

# Westside Purple Line Extension Section 1 Project



**Metro**

# **WESTSIDE PURPLE LINE EXTENSION SECTION 1 PROJECT**

## **QUARTERLY PROJECT STATUS REPORT**

THE PREPARATION OF THIS DOCUMENT HAS BEEN FINANCED IN PART THROUGH A GRANT FROM THE U. S. DEPARTMENT OF TRANSPORTATION, FEDERAL TRANSIT ADMINISTRATION (FTA).

**SEPTEMBER 2015**

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# Westside Purple Line Extension Section 1 Project Quarterly Project Status Report

September 2015

## PROJECT SUMMARY

<b>LOCATION:</b> Los Angeles / Beverly Hills <b>DESIGN CONSULTANT:</b> Parsons / Brinckerhoff				<b>CONSTRUCTION MANAGEMENT CONSULTANT:</b> WEST, a Joint Venture <b>CONTRACTOR:</b> Skanska, Traylor and Shea, a Joint Venture			
<b>C1056 Sewer Line Trench Excavation West of Gale</b>				<b>WORK COMPLETED PAST MONTH</b>			
				<ul style="list-style-type: none"> <li>- Finalizing real estate acquisitions and relocations</li> <li>- C1045 Wilshire/Western 85% design Metro review</li> <li>- C1045 Wilshire/La Brea area 100% temporary UG Utility design complete</li> <li>- C1045 Wilshire/La Brea 100% SOE design nearing completion</li> <li>- C1045 Wilshire/Fairfax 60% design Metro review</li> <li>- C1045 Wilshire/La Cienega 60% design continues</li> <li>- C1045 Tunnel 85% design continues</li> <li>- C1045 Systems/Trackwork 60% design nearing completion</li> <li>- C1045 Baseline Schedule Approved</li> <li>- C1045 Soundwall construction continues at North Wilshire/La Brea</li> <li>- C1045 Temp. TBM Power Duct complete, Substation underway</li> <li>- C1045 La Brea South building demolition underway</li> <li>- C1045 Utility Relocation began</li> <li>- C1045 Wilshire/La Brea Station piles ordered</li> <li>- C1055 Wilshire/Fairfax Notice of substantial completion submitted by Contractor</li> <li>- C1056 Wilshire/La Cienega AUR SCE relocations continue</li> <li>- C1078 Bldg. 61S NTP issued</li> </ul>			
<b>EXPENDITURE STATUS</b> (\$ In Millions)				<b>SCHEDULE ASSESSMENT</b>			
ACTIVITIES	CURRENT BUDGET	EXPENDED AMOUNT	PERCENT EXPENDED	MAJOR SCHEDULE ACTIVITIES	PRIOR PLAN	CURRENT PLAN	VARIANCE WEEKS
<b>DESIGN</b>	\$157.7	\$146.1	92.7%	<b>Environmental</b>			
				FEIS / FEIR	N/A	05/31/12	Complete
<b>RIGHT-OF-WAY</b>	\$175.6	\$117.4	66.9%	<b>Design</b>			
<b>CONSTRUCTION</b>	\$1,737.4	\$268.0	15.4%	PE Notice to Proceed	N/A	01/12/11	Complete
				Final Design complete	03/22/17	03/22/17	0
<b>OTHER</b>	\$1,078.7	\$33.8	3.1%	<b>Right-of-Way</b>			
<b>TOTAL</b>	<b>\$3,149.4</b>	<b>\$565.4</b>	<b>18.0%</b>	All parcels available	12/31/15	12/31/15	0
Current Budget includes Environmental/Planning and Finance Costs.				<b>Construction - Main Design / Build Contract</b>			
<b>AREAS OF CONCERN</b>				Notice to Proceed	01/12/15	01/12/15	Complete
				Construction complete	11/08/23	11/08/23	0
<b>ROW ACQUISITION</b>	PLAN	AVAILABLE	REMAINING	<b>CRITICAL ACTIVITIES / 3 MONTH LOOK AHEAD</b>			
PERMANENT PARCELS	15	14	1	<ul style="list-style-type: none"> <li>- C1045 Wilshire/La Brea 100% permanent utility design complete</li> <li>- C1045 Wilshire/La Brea 100% SOE Design complete</li> <li>- C1045 Systems/Trackwork 60% design Metro review</li> <li>- C1045 North side Traffic Control for Wilshire/La Brea pile installation</li> <li>- C1045 Wilshire/La Brea Station pile installation begins North side</li> <li>- C1056 Wilshire/La Cienega AUR: Power relocation work continuing</li> </ul>			
TEMPORARY PARCELS	4	4	0				
<b>TOTAL PARCELS</b>	<b>19</b>	<b>18</b>	<b>1</b>				

## **PROJECT OVERVIEW & STATUS**

*Section 1 of the Westside Purple Line Extension Project is the first of three sections to be designed and constructed as part of the Los Angeles County Metropolitan Transportation Authority (LACMTA) Measure R Program. The program was approved by Los Angeles County voters in November 2008 and provides a half-cent sales tax to finance new transportation projects. In April 2012, the three sections of the Project were environmentally cleared and adopted by LACMTA Board of Directors.*

*Section 1 will extend the existing Purple Line by 3.92 miles beginning at the Wilshire/Western Station. From this station, the twin tunnel alignment will travel westerly within the existing Wilshire Boulevard right-of-way. Stations will be located at the intersections of Wilshire/La Brea, Wilshire/Fairfax, and Wilshire/La Cienega. All three of the station boxes will be located within the Wilshire Boulevard right-of-way with station portals extending to off-street entrances. Two of the stations, Wilshire/La Brea and Wilshire/Fairfax are within the jurisdiction of the City of Los Angeles. The Wilshire/La Cienega Station is within the City of Beverly Hills jurisdiction.*

### **Design**

The Engineering Management Services (EMS) team continues to provide design support to the Advanced Utility Relocation (AUR) contracts, the Design/Build Contract, and the Division 20 Maintenance-of-Way and Non-Revenue Vehicle Building 61S Contract.

For the Wilshire/La Brea AUR Contract (C1048), record drawings are being finalized to reflect the C1048 as-built conditions. The information from these drawings is being incorporated into the Tunnels, Stations, Trackwork, Systems and Systems Integration Testing Contract (C1045) composite utility drawings. Record drawings were sent to LADWP (Water and Power) in April 2015 for their final review and acceptance, prior to them being finalized.

For the Wilshire/Fairfax AUR Contract (C1055), the team continues to support Metro in responding to Request for Information (RFI's) and submittals. A fulltime field engineering representative continues to support nighttime construction activities.

For the Wilshire/La Cienega Station AUR Contract (C1056), support to Metro continues with traffic control requests for revised Worksite Traffic Control Plans for the contractor to comply with the Memorandum of Agreement (MOA) between Metro and the City of Beverly Hills; and also with the City of Los Angeles Department of Transportation where the traffic control plans extends beyond the City of Beverly Hills jurisdiction at San Vicente Boulevard. A fulltime field engineering representative continues to support construction activities.

Attended bi-weekly task force meetings with Metro and the C1045 Contractor for Tunnels, Stations, Trackwork, Systems and Systems Integration Testing to resolve technical issues related to each design discipline. The team is supporting Metro in reviewing final design submittals, responding to RFI's, and assisting in preparation of change notices. *The design submittals under review are the Wilshire/Western 85% design, Wilshire/La Brea Station 85% design and Support of Excavation (SOE) 100% design, and Systems 60% design and specifications.*

The C1045 Contractor, Skanska, Traylor and Shea (STS), has mobilized the final design team, Parson's Transportation Group (PTG).

The design work has been identified into six distinct design units. They are:

1. Design Unit 1 – Wilshire/Western Interface Chamber (Shaft)
2. Design Unit 2 – Wilshire/La Brea Station
3. Design Unit 3 – Wilshire/Fairfax Station
4. Design Unit 4 – Wilshire/La Cienega Station
5. Design Unit 5 – Tunnels
6. Design Unit 6 – Systems/Traffic/Trackwork

Each design unit package will be submitted and evaluated at each of the following phases; 60%, 85%, 100%, Approved for Construction (AFC) and Issued for Construction (IFC). If required, critical design units can be advanced as Advanced Partial Design Units (APDU's) to support ongoing construction activities.

Design activities are well underway with the involvement of every discipline and design task force meetings are occurring weekly related to each design unit.

A special task force had been assembled to review the 85% Wilshire/La Brea Station Support of Excavation (SOE) design drawings and calculations in conjunction with the draft dewatering plans and building protection report. STS completed additional geotechnical investigation work. *A water pump test was performed in the area of the Wilshire/La Brea Station to confirm the initial dewatering and settlement data. STS is planning to complete the analysis of the additional field investigation work in early October in order for the station pile fabrication to begin.*

The Wilshire/La Cienega Station design began in early July 2015 with the 60% design submittal planned for November 2015.

*The design packages for the Wilshire/La Brea 85% design submittal and the Systems/Traffic/Trackwork 60% design submittal were issued to Metro in September 2015 for review.*

“Over-the-shoulder” design reviews are occurring with STS, PTG, Metro and the EMS team prior to each major design submittal and monthly Metro Fire/Life/Safety meetings are occurring.

Several follow-up meetings and “over the shoulder” reviews have occurred with STS and Metro's Project Control staff to bring closure to the remaining schedule comments of the Contract Baseline CPM Schedule. *The remaining comments have been addressed and the baseline schedule was finalized and accepted on September 2, 2015.*

STS is continuing with the required contractual submittals.

**Major Contract Procurement**

On July 23, 2015, the MTA Board authorized the CEO to award Contract C1078, Division 20 Maintenance-of-Way (MOW) and the Non-Revenue Vehicle (NRV) Building 61S, to Clark Construction Group for a firm fixed price amount of \$52,830,310. *Contract award occurred on August 3, 2015 and the Notice-to-Proceed was issued on September 30, 2015.*

**Construction**

*The Wilshire/Fairfax AUR (C1055) contractor submitted the notice of substantial completion. Staff is reviewing their request per the contractual terms and the scope of work defined by contractual Milestone No. 3 (substantial completion).*

Follow-on work in the Wilshire/Fairfax Station area by third party utilities (AT&T, LADWP Power, and SCG) is anticipated to be completed by summer 2016. This will complete all AUR work at this location and prior to the contractual access date for the C1045 Design/Build contractor to begin construction of the Wilshire/Fairfax Station.

*The C1045 contractor has completed building demolition at the Wilshire/La Brea North construction staging area and is continuing with the construction of the soundwall. Building demolition at the Wilshire/La Brea South construction staging area began in August 2015 and is continuing. The contractor has completed construction of the TBM power ductbank and has begun construction of the substation.*

*Metro staff continues to meet with the City of Beverly Hills to finalize the terms and conditions of the Memorandum of Agreement (MOA) required for Contract C1045.*

Property abatement and remediation work is continuing prior to providing site access to the C1045 contractor.

**MANAGEMENT ISSUES**

No Management Issues this period.

## PROJECT ALIGNMENT by SECTIONS



**PROJECT ALIGNMENT SECTION 1**



## **BASE PROJECT SCOPE**

Section 1 of the Westside Purple Line Extension Project is the first of three sections to be designed and constructed as part of the Los Angeles County Metropolitan Transportation Authority (LACMTA) Measure R Program. The program was approved by Los Angeles County voters in November 2008 and provides a half-cent sales tax to finance new transportation projects. In April 2012, the three sections of the Project were environmentally cleared and adopted by LACMTA Board of Directors.

Section 1 will extend the existing Purple Line by 3.92 miles beginning at the Wilshire/Western Station. From this station, the twin tunnel alignment will travel westerly within the existing Wilshire Boulevard right-of-way. Stations will be located at the intersections of Wilshire/La Brea, Wilshire/Fairfax, and Wilshire/La Cienega. All three of the station boxes will be located within the Wilshire Boulevard right-of-way with station portals extending to off-street entrances. Two of the stations, Wilshire/La Brea and Wilshire/Fairfax are within the jurisdiction of the City of Los Angeles. The Wilshire/La Cienega Station is within the City of Beverly Hills jurisdiction.

The Wilshire/La Brea Station box will be located under the center of Wilshire Boulevard in between Detroit Street and Orange Drive. A double crossover will be located east of the station box. The station entrance will be on the northwest corner of Wilshire Boulevard and La Brea Avenue.

The Wilshire/Fairfax Station box will be located under the center of Wilshire Boulevard west of Fairfax Avenue to west of Ogden Drive. The station entrance will be on the southeast corner of Wilshire Boulevard and Orange Grove Avenue.

The Wilshire/La Cienega Station box will be located under the center of Wilshire Boulevard immediately east of La Cienega Boulevard. A double crossover will be located east of the station box. The station entrance will be on the northeast corner of Wilshire Boulevard and La Cienega Boulevard. Since the station will be the terminus station for Section 1, tail tracks will be located west of the station box.

### **Contract C1034 – Wilshire/Fairfax Exploratory Shaft**

Metro constructed an exploratory shaft to observe ground conditions prior to the award of Contract C1045. The location of the exploratory shaft was adjacent to the future Wilshire/Fairfax Station. The construction of the shaft included furnishing and installing monitoring instruments, ventilation, and record and report instrumentation data during the excavation of the shaft. After construction of the shaft, the shaft was maintained for an observation time period. Afterwards, the shaft was dismantled and the site backfilled in a condition acceptable to the property owner. The contract was substantially completed on October 31, 2014.

### **Contract C1048 – Wilshire/La Brea Advanced Utility Relocations**

The work scope of this contract included the relocation of existing LADWP power, water utilities and a sewer line within the construction limits of the Wilshire/La Brea Station. The contractor was responsible for working in streets, procuring materials, and coordinating with the utility owner. The contractor constructed the new facilities in accordance with the utility

plans and specifications, provided traffic control, restored streets, and supported utility crews installing cabling and during cut-over of the existing utilities. The contract was substantially completed on October 27, 2014.

**Contract C1055 – Wilshire/Fairfax Advanced Utility Relocations**

Relocate existing LADWP power and water utilities within the construction limits of the Wilshire/Fairfax Station. The contractor is responsible for working in streets, procure materials, and coordinate with the utility owner. The contractor is to construct the new facilities in accordance with utility plans and specifications, provide traffic control, restore streets, and support utility crews installing cabling and during cut-over of the existing utilities.

**Contract C1056 – Wilshire/La Cienega Advanced Utility Relocations**

Relocate existing City of Beverly Hills water, storm drain and sewer utilities within the construction limits of the Wilshire/La Cienega Station. The contractor is responsible for working in streets, procure materials, and coordinate with the utility owner. The contractor is to construct the new facilities in accordance with utility plans and specifications, provide traffic control, restore streets, and support utility crews during cut-over of the existing utilities.

**Contract C1045 – Tunnels, Stations, Trackwork, Systems and Systems Integration Testing**

The procurement of this contract utilizes a two-step approach with the submittal of qualification statements through a Request for Qualification (RFQ) process, prequalification of qualified proposers followed by the release of a Request for Proposals (RFP) soliciting technical and price proposals with an option at Metro's discretion for Best and Final Offers (BAFO).

The Design/Build contract provides for final design and construction of the infrastructure along the 3.92 mile alignment. Contract scope includes demolition and removal of structures and clearing sites to facilitate construction operations. The structures to be constructed include twin bored tunnels, complete with cross-passages and walkways, including all mechanical, electrical and finish work. A retrieval shaft will be constructed to the west of the existing Wilshire/Western Station for extraction of the tunnel boring machines. Three underground stations are to be constructed, two with double-crossovers, and the terminus station to include tail tracks. Each station has a single entrance plaza with stairs, escalators and elevators which meet ADA requirements. The scope of work includes all architectural finishes, mechanical, electrical, systems and equipment including train control, traction power, communications, trackwork and the system tie-in to the existing Metro Purple Line, testing and commissioning.

**Contract C1078 – Division 20 Maintenance-of-Way and Non-Revenue Vehicle Building 61S**

The Design/Build contract provides for final design and construction of a new Maintenance-Of-Way (MOW) stores and Non-Revenue Vehicle (NRV) building at the south end of the existing Division 20 Yard (Location 61S). The displacement of the existing MOW stores building and NRV facility are due to the proposed turn-back facility site in the yard.

## **BASE PROJECT SCOPE (Continued)**

### **Metro Furnished Equipment**

Metro will procure separate contracts to provide the 34 Heavy Rail Vehicles (HRV) and the Universal Fare System (UFS) necessary to operate the extension to the Purple Line. The scope of the HRV contract includes design, manufacturing, testing and delivery of the vehicles. The scope of the UFS contract includes design, fabrication and installation of equipment at the three stations and system testing.

### **Start Up**

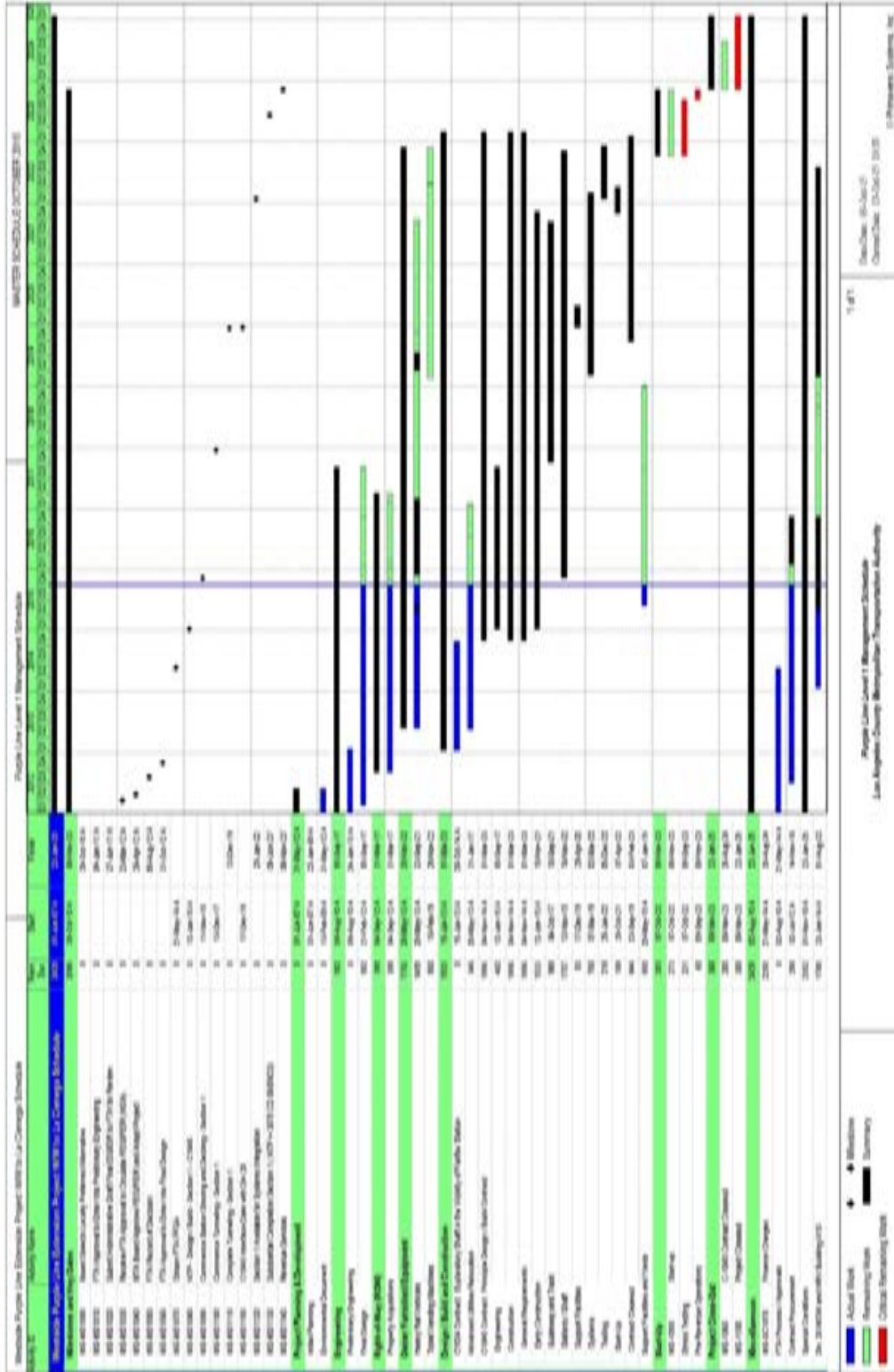
The commencement of pre-revenue operations will be determined by Metro. Generally, all systems integration testing will have been completed and passed. All testing will be required to include and pass a “stress test” of maximum operational service levels to be acceptable. Pre-Revenue Operations include train runs, especially those involving multiple trains, on the integrated and fully operational extension; rehearsal of expected revenue operations scenarios; as well as abnormal and emergency scenarios in which random combinations of system interactions are tested; equipment “burned-in”; and training of Metro personnel who will eventually operate and maintain the extension and for emergency services personnel. Activities occurring during Pre-Revenue Operations are carried out by a designated Metro Project Rail Activation Group.

**KEY MILESTONES SIX-MONTH LOOK AHEAD**

	Milestone Date	Oct-15	Nov-15	Dec-15	Jan-16	Feb-16	Mar-16
C1078 Design Mobilization Begins	10/01/15	<input type="checkbox"/>					
C1055 Substantial Completion	10/18/15	<input type="checkbox"/>					
C1045 Wilshire/La Brea Utility Relocation Complete	10/21/15	<input type="checkbox"/>					
C1045 Wilshire/La Brea Soundwalls Complete	11/01/15		<input type="checkbox"/>				
C1045 Wilshire/La Brea North Pile Installation Begins	11/11/15		<input type="checkbox"/>				
C1045 Building Demolition Wilshire/Fairfax Complete	12/15/15			<input type="checkbox"/>			
C1045 TBM Temporary Power Work Complete	12/30/15			<input type="checkbox"/>			
C1045 Wilshire/Western Shaft Design Complete	02/24/16					<input type="checkbox"/>	
C1045 Initial Excavation and Decking Installation at Wilshire/La Brea	03/15/16						<input type="checkbox"/>
C1045 Jet Grouting at Wilshire/La Brea	03/20/16						<input type="checkbox"/>
C1045 Wilshire/La Brea Station Design Complete	03/25/16						<input type="checkbox"/>

 MTA Staff     
  MTA Board Action     
 FTA  
 Other Agencies     
  Contractors

**PROJECT SUMMARY SCHEDULE**



**SCHEDULE MEASUREMENTS**

	Status	Change from Last Period	Comment
Forecast Revenue Service	11/8/2023	None	
FFGA Revenue Service	10/31/2024	None	
<b>Final Design Progress:</b>			
Contract C1045	44.57%	6.47%	
Contract C1078	0.00%	0.00%	NTP Issued 09/30/15
<b>Construction Contracts Progress*:</b>			
Contract C1048	100.00%	0.00%	Completed on Schedule
Contract C1045	3.06%	0.79%	On Schedule
Contract C1055	85.96%	4.94%	Ahead of Schedule
Contract C1056	22.92%	6.58%	Ahead of Schedule
Contract C1078	0.00%	0.00%	Awaiting Baseline Schedule to be submitted.

\*Note: Physical completion assessment reflects work completed and work in progress.

**OVERALL CONSTRUCTION PROGRESS CURVE**

Progress Curve will be provided next reporting period.

**MAJOR EQUIPMENT DELIVERY**

	<b>Initial Procurement</b>	<b>Submittal</b>	<b>Delivery</b>	<b>Installation</b>
<b>Tunnel Boring Machine</b>	10/23/15	5/30/16	5/30/17	10/4/17
Deliver to Site - Station HVAC System	5/30/16	10/27/16	7/5/19	1/14/21
Deliver to Site - Ventilation Fans	5/30/16	10/27/16	8/9/19	1/14/21
Deliver to Site - Elevators	8/22/18	1/19/19	8/19/19	12/9/19
Deliver to Site - Elevators	11/18/20	4/17/21	12/17/19	6/14/21
<b>Heavy Rail Vehicles</b>	7/16/15	3/1/19	8/1/21	1/1/22
<b>Ticket Vending Machines</b>	2/1/19	4/2/19	11/28/19	4/26/21

**DESIGN BUILDER'S (C1045) LONG LEAD ITEM LIST**

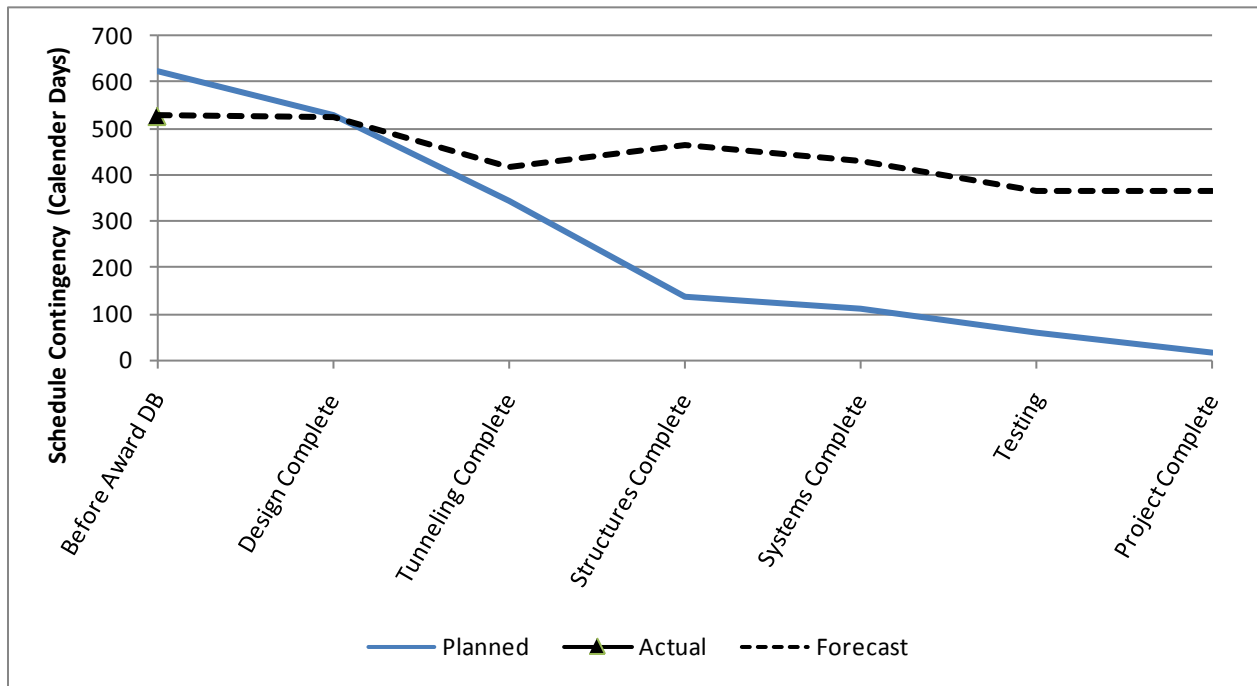
Item	Initial Procurement	Approved Submittal	Delivery	Installation Date
ATC: Cables	9-May-15	6-Oct-15	1/4/2016	3/7/2019
ATC: Procure/Deliver Components & Materials - All Stations	6-Jan-16	4-Jun-16	2-Sep-16	3/7/2019
ATC: Procure/Deliver Switch Machines	25-Jul-15	22-Dec-15	21-Mar-16	3/7/2019
ATC: Procure/Deliver WS Equipment & Devices	2-Dec-15	30-Apr-16	29-Jul-16	3/7/2019
CCTV: Pack & Ship COM Equipment for Fairfax	14-Dec-16	13-May-17	11-Aug-17	13-May-21
CCTV: Pack & Ship COM Equipment for La Brea	15-Aug-16	12-Jan-17	12-Apr-17	13-May-21
CCTV: Pack & Ship COM Equipment for La Cienega	17-Apr-17	14-Sep-17	13-Dec-17	13-May-21
CCTV: Pack & Ship COM Equipment for Western	16-Apr-16	13-Sep-16	12-Dec-16	13-May-21
CCTV: METRO Furnish NVR Software	30-Nov-15	28-Apr-16	27-Jul-16	13-May-21
CTS: Pack & Ship COM Equipment for Fairfax	2-Oct-16	1-Mar-17	30-May-17	13-May-21
CTS: Pack & Ship COM Equipment for La Brea	4-Jun-16	1-Nov-16	30-Jan-17	13-May-21
CTS: Pack & Ship COM Equipment for La Cienega	31-Jan-17	30-Jun-17	28-Sep-17	13-May-21
CTS: Pack & Ship COM Equipment for Western	31-Jan-16	29-Jun-16	27-Sep-16	13-May-21
Deliver track materials	1-Mar-19	29-Jul-19	27-Oct-19	16-Jun-20
EMER MGMT: Pack & Ship COM Equipment for Fairfax	4-Jun-16	1-Nov-16	30-Jan-17	13-May-21
EMER MGMT: Pack & Ship COM Equipment for La Brea	31-Jan-16	29-Jun-16	27-Sep-16	13-May-21
EMER MGMT: Pack & Ship COM Equipment for La Cienega	2-Oct-16	1-Mar-17	30-May-17	13-May-21
FABRICATE CANOPY STRUCTURE - FAIRFAX STATION	29-May-16	26-Oct-16	24-Jan-17	21-Dec-21
FIRE ALARM: Pack & Ship COM Equipment for Fairfax	2-Oct-16	1-Mar-17	30-May-17	13-May-21
FIRE ALARM: Pack & Ship COM Equipment for La Brea	4-Jun-16	1-Nov-16	30-Jan-17	13-May-21
FIRE ALARM: Pack & Ship COM Equipment for La Cienega	31-Jan-17	30-Jun-17	28-Sep-17	13-May-21
FIRE ALARM: Pack & Ship COM Equipment for Western	31-Jan-16	29-Jun-16	27-Sep-16	13-May-21
GAS DETECTION: Pack & Ship COM Equipment for Fairfax	2-Oct-16	1-Mar-17	30-May-17	20-Feb-21
GAS DETECTION: Pack & Ship COM Equipment for La Brea	4-Jun-16	1-Nov-16	30-Jan-17	3/7/2019
GAS DETECTION: Pack & Ship COM Equipment for La Cienega	31-Jan-17	30-Jun-17	28-Sep-17	3/7/2019
GAS DETECTION: Pack & Ship COM Equipment for Western	31-Jan-16	29-Jun-16	27-Sep-16	3/7/2019
Mock up, fabricate La Brea canopy structure	29-Feb-16	28-Jul-16	26-Oct-16	3/7/2019
Prepare & Ship 480VAC Switchgear - Fairfax GBS	6-Mar-17	3-Aug-17	1-Nov-17	3/7/2019
Prepare & Ship AC Switchgear - Fairfax GBS	13-Aug-17	10-Jan-18	10-Apr-18	3/7/2019
Prepare & Ship AC Switchgear - La Brea TPSS	17-Jan-18	16-Jun-18	14-Sep-18	3/7/2019
Prepare & Ship AC Switchgear - La Cienega TPSS	6-Mar-17	3-Aug-17	1-Nov-17	3/7/2019
Prepare & Ship Aux Power Equipment - La Brea TPSS	4-Jun-17	1-Nov-17	30-Jan-18	3/7/2019
Prepare & Ship Aux Power Equipment - La Cienega TPSS	11-Dec-16	10-May-17	8-Aug-17	3/7/2019
Prepare & Ship DC Rectifier/Transformer - La Brea TPSS	21-May-17	18-Oct-17	16-Jan-18	3/7/2019
Prepare & Ship DC Rectifier/Transformer - La Cienega TPSS	23-Jan-17	22-Jun-17	20-Sep-17	3/7/2019
Prepare & Ship DC Switches - Fairfax GBS	23-Jan-17	22-Jun-17	20-Sep-17	3/7/2019
Prepare & Ship DC Switchgear - La Brea TPSS	13-Aug-17	10-Jan-18	10-Apr-18	3/7/2019
Prepare & Ship DC Switchgear - La Cienega TPSS	6-Mar-17	3-Aug-17	1-Nov-17	3/7/2019
Prepare & Ship HV Metering Switchgear - Fairfax GBS	21-May-17	18-Oct-17	16-Jan-18	3/7/2019
Prepare & Ship HV Metering Switchgear - La Brea TPSS	10-Sep-17	7-Feb-18	8-May-18	3/7/2019
Prepare & Ship HV Metering Switchgear - La Cienega TPSS	23-Jan-17	22-Jun-17	20-Sep-17	3/7/2019
Procure / Deliver PA/VMS Cable	27-May-15	24-Oct-15	1/22/2016	3/7/2019
Procure / Deliver TPS Bonding Cable	24-Sep-16	21-Feb-17	22-May-17	3/7/2019
Procure / Deliver Traction Power Cable	24-Sep-16	21-Feb-17	22-May-17	3/7/2019
RADIO: Pack & Ship COM Equipment for Fairfax	11-Sep-16	8-Feb-17	9-May-17	13-May-21
RADIO: Pack & Ship COM Equipment for La Brea	15-May-16	12-Oct-16	10-Jan-17	13-May-21
RADIO: Pack & Ship COM Equipment for La Cienega	11-Jan-17	10-Jun-17	8-Sep-17	13-May-21
RADIO: Pack & Ship COM Equipment for Western	11-Jan-16	9-Jun-16	7-Sep-16	13-May-21
SCADA: Pack & Ship COM Equipment for Fairfax	2-Oct-16	1-Mar-17	30-May-17	13-May-21
SCADA: Pack & Ship COM Equipment for La Brea	4-Jun-16	1-Nov-16	30-Jan-17	13-May-21
SCADA: Pack & Ship COM Equipment for La Cienega	31-Jan-17	30-Jun-17	28-Sep-17	13-May-21
SCADA: Pack & Ship COM Equipment for Western	31-Jan-16	29-Jun-16	27-Sep-16	13-May-21
TPIS: Pack & Ship COM Equipment for Fairfax	16-Aug-16	13-Jan-17	13-Apr-17	13-May-21
TPIS: Pack & Ship COM Equipment for La Brea	17-Apr-16	14-Sep-16	13-Dec-16	13-May-21
TPIS: Pack & Ship COM Equipment for La Cienega	17-Dec-16	16-May-17	14-Aug-17	13-May-21
TPIS: METRO Furnish Transit Vue System	1-Dec-15	29-Apr-16	28-Jul-16	6/14/2021
Tunnel precast segment delivery start	19-Mar-16	16-Aug-16	11/14/2016	4/30/2016
UPS: Pack & Ship COM Equipment for Fairfax	9-Jul-16	6-Dec-16	6-Mar-17	13-May-21
UPS: Pack & Ship COM Equipment for La Brea	6-Mar-16	3-Aug-16	1-Nov-16	13-May-21
UPS: Pack & Ship COM Equipment for La Cienega	7-Nov-16	6-Apr-17	5-Jul-17	13-May-21
UPS: Pack & Ship COM Equipment for Western	28-Oct-15	26-Mar-16	24-Jun-16	13-May-21
Wilshire/Fairfax Soldier pile delivery start	16-Sep-15	13-Feb-16	5/13/2016	9/16/2016
Wilshire/Fairfax Street decking delivery start	19-Jan-16	17-Jun-16	9/15/2016	2/4/2017
Wilshire/La Brea Soldier pile delivery start	11-Mar-15	8-Aug-15	11/6/2015	11/16/2015
Wilshire/La Brea Street decking delivery start	14-Mar-15	11-Aug-15	11/9/2015	3/26/2016
Wilshire/La Cienega Soldier pile delivery start	15-Jan-16	13-Jun-16	9/11/2016	1/31/2017
Wilshire/La Cienega Street decking delivery start	19-May-16	16-Oct-16	1/14/2017	6/24/2017
Wilshire/Western Soldier pile delivery start	1-Jul-15	28-Nov-15	2/26/2016	3/9/2016
Wilshire/Western Street decking delivery start	3-Nov-15	1-Apr-16	6/30/2016	4/26/2016

## **CRITICAL PATH NARRATIVE**

### **Critical Path**

The critical path for the Westside Purple Line Extension Project begins with the procurement process for the C1045 Design/Build contract, mobilization of the design team for the selected contractor, and the start of final design for station boxes and tunnels. Final design is concurrent with the C1055 Wilshire/Fairfax Advanced Utility Relocation and C1056 Wilshire/ La Cienega Advanced Utility Relocation contracts being performed by Metro's AUR Contractors and by third party utility companies. Upon completion of advanced utility relocations, the Design/Build contractor begins installation of soldier piles, first on the north side of the Wilshire/La Brea Station box, and then on the south side. Street decking is then installed, the station structural box is excavated, and invert concrete is placed. Tunneling then begins, first driving eastbound from Wilshire/La Brea to Wilshire/Western. TBMs are removed through a retrieval shaft at Wilshire/Western, reassembled at Wilshire/La Brea, and then driven westbound to Wilshire/La Cienega. Following construction of cross passages, the critical path continues through construction of the Wilshire/Fairfax station box, installation of trackwork and traction power, systems integration and testing, and pre-revenue operations.

### PROJECT SCHEDULE CONTINGENCY DRAWDOWN



### PROJECT SCHEDULE CONTINGENCY DRAWDOWN ANALYSIS

The project schedule contingency drawdown curve is based on a November 8, 2023 Revenue Service Date (RSD).

**PROJECT COST STATUS**

DOLLARS IN THOUSANDS

SCC CODE	DESCRIPTION	ORIGINAL BUDGET	CURRENT BUDGET		COMMITMENTS		EXPENDITURES		CURRENT FORECAST		CURRENT BUDGET / FORECAST VARIANCE
			PERIOD	TO DATE	PERIOD	TO DATE	PERIOD	TO DATE	PERIOD	TO DATE	
10	GUIDEWAY & TRACK ELEMENTS	388,294	-	388,294	-	380,680	-	1,820	-	388,294	-
20	STATIONS, STOPS, TERMINALS, INTERMODAL	440,621	-	440,621	-	435,131	-	-	-	440,621	-
30	SUPPORT FACILITIES: YARDS, SHOPS, ADMIN. BLDGS	43,323	-	43,323	-	-	-	-	-	39,327	(3,996)
40	SITework & SPECIAL CONDITIONS	751,566	-	751,566	126	737,292	28,156	266,188	-	762,303	10,738
50	SYSTEMS	113,574	-	113,574	40	97,506	-	-	-	113,574	-
<b>CONSTRUCTION SUBTOTAL (10-50)</b>		<b>1,737,378</b>	<b>-</b>	<b>1,737,378</b>	<b>165</b>	<b>1,650,609</b>	<b>28,156</b>	<b>268,008</b>	<b>-</b>	<b>1,744,119</b>	<b>6,741</b>
60	ROW, LAND, EXISTING IMPROVEMENTS	175,634	-	175,634	-	175,634	1,073	117,400	-	175,634	-
70	VEHICLES	160,196	-	160,196	-	-	-	-	-	145,493	(14,703)
80	PROFESSIONAL SERVICES	412,710	-	412,710	47	207,847	5,545	140,604	-	415,575	2,865
<b>SUBTOTAL (10-80)</b>		<b>2,485,918</b>	<b>-</b>	<b>2,485,918</b>	<b>212</b>	<b>2,034,090</b>	<b>34,774</b>	<b>526,013</b>	<b>-</b>	<b>2,480,822</b>	<b>(5,097)</b>
90	UNALLOCATED CONTINGENCY	248,592	-	248,592	-	-	-	-	-	298,094	49,502
100	FINANCE CHARGES	375,470	-	375,470	-	-	-	-	-	331,065	(44,405)
<b>TOTAL PROJECTS 465518 &amp; 865518 (10-100)</b>		<b>3,109,980</b>	<b>-</b>	<b>3,109,980</b>	<b>212</b>	<b>2,034,090</b>	<b>34,774</b>	<b>526,013</b>	<b>-</b>	<b>3,109,980</b>	<b>-</b>
ENVIRONMENTAL/PLANNING - 405518		8,505	-	8,505	-	8,505	-	8,505	-	8,505	-
ENVIRONMENTAL/PLANNING - 465518		30,865	-	30,865	-	30,865	-	30,852	-	30,865	-
<b>TOTAL PROJECTS 405518 &amp; 465518 (ENV / PLAN'G)</b>		<b>39,370</b>	<b>-</b>	<b>39,370</b>	<b>-</b>	<b>39,370</b>	<b>-</b>	<b>39,357</b>	<b>-</b>	<b>39,370</b>	<b>-</b>
<b>TOTAL PROJECTS 405518, 465518 &amp; 865518</b>		<b>3,149,350</b>	<b>-</b>	<b>3,149,350</b>	<b>212</b>	<b>2,073,459</b>	<b>34,774</b>	<b>565,370</b>	<b>-</b>	<b>3,149,350</b>	<b>-</b>

NOTE: EXPENDITURES ARE CUMULATIVE THROUGH AUGUST 2015

**PROJECT COST ANALYSIS**

**Original Budget and Current Budget**

The Original Budget and Current Budget of \$3.1 billion reflect the Board approved Life of Project Budget, July 24, 2014, plus Finance Charges of \$0.4 billion.

**Current Forecast**

The Current Forecast remains the same this period at \$3.1 billion.

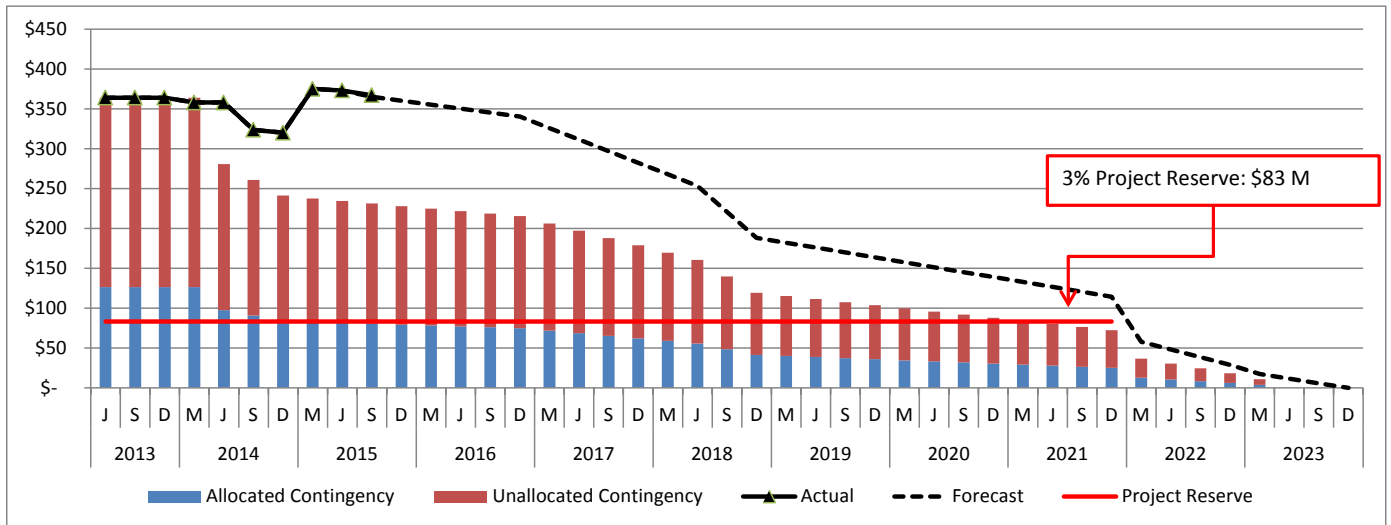
**Commitments**

The Commitments increased by \$0.2 million primarily due to executed modifications associated with the AUR C1056 Contract, private utility companies, and Environmental Compliance Services. The \$2.1 billion in Commitments to date represents 65.8% of the Current Budget.

**Expenditures**

The Expenditures are cumulative through August 2015. The Expenditures increased by \$34.8 million this period primarily for costs associated with the Design/Build Contract C1045, Advanced Utility Relocations, Real Estate Acquisitions, Engineering Management Services, and Metro Project Administration. The \$565.4 million in Expenditures to date represents 18.0% of the Current Budget.

**PROJECT COST CONTINGENCY DRAWDOWN**



**PROJECT COST CONTINGENCY DRAWDOWN ANALYSIS**

The current budget includes a project cost contingency of \$320.6 million or 10.2% of the total project. This includes an unallocated contingency of \$248.6 million and an allocated contingency amount of \$72.0 million. The allocated contingency is an amount to cover anticipated but unknown contract modifications issued by Metro where applicable to specific contracts within each Standard Cost Category (SCC).

Included in the project cost contingency drawdown is a 3% project reserve threshold. Metro’s Board is to be notified when it becomes necessary to drawdown contingency below the project reserve threshold to cover project costs. This was adopted by the Metro Board of Directors in September 2012.

The project cost contingency drawdown curve is based on a November 8, 2023 Revenue Service date.

*The allocated contingency decreased this period by a net of \$42K due executed Contract Modifications for the Design/Build Contract C1045 and Wilshire/La Cienega AUR Contract C1056.*

<b>PROJECT COST CONTINGENCY</b>					
<b>DOLLARS IN THOUSANDS</b>					
	<b>Original Contingency (Budget)</b>	<b>Previous Period</b>	<b>Current Period</b>	<b>To-Date</b>	<b>Remaining Contingency (Forecast)</b>
Unallocated Contingency	248,592	49,502	0	49,502	298,094
Allocated Contingency	71,963	(2,511)	(42)	(2,554)	69,410
<b>Total Contingency</b>	<b>320,555</b>	<b>46,990</b>	<b>(42)</b>	<b>46,948</b>	<b>367,503</b>

## **DISADVANTAGED BUSINESS ENTERPRISE (DBE)**

### **RACE-CONSCIOUS DISADVANTAGED BUSINESS ENTERPRISE (RC-DBE) STATUS**

#### **Contract C1045 Westside Purple Line Extension, Section 1 Design-Build**

- RC-DBE Goal – Design 20%
- Current RC-DBE Commitment \$12,853,485 (20.25%)
- Current RC-DBE Participation \$ 3,027,820 (13.18%)
- Eight (8) Design DBE subcontractors have been identified for Design
  
- DBE Goal – Construction 17%
- Current DBE Commitment \$258,241,829 (17%)
- Current DBE Participation \$ 538,433 (0.24%)
- Twenty (20) Construction DBE subcontractors have been identified to-date

## **PROJECT LABOR AGREEMENTS (PLA) STATUS**

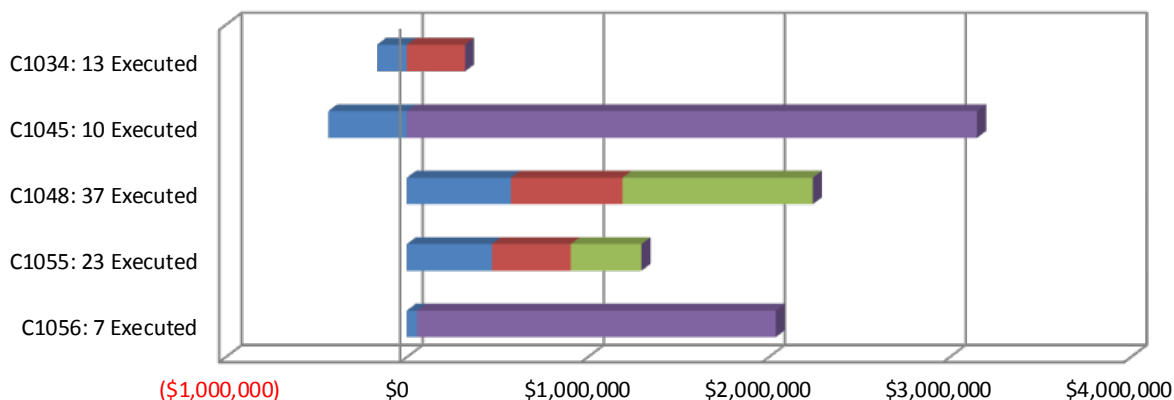
#### **Contract C1045 Westside Purple Line Extension, Section 1 Design-Build**

(Reporting Data as of Sept 30, 2015)

- Targeted Worker Goal 40.00%
- Targeted Worker Current Participation 64.55%
  
- Apprentice Worker Goal 20.00%
- Apprentice Worker Current Participation 17.70%
  
- Disadvantaged Worker Goal 10.00%
- Disadvantaged Worker Current Participation 17.53%

**SUMMARY OF CONTRACT MODIFICATIONS**

**Contract Modifications (MODs) by Cost Level**



	<b>C1034</b> 13 Executed	<b>C1045</b> 10 Executed	<b>C1048</b> 37 Executed	<b>C1055</b> 23 Executed	<b>C1056</b> 7 Executed	<b>Total</b>
■ Under \$100K	(164,288)	(434,377)	574,448	468,856	55,034	<b>499,673</b>
■ \$100K to \$250K	321,000	-	616,809	436,190	-	<b>1,373,999</b>
■ \$250K to \$1M	-	-	1,050,980	390,709	-	<b>1,441,689</b>
■ Over \$1M	-	3,150,000	-	-	1,983,179	<b>5,133,179</b>
<b>Total Contract MODs</b>	<b>156,712</b>	<b>2,715,623</b>	<b>2,242,237</b>	<b>1,295,755</b>	<b>2,038,213</b>	<b>8,448,540</b>
<b>Contract Award Amount</b>	<b>6,487,020</b>	<b>1,636,418,585</b>	<b>6,181,000</b>	<b>14,430,000</b>	<b>20,250,000</b>	<b>1,683,766,605</b>
<b>% of Contract MODs</b>	<b>2.4%</b>	<b>0.2%</b>	<b>36.3%</b>	<b>9.0%</b>	<b>10.1%</b>	<b>0.5%</b>

Percent of Contract MODs equals the Total Contract MODs divided by the Contract Award Amount.

*Thirteen Contract MODs with a total value of \$0.2 million were executed for Contract C1034 – Exploratory Shaft Construction by Innovative Construction Solutions (ICS). The contract is complete and closed out.*

*Ten Contract MODs with a total value of \$2.7 million have been executed since the award of Contract C1045 – Tunnels, Stations, Trackwork, Systems and Systems Integration Testing by Skanska - Traylor - Shea, a Joint Venture.*

*Thirty-seven Contract MODs with a total value of \$2.2 million were executed for Contract C1048 – Advanced Utility Relocations at Wilshire/La Brea by Metro Builders & Engineering Group, LTD. The contract is complete and closed out.*

*Twenty-three Contract MODs with a total value of \$1.3 million have been executed since the award of Contract C1055 – Advanced Utility Relocations at Wilshire/Fairfax by W. A. Rasic Construction Company, Inc.*

*Seven Contract MODs with a total value of \$2.0 million have been executed since the award of Contract C1056 – Advanced Utility Relocations at Wilshire/La Cienega by Steve Bubalo Construction Co.*

**FINANCIAL/GRANT STATUS**

SEPTEMBER 2015		STATUS OF FUNDS BY SOURCE							
SOURCE	(A)	(B)	(C)	(D)		(E)		(F)	
	ORIGINAL BUDGET	TOTAL FUNDS ANTICIPATED	TOTAL FUNDS AVAILABLE	COMMITMENTS \$	(D/B) %	EXPENDITURES \$	(E/B) %	BILLED TO FUNDING SOURCE \$	(F/B) %
FEDERAL - SECTION 5309 NEW STARTS	\$1,250.000	\$1,250.000	\$165.000	\$1,250.000	100%	\$165.000	13%	\$165.000	13%
FEDERAL CMAQ	\$12.171	\$12.171	\$12.171	\$0.000	0%	\$0.000	0%	\$0.000	0%
FEDERAL SECTION 5339 - ALTERNATIVES ANALYSIS	\$0.512	\$0.512	\$0.512	\$0.512	100%	\$0.512	100%	\$0.512	100%
MEASURE R - TIFIA LOAN	\$856.000	\$856.000	\$0.000	\$0.000	0%	\$0.000	0%	\$0.000	0%
MEASURE R 35%	\$869.178	\$869.178	\$313.642	\$736.731	85%	\$313.642	36%	\$250.152	29%
STATE STIP RIP	\$2.568	\$2.568	\$2.568	\$2.568	100%	\$2.568	100%	\$2.568	100%
STATE CAPITAL PROJECT LOANS - OTHERS *	\$83.648	\$83.648	\$83.648	\$83.648	100%	\$83.648	100%	\$50.898	61%
CITY OF LOS ANGELES	\$75.273	\$75.273	\$0.000	\$0.000	0%	\$0.000	0%	\$0.000	0%
<b>TOTAL</b>	<b>\$3,149.350</b>	<b>\$3,149.350</b>	<b>\$577.541</b>	<b>\$2,073.459</b>	<b>65.8%</b>	<b>\$565.370</b>	<b>18.0%</b>	<b>\$469.130</b>	<b>14.9%</b>

EXPENDITURES ARE CUMULATIVE THROUGH AUGUST 2015  
ORIGINAL BUDGET BASED ON JULY 2014 BOARD APPROVED LOP BUDGET

\* OTHERS INCLUDE TDA ADMINISTRATION (\$4.1M), LTF GENERAL REVENUES (\$1.8M), AND LEASE REVENUES (\$37.8M)

**STATUS OF FUNDS ANTICIPATED**

**FEDERAL SECTION 5309 NEW STARTS:** FTA grant CA-03-0824 for \$65 million was awarded on June 2, 2014. FTA Grant CA-03-0824-01 for \$100 million was awarded on August 10, 2015. Funds are available for drawdown.

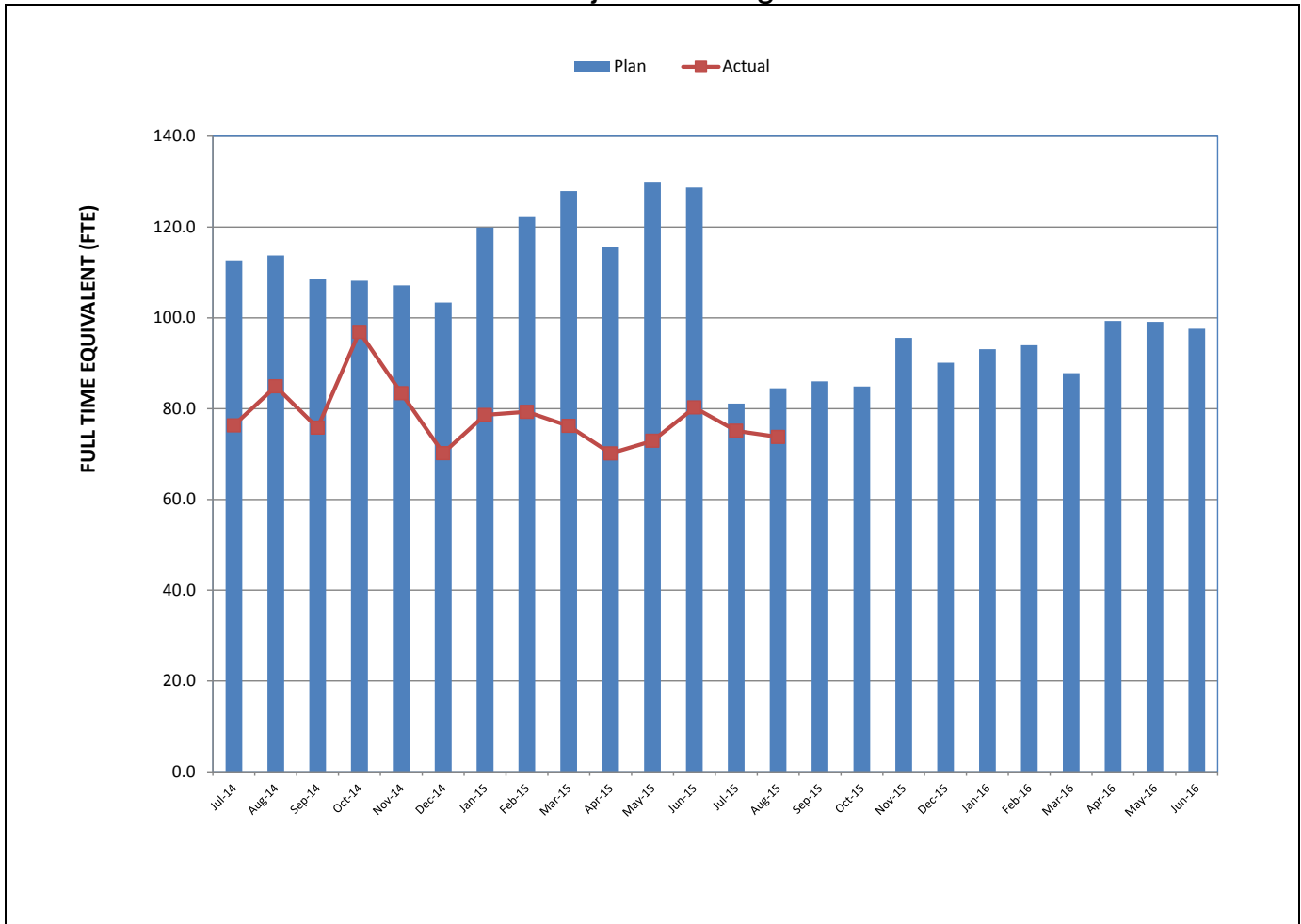
**FEDERAL SECTION 5309 ALTERNATIVE ANALYSIS:** FTA grant CA-39-0006 of \$511.6 million was awarded on July 25, 2014. Funds are available for drawdown.

**MEASURE R – TIFIA LOAN (Transportation Infrastructure Finance & Innovation Act):** TIFIA Loan was executed on May 21, 2014 for \$856 million. First disbursement is planned for FY 2018.

**STATE STIP RIP:** State grant application of \$8.4 million, of which \$2.6 million has been allocated to this project, was awarded on July 26, 2007. Funds are available for drawdown.

**CMAQ (Congestion Mitigation & Air Quality):** FTA Grant CA-95-X264 for \$12.2 million was awarded July 27, 2015. Funds are available for drawdown.

**STAFFING STATUS**  
Total Project Staffing – FTES



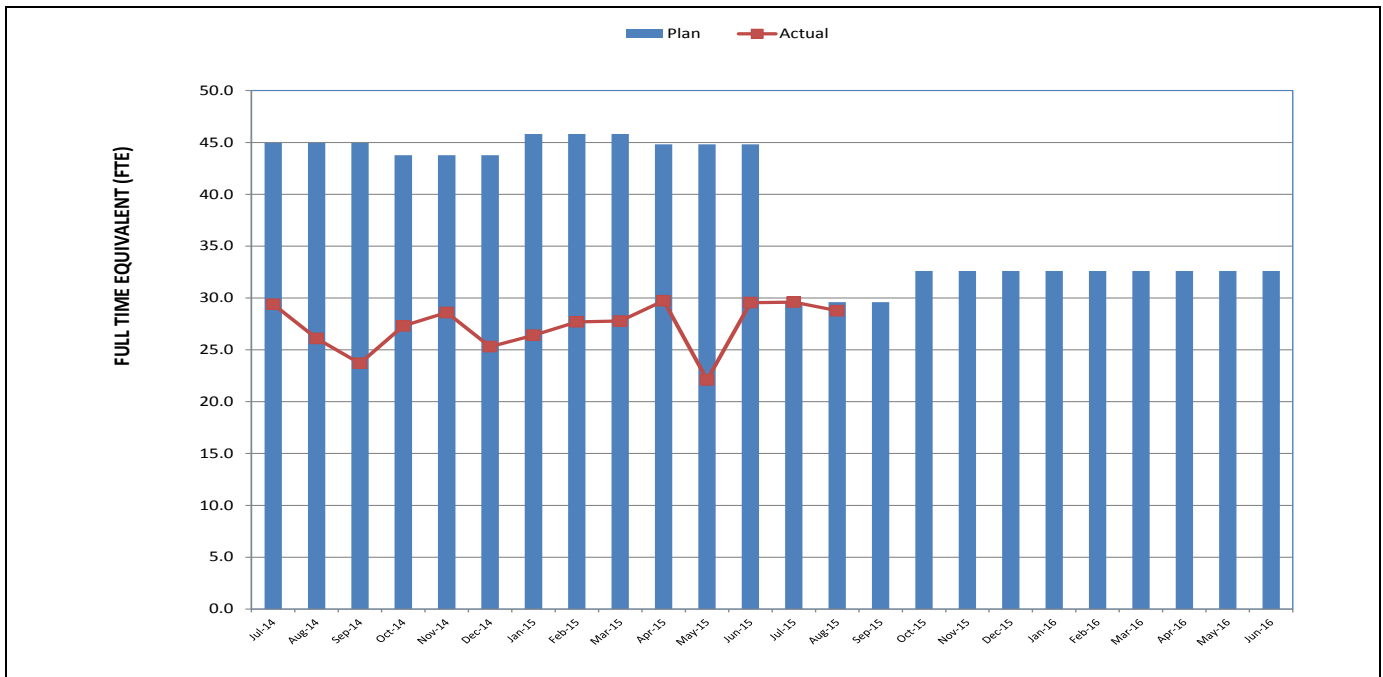
**TOTAL PROJECT STAFFING**

The overall FY16 Total Project Staffing Plan averages 91.1 FTEs per month.

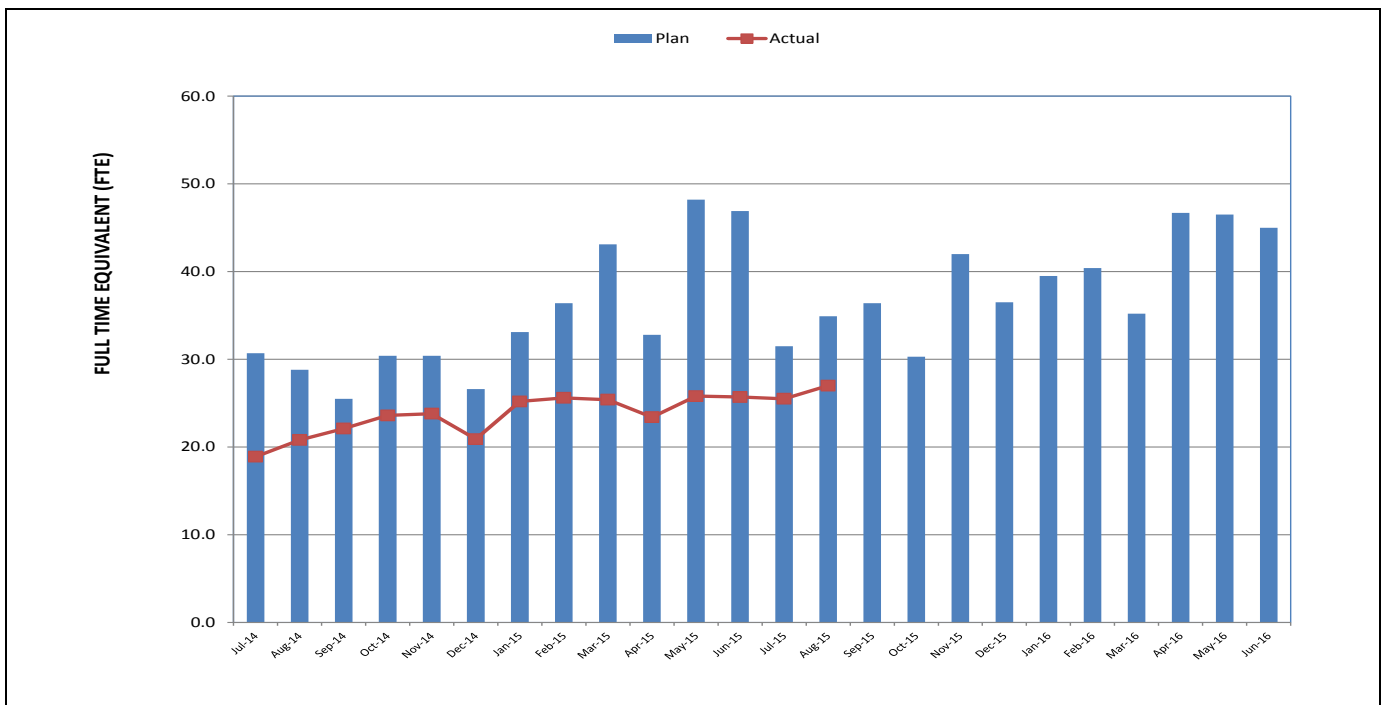
*For August 2015, there were a total of 28.8 FTEs for MTA's Project Administration staff and 45.0 FTEs for consulting staff. The total project staffing for August 2015 was 73.8 FTEs.*

Metro has re-visited the staffing requirements for Fiscal Year 2016 and has provided an update based upon the current project schedule and project needs. The Construction Management Services Consultant (CMSC) staffing level plan may change in the upcoming months to reflect the actual position conversions of CMSC staff to Metro staff per the July 2015 Metro Board action.

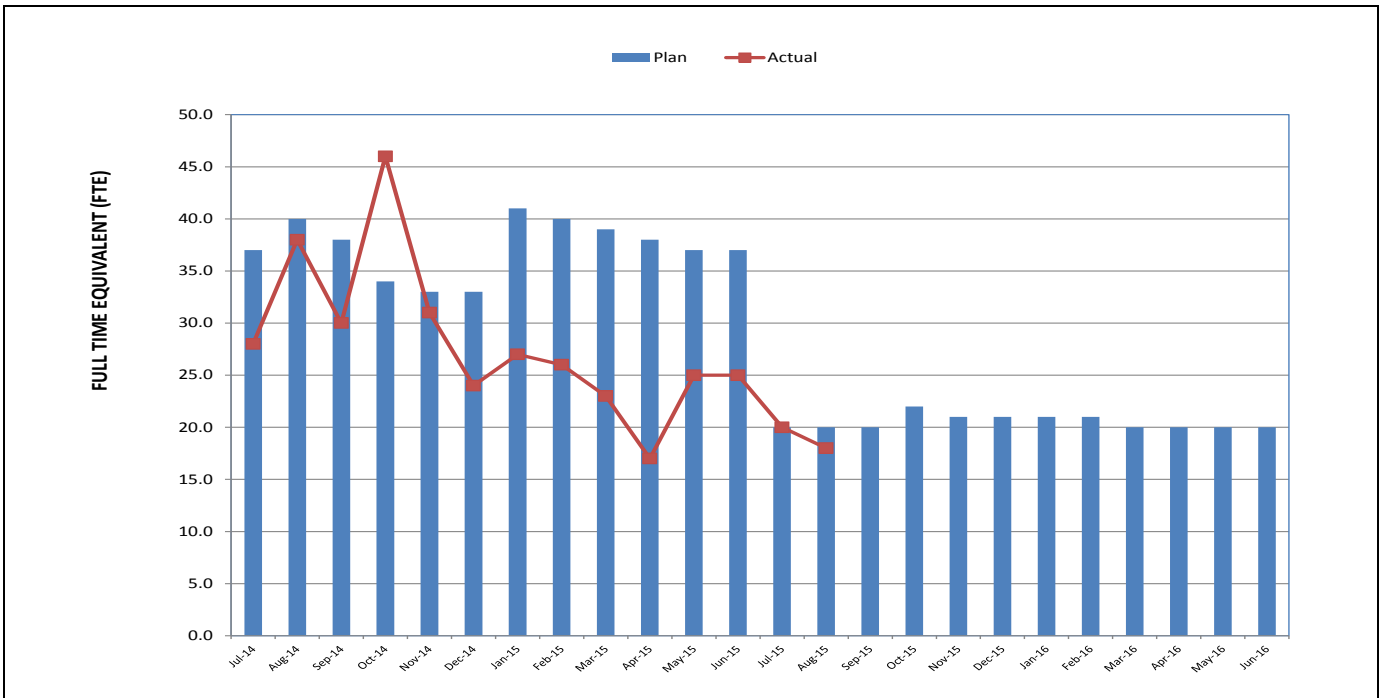
**STAFFING STATUS (Continued)  
METRO STAFFING – FTES**



**CONSTRUCTION MANAGEMENT  
SERVICES CONSULTANT – FTES**



**STAFFING STATUS (Continued)  
ENGINEERING MANAGEMENT SERVICES CONSULTANT – FTES**



## REAL ESTATE STATUS

### Purple Line Extension Section 1 - Real Estate Status Summary

Description	Number of Parcels	Certified	Appraisals Completed	Offers Made	Agreements Signed	Condemnation Filed	Relocations		Parcels Available
							Required	Completed	
Full Takes	9	9	9	9	2	7	109	108	9
Part Takes	6	6	6	5	1	3	0	0	5
TCE	4	4	4	4	1	4	0	0	4
<b>Total Parcels</b>	<b>19</b>	<b>19</b>	<b>19</b>	<b>18</b>	<b>4</b>	<b>14</b>	<b>109</b>	<b>108</b>	<b>18</b>

The total count of the 19 parcels include the two Division 20 parcels required for constructing the MOW/NRV Building 61S.

*Metro has possession of 18 parcels that are available to meet the C1045 Contract site availability dates. Metro will have possession of the remaining parcels by October 2015 and all parcels will be made available to the C1045 Contractor by late December 2015.*

## QUALITY ASSURANCE STATUS

### **C1045 – Tunnels, Stations, Trackwork, Systems and Systems Integration Testing**

- Attended weekly Project staff meetings and progress meetings with the Contractor.
- Ongoing discussions and coordination with the Engineering Management Services Consultant (EMSC) and Construction Management Support Services (CMSS) support staff for quality oversight.
- Reviewed and provided comments on quality related submittals.
- *Tunnels 85% Design – Constructability reviews ongoing.*
- *La Brea 100% SOE - Design under review.*
- *Fairfax 65% SOE - Design under review.*
- *La Cienega 60% - Constructability reviews ongoing.*

### **C1055 – Advanced Utility Relocations – Wilshire/Fairfax**

- *Contract has entered into the substantial completion stage, closeout meetings in progress.*
- *Metro Quality Management is reviewing final quality inspection and test documentation for closeout and submittal to local jurisdiction.*

### **C1056 – Advanced Utility Relocations – Wilshire/La Cienega**

- Attended weekly progress meeting with the Contractor and monthly quality meeting.
- Reviewed and provided comments on quality related submittals.
- Attended Readiness Review Meetings.
- *Reviewed daily inspection reports from the Contractor/Field Technician and CMSS oversight inspection personnel.*
- Conducted quality surveillance (S2015-012) of the as-built development for utilities installation.

### **C1078 – Division 20 MOW and NRV Building 61S**

- *Conducted the initial Quality/Safety Meeting.*

## **ENVIRONMENTAL STATUS**

- Limited noise and vibration monitoring performed by AUR and DB Contractors. No significant noise or vibration exceedances were reported for work performed.
- Noise and Archeo/Paleo Monitoring for C1055, C1056, and C1045 work activities.
- Continued Construction Noise, Stormwater BMP and Archeo/Paleo Awareness Training for C1055, C1056 and C1045.
- Established day and night noise level limits based on measured data pending final approval of ambient report.
- Reviewed C1055, C1056 and C1045 Contractor submittals and tracked monitoring and reporting obligations in accordance with contract Specifications and EIR requirements.
- Participated in weekly C1055, C1056 and C1045 contract coordination meetings.
- *Held monthly Environmental Mitigations Meeting to discuss soil disposal and air quality permits.*
- *Noise Compliance Report to City of Beverly Hills submitted September 17, 2015.*
- Weekly Construction Noise Compliance Reports prepared by the Independent Compliance Monitor and submitted to Metro and City of Beverly Hills.
- Continued coordination and review process with City of Los Angeles and Beverly Hills municipalities and 3rd party utility companies.
- Continued the investigation of the oil/tar sump at La Brea and Detroit.
- Finalized Ambient Noise and Facade Noise Reduction Analysis for the Saban Theater.
- Participated in various Construction Work Plan Workshops.
- Coordinated schedule and oversight requirements for noise, cultural resources and paleontological monitoring for upcoming construction activities.
- Reviewed DB Contractor's Contaminated Soil Disposal Plan.
- Coordinated procedure for Cultural, Archeological and Paleontological Awareness Training for non-excavation crews.
- *Evaluated trees during non-migratory bird season with Arborist and Biologist.*

## **CONSTRUCTION RELATIONS STATUS**

- *Produced and distributed 17 construction work notices for advance utility relocations and construction activities.*
- *Made Project Presentations at the following: 5200 Wilshire Apartments, Elected Officials Briefing, Construction Community Meeting, Fairfax Coordinated Construction Projects, Avalon Apartments and Tarfest.*
- *Fielded and addressed the following: maintenance requests and homeless encampments around Wilshire/La Brea and Wilshire/Crenshaw staging yards, traffic concerns in Beverly Hills and street metal plates not secured at night.*
- Visited and updated businesses and residences at future station locations to discuss utility relocations, business profiles and Eat, Shop, Play promotional campaign for businesses.
- Attended the following meetings: Construction Management, Advanced Utility Relocations, Construction Relations, Environmental Mitigations, STS Third Party Workshop, Beverly Hills MOA, Marketing, Social Media, Eat, Shop, Play, and Bus Relocations and Stops.
- Updated Facebook/Twitter website as needed.

## **CREATIVE SERVICES STATUS**

- *Continued to refine project artwork opportunities and locations.*
- Responded to RFIs and submittals.
- *Participated in Design Build Workshops and document reviews.*

## **SAFETY & SECURITY STATUS**

- *There were no injuries on the Project during September 2015.*
- Safety staff participated in scheduled readiness review meetings to ensure compliance with approved Work Plans and contract specifications.
- Construction activities Advance Utility Relocations and pre-construction (C1045) activities continue to be monitored during both day and night work shifts to document contractor compliance with contract specifications.
- Safety staff attended weekly progress meetings and other project meetings to evaluate Contractors Safety Program compliance with contract requirements.
- *Hosted Monthly All Hands Safety Meeting for all Westside Purple Line Extension Contractors on September 29th.*
- Construction Safety staff continue to work with Program Management and Construction Relations staff to monitor issues related to public concerns regarding noise, traffic and transient encampment hazards as well as public interactions with the construction crews.
- *July and August data are presented below. The Design Builder requires resolution to insure accurate reporting.*
- *July 2015 Contractor Work Hours (Design & Construction): 34,972*
- *August 2015 Contractor Work Hours (Design & Construction): 30,790*
- *Contractor – Project to Date Work Hours (Design & Construction through 8/31/2015): 290,337*
- *Total Project to Date Work Hours (Contractor & the IPMO Staff through 8/31/2015): 456,502*
- *Project to Date Recordable Injury Rate: 0.4 (One Recordable Injury). Each rate is per 200,000 work hours (National Rate) : 3.2*
- *Project to Date Total Time Away Injury Rate: 0.4 (One Time Away From Work Injury) (National Rate 1.8).*
- *Project to Date Total Days Away Rate: 48.6 (One Hundred Eleven Days Away From Work) (No National Rate Published).*
- National Rates for Heavy and Civil Construction (NAICS Code 237) are for Calendar Year 2013, published by USBLS in December 2014.

**THIRD PARTY AGREEMENT STATUS**

<b>Third Party</b>	<b>Type of Agreement</b>	<b>Forecast Execution Date</b>	<b>Required Need Date</b>	<b>Status/ Comments</b>
City of Los Angeles (LA)	Amendment to Master Cooperative Agreement	N/A	N/A	Parties will work under 2003 MCA.
City of Beverly Hills (BH)	MOAs (La Cienega only)	9/14 (AUR) 3/16 (D/B)	9/14 (AUR) 8/16 (D/B)	City of Beverly Hills approved the MOA for the C1056 Wilshire/La Cienega AUR contract on August 19, 2014. Metro continues to work with the City to establish an MOA for the C1045 Design/Build contract.
Los Angeles Department of Water and Power	Amendment to Memorandum of Understanding	N/A	N/A	Metro and LADWP will continue to work under the terms of the previous Cooperative Agreement.
Los Angeles County Public Works	Letter of Agreement	4/11	3/12	Executed
Caltrans	Amendment	8/11	3/12	Executed
Private Utilities	LOA, MOU, MCA, or MUA	9/14	N/A	Metro is working with affected third party utilities under existing agreements except for Qwest and Level 3. Draft agreements for Qwest and Level 3, and a new agreement for SCE are all under review. In absence of an agreement, work is being performed by work orders.

## **ADVANCED UTILITY RELOCATION STATUS**

- C1048 AUR for the Wilshire/La Brea Station was substantially completed on October 27, 2014. Contract closeout was finalized in August 2015.
- AT&T relocations at the Wilshire/La Brea Station were completed in May 2015. AT&T relocations at the Wilshire/Fairfax Station began in January 2015 and are anticipated to be completed in November 2015. AT&T relocations on Hamilton Drive in the Wilshire/La Cienega Station area were completed in July 2015. AT&T work for the remaining portion of the Wilshire/La Cienega Station area is anticipated to be completed in February 2016.
- *The Gas Company relocations at the Wilshire/Fairfax Station began in March 2015 and are anticipated to be completed in October 2015.*
- The C1055 AUR contractor for Wilshire/Fairfax Station continues with power and water relocations. Contract Milestone #2 – Power at Fairfax was completed on July 10, 2015. *The contractor submitted the notice of substantial completion. Staff is reviewing their request per the contractual terms and the scope of work defined by contractual Milestone No. 3 (substantial completion).*
- The LADWP Power relocations at the Wilshire/Fairfax Station will be completed by summer 2016.
- The Notice to Proceed (NTP) Wilshire/La Cienega AUR Contract (C1056) was issued on January 12, 2015. *Construction began in late April 2015. SCE relocations are continuing along with the City of Beverly Hills sewer, water and storm drain relocations.*

## **PEAK HOUR AND NIGHTTIME CONSTRUCTION VARIANCES**

Metro is actively pursuing extended hour variances/exemptions to accommodate the Project needs. Metro staff is working with the City of Los Angeles Bureau of Engineering and the Los Angeles Police Commission to obtain Peak Hour Exemptions and Nighttime Construction Variances. Current efforts center around extending the existing nighttime noise variances to accommodate advanced utility relocations at the Wilshire/La Brea and Wilshire/Fairfax Station sites as well as obtaining new nighttime noise variances and peak hour exemptions to allow night work and weekend work to accommodate the Wilshire/La Brea, Wilshire/Fairfax and Wilshire/Western piling operations for the Design/Build contractor.

- The Peak Hour Exemption for Wilshire/La Brea pile installation was approved by the City of Los Angeles on November 8, 2013. A revised application was approved in June 2015 with the new construction dates of November 11, 2015 to May 3, 2016.
- The Peak Hour Exemptions for Wilshire/Fairfax and Wilshire/Western pile installations were approved by the City of Los Angeles on May 12, 2014. There will be a resubmittal with updated construction dates in early 2016.
- The Nighttime Noise Variance for the Wilshire/La Brea Advanced Utility Relocation work has been extended to February 2016 by the Los Angeles Police Commission.
- The Nighttime Noise Variance for the Wilshire/Fairfax Advanced Utility Relocation work has been extended to January 17, 2016 by the Los Angeles Police Commission.
- Metro has received a Peak Hour Exemption from the City of Los Angeles for the area near the Wilshire/La Cienega Station. This will accommodate the spillover of traffic control devices from the City of Beverly Hills into the City of Los Angeles. This Peak Hour Exemption was extended to November 2015.
- *An approved Nighttime Noise Variance for pile installations at the Wilshire/La Brea Station was extended to April 30, 2016, at which time a six-month extension will be requested, if needed.*

## **CHRONOLOGY OF EVENTS**

June 2007	Began Alternatives Analysis study
January 2009	Board approval of Alternatives Analysis study and next phase
February 2009	Began Draft Environmental Impact Statement / Report (EIS / EIR)
October 2010	Board approval of Draft EIS / EIR and selection of locally preferred alternative
January 2011	FTA approval to enter Preliminary Engineering
May 2011	Began Preliminary Engineering
April 2012	Board certification of Final EIS / EIR and adoption of project
July 2012	Completion of Exploratory Shaft final design
August 2012	FTA Record of Decision
September 2012	Began Real Estate Acquisition
November 2012	Began Final Design - C1048 - Advanced Utility Relocations contract – Wilshire/La Brea
November 2012	Began Final Design - C1055 - Advanced Utility Relocations contract – Wilshire/Fairfax
November 2012	Issued RFQ for C1045 Design / Build contract
December 2012	Began Final Design - C1056 - Advanced Utility Relocations contract – Wilshire/La Cienega
January 2013	Began C1034 Exploratory Shaft construction
February 2013	Received RFQ responses for C1045 Design / Build contract
June 2013	Issued RFP for C1045 Tunnels, Stations, Trackwork, Systems and Systems Integration Testing
June 2013	Beginning of C1055 AUR Wilshire/Fairfax Bid Period
July 2013	Submitted draft FFGA application

**CHRONOLOGY OF EVENTS (Continued)**

July 2013	Completed Final Design - C1048 - Advanced Utility Relocations contract – Wilshire/La Brea
July 2013	Submitted TIFIA loan application
August 2013	Began C1048 Advanced Utility Relocations contract – Wilshire/La Brea
August 2013	NTP for Construction Management Services Contract
January 2014	Submitted application to FTA requesting an FFGA
January 2014	Received RFP Proposals for Contract C1045
February 2014	Beginning of C1056 AUR Wilshire/La Cienega Bid Period
May 2014	FTA awarded FFGA
May 2014	Received TIFIA Loan
June 2014	Began C1055 Advanced Utility Relocations at Wilshire/Fairfax
July 2014	Metro Board approved staff recommendation to award Contract C1045 and approved Life-of-Project Budget
September 2014	Issued Invitation to Bid for Contract C1078
October 2014	Issued C1056 Contract Award
November 2014	Issued C1045 Contract Award
January 2015	Issued C1045 Contract Notice to Proceed
January 2015	Issued C1056 Contract Notice to Proceed
February 2015	Received Contract C1078 Bids
August 2015	Issued C1078 Contract Award
<i>September 2015</i>	<i>Issued C1078 Contract Notice to Proceed</i>

**CONTRACT C1045 STATUS**

<p><b>Description:</b> Westside Purple Line Extension Design-Build <b>Contractor:</b> SKANSKA - TRAYLOR - SHEA</p>	<p><b>Contract No. C1045</b> <b>Status as of: October 2, 2015</b></p>																																										
<p><b>Progress / Work Completed:</b></p> <ul style="list-style-type: none"> <li>- TBM Temp Power Ductbank complete</li> <li>- Wilshire/La Brea Station median removal</li> <li>- Baseline Schedule accepted</li> <li>- Wilshire/La Brea North building demolition complete</li> <li>- Wilshire/La Brea Piles ordered</li> </ul> <p><b>Areas of Concern:</b> None</p>	<p><b>Major Activities (In Progress):</b></p> <ul style="list-style-type: none"> <li>- Wilshire/Western 85% design Metro review</li> <li>- Wilshire/La Brea 85% design comment resolution</li> <li>- Wilshire/Fairfax 60% design Metro review</li> <li>- Tunnels 85% design continues</li> <li>- Wilshire/La Brea 100% SOE design continues</li> <li>- Temporary wet utility work at Wilshire/La Brea</li> <li>- Wilshire/La Brea North Soundwall continues</li> <li>- Wilshire/La Cienega 60% design continues</li> </ul> <p><b>Major Activities Next Period:</b></p> <ul style="list-style-type: none"> <li>- Wilshire/La Brea 100% permanent utility design complete</li> <li>- Wilshire/La Brea 100% SOE Design complete</li> <li>- North Side Traffic Control for Wilshire/La Brea Pile Inst.</li> </ul>																																										
<p><b>Schedule Summary:</b></p> <p>Date of Award: 11/04/14          Notice to Proceed: (actual) 01/12/15          Original Contract Duration: 3250 CD          Current Contract Duration: 3250 CD          Elapsed Time from NTP: 264 CD</p>	<table border="1"> <thead> <tr> <th></th> <th>Original Contract Dates</th> <th>Time Extension</th> <th>Current Contract</th> <th>Forecast</th> <th>Variance CDs</th> </tr> </thead> <tbody> <tr> <td>Notice to Proceed (Estimated)</td> <td>01/12/15</td> <td>0</td> <td>01/12/15</td> <td>01/12/15</td> <td>0</td> </tr> <tr> <td>Milestone 1: Substantial Completion</td> <td>06/09/23</td> <td>0</td> <td>06/09/23</td> <td>06/09/23</td> <td>0</td> </tr> <tr> <td>Milestone 2: Stations available to UFS</td> <td>10/07/22</td> <td>0</td> <td>10/07/22</td> <td>10/07/22</td> <td>0</td> </tr> <tr> <td>Milestone 3: Start of Integration Testing to ROC</td> <td>01/10/23</td> <td>0</td> <td>01/10/23</td> <td>01/10/23</td> <td>0</td> </tr> <tr> <td>Milestone 4: Demobilization</td> <td>12/06/23</td> <td>0</td> <td>12/06/23</td> <td>12/06/23</td> <td>0</td> </tr> <tr> <td>Milestone 5: Temporary Construction Easements</td> <td>01/10/23</td> <td>0</td> <td>01/10/23</td> <td>01/10/23</td> <td>0</td> </tr> </tbody> </table>		Original Contract Dates	Time Extension	Current Contract	Forecast	Variance CDs	Notice to Proceed (Estimated)	01/12/15	0	01/12/15	01/12/15	0	Milestone 1: Substantial Completion	06/09/23	0	06/09/23	06/09/23	0	Milestone 2: Stations available to UFS	10/07/22	0	10/07/22	10/07/22	0	Milestone 3: Start of Integration Testing to ROC	01/10/23	0	01/10/23	01/10/23	0	Milestone 4: Demobilization	12/06/23	0	12/06/23	12/06/23	0	Milestone 5: Temporary Construction Easements	01/10/23	0	01/10/23	01/10/23	0
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<p><b>Physical Percent Complete:</b></p> <p>Physical completion: 3.06%*</p> <p>* Note: Physical completion assessment reflects work completed and work in progress.</p>	<p><b>Cost Summary: \$ In millions</b></p> <table> <tr> <td>1. Award Value:</td> <td>1,636.4</td> </tr> <tr> <td>2. Executed Modifications:</td> <td>2.7</td> </tr> <tr> <td>3. Approved Change Orders:</td> <td>0.0</td> </tr> <tr> <td>4. Current Contract Value (1+2+3):</td> <td>1,639.1</td> </tr> <tr> <td>5. Incurred Cost:</td> <td>309.3</td> </tr> </table>					1. Award Value:	1,636.4	2. Executed Modifications:	2.7	3. Approved Change Orders:	0.0	4. Current Contract Value (1+2+3):	1,639.1	5. Incurred Cost:	309.3																												
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**CONTRACT C1056 STATUS**

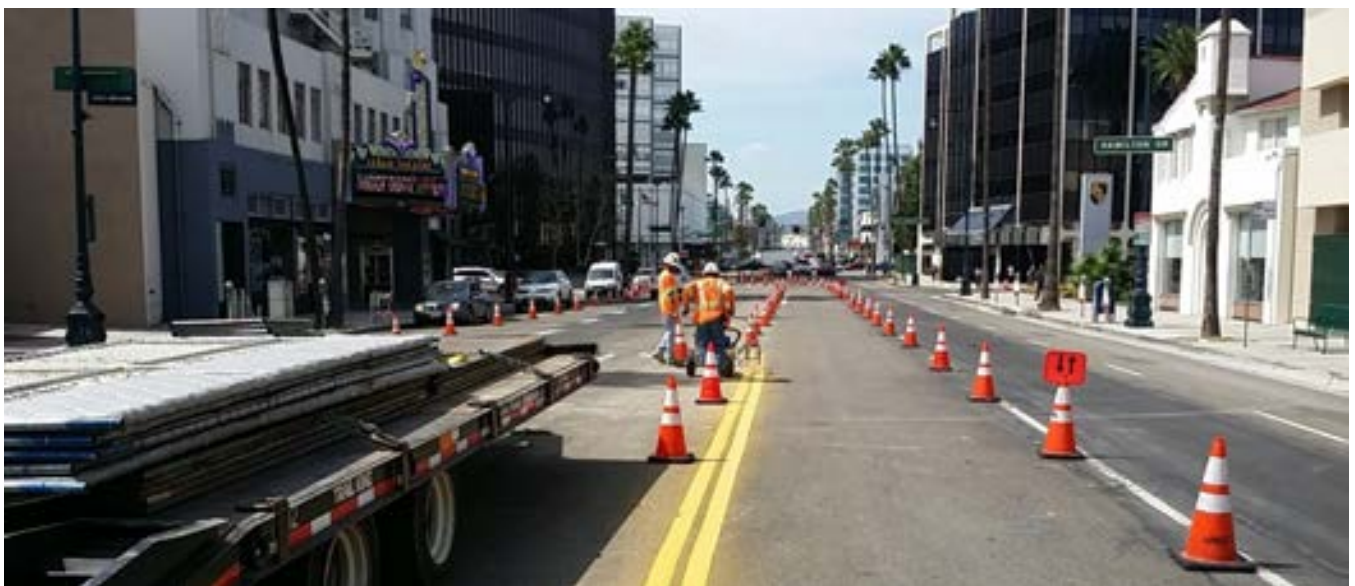
<p><b>Description: Wilshire/La Cienega AUR</b> <b>Contractor: Steve Bubalo Construction Co.</b></p>	<p><b>Contract No. C1056</b> <b>Status as of: October 2, 2015</b></p>															
<p><b>Progress / Work Completed:</b></p> <ul style="list-style-type: none"> <li>- Sewer Line F STA 1+00 to 1+52 (Tower Dr.)</li> <li>- Sewer Line C South Wilshire/Hamilton Dr. to Tower Dr.</li> <li>- SCE Vaults at Hamilton and Gale</li> <li>- SCE Ductbank crossing Wilshire along Hamilton</li> <li>- SCE Ductbank crossing Wilshire along Gale</li> <li>- Sewer Line C South Wilshire/Hamilton Dr. to Tower Dr.</li> </ul> <p><b>Areas of Concern:</b> None</p>	<p><b>Major Activities (In Progress):</b></p> <ul style="list-style-type: none"> <li>- Waterline North Wilshire/La Cienega to Hamilton (STA 24+09 to Tower)</li> <li>- Sewer Line D Hamilton North to South</li> <li>- Sewer Line C Tie-in South Side of Wilshire</li> <li>- SCE Crossing along Sidewalk Tower to Gale Vault</li> <li>- SCE Ductbank Along 8484 Wilshire Blvd. STA 51+30 to 52+69</li> </ul> <p><b>Major Activities Next Period:</b></p> <ul style="list-style-type: none"> <li>- Continue Sewer Lines on Wilshire</li> <li>- Continue SEC DB going West</li> </ul>															
<p><b>Schedule Summary:</b></p> <p>Date of Award: 10/13/14</p> <p>Notice to Proceed: (estimated) 01/12/15</p> <p>Original Contract Duration: 696 CD</p> <p>Current Contract Duration: 696 CD</p> <p>Elapsed Time from NTP: 264 CD</p>		Original Contract Dates	Time Extension	Current Contract	Forecast	Variance CDs										
	Notice to Proceed (Estimated)	01/12/15	0	01/12/15	01/12/15	0										
	Milestone 1:	07/13/16	0	07/13/16	07/13/16	0										
	Milestone 2: Substantial Completion	12/08/16	0	12/08/16	12/08/16	0										
<p><b>Physical Percent Complete:</b></p> <p>Physical completion: 22.92%*</p> <p>* Note: Physical completion assessment reflects work completed and work in progress.</p>	<p><b>Cost Summary: \$ In millions</b></p> <table border="0"> <tr> <td>1. Award Value:</td> <td>20.3</td> </tr> <tr> <td>2. Executed Modifications:</td> <td>2.0</td> </tr> <tr> <td>3. Approved Change Orders:</td> <td>0.0</td> </tr> <tr> <td>4. Current Contract Value (1+2+3):</td> <td>22.3</td> </tr> <tr> <td>5. Incurred Cost:</td> <td>6.8</td> </tr> </table>						1. Award Value:	20.3	2. Executed Modifications:	2.0	3. Approved Change Orders:	0.0	4. Current Contract Value (1+2+3):	22.3	5. Incurred Cost:	6.8
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5. Incurred Cost:	6.8															



**CONSTRUCTION PHOTOGRAPHS**



*C1045 Contractor Installing Columns for the Soundwall at the South Wilshire/La Brea Construction Staging Site*



*C1056 AUR Contractor Traffic Lane Striping on Wilshire Boulevard*

**APPENDIX  
COST AND BUDGET TERMINOLOGY**

**Project Cost Descriptions**

ORIGINAL BUDGET	The Original Project Budget as authorized by the Metropolitan Transportation Authority (Metro) Board.
CURRENT BUDGET	The Original Budget plus all budget amendments approved by formal Metro Board action. Also referred to as Approved Budget.
COMMITMENTS	The total of actual contracts awarded, executed change orders or amendments, and approved work orders of Master Cooperative Agreements, offers accepted for purchase of real estate, and other Metro actions which have been spent or result in the obligation of specific expenditures at a future time.
EXPENDITURES	The total dollar amount of funds expended by Metro for contractor or consultant services, third party services, staff salaries, real estate and other expenses that is reported in Metro's Financial Information System (FIS).
CURRENT FORECAST	The best estimate of the final cost of the Project when all checks have been issued and the Project is closed out. Current Forecast is composed of actual costs incurred to date, the best estimate of work remaining and a current risk assessment for each budgeted cost item.

**Cost Report by Element Descriptions**

CONSTRUCTION	Includes construction contracts. Cost associated with Guideways, Stations, Southwestern Yard, Sitework/Special Conditions and Systems.
RIGHT-OF-WAY	Includes purchase cost of parcels, easements, right-of-entry permits, escrow fees, contracted real estate appraisals and tenant relocation.
VEHICLES	Includes the purchase of Heavy Rail Vehicles and spare parts for the Project.
PROFESSIONAL SERVICES	Includes design engineering, project management assistance, construction management support services, legal counsel, agency staff costs, and other specialty consultants.
CONTINGENCY	A fund established at the beginning of a project to provide for anticipated but unknown additional costs that may arise during the course of the Project.
PROJECT REVENUE	Includes all revenue received by Metro as a direct result of project activities. This includes cost sharing construction items, insurance premium rebates, and the like.

**APPENDIX  
LIST OF ACRONYMS**

ATC	Automatic Train Control
ATSAC	Automated Traffic Surveillance and Control
BAFO	Best and Final Offer
BIM	Building Information Modeling
BNSF	Burlington Northern Santa Fe Railway Company
BRT	Bus Rapid Transit
CADD	Computer Aided Drafting and Design
CALTRANS	California Department of Transportation
CCTV	Closed Circuit Television
CD	Calendar Day
CEQA	California Environmental Quality Act
CM	Construction Manager
CMAQ	Congestion Mitigation and Air Quality Improvement Program
CMSS	Construction Management Support Services
CN	Change Notice
CO	Change Order
COBH	City of Beverly Hills
COLA	City of Los Angeles
CPM	Critical Path Method
CPUC	California Public Utilities Commission
CR	Camera Ready
CRMMP	Cultural Resource Monitoring and Mitigation Plan
CSPP	Construction Safety Phasing Plan
CTC	California Transportation Commission
CUD	Contract Unit Description
DB	Design Build
DBB	Design Bid Build
DOT	Department of Transportation
DWP	Department of Water and Power
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
EMS	Engineering Management Services
EPBM	Earth Pressure Balance Machine
FAA	Federal Aviation Administration
FAR	Federal Acquisition Regulation
FD	Final Design
FEIS	Final Environmental Impact Statement
FEIR	Final Environmental Impact Report
FIS	Financial Information System
FLSR	Fire Life Safety Report
FONSI	Finding of No Significant Impact
FRA	Federal Railroad Administration
FSEIR	Final Supplemental Environmental Impact Report
FSEIS	Final Supplemental Environmental Impact Statement

**APPENDIX  
LIST OF ACRONYMS (Continued)**

FTA	Federal Transit Administration
FTE	Full Time Equivalent
GBR	Geotechnical Baseline Report
GDSR	Geotechnical Design Summary Report
HMM	Hatch Mott MacDonald
HRT	Heavy Rail Transit
HRV	Heavy Rail Vehicle
IFB	Invitation for Bid
IPMO	Integrated Project Management Office
JV	Joint Venture
LA	Los Angeles
LABOE	Los Angeles Bureau of Engineering
LABOS	Los Angeles Bureau of Sanitation
LABSL	Los Angeles Bureau of Street Lighting
LACFCD	Los Angeles County Flood Control District
LACMTA	Los Angeles County Metropolitan Transportation Authority
LADOT	Los Angeles Department of Transportation
LADPW	Los Angeles Department of Public Works
LADWP	Los Angeles Department of Water and Power
LAUSD	Los Angeles Unified School District
LAWA	Los Angeles World Airports
LAX	Los Angeles International Airport
LNTP	Limited Notice To Proceed
LONP	Letter Of No Prejudice
LOP	Life-of-Project
LPA	Locally Preferred Alternative
LRTP	Long Range Transportation Plan
LRV	Light Rail Vehicle
MCA	Master Cooperative Agreement
MIS	Major Investment Study
MMRP	Mitigation Monitoring and Reporting Plan
MOU	Memorandum of Understanding
MPSR	Monthly Project Status Report
N/A	Not Applicable
NEPA	National Environmental Protection Act
NOD	Notice of Determination
NPDES	National Pollution Discharge Elimination System
NTE	Not to Exceed
NTP	Notice To Proceed
OCC	Operations Control Center
OSHA	Occupational Health and Safety Administration
PA/VMS	Public Address/Visual Messaging Sign
PE	Preliminary Engineering

**APPENDIX**

**LIST OF ACRONYMS (Continued)**

PEER	Permit Engineering Evaluation Report
PIP	Project Implementation Plan
PLA	Project Labor Agreement
PM	Project Manager
PMIP	Project Management Implementation Plan
PMOC	Project Management Oversight Consultant
PMP	Project Management Plan
P&P	Policies & Procedures
PR	Project Report
PRMMP	Paleontological Resource Monitoring Mitigation Plan
PSR	Project Study Report
QA	Quality Assurance
QAR	Quality Assurance Report
QC	Quality Control
QPSR	Quarterly Project Status Report
QTIB	Qualified Transit Improvement Bonds
RAMP	Real Estate Acquisition Management Plan
RCHAR	Rail Crossing Hazards Analysis Report
RCMP	Risk Assessment Management Plan
RFC	Request For Change
RFP	Request For Proposals
RFSC	Request for Special Consideration
RHA	Risk Hazard Analysis
RLPE	Red Light Photo Enforcement
ROC	Rail Operations Center
ROD	Record Of Decision
ROM	Rough Order of Magnitude
ROW	Right-Of-Way
RPZ	Runway Protection Zone
RSD	Revenue Service Date
SAV	Stand Alone Validator
SBCC	<i>Steve Bubalo Construction Co</i>
SCAQMD	Southern California Air Quality Management District
SCADA	Supervisory Control and Data Acquisition
SCC	Standard Cost Category
SCE	Southern California Edison
SCG	Southern California Gas Company
SCRRA	Southern California Regional Rail Authority
SHA	State Highway Account
SHPO	State Historic Preservation Office
SIT	System Integration Testing
SOQ	Statement of Qualification
SOV	Schedule Of Value
SOW	Statement Of Work

**APPENDIX  
LIST OF ACRONYMS (Continued)**

SP	Special Provision
SSMP	Safety and Security Management Plan
STB	Surface Transportation Board
STIP	State Transportation Improvement Program
STP	Surface Transportation Program
STV	STV Group
SWPPP	Storm Water Pollution Prevention Plan
TBD	To Be Determined
TBM	Tunnel Boring Machine
TCE	Temporary Construction Easement
TCRP	Traffic Congestion Relief Program
TIFIA	Transportation Infrastructure Finance and Innovation Act
TIGER	Transportation Investment Generating Economic Recovery
TPSS	Traction Power Substation
TRACS	Transit Automatic Control System
TVA	Threat Vulnerability Analysis
TVM	Ticket Vending Machine
UFS	Universal Fare System
USDOT	United States Department Of Transportation
VE	Value Engineering
WBS	Work Breakdown Structure
WP	Work Package
YOE	Year of Expenditure