruction of LA River Bridge abutments to allow clearance	A. Relocate Gold Line Maintenance Yard B. Relocation and construction of New Metrolink Bridge across LA River	A. Relocate Gold Line Maintenance Yard B. Relocation and construction of New Metrolink Bridge across LA River
Disruption to Existing Rail Operations	Minimal	Minimal	Metrolink Maintenance Yard Access requires spur track	Metrolink Maintenance Yard Access requires spur track







Program EIR/EIS

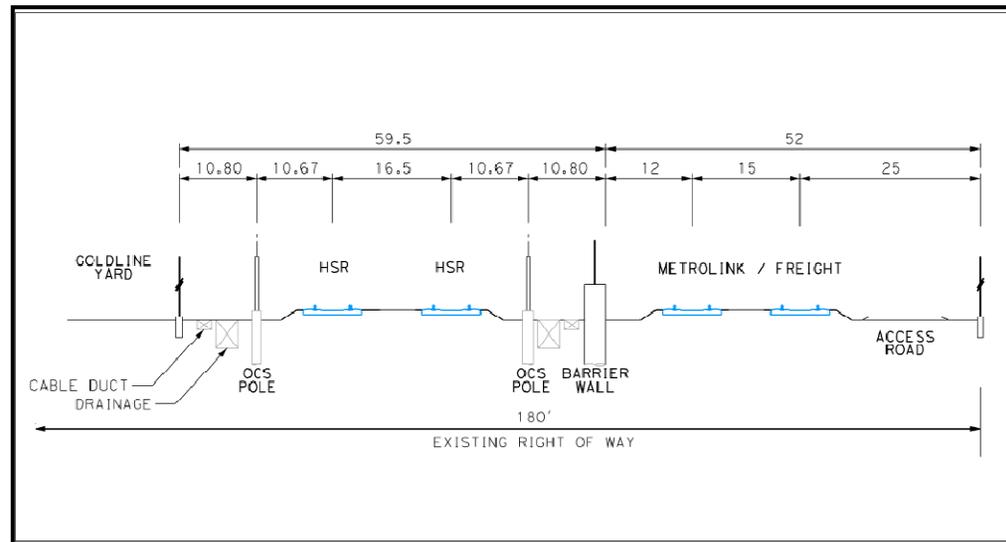
- Program EIR/EIS identified the study area as...
“a relatively wide corridor within which alignment variations would be studied to connect the existing Los Angeles Union Station with a new HST station located at the existing Burbank Metrolink Station.”
- Alignment Alternatives would be dedicated High Speed Rail unless infeasible to do so in congested urban center.





Dedicated HST

- HST trains run on dedicated tracks – No interactions with other services
- Requires space for 4 tracks, 2 for HST and 2 for Metrolink/Freight for the LA-P Section



Typical Dedicated HST Alternative Configuration – At-Grade

