Next stop: Orange Line Improvements.

Enhancing Los Angeles' Metro Orange Line Busway

Prepared for Metro by STV

Metro iteris™ STV 100 Years
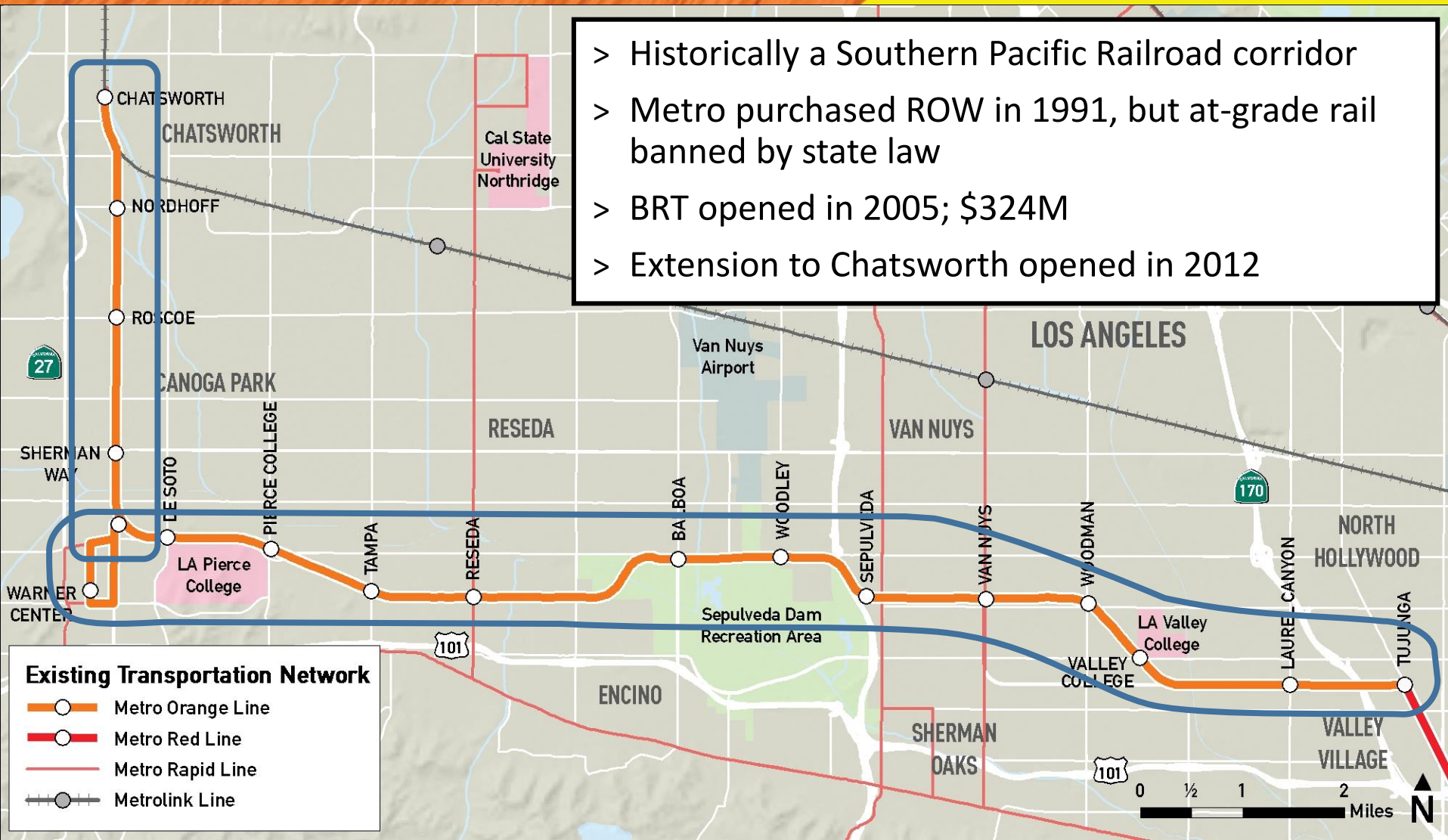
Agenda

> Overview of Metro Orange Line

> Technical Study Goals and Analysis

⭐ Key Takeaways

>> Maintaining Operations During Construction

>> Implementing Crossing Gates for BRT

>> Coordinating with Other Agencies

>> Preparing for Future LRT Conversion

Metro

Metro Orange Line BRT

> Historically a Southern Pacific Railroad corridor

> Metro purchased ROW in 1991, but at-grade rail banned by state law

> BRT opened in 2005; $324M

> Extension to Chatsworth opened in 2012

CHATSWORTH
CHATSWORTH

Cal State University Northridge

NORDHOFF

ROSCOE

LOS ANGELES

27

CANOGA PARK

Van Nuys Airport

RESEDA

VAN NUYS

SHERMAN WAY

DE SOTO

PIERCE COLLEGE

TAMPA

RESEDA

BALBOA

WOODLEY

SEPULVEDA

VAN NUYS

WOODMAN

170

NORTH HOLLYWOOD

LAUREL CANYON

TUJUNGA

LA Pierce College

WARNER CENTER

Sepulveda Dam Recreation Area

LA Valley College

VALLEY COLLEGE

101

ENCINO

SHERMAN OAKS

101

VALLEY VILLAGE

Existing Transportation Network

— Metro Orange Line
— Metro Red Line
— Metro Rapid Line
— Metrolink Line

0   ½   1   2
Miles

N

MOL Characteristics

Ridership

Approx. 25k weekday riders

Travel Time

50-55 minutes from North Hollywood to Chatsworth (PM peak)

Safety

23 collisions in 2015-2016
4–5k monthly red light violations

Grade Crossings

46 at-grade crossings
38 street
3 private
5 pedestrian

Bike/Ped Path

17-mile adjacent Class 1 bike/ped path

Measure M

> Transportation ballot measure in November 2016

> > ½ cent sales tax increase to improve transit systems and roadways throughout LA County

> > Over 70% of voters approved

> > Generates $860M per year

Measure M

> Phase 1: BRT Improvements
> > $286M
> > Groundbreaking 2019
> > Operation Shovel Ready

> Phase 2: Conversion to LRT
> > $1.4B
> > Groundbreaking 2051

Technical Study
Phase 1: BRT Improvements

Purpose
Provide safe and cost-effective strategies to improve operating speeds, capacity, and safety, while addressing passenger needs and minimizing disruption to residents

Goals
> Improve Operations
> Address Safety Concerns

> Benefit Community
> Ensure Cost-Effectiveness

Tasks
> Determine feasibility of grade separations and other improvements
> Develop conceptual-level designs for grade separations, and preliminary cost estimates

Evaluation Criteria

Goal	Criteria	Performance Measure
Improve Operation Speeds	• Reduce bus delays from red lights • Reduce overall person-delay • Improve consistency of bus speeds across the corridor	• Average bus speed at crossing • Red light delay for buses at crossing • Total rider delay • Average bus speed per segment • Stop-to-stop travel time
Address Safety Concerns	• Decrease modal conflicts at crossings • Improvement pedestrian and bicycle safety	• Collisions with buses • Collisions from right-turn-on-red violations • Visibility restrictions • Near-miss collisions • Bicycle/pedestrian collisions
Benefit the Surrounding Community	• Serve surrounding community • Preserve/enhance pedestrian and bicycle connections • Reduce delays for cross-traffic	• Population/employment density • Traffic volumes of cross-streets • Level-of-service of cross-streets • Per-lane volumes of cross-streets
Ensure Cost Effectiveness (evaluated at a later stage)	• Maximize cost-effectiveness	• Capital costs • Operations and maintenance costs • Annual cost/ridership added

Needs Analysis

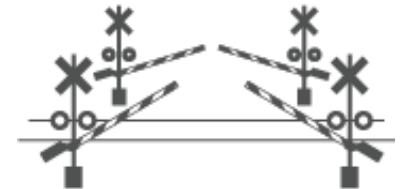| Existing Conditions	Proposed Improvement Type
• Complex operational issues • High safety conflicts • High potential for community benefits	**Grade Separation**
• Low to medium operational issues • Low to medium safety conflicts • Low to medium potential for community benefits	**Improved Transit Signal Priority (TSP)** **Permanent Road Closure** **Four Quadrant Gates**

Prioritize Improvements

- Grade separations at Sepulveda - Van Nuys
- Railroad-type gating at up to 35 intersections
- Closure of Tyrone Avenue
- Bike/pedestrian path grade separation of Sepulveda and Van Nuys

Existing Transportation Network
- Metro Orange Line
- Metro Red Line
- Metro Rapid Line
- Metrolink Line

Package A-1 Improvements
- Grade Separation
- Quadrant Gate System
- Closure
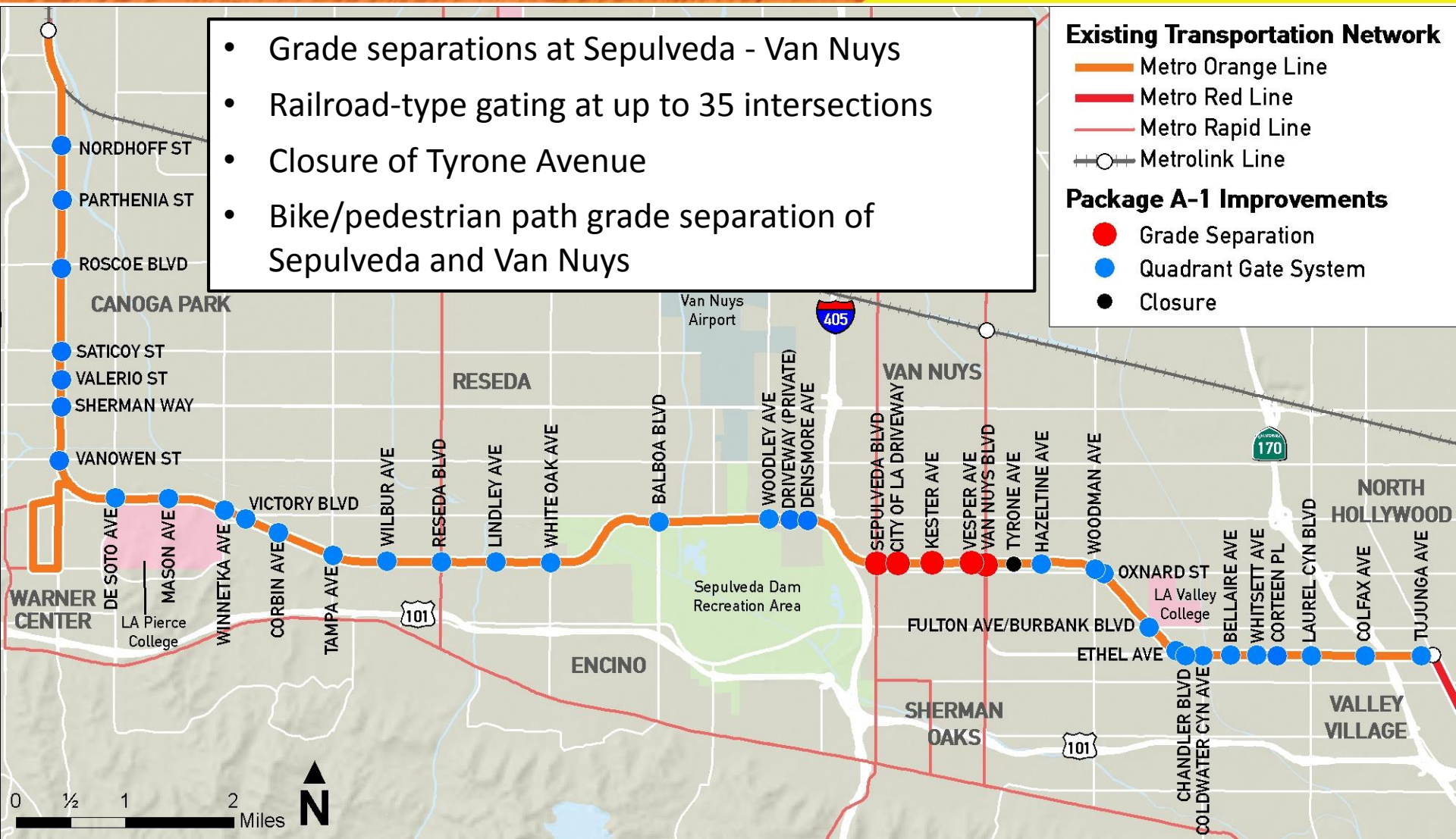
Proposed Grade Separation

Sepulveda Crossing

Conceptual rendering; subject to change

Benefits of Recommended Improvements

Entire Orange Line Corridor (North Hollywood to Chatsworth)	
Improvement / Benefit	Gates + Grade Separation from Van Nuys to Sepulveda
BUS TRAVEL TIME REDUCTION	-16 min (avg. 40% reduction)
RIDERSHIP	+10,100 (approx. 39% increase)
SAFETY	Improve safety for buses, cars, pedestrians and bicyclists at gated crossings

Maintaining Operations During Construction

Goals

> Maintain safe and efficient bus service during construction

> Keep MOL close to ROW

> Maintain bike path

> Temporary lane closure required during construction

> Tradeoffs necessary –detours required for both bus and bikeway

> Busway relocated north, within existing bike path area

> Bike path relocated north or south on parallel streets

Metro
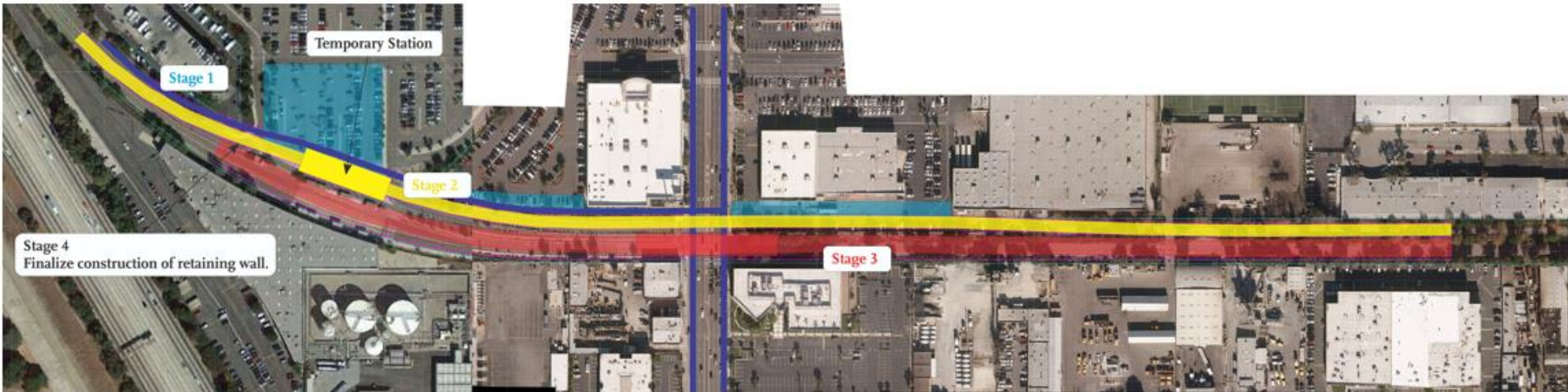
Maintaining Operations During Construction

Figure 3-2: Construction Staging (Sepulveda Station)

Figure 3-3: Construction Staging (Van Nuys Station)

Implementing Crossing Gates

Benefits

> Increased safety

> Elimination of red light traffic violations

> Reduced frequency of crossing closures, compared to current signalized crossings

> Opportunities for platooning

Impacts

> Increased peak hour cross-traffic delays

Challenges

> Requires removing all existing traffic signals controlling buses

> Requires vehicle detectors (loops or video detection), and other new equipment

> Requires ROW to be used exclusively by Metro buses

> Coordination with Los Angeles Department of Transportation

Implementing Crossing Gates

Standard equipment for existing rail crossings and traffic signal systems—but the combination is a new, unique application
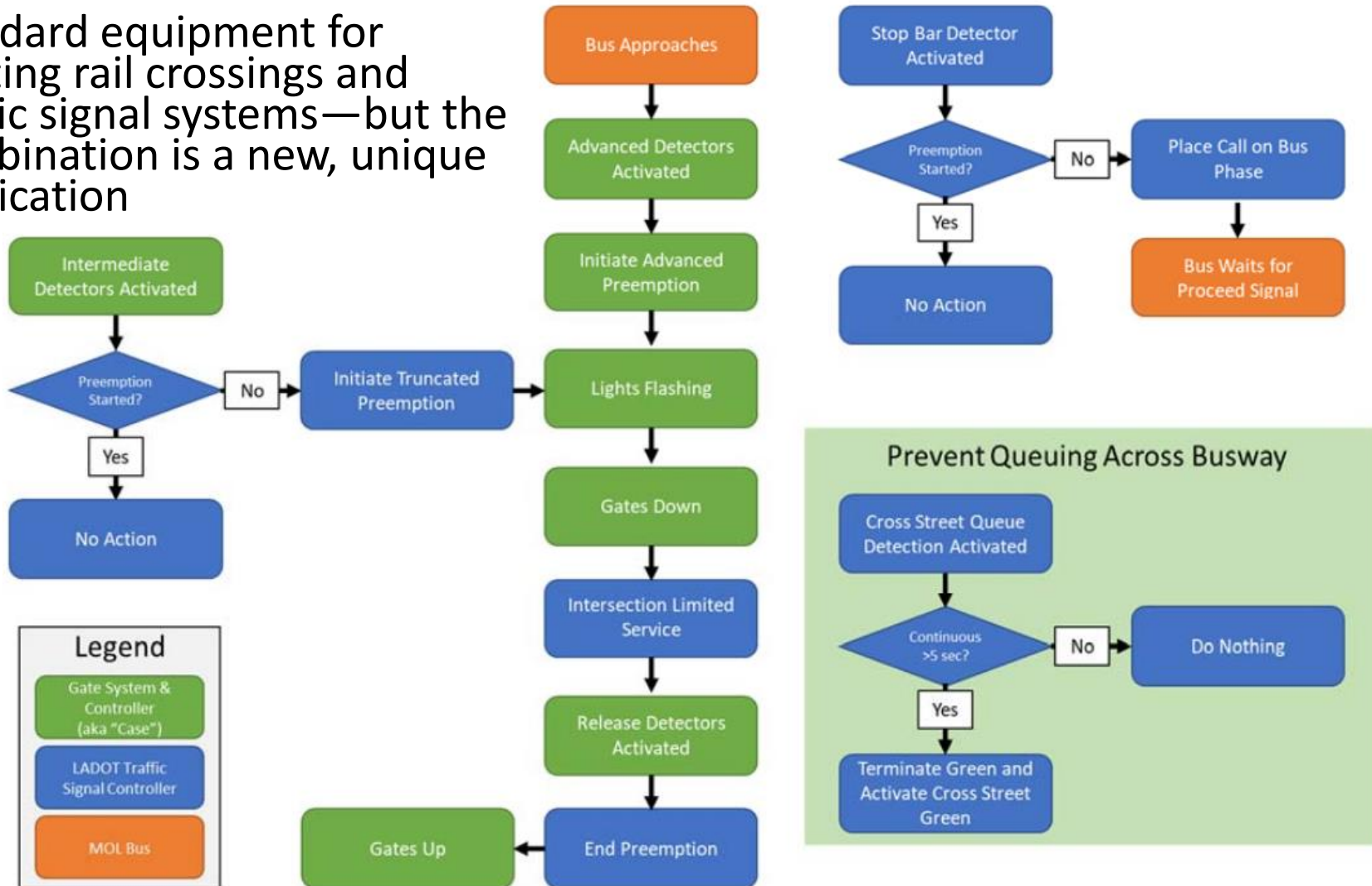
Crossing Gates

De Soto Crossing

Conceptual rendering; subject to change

Coordinating with Other Agencies

All coordination challenges related to gating

> Los Angeles Department of Transportation
  > Competing priorities – MOL vs. maintaining cross-traffic volumes and speeds
  > Challenge of removing bus signals and adding new equipment
  > Traffic study underway

> California Public Utilities Commission
  > Future conversion to LRT requires additional analysis of all at-grade crossings
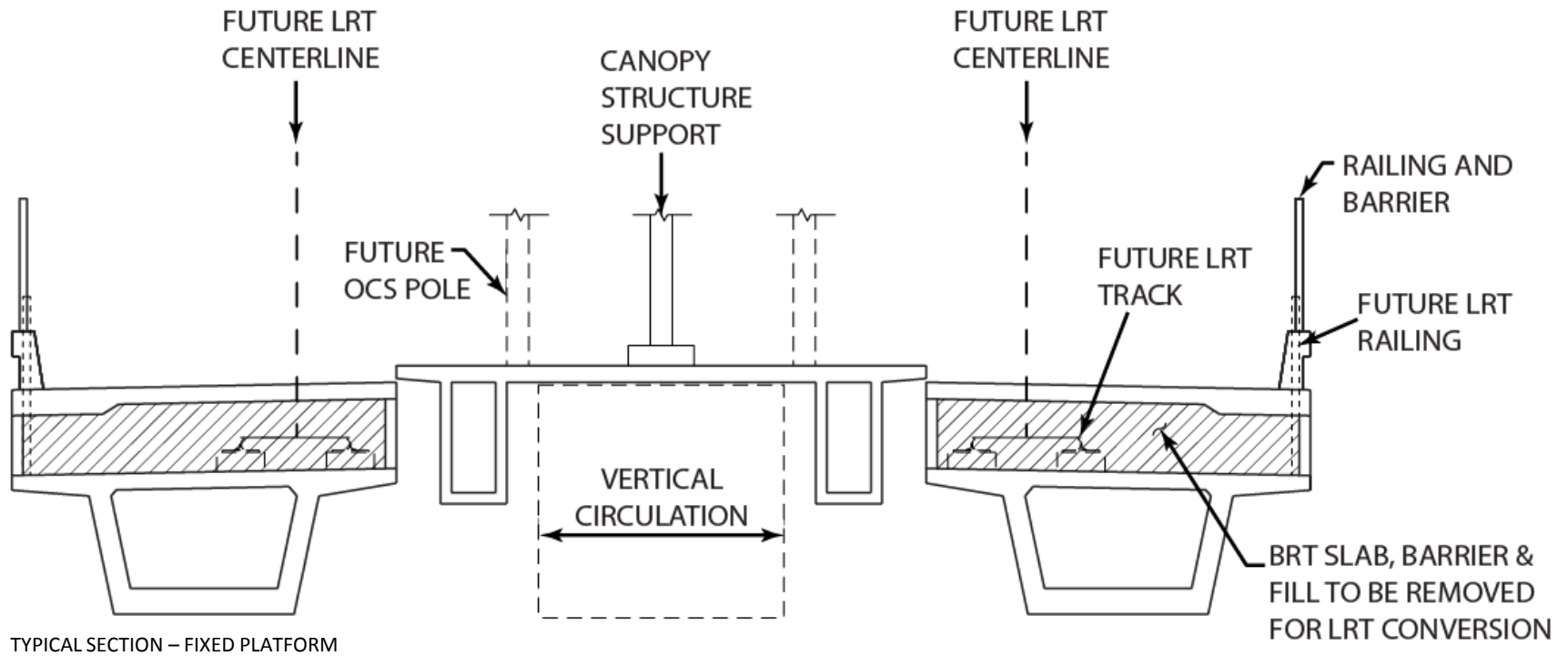 > Metro's Grade Separation Policy applied during technical study; gating does not preclude conversion

Metro
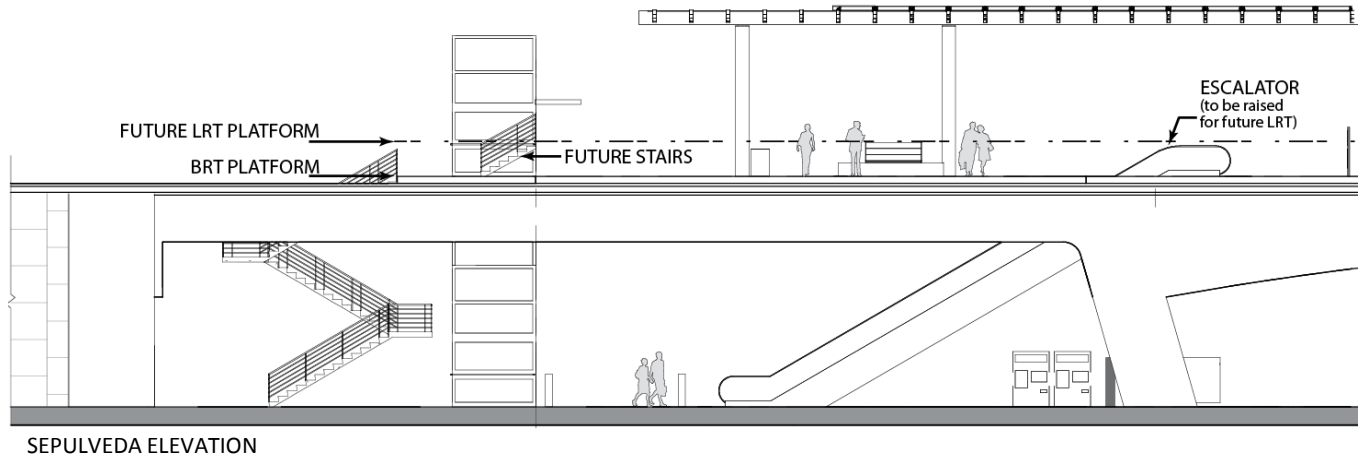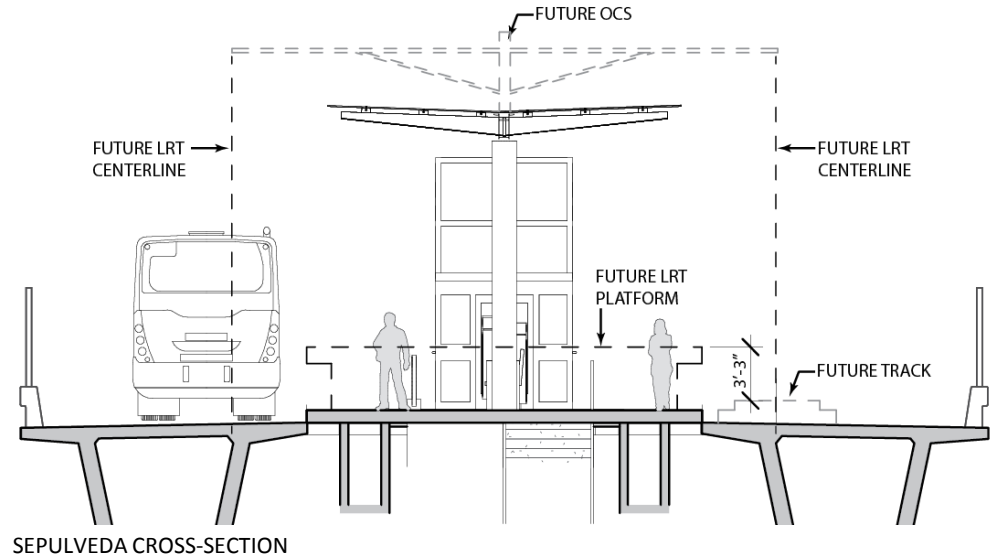
Preparing for LRT Conversion

> Platforms lengths and width designed for LRT (270' minimum length)

> Platform heights designed for LRT – BRT slabs to be lowered in future
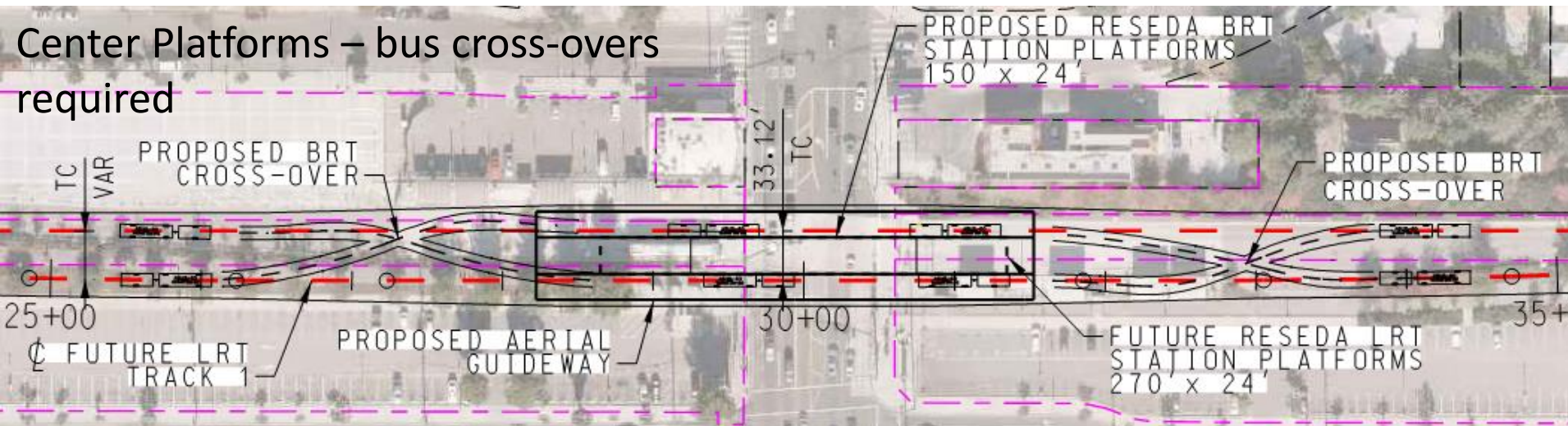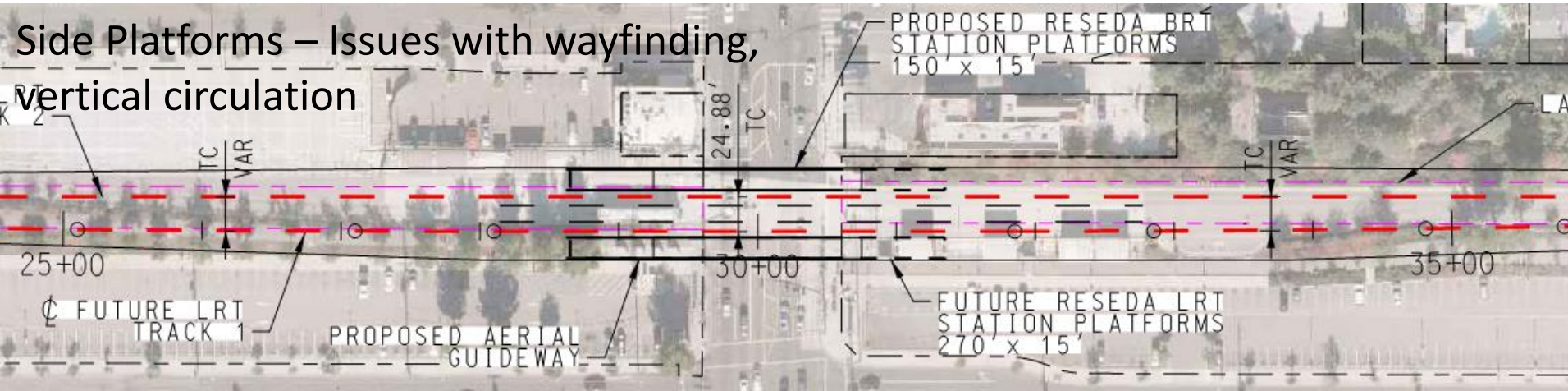
> Infrastructure ready for future OCS installation

FUTURE LRT CENTERLINE

CANOPY STRUCTURE SUPPORT

FUTURE LRT CENTERLINE

RAILING AND BARRIER

FUTURE OCS POLE

FUTURE LRT TRACK

FUTURE LRT RAILING

VERTICAL CIRCULATION

BRT SLAB, BARRIER & FILL TO BE REMOVED FOR LRT CONVERSION

TYPICAL SECTION – FIXED PLATFORM

Preparing for LRT Conversion

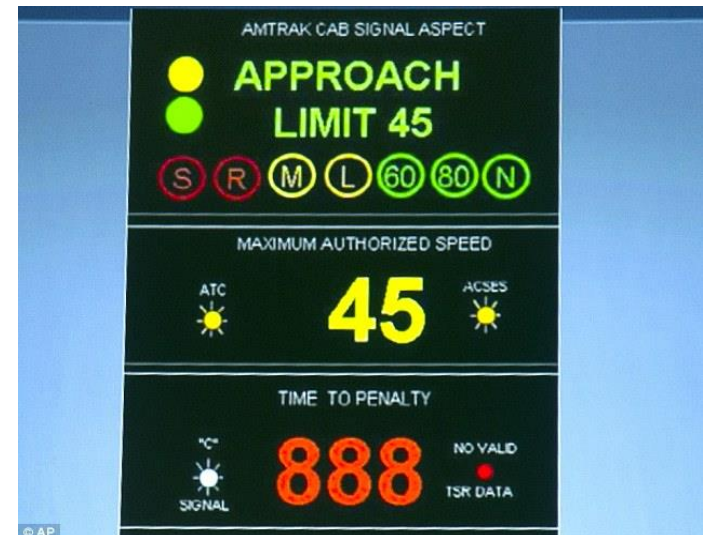Alternative design – platform built to BRT heights and raised in future, along with adding vertical circulation

SEPULVEDA CROSS-SECTION

SEPULVEDA ELEVATION

Preparing for LRT Conversion

Side Platforms – Issues with wayfinding, vertical circulation

Center Platforms – bus cross-overs required

What's Next?

> ## Early/Mid 2018
> > Technical/environmental analysis
> > Preliminary engineering
> > Refine design concepts

> ## Mid/Late 2019
> > Construction Groundbreaking

> ## Complementary Initiatives
> > New electric buses: ZEB and charging stations by 2020
> > Provide real-time signal information to operators

Thank You!

Metro