

Los Angeles County
Metropolitan Transportation Authority

Regional Connector Transit Project

MONTHLY PROJECT STATUS REPORT

October 2018



Metro[®]

REGIONAL CONNECTOR TRANSIT PROJECT

MONTHLY PROJECT STATUS REPORT

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October 2018

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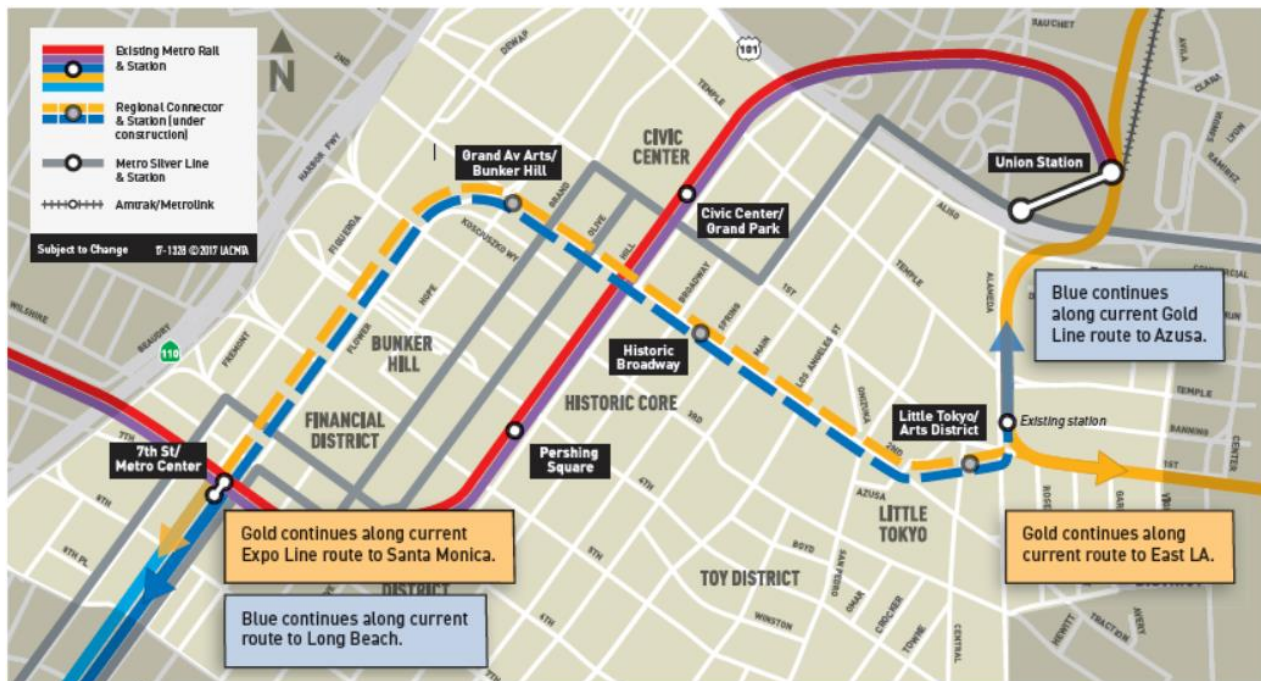
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PROJECT OVERVIEW

Project Background

The Regional Connector Transit Project (Project) will link the terminus of the Blue and Expo Lines at 7th/Metro Center to the Gold Line near the current Little Tokyo/Arts District Station through a new 1.9-mile underground alignment in downtown Los Angeles. The alignment includes three underground stations: Grand Av Arts/Bunker Hill; Historic Broadway; and Little Tokyo/Arts District.

From the existing 7th Street/Metro Center Station, the Project alignment will extend north under Flower Street to 2nd Street. It will then proceed east underneath 2nd Street to just west of Central Avenue where the alignment will veer northeast under privately-held property to the new Little Tokyo/Arts District Station at 1st and Central. The alignment continues briefly eastward through a Wye Junction (Wye) constructed beneath the 1st and Alameda intersection. To the north of the Wye at Temple and Alameda, and to the east of the Wye at 1st and Vignes, trains will connect with the Gold Line by rising to the surface through two new transition portals heading north to Pasadena, and east to East Los Angeles.



Upon completion, the Project will in effect facilitate regional light rail service along a 49-mile north-south route – Azusa to Long Beach, and a 23-mile east-west route – East LA to Santa Monica.

Passenger forecasts in 2035, as a result of the improved service, indicate 90,000 daily transit trips will occur through the 1.9-mile downtown trunk, including 17,000 new riders.

The above Project configuration is based on years of planning and environmental work that is reflected in the following milestones:

- Metro Board approval of Alternative Analysis – January 2009
- Initiation of Draft EIS/EIR – February 2009
- Initiation of Preliminary Engineering (PE) – January 2011
- Metro Board certification of Final EIS/EIR – April 2012
- FTA issuance of Record of Decision – June 2012
- PE and Advanced PE complete – March 2013
- FTA award of Full Funding Grant Agreement – February 2014.

Major Procurements

Utility Relocation: Advanced Utility Relocation Contract, C0981R, was awarded to Pulice Construction, Inc. in January 2014 and the Notice to Proceed (NTP) issued on February 18, 2014. Contract C0981R was terminated for convenience on April 14, 2015 and remaining AUR work has been transferred to the C0980 Design/Build (D/B) Contractor.

Guideway & Systems Contract: The Board authorized to solicit a major D/B contract, C0980, in August 2011. A contract was awarded on April 24, 2014 to Regional Connector Constructors (RCC), a joint venture of Skanska USA Civil West California District, Inc. and Traylor Brothers, Inc. in the amount of \$927,226,995. NTP was issued July 7, 2014. The final engineering and design for the joint venture is performed by Mott McDonald.

Vehicles: Metro is procuring four (4) Light Rail Vehicles (LRVs) for the Project. The vehicles will be built and delivered by Kinkisharyo International, LLC under Option 2 of Contract P3010. Delivery and acceptance of four LRVs is anticipated no later than February 2020.

Rail Operations Center (ROC): The existing functional operations at the ROC are being expanded to accommodate the central control functions associated with five new rail lines to include Regional Connector. The Project is contributing \$4.07M towards this expansion which is scheduled to be completed by June 2021.

Fare Collection: Procurement of UFS and TVM equipment was completed in January 2018 with award to Cubic Corporation. Metro is coordinating with RCC for installation and testing schedules, which are currently expected to begin in winter 2020. The scope addition of fare transfer equipment in the three Regional Connector stations was made in September 2017.

Program Management

The RCC contract is being managed by a team of Metro and consultant personnel jointly located at the Integrated Project Management Office (IPMO). The consultant component is comprised of The Connector Partnership, a joint venture between AECOM, Inc. and WSP (CPJV) which provides engineering and design support services while Arcadis, Inc., provides construction management support services. An overview of staffing is provided under the Staffing Section of this report. The on-site program management team is also supported by Metro Headquarters resources to include, but not limited to, engineering, risk management, environmental, quality management, operations and creative services departments.

Project Schedule and Budget: The Revenue Service Date (RSD) is planned for winter 2022.

In January 2017, the Metro Board revised the Life of Project (LOP) Budget for Regional Connector Transit Project 860228 to \$1.756 billion. The LOP budget for Concurrent Non-FFGA activities related to Project 861228 remains at \$39.9 million. Financing costs are estimated at \$14M. Cost forecasts remain consistent with budgets. A detailed FFGA budget forecast is included under the Project Cost Section of this report.

Funding has been secured from a variety of sources, detailed in the Financial/Grant Section on page 22, to include:

- Federal New Starts Grant
- Federal Congestion Management Air Quality and RIP Programs
- USDOT TIFIA loan proceeds
- State Proposition 1A/1B and Capital Project Loan proceeds
- City of Los Angeles
- Lease revenues.

Construction and Community Relations: The Construction and Community Relations team is tasked with promoting the Project and performing public outreach within the communities to keep stakeholders informed of construction activities occurring along the Project alignment. To facilitate the communication, community leadership councils have been formed which represent geographic-based constituent groups along the Project alignment.

The Project is also engaged in social media outreach and various marketing and advertising efforts designed to keep the public informed and excited about the Project. These efforts are aimed at promoting businesses that are affected by construction. An overview of monthly activities is presented in the Construction and Community Relation Section of this report.

System Integration: The Project's integration of three separate lines, each possessing distinct system technologies, presents significant challenges for both the Project and Metro. Extensive planning and design has been performed to define the systems cut-overs that will be required. The Project will continue to coordinate the completed systems interface design, with on-going procurement in preparation for construction and testing as Metro maintains revenue service on the three operating lines.

Rail Activation: The Project and Metro Operations recognize the extensive planning required in preparation for rail activation of the new regional light rail service the Project will enable through downtown Los Angeles. *The training of 400+ operators across the regions has surfaced as a key component to rail activation.* Associated detailed planning and scheduling efforts to optimize the extensive efforts are underway.

EXECUTIVE SUMMARY

In *October*, the Project achieved 53.6% completion based on earned value measurements for design and construction. The focus of the Project remains on facilitating critical path construction activities. Construction is trending ahead of schedule as a result of successful TBM mining operations, an early start to Sequential Excavation Method (SEM) excavation, and expedited utility relocations at the 6th/Flower area. The following is an overview of current design and construction activities.

Design Status

Ninety-nine percent (99%) of the Final Design has been completed with 12 design units issued for construction. The following three design units remain outstanding:

- DU 5 – Civil B (AFC Design in Progress)
- DU 12.1 – Radio (AFC Design in Progress)
- DU 64.3 – Grand Av Arts/Bunker Hill Station Pedestrian Bridge (AFC Design in progress).

Significant design work is also proceeding on the Tribune Entrance Redesign at the Historic Broadway Station with the last design package (ECI #62) in progress. This work has become necessary to accommodate revised loading parameters from the developer. The redesign work is a significant challenge for the designer who has been successful at keeping pace with construction requirements.

Construction Status

1st Street Cut & Cover Tunnel & U-Channel: *Continued the excavation and the installation of excavation support for the upper level struts.*

Wye Structure: *The excavation progress continued and is on schedule for completion next period.*

Crossover Cavern: *The SEM (Sequential Excavation Method) excavation of the crossover area continued. This period the left drift was completed, and progress continued on the right and center drifts as scheduled.*

Bored Tunnels: *4th/Flower to 2nd/Hope, continued placement of the emergency walkway concrete in both the right and left tunnel segments. 2nd/Hope to 2nd/Broadway, started invert rebar installation in the left tunnel segment. Started placement of concrete for the invert in the right tunnel segment.*

Flower Cut & Cover Tunnel: *4th/Flower to 5th/Flower, started formwork and rebar installation for the invert. 5th/Flower to 7th/Metro Center, continued excavation and the installation of excavation support.*

Little Tokyo/Arts District Station: *The excavation under Central Avenue continued and is on schedule for completion next period. Activity resumed to continue concrete invert in the station ancillary area with the installation of the protection slabs and HDPE are in progress.*

Historic Broadway Station: The installation of the concrete invert in the west station box area continued. The installation of HDPE for the exterior walls in the entrance area continues.

Grand Av Arts/Bunker Hill Station: East station box area completed the placement of the invert concrete and started the rebar installation of the exterior walls. West station box area continued the sump pit structure and started the exterior wall HDPE installation. Mezzanine area, started installation of temporary shoring. Concourse area, continued rebar and formwork installation for first lift exterior walls and started interior wall rebar and formwork.

Cost and Schedule Summary

As of the reporting date, RCC has not provided Metro with the September 2018 update. Metro is collaborating with RCC to strengthen the schedule planning effort for the final 18 months of structural concrete construction to better prepare for the complex systems installations and integration, and cut-overs, as well as their subsequent interface with Metro-led rail activation activities.

RCC Schedule Metrics

	Original Contract Date/Duration	Time Extension (CD)	Current Contract Schedule	Forecast (Metro PMS)	Variance CD (Trending)
NTP	7/7/14				
Substantial Completion	10/22/20	527	04/01/22	Oct. 2021	-150 days

On the Project Master Schedule, the critical path continues through the Flower Street North Cut & Cover tunnel. Once the Flower Street north guideway structure is complete, the area will be available for delivery and storage of track material. The track work and systems installations will follow the completion of Flower track material delivery. A summary graphic of the critical path is found on Page 13.

Project costs continue to track within budget and projected contingency limits. To date, the design and construction changes related to base scope represent approximately 5.5% of the contract value with a potential to increase to 8%. There is one notice of intent to claim by RCC. The notice relates to Historic Broadway Station SOE stability issues. Detailed cost and budget information is provided on Page 15.

Key Management Concerns

Item 1: Given the impact the Project will have on light rail operations through downtown Los Angeles and the region, the Rail Activation effort is exceedingly complex. Schedule and cost impacts are likely to surface.

Status/Action: Multiple cut-over, testing and rail activation meetings have been conducted with various Metro Departments. Through this process, all known work items have been identified and those requiring further investigation are being evaluated further. Planning

meetings continue and the team has a grasp on the complex rail activation and certification process and will continue to coordinate with all stakeholders in both planning and executing tasks as early as possible. Start-up requirements are similarly being addressed between the Project and Operations' liaison staff. Operator training has surfaced as a pacing item for start-up; Management is reviewing planning and schedule options.

Item 2: Managing and responding to stakeholder needs during cut-and-cover activities along Flower Street has the potential to impact both schedule and budget.

Status/Action: The Project is engaged in active stakeholder outreach and construction impact mitigation. The Project continues to work closely with the contractor to ensure Stakeholder concerns are addressed and that MMRP requirements are fully complied with. Although decking is complete and operations are largely now underground, construction impacts are still an issue requiring close coordination and outreach to impacted stakeholders.

Item 3: Addressing City comments on final street restoration plans may result in additional design efforts and Project costs.

Status/Action: The Project is proceeding with *addressing* City requested *comments* in the final design. The first of two final AFC submittals was approved by all parties involved. In finalizing the second AFC submittal, Metro requested an informal comment resolution meeting with the City on any new comments prior to their formal response. The second AFC submittal is anticipated in December 2018.

Item 4: Agreement and closure on the property acquisition and related mitigations at City of Los Angeles Department of Water and Power's (LADWP) Duco Yard have been delayed.

Status/Action: Agreement of the terms and conditions on the property acquisition and mitigations has been reached. This progress indicates access to Metro/RCC for survey and onsite planning *will proceed without impact to* the schedule.

Item 5: Design comments from the over-build developer at the Historic Broadway Station has led to design revisions with potential cost impacts.

Status/Action: Metro/RCC are collaborating closely with the developer to finalize design elements necessary to keep work in the station entrance area moving forward. Additional efforts have been defined to complete the outstanding design elements; RCC has been issued a CN to authorize these efforts. Once the final package is completed (outlook December 2018) an assessment of total construction costs will be made. The assessment will identify cost increases in construction activities, and guide negotiations for additional funding from the overbuild project owners.

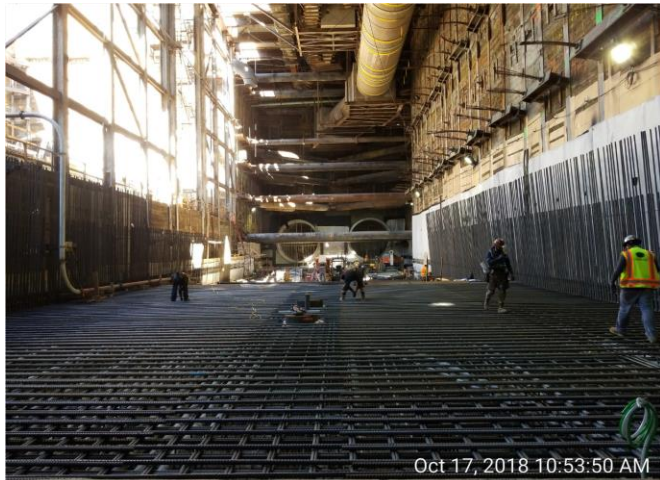
Project Construction Photos



Concrete placement for Left Tunnel Walkway, Flower to Hope



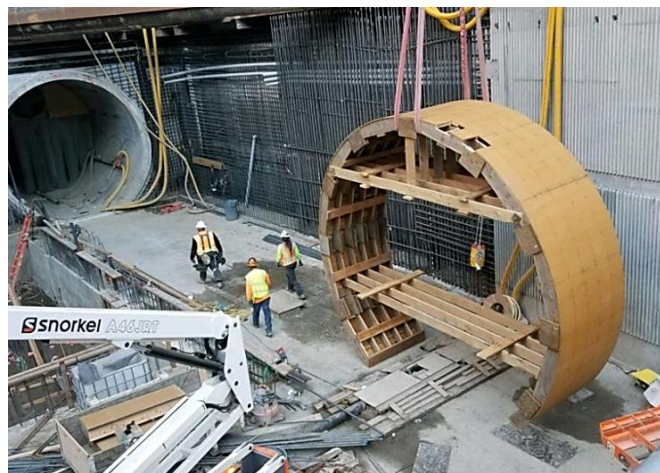
Installation of mud slab at track level in the future Little Tokyo/Arts District Station



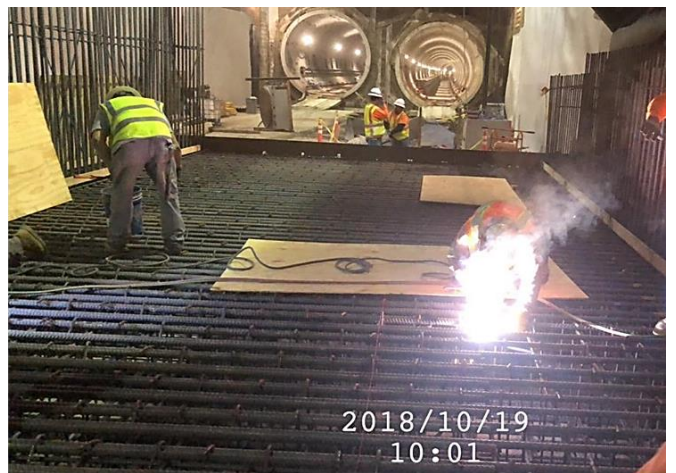
Rebar installation of top mat in Historic Broadway Station



Left drift end wall excavation in SEM Cavern



Tunnel Eye formwork at East Hammerhead at Grand Av Arts/Bunker Hill Station

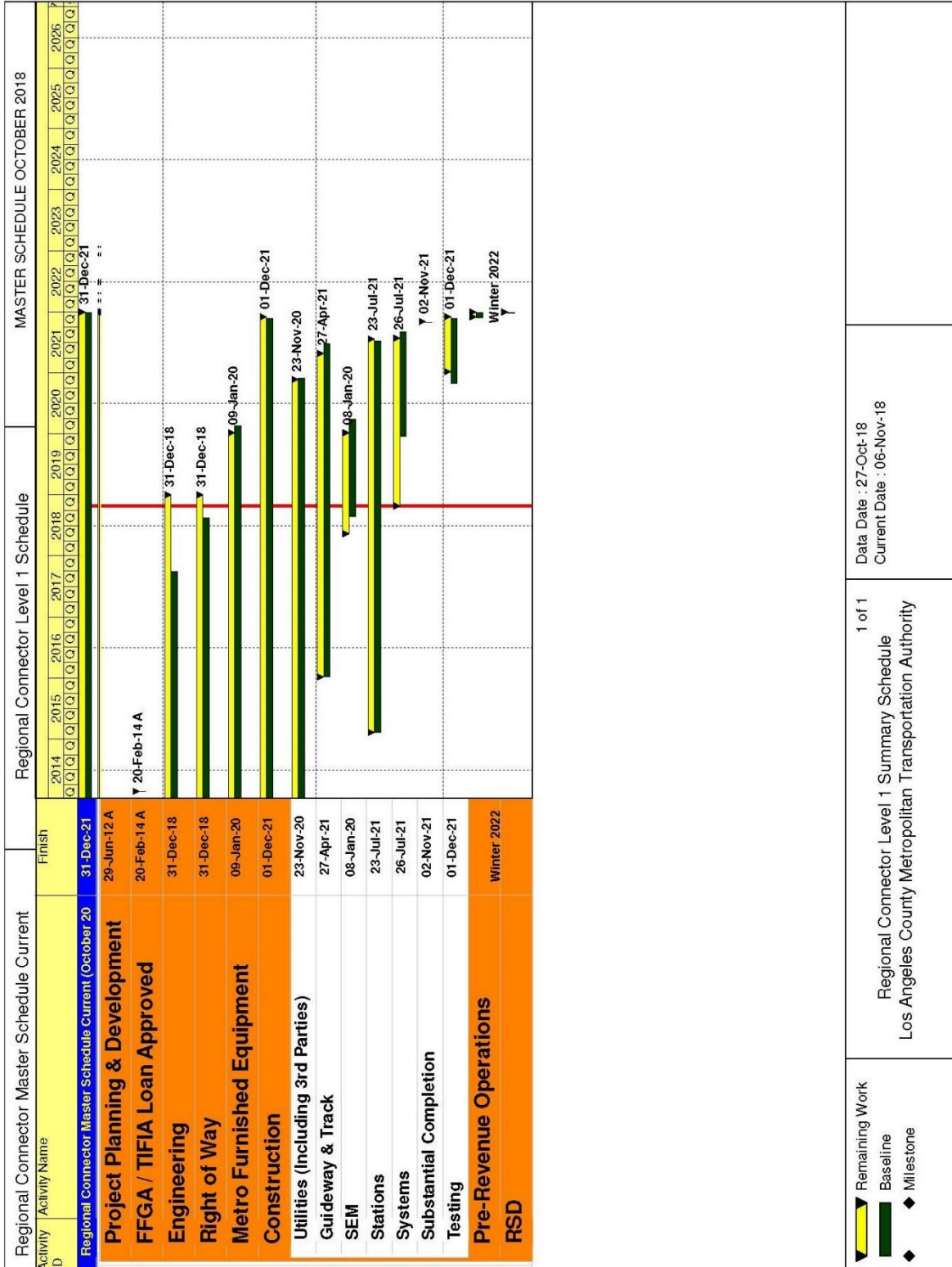


Rebar installation under 4th/Flower

PROJECT UPDATE

PROJECT SCHEDULE

Project Summary Schedule

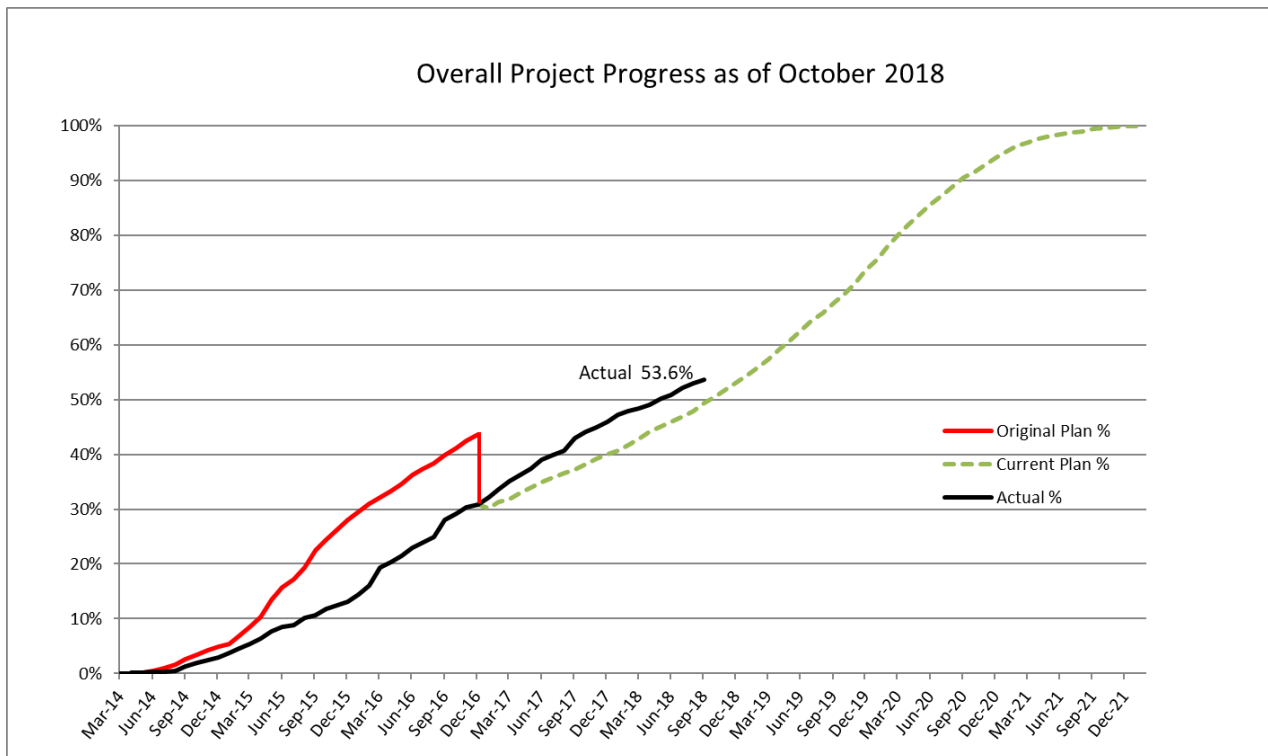


Progress Summary

	Status	Change from Last Period	Comment
Forecast Revenue Service	Winter 2022		
Proposed TIFIA Revenue Service	2/25/2023	None	
Proposed FFGA Revenue Service	2/25/2023	None	
Final Design Progress:			
Contract C0980	99.8%	0%	Not impacting the critical path
Construction Contracts Progress:			
Contract C0981R & C0980	50.5%	0.6%	

Note: Construction Progress excludes General Requirements, Construction and Design Mobilization, Final Design and Provisional Sum costs (Schedule C). Progress values include executed modifications and change orders.

Planned vs. Actual Progress



Current plan reflects median of early and late finish dates.

Key Milestone Six-Month Look Ahead

	Milestone Date	Oct-18	Nov-18	Dec-18	Jan-19	Feb-19	Mar-19
Complete East Excavation at Little Tokyo / Art District Station	10/19/18 A	⬡					
Complete SEM left drift excavation	10/22/18 A	⬡					
Complete WYE Phase 2 excavation	11/20/18		⬡				
Complete West Excavation at Little Tokyo / Art District Station	11/23/18		⬡				
Complete SEM right drift excavation	12/04/18			⬡			
Complete station invert of Historic Broadway Station (West)	12/07/18			⬡			
Approve Civil Segment B AFC Design Submittal	12/31/18			◆			
Complete SEM center top excavation	01/15/19				⬡		
Complete entrance concourse walls at Historic Broadway Station	01/31/19				⬡		
Complete concrete invert at Little Tokyo / Art District Station	02/11/19					⬡	
Complete platform level exterior walls at Grand Av Arts/Bunker Hill Station (West)	03/11/19						⬡
Complete SEM center excavation	03/25/19						⬡

◆ MTA Staff
 Ⓜ MTA Board Action
 ⚡ FTA (Federal Transit Administration)
 ▽ Utility Company
 △ Other Agencies
 □ Contractors
 ○ Design Consultant
 ⬡ C0980 D/B Contractor
 "A" following date is actual and completed
 * New

Major Equipment Delivery

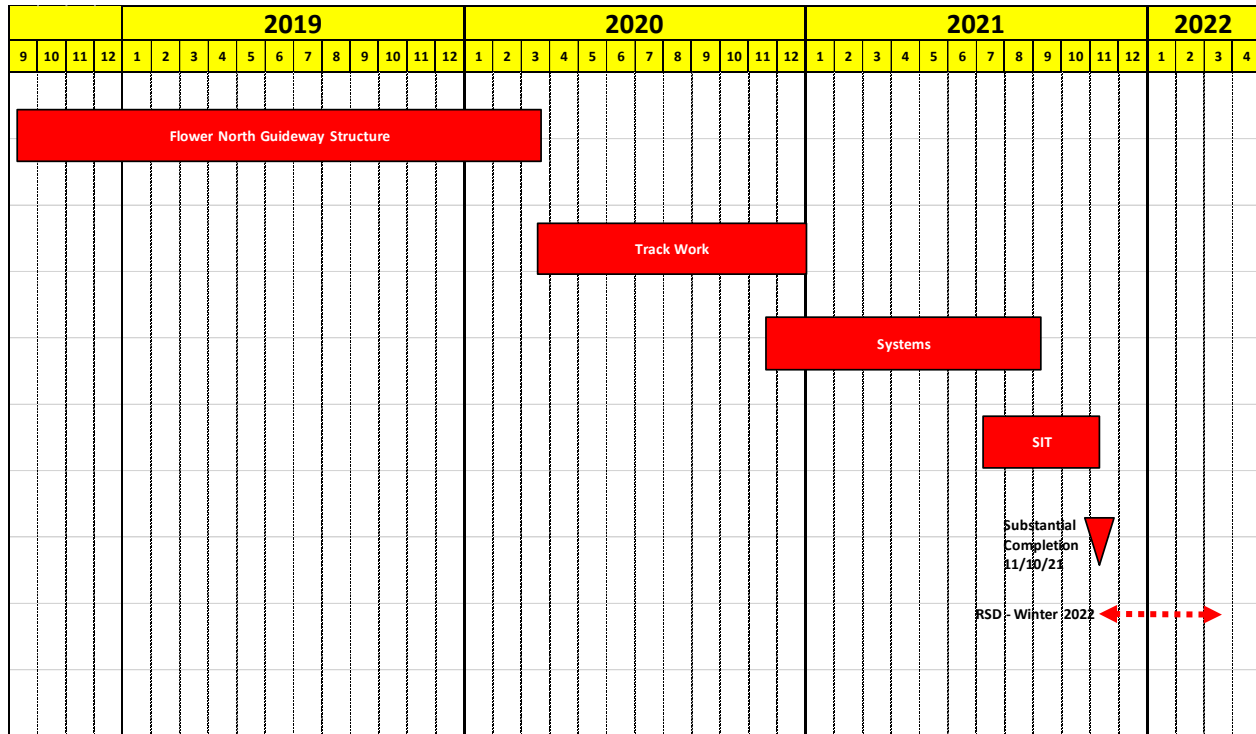
Metro Supplied Equipment

Equipment	Initial Procurement	Scheduled Delivery	Scheduled Installation
LRT Vehicles	(NTP) 08/20/2012	Option 2 02/12/2020	N/A
Ticket Vending Machines	~ 01/30/2018	11/01/2018 (warehoused)	09/14/2020 ~03/24/2021

Design/Builder Equipment Delivery Requirements

Activity Name	Early Finish	Need Date
FAB/DELIV OCR FOR TUNNEL	16-Jan-19	2-Mar-21
FAB/DELIV TRAIN CONTROL EQUIPMENT	15-Feb-19	17-Feb-21
PROCURE SPECIAL TRACK - JOBWIDE	22-May-19	27-Jul-20
PROCURE RAIL - JOBWIDE	22-May-19	19-Jun-20
FAB/DELIV ELEVATORS - 2ND/HOPE	30-Jun-19	21-Sep-21
FAB/DELIV ELEVATORS - 1ST/CENTRAL	30-Jun-19	4-Mar-21
FAB/DELIV COMMUNICATIONS UPS	5-Jul-19	21-Jul-21
FAB/DELIV SCADA RTU	5-Jul-19	11-Jul-22
FAB/DELIV IDS DEVICES	5-Jul-19	3-May-21
FAB/DELIV FEMS CABINETS	5-Jul-19	22-Jul-21
FAB/DELIV SEISMIC DETECTION DEVICES	5-Jul-19	7-Jun-21
FAB/DELIV GAS DETECTION DEVICES	5-Jul-19	14-May-21
FAB/DELIV FIRE ALARM DEVICES	5-Jul-19	2-Jul-21
FAB/DELIV RADIO TOWER & ANTENNAE	5-Jul-19	23-Jul-21
FAB/DELIV RADIO DEVICES	5-Jul-19	28-Jul-21
FAB/DELIV CCTV DEVICES	5-Jul-19	11-Jun-21
FAB/DELIV TPIS DEVICES	5-Jul-19	23-Jun-21
PROCURE BALLASTED TRACK - NORTH ALAMEDA LEG	19-Jul-19	15-Oct-21
FAB/DELIV EMERGENCY VENTILLATION FANS - HOPE (4)	19-Aug-19	13-Feb-20
FAB/DELIV 2ND/BROADWAY TPSS	6-Sep-19	29-Jul-20
FAB/DELIV 2ND/HOPE TPSS	6-Sep-19	16-Apr-20
FAB/DELIV ELEVATORS - 2ND/BROADWAY	20-Sep-19	20-Apr-21
FAB/DELIV EMERGENCY VENTILLATION FANS - BROADWAY (4)	30-Sep-19	1-Jul-20
FAB/DELIV EMERGENCY VENTILLATION FANS - CENTRAL (4)	30-Sep-19	15-Oct-20
FAB/DELIV OCS POLES / EQUIPMENT	18-Oct-19	28-Jan-21
FAB/DELIV EMERGENCY BOOSTER FANS (12)	3-Jan-20	19-Oct-21
FAB/DELIV ESCALATORS - 1ST/CENTRAL	11-Jan-20	11-Nov-21
FAB/DELIV ESCALATORS - 2ND/HOPE	11-Jan-20	31-Mar-21
FAB/DELIV ESCALATORS - 2ND/BROADWAY	11-Jan-20	28-Mar-21

Critical Path (C0980)



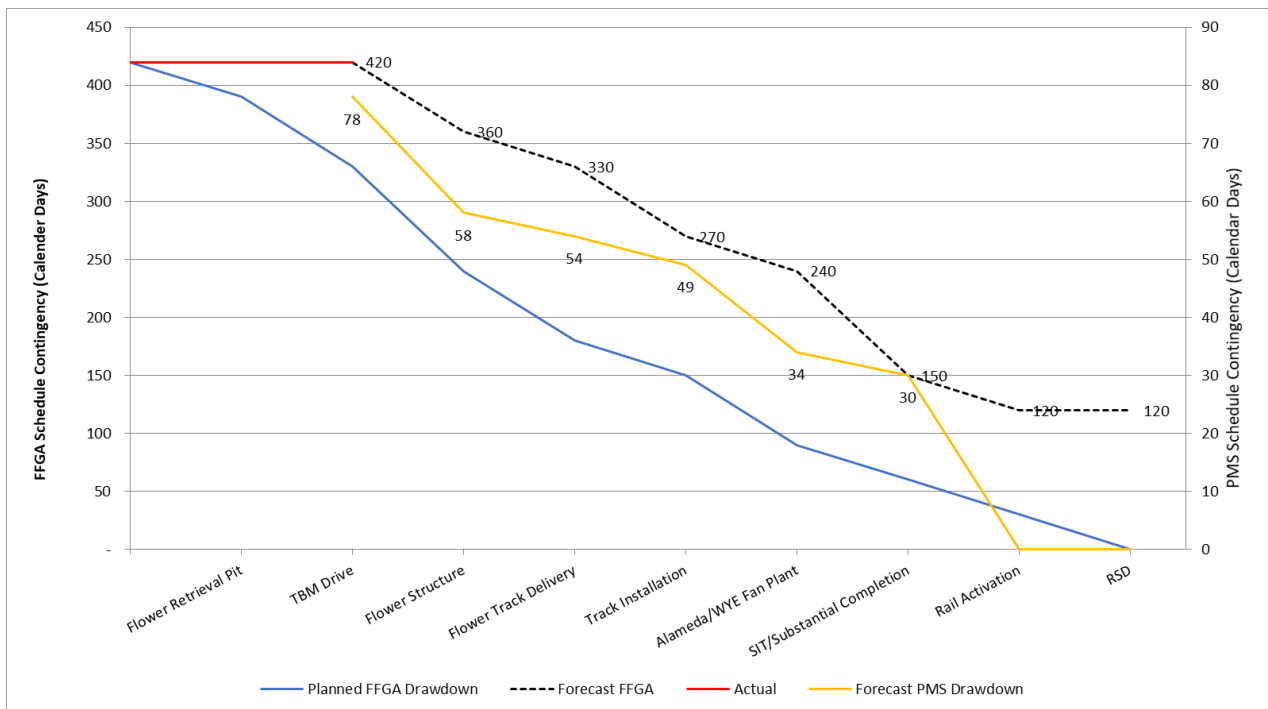
This period the critical path continues through the north Flower Cut & Cover tunnel. Upon completion of the north end of the structure, the area will be ready to receive track material. After the track material necessary for the entire Flower Cut & Cover tunnel section has been received, the track installation will commence; starting from 4th/Flower to the 1st Street Portal. Following the track installation, the critical OCR and train control systems installations will follow. After the critical systems work is complete, the systems integration testing will commence and reach Substantial Completion upon successful completion of all tests. Upon Substantial Completion, Metro Operations will begin its own integrated testing, followed by operator training and Pre-Revenue testing. Revenue Service is expected in winter 2022.

Project Schedule Contingency Drawdown Analysis

The project schedule contingency drawdown model provides a dual-axis perspective based upon the proposed FFGA RSD of February 2023 and Metro’s Project Master Schedule (PMS) forecast RSD in winter 2022.

In July 2018, the PMS model was introduced to reflect the proportional drawdown float available relative to the FFGA model. This period, the PMS model was revised to align itself with the changed critical path from SEM excavation to the Flower Cut & Cover Tunnel.

With regard to the FFGA RSD, schedule float of fourteen-months has been maintained. This steady performance was recorded despite challenges through the boring of both tunnels – which were completed successfully in January 2018.



PROJECT COST

Project Cost Analysis – 860228

REGIONAL CONNECTOR TRANSIT CORRIDOR PROJECT
COST REPORT
DOLLARS IN THOUSANDS

SCC CODE		FFGA BUDGET	ORIGINAL BUDGET	CURRENT BUDGET		COMMITMENTS		EXPENDITURES		CURRENT FORECAST		BUDGET/ FORECAST VARIANCE
				PERIOD	TO DATE	PERIOD	TO DATE	PERIOD	TO DATE	PERIOD	TO DATE	
10	GUIDEWAYS & TRACK ELEMENTS	280,622	204,691	0	249,281	0	247,316	2,439	161,150	-184	252,070	2,789
20	STATIONS, STOPS, TERMINALS, INTERMODAL	354,268	219,477	0	229,919	0	229,912	1,952	59,774	-31	230,080	161
30	SUPPORT FACILITIES: YARDS, SHOPS, ADMIN, BLDGS	0	0	0	0	0	0	0	0	0	0	0
40	SITWORK & SPECIAL CONDITIONS	141,785	422,453	0	598,417	103	576,172	3,751	436,565	2,370	623,433	25,016
50	SYSTEMS	69,667	73,848	0	73,424	713	67,665	6	16,048	-25	75,192	1,767
	CONSTRUCTION SUBTOTAL (10-50)	846,343	920,468	0	1,151,041	815	1,121,066	8,148	673,536	2,131	1,180,774	29,734
60	ROW, LAND, EXISTING IMPROVEMENTS	115,889	74,208	0	92,742	-2	52,467	24	52,250	0	76,410	-16,331
70	VEHICLES	16,275	16,275	0	16,275	0	16,275	0	1,678	0	16,275	0
80	PROFESSIONAL SERVICES	261,455	257,973	0	379,338	-1,825	299,150	1,781	267,447	683	390,775	11,438
	SUBTOTAL (10-80)	1,239,963	1,268,925	0	1,639,395	-1,012	1,488,959	9,953	994,912	2,814	1,664,236	24,840
90	UNALLOCATED CONTINGENCY	135,399	126,892	0	89,946	0	0	0	0	-2,814	65,105	-24,840
100	FINANCE CHARGES	27,571	7,115	0	14,301	0	0	0	0	0	14,301	0
	TOTAL PROJECTS 460228 & 860228 (10-100)	1,402,932	1,402,932	0	1,743,642	-1,012	1,488,959	9,953	994,912	0	1,743,642	0
	ENVIRONMENTAL/PLANNING - 400228		6,075	0	6,075	0	6,075	0	6,075	0	6,075	0
	ENVIRONMENTAL/PLANNING - 460228		18,125	0	20,425	0	20,425	11	18,988	0	20,425	0
	TOTAL PROJECTS 400228 & 460228 (EVN/PLAN'G)	0	24,200	0	26,500	0	26,500	11	25,063	0	26,500	0
	400228, 460228, 860228 TOTAL	1,402,932	1,427,132	0	1,770,142	-1,012	1,515,458	9,964	1,019,975	0	1,770,142	0

NOTE: EXPENDITURES ARE CUMULATIVE THROUGH 10/31/2018. METRO AND TRIBUNE AGREED ON REIMBURSEMENT OF ~\$1.6 MILLION RELATED TO 2ND/BROADWAY OVERBUILD.

Original Budget:

The Original Budget of \$1.427 billion reflects the April 2014 Board Approved LOP Budget, plus finance costs of \$7.1 million.

Current Budget:

In January 2017, the Metro Board revised the LOP Budget for the Regional Connector Project 860228 to \$1.756 billion. Finance costs, estimated at \$14.3 million, are also reflected leading to a total of \$1.770 billion. Budgets were adjusted throughout the SCC structure reflecting revised values as of December 2016.

Commitments:

Commitments *decreased* by \$1.0 million this period to \$1.52 billion which represents 85.6% of the Current Budget. The *overall decrease* is related to several transactions including RCC executed modifications, a *work order from Third Party*, an *unencumbered purchase order from real estate and unencumbered work orders from the City of Los Angeles*.

Expenditures:

Expenditures are cumulative through *October 2018*. Expenditures increased by \$10.0 million this period for costs associated with C0980 Design Build contract, Engineering Management Support, Metro Project Administration, Construction Management Support Services, Legal Services, Third Party Master Cooperative Agreements with the City of LA, Community Relations, and Environmental Consultant Services. The \$10 million in expenditures to date represents 57.6% of the Current Budget.

Current Forecast:

The total current forecast remains equal to the total current budget.

Project Cost Analysis – 861228

PROJECT COST STATUS BY FTA SCC
DOLLARS IN THOUSANDS

SCC CODE	Description	ORIGINAL BUDGET	CURRENT BUDGET		COMMITMENTS		EXPENDITURES		CURRENT FORECAST		BUDGET / FORECAST VARIANCE
			PERIOD	TO DATE	PERIOD	TO DATE	PERIOD	TO DATE	PERIOD	TO DATE	
10	GUIDEWAYS & TRACK ELEMENTS	-	0	0	0	0	0	0	0	0	0
20	STATIONS, STOPS, TERMINALS, INTERMODAL	-	0	0	0	0	0	0	0	0	0
30	SUPPORT FACILITIES: YARDS, SHOPS, ADMIN, BLDGS	10,480	0	10,480	0	10,480	0	0	0	10,480	0
40	SITWORK & SPECIAL CONDITIONS	0	0	0	0	0	0	0	0	0	0
50	SYSTEMS	0	0	0	0	0	0	0	0	0	0
	CONSTRUCTION SUBTOTAL (10-50)	10,480	0	10,480	0	10,480	0	0	0	10,480	0
60	ROW, LAND, EXISTING IMPROVEMENTS	27,748	0	27,748	0	27,748	0	22,478	0	27,748	0
70	VEHICLES	0	0	0	0	0	0	0	0	0	0
80	PROFESSIONAL SERVICES	650	0	650	0	650	0	313	0	650	0
	SUBTOTAL (10-80)	38,878	0	38,878	0	38,878	0	22,790	0	38,878	0
90	UNALLOCATED CONTINGENCY	1,113	0	1,113	0	0	0	0	0	1,113	0
100	FINANCE CHARGES	0	0	0	0	0	0	0	0	0	0
	TOTAL PROJECTS 861228 (10-100)	39,991	0	39,991	0	38,878	0	22,790	0	39,991	0
	861228 TOTAL	39,991	0	39,991	0	38,878	0	22,790	0	39,991	0

NOTE: EXPENDITURES ARE CUMULATIVE THROUGH 10/31/2018.

Original Budget:

The Original Budget, Current Budget, and Current Forecast reflect the Board Approved LOP Budget established April 24, 2014.

Current Budget:

There is no change to the Budget for this period.

Commitments:

Commitments reflect actions through *October 2018*.

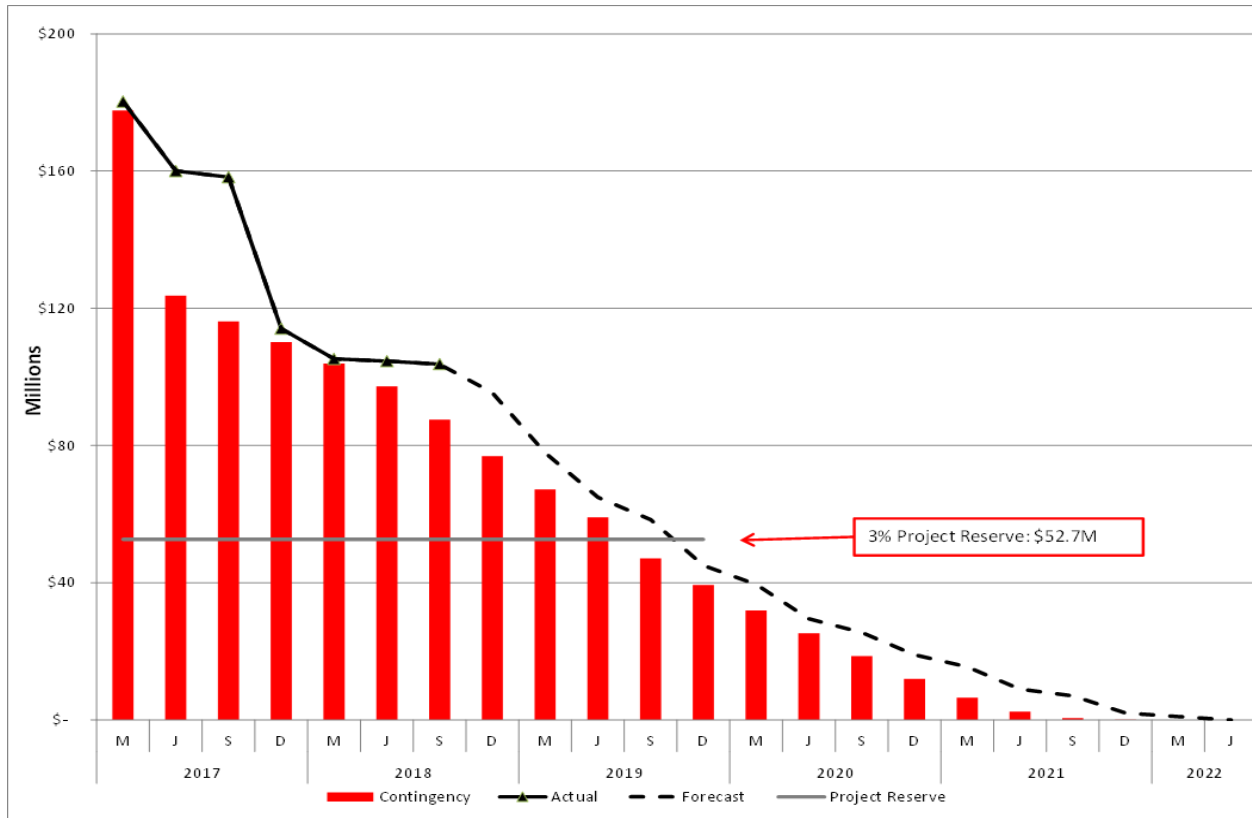
Expenditures:

Expenditures are cumulative through *October 2018*. *This month expenditures remained the same*. The \$22.8 million in expenditures through *October 2018* represents 57.0% of the Current Budget.

Current Forecast:

There was no change to the Forecast for this period.

Cost Contingency Drawdown



Cost Contingency Drawdown Analysis

In January 2017, the Metro Board revised the LOP Budget to \$1.756 billion, which included increasing the unallocated contingency to \$89 million and allocated contingency to \$92.8 million. From that action, a revised drawdown plan for unallocated contingency, correlated to anticipate risk trends, was developed to monitor and measure drawdowns moving forward.

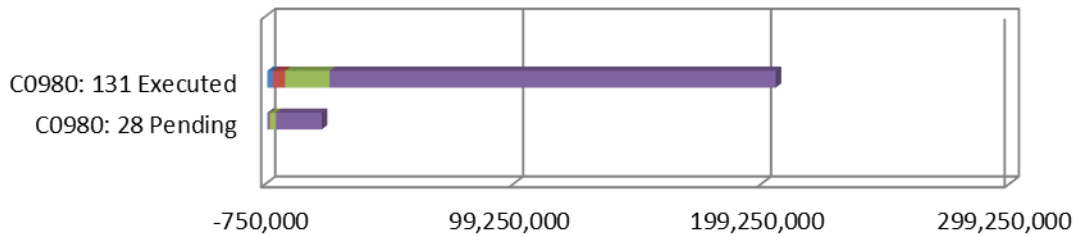
Included in the drawdown is a 3% project reserve threshold. Metro’s Board is to be notified when it becomes necessary to drawdown contingency below the project reserve threshold to cover project costs. This policy was adopted by the Metro Board in September 2012.

This month a lower than average \$776 thousand was drawn down from contingency. The remaining total project contingency (allocated and unallocated) is \$ 102.9 million.

PROJECT COST CONTINGENCY						
DOLLARS IN THOUSANDS						
	Original Contingency	LOP Contingency	Previous Period	Current Period	To-Date	Remaining Contingency (Forecast)
Unallocated Contingency	124,919	89,946	(22,026)	(2,814)	(24,840)	65,105
Allocated Contingency	86,345	92,809	(57,021)	2,038	(54,984)	37,825
Total Contingency	211,263	182,754	(79,048)	(776)	(79,824)	102,930

Summary of Contract Modifications

Contract Modifications (MODs) by Cost Level



	C0980		Total
	131 Executed	28 Pending	
■ Under \$100K	2,256,787	577,417	2,834,204
■ \$100K to \$250K	4,886,864	415,650	5,302,514
■ \$250K to \$1M	17,962,770	2,512,000	20,474,770
■ Over \$1M	180,009,237	18,416,304	198,425,541
Total Contract MODs	205,115,658	21,921,371	227,037,029
Contract Award Amount	927,226,995	927,226,995	
% of Contract MODs	22.1%	2.4%	

Note:

1. Percent of Contract MODs equals the Total Contract MODs divided by the Contract Award Amount.
2. Pending Mods are under negotiation.

One hundred and *thirty-one* changes with a total value of \$205.1 million have been executed since NTP of Contract C0980. An additional 28 changes, with a total estimated value of \$21.9 million are pending.

DISADVANTAGED BUSINESS ENTERPRISE (DBE)

As of September 2018:

DBE Goal – Design The percentage of funds apportioned to Design Contracts	20%
Current DBE Commitment Design Total DBE Committed Dollars divided by Total Contract Value for Design	\$14.0M (22.63%)
Current DBE Participation Total amount paid to date to DBEs divided by the amount paid to date to Prime:	26.93%

Twelve (12) Design DBE sub-consultants have been identified to date.

DBE Goal – Construction The percentage of funds apportioned to Construction Contracts	18%
Current DBE Commitment Construction Contract commitment divided by current contract value for Construction:	\$192M (18%)
Current DBE Participation Total amount paid to date to DBEs divided by the amount paid to date to Prime:	12.81%*

Seventy-eight (78) Construction DBE sub-contractors have been identified to date.

PROJECT LABOR AGREEMENTS (PLA)

As of September 2018:

Targeted Worker Goal Construction work to be performed by residents from Economically Disadvantaged Area in the United States	40.00%
Targeted Worker Current Attainment	58.60%
Apprentice Worker Goal Construction work to be performed by Apprentices	20.00%
Apprentice Worker Current Attainment	15.89%
Disadvantaged Worker Goal Construction work to be performed by Disadvantaged Workers who are residents of the United States	10.00%
Disadvantaged Worker Current Attainment	8.24%

*The contractor has expressed concern about the lack of interest from the DBE community to submit bids for various construction work packages. The inability to attract qualified firms in this extremely busy market place presents a significant risk to achieving the Project's DBE construction goal.

FINANCIAL/GRANT

Status of Funds by Source

October 2018

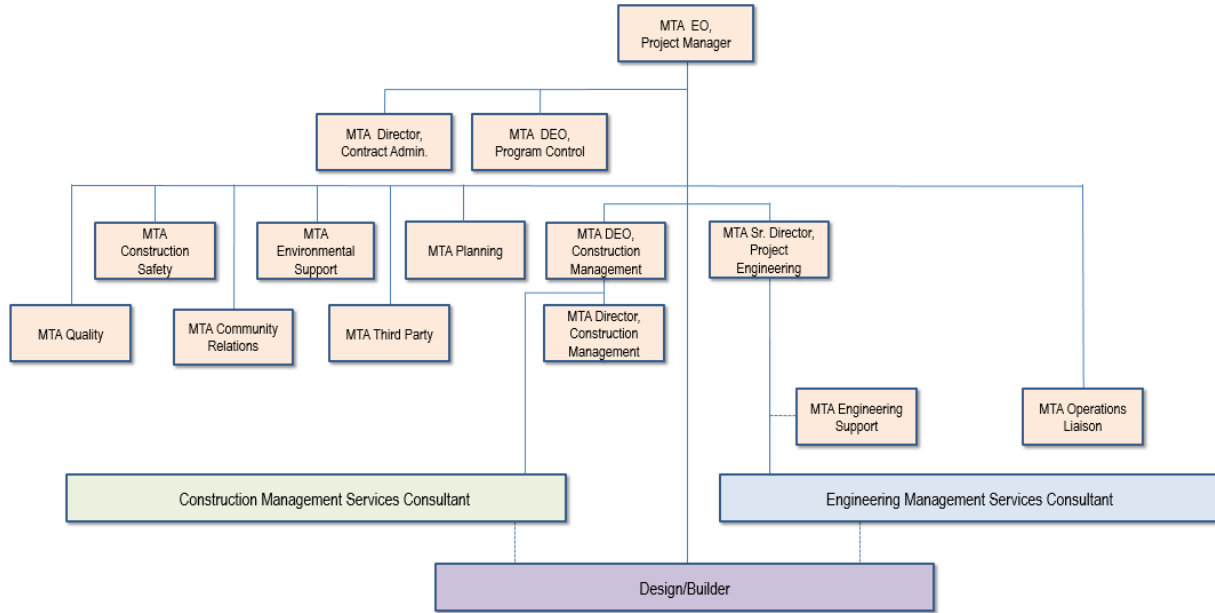
SOURCE	(A)	(B)	(C)	(D)		(E)		(F)	(F/B)
	ORIGINAL BUDGET	TOTAL FUNDS ANTICIPATED	TOTAL FUNDS AVAILABLE	COMMITMENTS		EXPENDITURES		BILLED TO FUNDING SOURCE	
				\$	%	\$	%	\$	%
FEDERAL - CMAQ	\$64.00	\$218.11	\$64.00	\$128.91	59%	\$49.87	23%	\$45.40	21%
FEDERAL - SECTION 5309 NEW STARTS	\$669.90	\$669.90	\$465.00	\$669.90	100%	\$362.22	54%	\$361.24	54%
FEDERAL - RIP	\$0.00	\$1.41	\$1.41	\$1.41	100%	\$1.41	100%	\$1.41	100%
MEASURE R - TIFIA LOAN	\$160.00	\$160.00	\$117.80	\$160.00	100%	\$135.71	85%	\$117.76	74%
STATE PROPOSITION 1A HSRB *	\$114.87	\$114.87	\$114.87	\$114.87	100%	\$114.87	100%	\$114.87	100%
STATE PROPOSITION 1B PTMISEA **	\$149.50	\$135.16	\$135.16	\$135.16	100%	\$135.16	100%	\$135.16	100%
STATE STIP RIP	\$2.59	\$17.00	\$2.59	\$15.58	92%	\$2.59	15%	\$2.59	15%
STATE CAPITAL PROJECT LOANS - OTHERS ***	\$132.47	\$274.83	\$274.83	\$258.58	94%	\$200.13	73%	\$172.79	63%
MEASURE R	\$27.57	\$0.00	\$0.00	\$0.00	0%	\$0.00	0%	\$0.00	0%
CITY OF LOS ANGELES	\$41.98	\$41.98	\$18.00	\$31.04	74%	\$18.00	43%	\$18.00	43%
LEASE REVENUE	\$64.25	\$79.07	\$0.00	\$0.00	0%	\$0.00	0%	\$0.00	0%
GENERAL FUND - METRO	\$0.00	\$43.50	\$43.50	\$0.00	0%	\$0.00	0%	\$0.00	0%
TOTAL	\$1,427.13	\$1,755.84	\$1,237.17	\$1,515.46	86%	\$1,019.97	58%	\$969.23	55%

NOTES:

1. EXPENDITURES ARE CUMULATIVE THROUGH OCTOBER 31, 2018
 2. METRO AND TRIBUNE AGREED ON REIMBURSEMENT OF \$1.6 MILLION RELATED TO 2ND/BOARDWAY OVERBUILD.
 3. ORIGINAL BUDGET BASED ON FUNDING PLAN INCLUDED IN THE APPROVED FULL FUNDING GRANT AGREEMENT
 4. LACMTA RESERVES THE ABILITY TO UPDATE COSTS AND CHANGE FUND SOURCES AS REQUIRED.
- * STATE PROPOSITION 1A HIGH SPEED RAIL BONDS
 ** STATE PROPOSITION 1B PUBLIC TRANSPORTATION MODERNIZATION, IMPROVEMENT AND SERVICE ENHANCEMENT ACCOUNT
 *** OTHERS INCLUDE TDA ADMINISTRATION, AND NB PROPOSITION A ADMINISTRATION (FOR A TOTAL OF \$.255M)

PROJECT ORGANIZATION AND STAFFING

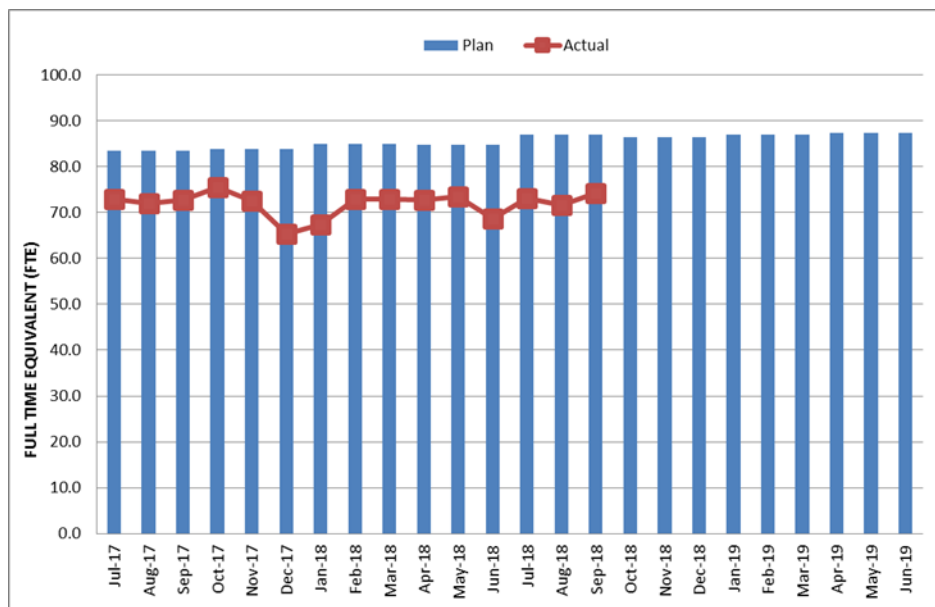
The D/B contract is being managed by a joint team of Metro and consultant personnel jointly located at the Integrated Project Management Office (IPMO).



Updated: 10/29/2018

The overall FY19 Total Project Staffing plan averages 87.0 FTE's per month. The total actual project staffing for *September 2018* was 74.2*; 26.0 actual FTEs for Metro's Project Administration staff and 48.3 FTEs for consulting staff. The downward-trending shortfall in staffing has not impacted Metro's ability to effectively manage the Project. Review of staffing plans is on-going to ensure staffing needs are appropriately managed.

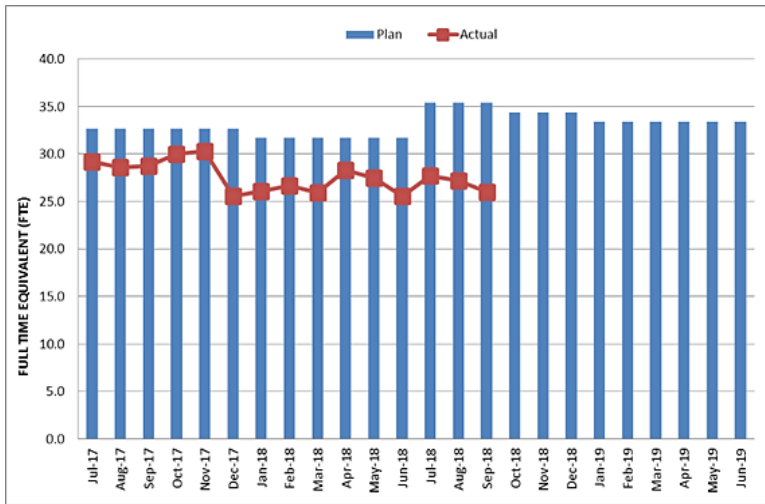
Total Project Staffing – Metro and Consultants



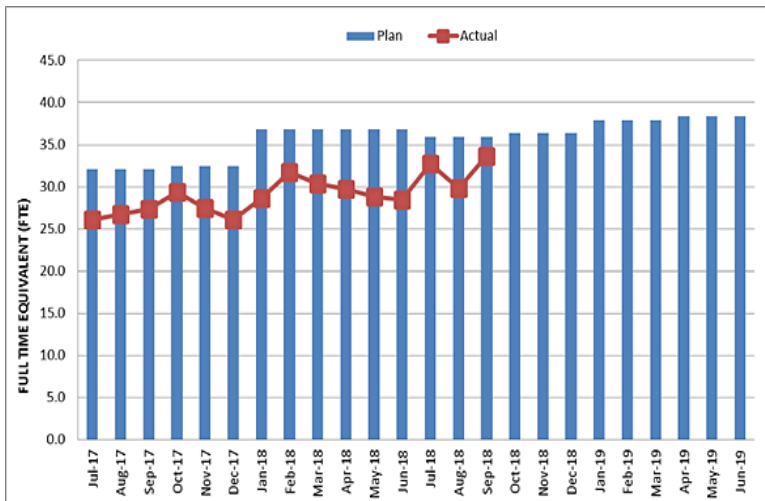
Data through September 2018

*September actuals include 1.9 FTEs related to PMSS Services.

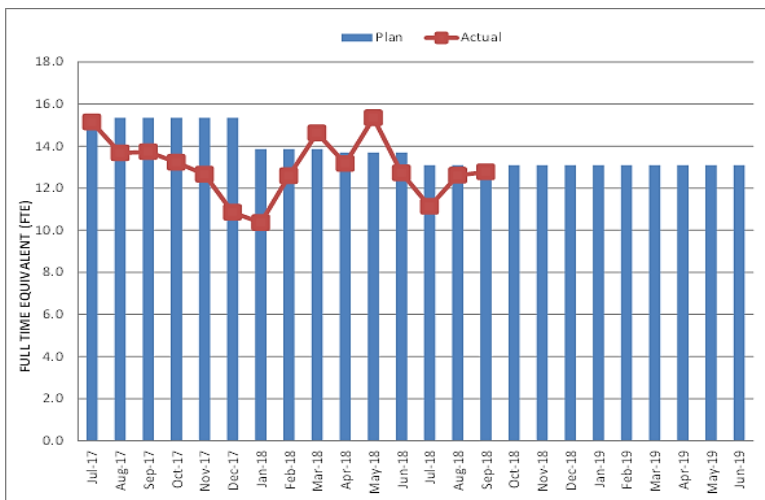
Metro Staff



CM Support Services Staff (Consultant)



Engineering Services Staff (Consultant)



All above data through September 2018

Staffing by Group

The opposing graphs represent planned vs. actual staffing levels by group.

Metro staffing includes full-time staff located in the IPMO as well as part-time support located at Gateway Headquarters.

Staffing plans are developed for each fiscal year based on Project needs.

REAL ESTATE

Type of Take	Number of Parcels	Certified	Decertified	Appraisals In Process / Completed	Offers Made	Escrow Closed	Effective OIP	Parcels Available	Remaining
Full Takes	2	2		2	2		2	2	
Part Takes	3	3		3	3			2	1
SSE	12	8	4	9	9	6	2	7	
TCE/ROE	14	5	3	6	6	4	1	5	
PE	3	3		3	3	2		3	
Sub Total	34	21	7	23	23	12	5	20	1
Pedestrian Bridge	420-1, 420-2, 420-3								1
Mangrove Fan Plant	TBD								1
Grand Total	36	21	7	23	23	12	5	20	3

Open Real Estate Matters

City of Los Angeles (Mangrove Parcels) – No Change

- Metro and the City of Los Angeles (City) have agreed to reappraise the required property interests for the fan plant which include a subsurface easement and a permanent surface easement. The Project team addressed questions and concerns posed by the City Council Office related to future development options. The City is in the process of obtaining a new updated appraisal of the easements.
- A formal request was sent to the City regarding extending the 5-year Easement for an additional three years. The City has agreed to extend the 5-year easement for an additional 3 years. The appraisal that the City is obtaining will include a scope which will value the TCE and a lease percentage increase will be negotiated.

Department of Water and Power ‘Duco Yard’ – DWP (RC-473)

- LADWP and Metro staff have agreed to the terms and conditions. The formal agreement to be approved by LADWP’s Board and the City Council. Meanwhile, the Right-of-Entry *Agreement has been developed which will permit early access to the site.*

QUALITY ASSURANCE

Metro QA performed the following activities during the month of October:

- Reviewed and provided comments on RCC's quality-related submittals;
- Performed oversight verification of RCC's design and construction activities;
- Reviewed test results for Portland Cement Concrete, Soils Testing, Asphalt Testing and Non-Destructive Testing of Welding
- Attended "Readiness Review" meetings with RCC
- *Conducted a surveillance (C980-Surv-2018-0022) based on a visit to Mass Electric Warehouse. During the surveillance various electrical equipment was examined. The equipment included motorized switches and DC Switchgear. No anomalies were found during the surveillance.*
- *Conducted a surveillance (C980-Surv-2018-0023) during the coring of Wall 88 at 2nd/Hope Station. The coring was performed as part of the disposition to RCC NCR 42. The raw data of the coring is with the Engineer of Record to determine if the structural integrity of the cold joint is acceptable.*
- *Drafted QAR (C980-QAR-2018-001) because no objective evidence can be located that would demonstrate attachment disks were used during the installation of HDPE for the overhead installation of HDPE in Cross Passages 1, 2 and 3 as required by project specification. RCC did not draft any documents that would identify this deficiency. A response was provided to this QAR and it is now closed.*

RCC NCR 0042. This NCR remains open pending further testing of the remaining concrete that was placed to finish the installation of the wall. Testing will be performed after the 28-day curing period. The tests will consist of core samples being taken at the cold joint line and at areas in the wall that no cold joint exists for comparison between the two areas. The coring has been completed and the raw data from the core testing has been sent to the Engineer of Record for evaluation to determine the structural integrity of the cold joint area of the wall.

RCC NCR 0044 was drafted due to defective concrete being placed during the placement of the second lift of Cross Passage #1. The NCR has been sent to the Engineer of Record for a repair disposition. This NCR remains open.

RCC NCR 0046 was issued due to excavation and lagging starting at the Wye Fan Plant at 1st/Alameda without a Release for Excavation checklist being completed and signed as required by the RCC Quality Program. Stop Work Order (RCC-SWO 002) was issued in conjunction with this NCR. RCC Management held a Quality and Safety Stand Down with the personnel involved with this installation. The NCR is now closed.

RCC NCR 0047 was issued due to poor concrete consolidation and finish as well as having an irregular walking surface for a walkway placement from Flower St to Grand Av Arts/Bunker Hill Station. The NCR is with the Engineer of Record for a disposition and repair procedure.

RCC NCR 0048 was issued due to pin pile bracing not being installed during the excavation at the future Little Tokyo/Arts District Station. The bracing was installed, and the NCR was closed.

RCC NCR 0049 was issued for multiple damaged conduit at future Little Tokyo/Arts District Station. The damage occurred during excavation activities. The NCR is with the Engineer of Record for disposition and a repair procedure.

RCC NCR 0050 was issued for a damaged Storm Drain at future Little Tokyo/Arts District Station. The storm drain was damaged during excavation activities. The NCR is with the Engineer of Record for disposition and a repair procedure.

RCC NCR 0051 was issued for damage to the grounding grid at Grand Av Arts/Bunker Hill Station during excavation activities. The NCR is with the Engineer of Record for a disposition and repair procedure.

NCR 0052 was issued for Damaged Rigid Conduit in the tunnel from Grand Av Arts/Bunker Hill Station to Flower St. The NCR is with the Engineer of Record for a disposition and repair procedure.

RCC NCRs 0038 and 0041 remain open.

RCC testing performed to date are as follows:

1. Portland cement concrete 28-day test results: 1186; number accepted: 1186
2. Asphalt concrete density tests results: 242; number accepted: 242
3. Soil compaction (in-situ density) tests performed to date: 168; number accepted: 168
4. Welding MT/UT testing to date is: 14,608; number accepted: 14,608

ENVIRONMENTAL

- Stormwater Pollution Prevention Plan (SWPPP) inspections of all Project areas are conducted weekly by RCC and Metro staff to observe site conditions and report on performance of stormwater protection per Best Management Practices. Throughout *October*, weather was dominantly dry, and prone to favor fugitive dust conditions. Therefore, daily street sweeping continued throughout the month.
- Metro *will submit* the 23rd Quarterly Mitigation Monitoring and Reporting Plan covering *August 2018 to October 2018* to the FTA no later than *November 14, 2018*.
- Noise and vibration spot checks continue to be conducted weekly at multiple sensitive locations, and at the location of new activities along the alignment. Ventilation fans for Flower Street underground work were shrouded with sound blankets as a noise mitigation action. The fan noise levels are in compliance with the EIR; however, further mitigation is being evaluated.
- SEM Cavern construction has the potential to produce ground-borne vibration and noise. Therefore, a dedicated seismic monitor was placed in the basement of the Metropolitan News Building adjacent to 2nd Street and the path of the SEM Cavern. Limited “baseline” seismic data was collected; the Project is currently collecting seismic data 24 hours a day/7 days a week.

CONSTRUCTION AND COMMUNITY RELATIONS

Construction Relations

- Responded and addressed Project related inquiries from the public received via the hotline, email and during office hours at the Little Tokyo Community Office.
- Performed public outreach and construction coordination to impacted area stakeholders regarding the following construction activities: *Utility investigation and relocation on Temple, Alameda and Flower streets; geotechnical monitor installation at 2nd/Spring; and traffic lane black stripe removal on Flower St.*
- Distributed seven (7) construction notices to the public on the above activities through email and made it available on the project website and social media outlets.
- *Provided information and coordinated with 164 stakeholders throughout the alignment on Project activities.*
- Continued standing meetings with: LA City Council District 14, the Mayor's Office, Commonwealth Partners, The Westin Bonaventure Hotel, Charles Dunn and The Standard Hotel.

Eat, Shop, Play – Construction Impact Business Mitigation Program Highlights

- *Launched a multi-phase new marketing and advertisement program for FY19 featuring local Eat, Shop, Play participants on 2,300 bus cards and 360 rail cards. The first phase features The Colburn School and Fugetsu-Do.*
- *Secured a popcorn vendor and caterer Buttery Popcorn Co. at October's Vendor Day. The business, promoted on social media, sold out at the event.*
- Published a bi-weekly social media campaign promoting Flower St and Little Tokyo businesses.



Social Media Outreach and Marketing Efforts

- Published 12 newsletters, including seven construction notices, totaling 26.5k mailings.
- *The trending stories on social media included progress photos of Grand Av Arts/Bunker Hill Station, future Little Tokyo/Arts District Station, and a brief story on where excavated soil is disposed of, with over 5k combined impressions.*



Community Relations

- Continued work with the monthly Little Tokyo Marketing & Business Task Force

CREATIVE SERVICES

Art Program

- Facilitated art coordination meetings with RCC
- Coordinated with RCC on artwork fabrication and delivery schedule
- Coordinated with the Project, RCC and Procurement in preparation for the release of RFPs for glass mosaic fabrication
- Continued design development for corridor artworks
- Continued to support mitigation efforts in coordination with community stakeholders on the design development for the former Atomic Café Interpretive Graphic Display

Signage & Environmental Graphic Design

- Assessment of RC operating impacts to signage systemwide

SAFETY & SECURITY

C0980 Regional Connector

- Monitored RCC's pre-employment drug/alcohol testing and new employee safety orientation to insure compliance with contract specifications.
- Participated in weekly progress meetings with RCC's management personnel and Metro's Construction Manager to discuss safety/security/quality related issues and construction work schedules.
- Conducted Project Safety Orientation for new Metro/Consultants, visitors, and IPMO project staff. Training sessions included Safety Orientation, Underground Safety, and Self Rescuer Training.
- Participated in work plan reviews, daily crew safety meetings, and the RCC 'Safety Stand Down' sessions.
- Monitored construction field activities daily to ensure compliance with contract specifications. Participated with RCC staff in field safety inspection walks of multiple project worksites, laydown areas, and storage yards.
- Monitored Third Party contractor's work activities to insure safety compliance.
- Made recommendations to utility crews regarding contract activities and improving overall traffic control and pedestrian safety.

Project Safety Record

- RCC reported no Recordable Injuries and no major incidents during the month of *October 2018*.
- RCC reported 63,413 work hours for *September 2018*. RCC's total Contract to Date work hours through *September 2018* are 2,554,873 with a total of 13 Recordable Injuries and no Lost Workday (Days Away) case injuries. The C0980 Contract Recordable Injury Rate is 1.02. The Bureau of Labor Statistics reports that the National Average Recordable Injury Rate is 2.8 for heavy civil construction projects.
- Total Contractors' Project to Date Work Hours, including both the C0980 and the completed C0981 AUR contract, through *September 2018* is 2,665,932 hours with 14 recordable injuries. The Total Project Contractor Recordable Injury Rate is 1.05.
- Total Aggregate Project work hours for Contractors, Metro, and Support Services Consultants, through *September 2018* is 3,278,846 with 15 Recordable Injuries and no Lost Workday (Days Away) injury cases. The Total Project Aggregate Safety Rate is 0.91.*

*Using RIR method of calculating.

APPENDIX 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 into Preliminary Engineering
January 2011	Began Preliminary Engineering
August 2011	Board authorized to solicit major D/B contract C0980
October 2011	Issued RFQs for D/B contract C0980
December 2011	Began Real Estate Acquisition
March 2012	Completed PE and began Advanced PE
April 2012	Board certification of Final EIS / EIR and adoption of project
April 2012	Began Final Design - Advanced Utility Relocations (AUR)
June 2012	FTA Record of Decision
August 2012	Issued RFQs for D/B contract C0980
January 2013	Issued RFPs for D/Build contract C0980
March 2013	Completed Final Design - Advanced Utilities Relocation (AUR)
May 2013	NTP for Construction Management Services contract MC070
June 2013	Beginning of AUR contract C0981R Bid Period
July 2013	Submitted TIFIA loan application
July 2013	Submitted first draft FFGA application to FTA for review

September 2013	Received proposals for D/B Contract C0980
September 2013	Submitted second draft FFGA application to FTA, incorporating FTA comments
October 2013	Submitted Application to FTA Requesting an FFGA
November 2013	Started Emergency Generator Replacement Tank at 2nd Street and Historic Broadway Station (LA Times Building)
December 2013	Issued "Notice of Intent to Award" letter to contract C0981R contractor Pulice Construction Inc.
January 2014	Awarded AUR contract C0981R to Pulice Construction Inc.
February 2014	Issued Notice to Proceed for AUR Contract C0981R
February 2014	FTA issued Full Funding Grant Agreement to Metro
March 2014	Issued Amendment # 11 for D/B Contract C0980
March 2014	Started Survey for AUR Contract C0981R
April 2014	Metro Board approved the award of D/B Contract C0980 and established a LOP Budget
May 2014	Awarded D/B Contract C0980 to Regional Connector Constructors, Joint Venture
June 2014	Obtained possession of the Mangrove property from the City of Los Angeles
July 2014	Issued Notice to Proceed for D/B contract C0980
August 2014	C0980 D/B Contractor (RCC) began Final Design
September 2014	Metro performed the ground-breaking ceremony for C0980 D/B Contract
October 2014	EN077 Contractor, Arcadis, removed the underground storage tank at LA Times Parking Lot
November 2014	C0981R AUR Contractor completed DWP power work at 1st St. and Alameda
December 2014	Metro completed Field Vibration Testing for existing Expo and Gold Lines
January 2015	Demolish Buildings at 1st/Central Station
February 2015	Metro approved the Baseline Schedule for C0980 D/B Contract

March 2015	RCC started Historic Broadway Station Site Move-In
April 2015	Metro terminated C0981R Contract for convenience
May 2015	RCC started pile installation at Mangrove Launch Pit
June 2015	RCC started decking for shoofly bridge (Pile Cap & Grade Beam)
July 2015	DWP Water started installing 36" Water Valve at Alameda St.
August 2015	RCC completed DWP Power work at Flower & 5th Street
September 2015	RCC started Phase 2 DWP Power Relocation work at Broadway (Behind K Rail).
October 2015	RCC started pile installation at 1st/Central Station
November 2015	RCC completed Central Ave Full Closure (Pile & Decking)
December 2015	Metro Board approved the increase (\$131.8M) of the Project LOP Budget to \$1,589.9 million.
January 2016	RCC began implementation of Bus Bridge # 1 (Shoofly Tie-In Work at Little Tokyo).
February 2016	RCC began implementation of full closure at 2nd/Broadway intersection.
March 2016	RCC completed Bus Bridge # 1 (Shoofly Tie-In at Little Tokyo) work.
March 2016	Excavation of 1st/Central Station was initiated.
April 2016	TBM (Tunnel Boring Machine) was delivered to the temporary storage site.
May 2016	Closed 1st Street between Alameda and Central Streets. Opened northbound 1st East of Alameda Street.
June 2016	RCC completed excavation at 1st/Central Station Box
June 2016	RCC began pile installation on west side of Flower Street between 4th and 5th Street
July 2016	RCC initiated pile installation at Historic Broadway Station (West Hammer Head)
July 2016	RCC Initiated CIP invert at 1st/Central Station Box
August 2016	RCC completed 36" waterline replacement at 1st/Alameda

September 2016	RCC completed temporary decking at 1st/Alameda intersection (Wye)
October 2016	Metro performed TBM lowering ceremony
October 2016	RCC completed CIP invert at 1st/Central Station Box
November 2016	RCC completed CIP invert at Mangrove Launch Pit and Wye
December 2016	RCC completed Phase 1, 2nd Street Decking in front of LA Times Bldg.
January 2017	Metro Board approved a LOP Budget increase
February 2017	RCC initiated TBM mining (1st – Left)
March 2017	RCC completed TBM mining under JVP (first 500 ft.)
March 2017	RCC completed temporary decking on Flower St. (between 4th and 5th)
April 2017	RCC completed sub-invert at TBM retrieval pit
April 2017	RCC completed CIP invert at Grand Av Arts/Bunker Hill Station Box
May 2017	RCC completed temporary decking at Historic Broadway Station
May 2017	RCC completed water relocation work along Flower Street
June 2017	RCC completed mining and broke through at Grand Av Arts/Bunker Hill Station
June 2017	Five-month full closure of 6th Street approved by LADOT, Caltrans and LADWP
July 2017	RCC completed TBM mining of the first tunnel
August 2017	RCC extracted TBM shields from the Retrieval Shaft
September 2017	RCC began TBM mining of the second tunnel (right)
October 2017	RCC completed TBM mining under JVP (first 500 ft.)
October 2017	RCC completed temporary decking on Flower St. (between 5th and 6th, deck beam 16 to deck beam 58)
November 2017	Completed five-month full closure of 6th Street

November 2017	Initiated underpinning related to the Historic Broadway Station
December 2017	RCC completed mining and broke through at Grand Av Arts/Bunker Hill Station (Right Tunnel)
January 2018	RCC completed TBM mining of the second tunnel (right)
February 2018	RCC began excavation of cross passages
February 2018	RCC began SEM canopy pipe installation
March 2018	RCC began tunnel invert concrete
March 2018	RCC completed infrastructure for power relocation work at 6th/Flower
April 2018	RCC completed entrance structure excavation of Historic Broadway Station
May 2018	RCC began SEM excavation
June 2018	LADWP Power completed cable pulling at 6 th /Flower
June 2018	Completed underpinning related to the Historic Broadway Station
July 2018	RCC completed station box excavation of Historic Broadway Station
August 2018	Completed entrance structure invert of Historic Broadway Station
September 2018	Completed temporary decking of Flower Street
<i>October 2018</i>	<i>RCC started the CN 106.2 Final Design of the Revised Cable Transmission System for the Gold Line</i>
<i>October 2018</i>	<i>Metro completed approval of floating slab test results</i>
<i>October 2018</i>	<i>RCC completed SEM left drift excavation</i>
<i>October 2018</i>	<i>RCC completed Trainway Feeder duct bank at Flower St & 7th St</i>