



## Board Report

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**File #:** 2017-0047, **File Type:** Informational Report

**Agenda Number:** 5.

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### FINANCE, BUDGET, AND AUDIT COMMITTEE

MARCH 15, 2017

### CONSTRUCTION COMMITTEE

MARCH 16, 2017

**SUBJECT: FISCAL YEAR 2018 PROGRAM MANAGEMENT ANNUAL PROGRAM EVALUATION (APE)**

**ACTION: RECEIVE AND FILE**

#### **RECOMMENDATION**

RECEIVE AND FILE report on **FY2018 Program Management Annual Program Evaluation (APE)**.

#### **ISSUE**

The Annual Program Evaluation (APE) is a priority initiative created to evaluate Metro's capital program annually. Given the challenges of managing a multi-billion dollar capital program, a comprehensive review of the risks associated with the cost and schedules of the program is conducted on an annual basis. This report summarizes the results of the FY2018 APE review performed by Program Management.

#### **DISCUSSION**

The APE initiative is a comprehensive evaluation of Metro's capital program, including Transit, Highway, and Regional Rail projects. As part of the APE process, staff reviewed and updated project costs and schedule to current conditions, challenges, and risks. Any changes to project budgets/schedules and the reasons for the adjustments are to be reported to the Board once annually for approval. In addition, APE serves as a project management tool bringing greater consistency, transparency, and discipline to better manage and deliver Board-approved projects. The APE is a dynamic tool, which is updated annually as projects move towards completion and any changes approved by the Board are incorporated.

#### **FY2018 APE Results**

For the FY2018 APE, Program Management focused on new and carry-over projects to FY2018 with project cost estimated at \$5 million or greater. Program Management staff evaluated sixty (60) projects, including 28 Transit projects, 25 Highway projects, and 7 Regional Rail projects (see Attachment A for a complete project listing) which total approximately \$13.8 billion. Compared to the FY17 APE review, the FY18 program size has increased 25% or approximately by \$2.8 billion.

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The major focus remains on managing the projects within the Board-approved life-of-project (LOP) budgets and schedules established for these projects. A summary of the potential adjustments to the Metro's capital program in FY18 is reported in the FY2018 Program Management APE presentation (Attachment A, page 41).

### Program Challenge

With the recently approved Measure M program added to the Measure R program, Metro is currently undertaking the largest transportation capital program in the nation, which creates an unprecedented challenge to project delivery. Recognizing staffing is a key factor to project delivery, Program Management is committed to developing strengths in its capacity and capability to ensure the multi-billion dollar capital program can be successfully managed.

### **FINANCIAL IMPACT**

The FY18 Program Management APE report does not have any specific budgetary or financial impacts. The APE report serves as an annual and early notice instrument to assess the scope, cost and schedule risk items affecting the respective projects under the oversight of Program Management. Risk items affecting scope, cost and schedule are identified on a project by project basis within the APE Presentation (Attachment A).

Should any of the potential project risks affecting scope, cost and schedule parameters be realized, the Chief Program Management Officer and affected project staff will return to the Board with separate board report recommendations to address the identified risks and adjust the project element (s) of the Board adopted project parameters.

### **NEXT STEPS**

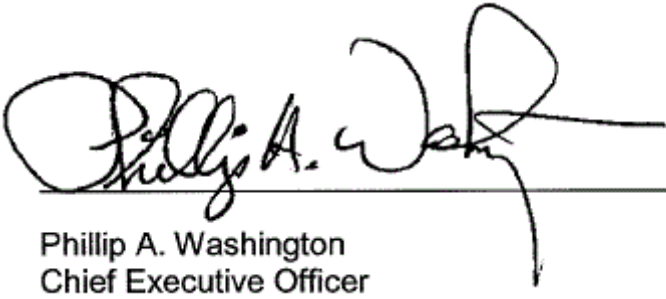
Program Management will request the resources required for project delivery success through the FY18 Budget process for Board approval. Project managers will manage to deliver projects safely, on-time and within the Board-approved budgets. Staff will continue to provide the Board with monthly updates on the project status throughout the year. The next FY2019 Program Management APE report will be presented to the Board in Spring 2018.

### **ATTACHMENTS**

Attachment A - Fiscal Year 2018 Program Management Annual Program Evaluation (APE) presentation

Prepared by: Brian Boudreau, Senior Executive Officer, Program Control (213) 922-2474

Reviewed by: Richard Clarke, Chief Program Management Officer, (213) 922-7557



Phillip A. Washington  
Chief Executive Officer



# **Fiscal Year 2018 Program Management Annual Program Evaluation (APE)**



# Presentation Overview

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- APE Purpose and Process
- Capital Program Status
- Capital Program Cost
- Adjustments for FY2018 APE
- Summary
- Next Steps



# APE Purpose

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- Annual evaluation of Metro's capital program
- Reporting to the Board any project budget and schedule changes, and reasons for the changes
- A project management tool bringing greater consistency, transparency, and discipline
- Facilitates financial planning



# APE Process

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- A review of project costs and schedule
- Update project capital cost estimates to current conditions, including price trends and changes
- Focus on budget to complete current project phase/milestone
- Include APE results in future fiscal year annual budget review and adoption by the Board

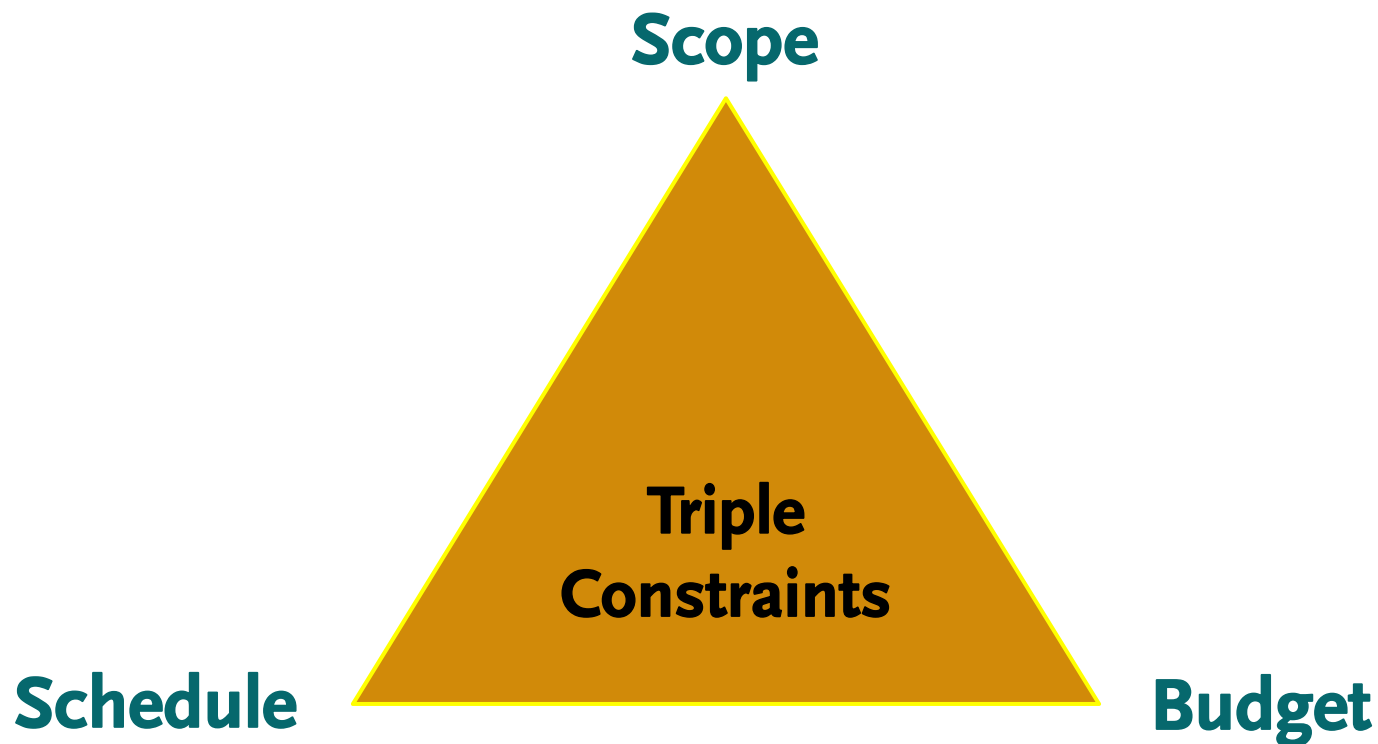


# Project Management

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One side of the triangle cannot be changed without affecting the other sides:





# FY18 APE Scope

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- Focus on capital projects with total project cost greater than \$5M being managed by Program Management:
  - Major Transit Construction Projects – 5 projects
  - Other Transit Capital Projects – 23 projects
  - Regional Rail Projects – 7 projects
  - Highway Program – 25 projects
- Project budgets in the APE focus on authorized funding amount



## FY18 APE Scope

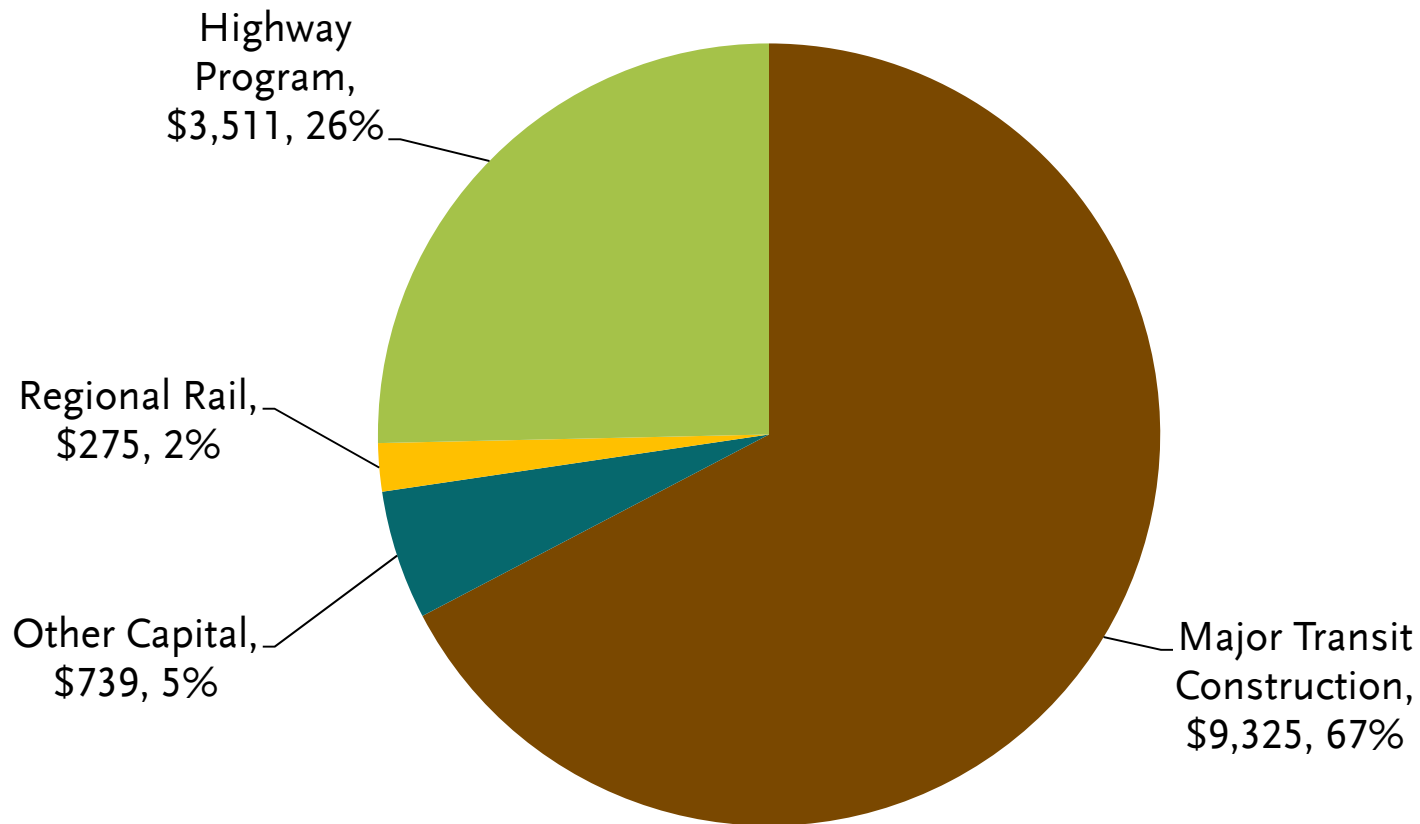
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- In addition to the projects in APE, Program Management also manages/oversees additional 100+ projects, including facilities, Operations improvement, and State of Good Repair projects
- In total, Program Management manages and supports a volume of 160+ projects with a total authorized value at estimated approximately \$15 billion
- Approximately \$13.8 billion projects are included in the FY18 APE review



# FY18 APE Current Program: \$13.8 B

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# Program Highlights

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- Overall Program increased 25% from approximately \$11 billion in FY17, to approximately \$13.8 billion in FY18
- Program dollars committed to Major Transit Construction projects increased approximately \$2.5 billion from FY17 to FY18
- With implementation of the Measure M program, Metro's Capital Program is expected to continually grow



# Program Challenges

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- Secure sufficient resources and staffing in a timely manner needed to manage and support project delivery
- Collaborate with stakeholders to meet community expectations
- Commitment of efficient Third Party review/approval by various external jurisdictions and Caltrans
- Encourage competitive and qualified pool of contractors, small businesses, and workforce on Metro projects
- Deliver multiple large and complex projects on-time and within budget
- Achieve continuous improvement in project delivery through innovation, application of best practices and high standards



# Metro Transit Program



# Metro Transit Capital Projects

Type	Project Budget	# of Projects
Major Transit Construction	\$9,325	5
Other Transit Capital	\$739	23
Rail Facilities Improvements	\$229	6
Bus Facilities Improvements	\$225	10
Wayside System	\$124	2
Security/Safety	\$124	2
Miscellaneous Capital	\$37	3
<b>Total Transit Capital Program</b>	<b>\$10,064</b>	<b>28</b>

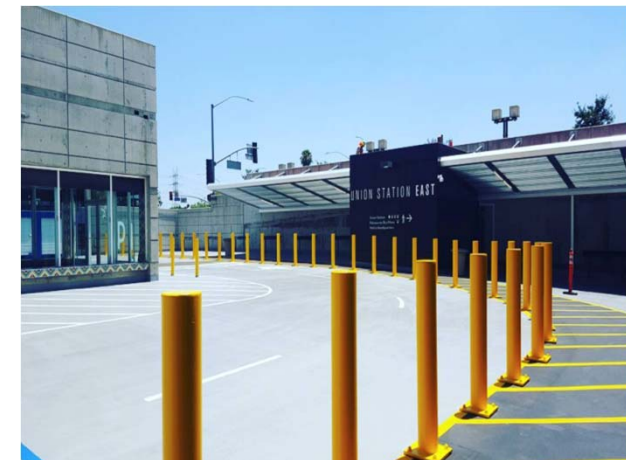


# Metro Transit Capital Program Status

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## 5 Projects Completed in FY2017

- Metro Red Line to Orange Line Underpass at North Hollywood Station – August 2016
- Patsaouras Bus Plaza Paving Reconstruction Project (Initial Phase) – October 2016
- 7th Street/Metro Station Pedestrian Tunnel (BLOC) – January 2017
- Fuel Storage Tank System Enhancements (FY15 – FY17) – March 2017
- Division 3 Master Plan Phase II-IV – June 2017





# Metro Transit Capital Program Status

## 5 Projects Planned to be Completed In FY2018

- Metro Red Line Escalator Replacement/Modernization Project – August 2017
- Metro Blue Line Pedestrian Safety Enhancement at Grade Crossings – October 2017
- Bus Facility Maintenance Improvements & Enhancements Phase I – December 2017
- Metro Silver Line Improvements and Upgrades – December 2017
- El Monte Busway & Transit Center Expansion – December 2017



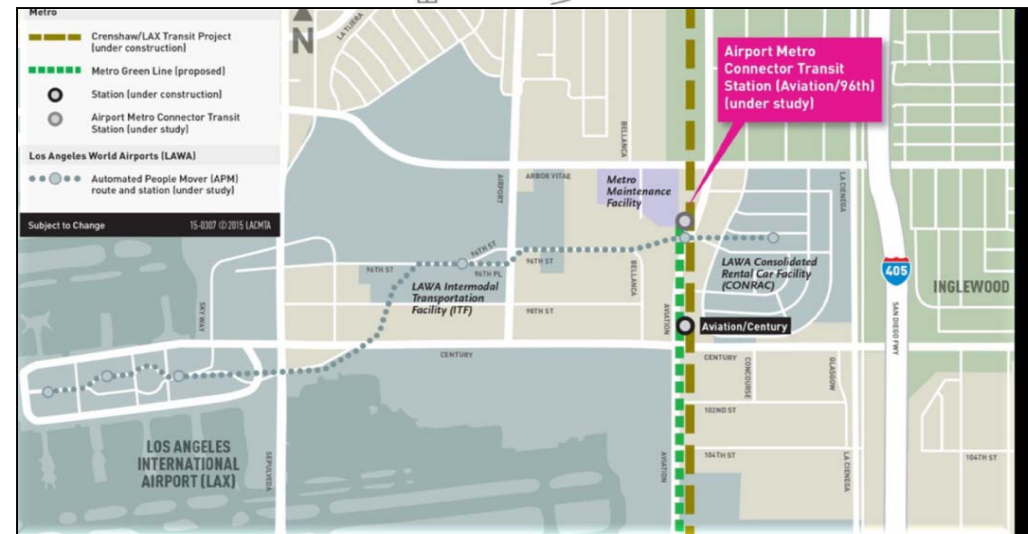
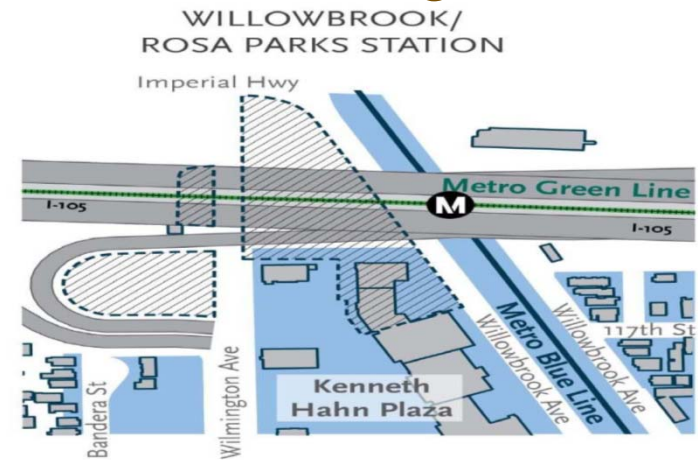
Photos after safety pedestrian improvements at Metro Blue Line's Wardlow Station in Long Beach.



# Metro Transit Capital Program Status

## 4 Projects with Planned Transition from Planning to Program Management in FY18:

- Willowbrook/Rosa Parks Station Improvements Project – Spring 2017
- Airport Metro Connector Project (96<sup>th</sup> Street Station) – Fall 2017
- Metro Gold Line Eastside Access Project – Winter 2017
- River to Rail Corridor Active Transportation Connector Project – Spring 2018



# Crenshaw/LAX Transit Project



# Crenshaw/LAX Transit Project

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Project Budget: \$2,058M

Project Completion: October 2019

Project Complete: 60%

## Accomplishments:

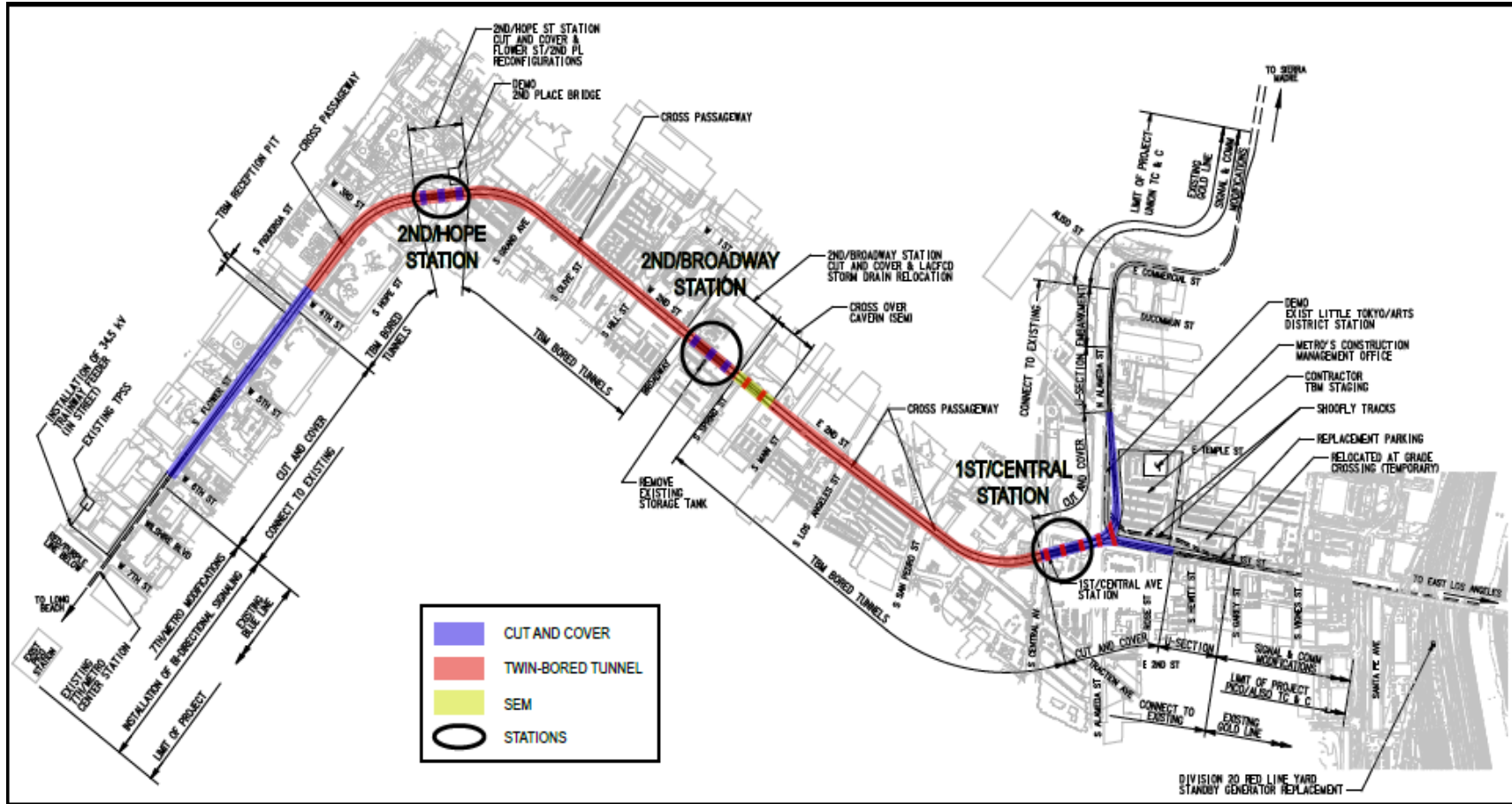
- Nearing the 60% construction completion mark for the project
- Final design of base work is complete with continuing design of change work
- Contractor and Metro agreed on a revised baseline schedule that supports the planned revenue service date of October 2019
- Contractor on schedule per revised baseline schedule

## Challenges / Risks:

- Maintain planned schedule milestones
- Minimal schedule contingency exists in the revised baseline schedule
- Future schedule delays could be mitigated by Metro accelerating planned work but cost of acceleration may add pressure on completing the project on budget
- Heavier than expected winter rains impacting construction work
- Continuous efforts meeting community expectations
- Third party approvals of work in a timely manner



# Regional Connector Transit Project



# Regional Connector Transit Project

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**Project Budget:** \$1,755.8 M

\*Excludes finance costs

**Project Completion:** 2021

**Project Complete:** 31%

## Accomplishments:

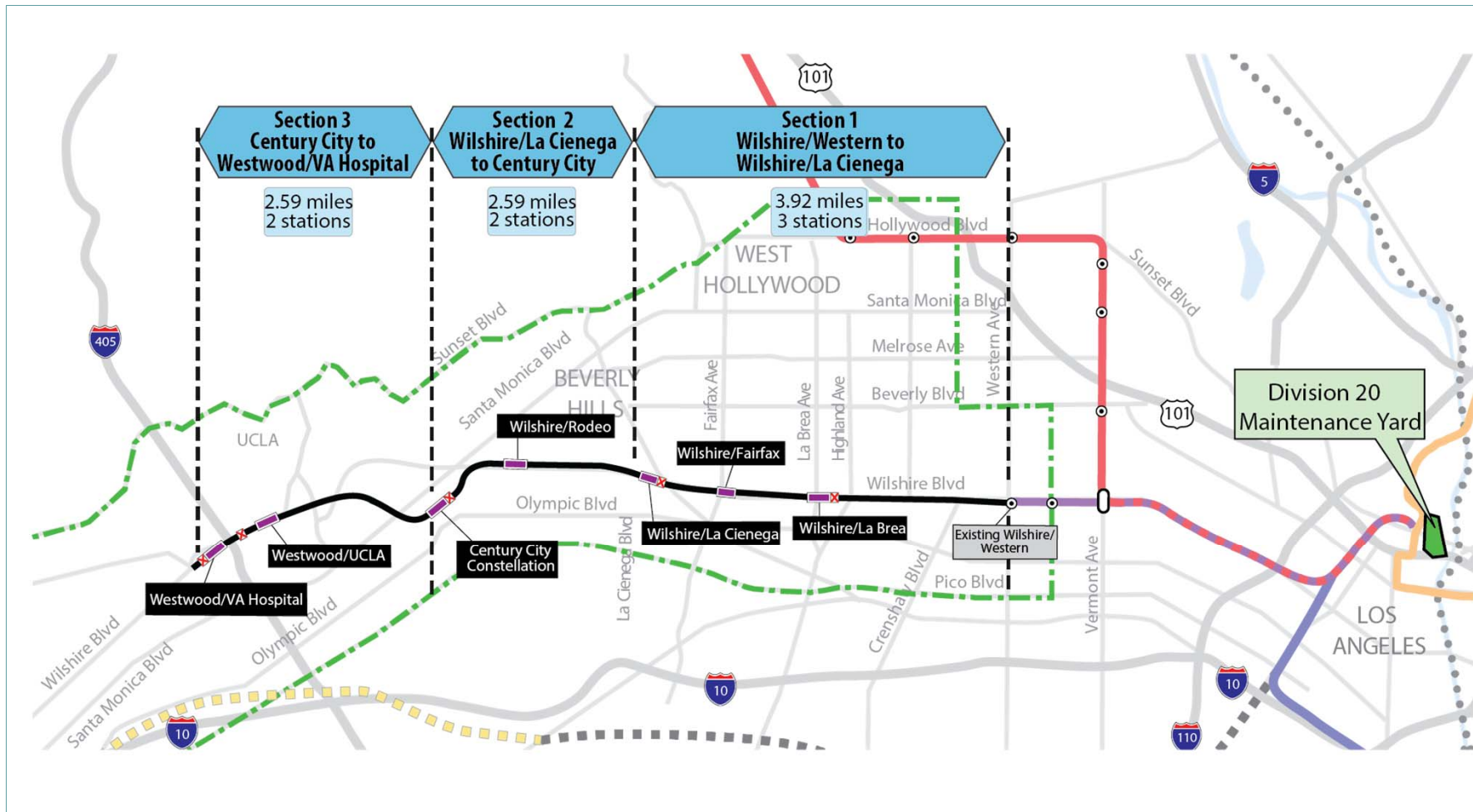
- Successfully launched boring machine “Angeli” for tunneling operations
- Initiated build-out of permanent structural elements at the 1st/Central Station
- Advanced support of excavation (SOE) installations on Flower Street sufficient to facilitate commencement of decking and excavation works
- Safely completed excavation of 2nd/Hope Station Box to an average depth of 100 feet
- Completed 3rd Party utility relocations at 2nd/Broadway Station

## Challenges/Risks:

- Obtaining continued City of LA support for, and approval of, the necessary traffic control and extended work hour permits to effectively work in a dense urban setting
- Safely prosecute the first leg of tunneling operations, and the timely excavation of the related tunnel boring machine recovery shaft on Flower Street
- Relocating LADWP underground power assets around 6th/Flower in support of Flower Street-South SOE and downstream schedule operations



# Westside Purple Line Extension Project



# Westside Purple Line Extension Section 1

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**Project Budget: \$2,778.9M**  
(Excludes finance costs)

**Forecast Completion: November 2023**  
**Project Complete: 15%**

## Accomplishments:

### FY17

- Achieved substantial completion on Wilshire/La Cienega advanced utility relocation (AUR), ahead of schedule and within budget
- Private utility relocations have been completed at the Wilshire/Fairfax Station area
- Private utility relocations on schedule for completion at the Wilshire/La Cienega Station area
- Complete final design on contracts for Tunnels, Stations, Trackwork & Systems and Division 20 Maintenance of Way/Non-Revenue Vehicle Facility
- Begin Wilshire/Fairfax Station decking and excavation operations
- Award contract for heavy rail vehicles procurement

### Planned FY18

- Complete excavation at Wilshire/La Brea Station and Wilshire/Fairfax Station
- Begin Wilshire/La Brea Station concrete operations
- Delivery of tunnel boring machines to project site
- Begin Wilshire/La Cienega Station decking

## Challenge/Risk:

- Third party approvals of design and construction in a timely manner
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# Westside Purple Line Extension Section 2

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**Project Budget: \$ 2,440.9 M**

(Excludes finance costs)

**Forecast Completion: August 2025**

## Accomplishments:

### FY17

- FTA executed the Full Funding Grant Agreement (FFGA)
- U.S. Department of Transportation issued the TIFIA Loan
- Issued Contract Notice-to-Proceed (NTP) for Construction Management Support Services
- Began utility relocations at Century City Constellation Station and Wilshire/Rodeo Station
- Awarded contract and issue NTP for Tunnels, Stations, Trackwork and Systems
- Continue property acquisitions

### Planned FY18

- Begin final design
- Procure tunnel boring machines
- Begin major construction
- Continue third party utility relocations at Century City Constellation and Wilshire/Rodeo Stations
- Continue property acquisitions

## Challenge:

- Seek opportunities to accelerate project delivery by 2024



# Westside Purple Line Extension Section 3

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Projected Budget through FY18: \$291.2M      Forecast Completion: TBD  
Working Project Estimate:                      \$2.9 B

## Accomplishments:

### FY17

- Request FTA's approval to Enter into Engineering
- Continue timely submittals required to seek an Early Systems Work Agreement or Letter of No Prejudice with the FTA for the Design/Build Tunnel Contract

### Planned FY18

- Receive FTA's approval to Enter into Engineering (planned for 1<sup>st</sup> Quarter FY18)
- Award contracts and issue NTPs for the Tunnel Contract and Westwood/UCLA Advanced Utility Relocations
- Initiate procurement for Stations, Track and Systems contract

## Challenges/Risks:

- Secure FTA's funding commitment
- Obtain sufficient capacity and capability in a timely manner required to deliver project
- Provide temporary and permanent power



# Patsaouras Plaza Busway Station

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Project Budget: \$ 39.7 M

Project Completion: November 2018

## Accomplishments:

- Completed final design
- Started project construction

## Challenges/Risks:

- Continued Third Party cooperation review/approval, including Caltrans, to be consistent with project schedule
- Potential budget and schedule impacts due to design changes or underground conditions
- Heavier than expected winter rains impacting construction work



# Metro Blue Line Signal Rehabilitation Project

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Project Budget: \$ 93.6 M

Project Completion: August 2020

## Accomplishments:

- Secured additional funding from State Cap & Trade Transit and Intercity Rail Capital Program (TIRCP) for \$38.5 million
- Design-build procurement well underway

## Challenges/Risks:

- Track allocations coordination with other projects/maintenance on Metro Blue Line
- Existing aged ductbank/conduits may require replacement, potential additional scope
- Additional right-of-way needed for new Slauson Interlocking bungalow near 51<sup>st</sup> Street
- Meet Cap & Trade deadline for funding
- Awaiting proposals; may impact project budget



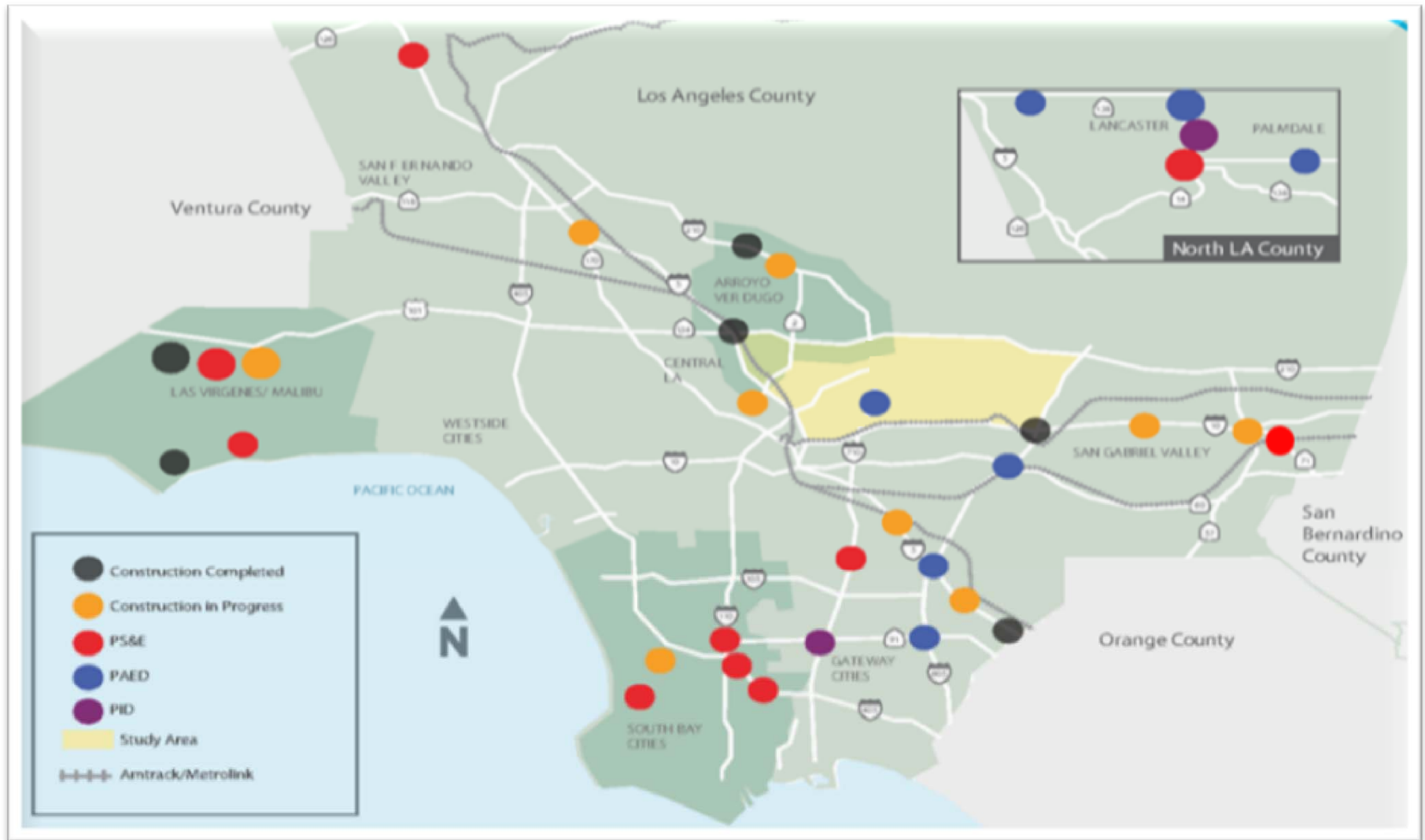
New train control



Project adds 4 Crossovers



# Highway Program





# Highway Program Status Summary (Measure R Funded)

#	Project	Current Phase	Estimated Cost of Current Phase (\$mil.)	Phase Completion
1	I-5 South – Alondra	Construction	\$114.07	Completed
2	I-5 South – Valley View Interchange	Construction	\$631.12	Aug 2022
3	I-5 South – Shoemaker, Rosecrans, Bloomfield	Construction	\$188.22	July 2018
4	I-5 South – San Antonio, Imperial Hwy and Orr Day	Construction	\$323.29	April 2019
5	I-5 South – Florence	Construction	\$211.67	Sep 2019
6	I-5 South - Carmenita Interchange	Construction	\$419.88	Dec 2018
7	I-5 North - HOV from SR 118 to SR 170	Construction	\$219.49	Completed
8	I-5 North - HOV from SR 170 to North of Buena Vista	Construction	\$94.72	Completed
9	I-5 North – North of Buena Vista to South of Magnolia Blvd	Construction	\$402.38	May 2020
10	I-5 North - Magnolia Blvd to SR 134	Construction	\$137.37	Dec 2019



# Highway Program Status Summary (Measure R Funded)

#	Project	Current Phase	Estimated Cost of Current Phase (\$mil.)	Phase Completion
11	I-5 North HOV Project SR 14 to Parker Road	Plan, Specification & Estimate (PS&E)	\$31.0	Dec 2018
12	Interstate 605 Corridor Hot Spots – I-605/I-5 Interchange Improvement	Project Approval / Environmental Document (PAED)	\$20.84	Mar 2019
13	Interstate 605 Corridor Hot Spots – I-605/SR 60 Interchange Improvement	PAED	\$30.0	Feb 2020
14	Interstate 605 Corridor Hot Spots – I-605/SR 91 Interchange Improvement	PAED	\$7.8	May 2019
15	Interstate 605 Corridor Hot Spots – I-710/SR 91 Interchange Improvement	Project Study Report / Project Development Support (PSR/PDS)	\$2.6	June 2017
16	Interstate 405 Crenshaw Blvd On and Off Ramp Improvements	PS&E	\$10.3	Aug 2016
17	Interstate 405 and I-110 Aux Lane from SR 91 to Torrance Blvd	PS&E	\$9.0	Jul 2017
18	SR 138 I-5 to SR 14	PAED	\$25.0	Apr 2017
19	I-710 South	PAED	\$91.0	Sep 2018
20	I-710 South Early Action Projects - Soundwall Projects (3 locations)	PS&E	\$12.7	Feb 2018
<b>Subtotal Measure R Highway Projects</b>			<b>\$2,982.45</b>	



# Highway Program Status Summary (Non-Measure R Funded)

#	Project	Current Phase	Estimated Cost of Current Phase (\$mil.)	Phase Completion
21	I-10 HOV from Citrus Avenue to SR 57	Construction	\$264.4	Nov 2021
22	I-10 HOV from Puente Avenue to Citrus Avenue	Construction	\$195.6	Apr 2019
23	SR 57 and SR 60 Mixed Flow Interchange ** (Eastbound and Westbound flyover off-ramp to Grand Ave, Eastbound on-ramp SR-60)	PS&E	\$13.0*	Sep 2020
24	SR 71: Interstate 10 to Mission Blvd **	PS&E and ROW	\$16.0	Dec 2019
25	SR 71: Mission Blvd to Rio Rancho Road **	PS&E and ROW	\$40.0	Dec 2019
Subtotal Non-Measure R Funded Highway Projects			\$529.0	
Total Highway Program			\$3,511.45	

\* Initial Budget Estimate is through completion of Design

\*\* These are projects with completed PAED and in Approved 2009 LRTP and 2014 SRTP





# I-5 N Capacity Enhancements (SR14 to Parker Road)

Project Phase: Plan, Specification & Estimate

Approved Budget: \$31.4 M

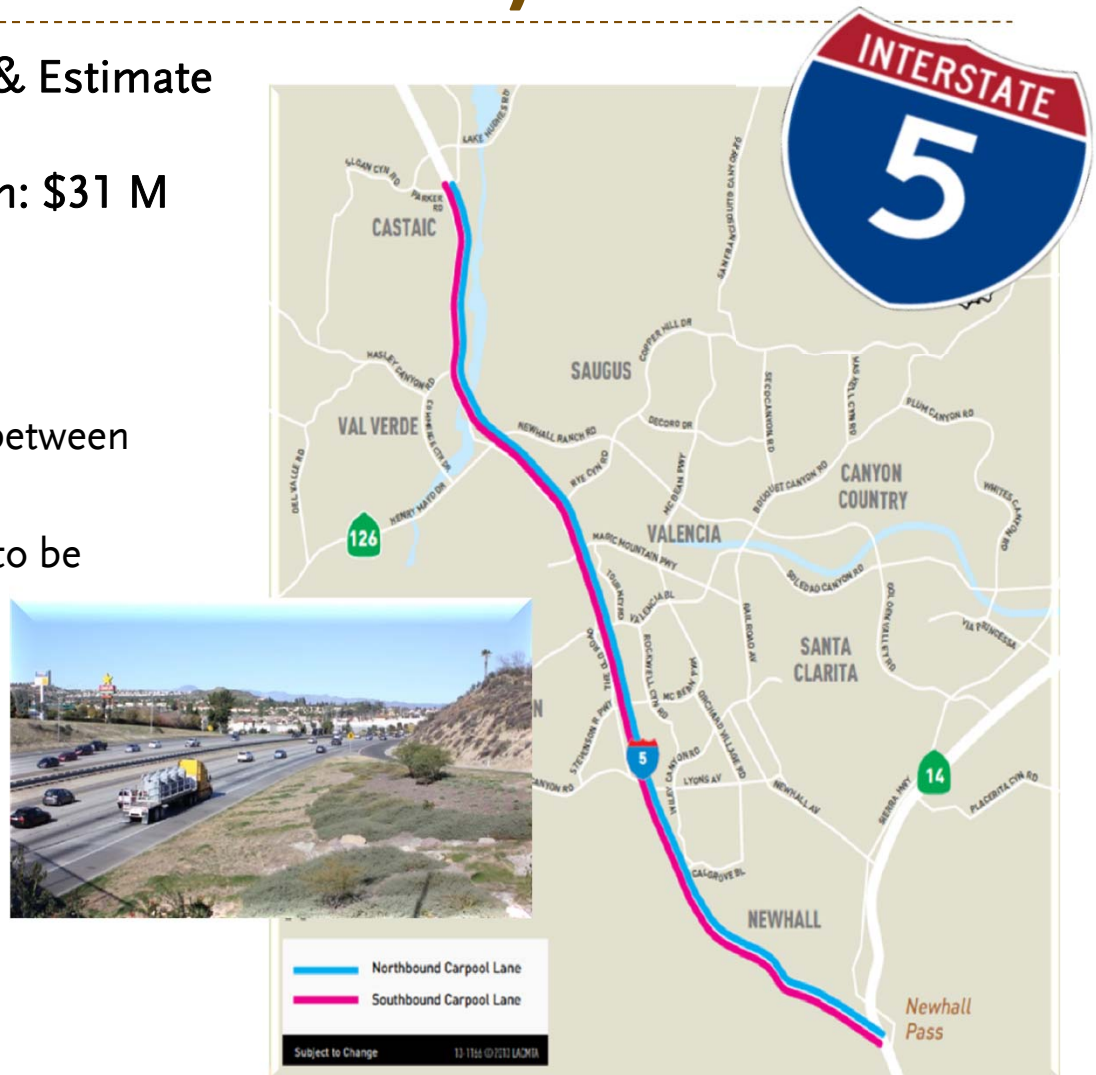
Estimated Cost to Complete Design: \$31 M

## Accomplishments:

- Five (5) community meetings held between October 2016 and January 2017
- Project on schedule for 35% PS&E to be completed by April 2017

## Challenges/Risks:

- Coordination with Caltrans pavement rehabilitation project



# I – 5 Corridor Construction





# I-5 North: SR 118 to SR 134



Project Phase: Construction

Project Managed by Caltrans:

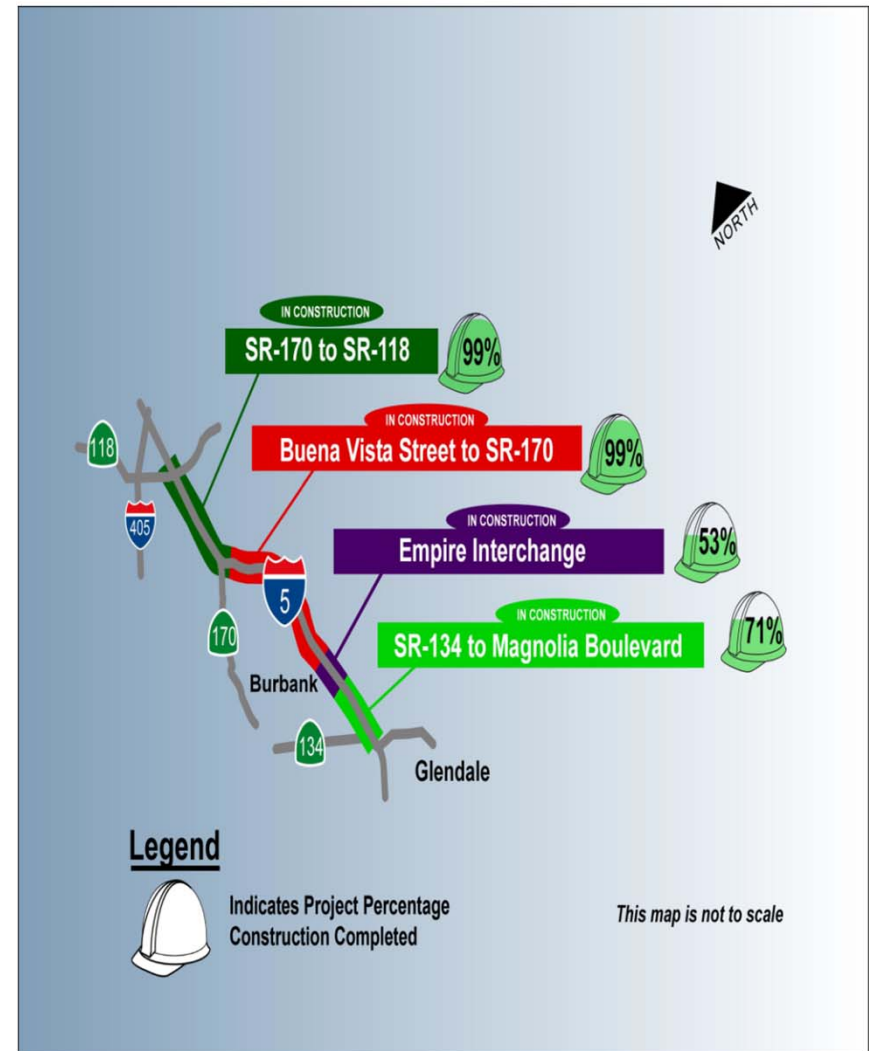
- Approved Budget: \$853.96 M
- Estimated Cost to Complete Construction: TBD

Accomplishments:

- SR170 to SR118 – Open to traffic, plant establishment in progress
- North of Buena Vista to SR170 – Open to traffic, plant establishment in progress
- North of Buena Vista to Magnolia Blvd including Empire Blvd Interchange – Construction in progress
- SR 134 to Magnolia Blvd – Construction in progress

Challenges/Risks:

- Adverse field conditions
- Utility relocation/ Railroad work changes
- Survey work related to roadway and structures
- LA River Bridge construction requires significant changes to avoid working on the River bed
- Potential schedule and budget impacts





# I-5 South: Orange County Line to I-605



Project Phase: Construction

Project Managed by Caltrans:

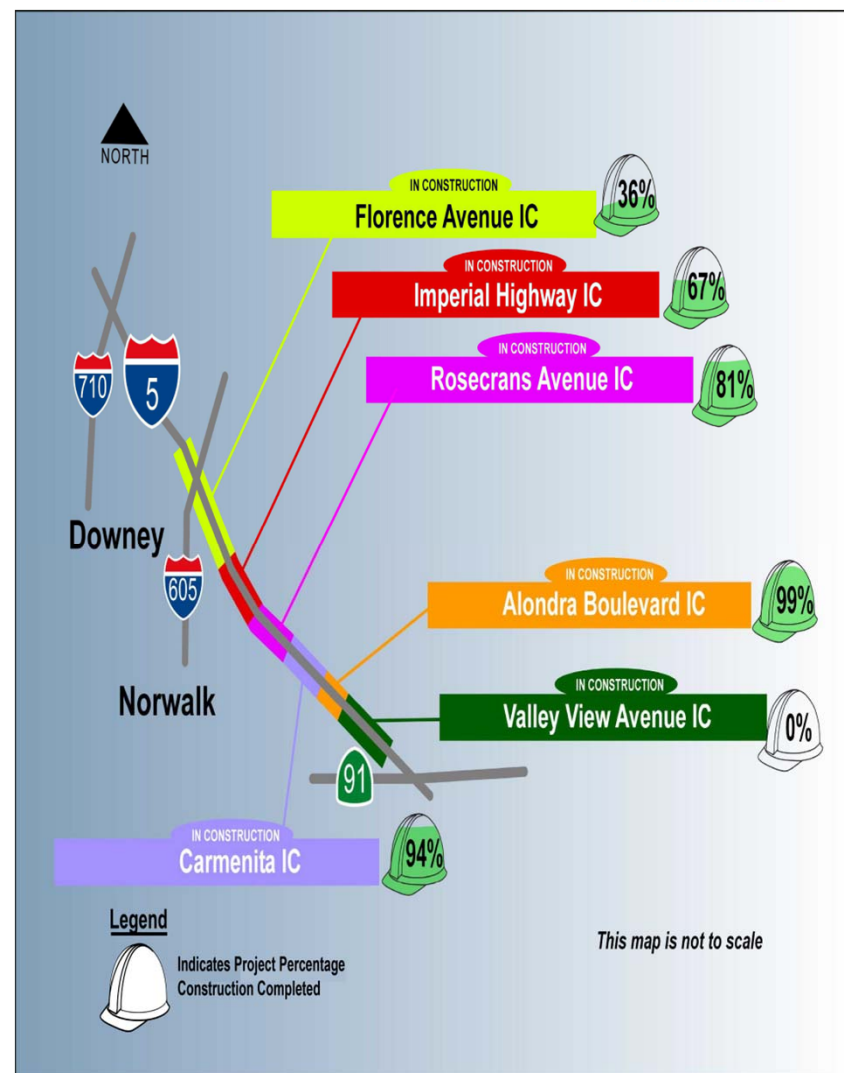
- Approved budget: \$1,888.25 M
- Estimated Cost to Complete Construction: TBD

Accomplishments:

- Alondra Blvd – Open to traffic, plant establishment in progress
- Valley View Avenue – Construction began fall 2016
- Rosecrans Avenue – Construction in progress
- Imperial Highway – Construction in progress
- Florence Avenue – Construction in progress
- Carmenita Interchange – Interchange open to traffic fall 2016. Construction on local streets in progress

Challenges/Risks:

- Extensive utility and ROW relocation
- Adverse field conditions and railroad work
- Potential schedule and budget impacts
- Timely resolution of valid contractors' claims



# I-605 “Hot Spots”



Project Phase: Various

Approved Budget: \$61.24 M

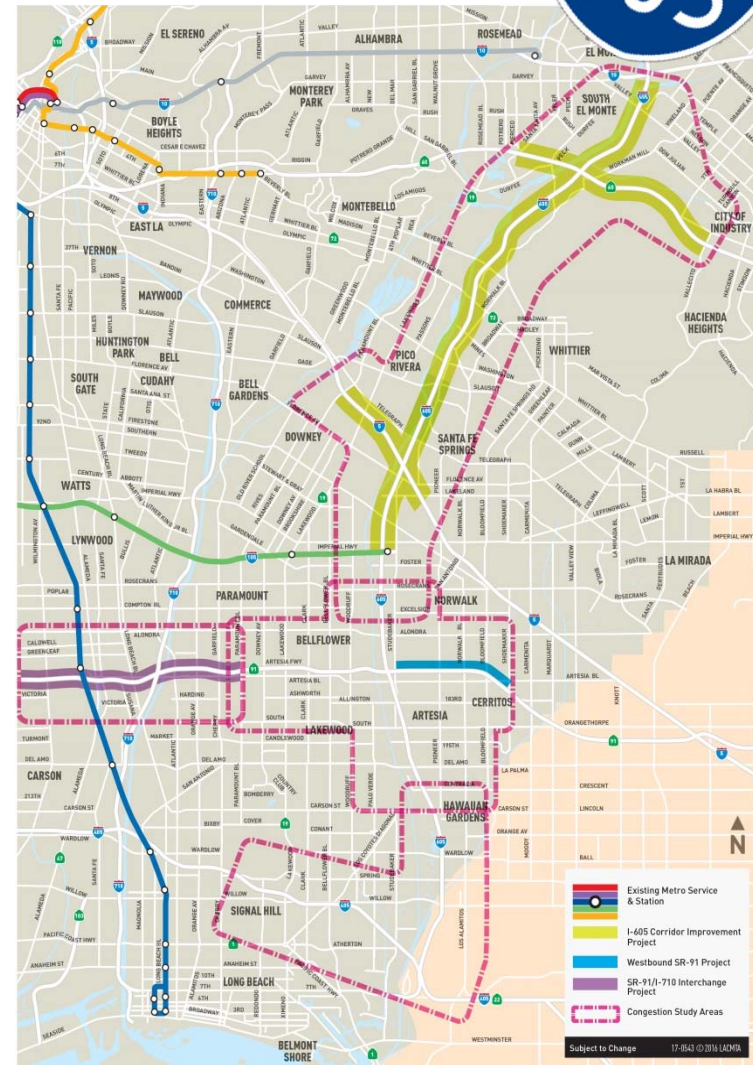
Estimated Cost to Complete Phase: \$61.24 M

## Accomplishments:

- Aggressive contract starts:
  - 605/5 PAED awarded December 2015
  - 710/91 PSR-PDS awarded December 2015
  - 605/91 PAED awarded May 2016
  - 605/60 PAED awarded June 2016
- Effective coordination of all contracts

## Challenges/Risks:

- Availability of funding to advance projects to design and construction
- Strategy to resolve: Consider un-bundling the mega projects to smaller fundable projects with independent utility and sustainability



# I-710 South



Project Phase: Preliminary Engineering & Environmental

Approved Budget: \$91 M

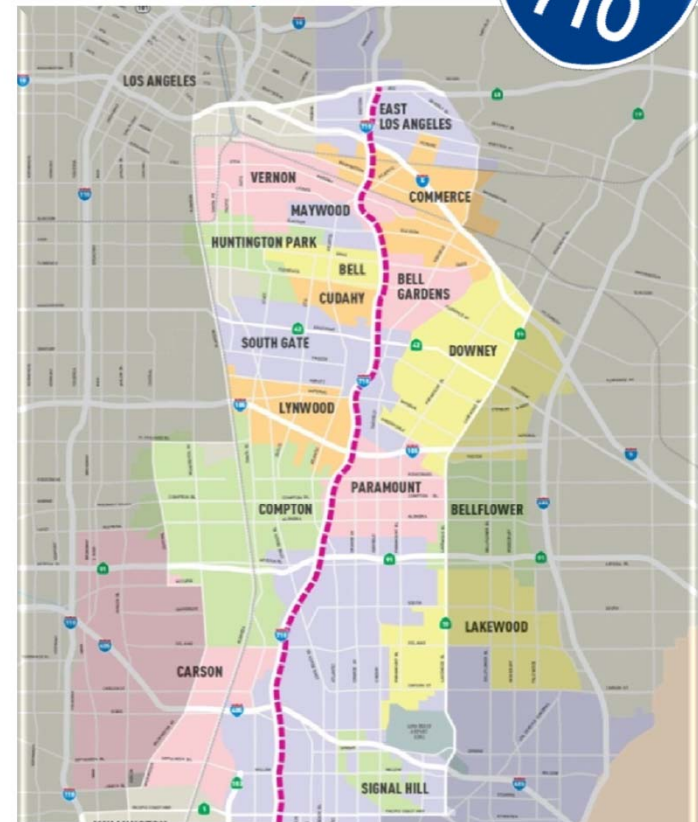
Estimated Cost to Complete Phase: \$91 M

## Accomplishments:

- On schedule
- Conducting additional studies as directed by the Board
- Strong collaborative work with the local agencies, communities, and Metro Board members in addressing community concerns
- Pursuing early action projects during the development of the corridor environmental documents

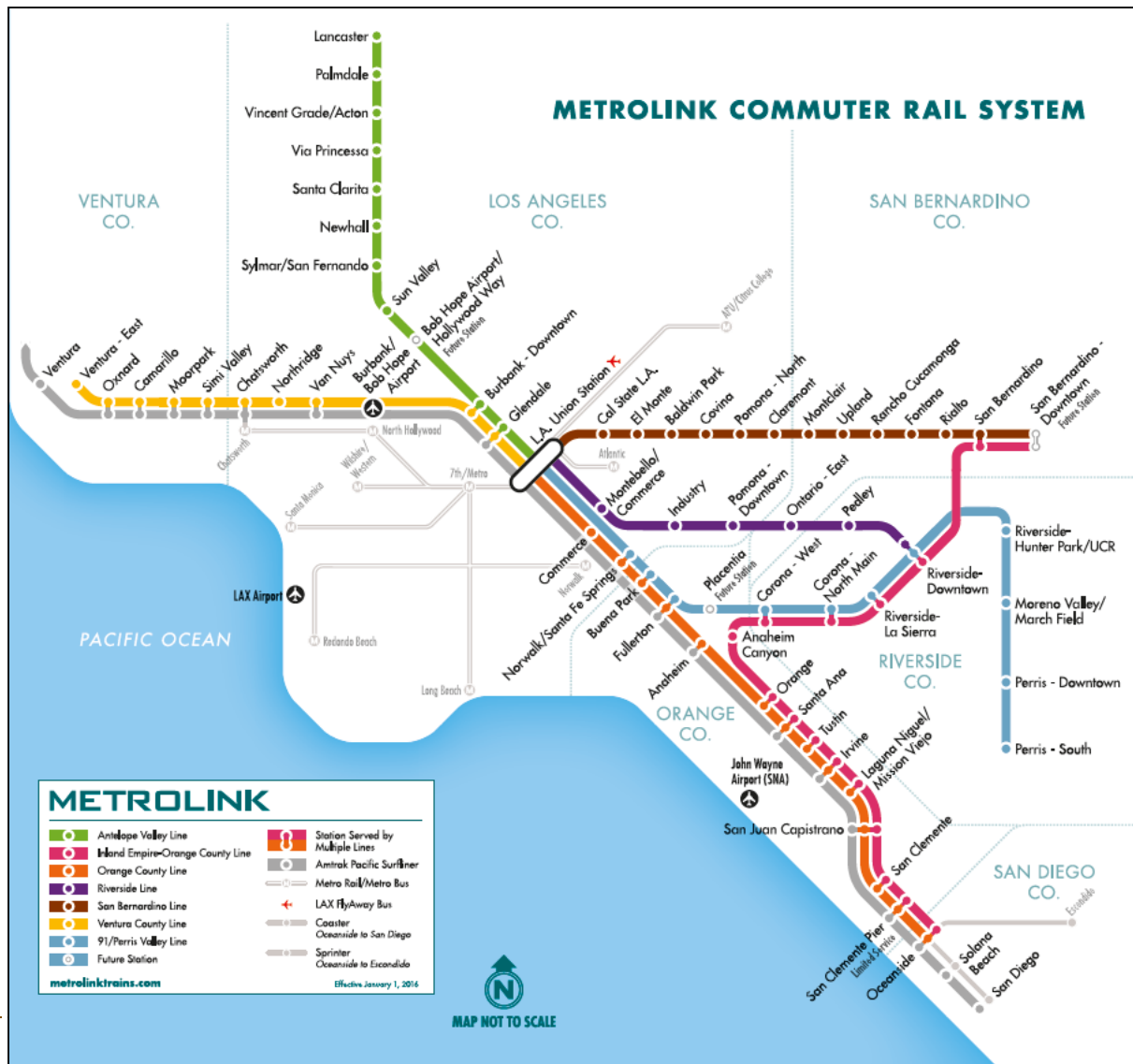
## Challenges/Risks:

- Availability of funding to pursue design and construction of the proposed improvements
- Strategy to resolve: Pursue implementation of early action projects with independent utility and sustainability



FY2018 APE

# Regional Rail Program



# Regional Rail Program Summary

#	Project	Current Phase	Estimated Cost of Current Phase (\$mil.)	Phase Completion
1	LINK Union Station	Environmental & PE	\$71	June 2019
2	Bob Hope Airport Metrolink Station Pedestrian Bridge Project	Environmental & 90% Design	\$4	To Be Determined
3	Bob Hope Airport/Hollywood Way Metrolink Station Project	Construction	\$15	April 2018
4	Doran Street and Broadway/Brazil Safety and Access Project	Environmental/100% Design	\$10	June 2018
5	Brighton to Roxford Double Track Project	Environmental; Plan, Specification & Estimate 100% Design	\$15	October 2018
6	Rosecrans/Marquardt Grade Separation Project	Environmental; Plan, Specification & Estimate 100% Design, Real Estate Acq.	\$155.3 (including construction)	June 2022
7	Lone Hill to CP White Double Track Project	Environmental & 30% PE	\$5	June 2017
<b>Total Regional Rail Program</b>			<b>\$275.3</b>	





# Burbank Airport – North Station

Project Budget: \$15M

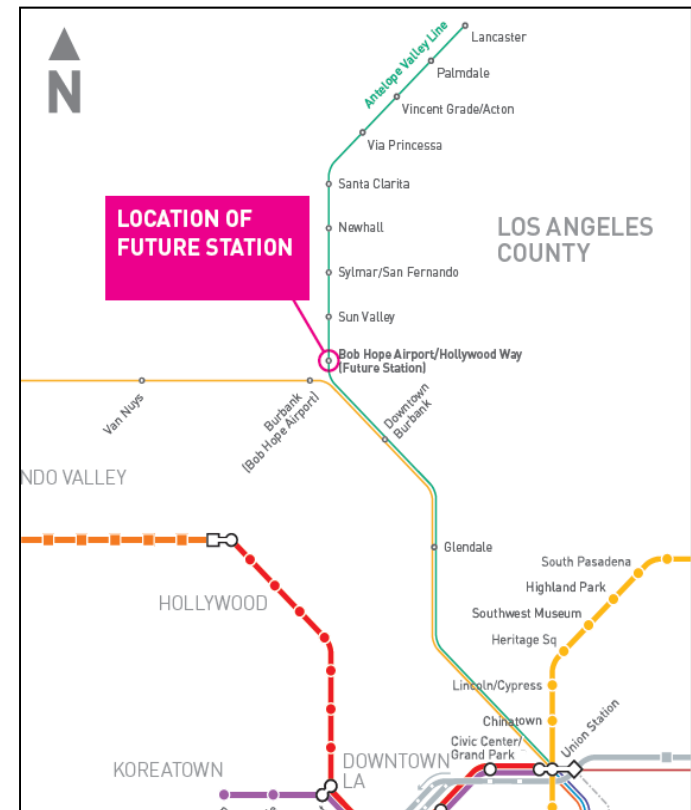
Construction Completion: April 2018

## Accomplishments:

- 100% design complete, including City of Burbank's requested revisions for cost-effective Operating & Maintenance (O&M)
- Airport committed to providing courtesy shuttle service between Station and Airport
- Established O&M Plan with the Burbank Airport, City of Burbank, and City of Los Angeles
- Notice of Award for Construction issued January 2017

## Challenges/Risks:

- To arrange short term, long term parking solution with the City of Burbank
- Potential closure of Sun Valley Station (within 2 miles of Bob Hope Station) to be determined



# Rosecrans/Marquardt Grade Separation Project

Working Project Estimate: \$155.3 M

Phase Completion: June 2022

## Accomplishments:

- Alternative #2 Offset overpass with connector roads was approved by Santa Fe Springs City Council and the Metro Board
- Environmental documentation obtained CEQA clearance
- Completed 65% Design

## Challenges/Risks:

- Multi-agencies cooperation and approval process
- Minimize traffic impacts during construction
- Constraints at Coyote Creek
- Diagonal rail crossing at a busy intersection may be a potential risk
- Securing multi-agency funding for construction



# Link Union Station (US)

Estimated Cost to Complete Environmental/PE: \$71M  
Environmental/PE Completion Date: June 2019

## Accomplishments:

- Commitment of \$15M and \$3.76 M California High Speed Rail funding
- Environmental Design accommodated High Speed Rail and integrated passenger concourse
- 4 Concepts advanced to 10% design level with 1 preferred concept recommended for Environmental Clearance/PE design

## Challenges/Risks:

- Obtain funding for design, right-of-way, and construction
- Secure full funding agreement with California High Speed Rail by June 2017



# FY18 APE Summary

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- New Projects with Planned Adoption of Life-of-Project Budget (separate Board action):
  - Rosecrans/Marquardt Grade Separation Project
  - Airport Metro Connector Project
  - Willowbrook/Rosa Parks Station Improvements Project
- Existing Projects with Potential Adjustments to LOP Budget
  - MBL Signal Rehabilitation Project (separate board action)
  - I-5 South: Orange County Line to I-605
  - I-5 North: SR 118 to SR 134



# Next Steps

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- Project Managers to manage project scope, budget, and schedule for quality, on-time and within budget delivery
- To present project-specific Life-of-Project budget for Board review and adoption
- Secure resources and staffing needed to manage and support project delivery
- Seek additional revenue sources needed to fulfill funding commitment required to build and deliver projects



# Appendix: Project Listing by Type

	TRANSIT CAPITAL PROJECTS WITH TOTAL PROJECT COSTS > \$5 M	TYPE	LOP BUDGET (\$ MIL.)
1	BRT Freeway Station Sound Enclosure	Bus Facilities Improvements	\$5.8
2	Fuel Storage Tank Program (FY18 - FY21)	Bus Facilities Improvements	\$13.2
3	Metro Silver Line Improvements & Upgrades	Bus Facilities Improvements	\$7.8
4	Division 3 Master Plan Phases II-IV	Bus Facilities Improvements	\$13.2
5	Division 1 Improvements	Bus Facilities Improvements	\$20.9
6	Bus Facility Maintenance Improvements & Enhancements Phase II	Bus Facilities Improvements	\$20.9
7	Bus Facility Maintenance Improvements & Enhancements Phase I	Bus Facilities Improvements	\$21.2
8	Bus Facilities Maintenance & Improvement - Phase III	Bus Facilities Improvements	\$21.7
9	Patsaouras Plaza Bus Station Construction	Bus Facilities Improvements	\$39.8
10	El Monte Busway & Transit Center Expansion	Bus Facilities Improvements	\$60.1
		<b>Bus Facilities Improvements Total</b>	<b>\$225</b>
11	Crenshaw/LAX Light Rail Transit: Construction	Major Construction	\$2,058.0
12	Regional Connector: Construction	Major Construction	\$1,755.8
13	Westside Purple Line Extension Section 1 Project	Major Construction	\$2,778.9
14	Westside Purple Line Extension Section 2 Project	Major Construction	\$2,440.9
15	Westside Purple Line Extension Section 3 Project	Major Construction	\$291.2 (a)
		<b>Major Transit Construction Total</b>	<b>\$9,325</b>
16	Patsaouras Bus Plaza Paver Retrofit	Misc. Capital Projects	\$9.1
17	Division 20 Portal Widening Turnback Facility	Misc. Capital Projects	\$17.2 (b)
18	Division 22 Paint And Body Shop	Misc. Capital Projects	\$11.0
		<b>Misc. Capital Projects Total</b>	<b>\$37</b>
19	Southwestern Maintenance Yard	Rail Facilities Improvements	\$157.0
20	Systemwide Elevator Installations (Vertical Systems)	Rail Facilities Improvements	\$8.0
21	LRT Freeway Stations Sound Enclosures	Rail Facilities Improvements	\$8.6
22	Metro Red Line Civic Center Station Escalator/Elevator Modernization	Rail Facilities Improvements	\$12.0
23	Metro Red Line Escalator Replacement/Modernization	Rail Facilities Improvements	\$20.8
24	Metro Red Line to Orange Line Underpass at North Hollywood Station	Rail Facilities Improvements	\$23.1
		<b>Rail Facilities Improvements Total</b>	<b>\$229</b>
25	Metro Gold Line I-210 Barrier Replacement Phase I	Security/Safety	\$11.1 (c)
26	Metro Emergency Security Operations Center	Security/Safety	\$112.7
		<b>Security/Safety Total</b>	<b>\$124</b>
27	Metro Blue Line Pedestrian Safety Enhancement at Grade Crossings	Wayside Systems	\$30.2
28	Metro Blue Line Signal System Rehabilitation	Wayside Systems	\$93.6
		<b>Wayside Systems Total</b>	<b>\$124</b>
		<b>TRANSIT CAPITAL TOTAL</b>	<b>\$10,064</b>

(a) Based on projected budget through FY18.

(b) This is the approved budget to complete preliminary engineering.

(c) Design LOP budget approved for risk assessment study, environmental clearance and final design.

# Appendix: Project Listing by Type

HIGHWAY		TYPE	CURRENT ESTIMATE (\$ MIL.)
1	I-5 South – Alondra	Measure R Highway Capital Project	\$114.1
2	I-5 South – Valley View Interchange	Measure R Highway Capital Project	\$631.1
3	I-5 South – Shoemaker, Rosecrans, Bloomfield	Measure R Highway Capital Project	\$188.2
4	I-5 South – San Antonio, Imperial Hwy and Orr Day	Measure R Highway Capital Project	\$323.3
5	I-5 South – Florence	Measure R Highway Capital Project	\$211.7
6	I-5 South – Carmenita Interchange	Measure R Highway Capital Project	\$419.9
7	I-5 North – HOV from SR 118 to SR 170	Measure R Highway Capital Project	\$219.5
8	I-5 North – HOV from SR 170 to North of Buena Vista	Measure R Highway Capital Project	\$94.7
9	I-5 North – North of Buena Vista to South of Magnolia Blvd	Measure R Highway Capital Project	\$402.4
10	I-5 North – Magnolia Blvd to SR 134	Measure R Highway Capital Project	\$137.4
11	I-5 North HOV Project	Measure R Highway Capital Project	\$31.0
12	Interstate 605 Corridor Hot Spots – I-605/I-5 Interchange Improvement	Measure R Highway Capital Project	\$20.8
13	Interstate 605 Corridor Hot Spots – I-605/SR 60 Interchange Improvement	Measure R Highway Capital Project	\$30.0
14	Interstate 605 Corridor Hot Spots – I-605/SR 91 Interchange Improvement	Measure R Highway Capital Project	\$7.8
15	Interstate 605 Corridor Hot Spots – I-710/SR 91 Interchange Improvement	Measure R Highway Capital Project	\$2.6
16	Interstate 405 Crenshaw Blvd On and Off Ramp Improvements	Measure R Highway Capital Project	\$10.3
17	Interstate 405 and I-110 Aux Lane from SR 91 to Torrance Blvd	Measure R Highway Capital Project	\$9.0
18	SR 138 I-5 to SR 14	Measure R Highway Capital Project	\$25.0
19	I-710 South	Measure R Highway Capital Project	\$91.0
20	I-710 South Early Action Projects - Soundwall Projects (3 locations)	Measure R Highway Capital Project	\$12.7
		<b>Measure R Highway Total</b>	<b>\$2,982.5</b>
21	I-10 HOV from Citrus Avenue to SR 57	Other Highway Projects	\$264.4
22	I-10 HOV from Puente Avenue to Citrus Avenue	Other Highway Projects	\$195.6
23	SR 57 and SR 60 Mixed Flow Interchange	Other Highway Projects	\$13.0
24	SR 71: Interstate 10 to Mission Blvd	Other Highway Projects	\$16.0
25	SR 71: Mission Blvd to Rio Rancho Road	Other Highway Projects	\$40.0
		<b>Other Highway Total</b>	<b>\$529.0</b>
		<b>HIGHWAY PROGRAM TOTAL</b>	<b>\$3,511</b>
REGIONAL RAIL		TYPE	CURRENT ESTIMATE (\$ MIL.)
1	LINK Union Station	Regional Rail	\$71
2	Bob Hope Airport Metrolink Station Pedestrian Bridge Project	Regional Rail	\$4
3	Bob Hope Airport/Hollywood Way Metrolink Station Project	Regional Rail	\$15
4	Doran Street and Broadway/Brazil Safety and Access Project	Regional Rail	\$10
5	Brighton to Roxford Double Track Project	Regional Rail	\$15
6	Rosecrans/Marquardt Grade Separation Project	Regional Rail	\$155.3
7	Lone Hill to CP White Double Track Project	Regional Rail	\$5
		<b>REGIONAL RAIL PROGRAM TOTAL</b>	<b>\$275</b>

