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Agenda - Final

Thursday, May 21, 2020

10:15 AM

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(ALSO APPLIES TO BOARD COMMITTEES)

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Notwithstanding the foregoing, and in accordance with the Brown Act, this agenda does not provide an opportunity for members of the public to address the Board on any Consent Calendar agenda item that has already been considered by a Committee, composed exclusively of members of the Board, at a public meeting wherein all interested members of the public were afforded the opportunity to address the Committee on the item, before or during the Committee's consideration of the item, and which has not been substantially changed since the Committee heard the item.

In accordance with State Law (Brown Act), all matters to be acted on by the MTA Board must be posted at least 72 hours prior to the Board meeting. In case of emergency, or when a subject matter arises subsequent to the posting of the agenda, upon making certain findings, the Board may act on an item that is not on the posted agenda.

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NOTE: ACTION MAY BE TAKEN ON ANY ITEM IDENTIFIED ON THE AGENDA

CALL TO ORDER**ROLL CALL**

20. **SUBJECT: 2020 LOS ANGELES CONSTRUCTION MARKET ANALYSIS** [2020-0212](#)

RECOMMENDATION

RECEIVE AND FILE status report on the 2020 Los Angeles Construction Market Analysis report.

Attachments: [Attachment A - Construction Market Analysis 2020](#)
[Attachment B - Metro Construction Market Analysis Addendum](#)

21. **SUBJECT: FISCAL YEAR 2021 PROGRAM MANAGEMENT ANNUAL PROGRAM EVALUATION** [2020-0297](#)

RECOMMENDATION

RECEIVE AND FILE report on FY21 Program Management Annual Program Evaluation.

Attachments: [Presentation](#)

22. **SUBJECT: SOUNDWALL PACKAGE 11 HIGHWAY PROJECT ACTION: CONTRACT MODIFICATION** [2020-0284](#)

RECOMMENDATION

AUTHORIZE the Chief Executive Officer to:

EXECUTE Modification No. 19 to Contract No. C39033C1101-2 Soundwall Package 11 Highway Project for work above and beyond the original scope of services. This additional work is within the LOP budget and increases the total contract price in the amount of \$860,000, from \$66,041,760 to \$66,901,760.

Attachments: [ATTACHMENT A - PROCUREMENT SUMMARY](#)
[ATTACHMENT B - CONTRACT MODIFICATION & CHANGE ORDER LOG](#)
[ATTACHMENT C - DEOD SUMMARY](#)

23. SUBJECT: SYSTEMS ENGINEERING AND SUPPORT SERVICES[2020-0170](#)**RECOMMENDATION**

AUTHORIZE the Chief Executive Officer to:

- A. An increase in total authorized funding for Contract No. AE47810E0128 with SECOTrans (Joint Venture of LTK Engineering Services, NBA Engineering Inc., Pacific Railway Enterprises Inc., and Ramos Consulting Services, Inc), for pending and future Task Orders to provide systems engineering and support services in the amount of \$22,500,000 for 1 year, increasing the total contract value from \$43,932,000 to \$66,432,000 through Fiscal Year 2021; and
- B. The Chief Executive Officer (CEO) or designee to execute individual Task Orders and Contract Modifications within the Board approved contract funding amount.

Attachments: [Attachment A - Procurement Summary](#)
 [Attachment B - DEOD Summary](#)
 [Attachment C - Proposed Task Order Work List](#)

24. SUBJECT: TUNNEL ADVISORY PANEL[2020-0267](#)**RECOMMENDATION**

AUTHORIZE the Chief Executive Officer to:

- A. Execute Contract Modification No. 11 to Contract No. PS-2020-1055 with **Dr. Geoffrey R. Martin for the continuation of Tunnel Advisory Panel Services**, in an amount not-to-exceed \$910,475, increasing the total contract value from \$2,090,006 to \$3,000,481 and extend the contract from July 1, 2020 to June 30, 2023;
- B. Execute Contract Modification No. 6 to Contract No. PS-8510-2493 with **Dr. Edward J. Cording, for the continuation of Tunnel Advisory Panel Services**, in an amount not-to-exceed \$923,457, increasing the total contract value from \$2,075,778 to \$2,999,235 and extend the contract from July 1, 2020 to June 30, 2023; and
- C. Negotiate and Execute sole source Contract No. PS-1620-1000, with **Dr. Thomas O'Rourke**, for Tunnel Advisory Panel Services, in an amount not-to-exceed \$947,457, from June 1, 2020 to June 30, 2023.

Attachments: [Attachment A - Procurement Summary](#)
 [Attachment B - Contract Modification - Change Log](#)
 [Attachment C - DEOD Summary](#)

25. SUBJECT: PROGRAM MANAGEMENT SUPPORT SERVICES[2020-0283](#)**RECOMMENDATION**

AUTHORIZE:

- A. An increase in authorized funding for Contract No. AE35279 with Kal Krishnan Consulting Services/Triunity Engineering and Management Joint Venture (KTJV), for pending and future Contract Work Orders to provide Program Management Support Services (PMSS) in an amount not-to-exceed \$12,041,501, increasing the current authorized funding limit from \$51,306,204 to \$63,347,705 through FY21;
- B. The Chief Program Management Officer or designee to execute individual Contract Work Orders (CWOs) and Contract Modifications within the Board approved contract funding amount.

Attachments: [Attachment A - Procurement Summary](#)
 [Attachment B - Contract Work Order Modification Log](#)
 [Attachment C - DEOD Summary](#)
 [Attachment D - Current Support Provided by Project Category](#)
 [Attachment E - Current and Anticipated List of Projects](#)

**26. SUBJECT: SUPPLEMENTAL ENGINEERING SERVICES (SES)
CONSULTANT SERVICE CONTRACT**[2020-0286](#)**RECOMMENDATION**

AUTHORIZE the Chief Executive Officer to:

- A. EXERCISE a one-year extension option for Task Order Contract No. AE36687 with Mott MacDonald Group for Supplemental Engineering Services for Engineering Design of Rail and Highway Transportation Projects, extending the period of performance from June 22, 2020 through June 22, 2021.
- B. INCREASE the total contract value for Contract No. AE36687 with Mott MacDonald Group for Supplemental Engineering Services for Engineering Design for Rail and Highway Transportation Projects not-to-exceed \$2,500,000 increasing the total contract value from \$15,000,000 to \$17,500,000. Work will only be authorized by specific task orders, funded by specific project budgets.
- C. NEGOTIATE and EXECUTE Task Orders and modifications within the Board approved contract amount.

Attachments: [Attachment A - Procurement Summary 20200428](#)
 [Attachment B - Contract Task Orders and Modifications Log 20200428](#)
 [Attachment C - DEOD Summary](#)

27. SUBJECT: CRENSHAW/LAX CLOSE OUT PROJECT [2020-0320](#)

RECOMMENDATION

CONSIDER adopting the Life-of-Project (LOP) budget of \$30,000,000 for a new Crenshaw/LAX Close Out Project.

Attachments: [Attachment A - Funding-Expenditure Plan \(\\$30\)](#)
 [Attachment B - Projected Breakdown of Cost Allocation](#)

(CARRIED OVER FROM APRIL CONSTRUCTION COMMITTEE MEETING UNDER RECONSIDERATION)

28. SUBJECT: CALTRANS UPDATE [2020-0344](#)

RECOMMENDATION

RECEIVE report by the Caltrans District Director on Delivery of Projects on I-5.

38. SUBJECT: CRENSHAW/LAX TRANSIT PROJECT [2020-0319](#)

RECOMMENDATION

CONSIDER amending the Life-of-Project (LOP) budget by \$90,000,000 for the Crenshaw/LAX Transit Project (Project) of \$2,058,000,000 to \$2,148,000,000, consistent with the provisions of the Board-adopted Measure R and Measure M Unified Cost Management Policy (Attachment B).

Attachments: [Attachment A - Funding-Expenditure Plan](#)
 [Attachment B - Measure R and Measure M Unified Cost Management Policy An](#)
 [Attachment D - SBCCOG letter to Metro CEO re SREP funds for Crenshaw ove](#)
 [Attachment C - Projected Breakdown of Cost Allocation for 90 million 5 14 202](#)

38.1. SUBJECT: CRENSHAW/LAX TRANSIT PROJECT [2020-0356](#)

RECOMMENDATION

APPROVE Motion by Directors Garcetti, Butts, Garcia and Hahn directing the CEO to:

- A. Allocate \$33.1 million of CMAQ, plus the revenue generated from LAWA acquisition of property and easements (at least \$1.7 million) to fund immediate LOP budget needs on the Crenshaw/LAX project.
- B. After taking CMAQ and LAWA-generated revenues off the top, approve the use of Subregional Equity Program (SEP) funding for the remainder

of the \$90 million Crenshaw/LAX LOP budget increase, subject to formal approval from each subregion's governing body and according to the 2016 subregional borders designating the LAX area as a Regional Facility and conforming the South Bay subregion to the South Bay COG's boundaries:

Subregion	Miles	Percent
Central Los Angeles	3.40	41.4%
South Bay	3.32	40.4%
Regional Facility: LAX Area	1.50	18.2%
Total	8.22	100.0%

These SEP funds shall be escalated from 2015 dollars in accordance with Board file 2019-0598, which reaffirmed that each subregion's SEP allocation as listed in the Measure M Expenditure Plan (line item 68, note s.) is listed in 2015 dollars and escalated to year-of expenditure in accordance with the escalation policies in the Measure M expenditure plan;

- C. Defer any future recommendation or use of any unprogrammed SEP funding pending the development, in partnership with all Board offices, of a uniform process by which Subregions can elect to use SEP funding, including but not limited to:
1. Subregional governing body approval of any funding recommendation and use;
 - a. Hereby acknowledging that the South Bay COG has already committed the entire South Bay SEP for the Centinela Grade Separation Project.
 2. Written notice to the respective Subregional governing body and representative Board offices at least 120 days before Metro recommends the use of SEP funding to ensure adequate time for subregions to understand and approve any funding recommendations;
 3. Standard and explicit criteria for how and when a subregion's SEP allocation may be accelerated to meet their needs, consistent with Board file 2019-0598 (see above);
- D. Report back on all the above during the September 2020 Board cycle.

SUBJECT: GENERAL PUBLIC COMMENT[2020-0339](#)

RECEIVE General Public Comment

Consideration of items not on the posted agenda, including: items to be presented and (if requested) referred to staff; items to be placed on the agenda for action at a future meeting of the Committee or Board; and/or items requiring immediate action because of an emergency situation or where the need to take immediate action came to the attention of the Committee subsequent to the posting of the agenda.

COMMENTS FROM THE PUBLIC ON ITEMS OF PUBLIC INTEREST WITHIN COMMITTEE'S
SUBJECT MATTER JURISDICTION

Adjournment



Board Report

File #: 2020-0212, **File Type:** Informational Report

Agenda Number: 20.

CONSTRUCTION COMMITTEE MAY 21, 2020

SUBJECT: 2020 LOS ANGELES CONSTRUCTION MARKET ANALYSIS

ACTION: RECEIVE AND FILE

RECOMMENDATION

RECEIVE AND FILE status report on the 2020 Los Angeles Construction Market Analysis report.

ISSUE

To better understand the factors influencing construction bid prices and Metro's ability to deliver the largest transportation construction program in the country, a construction market analysis was performed in 2018 following the passage of Measure M. A 2020 study has now been conducted to update the construction market analysis to today's current conditions and to identify factors influencing bid prices, labor availability and develop mitigation strategies. Current and future market conditions were assessed to determine factors influencing construction bidding activities and our ability to deliver Metro's capital program, including projects approved as part of Measure M. Since the Construction Market Analysis was finalized in March 2020, we have prepared an addendum (see Attachment B) that assesses the impacts of COVID-19.

BACKGROUND

The 2020 Los Angeles Construction Market Analysis report is a comprehensive analysis of construction market factors and trends since the last report that was completed and presented to the Board in 2018. The Construction Market Analysis objectives were to gather information to evaluate the global, national, regional, and local economy as it relates to construction cost and bidding trends, the current and future amount of construction activities in the region and measure its impact on the proposed work in the region, and the macroeconomic employment trends and skilled labor availability.

DISCUSSION

The desired outcome of the 2020 Los Angeles Construction Market Analysis report is to continue our understanding of the factors influencing construction costs in the Los Angeles market, develop pricing projections for future forecasts, and determine potential solutions to mitigate rising bid prices to better

ensure our ability to deliver Measure M and other capital projects within existing project budgets.

KKCS/Triunity Joint Venture performed the Los Angeles Construction Market Analysis update and completed the report in March 2020. The report discusses factors that would influence future construction bid prices at Metro and how they would impact our ability to deliver Metro's capital program on-time and within budget.

- Current market indicators in the construction industry forecast a construction labor shortage, low unemployment, and large volume of on-going and planned work in the region.
- Inflation projections show a rise in construction costs. The budget development for multiyear projects must adequately account for escalation, increasing wages, materials, and rising margins.
- The number, size, and complexity of mega projects are increasing resulting in reduced competition and higher bids.
- As market demand increases, contractors will be increasingly selective in deciding which projects to pursue, dependent on the owner, and the amount of risk an owner places on the contractor.
- Metro and other agencies will compete for qualified contractors, subcontractors, and skilled workers in the robust construction marketplace.

Report Recommendations

The 2020 Los Angeles Construction Market Analysis report includes the following recommendations:

- Develop innovative way to create housing for construction workers that can be converted into affordable housing as part of Metro's Transit-Oriented Communities program or to house unemployed persons with capability for job retraining.
- Leverage technology to train and attract new job candidates to improve productivity, maintain schedule, and improve the labor pool.
- Consider different incentivizing strategies for contractors meeting certain diversity goals.
- Reduce the time and cost to propose on Metro projects and standardize contract templates to lessen the burden on bidders.
- Incorporate modular construction design to relieve local labor pool constraints and streamline schedule.
- Consider phased implementation of projects to lower the risks associated with megaprojects.
- Identify potential third-party project synergies for shared costs opportunities.
- Maintain an aggressive posture to attract limited available resources, including onboarding qualified candidates before the actual need arises.

FINANCIAL IMPACT

There is currently no impact to the budget.

IMPLEMENTATION OF STRATEGIC PLAN GOALS

Recommendation supports strategic plan goal #1 to expand the transportation network as responsibly and quickly as possible, and by targeting infrastructure and services investments towards those with the greatest mobility needs.

NEXT STEPS

Metro staff will evaluate each of the recommendations and implement, if appropriate. Staff will also continue to develop strategies on how to best address the factors impacting Metro's ability to successfully deliver projects on-time and within budget.

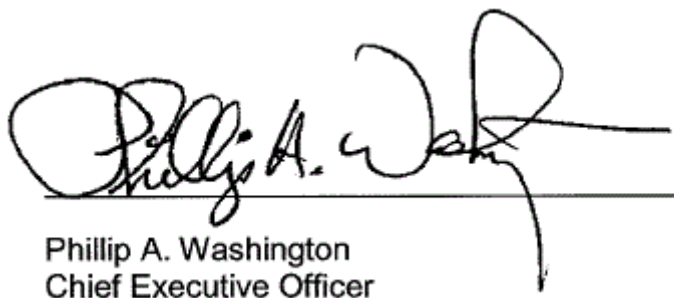
ATTACHMENTS

Attachment A - 2020 Metro Construction Market Analysis

Attachment B - Metro Construction Market Analysis Addendum, COVID 19

Prepared by: Brian Boudreau, Sr. Executive Officer, (213) 922-2474

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



Phillip A. Washington
Chief Executive Officer



2020 UPDATE

LOS ANGELES CONSTRUCTION MARKET ANALYSIS

March 2020

Prepared by



Metro



KKCS/TRIUNITY JV



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Executive Summary

Delivering Metro Projects for the Next 10 Years

With many major capital projects in construction, and more in the next few years, Metro is on track to achieve ambitious goals. In addition to routinely reviewing project status, Metro uses the Construction Market Analysis as a tool to gauge progress, assess current and future market conditions, and adjust strategies for attaining its 10-year goals.

The economy has been growing at all levels, and robust national and regional capital programs compete for limited resources putting a strain on the construction industry. In response, innovative approaches to construction delivery coupled with ongoing implementation of best management practices present opportunities for Metro to remain competitive in this challenging market. This report focuses on how these conditions will impact delivery of Metro's projects and influence contractor bids.

Market analysis findings have been incorporated into a strategic assessment of Metro's strengths, weaknesses, opportunities, and threats (SWOT) with associated recommendations. These findings and recommendations accent Metro's ability to plan around market challenges:

- Volatile commodity pricing
- High demand for resources, along with increased competitive bidding from more contractors
- Completing projects within schedule and budget baselines.

Key Indicator:

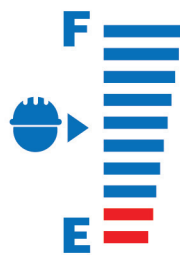
Los Angeles tied Seattle for the most construction cranes in the US in 2019.

Economic Conditions

Overall, the US economy in 2019 maintained steady momentum, while both California and Los Angeles growth outpaced the rest of the country. Major economic events that impacted the construction industry included the US trade treaty with Canada and Mexico, on-going trade negotiations with China, California's \$1.8 billion subsidies and expanded tax credits to address the housing shortage, and recovery efforts from natural disasters across California. While normal economic cycles assume a "correction" or recession will eventually transpire, the economy in the short term is poised to continue positive employment and growth trends.



75%
of contractors
expect to
add workers
in 2020



81%
of firms having
difficulty filling
hourly craft or
salaried positions

State of the Construction Industry

Transportation construction expenditures increased by 8% in 2019 for a total of \$73.1 billion nationwide. This level of expenditure is forecast to grow approximately 5% in 2020 largely because of increased funding from all levels of government.

Unemployment in the construction industry is exceptionally low at 3.6%, and the number of construction job openings are at the highest levels since 2000. An Associated General Contractors of America survey found that 75% of contractors expect to add workers in 2020 and 81% of firms indicated difficulty filling positions.

A “perfect storm” of conditions is occurring in the Los Angeles region’s construction industry:

- Shortage of skilled construction labor
- Low unemployment
- Large amount of ongoing and planned work

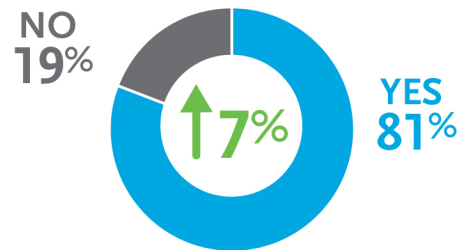
Market corrections have normalized the cost of commodities and materials after a spike a year ago during potential trade tariff tensions. However, cost escalations appear likely to continue for several more years.

The COVID-19 coronavirus is creating a global economic impact that may hurt supply chains for the construction industry. However, is too early to tell the significance and duration of what economic impact may result from the coronavirus.

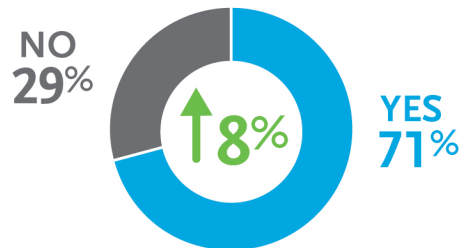
Contractor Response to Skilled Labor Shortage

Average annual change since 2018

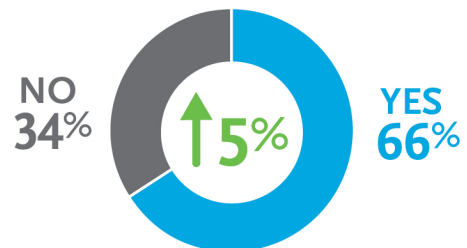
ASKING SKILLED WORKERS TO DO MORE WORK



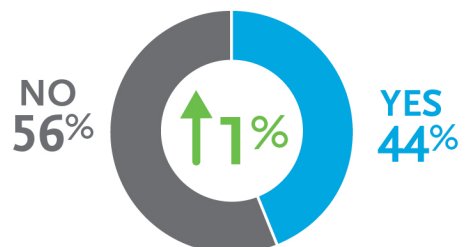
CHALLENGES TO MEET SCHEDULES



SUBMITTING HIGHER BIDS



TURNING DOWN WORK PROJECTS



Emerging Trends Challenge “Business as Usual”

Although increasing demands on the construction industry are causing a labor shortage and higher prices, they are also changing how owners and contractors approach the marketplace. These emerging trends challenge “business as usual.”

- x Megaprojects are growing not only in number, but in scale and complexity. The average size of a megaproject is expected to increase 37% from \$2.1 billion to \$2.9 billion between 2019 and 2023, making projects that have historically been difficult to control cost and schedule even more challenging.
- x Contractors are more selective when bidding work, gravitating toward “owners of choice” while steering away from fixed-price contracts and their associated risks.
- x Contractors are weighing the risks and rewards of the P3 market; some are moving away, while others are embracing the innovative alternative delivery method.
- x Alternative delivery methodologies such as Construction Manager/General Contractor and Progressive Design Build, are gaining traction to attract bidders to a more “risk friendly” contracting environment.

Metro’s Response to Shifting Construction Market Conditions

Three intended outcomes have shaped Metro’s strategy for adapting to evolving market conditions: (1) increase the labor pool, (2) be the owner of choice, and (3) create a stronger, more resilient organization. They resulted in a broad array of actions.

Increase the Labor Pool

Metro recognizes the need to build and train a diverse, inspired, and high-performing workforce. It has made significant strides toward developing a larger labor pool and embarked on bold strategies to develop the next workforce generation.

The percentage of women in construction has not changed for years, despite several initiatives to address this issue. Metro is paving the way for women to enter the construction workforce through several initiatives:

- x WIN-LA
- x SEED Transportation School
- x E3 Youth Initiative
- x Female Construction Scorecard
- x Women Build Metro LA

Be the Owner of Choice

Metro remains focused on adapting to changing market conditions to attract more bidders to drive innovation and to support competition in the private sector.

- x Reducing risk associated with firm-fixed-price contracting in favor of alternative deliveries, where appropriate
- x Conducting contractor outreach to attract more bidders, such as industry forums and market soundings
- x Scaling projects to increase competition and create more bidding opportunities for smaller contractors.

Megaprojects: Increasing in Number, Size, and Complexity



473

MEGAPROJECTS
PLANNED IN U.S. FOR
NEXT 4 YEARS (TO 2023)



40%

OF NATIONAL TOTAL FOR
PLANNED MEGAPROJECTS
ARE IN CALIFORNIA, TEXAS,
AND NEW YORK



37%

INCREASED AVERAGE
SIZE EXPECTED FROM
\$2.1 B TO \$2.9 B



90%

OF MEGAPROJECTS IN
THE US EXPERIENCE
SCHEDULE DELAYS
AND COST OVERRUNS



12

METRO MEGAPROJECTS (> \$1B)
TOTALING \$35B ARE UNDER
CONSTRUCTION OR PLANNED
IN NEXT 10 YEARS

Create a Stronger, More Resilient Organization

Metro is implementing the largest transportation expansion program in the country during a time of booming construction activity in Southern California. Consequently, Metro has started to implement critical steps to plan and build projects more cost effectively and with less risk using these actions:

- Applying recent lessons learned to overcome the cost and schedule challenges historically associated with megaprojects
- Greater collaboration among Metro departments to better manage scope and costs
- Risk management and contingency planning that accounts for current and trending macroeconomic conditions

External Factors Influencing Metro

While Metro continues to respond to shifting market conditions, external factors largely beyond Metro's control remain. However, strategies can and are being developed to optimize beneficial external factors and minimize detrimental external factors.

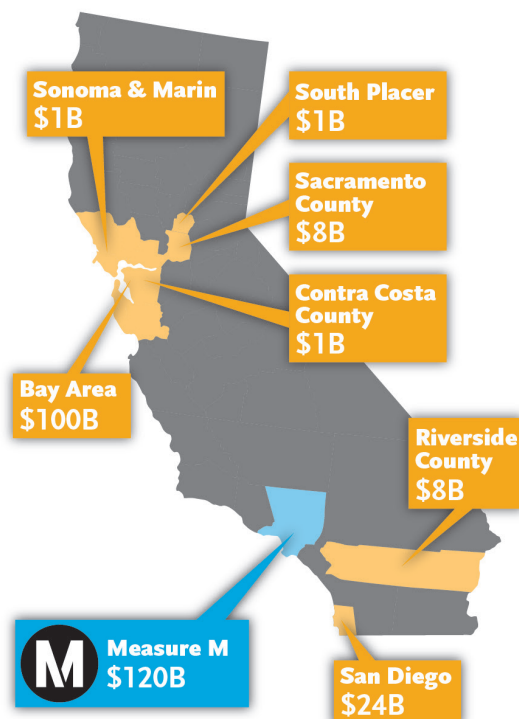
Beneficial External Factors

- An economic downturn may ease the construction market demand, creating greater availability in the workforce and more competition on Metro procurements.
- The fate of the next federal surface transportation bill creates uncertainty because federally funded projects may be delayed, and contractors would look to Metro for locally funded work.

- The changing regulatory setting that is focusing on fewer government-initiated obstacles may shave years off project delivery.

Detrimental External Factors

- The labor need is so significant that it is essential to bring in qualified workers outside Southern California. But the high cost of living poses a major hurdle for contractors trying to hire qualified workers from outside the region.
- Lengthy third-party jurisdictional and utility processes and approvals are contributing to additional cost and schedule pressures.
- With multiple billion-dollar-plus capital programs in the region, Metro is competing with other local agency programs for the same limited resources. This may be compounded as ballot measures rivaling Measure M and could divert resources from Metro are considered.



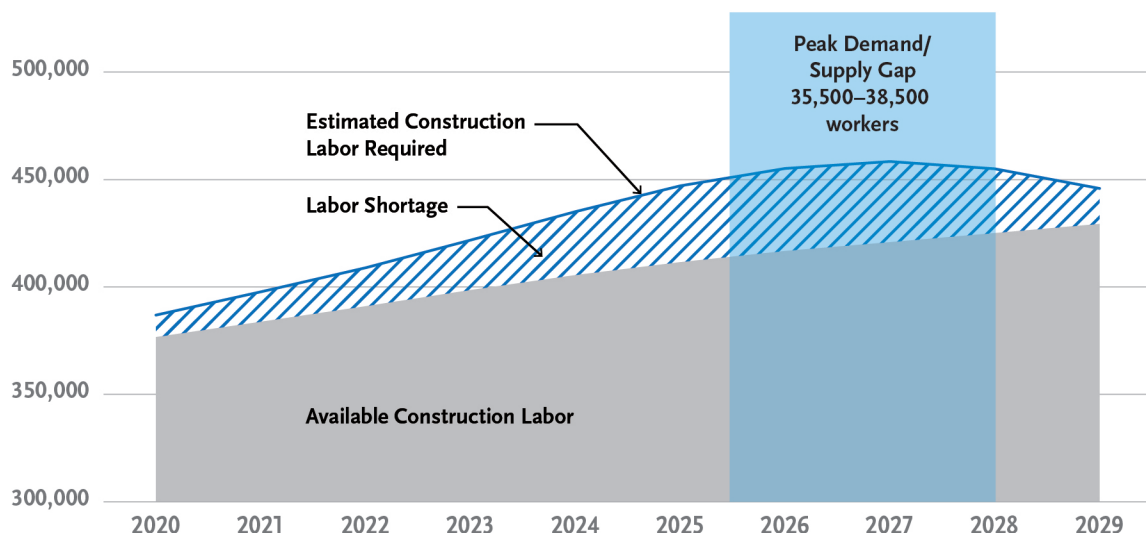
Future Construction Labor Needs and Availability

To forecast the future construction jobs needed in the Los Angeles region, construction expenditures were projected for Metro, local public work agencies, and private development. These projections included some significant findings:

- Over the next 10 years, Metro construction expenditure will average nearly \$2.9 billion per year with expenditures peaking in 2025 to 2027.
- Local public work agencies are anticipated to spend \$9.5 billion per year on construction driven by major programs such as Measure W, Metrolink's SCORE Program, and Los Angeles World Airports.
- The construction industry is anticipated to sustain substantial growth and need for construction labor during preparation for the 2028 Olympic Games in Los Angeles related to significant investments in infrastructure and private development.

Using the construction expenditure budgets and data from Dodge, the Bureau of Labor Statistics, and Los Angeles Economic Development Corporation, an economic model forecasted the number of construction jobs. Model results indicate a significant and prolonged construction labor shortage if all planned and unplanned (and currently unknown) construction projects were to occur simultaneously. The labor shortage gap between the estimated construction labor needed and available labor is increasing. The peak of the labor shortage is anticipated between 2026 and 2028, resulting in a shortage of approximately 35,500 to 38,500 people to fill construction jobs.

ESTIMATED CONSTRUCTION LABOR PROJECTIONS BETWEEN 2020-2029









SWOT Assessment and Recommendations

SWOT assessments help identify how an organization can enhance areas of strength, boost areas of weakness, leverage potential opportunities, and minimize threats. This report assessed national and regional economic conditions, the state of the construction industry, emerging trends in the market, Metro's previous actions, and external factors. Assessment results provide a basis for Metro to prepare its strategy for the next decade of construction demand, which will likely exceed supply and will increase costs for labor and materials.

The predecessor study to this Construction Market Analysis was prepared in early 2018. The 2018 report provided recommendations that have been implemented by Metro or are being developed.

Building on the strengths identified in the SWOT assessment, implementation of the previous report's recommendations, and Metro's recent initiatives and policies, this current study provides additional recommendations designed to increase the number of bidders, increase the availability of craft and management resources, and continue building Metro as an "owner of choice." Detailed descriptions of the recommendations are provided in Chapter 6 of the report.

RECOMMENDATIONS AND BENEFITS SUPPORTING METRO OUTCOMES

Recommended Actions Supporting Outcomes	Benefits					
	 Address Labor Shortage	 Reduce Cost	 Minimize Risk	 Attract Bidders	 Manage Schedule	 Response
Increase the Labor Pool						
1. Innovate worker housing	✓			✓	✓	
2. Leverage technology	✓	✓			✓	
Be the Owner of Choice						
3. Incentivize diversity	✓			✓		
4. Reduce bidder burden		✓		✓	✓	
5. Incorporate modular design	✓	✓		✓	✓	
Create a Stronger and More Resilient Organization						
6. Phased implementation		✓	✓	✓	✓	
7. Shared cost	✓	✓	✓		✓	
8. Recruit talent	✓	✓	✓		✓	



01

Delivering Projects for the Next 10 Years

Measures R and M capital programs delivery is well underway. Staying on track to achieve ambitious goals by 2030, the Los Angeles County Metropolitan Transportation Authority (Metro) gauges progress by routinely reviewing project status, assessing current and forecasting future construction market conditions, and adjusting strategies for attaining its 10-year goals.

Serving as a barometer for today's and tomorrow's construction market, this updated Los Angeles Construction Market Analysis is an important tool for gauging near- and long-term conditions in the Los Angeles region that may affect Metro's ability to sustain progress toward improving transportation infrastructure in Los Angeles County.

Market conditions and resource availability are dynamic year to year, but industry followers provide key data indicators and trends to inform Metro's delivery approach:

- What has changed since the previous market analysis in 2018?
- Do construction market conditions continue to tighten? Will resources be available to support Metro's capital program?
- Is Metro positioned for success, or should it refine delivery strategies to be the owner of choice in the region?

Building on the 2018 Los Angeles Construction Market Analysis, this 2020 report reviews key indicators to keep Metro on track:

- Performs a market analysis showing the current and projected construction activity in the Los Angeles region
- Analyzes the qualified contractor and skilled labor availability in the region, including employment trends in the construction industry
- Provides recommendations for how Metro can be the owner of choice to attract construction contractors in the region when compared with other successful transit agencies

What is Driving Metro's Construction Needs?

In November 2016, Los Angeles County voters approved Measure M, a half-cent sales tax to improve transportation infrastructure in Los Angeles County. Measure M is expected to generate \$120 billion in revenue over 40 years and create a continuous source of funding for transportation in Los Angeles County. This influx of funding will be allocated to a comprehensive capital program portfolio that ranges from "state of good repair" improvements, such as the recently renovated Blue Line, to large-scale megaprojects like the Sepulveda Transit Corridor.

The overall Measure M budget for the first 40 years focuses on the capital project delivery of major transit and highway projects, which includes \$41.8 billion in transit construction, \$20.3 billion in highway construction, and \$2.4 billion in state of good repair refurbishments and improvements. According to the Los Angeles Economic Development Corporation's the 2016 economic forecast, Measure M will add 465,900 new jobs and stimulate \$79.3 billion in economic output in the region.

Current economic conditions at the national and global level have also changed since the 2018 Los Angeles Construction Market Analysis:

- The national economy continues to grow, but at a slower pace, with consumer and business confidence generally high and with low unemployment.
- Trade policies including new tariffs, along with low unemployment and a robust economy, may fuel higher inflation.

Measure M allocation of
\$120 billion in revenue



\$41.8 B

NEW TRANSIT
CONSTRUCTION INCLUDING
100 MILES FOR METRO RAIL
AND 65 MILES OF BRT



\$20.3 B

HIGHWAY IMPROVEMENTS,
CARPOOL LANES AND
GOODS MOVEMENTS



\$20.3 B

LOCAL CITY
TRANSPORTATION
IMPROVEMENTS



\$2.4 B

STATE OF GOOD
REPAIR PROGRAM



\$2.4 B

ACTIVE
TRANSPORTATION
PROJECTS



METROLINK®

\$1.2 B

METROLINK
PROJECTS

The impact of these concerns may result in consequences to the construction industry due to increases to material costs, labor shortages, and demand for construction.

Identifying Critical Strategies to Achieve Measure M Goals

Metro must analyze the challenges of delivering Measure M in the current economic climate to better understand the impacts of a growing economy at all levels, shifting approaches to construction delivery, and competing capital programs and projects. This report illuminates current and projected future construction market conditions that will impact contractor delivery on Metro's current projects, and influence contractor bids on Metro's upcoming projects.

This construction market analysis update for 2020 has the following primary objectives:

- Provide economic analysis at all levels related to the construction market industry
- Evaluate employment trends and skilled labor availability
- Identify the current and projected construction activity in the Los Angeles region for the period from 2020 to 2030
- Identify factors impacting current Metro projects and influencing future bids on upcoming Metro projects

Analyses aimed at these objectives will reveal current and future indicators of construction market conditions. These updated results will help guide Metro's approach to construction contracting, enhance Metro's ability to compete for resources, and increase competitive bidding from more contractors.

The Metro Vision 2028 Strategic Plan serves as the foundation that aligns all Metro's plans, programs, and services to achieve a common vision. This construction market analysis supports Goal 5 (Provide responsive, accountable, and trustworthy governance within the Metro organization) by aligning this market analysis report's recommended actions under Metro Vision 2028 Strategic Plan Goal 5.

Market Intelligence Sources Supporting this Assessment

Metro asked the KKCS/Triunity JV (KTJV) team to perform an extensive literature review and research statistical data and public records to develop a picture of the current and future construction market, employment, and availability of construction labor and trade resources.

The assessment compared Metro's capital program with other local agency programs to identify similarities or differences in several areas, such as amount of work, SBE/DBE participation, bid estimates versus engineers estimate, and number of bidders.

Measure M's portfolio of projects helped win the award of the 2028 Summer Olympic and Paralympic Games to Los Angeles because of its goals to improve mobility options and enhance transportation infrastructure in Los Angeles County. Now, Measure M and the 2028 Olympic Games position Metro to not only prepare for hosting a global event, but to accelerate delivery of public benefits to Angelenos even earlier than originally envisioned, especially for its four pillar projects.

The Journey Ahead: Market Drivers Threaten Major Capital Programs

When Measure M passed, Los Angeles was in a building boom, and construction continues to be robust across all sectors in Los Angeles. Now, more than 52 building projects are under construction and another 120 are planned in downtown Los Angeles¹, along with several multi-billion-dollar sports and cultural facilities, and extensive improvements at Los Angeles International Airport (LAX). Delivery is also shifting toward more alternative delivery, such as public-private partnerships (P3), as a method to accelerate projects.

Metro Is Focused on Accelerating Funding and Delivering Four Pillar Projects



These industry and public resources provided the most current, relevant data available for this construction market analysis:

- x Federal economic indicators, including US Bureau of Economic Analysis, US Bureau of Labor Statistics, Census Bureau, and the US Department of Commerce
- x American Road and Transportation Builders Association (ARTBA)
- x Associated Builders and Contractors (ABC)
- x Associated General Contractors of America (AGC), including an interview with AGC's Chief Economist, Ken Simonson
- x Engineering News-Record (ENR)
- x Business and trade journals
- x Dodge Data and Analytics (Dodge)
- x Los Angeles Economy Development Corporation (LAEDC)
- x University of California, Los Angeles (UCLA) Anderson School of Management
- x US Chamber of Commerce
- x Agency websites and bid data

The economic market forecast is based on federal, state, and local data and market intelligence that was gathered and used in the economic modeling and development of the forecast.

Considerations Framing this Assessment

The current extremely dynamic market will require Metro to closely monitor trends and adjust strategies to achieve not only its 2028 goals for its four pillars projects, but also its fundamental levels of service in the communities it serves. The earlier 2018 Los Angeles Construction Market Analysis closely examined and modeled current economic conditions for the first time. This 2020 update will help Metro stay informed and proactively adjust strategies in a dynamic market where economic projections are more short-lived than ever. The following discussion steps through these topics:

- x Delivering projects for the next 10 years
- x Construction market conditions today and tomorrow
- x Metro's response to shifting market conditions
- x External factors influencing Metro
- x Future construction market projection
- x Strengths, weaknesses, opportunities, and threats (SWOT) assessment with recommendations



02

Construction Market Conditions Today and Tomorrow

The economy is cooling from the historic pace of 2019, which marked the longest economic expansion in US history. California surpassed national performance and is forecast to continue outpacing the rest of the country. Los Angeles' income growth, however, is expected to lag California's in 2020.

Economic Conditions Cooling from Historic Pace

Overall, the US economy in 2019 maintained steady momentum, but it was outpaced by California's and Los Angeles' growth. Although a recession will eventually hit as a part of the normal economic cycle the short-term economy is poised to continue positive trends in unemployment and growth.

National

In 2019, the US economy broke several records: longest economic expansion in US history, lowest unemployment rate since 1969, and longest stretch of monthly job gains. This contributed to the 2.3% growth rate of the US Gross Domestic Product (GDP) in 2019.

This sustained growth rate provides for balanced jobs growth while preventing inflation and volatility. The stock market was strong in 2019, including recovery from market corrections in 2018. Another positive signal was the strong pace at which consumer spending rose throughout 2019, supported by solid job growth and wage increases. The passage of the United States-Mexico-Canada Agreement (USMCA) also served to reduce market uncertainty and increase optimism.

After a series of interest rate hikes, the Federal Reserve cut interest rates to support continued economic expansion. Historically, however, such action is taken only when evidence of pending economic hardship is seen.

As a new decade begins, the US economy is likely to experience continued growth but at a slower pace, and likely to avoid a recession in 2020. The Federal Reserve is projecting the GDP to hover at or below 2% between 2020 and 2022ⁱⁱ. The unemployment rate is projected to

remain below 4%, according to the Federal Reserve, and inflation is likely to rise in 2020 and beyond. (Note that some industry experts believe the low unemployment rate may be misleading because many workers are part-time in low-paying industries and would prefer full-time work in higher-paying jobs.)

However, uncertainty at the global stage will continue to be the economy's biggest risk:




























- Trade tensions with China resulting in tariff increases
- A slowing Chinese economy that may cause a sluggish global economy
- Uncertainty until the 2020 election cycle ends
- Federal monetary policy with unpredictable interest rate changes.
- The corona virus' affect on manufacture and imports of construction-related goods and materials
- Slowing population growth generally reducing the labor pool in the long term

This uncertainty and recent events may result in lower growth, tighter financial conditions, lower asset prices, and weakened labor markets.

California

As the fifth-largest economy in the world, California's GDP is expected to grow roughly in line with the national average. According to the University of California, Los Angeles (UCLA) Anderson Forecast, California will continue to outpace the rest of the country in job growth, and real personal income. However, California's unemployment rate will likely remain higher, and home building production will likely be lower than what the rest of the country experiences.

Key Economic Indicators and Drivers since 2018

National	KEY INDICATORS	KEY DRIVERS
	<div>  GDP  \$21.7 T  CPI  256 </div> <div>  UNEMPLOYMENT  3.7%  INFLATION  1.8% </div>	<ul style="list-style-type: none"> • 2019 US population growth was slowest in 100 years • Federal Reserve cut interest rates and a trade treaty between US, Canada, and Mexico was approved
California	KEY INDICATORS	KEY DRIVERS
	<div>  GDP  \$3.1 T  CPI  281 </div> <div>  UNEMPLOYMENT  4.1%  INFLATION  3.0% </div>	<ul style="list-style-type: none"> • \$1.8 billion state investment to address the housing crisis • 3 CA metro areas in top 10 of most construction jobs added in 2019
Los Angeles	KEY INDICATORS	KEY DRIVERS
	<div>  GDP  \$0.8 T  CPI  274 </div> <div>  UNEMPLOYMENT  4.5%  INFLATION  3.1% </div>	<ul style="list-style-type: none"> • Highest ratio of housing prices to household income in the country • Currently tied with Seattle for most cranes in the nation

Indicators shown are the actual values as of February 2020.

Arrows represent the direction of change in the indicator from 2018.

The State of California (State) approved its largest budget in history with increased spending on schools, homelessness, and health care, while still adding billions to the State's reserves funds. The State budget allocated \$1.8 billion for subsidies and expanded tax credits to spur new housing production, along with incentives for cities to approve new home constructionⁱⁱⁱ. After the defeat of Proposition 6 in November 2018 (intended to reverse the SB-1 legislature-approved gas tax for infrastructure spending), SB-1 has gone into full effect. The 12-cent-per-gallon SB-1 gas tax has increased Caltrans' budget to \$14.6 billion, up from \$9.5 billion 3 years ago, and will support a \$52.0 billion program to repair and maintain the state's highways and bridges as well as invest in public transportation.

Risks to California's economy include the high cost of housing and the ability to attract and keep skilled workers, and slowing population growth. The increased frequency of natural disasters throughout the state will further constrain the construction market as destroyed structures and infrastructure are rebuilt.

California has both the highest number and largest value of projects in the country. With over 1,300 construction projects, California accounts for nearly 15% of all the construction spending in the country^{iv v}. Major projects being undertaken in the state include LAX's Landside Access Modernization Program (LAMP), California High-Speed Rail, and the Virgin Trains' Xpress West from Los Angeles to Las Vegas.

Los Angeles

Real income gains are emblematic of the trends taking place across the state, however income growth in Los Angeles is expected to lag behind the state in 2020 due to Los Angeles' relatively higher unemployment rate and greater degree of labor market slack. Robust employment increases in service sectors such as health care and business will create an additional 60,000 jobs per year, continuing the long-term decrease in unemployment rate and Los Angeles County's projected unemployment rate of 4.3% in 2020.

Despite the county's projected GDP growth, which roughly paces the statewide economy and national growth, housing shortages pose a threat to continued growth. Approximately 21,000 new unit permits are forecasted in 2020 in Los Angeles County, an upward trend that must continue if home prices are to decline to more attainable levels. Consequently, housing construction will continue to rise to make up the affordable housing gap that has widened over years of suppressed development.

Los Angeles County has also seen a major shift. A wave of technology companies has taken root along the coast, spanning from Santa Monica to Los Angeles International Airport (LAX), creating "Silicon Beach." Now considered the technology capital of Southern California, Silicon Beach is bringing employment opportunities and an influx of new residents. As this new tech hub expands and attracts more entrepreneurs and investors to the region, housing prices will continue rising along the coast and push residents farther inland toward more affordable housing, but longer commute times.

The Construction Industry is Booming

Voters are passing transportation funding measures across the nation resulting in 5% projected growth in 2020, optimistic contractors, and labor shortages.

Construction Spending Continues Rising

With annual national spending of approximately \$1.3 trillion last year, the construction industry is a major contributor to the US economy. It accounts for 4.1% of the national GDP and employs 5.3% of the country's total workforce.

Transportation construction expenditures increased 8.0% in 2019, with significant gains in highway, street, and pavement work, which grew by \$9.6 billion for a total of \$73.1 billion nationwide. Several rail transit megaprojects also broke ground.

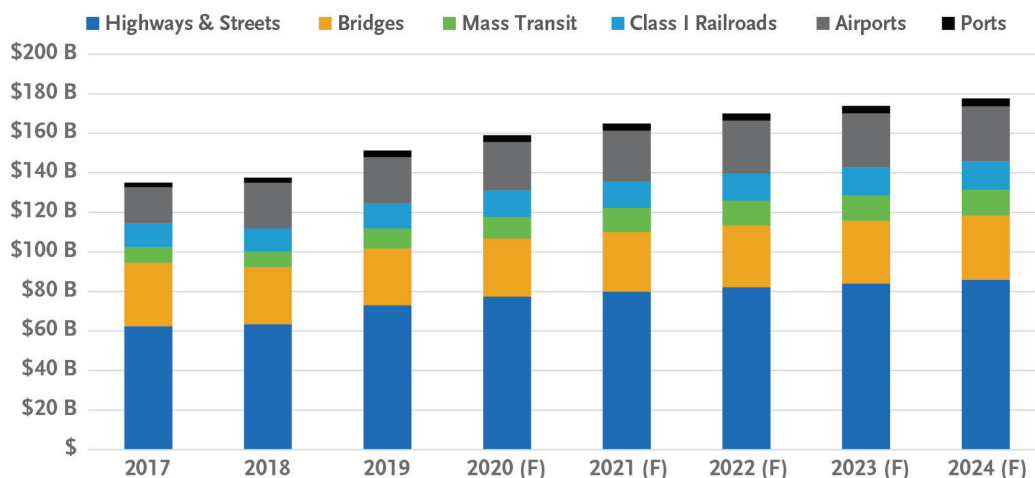
Four more states raised gas taxes in 2019 to support transportation investment, bringing the total number such states to 31. Nearly 90% of

the 305 state or local transportation measures on the ballot in November 2019 were approved, resulting in additional \$9.6 billion in potential construction spending on projects in the next few years.

According to the American Road and Transportation Builders Association (ARTBA) 2020 Market Forecast, the US transportation infrastructure market is expected to grow 5% in 2020 with increased funding from all levels of government. This accounts for public investment in highways, bridges, public transit, rail, ports and waterways, and airport runways and terminals, as well as related transportation infrastructure for residential and commercial development.

Potential delays in the reauthorization of the Fixing America's Surface Transportation (FAST) Act and Congress ability to find additional revenues to support the Highway Trust Fund both pose a risk to the transportation construction market. If states delay projects over concerns about whether the next federal surface transportation bill is completed in a timely manner, this could temper 2020 market growth.

TRANSPORTATION CONSTRUCTION SPENDING PER YEAR



Note: (F) ARTBA's forecast of construction spending for future years.

Exceptionally Low Unemployment in the Construction Industry

Despite some concerns of the overall economy slowing, most construction firms expect demand for their services to expand in 2020. Contractors plan to add staff to ensure a sufficient workforce to keep pace with growing demand^{vi}. On a year-over-year basis, construction employment has expanded 3.1% nationally in 2019, and California alone is projected to add 29,400 construction jobs in 2020.

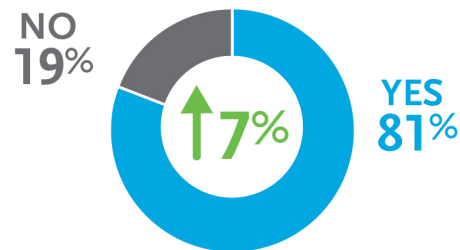
Although construction job openings in recent months have been at the highest level since 2000, the number of unemployed skilled workers available to fill these openings has fallen. The national annual unemployment rate has fallen to a low of 3.7%, and the construction annual unemployment rate has also fallen, down to 4.5% in 2019. Although good for individuals, the low unemployment rate has created labor shortages in industries, especially construction. Associated General Contractors released a survey that found 75% of contractors expect to add workers in 2020, but 81% of firms indicated difficulty filling hourly craft or salaried positions and do not foresee improvement in the near future^{vii}.

The construction industry continues to increase employment, including a 3.4% increase in California on a year-over-year basis as of November 2019^{viii}. However, labor shortages threaten to undermine the growth of the construction industry. Staffing challenges as a result of labor shortages are increasing construction costs and delaying project schedules—projects take longer and bids also become more expensive. Workforce shortages that make construction projects more costly and slower to build increase the risk of undermining broader economic growth by making development projects—including infrastructure—more expensive and time-consuming.

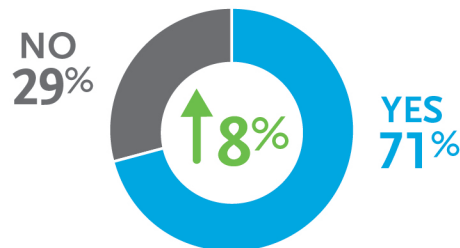
Contractor Response to Skilled Labor Shortage

Average annual change since 2018

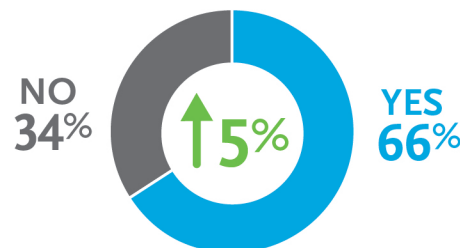
ASKING SKILLED WORKERS TO DO MORE WORK



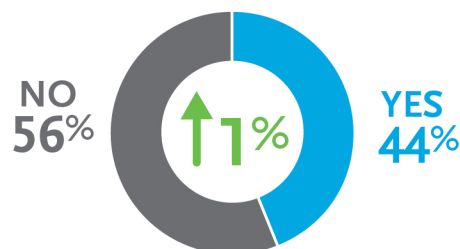
CHALLENGES TO MEET SCHEDULES



SUBMITTING HIGHER BIDS

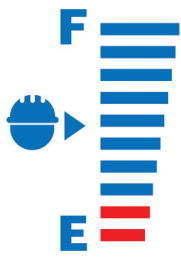


TURNING DOWN WORK PROJECTS





75%
of contractors
expect to
add workers
in 2020



81%
of firms having
difficulty filling
hourly craft or
salaried positions

The Los Angeles construction market is experiencing “perfect storm” conditions driven by a skilled-labor shortage, low unemployment, and large amount of ongoing and planned work in the region. Construction employment in Los Angeles County has increased significantly by over 7% the past year, resulting in 10,700 jobs. The construction industry’s recent growth in Los Angeles has been driven up primarily by transportation infrastructure and by private-sector redevelopment investment in response to increased demand for housing and office space. More information regarding the number of construction jobs needed over the next 10 years in Los Angeles is presented in Chapter 5.

The Los Angeles construction market is experiencing “perfect storm” conditions driven by a skilled-labor shortage, low unemployment, and large amount of ongoing and planned work.

Normalization of Construction Materials/Costs

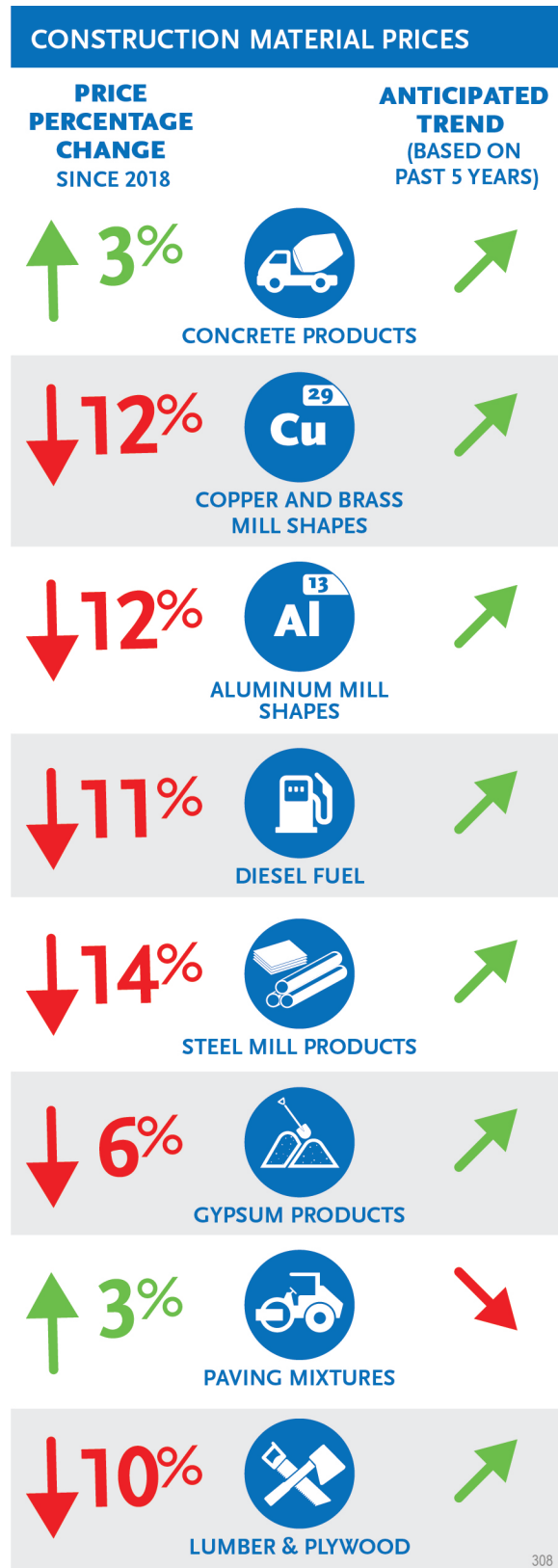
Each month, the US Department of Bureau of Labor Statistics (BLS) surveys the prices that goods producers charge for items used in construction. The Producer Price Index (PPI) is a measure of the average change over time in the prices paid by contractors for construction materials. These prices are expressed as index numbers rather than dollars, and how much these numbers change over time is significant.

One of the contributing factors putting pressure on construction costs includes materials costs, which are rising at the fastest rates in several years driven in part by recent tariffs on construction materials including lumber, steel, and aluminum. As of the beginning of 2019, material prices have cooled off according to ENR and BLS statistics^{ix}. This is in part due to a market correction resulting from lower than expected construction starts in the US housing market and tariffs that are now lifted. However, the US could potentially see new tariffs introduced or removed anytime, making the cost of construction materials volatile and uncertain. The unpredictability and continually changing trade negotiations and agreements over the past year has resulted in suppliers decreasing the window of time that quotes remain valid.

AGC reviewed specific construction items and how prices have normalized within a few months following the trade agreement between the US, Canada, and Mexico. Material costs are also expected to continue to escalate, but at a slower pace than labor costs.

Per the BLS October 2019 News Release, the PPI final demand index rose 1.1% for the 12 months ending in October, the lowest rate of increase since advancing to 1.1% in October 2016 ^x. The 20-city average also showed a fall-off with prices decreasing 3.1% for the year. Steel prices—which soared as the tariffs were introduced—have since fallen below where they were at the outset of the trade war, dropping by more than 40% since last summer. As of October 2019, after months of price slides, domestic steel suppliers have already begun increasing steel pricing.

Despite the recent decline and short-term continuation of decreasing producer price indices for key construction materials, based on recent market and policy trends, cost escalations appear likely to remain in place for several more years. These increases will result in increased costs for Metro projects.



308

Contractor Confidence Index Remains Optimistic

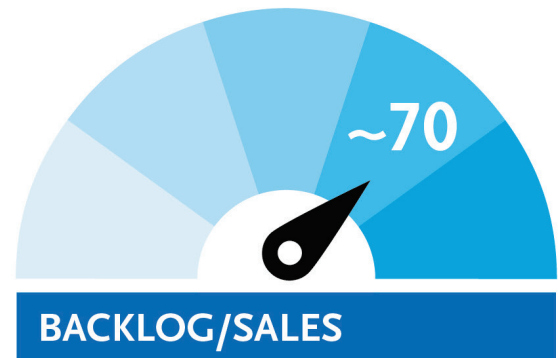
The Construction Confidence Index (CCI) measures general contractors', subcontractors' and design firms' sentiment about the current market and where it will be in 3 to 6 months and over a 12- to 18-month period. The CCI is a forward-looking national indicator that reflects the industry's perceptions and expectations of the business environment through indicators such as sales, profits, and staffing. Index readings above 50 indicate growth optimism, and below indicate growth pessimism.

Contractors became slightly less confident since January 2019 regarding their staffing levels because of greater challenges recruiting and retaining talent, dropping from 68.2 to 63.6 points. Given the large and growing skills shortages and rising compensation costs, contractors are finding it increasingly difficult to hire skilled workers who can complete jobs within the estimated labor costs.

Most contractors still have high confidence in the market's ability to provide new business opportunities and believe they will see revenue growth despite a point drop of 4.6 to 63.8. Profit margins dropped less than 2 points in 2019, finishing at 58.5 in December, strongly suggesting that demand for construction services remains elevated.

All 2019 indicators showed an overall decrease in index number, yet all remain above 50 points, suggesting a growing market. Moving into 2020, Associated Builders and Contractors (ABC) chief economist Anirban Basu believes "Contractors [will] continue to position themselves for a growing and more profitable marketplace with expectations of rising sales, wider profit margins and larger teams of workers." However, abundant risks remain including material price fluctuations and the struggle to meet shorter project schedules with limited resources.

CCI Data



- Significant Slowdown (0-19)
- Down Market (20-39)
- Neutral Market (40-59)
- Healthy Market (61-79)
- Boom Market (80-100)

Emerging Trends Challenge “Business as Usual”

Increasing demand for construction combined with industry challenges such as labor shortages affecting productivity have shifted needs and emerging trends in the market. Current trend drivers include increases in megaprojects, contractors bidding more selectively, perceived risks of P3 delivery, and growing interest in alternative delivery methods.

Megaprojects

Massive and transformational undertakings costing over a billion dollars, megaprojects also involve more stakeholders. This scale of effort comes with more unforeseen challenges, construction duration up to a decade, and historically overrun cost and schedule objectives.

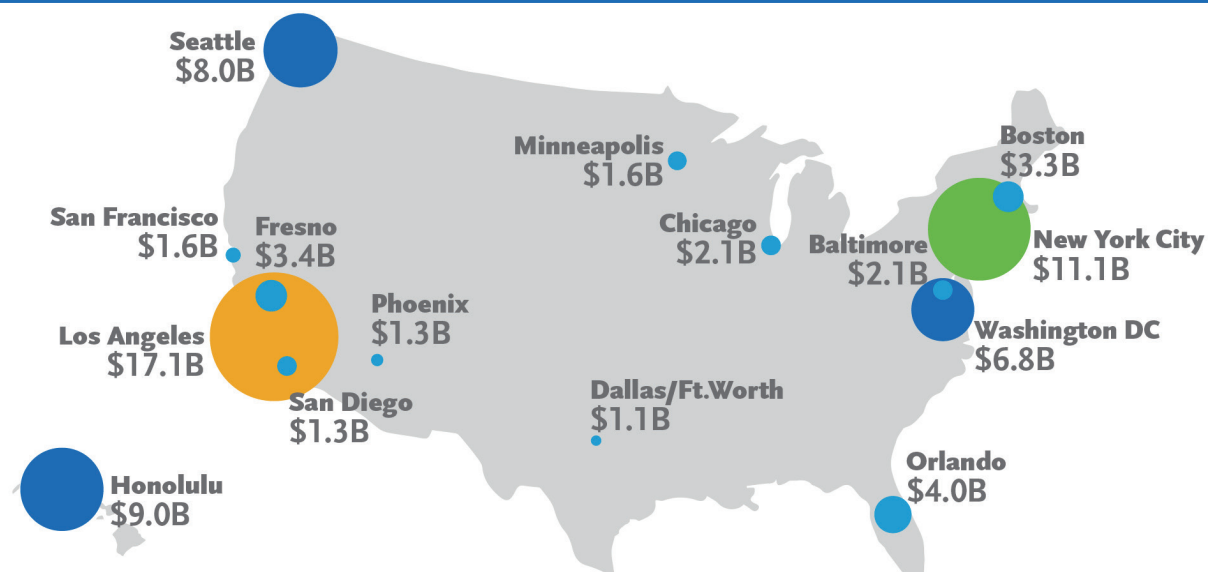
The demand to rebuild infrastructure is high, and megaprojects are growing larger and increasing in number and complexity. Between 2013 and 2018 alone, the annual value of US megaprojects increased from 3% to approximately 33% of all US

construction project starts^x. Today, 473 megaprojects are planned in the US between 2019 and 2023, and the average size is expected to increase 37% from \$2.1 billion to \$2.9 billion. The US is projected to exceed \$2.5 trillion in total construction allocated for megaprojects in the next decade, and— notably—these projects are densely located:

- California, Texas, and New York represent 40% of the national total for planned megaprojects.
- Over the next 3 to 5 years, 50% of megaproject construction will occur in only 20 metropolitan markets.

Owners and contractors are struggling to develop accurate bid estimates and manage the administrative burden inherent in the scale and complexities of megaprojects.. Megaproject performance analysis indicates that merely one out of ten megaprojects in all US market sectors are delivered on time and on budget. This trend is not likely to improve, because the pool of contractors and resources will be further constrained as the number of megaprojects in the market increases.

RAIL TRANSIT MEGAPROJECTS UNDER CONSTRUCTION BY METROPOLITAN AREA



Megaprojects: Increasing in Number, Size, and Complexity



473

MEGAPROJECTS
PLANNED IN U.S. FOR
NEXT 4 YEARS (TO 2023)



40%

OF NATIONAL TOTAL FOR
PLANNED MEGAPROJECTS
ARE IN CALIFORNIA, TEXAS,
AND NEW YORK



37%

INCREASED AVERAGE
SIZE EXPECTED FROM
\$2.1 B TO \$2.9 B



90%

OF MEGAPROJECTS IN
THE US EXPERIENCE
SCHEDULE DELAYS
AND COST OVERRUNS



12

METRO MEGAPROJECTS (> \$1B)
TOTALING \$35B ARE UNDER
CONSTRUCTION OR PLANNED
IN NEXT 10 YEARS

Contractor Bid Decisions

With a strong backlog growth and optimism in future demand for construction, contractors are being more selective when bidding work. As a result of the tremendous demand and less contractor capacity, there will be diminished competition on bids and margins will be driven up that will likely increase construction costs for owners.

One of the biggest considerations for contractors in making decisions to bid are fixed-price agreements that lock in a price early on. As things change on fixed-price jobs, so does costs, increasing the chances for disputes between contractor and owner about who is responsible to pay for these changes.

Another factor influencing contractor willingness to bid is contract terms and conditions. Contractors are seeking more “friendly” terms and conditions related to liquidated damages, significant upfront payment on mobilizations, and clauses that mandate ongoing issue resolution.

Five of the Engineering News Record's top 25 ranked contractors are backing away from, or are more risk averse to, P3 delivery.

Weighing the Risks of the P3 Market

The rapid deterioration of infrastructure in every state, investment shortfalls for building and rebuilding vital public systems, and overcapacity of systems are forces driving the expansion of the public-private partnership (P3) market in the US. The US Department of Transportation defines P3s as “contractual agreements formed between a public agency and a private sector entity that allow for greater private sector participation in the delivery and financing of transportation projects.”

At the heart of the P3 model is the principle that risks associated with the delivery of infrastructure should be allocated to the contractual party best able to manage them—both the public and private sector have echoed that efficient allocation of risks between partners is needed to have a successful project. Problems arise when risks are not identified or properly allocated prior to beginning work, and neither the owner nor contractor can agree on who will pay for the additionally incurred costs.

This was the case for five of ENR's top 25 ranked 2019 contractors who recently became considerably more selective when choosing which P3 projects to participate in, or discontinued participation in P3 projects in the US altogether^{xii}. Each contractor reported large financial losses as a result of recent projects, heavily influencing their decision to limit involvement in P3 projects in the US. And as risks facing large public projects increase due to the growing pressures over labor and materials prices, contractors are being even more cautious about this alternative delivery.

While several of the country's largest contractors are moving away from P3 projects, others see them as a worthwhile solution to financing, designing and building large-scale government projects. Under the right circumstances and with the right partners, P3s can have extraordinary results compared to other methods. The Design-Build Institute of America (DBIA) recently produced a position paper on the delivery method, saying it "supports P3s as a potentially effective and efficient method to help address our nation's infrastructure financing and delivery challenges," noting that the key to a successful P3 is collaboration between parties in all phases of project delivery^{xiii}. Even as the P3 model becomes an important part of the country's infrastructure landscape as state and local governments try to drum up new funding sources and minimize their risk of cost overruns and schedule delays, the US currently lags behind other nations. Canada, widely acknowledged to be the key source of international best practice for P3, has initiated dedicated procurement offices and standardized P3 contracting as risk reduction measures. In contrast, US contract terms vary from project to project—adding uncertainty and decreasing attractiveness to potential bidders.

Alternative Delivery Methods Are Gaining Traction

The industry is looking to alternative delivery methods, instead of traditional design-bid-build (DBB) and design-build (DB), to address capital programs and projects that are trending larger in size and with greater complexity. These alternative delivery methods are intended to better address (1) quality, time, and cost requirements, (2) risk sharing between stakeholders and project delivery partners, and

(3) increasingly constrained market resources including attracting proposers from a limited bidding pool. Primary among these alternative delivery methods is Construction Manager/General Contractor (CM/GC) and Progressive Design Build (PDB).

Construction Manager/General Contractor

CM/GC is in some sense like a hybrid of DBB and DB, because the owner separately procures a designer and a contractor (like with DBB), but brings the contractor (the CM/GC) onboard during the pre-construction phase to collaborate with the owner and designer during design development. This collaboration is intended to assist with constructability reviews and value engineering of the final design (like with DB). Under CM/GC a Guaranteed Maximum Price (GMP) is negotiated with the owner for delivery of the construction project (in whole or in phases).

Progressive Design Build

PDB is like a hybrid of DB and CM/GC, whereby delivery involves a single procurement of the resources necessary to complete final design and construction (like DB), but a firm fixed price is collaboratively developed between the owner and the DB contractor during the Preconstruction Phase of the project (similar to CM/GC). The primary difference with "traditional" design-build is the award is qualification based, not price based. Essentially, the owner defers obtaining price and schedule commitments until after the design has been sufficiently defined to support improved baseline establishment.

COMPARISON OF ALTERNATIVE DELIVERY METHODS		
Alternative Delivery Method:	Construction Manager/ General Contractor	Progressive Design-Build
<i>Key Features</i>		
Negotiate GMP for delivery of the construction project (in whole or in phases)	✓	
Create “off-ramp” milestones during pre-construction	✓	
Utilize qualification-based selection		✓
Defer price and schedule commitments until after the design has been sufficiently defined		✓
<i>Shared Benefits Addressing Market Conditions</i>		
Doesn't lock the bidder into a firm fixed price at the time of the bid, reducing contractor risk	✓	✓
Reduced time of delivery by overlapping early critical path construction items	✓	✓
Early input from the contractor via constructability reviews and value engineering	✓	✓
<i>Additional Benefits</i>		
Provides for greater cost certainty through GMPs	✓	
Lower proposal preparation costs to attract more bidders		✓
Low bid is not the deciding factor in selection		✓



03

Metro's Response to Shifting Construction Market Conditions

Three intended outcomes shape Metro's strategy for adapting to evolving market conditions: increase the labor pool, be the owner of choice, and create a stronger and more resilient organization.

Increase the Labor Pool

Metro recognizes the need to build and train a diverse, inspired, and high-performing workforce as outlined in Metro Vision 2028 Strategic Plan Goal 5.7. Over the past few years, Metro has made significant strides to developing a diverse labor pool and embarked on bold strategies to develop the next workforce generation.

WIN-LA Workforce Program Is Developing Needed Resources

As of today, 50% of Metro's workforce will be eligible for retirement by 2024, and a qualified workforce is needed to continue building and maintaining Los Angeles County's transportation infrastructure.^{xiv} The boom in local infrastructure development, coupled with the agency's aging workforce, creates an urgent need for a new generation of qualified, trained, and prepared talent that reflects the region's demographics.

"Contractors are paying more to locate and train labor, and paying for more overtime hours. However, the quality and productivity of workers has declined as a result of a poor pipeline of craft personnel who are well trained and skilled."

Ken Simonson, AGC

Metro's workforce development program, Workforce Initiative Now Los Angeles (WIN-LA), is helping address this challenge increasing opportunities and creating career pathways in the transportation industry—including construction.

WIN-LA focuses on Los Angeles County communities and individuals who may be underrepresented in the workforce:

- Economically challenged communities
- Emancipated foster youth
- People who are veterans, homeless, previously involved in the criminal justice system
- People who or lacking a high school diploma or GED

WIN-LA is delivered through established regional partnerships between Metro, the Los Angeles Regional Community College Consortium, the Transportation Workforce Institute, and community-based organizations.

Beyond providing needed resources for training and placement of hard-to-fill positions within the transportation industry, WIN-LA collaborates with program partners to support areas such as life skills development, skill set enhancement, and educational attainment services. By providing the resources needed for training and placement of these positions, WIN-LA was able to deem 89% of program participants as job-ready after completing training, and succeeded assisting 85% of participants from priority communities gain employment.

Strengthening Metro and Reducing Risk

Metro is implementing the largest transportation expansion program in the country and is experiencing the impacts of booming construction activity in Southern California.

In response, Metro is implementing critical steps to plan, build, and deliver critical mobility projects in Los Angeles County made possible by Measures R and M.

WIN-LA Workforce Development Program

50% OF METRO FORCE
ELIGIBLE FOR
RETIREMENT IN 2024



89% OF PARTICIPANTS IN
WRP WERE DEEMED
JOB-READY

85% FROM PRIORITY
COMMUNITIES GAINED
EMPLOYMENT

Contractor Outreach

300+ ATTENDEES AT INDUSTRY
FORUMS FOR SEPULVEDA
TRANSIT CORRIDOR AND
LINKUS



24+ MONTHLY OUTREACH
EVENTS BETWEEN METRO
AND CONSTRUCTION
INDUSTRY ASSOCIATIONS

SEED Transportation School/ E3 Youth Initiative Will Build the Next Workforce Generation

Metro and Los Angeles County has announced the kickoff of its Transportation School. This free boarding school offers vocational and college-preparatory curriculum tailored to train approximately 400 high school students annually in the transportation industry. It aims to attract students from across the county who have been homeless, in foster care, or involved in the criminal justice system (and through the WIN-LA Program)

Early plans for curriculum envision seven career tracks that include logistics, civics and public policy, engineering and mechanics, along with classes that meet State curriculum requirements. After graduation, students could obtain work with Metro or other local contractors, or go to college to study engineering, architecture, or urban planning.

The school aligns with Metro's Expose, Educate, and Employ (E3) Youth Initiative. E3's mission is to "prepare Los Angeles County youth for career and college pathways in the global transportation infrastructure industry by teaching them transferrable industry skills." The initiative's goals include exposure to careers in the global transportation industry, education and training in transferrable transportation industry skills, and expansion of Metro's highly skilled and diverse workforce.

As Metro's soon-to-retire employees begin transition out of the work force in the next few years while the boom in local development continues, existing staff will move up to fill these positions, leaving thousands of positions to fill. Metro hopes graduates could address this critical projected need for qualified workers.

Helping Women Enter the Construction Market

The construction industry is a male-dominated industry that consists of roles traditionally filled by men. A perception that women are physically incapable of doing the work has been a barrier to entry, which has been reinforced by an unwelcoming industry and environment that lacks encouragement and support.

According to the BLS the construction industry is composed of only 9% women, which includes those in executive, administrative, and office roles. This number has remained approximately 9% since 1996. However, looking specifically at women workers on active job sites and in trades, women make up only 3.4% of the workforce.

If more women join the construction industry, more labor will be available to deliver projects now and in the future.

The inclusion of female workers to meet demand for future infrastructure projects is vital. The older construction workforce is growing faster than new, younger workers entering the market. Realizing the potential for women to find new opportunities while helping to address labor shortages, the industry has launched several initiatives supporting this movement.¹⁵

In 2016, Metro began challenging the status quo by implementing programs to support women entering the industry. Metro has passionately committed to increasing the number of qualified women candidates for apprenticeship and placement with all trades that work on Metro construction projects, and setting ambitious, measurable goals. These efforts to encourage and support women include Women Build Metro LA (WBMLA), and the Female Participation Scorecard.

Women in the Workforce

The number of women in construction has not changed for years despite several initiatives to address this issue. Metro is paving the way for women to enter the construction workforce through several initiatives.

- WIN-LA
- SEED Transportation School
- E3 Youth Initiative
- Female Construction Scorecard
- Women Build Metro LA



3.4%

WOMEN ON ACTIVE JOB SITES
AND IN TRADES NATIONALLY



3.6%

METRO'S CURRENT AVERAGE
FEMALE PARTICIPATION ON
CONSTRUCTION PROJECTS
AS OF SEPTEMBER 2019



6.9%

FEMALE UTILIZATION GOAL
SET BY METRO BOARD
EXECUTIVE ORDER 11246

Women Build Metro LA

In response to the lack of women in the construction workforce, WBMLA was established to recruit, educate, and support women's introduction to all aspects of the transportation industry, with an emphasis on the construction trades. This program supports Metro's Project Labor Agreement and Construction Careers Policy, which encourage construction employment and training opportunities to those who reside in economically disadvantaged areas on Metro construction projects. WBMLA is composed of women and men in construction related industries, community advocates, stakeholders, and decision makers from the private and public sectors who strive to improve access to career opportunities and serve as a catalyst for improving socio-economic status for minorities and women. By empowering women to pursue careers in the construction industry, WBMLA creates a more equitable and inclusive work environment.

Female Construction Scorecard

Construction workers on Metro projects are contractor employees. The current average female participation on Metro construction projects is 3.6% as of September 2019, compared to a Metro Board of Director goal of 6.9%. However, Metro aims to exceed the female utilization goal and has established a score card system to highlight prime contractors' attainment of this goal. From 2015 to 2019, with the establishment of WBMLA and the score card, female participation in Metro projects increased to from 2.9% to 3.8%, and from 1.0% to 2.3%, respectively. Metro continues to emphasize to contractors who work with Metro that increasing female utilization is a Board priority.

WBMLA and the female participation score card helped increase female participation in Metro projects from 2.9% to 3.6% and participation in greater Los Angeles area projects from 1.0% to 2.3% from 2015 to 2018.



Be the Owner of Choice

Metro has many successful relationships with the construction contracting community, but now more than ever, contractors have many options and must make savvy business decisions when determining which owners and projects to bid. Metro continues evolving and adapting more nimbly to changing market conditions to attract the highly qualified bidders, drive innovation, and support competition as outlined in Metro Vision 2028 Strategic Plan Goal 5.5: Metro will expand opportunities for business and external organizations to work with us.

Reducing Risk on Firm-Fixed-Price Contracts Through Alternative Delivery

Several large contractors have had major losses with firm-fixed price delivery because complex projects are difficult to accurately bid while accounting for uncertainties. Contractors have expressed that current contracts have skewed risk too far toward favoring owners, resulting in limited bidding pools and withdrawn bids.

Understanding this trend in the market and the complexity associated with projects, Metro has begun evaluating more equitable alternative delivery methods.

Allowing more equitable sharing of project risk and engaging in earlier collaboration to help refine scope and price will increase contractors' ability to assess and account for risk before submitting a firm-fixed price.

Delivery methods such as pre-development agreement (PDA), construction management/general contractor (CM/GC), and progressive design-build (PDB) when soundly contracted and administered allow for contractor insight on

critical design decisions helps to reduce risks, facilitate improved management of costs, and accelerate delivery.

These alternative delivery methods provide equitable sharing of project risk. Attracting a larger pool of bidders becomes possible as risk is reduced and appropriate reward is available to the contractor.

As with any delivery strategy, benefits must be balanced by pitfalls. For alternative delivery strategies, the primary pitfall is implementation of a delivery method that is new to an owner and untested. Metro's implementation of a more formalized project delivery selection procedure is intended to weigh advantages and disadvantages of numerous contracting types, traditional and alternative, based on the project goals and attributes.

Attract More Bidders through Contractor Outreach

Metro has actively engaged contractors early and often regarding upcoming projects through several means:

- Sharing appropriate information (project scope, timing, procurement and financial approach, technical components)
- Holding one-on-one meetings with contractors during the pre-solicitation stage
- Hosting 300+ person industry forums and market sounding events

Advantages of early contract outreach include obtaining high-level feedback from the private sector prior to project procurement regarding project design, delivery mechanism, public funding commitments, and feasibility; and determining if there is sufficient interest to proceed with the procurement or the need to modify the procurement approach.

Scale Projects to Increase Competition

As Metro implements a large portfolio of small-, medium-, and large-scale projects, there will likely be fewer and higher-cost bids from contractors as a result of contractor capacity and labor availability challenges in the market. For megaprojects, there are select few contractors that are willing to take on the high risk associated with these projects. Metro may want to evaluate contracting options that logically phase projects for initial operating segments (IOS) and structure contracts to allow the contractor to build a manageable IOS and have the option to build the subsequent IOS based on performance.

“Attracting a larger pool of bidders becomes possible as risk is reduced and appropriate reward is available to the contractor.”

Ken Simonson, AGC



Multiple Metro projects will compete with each other for the same pool of resources. Metro may need to consider contractor-friendly terms and conditions to incentivize additional bidders on small- and medium-size projects. Although doing so creates greater administrative burden, scoping projects into smaller packages will create more bidding opportunities for smaller contractor firms that would otherwise be unable to provide necessary bonding or form teams for larger procurement packages.

Create a Stronger and More Resilient Organization

As Metro implements the largest transportation expansion program in the country, it has experienced the impacts of the booming construction activity in Southern California and macroeconomic market conditions. Subsequently, Metro has started to implement critical steps to plan and build projects more cost effectively, with less risk to accelerate. Aligning with Metro Vision 2028 Strategic Plan Goal 5.5: Metro will expand opportunities for business and external organizations to work with us, these critical steps to position Metro for the shifting construction market conditions are outlined below.

Metro's Program Management Department has instituted internal training, mentoring and provided large amounts of hands-on experience and responsibility to personnel working on megaprojects. Megaprojects are tremendous opportunities for young and new personnel to learn, accept challenging assignments and move up the ladder.

Lessons Learned to Overcome the Megaproject Challenges

Managing the delivery of megaprojects is difficult, resulting in increased claims and change orders, delays, and owner/contractor disputes ending in litigation. The size and complexity of megaprojects amplifies cost increases and schedule delays resulting from these issues. In the past, most megaprojects have been delivered through low-bid design-bid-build or design-build. Depending on the type and complexities of the projects, these delivery methods can be appropriate, but have a greater risk of cost overruns due to low bid selection that does not account for the risk uncertainties and complexities of megaprojects.

As outlined in Metro Vision 2028 Strategic Plan Goal 5.2 (Metro will exercise good public policy judgment and sound fiscal stewardship), Metro is using best practices for sound fiscal stewardship by better defining and controlling the costs of infrastructure projects. Reviewing Metro's current and past megaprojects reveals several successes on current and past projects, such as the Purple Line Extensions. Many of the lessons learned from Regional Connector and Crenshaw/LAX are being incorporated into current and planned Metro projects to increase market-readiness, improve execution, and manage costs. Some of the lessons learned can be applied on several levels:

- x Provide clear project team governance and administrative support
- x Conduct quality assessments for deeper understanding of project issues and opportunities
- x Perform additional early due diligence for major identified risk areas, as well as cost, schedule, and value factors
- x Provide internal clarity around major commercial terms and project specifications

- x Create dispute resolution procedures both parties can rely on
- x Design to appropriate levels based on risk assessments

Furthermore, planned megaprojects in the Metro portfolio are also being evaluated for the most appropriate and cost-effective delivery methods, as seen with West Santa Ana Branch Transit Corridor, Sepulveda Pass Transit Corridor, and Link Union Station. Project considerations including constraints and opportunities, value for money, empirical metrics, and risk transfer are being evaluated to identify the most appropriate project delivery method. Through this process, the historical challenges of costs and risks associated with megaprojects will be better defined and managed to ultimately improve the delivery execution.

Greater Collaboration Among Departments to Better Manage Scope and Costs

As projects transition from the Metro Countywide Planning Department to Program Management, so does management responsibility. To leverage expertise and resources, there has been more strategic and greater collaboration between respective Metro departments during the early stages of project development. The enhanced collaboration between Countywide Planning, Program Management, Construction Management, Real Estate, and Operations and Maintenance will help reduce risks and accelerate projects through knowledge transfer by multidiscipline subject matter experts, innovation to solve technical challenges, implementing best practices, and aligning Metro plans, policies, and initiatives. Irrespective of which Department a project lies with, closer collaboration with each Department will enhance the scope, public benefit, and more accurately ensure schedule and costs are accounted for from the inception of the project.

Improved Risk Management Program Accounts for Uncertain Market Conditions

Metro developed a Risk Management Program Plan to formalize and document risk management protocols and practices, and commence risk assessments at the earliest practicable time in the project life. The Risk Management Plan is a robust tool to guide projects in identifying and managing project risks and opportunities. The plan includes guidance on risk management, top-down and bottom-up risk analysis, and risk and contingency management. The focus is to avoid and/or mitigate risks (and optimize opportunities) so avoidable cost increases do not compound already higher construction costs.

A key component of the risk management process is an assessment of Market Conditions. A continually tightening marketplace, lack of bid competition, inflation/escalation pressures, and the resulting likelihood of higher bids are considered in the risk modeling and establishment of contingency amounts reflective of this risk.



04

External Factors Influencing Metro

Several emerging trends in the construction industry are affecting Metro's ability to deliver Measures R and M. Although many trends are outside of its control, Metro can develop strategies to position itself for positive external factors and minimize potentially negative external factors.

To position itself for success in this market, Metro is taking proactive, necessary steps for factors it can control. However, significant external factors—beneficial and detrimental—are largely beyond Metro’s control.

Beneficial External Factors

Economic Downturn May Ease Construction Market Demand

The most recent recession began more than 10 years ago, which increases the probability of an economic downturn sometime soon. In the event of a downturn, private investment and development would slow, causing a ripple effect throughout the economy. As private construction projects pause, the available labor market would be greater for Metro projects.

Although a recession would produce less sales tax revenue to fund Metro’s construction projects, it would create opportunity for Metro to tap a deeper pool of available workers. Likewise, contractor competition would increase as bidders seek project owners with resilient and continuous streams of revenue for construction.

Fate of Federal Surface Transportation Bill Creates Uncertainty

Potential delays in the reauthorization of the FAST Act, set to expire in September 2020, and Congress’ ability to identify new revenue sources to support the Highway Trust Fund is a major concern. Many state transportation agencies rely on the Highway Trust Fund to provide 50% or more of their highway and bridge capital investments. Although several attempts to pass a major infrastructure bill in Washington have occurred, none built enough momentum to get out of Congress.

Concerns regarding timely approval of a new federal surface transportation bill may cause some state and local agencies to delay construction projects as a consequence of sparse federal funding. This could temper the transportation construction market in 2020 and potentially 2021. This scenario may be beneficial to Metro because Measure R and M are locally funded revenue streams. Contractors would be drawn to bid with agencies like Metro, which could result in greater competition and lower bids on Metro projects.

“With the unlikelihood of a new infrastructure bill from Washington, the number of new projects will taper off in the next few years, which will be beneficial for Metro.”

Ken Simonson, AGC

Changing Priorities in the Regulatory Setting

The regulatory process of approving infrastructure projects is complex, lengthy, and burdensome. It can take longer to obtain environmental clearance and permits than it takes to construct the project.

Once in construction, projects must comply with strict regulations from many federal permits that typically slow construction and add unnecessary expense to projects.

To address this issue, the Council on Environmental Quality (CEQ) is proposing to comprehensively update and substantially revise

National Environmental Policy Act (NEPA) procedures to make the environmental review process more efficient. Key provisions include limiting time for completing environmental impact statements to 2 years, and 1 year for environmental assessments, which would give project owners greater authority in preparing their own environmental impact statements.

Metro major transit and highway projects typically receive federal funding and are then required to go through the NEPA process. This potential streamlining of NEPA will help Metro projects with federal funding get out to the market sooner therefore reducing costs and accelerating delivery.



Detrimental External Factors

Many external factors deserve attention now, and as they continue evolving, as part of Metro's strategy to achieve its three intended outcomes in construction: high cost of living constraints, third-party collaboration influences, agency competition for resources, and ballot measure trends in California and beyond.

High Cost of Living Deters Qualified Workers

According to Zillow estimates, the \$2,950 median rent for the Los Angeles area is nearly double the national median rent of \$1,590^{xvi}. Los Angeles is also considered one of the least affordable metropolitan areas in the country based on the ratio of house prices to household income^{xvii}. This issue hits blue collar workers the hardest, because the price of housing more than eliminates the advantage of higher wages in the Los Angeles area.

The need for labor is so significant that it will be essential to bring in qualified workers from outside Southern California. But the high cost of living poses a major hurdle for contractors trying to hire qualified workers from outside the region to work in Los Angeles. For specialized work, contractors are having to provide special hiring packages, higher salaries, and subsidies for transportation and relocation costs. These costs are reflected in contractor bids and drive up the costs to build projects.

Third-Party Collaboration

Misalignment with local jurisdictions and utility agencies is an issue that continuously causes project delays. Close coordination with all interfacing governmental entities and utility owners is important for maintaining project schedule and budget. Some of the common issues impacting project delivery include the length of submittal review times, changes in assigned reviewers, scope creep, inconsistent review comments, multiple rounds of review, and lack of authority for approval. Enhancing collaboration and expediting third-party jurisdictional and utility processes could help offset the cost and schedule pressures facing Metro in these market conditions. Metro is addressing this issue by evaluating how it can develop simpler master cooperative agreements (MCAs) that are more user-friendly, particularly for jurisdictions new to doing business with Metro.

Accounting for COVID-19

COVID-19 is creating a global economic impact that may soon affect the construction industry. Metro and contractors should brace themselves for potential supply-chain interruptions, labor disruption, increased costs for materials, logistic breakdown, and legal disputes. As a precaution, Metro should start conducting supply chain audits and identify vulnerabilities. The construction industry should prepare for short-term impacts, but the significance and duration of COVID-19 impact in the long term is uncertain.

Local Agencies Already Competing for the Same, Limited Resources

Southern California is arguably the infrastructure capital of the world with multiple billion-dollar-plus capital programs across various markets such as transportation, ports, aviation, water, and utilities. Major regional competition in construction market may divert potential resources away from Metro:

- California Department of Transportation (Caltrans) SB 1 highway repair and improvement projects
- Los Angeles Department of Water and Power (LADWP) \$1 billion program to transition to 100% renewable energy
- Los Angeles World Airports (LAWA)'s \$14 billion LAMP and \$2 billion Airfield & Terminal Modernization Project (ATMP)
- Orange County Transportation Authority (OCTA) freeway widening and improvement project totaling \$3 billion
- Port of Long Beach with construction of Middle Harbor, Pier B Railyard, and Gerald Desmond Bridge.
- Southern California Regional Rail Authority (Metrolink)'s \$10 billion Southern California Optimized Rail Expansion (SCORE) Program
- Virgin Trains' \$3.5 billion XpressWest high-speed rail line project connecting Southern California to Las Vegas

Consequently, Metro's local peer agencies are all competing for the same limited resources to deliver their projects. In addition, contractors have multiple project owners to choose from and will prefer owners with favorable contracts.

Ballot Measures Rivaling Measure M Could Steal Construction Resources from Metro

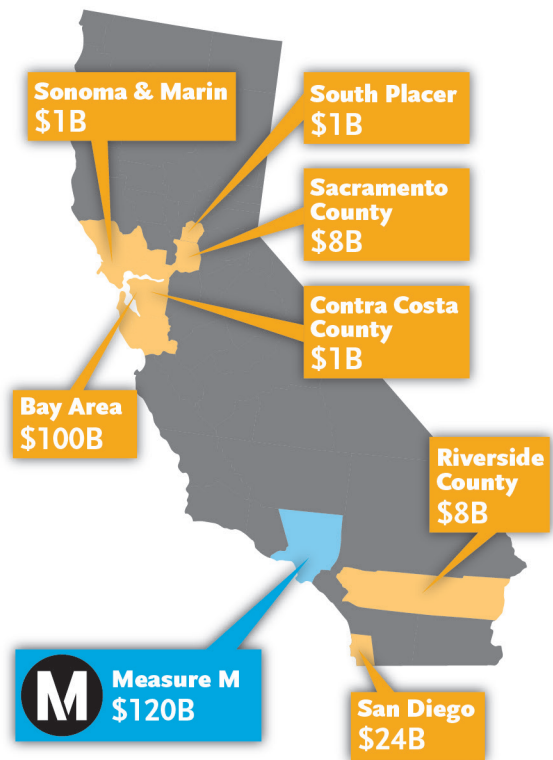
After witnessing the successful passage of two major transportation ballot measures, other jurisdictions are following Metro's approach by going to the ballot to fund transportation improvements.

Across the nation, nearly 90% of the 305 state or local transportation measures on the ballot in November 2019 were approved, resulting in additional \$9.6 billion in potential construction spending on projects in the next few years. In addition, recent legislation in California is making it easier for agencies to place funding measures for special districts or on a sub-regional basis. Therefore, several transportation ballot measures and funding strategies outside of Los Angeles County that rival Measure M could pass in 2020. Passage of these ballot measures and programs, especially in California, would significantly increase construction demand, further constraining the short supply of construction labor to support Metro's capital program under Measures R and M.

- **Bay Area** – A nine-county initiative in the San Francisco Bay Area, called the "Faster Bay Area Transportation Tax" will be on the November 2020 ballot. This ballot initiative is projected to generate approximately \$100 billion over 40 years for transportation projects. Projects would likely include transit and rail projects, and highway and bridge improvements. Polling for this ballot measure is hovering around 70% in general support.

- **Riverside County** – In December 2019, Riverside County Transportation Commission (RCTC) approved the placement of a half-cent sales tax increase on the November 2020 ballot to generate \$8 billion in transportation infrastructure. The half-cent sales taxes would have no sunset and could generate several billion dollars over the first 30 years. Potential projects would mostly be highway and regional rail improvements.
- **San Diego** – San Diego Metropolitan Transit System is moving forward with a half-cent sales tax measure on the November 2020 ballot to fund nearly \$24 billion over 50 years for transportation projects.
- Other California counties plan to go to the ballot box with transportation funding measures in March and November 2020.

Ballot measures at the local, state, and regional levels rivaling Measure M could threaten Metro's construction resources.





05

Future Construction Market Projection

Economic modeling was used to identify the number of construction jobs that will be generated from construction activity between 2020 and 2030. The modeling results shows a significant labor shortage between the estimated construction labor required and available construction labor force.

Metro's Construction Expenditure Forecast

To forecast Metro's annual construction expenditure for its projects, a model was developed to analyze available project data such as construction costs, anticipated construction start dates, and construction duration. The data was entered in an S-curve model to capture the cumulative progress of a project as construction activity typically begins slowly, ramps up in the middle, and then slows toward completion.

Over the next 10 years, Metro construction expenditures will likely average nearly \$2.9 billion per year with expenditures peaking in 2025. The figure below provides details of Metro's forecasted capital expenditures by year and project type. This forecast does not capture all Metro projects, such as the I-710 South Corridor, due to uncertainty in how the project will be built, and Crenshaw Northern Extension, which is estimated to start construction outside the forecast period.

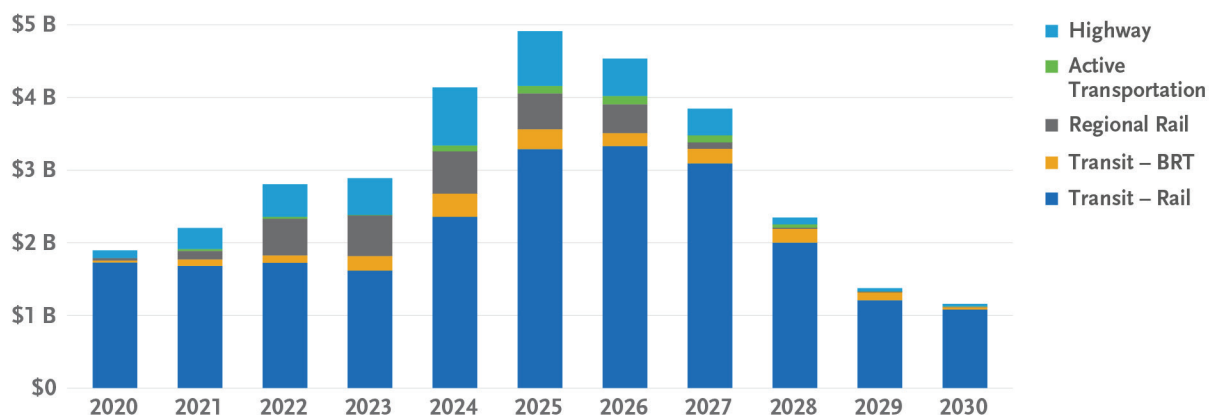
Local Agency Construction Budget Forecast

Local agency construction budgets from 2020 to 2030 with major capital programs were forecasted similarly and are summarized below.

These local agencies were categorized by sector:

- Transportation: Caltrans, OCTA, RCTC, SANDAG, SBCTA, SCRRA, Virgin Trains
- Airports: LAWA, BUR, LGB, ONT
- Water: MWD and LADWP
- Ports: Los Angeles and Long Beach
- Schools: LACCD and LAUSD
- Municipalities: City of Los Angeles, Los Angeles County, Orange County, San Bernardino County, Riverside County

METRO ANNUAL EXPENDITURE BY CONSTRUCTION PROJECT TYPE



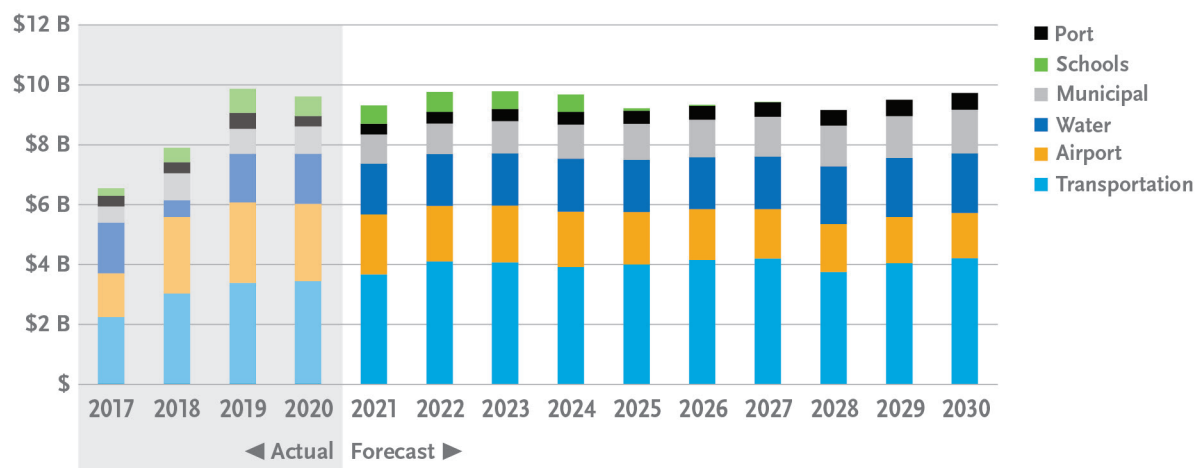
Most agencies reviewed included annual budgets out to Fiscal Year 2021 only. To estimate the budgets for years 2020 to 2030, linear trends were projected based on historical data.

Since the 2018 report, local agency budgets are anticipated to increase by \$1.9 billion annually to an annual average of \$9.5 billion over the next decade. This increase is driven by SB-1 going into full effect after repeal efforts failed in November 2018, the passage of Los Angeles County's Measure W, LAWA's \$2 billion Airfield & Terminal Modernization Program (ATMP), LADWP renewable energy and recycled water program, Metrolink's SCORE program, and Virgin Train's XpressWest project.

The total construction amount of capital improvement projects in the region which would directly compete with Metro's capital program over the next decade is projected to be \$104.5 billion. In contrast, Metro's total construction amount over the next decade is projected to be \$35 billion, or 33.5% of all projected construction spending in the region between 2020 and 2030.

This data will be affected by ongoing events such as local ballot measures and awards of State and federal funding to local agencies. If approved, many transportation improvements planned in future decades will be accelerated. Expenditure plans for the pending local ballot measures were not included in this report's analysis.

LOCAL AGENCY FORECAST OF ANNUAL CONSTRUCTION SPENDING BY SECTOR



Dodge Data for Other Non-Residential and Residential Construction

Private development is a major source of construction demand in Los Angeles with major cultural and entertainment projects in construction, including the NFL Stadium and the George Lucas Star Wars Museum. Downtown Los Angeles, Hollywood, and Silicon Beach are seeing significant growth in private development. Private development demand now employs the majority of construction labor. Construction expenditure data for private development is typically not public information, but is trade specific; therefore, to obtain past expenditures and projected projects, Dodge Data & Analytics was contacted and the private development construction expenditure data were purchased for the region (Los Angeles County, Orange County, San Bernardino County, and Riverside County). The Dodge data was then adjusted to account for possible double-counting in the nonbuilding and nonresidential project expenditures as well as Metro and local agencies construction expenditures.

Key Indicator:

Los Angeles tied Seattle for the most construction cranes in the US in 2019.

How the Number of Construction Jobs Required Was Modeled

Data gathered from the Bureau of Labor Statistics (BLS), LAEDC, local agency budgets, Dodge data, and Metro were used to model the job creation impact to the region (Los Angeles County, Orange County, San Bernardino County, and Riverside County) for the period of 2020 to 2030. Economic modeling was performed with the IMPLAN model to determine job creation by using construction budgets for Metro and local agencies and using Dodge data for private development as input. These employment values were compared to the current BLS number of construction employment for the current year and projected out to 2030 based on various growth factors including LAEDC's latest growth rate for the construction industry in the region.

The available construction labor was based on the current BLS employment and projected by California Employment Development Department (EDD) growth of 2% for the construction industry. This growth rate was adjusted slightly in the latter half of the decade to account for slowing population growth in California.

Limitations of the analysis should be considered when evaluating the data as the model does not account for employment resulting from other public or private construction expenditures. For example, the planned local agency public expenditures do not include any planned construction for the statewide expenditures on public construction projects such as the California High Speed Rail project and the University of California capital projects. Additionally, projected private construction expenditures data from Dodge excludes minor additions or alterations to existing buildings.

The Forecast Reveals a Prolonged Construction Labor Shortage

Although speculative, this 10-year economic analysis provides a view into the construction employment conditions that are anticipated from 2020 to 2029. It provides a basis to further develop trends that will impact the implementation and completion of Metro's projects. The results of this employment conditions modeling show that demand for construction jobs exceeds the available resources to fill these jobs.

The results from the economic modeling forecast for the annual estimated number of construction jobs is provided in a table. The construction industry is expected to sustain substantial growth and need for construction labor in preparation for the 2028 Olympic Games in Los Angeles along with significant investment in infrastructure and private development. After the Olympics, the construction industry will likely experience a slight decline as a localized market correction that reflects completion of Olympic-related construction activity.

ECONOMIC MODEL FORECASTING RESULTS FOR ANNUAL ESTIMATED NUMBER OF CONSTRUCTIONS JOBS

Year	Available Construction Labor	Estimated Construction Labor Required	Estimated Metro Construction Labor Required	Labor Shortage
2020	369,600	376,100	10,100	6,500
2021	376,600	386,900	11,500	10,300
2022	383,800	397,700	14,600	13,900
2023	391,100	409,000	15,100	17,900
2024	398,500	421,800	21,700	23,300
2025	405,500	435,100	25,800	29,600
2026	411,600	447,100	23,800	35,500
2027	416,700	455,200	20,200	38,500
2028	420,900	458,400	12,200	37,500
2029	425,000	454,900	7,100	29,900

The current labor shortage is felt as contractors have difficulty filling positions on current projects. The next 5 years will likely bring a labor shortage gap between 10,000 and 30,000 people. The peak of the labor shortage is anticipated between 2025 and 2028, resulting in a shortage of approximately 35,500 to 38,500 people to fill construction jobs.

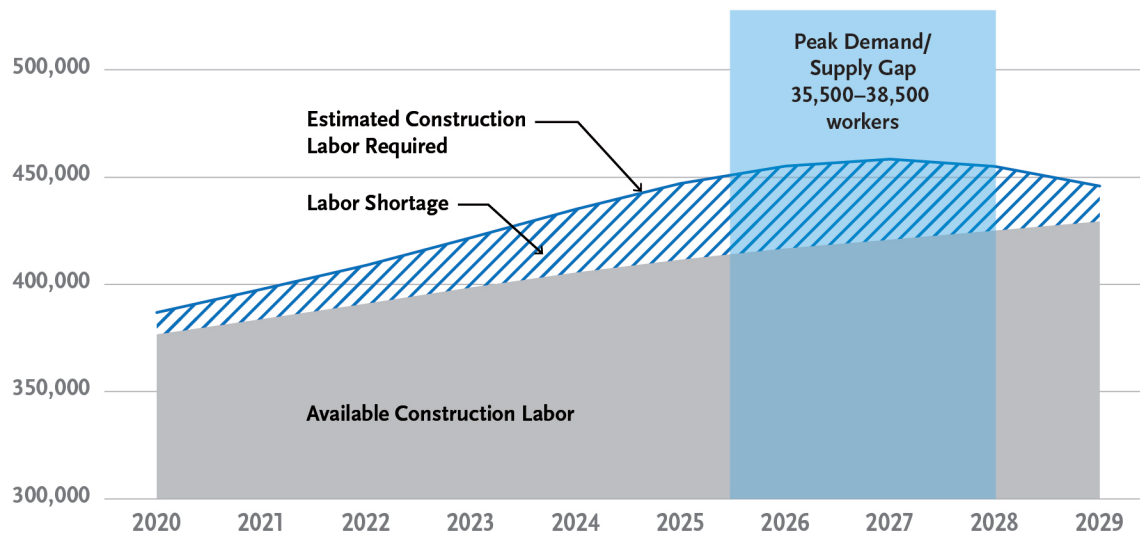
Metro will need to take significant further actions to close this labor gap. It represents the peak levels of construction expenditures as the region prepares to host the Olympics. The labor shortage will result in construction projects being delayed and costing more than originally anticipated. Following the conclusion of the Olympics, the labor shortage will subside as available labor reaches estimated demand.

This projected construction labor shortage as well as the estimated duration of the shortage is variable and will be affected by market conditions:

- Economic volatility
- Unforeseen events (such as national policy decisions)
- Natural and environmental disasters
- Population growth

Therefore, these conditions must be routinely monitored to detect either positive or negative impacts to the projected labor shortage. Annual updates to the findings in this study are prudent.

ESTIMATED CONSTRUCTION LABOR PROJECTIONS BETWEEN 2020-2029





06

SWOT and Recommendations

The next 10 years will see more construction work than workers and firms available at a reasonable cost. Metro's recent initiatives in management practices and innovative development of local talent are solid examples of adaptation to this challenging market. Staying competitive will require Metro to remain vigilant and diligent in assessing its strengths, weaknesses, opportunities, and threats (SWOT) facing project delivery.

Over the next 10 years, the Los Angeles market will see more construction work than it will have workers and firms available to execute the work and at a reasonable cost. Metro's Measure M and Measure R programs will be affected by this lack of resources. Metro's recent initiatives to implement best management practices and to initiate innovative approaches to developing local talent and resources are steps in the right direction to attract bidders and to expand available industry resources in a tightening and competitive marketplace.

As market demand increases, contractors will become increasingly selective about which projects to pursue. Decisions will depend on who is the project owner and the amount of risk that owner places on the contractor. Contract language that contractors perceive to be difficult, punitive, subject to interpretation, or inconsistent with other processes or procedures will be viewed as a source of conflict, uncertainty, and inefficiency, are more likely to be unattractive to potential bidders.

Assessment of Metro's Strengths, Weaknesses, Opportunities, and Threats (SWOT)

A SWOT assessment is a useful tool for an organization to identify how it can enhance areas of strength, boost areas of weakness, minimize threats, and leverage potential opportunities. Metro developed a SWOT assessment relative to the construction market by examining national and regional economic conditions, the state of

the construction industry, emerging trends in the market, Metro's previous actions, and external factors. Assessment results provide a basis for developing recommendations to prepare Metro's strategy for the next decade of construction demand. The results also help align recommendations with its Vision 2028 Strategic plan's three desired outcomes (increase the labor pool, be the owner of choice, and create a stronger and more resilient organization) to navigate the next decade of construction demand.



Strengths:

Metro has taken bold actions to address labor availability, material cost challenges, and become the owner of choice.



Weaknesses:

Factors driving up project cost and testing Metro's ability to deliver projects on schedule without sufficient resources.



Opportunities:

Should certain external factors occur, Metro has opportunities to leverage to their benefit.



Threats:

External factors beyond Metro's control threaten to increase inflationary pressures and reduce available labor resources.





Strengths:

Metro has taken bold actions to address labor availability, material cost challenges, and become the owner of choice.

- x Project-by-project evaluation for alternative project delivery (P3, PDA, PDB, CM/GC) based on project goals and the need to better control cost and schedule.
- x Countywide Planning and Program Management resources are collaborating earlier in the project lifecycle.
- x Risk assessments are being conducted earlier and more regularly in the project lifecycle to identify project uncertainties and risk events affecting project budget and/or schedule, and mitigation efforts to reduce the probability of their occurrence.
- x Outreach to contractors through one-on-one meetings, industry forums, and market sounding to obtain high-level feedback on project design, delivery mechanism, public funding commitments, and feasibility.
- x Significant investments in workforce development initiatives such WIN-LA, SEED Transportation School, Female Participation Scorecard, Metro Youth Career Experience Program (MYCE), E3 Youth Initiative, Women Build LA, and the Women & Girls Governing Council.
- x Increased internal training effort along with the experience gained by staff in managing megaprojects.
- x Metro has initiated a review of third-party jurisdictional best practices with a goal of expediting the submittal review process.



Weaknesses:

Factors driving up project cost and testing Metro's ability to deliver projects on schedule without sufficient resources.

- Industry feedback on Metro procurements indicates that the process is still administratively burdensome and costly to bid.
- Along with the rest of the industry, Metro and its contractors are struggling with attracting qualified staff and talent.
- Multiple long-term megaprojects in the Measure M portfolio are complex and historically difficult to determine the life of project budgets.
- The sheer size and number of Metro projects is so great that the number of bidders per procurement will likely decline as contractors are forced to make difficult business decisions in this market.



- Identify potential project synergies between Metro and local jurisdictions for shared costs opportunities and win-win solutions to streamline local jurisdictional approval for Metro projects.
- Identify project delivery methods that are tailored to the project size, complexity, and attractiveness to potential bidders, including use of PDB and CM/GC.
- If interest rates rise, demand will decrease for income-producing and housing projects, possibly taking some pressure off of the labor shortage and materials costs.
- Advocate for regulatory reform to streamline environmental clearance and construction of transit infrastructure that can help reduce climate change.
- In the event of future recession, the Los Angeles market and Metro will likely be resilient to potential impacts and likely see more benefits, such as an increase in the number of bidders, more availability of talent and labor resources, and a decrease in bid prices.



- Occurrences of natural disasters and extreme weather events are increasing, resulting in billions of dollars in reconstruction efforts.
- An increasingly booming construction industry decreases the labor pool and increases wages.
- Impacts to materials costs if trade policies/tariff increases continue or remain uncertain.
- Jurisdictions outside of Los Angeles are initiating sales tax increases rivaling Measure M, which could further divert construction resources away from Metro.
- Contractors exiting the P3 market and being more cautious on bidding fixed-price projects.

Recommendations

In 2018, after Measure M passed, Metro commissioned a construction market analysis to evaluate conditions in Los Angeles County and Southern California. The 2018 report provided recommendations that have been implemented by Metro or are being developed. The findings in this 2020 market analysis, including the SWOT assessment, advance several more recommendations. The status of the 2018 recommendations, as well as the new recommendations resulting from this 2020 update, are discussed below.

2018 Recommendations Review

Previous recommendations from the 2018 Market Analysis are summarized to provide more complete strategic context. These earlier recommendations identified actions intended to enhance Metro's ability to deliver projects, expand the resource pool, and make Metro an "owner of choice." The following recommendations from the 2018 Construction Market Analysis have been implemented or are being developed:

- Develop a joint committee to develop skillsets relevant to the construction market.
- Identify appropriate projects that could use design-bid-build to increase bidding competition by smaller and certified firms to increase DBE/SBE participation.
- Evaluate contract language that might result in a less-attractive bidding climate to proposers and at higher cost.
- Conduct one-on-one meetings with proposers before or during the request for proposal (RFP) process to evaluate where they may include risk transfer to contractors.

- Increase the dollar ceiling for project-level change authority to reduce the time required to resolve change orders by delegating more authority at the project manager level.
- Develop estimates that are consistent with the current market trends.
- Develop contract language to allow for addressing project cost increases so risk to both Metro and contractors can be limited.
- Institute active engagement with the contracting community to jointly identify balanced risk sharing in contracts.
- Conduct regular interviews with the contractors to identify lessons learned.

2020 Recommendations

The results of the 2020 Los Angeles Construction Market Analysis point to an industry that will be challenged to fulfill nationwide public and private needs, especially within the transit and highway sectors. Public agencies, like LAWA and Caltrans, are investing in their infrastructure and will be competing for construction resources. The private sector is also competing for resources to construct new cultural and sports facilities in Los Angeles and rebuild more than 5,000 residential properties affected from recent wildfires throughout California.

Building on the strengths identified in the SWOT assessment, Metro's recent initiatives and policies, and implementation of the previous 2018 report recommendations, this 2020 study provides additional and refined recommendations aimed at supporting Metro's intended outcomes:

- Increase the labor pool
- Be the owner of choice
- Create a stronger and more resilient organization

Recommended actions are designed to increase the number of contractors and depth of craft and management resources available to build Metro projects. They focus on positioning Metro as the owner of choice for potential bidders, who are becoming increasingly cautious about which owners to invest in.

Based on the current market conditions and analysis presented in this report, recommendations are identified under each intended outcome they support.

Increase the Labor Pool

1. **Innovate worker housing.** Develop innovative ways to create housing for construction workers. For example, constructing dormitory-style housing that could serve the dual purpose of housing unemployed persons who are capable of job retraining into the construction field. Another approach could develop transit-oriented community sites to temporarily house construction workers during project construction, and then be sold on the open market after the transit project is complete.
2. **Leverage technology.** Establish an initiative to attract and engage new generations of potential workers while challenging outdated perceptions of the construction industry. Explore partnerships and concepts aimed at showcasing the industry's adoption of technology, along with opportunities to engage in tech innovation through training and career development that can benefit project productivity, schedules, and labor pool challenges.

Be the Owner of Choice

3. **Incentivize diversity.** Consider a different strategy by incentivizing contractors for meeting certain diversity thresholds in the form of bonuses.
4. **Reduce bidder burden.** Save contractors time and cost when proposing on Metro projects by (1) reducing and simplifying the number of contracting templates (require standard bid forms be prepared outside the proposal process to be completed once, placed on file at Metro, and remain effective until their information changes), (2) allowing for electronic submission of forms, certificates, and licenses, and (3) considering a three-firm limit on the number of bidders short-listed to avoid burdening contractors with the high cost of developing detailed cost estimates.
5. **Incorporate modular design.** Encourage modular construction design and approaches to simplify on-site construction, relieve local labor pool constraints, and streamline schedules. Taking the work to the workforce by fabricating project components at offsite locations with fewer constraints could benefit contractors and Metro in several ways: reducing local labor pool demand, saving cost, shortening schedule, and more competitive bids.







Create a Stronger and More Resilient Organization

6. **Phase implementation.** Assess the potential for initial operating segments of transit corridor with lower risk and complexity to maximize benefits for the money and getting the project out to market sooner.
7. **Share Cost.** Identify potential project synergies for shared costs opportunities through third-party collaboration on projects.

- 8. Recruit Talent.** Maintain an aggressive posture competing with other agencies for limited available resource talent, including onboarding project management staff when qualified candidates are identified and available, even if prior to actual need arising.

Implementing these recommendations will help Metro expand available resources to serve its program by initiating an expedited and more bidder-friendly RFP process, attracting contractors outside of the region to participate in Metro procurements, building the craft labor base in the region, and structuring procurement packages to attract a greater range of responding firms.

RECOMMENDATIONS AND BENEFITS SUPPORTING METRO OUTCOMES

Actions and Outcomes	Benefits					
	 Address Labor Shortage	 Reduce Cost	 Minimize Risk	 Attract Bidders	 Manage Schedule	 Response
Recommended Actions Supporting Outcomes						
<i>Increase the Labor Pool</i>						
1. Innovate worker housing	✓			✓	✓	T
2. Leverage technology	✓	✓			✓	T
<i>Be the Owner of Choice</i>						
3. Incentivize diversity	✓			✓		S
4. Reduce bidder burden		✓		✓	✓	W
5. Incorporate modular design	✓	✓		✓	✓	O
<i>Create a Stronger and More Resilient Organization</i>						
6. Phased implementation		✓	✓	✓	✓	W
7. Shared cost	✓	✓	✓		✓	O
8. Recruit talent	✓	✓	✓		✓	W

Acronyms and Abbreviations

ABC	Associated Builders and Contractors
AGC	Associated General Contractors of America
BLS	Bureau of Labor Statistics
CCI	Construction Confidence Index
CEQ	Council on Environmental Quality
DBIA	Design-Build Institute of America
ENR	Engineering News-Record
FAST	Fixing America's Surface Transportation
GDP	Gross Domestic Product
IOS	initial operating segments
LAMP	Landside Access Modernization Program
LAX	Los Angeles International Airport
METRO	Los Angeles County Metropolitan Transportation Authority
NEPA	National Environmental Policy Act
P3	public-private partnership
PDA	pre-development agreement
PDB	Progressive Design-Build
PPI	Producer Price Index
RFP	request for proposal
SCORE	Southern California Optimized Rail Expansion
SWOT	strengths, weaknesses, opportunities, and threats
UCLA	University of California, Los Angeles
USDOT	US Department of Transportation
WBMLA	Women Build Metro LA

Notes

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#	Page	Source	Project
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5	1	Metro - Steve Hymon	Westside Purple Line Extension Section 1
6	3	Metro	Patsaouras Plaza
7	5	Metro	Sepulveda Transit Corridor, Green Line Extension, West Santa Ana Branch Transit corridor, Eastside Transit Corridor Phase 2
8	7	Metro - Luis Inzunza	Regional Connector Transit Project
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21	lv	Metro	Crenshaw/LAX Transit Project
22	Back Cover	Metro	Regional Connector Transit Project





Increase the labor pool.

Create a more resilient organization.

Be the owner of choice.



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Metro

Metro Construction Market Analysis 2020

COVID-19 Special Addendum

May 21, 2020



Metro Construction Projects are considered essential and still moving forward.

GET UPDATES

Overview

Early this year, Metro had just completed its Construction Market Analysis 2020, a 2-year update that assesses the current and future state of the economy, identifies Metro's progress in response to tight construction market conditions, and outlines strategies for keeping Metro's capital program, especially megaprojects, on track over the next 10 years.

Meanwhile, the emerging COVID-19 pandemic posed an uncertain concern. Soon after, the dramatic economic effects became starkly clear.

This addendum provides an updated snapshot of the unprecedented and evolving global pandemic's effect on the state of the economy and construction market:

- Summary of the most current information available for COVID-19-related impacts
- Outlooks for key economic and construction market indicators
- Metro-centric circumstances and perspectives relative to its project construction goals, along with potential actions Metro may consider in response to this historic and dynamic global event.

The information presented in this addendum was current at the time it was completed on April 15, 2020.

State of the Economy

Impacts

The COVID-19 pandemic has created economic risks still not well understood by economist around the country. However, economist have consensus that a fully functioning economy will not return until people are confident they can resume normal activity without risk of contracting the virus.ⁱ Some also believe that the dramatic changes occurring are not necessarily resulting from fundamental economic factors. Others expect a depression to occur if the "safer at home" orders last until the summer.

- UCLA's Anderson Forecast spring update reveals that the US gross domestic product (GDP) is tracking to decline by 7.5% in the second quarter (an annual rate of -30%).ⁱⁱ
- Dodge Data & Analytics anticipates US GDP to decline by more than 6% in the second quarter.ⁱⁱⁱ
- Economists at various global banks project that US GDP will decline between 3% and 24%.^{iv}

These predictions are unable to capture potentially positive impacts of federal programs offering loans to businesses that rehire or retain workers. UCLA typically uses historical data from expansions and recessions to develop such forecasts. However, this economic shutdown is unlike any the US has ever experienced, making historical data essentially irrelevant.^v





PUBLIC SAFETY ACTIONS SLOW COMMERCE AND MOBILITY

Businesses, consumers, and regulators are acting to limit the spread of the virus by implementing policies that restrict interactions and thus decrease the potential for transmitting the virus. Policies include travel restrictions (especially international), canceling sporting events and live entertainment, public school closures, restaurant and bar closures, and closure of any “non-essential” businesses.

As of April 6, California is one of 43 states that have instituted “safer at home” orders that restrict activity to essential jobs and personal needs such as grocery shopping and medical appointments.^{vi}

The most recent jobs reports and unemployment claims indicate that the number of unemployed workers may reach historic levels in the coming weeks and months. Jobless claims reached over 10 million nationally at the end of March (the first month of the pandemic), jumping more quickly than ever before.^{vii}

Results from UCLA’s Anderson Forecast spring update show the US unemployment rate peaking at approximately 13% in the fourth quarter of 2020, a total job loss of approximately 17 million. The forecast expects California’s unemployment rate to be higher than for the US, predicting that it will peak at more than 16% with 2.2 million jobs lost in the state.^{viii}

601_B



UNEMPLOYMENT GROWS



ECONOMIC SAFETY VALVES OPEN

In response to the pandemic, the Federal Reserve Bank and the federal government took steps to manage economic fallout by enacting monetary and fiscal policies aimed at cushioning the impact. In early March, the Federal Reserve slashed interest rates to nearly zero percent.^{ix}

Responding more quickly to the pandemic crisis than it did during the Great Recession of 2007-2009, the Federal Reserve has continued acting to keep financial markets functioning and credit available to the market, especially for small businesses.^x

Congress has also acted quickly to provide relief, passing three bills in response to the crisis. The most significant bill—the \$2 trillion CARES Act—includes \$25 billion for public transportation relief.

The \$25 billion for public transportation would be apportioned through the Federal Transit Administration based on Fiscal Year (FY) 2020 funding formulas that account for regional population, ridership, and other factors. The CARES Act dictates that, in some cases, it would be up to states, localities, and other recipients to determine how much of the broad-ranging grants or other types of aid would be devoted to operations and how much to construction. Of the \$25 billion transit funding provided under the CARES Act, the Los Angeles-Long Beach-Anaheim region has been allocated over \$1.2 billion.^{xi}



FUNDING ADDRESSES TRANSPORTATION NEEDS

Economic Outlook

The COVID-19 situation remains highly dynamic and difficult to predict beyond the near-term. The ongoing nature of the pandemic makes it difficult to forecast the economic impact.

Current signs point to the economic impacts worsening before improving. If the federal stimulus packages provide the necessary cushioning in the interim and that normalcy resumes within a couple of months, the immediate economic hardship could be somewhat temporary. The resumption of the deferred consumption coupled with improvements in production and the supply chains are also likely to result in further improvements.

The decline in travel and fuel consumption will likewise cause the Highway Trust Fund's revenue to decline, which may affect states' Department of Transportation projects. However, the federal government is considering another relief bill related to infrastructure of up to \$2 trillion. This bill could provide an influx of funding for the construction of new transportation projects and accelerate shovel-ready projects.

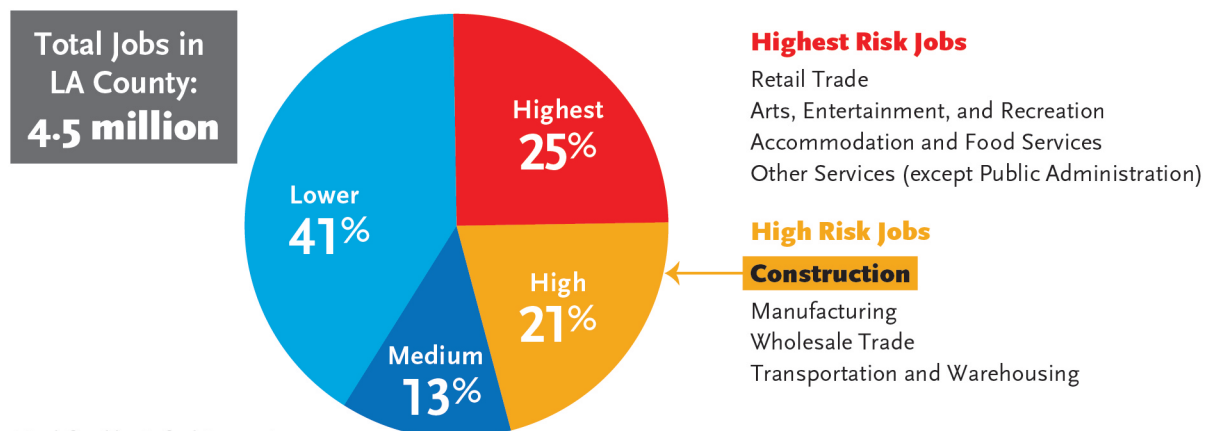
Challenges

- ✓ Economy is in a recession with the potential to fall into a depression
- ✓ Short-term labor shortages caused by health concerns
- ✓ Financial struggles for small business contractors
- ✓ Reduced/missed payments by financially distressed owners
- ✓ Cutbacks in public budgets

Opportunities

- ✓ Federal funding from stimulus packages
- ✓ Zero interest rates for financing projects
- ✓ Substantial price reductions on fuel and other commodities

AT RISK JOBS IN LA COUNTY*



*As defined by Oxford Economics

Source: Los Angeles Economic Development Corporation

Construction Industry

Impacts

Parts of the country have shut down projects while others have deemed construction an essential service. Even if not mandated, an increasing number of owners are halting or canceling projects. This may be to help “enforce social distancing and other efforts to slow down the spread of the virus, or because demand for the project has dried up, at least temporarily, or because the owner’s financial situation does not allow it to proceed,” says Ken Simonson, chief economist at the Associated General Contractors of America (AGC).^{xii}

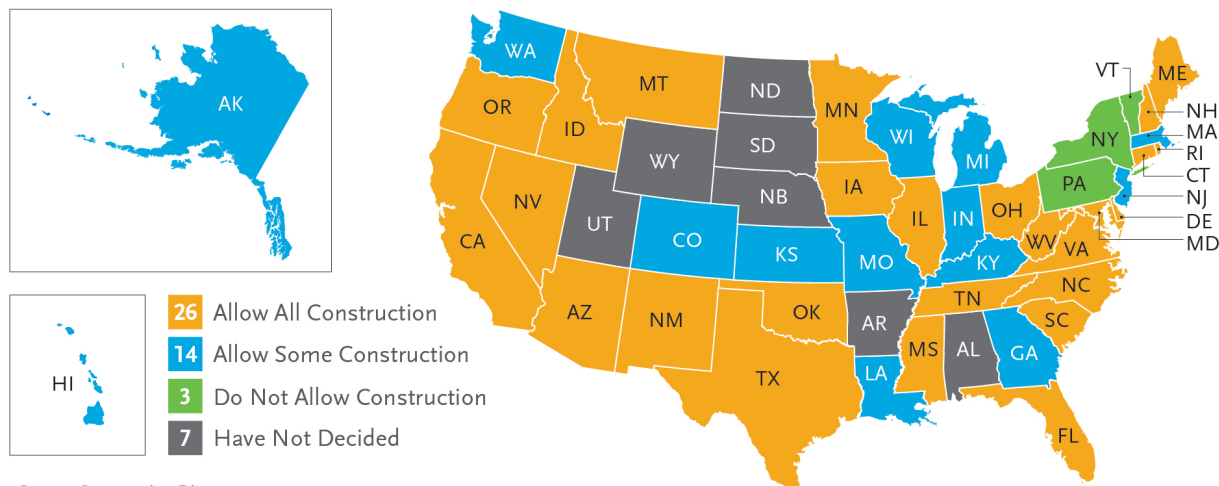
The state, county, and citywide orders enacted around the country have left construction trade companies confused; they sometimes believe they are non-essential and must halt work, which is not always true. In many cases, companies providing supplies or services to the construction industry are exempt from statewide shutdowns of non-essential businesses. Some areas of the country have shut down all but

essential construction work (such as infrastructure projects), while others have curbed specific types of construction (see map).

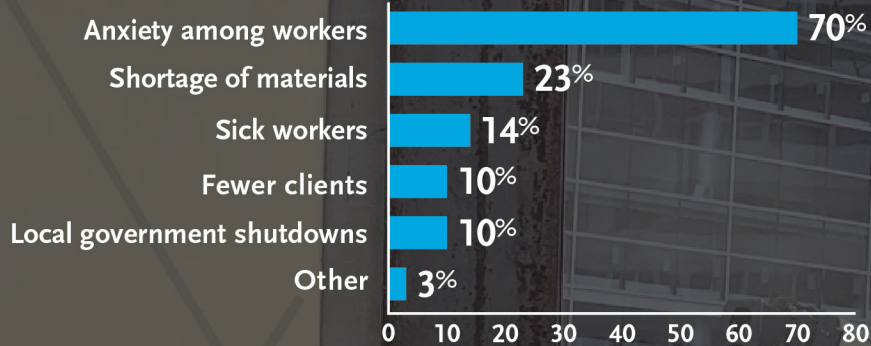
A shortage of specialty contractors (such as mechanical and electrical) could disrupt work because they are difficult to replace, and many states have rigid licensing laws. In other cases, subcontractors and suppliers have ceased operations if they cannot meet health guidelines, or subcontractors are proactively retreating from jobs they perceive as an unacceptable health risk.^{xiii} Transportation agencies have had mixed reactions to the COVID-19 outbreak:

- **Chicago’s Metra** has started several major construction projects to accelerate its 2020 construction to take advantage of service reductions due to the pandemic.^{xiv}
- **Seattle’s Sound Transit** has directed its contractors to suspend construction work, with limited exceptions, to support virus containment. Any continuing construction activities involve tasks considered to be critical or necessary to ensure safety or to avoid mobility, environmental, or other impacts.^{xv}

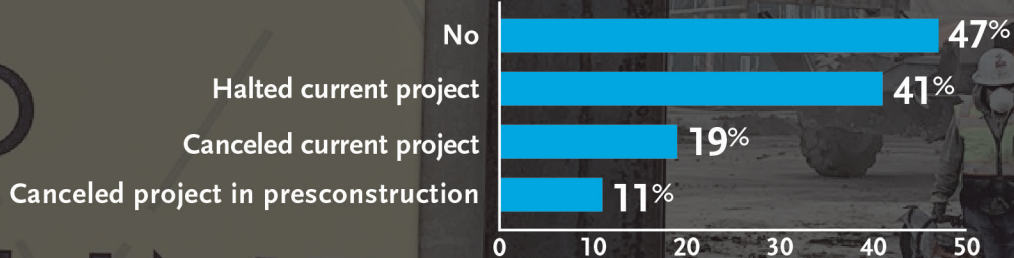
STATE GUIDANCE ON CONSTRUCTION PROJECTS



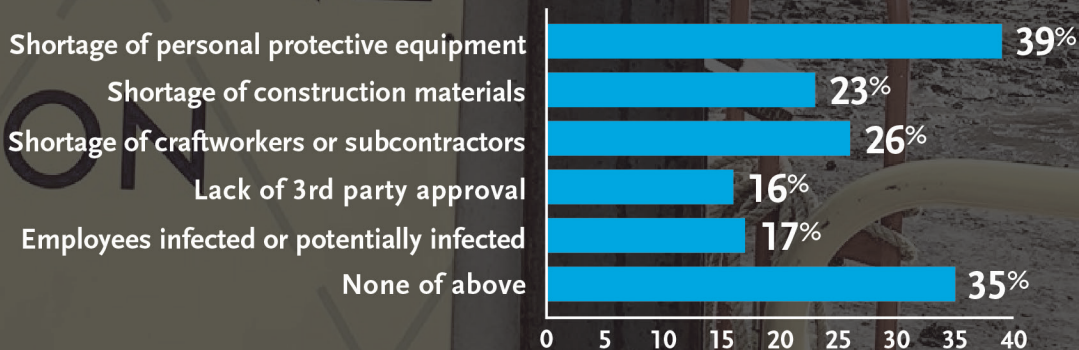
How has the coronavirus affected your work? *



Did an owner direct you to halt or cancel work on any current projects or ones expected to start in the next 30 days? **



Are you currently experiencing any project delays or disruptions due to the following? ***



Have any suppliers notified you or your subcontractors that their deliveries will be late or cancelled? ***



Source: * Construction Dive

** Associated General Contractors of America (AGC)

Construction Outlook

Because the COVID-19 pandemic effects on the US is far from complete and no one can accurately predict its full impact, owners and contractors should be prepared for short-term labor shortages. With government-imposed preventative measures to reduce exposure to COVID-19 or other measures in cases of actual infections, it is fair to expect that contractors could experience significant effects on productivity, costs, and their ability to meet completion deadlines.

The economic slowdown in response to the pandemic has reduced prices for many construction materials. Material pricing is expected to fluctuate over the coming months and years as it is driven by supply and demand. With China's economy restarting and production approaching normal capacity, materials and products are starting to be provided at a more reasonable cost.^{xvi}

Owners may table current projects until the uncertainty passes. While the national economy is entering a recession, construction in the non-residential market typically lags the overall economy by 12 to 18 months, according to Anirban Basu, Chief Economist for the Associated Builders and Contractors (ABC).^{xvii} This means that most contractors who work for Metro can expect far more difficult circumstances next year because bids may be delayed, or even canceled, as owners reassess the pandemic's economic impact on new construction. Some new projects in sectors responding to the crisis, such as healthcare and manufacturing, will drive new constructions starts.

Challenges

- ✓ Reduction in number of construction firms due to reduced work and cash flow
- ✓ Productivity may slow and delay projects
- ✓ Supply chain issues
- ✓ Contractors across the country have started to issue notices of potential delays
- ✓ Revenue decline from toll roads and the Highway Trust Fund will dramatically decrease construction funding

Opportunities

- ✓ Labor pool increased
- ✓ Contractors are more available (will look to owners with locally generated revenues)
- ✓ Slow rebound in many commodity prices
- ✓ Innovation related to productivity and efficiency resulting from remote working

What Does this Mean for Metro?

The COVID-19 pandemic is a rapidly evolving event with elusive variables and unforeseen consequences. Society's response has been similar. Forecasting pandemic impacts and duration with any certainty is a largely futile prospect.

However, the past few weeks provide some insight to actual shorter-term consequences and data, along with several impacts and opportunities directly related to Metro's construction market situation. Metro can prepare for, or proactively manage, several potential actions that support progress toward strategic outcomes.

What Is Happening Now?

Revenue decline. Metro's ridership and sales tax revenue has plummeted, leaving the agency in uncharted territory. Sales tax generates roughly half of Metro's annual budget, and Metro could potentially lose between \$650 million and \$750 million in sales tax revenue by this fiscal year's end. Although fare collection is not Metro's primary significant source of revenue, it funds a third of operational costs for bus service and helps keep the system open longer than it would be otherwise. With the public "Safer at Home" order and non-essential businesses closed, people are traveling and spending dramatically less, and ridership is declining.

Productivity. Los Angeles County has been hit the hardest by the COVID-19 pandemic in California. Metro and contractors are likely to see disruptions, schedule delays, and productivity decreases on Metro projects as a consequence of canceled deliveries, lack of inspection approvals, and absent workers from social distancing and fear of infection on jobsites.

Owner of choice. Although revenue is down, Metro will continue to generate revenue and is likely to receive funding from future stimulus and infrastructure investments. Some state departments of transportation rely heavily on the Highway Trust Fund and toll road revenue to fund construction projects, and those agencies will likely cancel or delay future construction projects. As work dries up, contractors will look to owners with local, steady revenue sources, making Metro a top candidate for contractors to bid on future work.

Labor pool. The 2020 Construction Market Analysis anticipated a labor shortage that Metro will experience over the next 10 years while constructing its capital program. Now, the skyrocketing number of unemployment claims since the virus outbreak is likely to dramatically increase the labor pool. Metro should implement an aggressive outreach program about the jobs needed to support its construction program, and should continue supporting training programs helping workers to enter the construction market.

Construction acceleration. During this period of light traffic and temporary business closures resulting from the "Safer at Home" order, Metro is adjusting work schedules to allow contractors to work during daytime hours on weekdays. This adjustment is reducing community impact from nighttime and weekend work that otherwise would be required, and accelerating construction schedule. Specifically, this benefits Regional Connector and Purple Line extension construction.

Business closures and light traffic gave Metro the opportunity to close corridors and accelerate construction, which will accelerate economic recovery.

How Can Metro Respond?

The 2020 Construction Market Analysis provided recommendations based on three strategic plan outcomes to better position Metro in pre-pandemic conditions:

- Create a stronger, more resilient organization
- Be the owner of choice
- Increase the labor pool

Now, in a dramatically different economic scenario, these strategic outcomes are still valid. Furthermore, several immediate efforts previously identified still support these strategic outcomes in response to the COVID-19 pandemic. Further actions aligned to these outcomes should be considered in preparation for any additional potential impacts resulting from the pandemic and its effects. These potential actions are organized below based on the three strategic outcomes.

POTENTIAL ACTIONS ALIGNING WITH METRO'S STRATEGIC OUTCOMES		
Create a Stronger, More Resilient Organization	Be the Owner of Choice	Increase the Labor Pool
<div><div>✓</div><div>Review invoices to make sure that payments are made for work completed and financing requirements and notices are met as cashflow for contractors become more difficult.</div></div> <div><div>✓</div><div>Understand contract provisions and insurance requirements that would allow for work to be suspended or terminated (prepare for force majeure clauses).</div></div> <div><div>✓</div><div>Evaluate potential jobsite efficiencies to be realized by remote workers.</div></div> <div><div>✓</div><div>Conduct supply chain audits and identify vulnerabilities.</div></div>	<div><div>✓</div><div>Continue to move projects forward as much as possible following the latest health and safety procedures to prevent the exposure and spread of COVID-19.</div></div> <div><div>✓</div><div>Conduct bid walks and pre-bid meetings via videoconferencing to not delay procurements.</div></div>	<div><div>✓</div><div>Implement an aggressive outreach program to the recently unemployed and connect them with construction training and apprenticeship programs.</div></div> <div><div>✓</div><div>Coordinate with workforce programs to develop virtual training programs and continue building a pipeline of qualified workers as the number of Metro projects under construction increases over the next few years.</div></div>

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Board Report

File #: 2020-0297, **File Type:** Informational Report

Agenda Number: 21.

CONSTRUCTION COMMITTEE MAY 21, 2020

**SUBJECT: FISCAL YEAR 2021 PROGRAM MANAGEMENT
ANNUAL PROGRAM EVALUATION**

ACTION: RECEIVE AND FILE

RECOMMENDATION

RECEIVE AND FILE report on FY21 Program Management Annual Program Evaluation.

ISSUE

The Annual Program Evaluation (APE) is a priority initiative created to evaluate Metro's capital program annually. Given the challenges of managing a multi-billion-dollar capital program, a comprehensive review of the risks associated with the costs and schedules of the program is conducted on an annual basis. This report summarizes the results of the FY21 APE review performed by Program Management.

BACKGROUND

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

DISCUSSION

FY21 Results

For the FY21 APE, Program Management focused on new projects, and projects that will carry-over through FY21, with project costs estimated at \$5 million or greater. Program Management staff evaluated 59 projects, including nine Major Transit Construction projects, 20 Other Transit Capital projects, 25 Highway projects, and five Regional Rail projects (see Attachment A presentation for a complete project listing), which total approximately \$20.1 billion. The program size has increased 9%

from \$18.3 billion in FY19 to \$20.2 billion in FY20.

The major focus remains on managing the projects within the Board-approved life of project (LOP) budgets and schedules established for these projects. A summary of the potential adjustments requiring future Board approval to Metro's capital program in FY21 is reported in the FY21 Program Management APE presentation.

Challenges

With the significant number and size of Program Management projects and the accelerated implementation schedule for delivering Metro's capital program, Metro is currently undertaking the largest transportation capital program in the nation. Metro's capability and capacity to deliver multiple complex projects on-time and within budget creates unprecedented challenges to project delivery.

Efforts to improve, innovate, and increase our capabilities to deliver projects are essential. Program challenges include:

- Deliver multiple large and complex projects on-time within budget
- Collaborate with stakeholders to meet community expectations
- Commitment of efficient third-party review/approval by various external jurisdictions
- Encourage competitive and qualified pool of contractors, small businesses, and workforce on Metro projects
- Manage cost risks impacted by shortage of skilled workers, good Contractors, and utility resources in a growing construction market
- Maintain sufficient resources and staffing needed to manage and support project delivery
- Address Contractor claims in a fair and equitable manner
- Achieve continuous improvement in project delivery through innovation and application of best practices and lessons learned

Strategic Initiatives

Program Management continues to implement various strategic initiatives to bring improved planning, consistency, transparency, and discipline to project delivery. These initiatives include:

- Conduct Annual Program Evaluation of Metro's capital program
- Establish reliable Life-of-Project budgets
- Continue use of robust management and support services consulting teams to augment technical expertise and resources
- Enhance Construction Claims Management Program
- Improved Best Practices/Lessons Learned Program
- Conduct readiness reviews before projects are released
- Utilize project delivery method selection process

FINANCIAL IMPACT

The FY21 Program Management APE report does not have any specific budgetary or financial

impacts. The APE report serves as an annual and early notice instrument to assess the scope, cost and schedule risk items affecting the respective projects under the oversight of Program Management. Risk items affecting scope, cost and schedule are identified on a project by project basis within the APE Presentation.

Should any of the potential project risks affecting scope, cost and schedule parameters be realized, the Chief Program Management Officer will return to the Board with separate recommendations to address the identified risks and adjust the project cost and/or schedule accordingly.

IMPLEMENTATION OF STRATEGIC PLAN GOALS

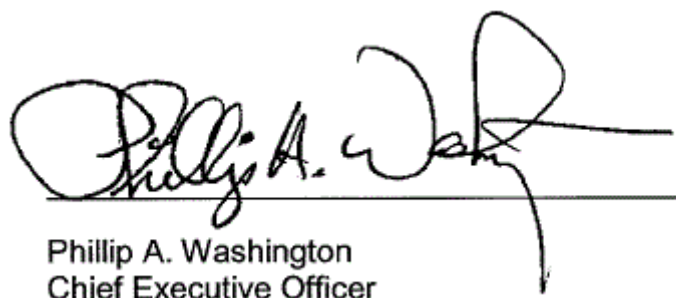
Recommendation supports Strategic Plan Goal #1 - Provide high-quality mobility options that enable people to spend less time traveling. This will be accomplished by planning and delivering multiple capital projects on time and on budget while increasing opportunities for small business development and innovation.

NEXT STEPS

Program Management will request the resources required for project delivery success through the FY21 Budget process for Board approval. Project managers will work to deliver projects safely, on-time and within the Board-approved budgets. Staff will continue to provide the Board with monthly updates on the project status throughout the year. The next FY22 Program Management APE report will be presented to the Board in Spring 2021.

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

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



Phillip A. Washington
Chief Executive Officer

Fiscal Year 2021

Program Management

Annual Program Evaluation

Presentation Overview

- Purpose and Process
- Capital Program Status
- Capital Program Costs and Schedules
- Adjustments for FY21
- Summary
- Next Steps



Purpose

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



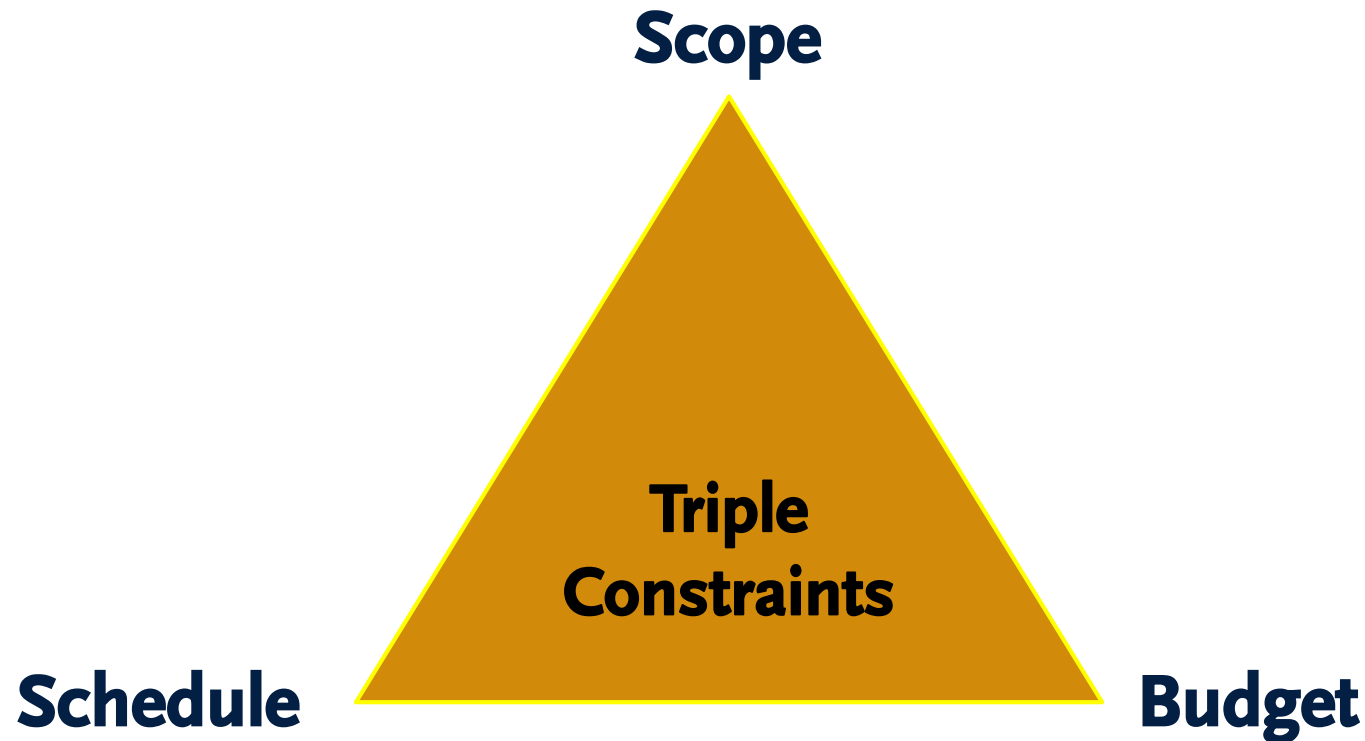
Process

- A detailed review of project costs and schedules
- Update project capital cost estimates to current conditions, including price trends and changes
- Focus on budget to complete current project phase/milestone
- Include APE results in the FY21 Budget review and adoption by the Board

Project Management



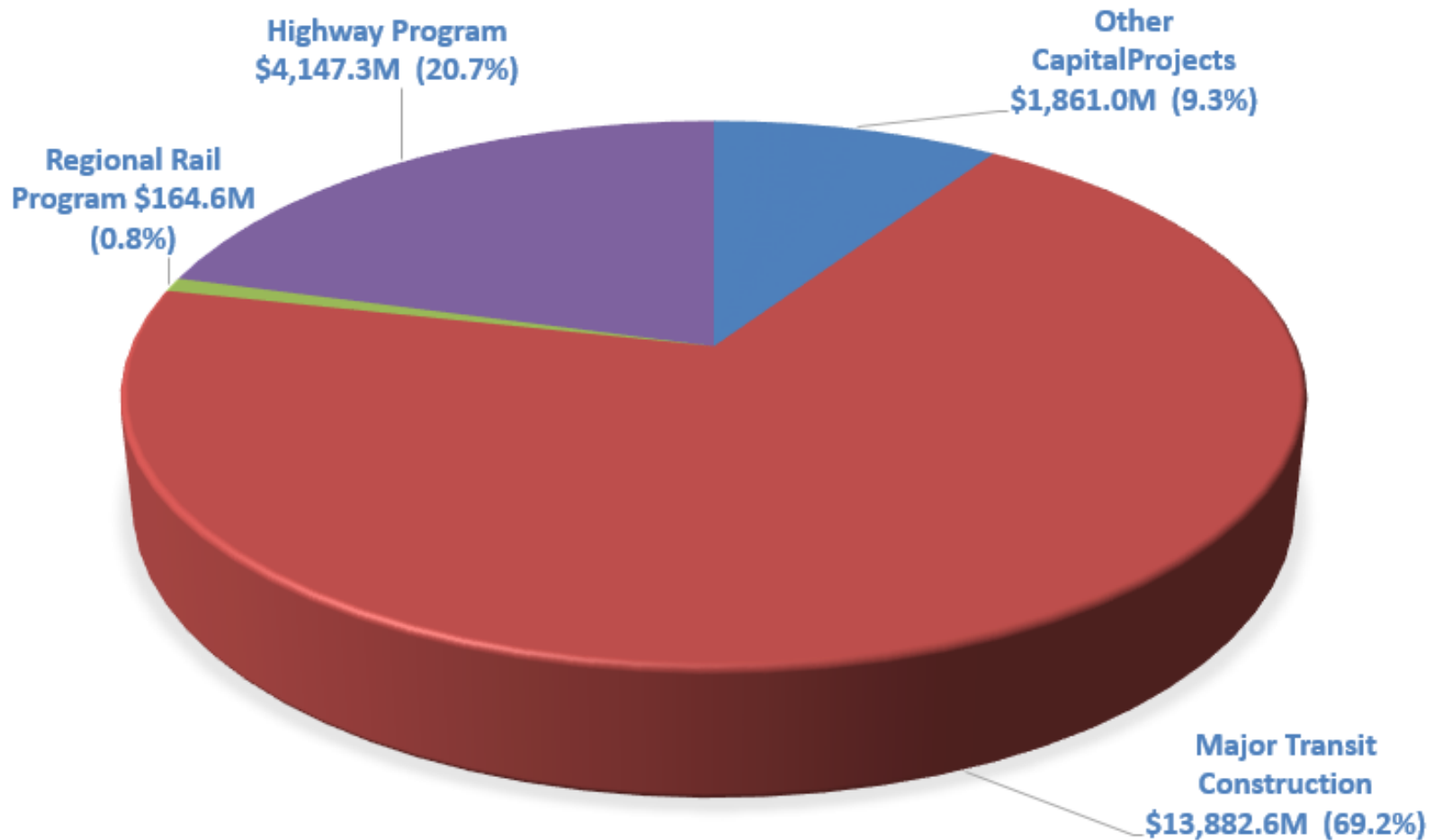
One side of the triangle cannot be changed without affecting the other sides:



FY20 Scope

- APE focuses only on those capital projects, managed by Program Management, with a total project cost greater than \$5M:
 - Major Transit Construction Projects – 9 projects
 - Other Transit Capital Projects – 20 projects
 - Regional Rail Projects – 5 projects
 - Highway Program – 25 projects
- There are 59 projects and approximately \$20.1 billion of approved project budgets included in the FY21 APE review which is an increase of 9.9% from \$18.1 billion in FY20.
- Project budgets in the APE focus on authorized funding amounts.
- Project funding amounts remain within the annual budget limit approved by the Board.

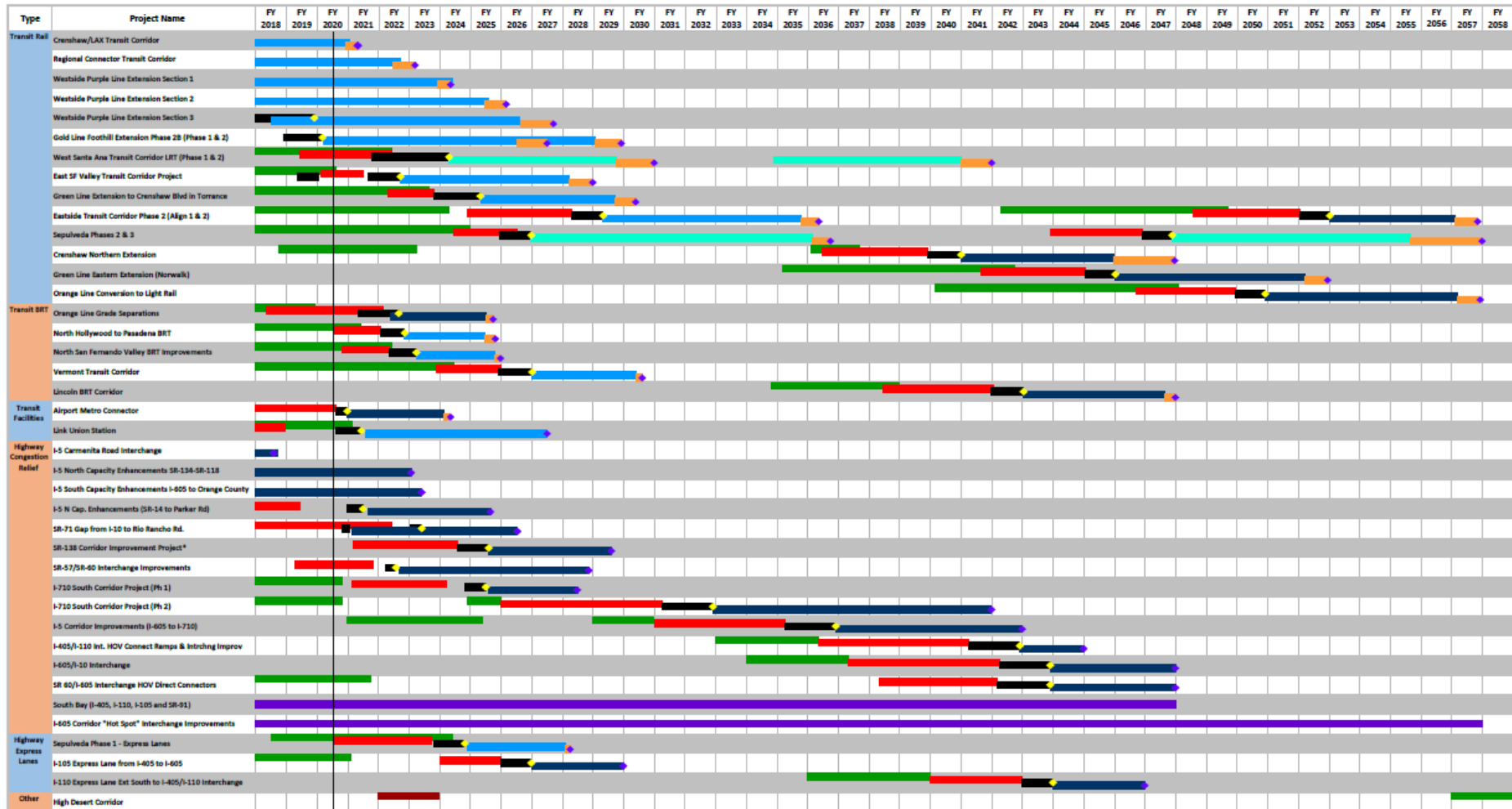
FY21 Current Program: \$20.1B



Program Highlights

- In addition to the projects in APE, Program Management manages/oversees 40+ projects less than \$5M.
- Including projects within the APE, there are over 100 projects being managed by Program Management.
- **Overall Program dollars increased 9.4% from \$18.3 billion in FY20 to \$20.2 billion in FY21.**
- **Over 80% of projects included in the APE are within budget and on schedule.**
- Metro's capital program will continue to grow with continued implementation of Measure M.

Metro Program Management Master Schedule



*Project Development TBD

This document is a working draft meant for discussion purposes only and may contain preliminary conclusions not necessarily reflected in the final decision.

Legend					Groundbreaking Date
Environmental Right of Way	Engineering Program Implementation	Bid P3 Construction	D/B Construction Testing	D/B/Construction	
				Forecasted Date	

*Non-financially constrained plan.

Program Challenges

- Deliver multiple large and complex projects on-time within budget
- Collaborate with stakeholders to meet community expectations
- Commitment of efficient third party review/approval by various external jurisdictions
- Encourage competitive and qualified pool of contractors, small businesses, and workforce on Metro projects
- Manage cost risks impacted by shortage of skilled workers, good Contractors, and utility resources in a growing construction market
- Maintain sufficient resources and staffing needed to manage and support project delivery
- Address Contractor claims in a fair and equitable manner consistent with contractual requirements
- Achieve continuous improvement in project delivery through innovation and application of best practices and lessons learned

Unique Challenges of Mega Projects

- Mega project durations are longer than in the past and contractors have experienced issues not considered at bid time.
- It is more difficult to assess risks adequately for long-term projects.
- Third party and regulatory requirements may change during the life of the project.
- Staff turnover is more likely to occur on long term projects.
- There are a limited number of contractors that have the capacity to bid mega projects.
- Once a contractor(s) secures a mega project, they are less likely to have bonding capacity to bid on other mega projects.
- As many bids on mega projects are from international firms, there are potential issues regarding knowledge of local requirements.

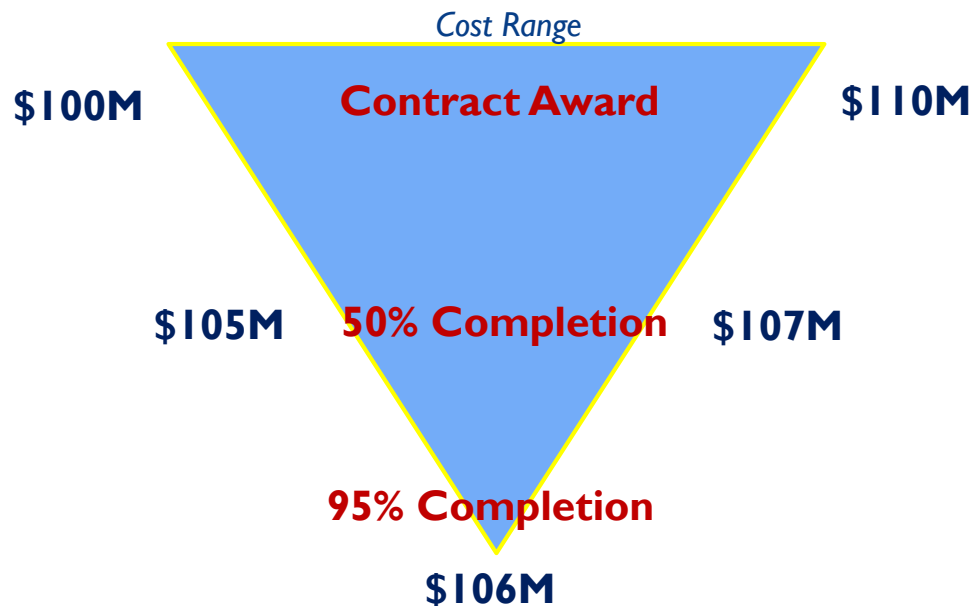
Mega Project Budget and Schedule

Three Stage Approach

Metro is proposing a three-stage approach for Mega Project budgets estimated to be over \$500M and have a duration of 5+ years:

1. Determine an initial Budget (LOP) and Schedule at Contract award.
2. Assess Budget and Schedule at 50% completion of the Project including performance risk assessment.
3. Assess Budget and Schedule at 95% completion of the Project.

Example:



COVID-19 Impacts

Challenges

- Economy is in a recession with the potential to fall into a depression.
- Disruptions, delays, and productivity decrease because of canceled deliveries, lack of inspection approvals, and absent workers.
- Financial struggles for small business contractors.
- Cutbacks in public agency capital budgets.

Opportunities

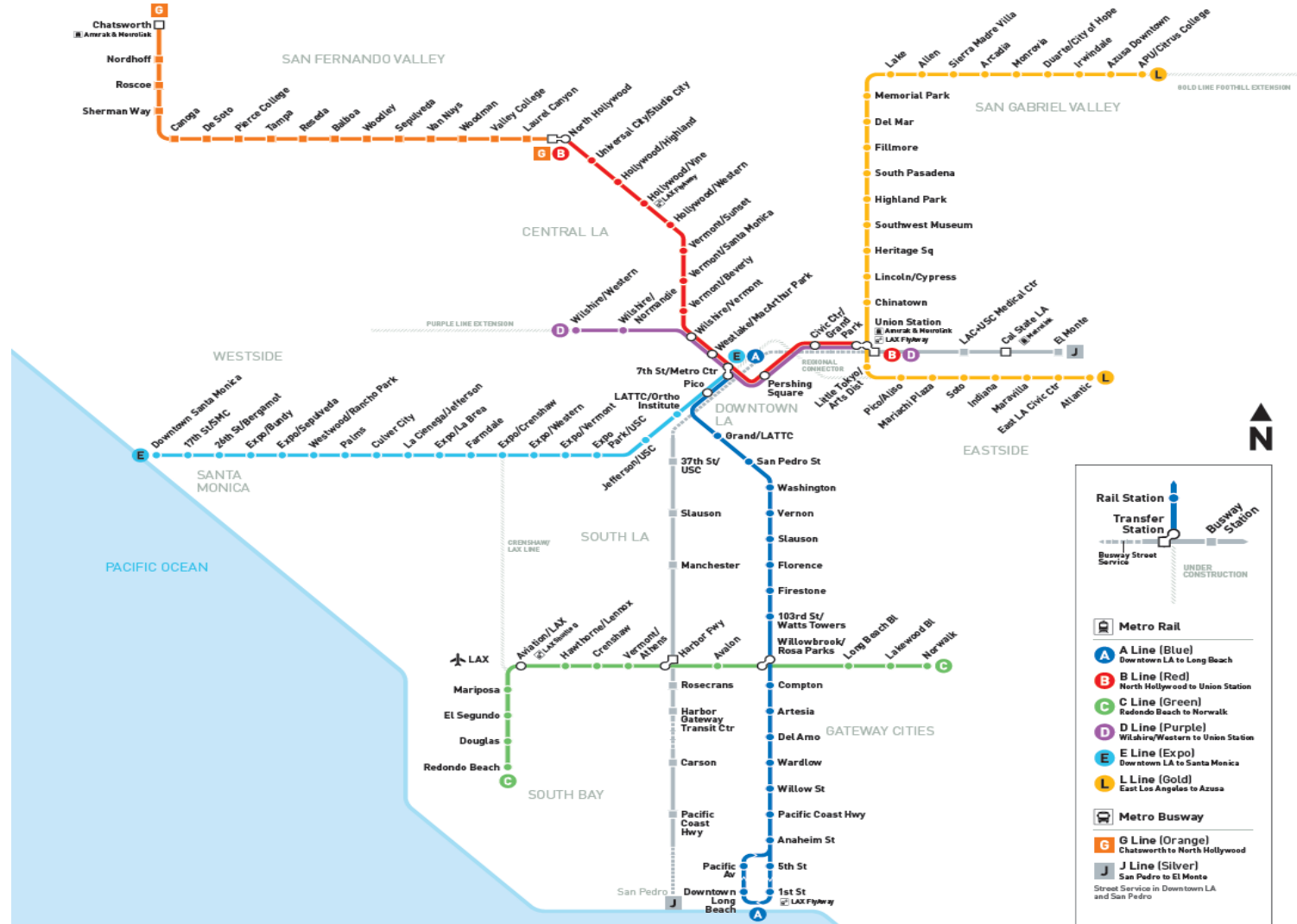
- Federal funding from stimulus packages.
- Substantial price reductions on fuel and other commodities.
- Dramatic increase in the labor pool available for construction projects due to a high number of unemployment claims.
- Accelerate certain project activities during this period of light traffic.
- A positive bidding environment is expected for funded projects.

Strategic Initiatives

Continue to implement strategic initiatives to bring improved planning, consistency, transparency, and discipline to project delivery:

- Conduct Annual Program Evaluation of Metro's capital program
- Establish reliable Life-of-Project budgets
- Continue use of robust management and support services consulting teams to augment technical expertise and resources
- Enhance Construction Claims Management Program
- Improved Best Practices/Lessons Learned Program
- Conduct readiness reviews before projects are released
- Utilize project delivery method selection process
- Strengthen risk assessment program

Metro Transit Program



Metro Transit Capital Projects

Type	Project Budget (in millions)	# of Projects
Major Transit Construction	\$13,882.6	9
Other Transit Capital	\$1,861.0	20
Misc. Capital	\$1,068.8	5
Security/Safety	\$252.5	3
Rail Facilities	\$156.9	4
Wayside Systems	\$252.7	3
Bus Facilities	\$130.0	5
Total Transit Capital Program	\$15,743.6	29

Metro Transit Capital Program Summary

Project Completion in FY20:

- Southwestern Maintenance Yard
- Division 22 Paint and Body Shop
- Bus Rapid Transit Freeway Station Sound Enclosure
- Metro Silver Line Improvements
- Bus Facility Maintenance Improvement Phase II
- Mainline New Blue Projects



Project Completion Planned in FY21:

- Crenshaw/LAX Project
- New Blue Projects (Yard Signaling)
- Blue Line Rehabilitation/Willowbrook Station
- Fuel Storage Tank Program (FY17-FY19)
- Metro Blue Line Pedestrian Safety Enhancements at Grade Crossing

Metro Transit Capital Program Summary

Projects Transitioned from Planning to Program Management in FY20:

- Rail Operations Center and Bus Operations Center (ROC/BOC)

Planned Transition to Program Management in FY21:

- East San Fernando Valley Transit Corridor Project
- West Santa Ana Branch Transit Project
- North Hollywood to Pasadena Bus Rapid Transit Project
- North San Fernando Valley BRT Project

Crenshaw/LAX Transit Project



Crenshaw/LAX Transit Project

Project Budget: \$2,058.0 M

Project Completion: Spring 2021

Projected Budget: \$2,148.0M

Project Complete: 95%

Accomplishments:

- Contractor enhanced and strengthened project management team.
- Contractor initiated start of systems integration testing at south end of Project.
- Blocked or damaged conduits and systems pathways in tunnels rework is completed; focus now on remaining required repairs in underground stations.

Challenges/Risks:

- Contractor rework and delayed start of testing impacting contractor's progress to be less than planned.
- Remaining complex electric and systems tests must be successfully completed.
- Pending claims from the contractor.

Regional Connector Transit Project



Regional Connector Transit Project

Project Budget: \$1,755.8 M

Project Completion: 2022

Project Complete: 64%

Accomplishments:

- Successfully completed invert and exterior wall concrete pours of the SEM Cavern on-schedule.
- Completed Flower St. cut-and-cover excavation; concrete operations from 4th St. to 7th/Metro now underway.
- Finalized designs for foundation construction interfaces of the Historic Broadway Station to the planned building tower to be constructed over the station entrance.
- Completed excavation of 1st Street cut-and-cover to the extent accessible before initiating the Gold Line Bus Bridge; concrete operations are now underway.
- Initiated placement of precast floating slabs designed to attenuate noise and vibration from south end of Grand Ave Arts/Bunker Hill Station to just west of Historic Broadway Station.
- Through January 2020, over 4.5M work hours performed with 20 recordable injuries and zero lost work days.

Challenges/Risks:

- Maintain pace with scheduled concrete operations at three stations and two cut-and-cover areas.
- Secure and retain sufficient technical and craft labor resources to safely, and efficiently prosecute the work.
- Effectively identify and manage risks to protect schedule and cost performance.
- Effective management of systems cut-overs integrating four operating lines at three locations; extensive analyses of specific individual requirements are underway to identify challenges of design and as-built systems in-place.
- Board approved service plan by June 2020.

Westside Purple Line Extension Project



Westside Purple Line Extension Section 1

Project Budget: \$2,778.9 M

Forecast Completion: 2023

Project Complete: 58%

Accomplishments:

- Will complete the Reach 2 tunnel drive from Wilshire/La Brea Station to Wilshire/Fairfax Station and will begin the Reach 3 tunnel drive from Wilshire/Fairfax Station to Wilshire/La Cienega Station this fiscal year.
- Commenced Reach 1 tunnel cross-passage construction.
- Commenced concourse and roof concrete operations at Wilshire/La Brea Station.
- Completed invert slab and level 1 wall concrete placement at Wilshire/Fairfax Station in support of TBM arrival.
- Commenced excavation of Wilshire/Fairfax Station entrance structure.
- Completed excavation and invert slab, and began level 1 walls at Wilshire/La Cienega Station in support of TBM arrival.
- The rail welding site at Division 20 Site was delivered to the C1045 contractor. Contractor began delivery of running rail to the site.

Challenges/Risks:

- Differing site conditions – dewatering, gas, etc.
- Third party requirements impacting the project budget.
- Contractor claims.

Westside Purple Line Extension Section 2

Project Budget: \$ 2,440.9 M

Forecast Completion: 2025

Project Complete: 28%

Accomplishments:

- Completed third party advanced utility relocations at the Century City Constellation Station.
- Started assembly of Tunnel Boring Machines (TBMs) in Century City in support of beginning tunneling operations this fiscal year.
- Obtained Board of Public Works approval for an additional seven-month full street closure of Constellation Blvd. (in the vicinity of the TBM Launch Box).
- Obtained Right of Entry from Beverly Hills Unified School District (BHUSD) to support investigation into magnetic anomalies discovered under BHUSD property.
- Completed investigation of the three magnetic anomalies encountered on BHUSD property.
- Completed pile installation on the north side of Wilshire/Rodeo Station.
- Obtained approval from the City of Beverly Hills City Council for a temporary full street closure of Wilshire Blvd. (between Beverly and Crescent) for the duration of the stay at home orders due to the COVID-19 Pandemic.

Challenges/Risks:

- Differing site conditions.
- Third party issues.

Westside Purple Line Extension Section 3

Project Budget: \$3,223.6 M

Forecast Completion: 2027

Project Complete: 8%

Accomplishments:

- Full Funding Grant Agreement was executed for the Project.
- SCE duct bank installation is proceeding under the C1151 Tunnel Contract.
- Continue 3rd parties (joint trench) utility relocations.
- C1151 Tunnel Contractor received VA Hospital site and has begun preparation work at the Tail Track Exit Shaft site.
- Contract Notice to Proceed was issued for Contract C1152 Stations, Trackwork, Systems, and Testing. Final design is underway.
- Geotechnical investigations and survey activities have been completed at the two station sites and the Caltrans Yard.
- Closeout of C1153 Advanced Utility Relocations Contract to complete this fiscal year.

Challenges/Risks:

- Recover the time delay to the Project schedule due to moving the Tail Track Exit Shaft from the Army Reserve site to VA Hospital site, and late property access to the VA Hospital site for the C1151 Tunnel Contract.

Gold Line Foothill Extension Phase 2B



Gold Line Foothill Extension Phase 2B

Project Budget: \$1,532.9 M

Forecast Completion: 2026 (2028 to MCL)

Project Complete: 6%

Accomplishments:

- Pole line elimination and advanced utility relocations contracts completed in 2018-2019 period.
- CPUC has approved 94% (42 of 49) grade crossings to date.
- Construction Authority Project Management Staff moved into field office.
- Radio equipment installed at Johnstone Peak to support the extension.

Challenges/Risks:

- Major Construction starts August 2020.
- Due to unfavorable economic conditions affecting bid prices, the alignment contract was restructured to terminate in Pomona with a two-year option to extend to Montclair.
- Securing \$450 million for remaining initial proposed alignment to Claremont.

Orange Line Bus Rapid Transit Improvements



Orange Line Bus Rapid Transit Improvements

Current Authorized Project Budget : \$22.0 M

Forecast Completion: 2024

Project Complete: 5%

Accomplishments:

- Completed Basis of Design, 30% Design and Value Engineering of Grade Separation, and 100% design of DWP underground relocation for Sepulveda GS. Completed 30% design of Gates.
- Completed Traffic Analysis and Pilot Gate design (to be modified for new location), Project Management Plan, and Sepulveda Grade Separation Value Engineering.
- DWP started construction of underground utility work at Sepulveda Blvd.

Challenges/Risks:

- Gate activation/platooning for bus transit does not exist in US; new technology to be developed; future PUC regs requires approval for gates with bus operations. Traffic impacts/mitigation due to gates.
- ROW acquisitions and major utility relocations.
- Integration with Sepulveda and ESFV Transit Corridor projects.
- Maintaining existing bus operation during construction.
- Sepulveda Transit Corridor project may affect OL Grade Separation at Sepulveda.
- City Agency review and approval time may delay project schedule.

Metro

- Crenshaw/LAX Transit Project (under construction)
- Metro Green Line Service Extension (proposed)
- Station (under construction)
- Airport Metro Connector Transit Station (design in progress)

Los Angeles World Airports (LAWA)

- Automated People Mover (APM) route and station (design in progress)

Subject to Change 17-2439 © 2017 LACMTA

Los Angeles International Airport (LAX)

Airport Metro Connector Transit Station (Aviation/96th)

Aviation/Century

LAWA Intermodal Transportation Facility West (ITF West)

LAWA ITF East

LAWA Consolidated Rental Car Facility (CONRAC)

Metro Maintenance Facility

San Diego Fwy 405

Streets: Century, 96th St, 98th St, 102nd St, 104th St, 106th St, 108th St, 110th St, 112th St, 114th St, 116th St, 118th St, 120th St, 122nd St, 124th St, 126th St, 128th St, 130th St, 132nd St, 134th St, 136th St, 138th St, 140th St, 142nd St, 144th St, 146th St, 148th St, 150th St, 152nd St, 154th St, 156th St, 158th St, 160th St, 162nd St, 164th St, 166th St, 168th St, 170th St, 172nd St, 174th St, 176th St, 178th St, 180th St, 182nd St, 184th St, 186th St, 188th St, 190th St, 192nd St, 194th St, 196th St, 198th St, 200th St.

Airport Metro Connector

Current Authorized Project Budget : \$180.7 M

Forecast Completion: 2024

Project Complete: 23%

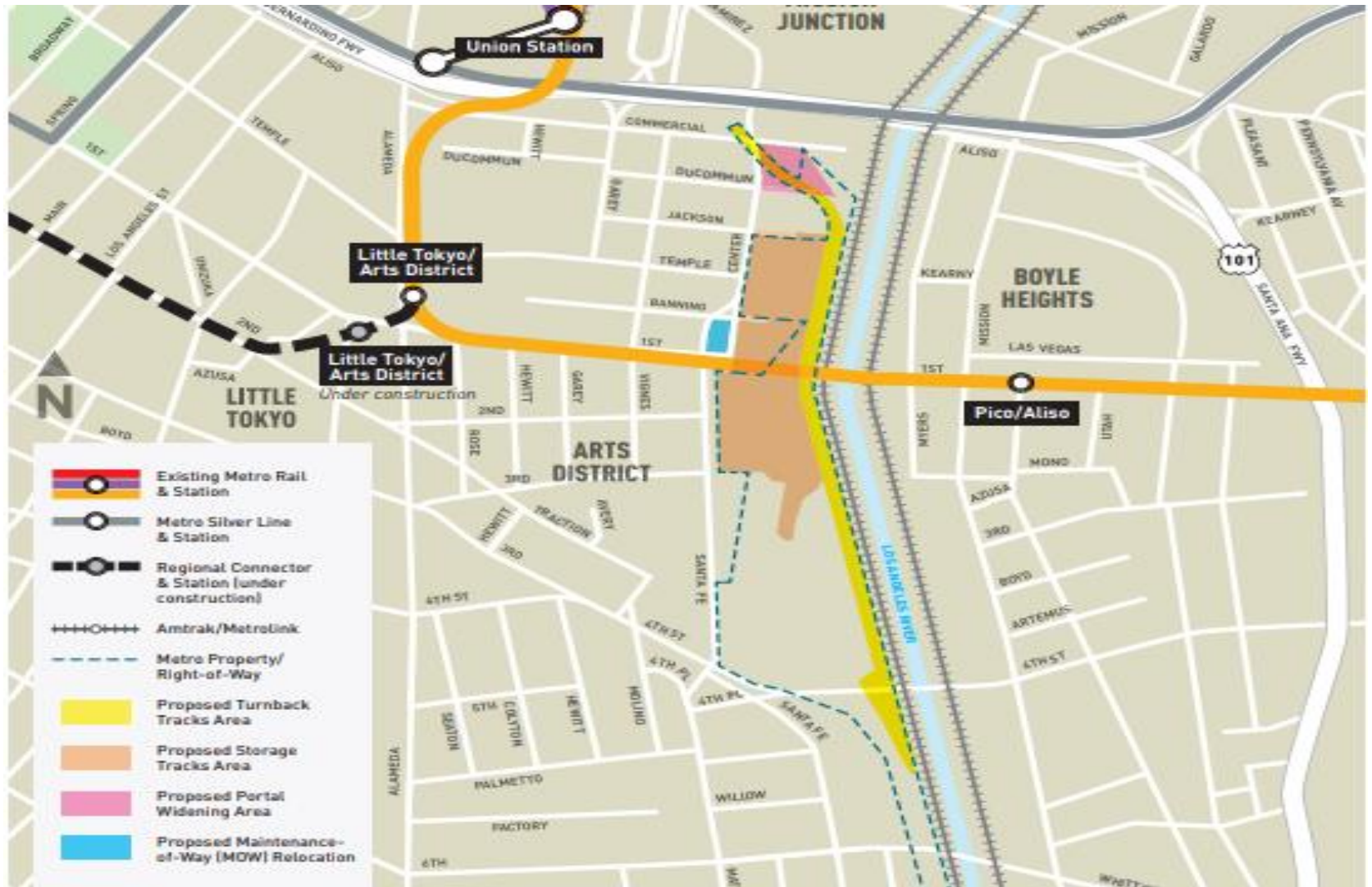
Accomplishments:

- Engineering completed 100% design and Early Works Package design.
- Preliminary Site work completed.
- Los Angeles World Airport (LAWA) Interface and coordination continues.
- Ardent and Honeywell Monitoring decommissioned for the duration of the construction.
- Complete Phase II Environmental Site Assessment.
- So. Cal. Gas completed Utility relocation design and potholing for Gas Lines transmission.
- Awarded professional services contract for construction support services.
- Previous tenant (Hertz) has ceased operations and has completely moved off site. Real Estate is in the process of finalizing the acquisition of Hertz property and is anticipating finalized sale and ownership by end of FY20.

Challenges/Risks:

- Real Estate Real/eminent domain costs for acquisition and relocation, advance utility relocation, schedule integration with LAWA's Automated People Mover project.
- Constructing project under full Metro operations of the Crenshaw and Green Lines.
- Potential schedule impacts related to the coordination of the Crenshaw Line opening and LAWA LAMP interface and contractors.

Division 20 Portal Widening Turnback



Division 20 Portal Widening Turnback

Current Authorized Project Budget : \$801.7M

Forecast Completion: 2023

Project Complete: 5%

Accomplishments:

- Real Estate Acquisitions & C1180 Early Demolition: Major demolition of the ADCO, Viertel and Pickle Works Sites complete.
- Procurement of TPSS Station and Emergency Power Generator: Contract awarded; in the Submittal Process/Shop Drawings.
- Installation of Ductbanks and Demolition of Building 61A: Advancing several lines, and completed demolition of Building 61A.
- Portal Widening and Turnback: Contract awarded, Notice to Proceed April 2020
- Board Approved LOP.

Challenges/Risks:

- Coordination with Active Rail Yard - Rail Operations must remain active.
- Multiple Cutovers throughout Project.
- Adjacent Projects Coordination (ESOC, Link US, RCC, PLE Rail Welding Yard, Center Street).
- Choke Point at Portal - Operations, Maintenance, other Projects need access to Main Line at Portal.
- Unknown Conditions (Differing Site Conditions - DSCs - includes unknowns and utilities).
- DWP – Power Response Time.
- Procurement of Long Lead Items: Very Large power substation, 60+ turnouts, Continuous Welded Rail, Signal Materials, and Bridge Materials.

Patsaouras Plaza Busway Station

Project Budget: \$50.9 M

Project Completion: 2020

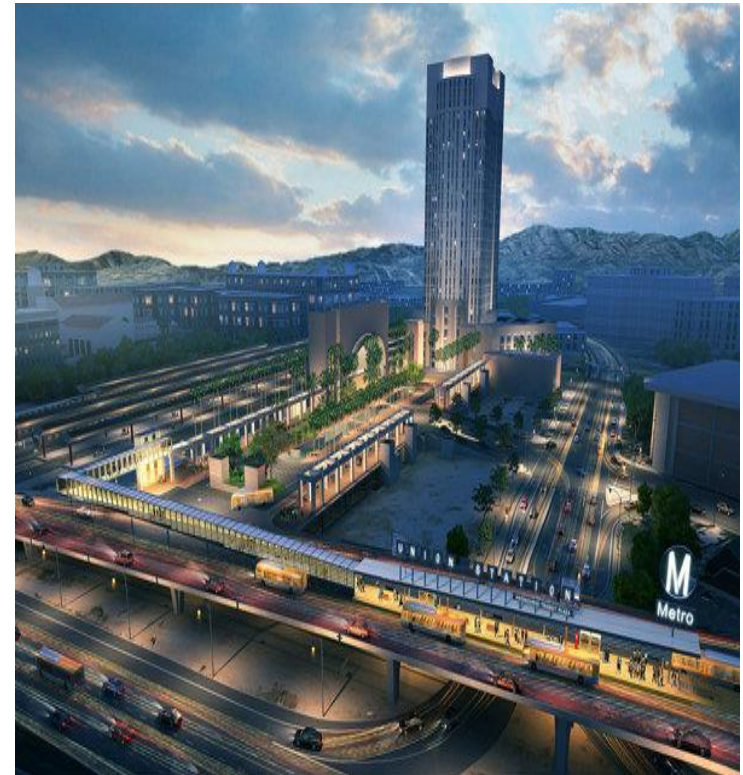
Project Complete: 85%

Accomplishments:

- Completed the PBPS pedestrian bridge, overcrossing and elevator enclosure
- Initiated work on stainless steel panels, including public art component
- Working with FTA to resolve expansion of the Area of Potential Effect and complete Caltrans storm drain connection

Challenges/Risks:

- Numerous Third party delays.
- Additional monitoring due to the requirements set forth in the Programmatic Plan.
- Additional costs for CMSS and DEOD labor compliance consultants due to extending the schedule
- Finding additional items of archeological or paleontological concern



Metro Blue Line Signal Rehabilitation Project

Project Budget: \$119.0 M

Project Completion: 2021

Project Complete: 90%

Accomplishments:

- MBL Resignalling contract (Mass Electric) – issued NTP FY18.
- A Line (formerly Metro Blue Line) trains began running November 1, 2019.
- Remaining work:
 - Work at Rail Yard remains
 - Negotiating outstanding requests for changes and Change Orders; contract closeout by FY21.

Challenges/Risks:

- Acceleration costs and schedule delays associated with Rail Yard work.
- Negotiation of outstanding requests for change.



New train control



Project adds 4 Crossovers

Willowbrook/Rosa Parks Station Project

Project Budget: \$128.3 M

Project Completion: 2020

Project Complete: 75%

Accomplishments:

- Completed relocation of utilities and improvements to the Non-Revenue rail crossing.
- Construction of the Customer Service building and Bike Hub is complete.
- Renovation of A Line platform and mezzanine to C line 80% complete.



Challenges/Risks:

- Incurred cost increases due to real estate and contractor cost escalation.
- Installation of new grade crossing by Union Pacific.
- Further cost escalation and labor impacts due to COVID crisis.

Metro Center Street Project

Project Budget: \$206.0M Project Completion: Phase 1 in 2023

Accomplishments:

- Completed evaluation of the DB proposals.
- Board award of DB contract and LOP increase is anticipated in April 2020
- Completed Early Demolition in February 2020
- Issued the RFP for Construction Support Services in November 2019, and completed proposals review and negotiations.
- Staff will go to the Board in May 2020 to award the CSS contract.

Challenges/Risks:

- Competitive market caused cost proposals to be higher than estimated which resulted in increase the LOP from 112.7M to 206M
- Need to expend State funds of \$38 million by March 2021
- Currently on hold due to COVID-19 financial impacts



Rail & Bus Operations Center (ROC/BOC)

Project Budget: \$ 24.0M Project Completion: 2021 (PE Design)

Accomplishments:

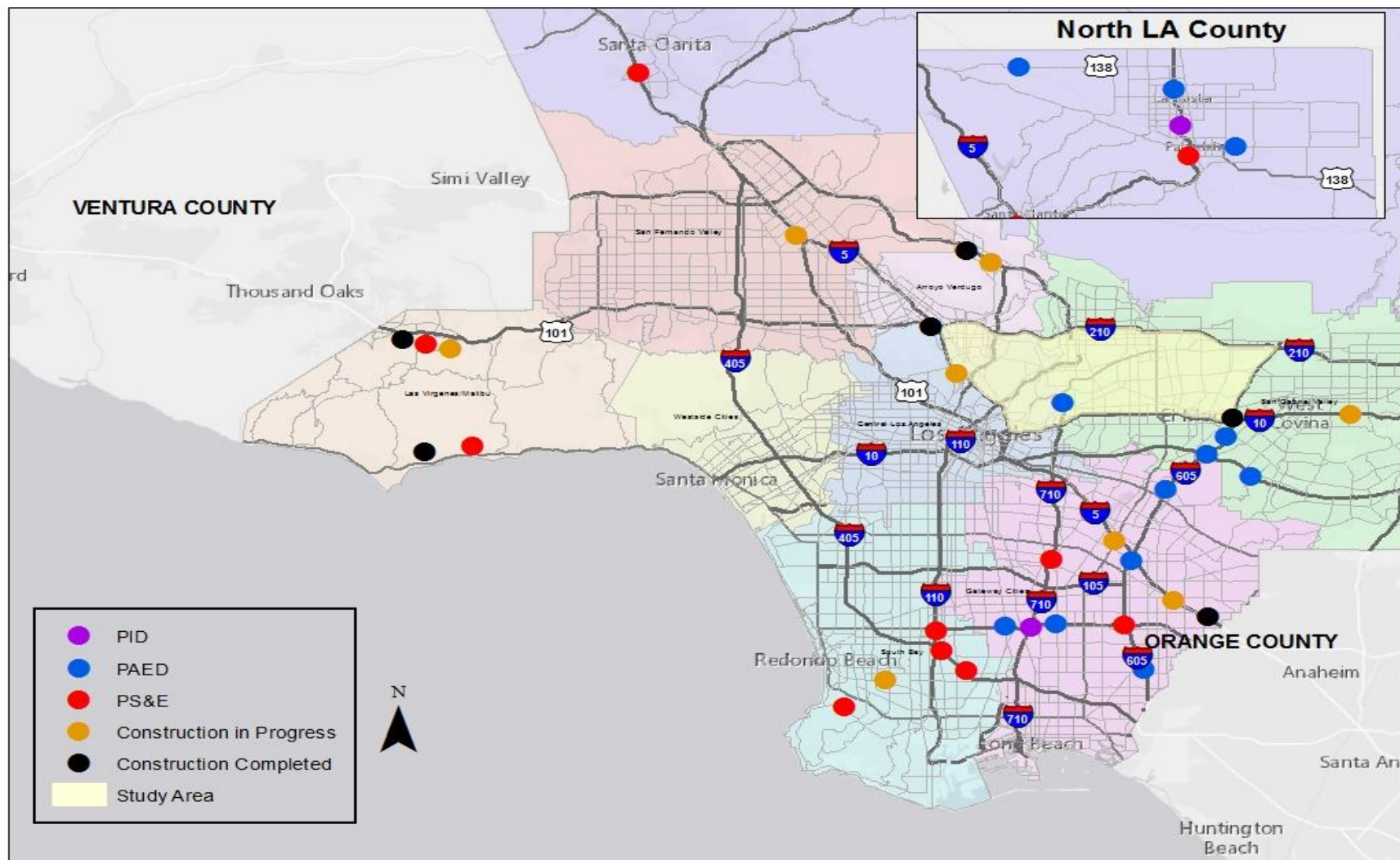
- Board approved LOP for PE Design in February 2020
- Task Order will be issued to SECO Trans to initiate PE Design in April 2020.

Challenges/Risks:

- Funding for Final design and construction is not yet identified.
- Currently on hold due to COVID 19 financial impacts.



Highway Program



Highway Program Status Summary (Measure R-Funded)

#	Lead	Project	Current Phase	Estimated Cost through Current Phase (\$mil)	Scheduled Completion
1	Caltrans	I-5 North – North of Buena Vista to South of Magnolia Blvd	Construction	\$397.0	2021
2	Caltrans	I-5 North - Magnolia Blvd to SR 134	Construction	\$168.2	2020
3	Caltrans	I-5 South – Florence Ave Interchange	Construction	\$211.7	2020
4	Caltrans	I-5 South - San Antonio, Imperial Hwy and Orr Day	Construction	\$323.3	2020
5	Caltrans	I-5 South Valley View Interchange	Construction	\$631.1	2021
6	Caltrans	I-405 Crenshaw Blvd On and Off Ramp Improvements	PS&E	\$24.4	2020
7	Metro	I-405 Auxiliary Lanes – I-105 to Artesia Blvd	PAED	\$4.1	2020

PAED – Project Approval and Environmental Document

PS&E – Plans, Specifications and Estimates

Highway Program Status Summary (Measure R-Funded)

#	Lead	Project	Current Phase	Estimated Cost through Current Phase (\$mil)	Scheduled Completion
8	Metro	I-605 Corridor Hot Spots – I-605/I-5 Interchange Improvements	PAED	\$28.7	2021
9	Metro	I-605 Corridor Hot Spots – I-605/SR 60 Interchange Improvements	PAED	\$41.2	2021
10	Metro	I-605 Corridor Hot Spots – I-605 Beverly Interchange Improvements	PAED & PS&E	\$3.7	2021
11	Metro	I-605/Valley Boulevard Interchange Improvements	PAED & PS&E	\$2.2	2021
12	Metro	SR-60/7th Avenue Interchange Improvements	PAED & PS&E	\$2.3	2021
13	Metro	SR-91 (EB) Atlantic Avenue to Cherry Avenue Auxiliary Lane Improvements	PAED & PS&E	\$7.4	2021
14	Metro	SR-91 Acacia Court to Central Avenue	PAED	5.0	2021
15	Metro	SR-91 (WB) Shoemaker to Alondra Improvements	PS&E	\$41.7	2021
16	Metro	I-710 (South) Corridor Improvement Projects	PAED & PS&E	\$141.0	2020
17	Metro	I-710 (South) Early Action Projects Soundwalls (Bell Gardens, Commerce, Compton, East Los Angeles, Long Beach)	PS&E & ROW	\$10.1	2020

PAED – Project Approval and Environmental Document

PS&E – Plans, Specifications and Estimates

ROW – Right of Way

FY21 APE

Highway Program Status Summary (Measure R-Funded)

#	Lead	Project	Current Phase	Estimated Cost through Current Phase (\$mil)	Scheduled Completion
18	Various	SR-710 (North) Mobility Improvement Projects	PAED/PS&E/Construction	\$1,026.5	Varies
19	Caltrans	Soundwall Package 10	PS&E/ROW	\$11.7	2020
20	Metro	Soundwall Package 11	Construction	\$89.2	2021
			Subtotal Measure R Highway Projects:	\$3,170.5 M	

PAED – Project Approval and Environmental Document

PS&E – Plans, Specifications and Estimates

ROW – Right of Way

Highway Program Status Summary (Measure M-Funded)

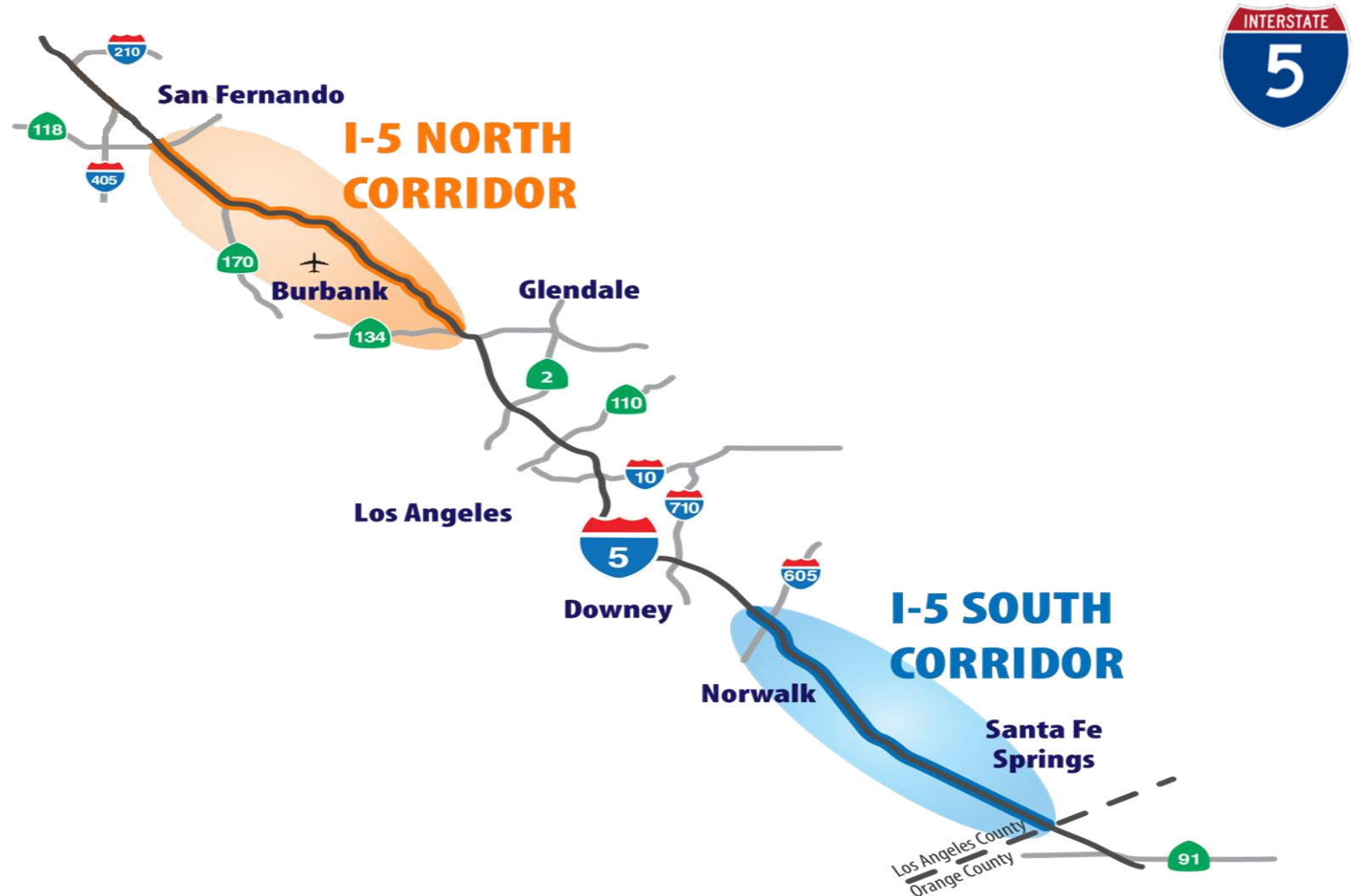
#	Lead	Project	Current Phase	Estimated Cost through Current Phase (\$mill)	Scheduled Completion
21	Metro	SR-57/SR-60 Interchange Improvements	PS&E & ROW	\$58.4	2021
22	Caltrans	SR 71: Interstate 10 to Mission Blvd (North)	PS&E & ROW	\$40.4	2022
23	Caltrans	SR 71: Mission Blvd to SR-60 (South)	Construction	\$175.5	2023
			Subtotal Non-Measure R &M Funded Highway Projects:	\$274.3	

PS&E – Plans, Specifications and Estimates
ROW – Right of Way

Highway Program Status Summary (Projects Moving to Construction by Metro)

#	Lead	Project	Next Phase	Estimated Cost (\$mill)	Scheduled Completion
24	Metro	I-5 North HOV Project SR 14 to Parker Road	Construction	\$679.40	2025
25	Metro	I-605 from SR-91 to South Street Improvements	Construction	\$23.10	2021
			Subtotal Highway Construction:	\$702.50	
			TOTAL HIGHWAY PROGRAM:	\$4,147.30	

I-5 Construction Projects (By Caltrans)



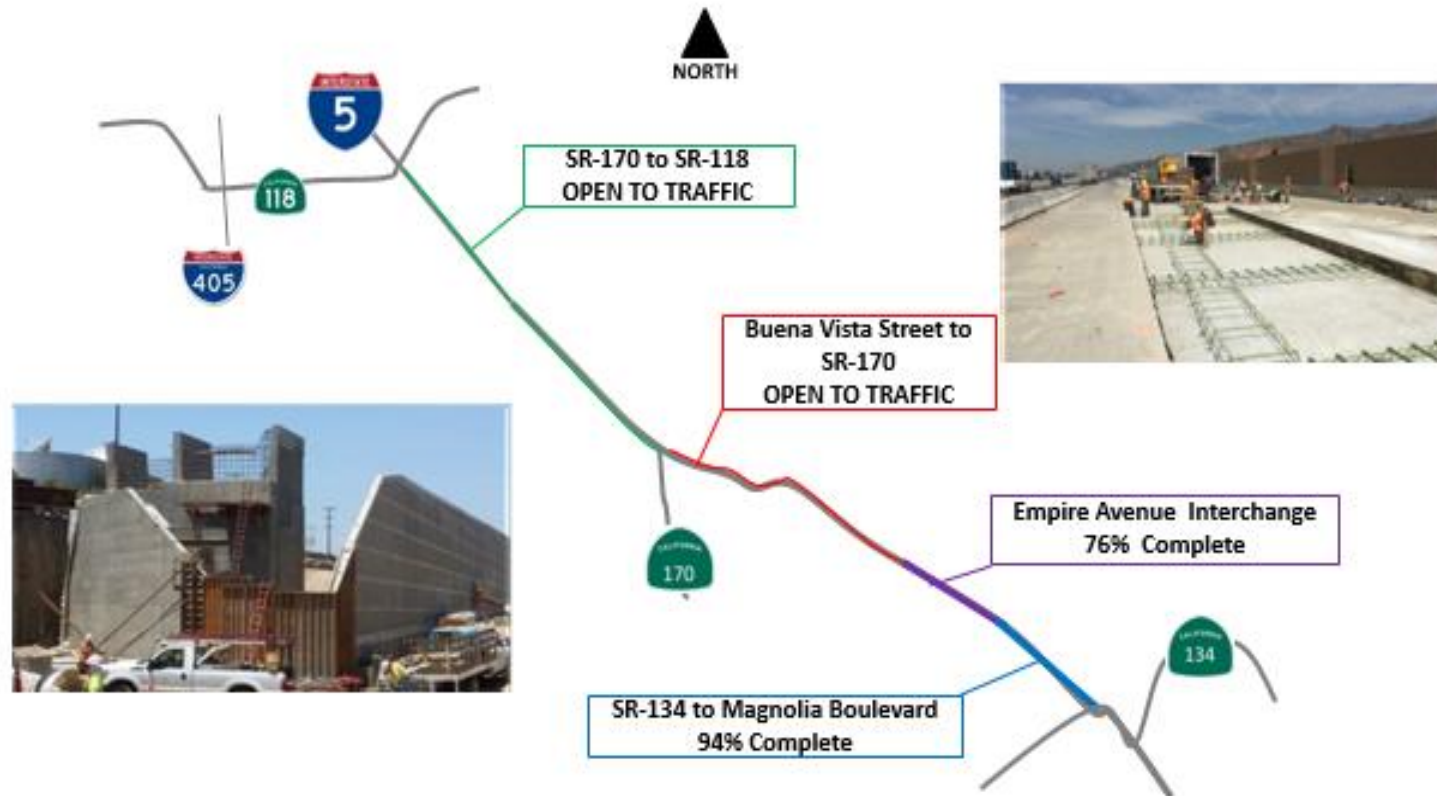
I-5 North: SR-118 to SR-134

Project Budget

**Current
\$880.9M**

**Forecast
\$912.8M**

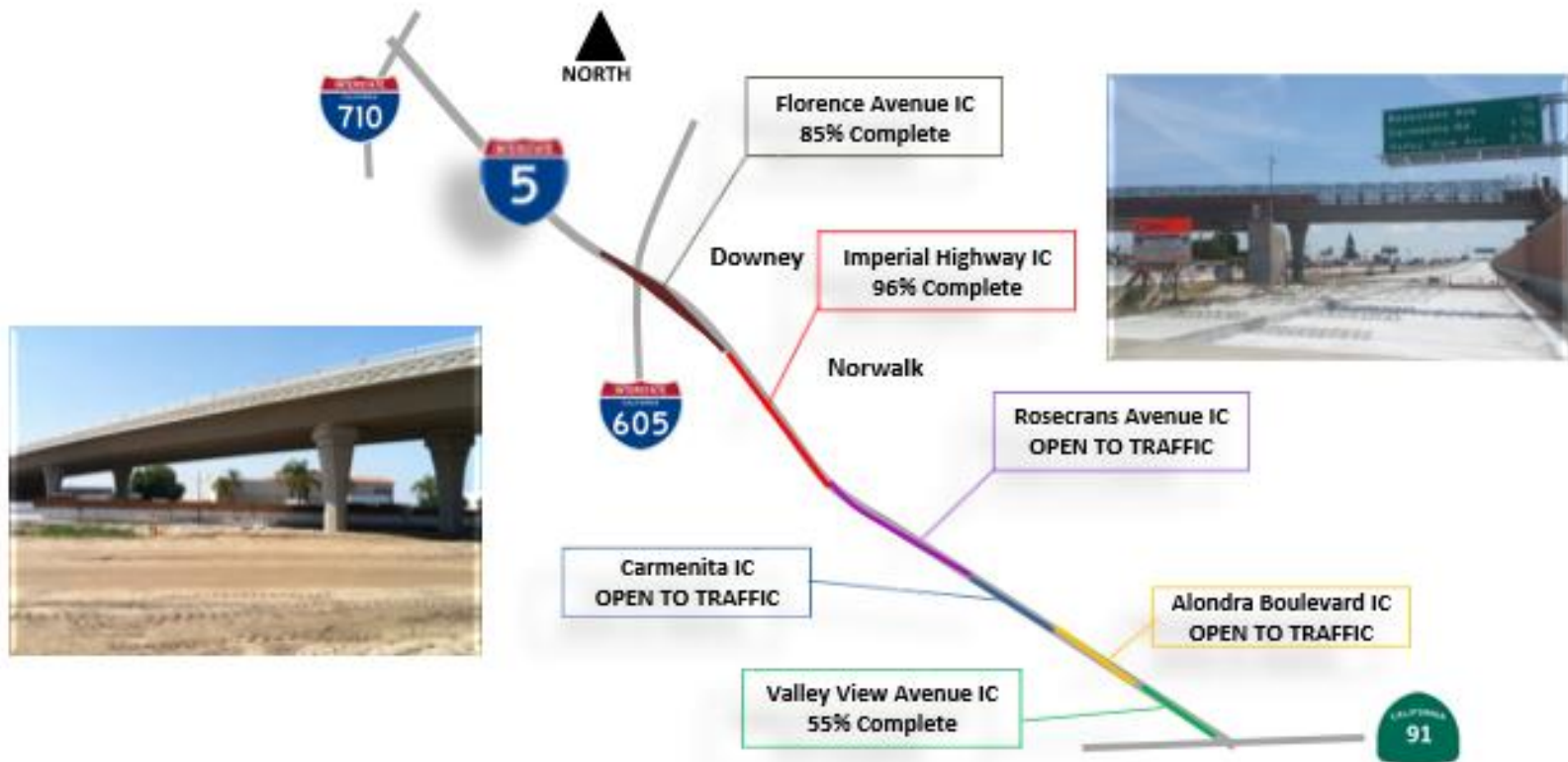
**ANTICIPATED
OPEN TO TRAFFIC: Summer 2021**



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

Project Budget	Current \$1.888B	Forecast \$1.888B
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**ANTICIPATED
OPEN TO TRAFFIC: Fall 2021**



I-5 North Capacity Enhancements-Construction (SR14 to Parker Road)

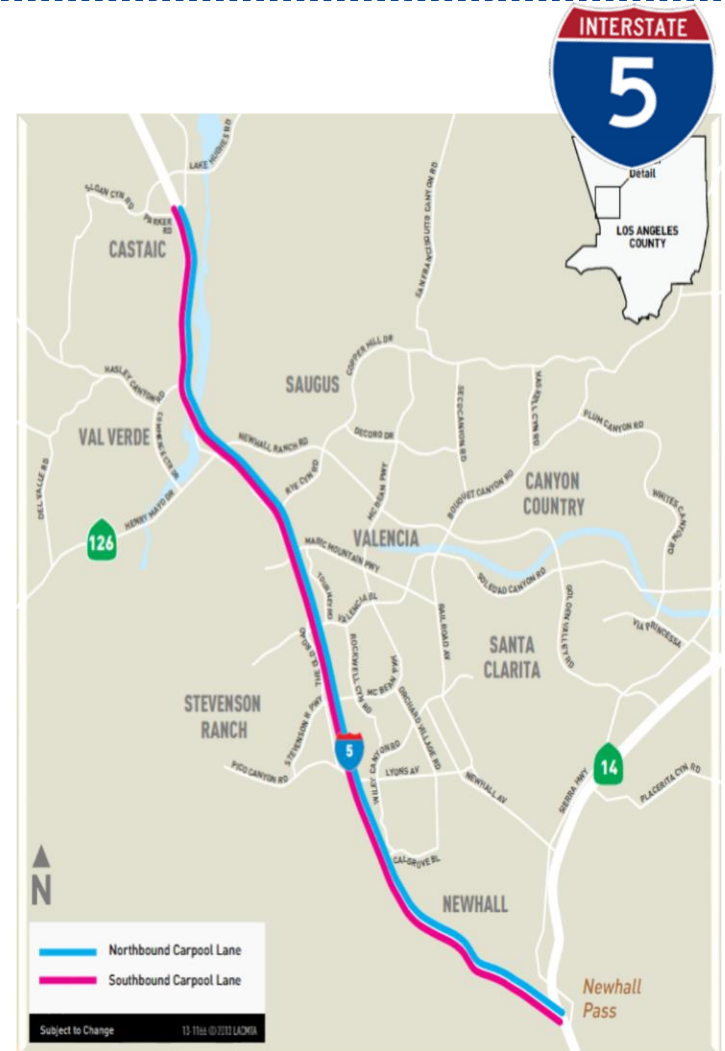
PHASE: Moving to Construction
Approved Budget: \$679.4M

Accomplishments:

- Secured \$47M in INFRA - Federal Funding
\$247M in TCEP - SB1 State Funding
- Released RFP for Construction Support Services in January 2020
- Anticipating to enter Construction phase in February 2021.

Challenges/Risks:

- Modification of Metro IFB Contract to incorporate Caltrans requirements.
- Coordination and community engagement.



I-605 Freeway “Hot Spots”

PHASE: Various

Approved Budget : \$132.2M

Estimated Cost to Complete Current Project Phases: \$132.2 M



Accomplishments:

- Pursuing early action projects parallel to the development of the I-605 corridor environmental document.
- Initiated PAED and PS&E for multiple Early Action Interchange projects now in progress, with estimated completions through 2022.
- Continuing strong collaborative work with local agencies and communities in developing new projects to relieve congestion in the corridor.

Challenges/Risks:

- Continue to break down corridor mega projects into smaller, fundable projects with independent utility and cumulative benefits.



I-710 (South) Corridor Improvement Projects

PHASE: PAED

Approved Budget : \$141.0M

Estimated Cost to Complete Phase: \$91.0M

Subsequent phases include specific freeway and interchange improvements, arterial and local crossing projects

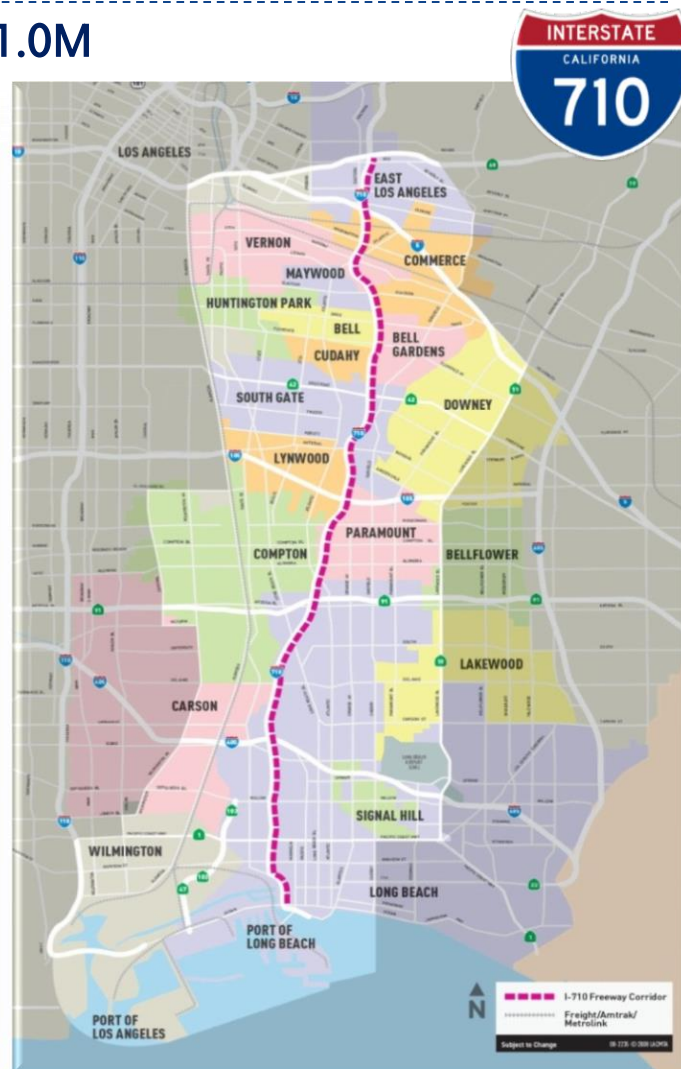
- Metro Board adopted Locally Preferred Alternative in March 2018.

Next Steps:

- Environmental phase is expected to be completed by Summer 2020 contingent upon EPA and Caltrans approvals of the document.
- Pursuing early action arterial projects during the development of the corridor environmental documents.
- Project funding \$50M clean truck initiative.

Challenges/Risks:

- Funding to pursue design and construction of all potential early action projects.



SR-710 (North) Mobility Improvement Projects

PHASE: Various

Approved Budget : \$1,026.5 M

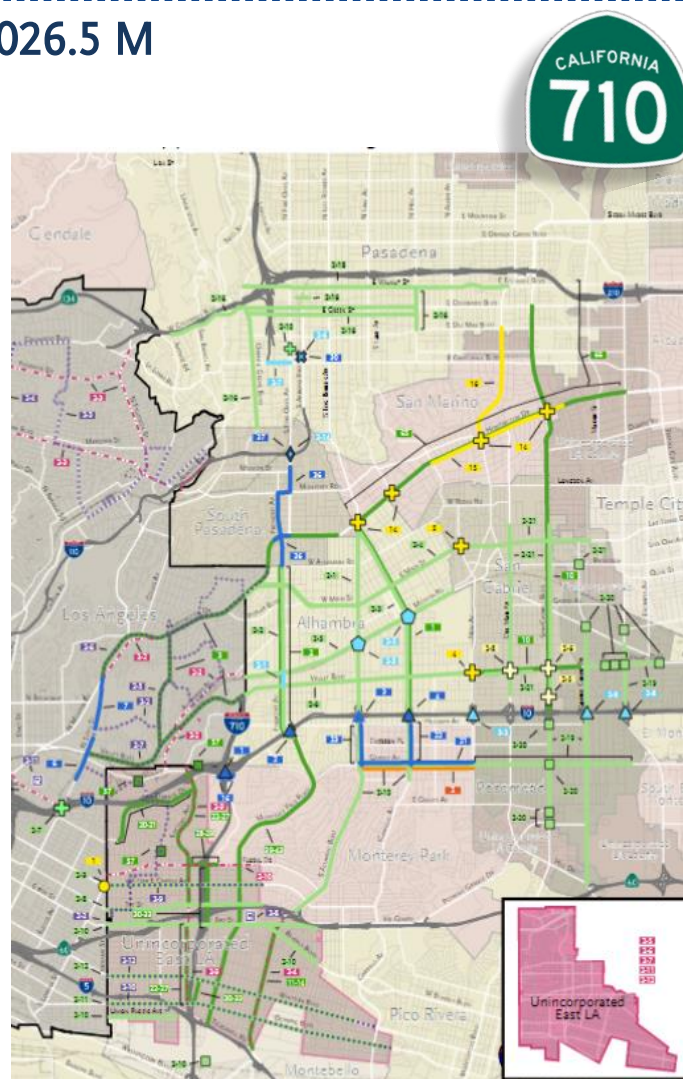
Estimated Cost to Complete Projects: \$1,026.5M

Accomplishments:

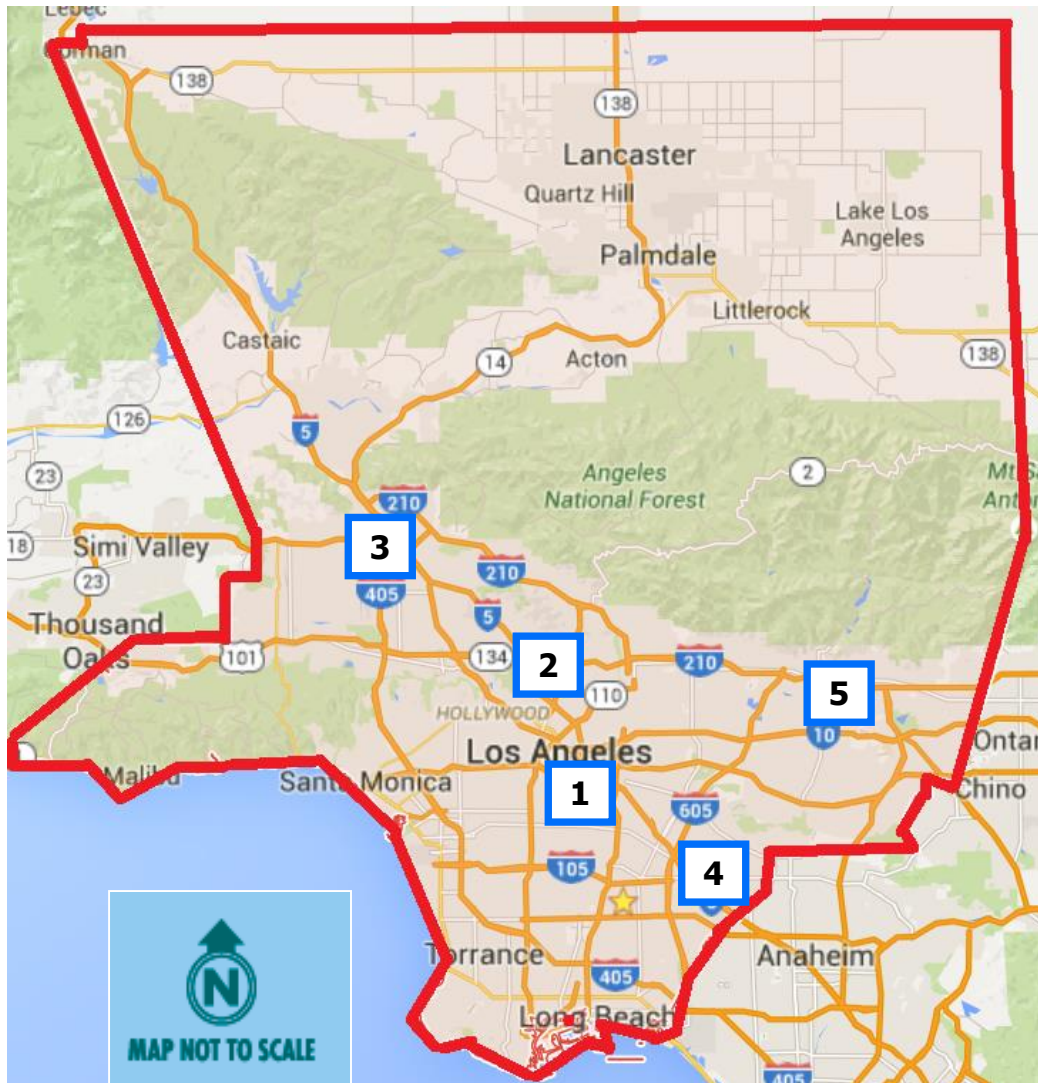
- Over 80 projects are planned for the Cities of Alhambra, Monterey Park, Pasadena, Rosemead, San Gabriel, San Marino, South Pasadena, and City and County of Los Angeles
- The Mobility Improvement Projects Include:
 - Local street/corridor improvements
 - Freeway/local interchange and ramp improvements
 - Local street intersection improvements
 - Intelligent transportation system improvements
- Most projects planned to be completed in the next 10 years delivering regional and local benefits

Next Steps:

- Next Step - Coordinate and execute funding agreements for projects already approved by the board
- Facilitate project delivery for local jurisdictions with limited resources



Regional Rail Program (LA County)



1. LINK Union Station
2. Doran Street and Broadway/Brazil Grade Separation Project
3. Brighton to Roxford Double Track Project
4. Rosecrans/Marquardt Grade Separation Project
5. Lone Hill to CP White Double Track Project

Los Angeles County:



Regional Rail Program Summary

#	Project	Current Phase	Estimated Costs through Current Phase (\$mil)	Current Phase Completion
1	LINK Union Station Project	Environmental & PE	\$99.8	2019
2	Doran Street and Broadway/ Brazil Grade Separation Project	Environmental/PE	\$11.6	2020
3	Brighton to Roxford Double Track Project	Environmental/ Final Design	\$16.7	2020
4	Rosecrans/Marquardt Grade Separation Project	Environmental; Plan, Specification & Estimate Final Design, Real Estate Acq.	\$26.5	2021
5	Lone Hill to White Double Track Project	Environmental & Final Design	\$10.0	2020
	Total Regional Rail Program		\$164.6	

Link Union Station (LINK US)

Estimated Cost to Complete Environmental/PE: \$99.8 M

Current Phase Completion Date: 2021

Accomplishments:

- Phase A of the project is funded with a total of \$950.4 million. Received concurrence from funding partners on the project scope for Phase A with 9 run-through tracks structure.
- CEQA EIR was completed in July 2019 and 35% PE Design for Phase A was completed in December 2019.
- CMGC Project Delivery Method was approved by the Board in December 2019 for Link US Phase A.
- CHSRA Board approved \$423.335 million for the project



Challenges/Risks:

- In July 2019, CHSRA received approval for NEPA assignment on HSR improvements in California. Therefore, the Link US EIS Environmental has restarted with CHSRA as the lead agency and is anticipated to be completed in Spring 2021.
- The funding partners modified the scope of work to include partial relocation of the BNSF tracks on the West Bank. Staff is processing a CEQA Amendment for the partial relocation of the BNSF storage tracks.

Doran Street and Broadway/ Brazil Grade Separation Project

Est. Cost to Complete Environ./Design: \$11.6 M

Current Phase Completion Date: 2020

Accomplishments:

- CPUC approval to modify the one-way interim at-grade improvements at Doran Street crossing to two-way configuration at quiet zone ready improvements on 1/10/19.
- Received CTC staff recommendation on 12/28/2018, under ATP cycle 4, for \$16.3M for the \$22M needed for design/construction of both structures.
- Completed construction of Broadway/Brazil Traffic Signal Improvements.
- Metro Board Approval in October 2019 to add active transportation access elements into the Project.
- In October 2019, Metro Board approved programming \$3M of Measure R 3% funds for design costs, amending the 2020 budget for ATP elements.
- 100% Draft Submittal for the At-Grade Improvements at Doran Street.

Challenges/Risks:

- Pending contract modification.
- Obtaining construction funding for the interim improvements at Doran Street and improvements for the grade separation.
- Seeking Board approval for an additional \$500K in third party costs to account for the scope of work modifications.



Brighton to Roxford Double Track Project

Estimated Cost to Complete Environmental/Final Design: \$16.7 M

Current Phase Completion Date: 2020

Accomplishment:

- The 65% design plans and specs was completed on December 4, 2019.

Challenges/Risks:

- CEQA Environmental anticipated to be completed in Spring 2020.
- 90% Final Design anticipated to be completed in Winter 2020.
- Third Party City agencies approval of grade crossing improvements.



Rosecrans/Marquardt Grade Separation Project

Current Estimate for Total Project: \$26.5 M
Current Phase Completion Date: 2021

Accomplishments:

- Metro is in possession of all eight full take real estate acquisitions.
- 90% Final Design was completed in February 2020.
- Early demolition work began in November 2019 and anticipated to be completed in June 2020.

Challenges/Risks:

- June 2020 is the deadline for all real estate work, Right-of-Way (ROW) certifications.
- SCE utility relocation work needs to begin in Spring 2020.
- The project must be ready for advertisement/issued for bid and award for construction by December 2020 to comply with other funding source regulations.



Lone Hill to White Double Track

Estimated Cost to Complete Environmental/Final Design: \$10.0 M

Current Phase Completion Date: 2020

Accomplishment:

- Categorical Exclusion environmental documents filed in Fall 2019.
- Preliminary Engineering is complete.

Challenges/Risks:

- Metro Board can decide not to approve staff recommendation for final design award.



FY21 Summary

New Projects with Planned Adoption of Life-of-Project Budget:

- Orange Line Bus Rapid Transit Improvement Project
- East San Fernando Valley Transit Corridor Project
- West Santa Ana Branch Project
- Airport Metro Connector Project
- Metro Eastside Access Improvement Project
- Rail to Rail Corridor Active Transportation Connector Project

Existing Projects with Potential Adjustments to LOP Budget (separate Board action required):

- Crenshaw/LAX Transit Project
- Doran Street and Broadway/Brazil Safety and Access Projects
- Westside Purple Line Extension Section 1

Next Steps

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

Appendix: Project Listing by Type

	TRANSIT CAPITAL PROJECTS W/TOTAL PROJECT COSTS > \$5 M	TYPE	BUDGET(\$ MIL.)	
1	Crenshaw/LAX Transit Project	Major Construction	\$2,058.0	
2	Regional Connector Transit Project	Major Construction	\$1,755.8	
3	Westside Purple Line Extension Section 1 Project	Major Construction	\$2,778.9	
4	Westside Purple Line Extension Section 2 Project	Major Construction	\$2,440.9	
5	Westside Purple Line Extension Section 3 Project	Major Construction	\$3,223.6	
6	Gold Line Foothill Extension Phase 2B Project	Major Construction	\$1,532.9	
7	Orange Line Bus Rapid Transit Improvements	Major Construction	\$22.0	(a)
8	West Santa Ana Branch	Major Construction	\$49.0	(a)
9	East San Fernando Valley	Major Construction	\$21.5	(a)
		Total	\$13,882.6	
10	Airport Metro Connector Project	Misc. Capital Projects	\$180.7	
11	Division 20 Portal Widening Turnback Facility	Misc. Capital Projects	\$801.7	
12	Rail to Rail Corridor Active Transportation Connector Project	Misc. Capital Projects	\$12.9	(a)
13	Metro Eastside Access Improvements Project	Misc. Capital Projects	\$22.6	(a)
14	Sounwall 10	Misc. Capital Projects	\$50.9	
		Misc. Capital Projects Total	\$1,068.8	
15	Metro Gold Line I-210 Barrier Replacement Phase I	Security/Safety	\$22.5	
16	Metro Center Street Project (Emergency Security Operations Center)	Security/Safety	\$206.0	
17	Rail Operations Center/Bus Operations Center	Security/Safety	\$24.0	
		Security/Safety Total	\$252.5	
18	Systemwide Elevator Installations (Vertical Systems)	Rail Facilities Improvements	\$8.0	
19	Light Rail Transit Freeway Stations Sound Enclosures	Rail Facilities Improvements	\$8.6	
20	Metro Red Line Civic Center Station Escalator/Elevator Modernization	Rail Facilities Improvements	\$12.0	
21	Willowbrook/Rosa Parks Station Improvement	Rail Facilities Improvements	\$128.3	
		Rail Facilities Improv. Total	\$156.9	
22	Metro Blue Line Pedestrian Safety Enhancement at Grade Crossings	Wayside Systems	\$31.4	
23	Metro Blue Line Track and System Refurbishment	Wayside Systems	\$102.3	
24	Metro Blue Line Signal System Rehabilitation	Wayside Systems	\$119.0	
		Wayside Systems Total	\$252.7	
25	Fuel Storage Tank Program (FY17 - FY19)	Bus Facilities Improvements	\$13.2	
26	Fuel Storage Tank Program (FY20 - FY22)	Bus Facilities Improvements	\$23.4	
27	Division 1 Improvements	Bus Facilities Improvements	\$20.9	
28	Bus Facility Maintenance Improvements & Enhancements Phase III	Bus Facilities Improvements	\$21.7	
29	Patsaouras Plaza Bus Station Construction	Bus Facilities Improvements	\$50.9	
		Bus Facilities Improv. Total	\$130.0	
		TRANSIT CAPITAL TOTAL	\$15,743.6	

(a) Based on projected budget through FY21, prior to Board adoption of life-of-project budget.

Appendix: Project Listing by Type

	HIGHWAY	TYPE	CURRENT EST. (\$M.)
1	I-5 South – Valley View Interchange	Measure R Highway Capital Project	\$631.1
2	I-5 South – San Antonio, Imperial Hwy and Orr Day	Measure R Highway Capital Project	\$323.3
3	I-5 South – Florence Ave. Interchange	Measure R Highway Capital Project	\$211.7
4	I-5 North – North of Buena Vista to South of Magnolia Blvd	Measure R Highway Capital Project	\$397.0
5	I-5 North – Magnolia Blvd to SR 134	Measure R Highway Capital Project	\$168.2
6	I-605 Corridor Hot Spots – I-605/I-5 Interchange Improvement	Measure R Highway Capital Project	\$28.7
7	I-605 Corridor Hot Spots – I-605/SR 60 Interchange Improvement	Measure R Highway Capital Project	\$41.2
8	I-605 – Beverly Interchange Improvement Project	Measure R Highway Capital Project	\$3.7
9	I-605/Valley Boulevard Interchange Improvements	Measure R Highway Capital Project	\$2.2
10	SR-60/7th Avenue Interchange Improvements	Measure R Highway Capital Project	\$2.3
11	EB SR-91 Atlantic Ave. to Cherry Ave. Auxiliary Lane Improvements	Measure R Highway Capital Project	\$7.4
12	I-405 Crenshaw Blvd On and Off Ramp Improvements	Measure R Highway Capital Project	\$24.4
13	I-405 Auxiliary Lanes - Artesia Blvd to I-105	Measure R Highway Capital Project	\$4.1
14	I-710 (South) Corridor Improvement Projects	Measure R Highway Capital Project	\$141.0
15	I-710 (South) Early Action Projects - Soundwall Projects (3 locations)	Measure R Highway Capital Project	\$10.1
16	SR-91 Acacia Court to Central Ave.	Measure R Highway Capital Project	\$5.0
17	SR-91 (WB) Shoemaker to Alondra Improvements	Measure R Highway Capital Project	\$41.7
18	SR-710 (North) Mobility Improvement Projects	Measure R Highway Capital Project	\$1,026.5
19	Soundwall Package 10	Measure R Highway Capital Project	\$11.7
20	Soundwall Package 11	Measure R Highway Capital Project	\$89.2
		Measure R Highway Total	\$3,170.5
21	SR 57/SR 60 Interchange Improvements	Other Highway Projects	\$58.4
22	SR 71: Interstate 10 to Mission Blvd	Other Highway Projects	\$40.4
23	SR 71: Mission Blvd to SR-60 (South)	Other Highway Projects	\$175.5
		Other Highway Total	\$274.3
24	I-5 North HOV Project SR 14 to Parker Road	Highway Construction	\$679.4
25	I-605 from SR-91 to South Street Improvements	Highway Construction	\$23.1
		Highway Construction Total	\$702.5
		HIGHWAY PROGRAM TOTAL	\$4,147.3

Appendix: Project Listing by Type

	REGIONAL RAIL	TYPE	CURRENT EST. (\$M.)
1	LINK Union Station Project (Phases A and B)	Regional Rail	\$99.8
2	Doran Street and Broadway/Brazil Safety and Access Project	Regional Rail	\$11.6
3	Brighton to Roxford Double Track Project	Regional Rail	\$16.7
4	Rosecrans/Marquardt Grade Separation Project	Regional Rail	\$26.5
5	Lone Hill to White Double Track Project	Regional Rail	\$10.0
		REGIONAL RAIL TOTAL	\$164.6
		TOTAL PROGRAM	\$20,055.5



Metro

Board Report

Los Angeles County
Metropolitan Transportation
Authority
One Gateway Plaza
3rd Floor Board Room
Los Angeles, CA

File #: 2020-0284, **File Type:** Application

Agenda Number: 22.

CONSTRUCTION COMMITTEE MAY 21, 2020

SUBJECT: SOUNDWALL PACKAGE 11 HIGHWAY PROJECT

ACTION: CONTRACT MODIFICATION

RECOMMENDATION

AUTHORIZE the Chief Executive Officer to:

EXECUTE Modification No. 19 to Contract No. C39033C1101-2 Soundwall Package 11 Highway Project for work above and beyond the original scope of services. This additional work is within the LOP budget and increases the total contract price in the amount of \$860,000, from \$66,041,760 to \$66,901,760.

ISSUE

During construction of Soundwall Package 11, permeation grouting was required at several bridge locations. Permeation grouting is an industry standard and a Caltrans accepted method of stabilizing and increasing bearing and friction capacity of in-situ soils and is accomplished by injecting grout deep into the soils at low pressure. The permeation grouting specification within the Soundwall Package 11 Contract did not match the soil conditions onsite, and the Contractor was requested to assist in investigating alternative methods to stabilize the soil.

Construction Modification 19 authorizes compensation to the Contractor in the amount of \$860,000 for additional time and overhead related to delays during permeation grouting investigation and re-design. This Modification increases the construction duration 287 Calendar Days, from December 19th, 2020 to October 2nd, 2021 for substantial completion.

Contract modifications on this project exceeding \$750,000 require Board authorization.

BACKGROUND

The Soundwall Package 11 Project is located entirely within Caltrans right of way and consists of construction of soundwalls on Route 170 from Route 101 separation to the Sherman Way

Overcrossing, and on Route 405 from north of Saticoy Street Undercrossing to Roscoe Boulevard Undercrossing. The project also includes modifying and widening eight existing bridges.

DISCUSSION

To accommodate new deep foundation Cast in Drilled Hole piles required for the bridge widenings, the design team incorporated a soil stabilization technique called permeation grouting. This grouting was to be performed at seven bridge widening locations. During the design phase, the design team performed investigation into the soils at these locations and included a specification that assumed the permeation grouting could be performed in accordance with Caltrans standard specifications. During construction, it was discovered that the soils at the bridge locations differed materially from a preferred soil profile that would accept the permeation grouting. The design team requested the Contractor to perform additional geotechnical surveys to determine the most appropriate path forward. After receiving the additional geotechnical information and performing additional design work, the Engineer of Record presented an acceptable solution to Caltrans and Metro. During this period of investigation and re-design, the critical path of the project was delayed 287 Calendar Days, with 215 days being excusable and compensable, and 72 days being excusable and non-compensable.

This Modification will include all costs associated with permeation grouting for the contract milestone delay.

DETERMINATION OF SAFETY IMPACT

There is no impact to public safety by approving this recommendation.

FINANCIAL IMPACT

The LOP budget for Soundwall Package 11 Highway Project is \$89,183,000 in local Measure R Highway 20% and Prop C 25% Funds.

The change identified herein will not increase the project budget for the current fiscal year, as the local funding is only a portion of the total project programmed funding in Cost Center 8410 (Construction Management), in Project 460324.

This a multi-year project, therefore the cost center manager and the Executive Officer, Program Management would be responsible for budgeting project costs in future fiscal years.

IMPACT TO BUDGET

The source of funds for this recommendation is Measure R (20%) and Prop C (25%) Highway Funds, which are not eligible for bus or rail operations. No other funds were considered.

IMPLEMENTATION OF STRATEGIC PLAN GOALS

The Project is consistent with the following Metro Vision 2028 Goals and Objectives:

Goal 1: Providing high-quality mobility options and improve transit efficiency;

Goals 4 and 5: Transforming LA County through regional collaboration with Caltrans and the Corridor Cities by contributing funds and providing resources to assist Caltrans in management and delivery of these projects.

ALTERNATIVES CONSIDERED

The Board may choose not to approve this staff recommendation. However, this decision would result in further schedule delay and cost increases.

NEXT STEPS

Upon Board approval, staff will execute Contract Modification No. 19 to Contract No. C39033C1101-2.

ATTACHMENTS

Attachment A - Procurement Summary
Attachment B - Contract Modification / Change Order Log
Attachment C - DEOD Summary

Prepared by:

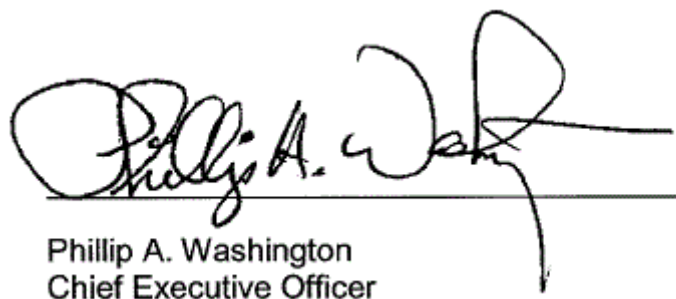
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Brad Owen, Executive Officer, Program Management (213) 418-3143

Reviewed by:

Debra Avila, Chief Vendor/Contract Management Officer, (213) 418-3051

Richard Clarke, Chief Program Management Officer, Program Management (213) 922-7447



Phillip A. Washington
Chief Executive Officer

PROCUREMENT SUMMARY

SOUNDWALL PACKAGE 11/C39033C1101-2

1.	Contract Number: C39033C1101-2		
2.	Contractor: Powell Constructors, Inc.		
3.	Mod. Work Description: Time extension and related extended overhead cost for delay		
4.	Contract Work Description: Modification to eight existing bridges and soundwall on Route 710, Route 101, and Route 405		
5.	The following data is current as of: 4/3/2020		
6.	Contract Completion Status:		
	Bids/Proposals Opened:	08/31/2017	% Completion \$s: 56%
	Contract Awarded:	10/30/2017	% Completion time: 56%
	NTP:	12/20/2017	Original Contract Days: 1460 calendar days
	Original Complete Date:	12/20/2021	Change Order Days: 287 days
	Current Est. Complete Date:	10/3/2022	Suspended Days: 0 days
	Total Revised Days:		287 days
	7.	Financial Status:	
Contract Award:		\$66,041,760.00	
Total Contract Modifications Approved:		\$1,504,083.87	
Current Contract Value:		\$67,545,843.30	
Contract Administrator: Helen Gates-Bryant		Telephone Number: 213-922-1269	
8.		Project Manager: Joe Wright	Telephone Number: 213-418-3460

A. Contract Action Summary

This Board Action is to approve Contract Modification No. 00019 in support of a compensable time impact, for delays affecting the Critical Path of the Project from Notice to Proceed to December 31, 2019.

This Contract Modification will be processed in accordance with Metro's Acquisition Policy and the contract type is a firm fixed price.

The contract was awarded October 30, 2017, to Powell Constructors, in the amount of \$66,041,760.00. The period of performance was 1460 calendar days.

Refer to Attachment B – Contract Modification Log for modifications to date.

B. Cost/Price Analysis

The recommended price has been determined to be fair and reasonable based upon a time impact analysis (TIA) prepared and utilized to determine the independent cost estimate, fact finding, cost analysis, and negotiations, in accordance with Metro procurement policy and procedures.

Proposal amount	Metro ICE	Negotiated or NTE amount
\$1,068,000.00	\$716,000.00	\$860,000.00

CONTRACT MODIFICATION/CHANGE ORDER LOG

Mod. no.	Description	Status (approved or pending)			
			Contract Value	Mods.	Board Approved CMA
NA	Initial Award		\$66,041,760.00		\$6,604,176.00
1	Contract Conforming and Clarifications	Approved		\$0.00	
2	Revise Contract Article I	Approved		\$0.00	
3	Contract Conforming and Clarifications – Lane Closure Charts Adjustments	Approved		\$0.00	
4	Temporary Mainline Striping	Approved		\$0.00	
5	Additional Temporary Traffic Control, City of LA	Approved		\$310,000.00	
6	Additional Tree Removal in the SB 170	Approved		\$78,970.16	
7	Crash Cushion Replacement	Approved		\$15,991.00	
8	Striping Inefficiencies	Approved		\$38,954.00	
9	Permanent Sign Modification	Approved		\$21,542.47	
10	Electrical Service Connection at SW #951	Approved		\$25,971.00	
11	Removal of Overhead Sign Structure's Walkways	Approved		\$60,897.00	
12	Modification to Retaining Wall #870	Approved		\$126,874.00	
13	Buried Man-Made Objects; Remove Existing Sign; Repair Existing CSP; Crash Cushion Replacement	Approved		\$86,394.00	
14	DWP Full Freeway Closures' Support; SB Route 170-Riverside Drive Off-Ramp Striping	Approved		\$88,538.47	
15.2	Quantity Adjustment for Provisional Sum Authorization-COZEPP	Approved		\$480,000.00	
17	Combined Extra Work Items at SW 917, 860, 891 and Other Areas	Approved		\$72,173.36	
18	Various Extra Work Performed	Approved		\$97,778.41	
	Subtotal Approved Modifications			\$1,505,083.87	
19	Time Extension and Related Extended Overhead Cost	Pending	\$	\$860,000.00	\$
					\$
					\$

Subtotal Totals: Mods. + Pending Changes/Modifications	\$	\$2,364,083.87	\$
Subtotal – Pending Claims	\$	\$0.00	\$
Total: Mods + Pending Changes/Mods + Possible Claims	\$	\$2,364,083.87	\$
Previous Authorized CMA	\$	\$6,604,176.00	\$
CMA Remaining for Future Changes/Mods after this Action	\$	\$4,240,092.13	\$

SOUNDWALL PACKAGE 11/CONTRACT NO. C39033C1101-2

DEOD SUMMARY

SOUNDWALL PACKGE 11/C39033C1101-2

A. Small Business Participation

The Diversity and Economic Opportunity Department (DEOD) established a 29% Small Business participation goal for this project, inclusive of a 26% Small Business Enterprise (SBE) goal and a 3% Disabled Veteran Business Enterprise (DVBE) goal. Powell Constructors, Inc. exceeded the goal by making a 29.76% SBE/DVBE commitment, inclusive of a 26.35% SBE commitment and a 3.41% DVBE commitment.

Based on payments reported, the contract is 48% complete and the SBE/DVBE participation is 34.21%, inclusive of 29.47% SBE commitment and 4.74% DVBE commitment. Powell Constructors, Inc. is currently exceeding the SBE commitment by 3.12% and the DVBE commitment by 1.33%.

Small Business Commitment	26.35% SBE 3.41% DVBE	Small Business Participation	29.47% SBE 4.74% DVBE
----------------------------------	----------------------------------	-------------------------------------	----------------------------------

	SBE Subcontractors	% Committed	Current Participation¹
1.	G&F Concrete Cutting	0.78%	0.78%
2.	Rupert Construction Supply	2.22%	3.97%
3.	Global Transloading, LLC	1.20%	4.97%
4.	Titan Constructor Engineering	1.35%	1.05%
5.	Deco Pave, Inc.	3.67%	2.32%
6.	High-Light Electric Inc.	9.81%	11.68%
7.	Martinez Landscape	3.21%	0.03%
8.	Miranda Logistics Enterprises, Inc.	0.27%	0.54%
9.	G & C Equipment Company	1.44%	0.11%
10.	G & C Equipment Company	2.39%	4.02%
	Total SBE Commitment	26.35%	29.47%

¹Current Participation = Total Actual amount Paid-to-Date to SBE firms ÷ Total Actual Amount Paid-to-date to Prime.

	DVBE Subcontractors	% Committed	Current Participation¹
1.	EnGEN Corporation	1.57%	2.88%
2.	RKW Veterans Solutions, LLC	1.79%	1.34%
3.	G & C Equipment Company	0.05%	0.52%
	Total	3.41%	4.74%

¹Current Participation = Total Actual amount Paid-to-Date to DVBE firms ÷ Total Actual Amount Paid-to-date to Prime

B. Living Wage and Service Contract Worker Retention Policy Applicability

A review of the current service contract indicates that the Living Wage and Service Contract Worker Retention Policy (LW/SCWRP) was not applicable at the time of award. Therefore, the LW/SCWRP is not applicable to this modification.

C. Prevailing Wage Applicability

Prevailing Wage requirements are applicable to this project. DEOD will continue to monitor contractors' compliance with the State of California Department of Industrial Relations (DIR), California Labor Code, and, if federally funded, the U S Department of Labor (DOL) Davis Bacon and Related Acts (DBRA). Trades that may be covered include: surveying, potholing, field, soils and materials testing, building construction inspection, construction management and other support trades.

D. Project Labor Agreement / Construction Careers Policy (PLA/CCP)

The Contractor has committed to complying with PLA/CCP requirements for this project. This project is 53.25% complete (based on total construction labor hours expended, divided by the total estimated construction labor hours in the approved Employment Hiring Plan) and the contractor is achieving the 40% Targeted Worker Goal at 40.14%, not achieving the 20% Apprentice Worker Goal at 14.36%, and not achieving the 10% Disadvantaged Worker Goal at 4.23%. Prime Contractor has submitted an Employment Hiring Plan which states compliance with the PLA/CCP workforce goals will be met at 65% project completion. Staff will continue to monitor and report the contractor's progress toward meeting the goals of the PLA/CCP.



Board Report

File #: 2020-0170, **File Type:** Informational Report

Agenda Number: 23.

CONSTRUCTION COMMITTEE MAY 21, 2020

SUBJECT: SYSTEMS ENGINEERING AND SUPPORT SERVICES

ACTION: APPROVE RECOMMENDATIONS

RECOMMENDATION

AUTHORIZE the Chief Executive Officer to:

- A. An increase in total authorized funding for Contract No. AE47810E0128 with SECOTrans (Joint Venture of LTK Engineering Services, NBA Engineering Inc., Pacific Railway Enterprises Inc., and Ramos Consulting Services, Inc), for pending and future Task Orders to provide systems engineering and support services in the amount of \$22,500,000 for 1 year, increasing the total contract value from \$43,932,000 to \$66,432,000 through Fiscal Year 2021; and
- B. The Chief Executive Officer (CEO) or designee to execute individual Task Orders and Contract Modifications within the Board approved contract funding amount.

ISSUE

In April 2018, the Board approved awarding a seven-year cost reimbursable fixed fee, Task Order (TO) based Contract No. AE47810E0128, plus three one-year options, to SECOTrans, a Joint Venture for Systems Engineering and Support Services (SESS) consultant. The Board action provided an initial two-year funding authorization in the amount of \$28,932,000 through Fiscal Year 2020. In February 2020, a separate Board action approved an additional not-to-exceed (NTE) authorization in amount of \$15,000,000 to support the Rail Operations Center and Bus Operations Center (ROC/BOC) Project increasing the total Board approved contract authority to a new NTE amount of \$43,932,000. The recommended board action above will increase the contract value by \$22,500,000 to a new NTE of \$66,432,000 through Fiscal Year 2021-2022 (FY21). Staff will continue to return to the board on an annual basis to request additional contract authorization as conditions and project requirements warrant

BACKGROUND

To date, staff has awarded TO's and Contract Modifications (MODS) totaling \$25,081,605 with approximately \$18,850,395 in authorized funding remaining. The SESS Consultant has been exceeding their DBE commitment by over ten (10) percent based on the TOs executed to date.

Examples of projects supported by this contract include Metro Operational Analyses, Crenshaw\LAX, Metro A (Blue) Line Upgrades, East San Fernando Valley Light Rail Transit and West Santa Ana Branch Transit. Attachment C includes a complete listing of the TO's and MODS executed over the initial two-years of the SESS contract. As indicated during initial approval, staff is now seeking an additional one year funding authorization to support Systems Engineering and Measure M projects.

DISCUSSION

With the approval of Measure M, the ongoing implementation of the Measure R program, required State of Good Repair initiatives, and the Board's desire to accelerate eligible projects prior to the 2028 Olympics, staff has engaged a SESS to provide a broad range of systems engineering design and related support services to supplement current Systems Engineering Department resources. Metro's capital program is over \$18 billion and requires extensive resources with the ability to react quickly to a wide range of complex technical issues. With a strong core staff located in Los Angeles, the SESS is capable of applying and withdrawing resources as the workload of projects fluctuates over time. The SESS has the extensive experience and capability to support the complete project lifecycle; from the conceptual phase to final design and construction.

Due to the intensive system integration requirements and length of time needed to deliver major capital improvement projects, this contract has allowed Metro to efficiently and effectively augment Program Management staff where appropriate to ensure the proper project resources are available to Metro in terms of additional staff and technical expertise.

The SESS provides a single systems engineering team, and associated sub-specialties, with the necessary resources to assist in the planning, development, and delivery of Metro's aggressive schedule of projects for the next decade. Examples of systems engineering disciplines include traction electrification, overhead contact systems (OCS), train control, communications, supervisory control and data acquisition (SCADA), rail simulations, corrosion control, systemwide electrical and other specialized disciplines.

Other Considerations

The challenge presented by the simultaneous implementation of numerous projects is to ensure the integration and standardization of the systems elements within and across the current Metro system. Consistent development and design is necessary to ensure that the required integration is achieved with respect to civil and electrical infrastructure, vehicles, control systems, communications, operations, maintenance, security, training, etc.

Prior to the procurement of the SESS, each project would use a different consultant for this work, resulting in inconsistent applications. This approach was no longer feasible or advisable with the large volume of projects now underway. With a single SESS design team on staff, the standardization of design, construction and functionality of systems elements will keep Metro's long-term interest of system interoperability and safety at the forefront. A fully-integrated network requires a consistency of systems design and not a collection of potentially incompatible independent designs arising from separate projects. This approach has been implemented successfully in other transit agencies nationwide and the benefits of full systems standardization include:

- Interoperability and efficient maintainability
- Improved commercial viability
- Reduced spares requirements
- Reduced training requirements
- Flexibility to adapt to changing circumstances

In addition to the projects listed above and on Attachment C, staff expects the SESS to provide systems engineering services for current and future rail and bus transit projects, and other capital improvement projects, including, but not limited to, the following:

- East San Fernando Valley Transit Corridor
- L (Gold) Line Eastside Phase 2 Extension
- C (Green) Line South Bay Rail Extension
- West Santa Ana Transit Corridor
- Sepulveda Pass Transit Corridor
- Vermont Transit Corridor
- G (Orange) Line BRT Improvements
- Westside D (Purple) Line Extension Section 3

DETERMINATION OF SAFETY IMPACT

The use of a consistent systems design process has a positive safety benefit during the construction and subsequent operations of Metro's Bus and Rail transit network.

FINANCIAL IMPACT

The requested not-to-exceed award value is based on the anticipated level of services that will be required through FY21. Funding for the individual TOs are funded through and included in the Board approved life-of-project (LOP) or departmental budgets; Therefore, this work is within the various project budgets.

Since this is a multi-year contract, project managers, cost managers, and Chief Program Management Officer will be responsible for budgeting the costs in future years.

Impact to Budget

Funding for TOs issued under this contract is provided by the specific project(s) requiring those services, as well as project studies, other general system engineering issues, and small-scale analyses. The current Funds allocated to this effort consist of federal, state, and local sources, including Measure R and Measure M. Using these funding sources maximizes the project funding parameters allowed by approved provisions and guidelines. Alternative funding sources will be applied as additional revenue funding opportunities become available.

ALTERNATIVES CONSIDERED

The board may choose to reject the recommendation and request staff to re-procure these services through an RFP, choose to authorize an alternative amount, or approve an alternative term of financial authorization. Staff does not recommend these alternatives. The use of a qualified SESS consultant has allowed the agency to secure highly technical expertise without the necessary increase in Metro's long-term labor costs. Further, by providing for an extended term contract, the board has afforded staff the resources that seek to provide an integrated and consistent network design that serves Metro's interests. Finally, by limiting the funding authorization to one year, greater accuracy of project scope and cost requirements are provided to the Board on an annual basis.

NEXT STEPS

Upon Board approval, staff will complete the process to amend the contract. Specific task orders will be subsequently issued on an as needed basis.

ATTACHMENTS

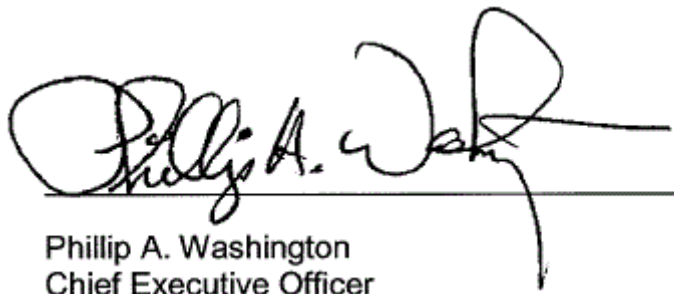
Attachment A: Procurement Summary
Attachment B: DEOD Summary
Attachment C: Proposed Task Order Work List

Prepared By:

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Reviewed by:

Richard F. Clarke, Chief Program Management Officer (213) 922-7557
Debra Avila, Chief Vendor/Contract Management Officer (213) 418-3051



Phillip A. Washington
Chief Executive Officer

PROCUREMENT SUMMARY

SYSTEMS ENGINEERING SUPPORT SERVICES / CONTRACT NO. AE47810E0128

1.	Contract Number: AE47810E0128			
2.	Contractor: SECOTrans (Joint Venture of LTK Engineering Services, NBA Engineering Inc., Pacific Railway Enterprises Inc., and Ramos Consulting Services, Inc.).			
3.	Mod. Work Description: Increase the Contract Funding not-to-exceed amount			
4.	Work Description: Systems Engineering Support Services			
5.	The following data is current as of: March 3, 2020			
6.	Contract Completion Status:		Financial Status:	
	Award Date:		Board Approved NTE Amount:	
	April 26 2018		\$43,932,000	
	Notice to Proceed (NTP):		Total Contract Modification Authority (CMA):	
	June 14, 2018		N/A	
	Original Completion Date:		Value of Task Orders and Mods. Issued to Date:	
	June 14, 2025		\$25,081,605	
	Current Est. Complete Date:		Remaining Board Approved Amount:	
	June 14, 2025		\$18,850,395	
7.	Contract Administrator: Diana Sogomonyan		Telephone Number: (213) 922-7243	
8.	Project Manager: Ron Tien		Telephone Number: (213) 418-3445	

A. Contract Action Summary

On April 26, 2018, the Board of Directors approved award of Contract No. AE47810E0128 to SECO Trans for Systems Engineering and Support Services, in the amount not-to-exceed \$28,932,000, to supplement Metro's Engineering Department resources in providing engineering services for projects in varying stages of conceptual design, preliminary engineering, final design, support during bidding for construction, and design support during construction (DSDC), including the following: program management, quality, and computer aided design and drafting (CADD); design services concerning train control, communications systems, traction power, and overhead catenary systems (OCS); operational runtime simulation and modeling, corrosion control, system integration, facilities and system-wide electrical, facilities mechanical, facilities plumbing, and facilities fire protection. The base Period of Performance for the Contract is seven (7) years from NTP plus three (3) one-year options to be exercised at Metro's sole discretion.

Seventeen (17) Task Orders have been issued to SECOTrans to date. Four (4) Contract Modifications have been issued for zero dollars.

On February 27, 2020, the Board of Directors authorized the Chief Executive Officer to award a Task Order (TO No. E0128-TO-016) under the subject contract to SECOTrans (Joint Venture) for the preliminary engineering design of the Rail Operations Center (ROC) / Bus Operations Center (BOC) Architectural and Engineering Systems Design Services in the not-to-exceed amount of

\$15,000,000, increasing the previous Board approved NTE amount from \$28,932,000 to a NTE amount of \$43,932,000 for Contract No. AE47810E0128. Task Order No. E0128-TO-016 Scope of Work consists of developing the space and systems design for the ROC and BOC into the Emergency Security Operations Center (ESOC) and is currently pending execution, as cost analysis and negotiations are in progress for completion.

Since this is a multi-year contract, the Chief Program Management Officer and the Project Manager are responsible for budgeting costs in future years, including the exercise of any options. Consequently, funding for the award of the Supplemental Engineering and Support Services Contract was initially requested for the first two years and funding must be requested every two years subsequent to that for future work, contingent upon an updated annual work program and schedule for the period in a form of an Independent Cost Estimate (ICE). The amount of \$43,932,000 is the current NTE amount for the FY '18 –FY '20 period. The total contract amount will be the aggregate value of all task orders negotiated with the Consultant through the term of the contract.

Contract No. AE47810E0128 is a cost plus fixed fee (CPFF) Contract.

B. Cost/Price Analysis

The recommended price for the Task Orders resulting from the recommended increase in funding will be determined to be fair and reasonable based upon fact finding, technical evaluation, cost analysis, and negotiations, before issuing Task Orders to the Consultant. Task Orders will be processed in accordance with Metro's Acquisition Policy and Procedures. A cost analysis will be performed for each Task Order, taking into consideration the completed Independent Cost Estimate and technical audit, utilizing labor and indirect cost rates already establish in the contract.

The Systems Engineering Services Independent Cost Estimate for the additional NTE amount of \$22,500,000 was developed using the current master schedule, construction estimates, and completed work to date from the Program Management Project Controls department. An estimated cost was determined for each project using past project costs, systems to civil project percentages along with historical rates. Depending on the type of transit project and the complexity, the percentages were derived from the overall construction costs to determine the systems construction and engineering costs. Once the systems engineering costs were estimated, they were distributed across each fiscal year according to the master schedule. Other costs for Maintenance of Way (MOW) support, State of Good Repair and Transit Asset Management, were independently developed with each department.

Cost Schedule Proposals	Independent Cost Estimate	Recommended NTE Amount
Not Required ⁽¹⁾	\$22,500,000 ⁽²⁾	\$22,500,000 ⁽³⁾

⁽¹⁾ A Cost Schedule Proposal amount was not required. This is a Cost Plus Fixed Fee (CPFF) Task Order Contract with no definable level of effort for the Scope of Work. Hourly labor rates, overhead and fee were negotiated for the contract and

determined to be fair and reasonable. Individual future Scopes of Work will be issued on a Task Order basis and executed separately as the work is defined.

(2) FY '21 NTE amount identified by the ICE for the period starting from July 1, 2020 thru June 30, 2021.

(3) The recommended NTE amount \$22,500,000 (amounts are rounded) is V/CM's extraction from the Independent Cost Estimate (ICE) for FY '21 period (year three of the contract base period), respectively. Future work will be funded according to an Annual Work Program, on a one-year basis. The total contract amount will be the aggregate value of all task orders negotiated with the Consultant through the term of the contract.

DEOD SUMMARY

SYSTEMS ENGINEERING SUPPORT SERVICES / CONTRACT NO. AE47810E0128

A. Small Business Participation

The Diversity & Economic Opportunity Department (DEOD) established a 15% Disadvantaged Business Enterprise (DBE) goal for this Task Order contract for the participation of DBE certified firms. SECOTrans, a Joint Venture of LTK Engineering Services and three (3) DBE Joint Venture (JV) partners, NBA Engineering, Inc., Pacific Railway Enterprises, Inc., and Ramos Consulting Services, Inc. made a 15% DBE overall commitment for this contract. The overall DBE participation is based on the cumulative value of all task orders issued.

To date, seventeen (17) task orders have been awarded. Based on payments reported, the contract is 23% complete and the cumulative DBE participation of all task orders awarded is 28.76%. SECOTrans is exceeding their DBE commitment by 13.76%.

SECOTrans acknowledges that four (4) DBE firms listed on the team have not been utilized and contends that task orders issued to-date have not contained the scope of work to be provided by those DBE firms. SECOTrans remains committed to utilize all the DBE firms listed on the team, as Metro issues new task orders that include their scopes of work.

Notwithstanding, Metro Project Managers and Contract Administrators will work in conjunction with DEOD to ensure that SECOTrans (JV) remains on schedule to meet or exceed its DBE commitment.

Small Business Commitment	15% DBE	Small Business Participation	28.76% DBE
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	DBE Contractors	Scope of Work	Current Participation
1.	NBA Engineering, Inc. (JV Partner / DBE Prime)	MEP Engineering	5.45%
2.	Pacific Consulting Service, Inc. (JV Partner / DBE Prime)	Railroad Signal and Communications System Design and Engineering	.05%
3.	Ramos Consulting Services (JV Partner / DBE Prime)	Systems Engineering and Support Services	8.76%
4.	Arakelyan Drafting Services, Inc.	Computer Aided Drafting and Design	0.00%
5.	Destination Enterprises, Inc.	Systems Construction Management, Project Management, Inspection Estimating and Scheduling	8.50%
6.	Enabled Enterprises LLC	IT Infrastructure Systems and Network Architecture, Design, Engineering, and Project	0.00%

		Management, Application Development	
7.	Fariba Nation Consulting	Systems Engineering Design	2.15%
8.	Intueor Consulting, Inc.	Systems Engineering CM/DSDC	0.62%
9.	PK Electrical Inc.	Electrical Engineering	0.00%
10.	ROMAR7 LLC	Computer Aided Drafting and Design	0.00%
11.	Triunity Engineering and Management, Inc.	Communications Design, System Integration and Analysis	3.23%
Total Participation			28.76%

¹Current Participation = Total Actual amount Paid-to-Date to DBE firms ÷ Total Actual Amount Paid-to-date to Prime.

B. Living Wage and Service Contract Worker Retention Policy Applicability

The Living Wage and Service Contract Worker Retention Policy (LW/SCWRP) is not applicable on this Contract.

C. Prevailing Wage Applicability

Prevailing wage is not applicable to this Contract.

D. Project Labor Agreement/Construction Careers Policy

Project Labor Agreement/Construction Careers Policy is not applicable to this Contract. Project Labor Agreement/Construction Careers Policy is applicable only to construction contracts that have a construction contract value in excess of \$2.5 million.

ATTACHMENT C**PROPOSED TASK ORDER WORK****SYSTEMS ENGINEERING SUPPORT SERVICES / CONTRACT NO. AE47810E0128**

Mod./Task Order (TO) No.	Description	Status (approved or pending)	Date	Task Order Issued including Mods	Pending TO Mods	Pending TO
N/A	Initial Authorized NTE Funding (\$28,932,000)	Approved	4/26/18	---	---	---
E0128-TO-001	Systems Engineering Support for Crenshaw Project	Approved	7/9/18	\$4,963,761	(\$31,227)	---
E0128-TO-002	Program-wide System Engineering Support Services for Systems Engineering Group	Approved	7/27/18	\$3,089,670	(\$391,092)	---
E0128-TO-003	Overhead Contact Systems (OCS) Support for Maintenance of Wayside Engineering	Approved	9/11/18	\$309,751	(\$69,847)	---
E0128-TO-004	System-wide Electrical Support for Rail and Bus Projects	Approved	9/11/18	\$145,244	(\$11,261)	---
E0128-TO-005	Crenshaw Project Design Services During Construction	Approved	9/12/18	\$161,992	(\$95,532)	---
E0128-TO-006	Rail Systems Engineering Support for New Blue	Approved	10/3/18	\$3,817,827	(\$368,522)	\$471,259

E0128-TO-007	West Santa Ana Branch Systems Support	Approved	10/1/18	\$120,667	(\$41,121)	---
E0128-TO-008	System-wide Operations and Maintenance Plan	Approved	10/10/18	\$798,543	(\$77,672)	---
E0128-TO-009	Division 20 Portal Widening Turnback Project Systems Engineering Support	Approved	10/30/18	\$882,609	(\$40,017)	---
E0128-TO-010	West Santa Ana Branch (WSAB) Project Conceptual Engineering	Approved	11/16/18	\$5,100,555	(\$227,492)	---
E0128-TO-011	East San Fernando Valley (ESFV) Conceptual Engineering	Approved	12/3/18	\$3,862,840	(\$58,686)	---
E0128-TO-012	Metro Blue Line Track and OCS Refurbishment	Approved	3/21/19	\$1,545,042	---	---
E0128-TO-013	Metro Systems Support for Green Line/Crenshaw Operations	Approved	4/10/19	\$262,675	---	---
E0128-TO-014	Metro Red/Purple Line and Regional Connector Operational Simulation Support	Approved	4/25/19	\$677,959	---	\$92,143
E0128-TO-015	Airport Metro Connector Engineering Support	Approved	9/12/19	\$360,138	---	---
E0128-TO-017	Centinela Grade Separation Conceptual Engineering	Approved	11/4/19	\$75,574	---	---
E0128-TO-021	Systems Engineering DSDC Support	Approved	1/29/20	\$319,227	---	---

	for Purple Line Extension Sec. 1					
EO128-00-MOD-00001	Update to Advanced Cost Agreement (LTK, DE, GF and IC)	Approved	9/6/18	\$0.00	---	---
EO128-00-MOD-00002	Updates to Advanced Cost Agreement (Home Office Rates 2019: Atkins, FN, GF, IEI, ICI, RCS)	Approved	12/14/18	\$0.00	---	---
EO128-00-MOD-00003	Revise Spec. Section CP-04 Payment & Invoicing Part C.1 - Invoicing	Approved	1/11/19	\$0.00	---	---
EO128-00-MOD-00004	Direct Hourly Labor Rates Adjusted for 2019	Approved	2/6/19	\$0.00	---	---
	Subtotal Approved TOs			\$26,494,074		
EO128-TO-018	Metro Gold Line Foothills 2B Extension Systems Engineering Support	Pending	TBD	---	---	\$145,500
EO128-TO-019	Metro Gold Line Eastside Phase 2 Conceptual Engineering	Pending	TBD	---	---	\$427,963
EO128-TO-016	Rail Operations Center (ROC) / Bus Operations Center (BOC) Architectural and Engineering Systems Design Services	Pending	TBD	---	---	\$15,000,000
EO128-00-MOD-00005	Administrative Modification to Contract to Update the Advance Cost Agreement	Pending	TBD	---	---	\$0.00

TBD	Future Anticipated Task Orders	Pending	TBD	---	---	\$2,713,530
	Subtotal Pending TOs					\$18,850,395
	Task Orders Approved	---	---	\$26,494,074	---	---
	Task Order Pending Mods	---	---	---	(\$1,412,469)	
	Current Total Contract Value, Including Approved TO, Pending Mods, and Pending TO	---	---	\$43,932,000	---	---
	Increase in Total Authorized Funding for Contract – This Board Action	---	---	---	---	\$22,500,000

SUMMARY	
Board Approved Funding	\$43,932,000
This Board Action	\$22,500,000
New Contract Value	\$66,432,000



Board Report

File #: 2020-0267, File Type: Informational Report

Agenda Number: 24.

CONSTRUCTION COMMITTEE MAY 21, 2020

SUBJECT: TUNNEL ADVISORY PANEL

ACTION: CONTRACT MODIFICATION

RECOMMENDATION

AUTHORIZE the Chief Executive Officer to:

- A. Execute Contract Modification No. 11 to Contract No. PS-2020-1055 with **Dr. Geoffrey R. Martin for the continuation of Tunnel Advisory Panel Services**, in an amount not-to-exceed \$910,475, increasing the total contract value from \$2,090,006 to \$3,000,481 and extend the contract from July 1, 2020 to June 30, 2023;
- B. Execute Contract Modification No. 6 to Contract No. PS-8510-2493 with **Dr. Edward J. Cording, for the continuation of Tunnel Advisory Panel Services**, in an amount not-to-exceed \$923,457, increasing the total contract value from \$2,075,778 to \$2,999,235 and extend the contract from July 1, 2020 to June 30, 2023; and
- C. Negotiate and Execute sole source Contract No. PS-1620-1000, with **Dr. Thomas O'Rourke**, for Tunnel Advisory Panel Services, in an amount not-to-exceed \$947,457, from June 1, 2020 to June 30, 2023.

ISSUE

LACMTA is currently planning, designing or constructing rail transit projects with extensive underground engineering and construction that involve complex geotechnical and tunneling issues. Some of the current active projects include the Westside Purple Line Extension Section 1, Section 2 and Section 3 Projects, Regional Connector Transit Corridor Project, Eastside Transit Corridor Phase 2 Project, Sepulveda Transit Corridor Project, West Santa Ana Branch Transit Corridor Project and Crenshaw Northern Extension Project. Los Angeles County has challenging geologic, seismic and tunneling conditions and deep underground station construction, with some through fault rupture zones, tar impregnated soil, toxic gasses, and high concentration of methane. While LACMTA has extensive experience from both staff and engineering consultants, there is the need for a Tunnel Advisory Panel (TAP) to provide expert advice and review of this engineering work. The Tunnel Advisory Panel comprised of Dr. Geoffrey Martin, Dr. Edward Cording and Dr. Thomas O'Rourke, are recognized in the industry and throughout the world as engineering/construction experts in the areas

of geotechnical analyses, tunneling, deep excavation, earthquake engineering and building settlements.

Board approval of the recommendations will allow the continuation of services of two of the current Tunnel Advisory Panel members and replacement for a recently deceased member, Dr. Harvey Parker, with Dr. Thomas O'Rourke to support LACMTA on the Westside Purple Line Extension Section 1, Section 2 and Section 3 Projects, Regional Connector Transit Corridor Project, Eastside Transit Corridor Phase 2 Project, Sepulveda Transit Corridor Project, West Santa Ana Branch Transit Corridor Project and Crenshaw Northern Extension Project. In addition, Board approval of the recommendations will also allow TAP to provide Ad-Hoc services to other projects as needed by Metro staff.

BACKGROUND

The TAP convened in August 1995 in response to questions posed by the Board regarding feasibility of tunneling in Los Angeles ground conditions. Metro contracted with Drs. Dan Eisenstein, Geoffrey Martin and Harvey Parker to determine the feasibility of tunneling in Los Angeles, to assess the effectiveness of Metro's construction program to date, and to recommend any modifications to the current construction program deemed appropriate.

In June 2001, the Board approved two five-year contracts to the members of the TAP in the amount not-to-exceed \$1,167,826 and directed staff to return each year for funding approval. Since that time, the Board has approved funding and extensions to the TAP contracts. Due to Dr. Eisenstein's untimely death in April 2009, Metro management staff decided to procure an additional member for the TAP, Dr. Edward Cording, to provide expert technical services. With Dr. Harvey Parker passing away on May 5, 2020, Metro management staff decided to procure an additional member for the TAP, Dr. Thomas O'Rourke, to provide expert technical services.

DISCUSSION

The TAP members, Drs. Martin and Cording, have been providing advice to all Metro project with underground construction elements. In addition, Dr. O'Rourke has provided Independent Review Services for the Westside Purple Line Extension Project (Contract No. PS85102798) to review and validate the technical approach and conclusions drawn by the Metro's Consultants regarding earthquake faults in the general vicinity of Century City and tunneling through Beverly Hills and Century City. The projects that TAP has been involved with, include extensive underground engineering and construction that involve complex geotechnical and tunneling issues for which the TAP members are uniquely qualified.

In particular, Drs. Martin and Cording have been involved with the Westside Purple Line Extension Section 1, Section 2 and Section 3 Projects and the Regional Connector Transit Corridor Project from planning studies, preliminary and advanced preliminary engineering and development of procurement documents for construction contracts. They will continue to support these projects during active underground excavation and tunneling. In addition, they are involved with the Eastside

Transit Corridor Phase 2 Project and Sepulveda Transit Corridor Project planning studies.

The status of each project is as follows:

Westside Purple Line Extension Project

The Westside Purple Line Extension Project was adopted by the Board and the Final Environmental Impact Report (EIR) was certified in 2012. The project is being designed and constructed in three sections as part of Metro's 30-Year Long Range Transportation Plan. The entire 9-mile project consists of twin-bored tunnels with 7 subway stations which are primarily under Wilshire Boulevard.

As part of the approval process for the project, Metro commissioned a Peer Review Panel by the American Public Transportation Association (APTA) in 2005 to assess the safety of tunneling under Wilshire Boulevard. The Peer Review Panel agreed that it was possible to safely tunnel and operate a subway along the Wilshire Boulevard corridor using current technologies of tunneling, station construction and operation. The Panel also assessed the specific risks associated with tunneling, and recommended a course of action that addressed the following elements of tunnel construction and operation:

- Gas detection
- Mitigation of hazards
- Tunnel boring and station construction
- Safe operation
- Long-term monitoring and verification
- Technical feasibility

As a follow-up to the APTA Peer Review Panel's recommendations, Metro has retained the services of the TAP to provide independent review and monitoring of the following work that is being performed by Metro's engineering consultants and contractors:

- Section 1 Wilshire/Western Station to Wilshire/La Cienega Station (3.92 miles of twin-bored tunnels, 3 subway stations) - The Design/Build Contract (Tunnels, Stations, Systems and Trackwork) Notice-To-Proceed (NTP) was issued in January 2015. The main station box for all 3 underground stations (Wilshire/La Brea Station, Wilshire/Fairfax Station, and Wilshire/La Cienega Station) and the excavation for the Wilshire/Western Shaft has been completed. The appendages for the underground stations have begun and is anticipated to continue through the 2nd Quarter of 2022. Tunneling is expected to be completed by the 4th Quarter of 2020. The TAP will be required to provide expert advice on the tunnel segment designs, geotechnical data which includes gassy ground and tar sands, the daily tunneling reports to monitor progress, potential ground movements and mitigations for gassy ground conditions. The construction of underground stations and tunnels is anticipated to continue till the 3rd Quarter of 2023. Tap services will only be required for the underground and tunnel portion of the project, which is expected to be complete in the 2nd Quarter of 2022.
- Section 2 - Wilshire/La Cienega to Century City Constellation Station (2.59 miles of twin-bored tunnels, 2 subway stations) - The Design/Build Contract (Tunnels, Stations, Systems and

Trackwork) Notice-To-Proceed (NTP) was issued on April 2017. Final Design is almost complete. Construction of the 2 Stations (Century City/Constellation Station and the Wilshire Rodeo Station) began in 3rd Quarter of 2018 and anticipated to be completed by 2nd Quarter of 2025. Tunnel construction is expected to begin 2nd Quarter of 2020 and is expected to be completed by 4th Quarter of 2022. The TAP will be required to continue providing expert advice on the tunnel and station construction, geotechnical conditions encountered, potential ground movements and mitigations for gassy ground conditions. The construction of underground stations and tunnels is anticipated to continue until 1st Quarter of 2024.

- Section 3 - Century City/Constellation Station to Westwood/VA Hospital Station (2.56 miles of twin-bored tunnels, 2 subway stations) - The Design/Build Contract (Tunnels, Stations, Systems and Trackwork) Notice-To-Proceed (NTP) for Tunnel was issued on January 2019 and for Station was issued on May 2019. Final Design is currently in progress. The Tunnel Construction is anticipated to begin in the 2nd Quarter of 2020 and anticipated to be completed by 1st Quarter of the 2022. Station Construction is expected to begin 4th Quarter of 2020 and expected to be completed by 1st Quarter of 2025. The TAP will be required to provide expert advice on the tunnel and station design and construction, especially in the potential fault rupture zones and gassy ground conditions, geotechnical conditions encountered, the daily tunneling reports to monitor progress, potential ground movements and mitigations for gassy ground conditions. The construction of underground stations and tunnels is anticipated to continue until 1st Quarter of 2024.

Regional Connector Transit Corridor Project

The Regional Connector Transit Corridor project was adopted by the Board and the Final EIR was certified in 2012. The project consists of 1.9 miles of twin bored tunnels with three underground stations. The Design/Build Contract NTP was issued in July 2014. Construction of the Tunnels and excavation of the underground stations are complete and station structure construction is in progress. TAP members will continue to provide expert advice for the Regional Connector Project construction quarterly until 2nd quarter of 2021.

Eastside Transit Corridor Project - Phase 2

Metro is preparing Supplemental Draft Environmental Impact Report (DEIR) for the Eastside Transit Corridor Phase 2 Project (Project) that would extend the existing Metro L (Gold) Line from the existing terminus station at Atlantic Boulevard and Pomona Boulevard in East Los Angeles eastern Los Angeles County. The Supplemental DEIR considers the Washington Alternative. The Washington Alternative is approximately 9 miles, of which roughly 3 miles is an underground configuration along Atlantic Boulevard in unincorporated East Los Angeles and then along Smithway Street in the City of Commerce. TAP will be providing expert advice for the Washington Alternative on the following topics amongst others:

- Tunnel alignment design
- Tunnel Portal Locations
- Feasibility of Metro's twin-bore tunnels vs single-bore tunnels

-
- Ground movements and changes the groundwater table associated with proposed methods of excavation and support for cut and cover structures;
 - Ground movements and changes to the groundwater table associated with proposed tunneling methods

It is anticipated that draft environmental studies and advanced conceptual engineering will continue through 2023. The project is identified as one of the four pillar projects and if funding can be secured before the anticipated 2029 funding cycle, design and construction is anticipated to proceed from 2023 to 2028.

Sepulveda Transit Corridor Project

The Sepulveda Transit Corridor Project is included in Metro's 2009 Long-Range Transportation Plan (Metro, 2009), in the Measure R Expenditure Plan as the "San Fernando Valley I-405 Corridor Connection" (Metro, 2008) and in the Measure M Expenditure Plan as the "Sepulveda Pass Transit Corridor" (Metro, 2016a). After the passage of Measure R in 2008, Metro undertook the Sepulveda Pass Corridor Systems Planning Study (Metro, 2012), which evaluated both highway and transit improvements extending from the Valley to LAX. The Measure M Expenditure Plan provides for implementation of the Sepulveda Transit Corridor Project in two phases: the first segment between the San Fernando Valley and the Westside of Los Angeles (Valley-Westside) by 2033-2035 and an extension to LAX (Westside-LAX) by 2057-2059. Under Metro's 28 by 2028 initiative, the Valley-Westside portion of the project is identified for potential acceleration in time for the 2028 Olympic and Paralympic Games in Los Angeles (LA 2028).

The Sepulveda Transit Corridor Feasibility Study was completed and presented to the Board in November/December 2019, and contracts for the environmental phase, including up to two pre-development agreements (PDAs), are currently undergoing procurement. While project alternatives for environmental review have not yet been selected, they may require geotechnical considerations for design and construction of tunnels and underground stations as follows:

- Tunneling through hard rocks
- Tunneling through alluvial soils
- Tunneling through fault zones
- Tunneling with relatively high groundwater pressures
- Mixed-face tunneling with rocks with contrasting strengths (low to very high abrasive, weak to very strong rocks)

Environmental review is anticipated to be completed in 2024.

West Santa Ana Branch (WSAB) Transit Corridor Project

In Summary 2017, Metro formally initiated the environmental process through the original public scoping meetings held for the WSAB Project. In May 2018, the Metro Board selected two Northern Alignment options (Alameda Underground and Downtown Transit Core Underground) that include about 3 miles long tunnels and underground stations. It is anticipated that Draft EIS/EIR will be completed in Winter of 2021 and the Board will select LPA in Spring 2021 for Final EIR/EIS.

Concurrently, Metro is evaluating an early project delivery by 2028 through P3 delivery method.

TAP will be providing expert advice for the underground portions of the WSAB Project on the following topics amongst others:

- Tunnel alignment design
- Tunnel Portal Locations
- Ground movements and changes the groundwater table associated with proposed methods of excavation and support for cut and cover structures;
- Ground movements and changes to the groundwater table associated with proposed tunneling methods

Crenshaw Northern Extension Project

In February 2016, the Crenshaw North Extension project was included in the Chief Executive Officer's "Operation Shovel Ready Initiative" list of projects for advancement through early stages of project planning. The Crenshaw Northern Extension Feasibility Study was initiated in May 2016. Following the passage of Measure M in November 2016, it was further expanded to include Alternatives Analysis. The study analyzed four potential alignment alternatives that could extend the Crenshaw/LAX Line northward from the Metro Expo Line (Line E) to the Metro Purple Line (Line D) on Wilshire Boulevard and the Metro Red Line (Line B) in Hollywood, as well as one alignment alternative that would extend from the Expo Line to the Red/Purple Line Wilshire/Vermont Station, with a connection to Hollywood via transfer to the existing Metro Red Line, but would not serve West Hollywood.

In September 2018, the Metro Board authorized the preparation of an Advanced Alternatives Screening Study with further engineering design and public stakeholder outreach to narrow the range of alternatives to be carried forward in the environmental studies. That study was completed in 2019.

It is anticipated that EIR and Advanced Conceptual Engineering (ACE) will begin in the later part of 2020. TAP will be providing expert advice on the following topics amongst others for the ACE study:

- Tunnel alignment design
- Tunnel Portal Locations
- Tunneling through fault zones and gassy areas
- Ground movements and changes the groundwater table associated with proposed methods of excavation and support for cut and cover structures;
- Ground movements and changes to the groundwater table associated with proposed tunneling methods

In addition to the above Projects, TAP may be asked to provide Ad-Hoc services to other projects as needed by Metro Staff.

All the projects listed above are at critical stages in their respective planning, engineering and construction phases. Extension and additional funding for the TAP contracts are vital and essential to provide continuity that would otherwise be interrupted, should the Board decide to cancel and re-

procure the TAP contracts (a 6 to 9-month process). Furthermore, the history and knowledge of the current designs, geotechnical conditions and construction approaches will present a steep learning curve for a new team of TAP members, which could significantly delay the timely review and input necessary to provide this important layer of independent monitoring and oversight across these complex engineering and construction projects.

TAP members are involved with on-going support relating to third party and project stakeholders' issues, which will require continuation of their services for the future. They have unique knowledge and background on Los Angeles County's underground conditions and intimate knowledge of Metro's past and current engineering and construction projects. Board approval and execution of the Contract Modifications will allow continuation of these services.

DETERMINATION OF SAFETY IMPACT

The Board actions will not have an impact on established safety standards for Metro's engineering and construction projects.

FINANCIAL IMPACT

Funds are included in the FY21 budget for the actions under Regional Connector Transit Corridor Project 860228; Westside Purple Line Extension Section 1 Project 865518; Westside Purple Line Extension Section 2 Project 865522; Westside Purple Line Extension Section 3 Project 865523; Eastside Transit Corridor Phase 2 Project 460232; Sepulveda Transit Corridor Project 460305; West Santa Ana Branch Transit Corridor Project 460201; and Crenshaw Northern Extension Project 405558 under Account No. 50316 (Professional and Technical Services). Since this is a multi-year contract, the Executive Director of Engineering and Construction and the Project Managers will be responsible for cost budgeting in future years.

Impact to Budget

The source of funds for these actions are a combination of Measure R Transit 35%, Measure R Highway 20%, Measure R Admin 1.5%, Measure M Transit 35%, Lease Revenues, Federal Section 5309 New Starts, Transportation Infrastructure Finance and Innovation Act (TIFIA) Loan proceeds, Federal STP, CMAQ, State Proposition 1B, Local Partnership Program, Transit and Intercity Rail Capital Program, Proposition A 35%, Proposition A Admin 5%, Proposition C 25%, and Proposition C Admin 1.5%. These were approved in the capital projects funding plan.

IMPLEMENTATION OF STRATEGIC PLAN GOALS

This recommendation supports the Strategic Plan Goal # 5, "*Provide responsive, accountable, and trustworthy governance within the Metro organization.*"

ALTERNATIVES CONSIDERED

Staff has considered the alternative of allowing the current contracts with Dr. Martin, and Dr. Cording to expire and open a procurement notice to solicit applications from potential new members, but

decided to execute the contract modification for the current TAP panel members and negotiate and execute sole source Contract with Dr. O'Rourke for the following reasons:

- Current TAP members Drs. Martin's and Cording's long history and institutional knowledge of Metro together with Drs. Martin's, Cording's and O'Rourke's knowledge of local soil conditions and technical understanding of specific tunnel related issues in general and those pertaining to local conditions in particular would require significant investment in time and resources to replicate even if other equally suitable candidates were found and used in this role,. This would not only incur cost but would significantly reduce the benefit and validity of their advice, while this knowledge and understanding were obtained. This is not recommended as it will leave Metro without the benefit of their extensive local experience, knowledge and expertise and create a void in the required tunneling expertise for a considerable period of time, thereby creating the potential for delays and additional costs to ongoing Metro projects.
- Metro baseline documents include Design Criteria, Standard Drawings, Directive Drawings and Baseline Specifications. These baseline documents were adapted and updated from documents previously utilized for prior projects and are being continuously updated to incorporate the Lessons Learned from the past and current projects or to account for evolving technologies. Current TAP members, Drs. Martin and Cording have observed developments and successes on Metro's current projects that need to be documented and be made available to both current and future Metro projects. Through their involvement with various Metro projects, TAP has also encountered technical and contractual issues that require improvements in Metro baseline documents. Currently, TAP is fully engaged in assisting Metro with this lessons-learned process and accordingly updating the Metro Baseline documents. Executing the contract modification with the current TAP members enable Metro to continue seeking this valuable input from them to update the baseline documents with the lessons learned from their engagements from all the current large projects. This will make the Metro Baseline a set of industry leading document and capture the issues from Metro's past and current Projects.

NEXT STEPS

After Board approval and execution of the Contract Modifications, staff will direct the Tunnel Advisory Panel to continue providing tunnel engineering advice to Metro including supporting the aforementioned projects.

ATTACHMENTS

Attachment A - Procurement Summary

Attachment B - Contract Modification Change Log

Attachment C - DEOD Summary

Prepared by:

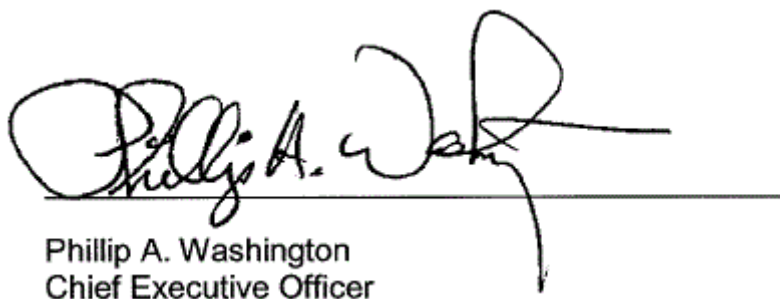
N. Sathi Sathialingam, Senior Director, (213) 922-2261

Androush Danielians, Executive Officer, (213) 922-7598

Reviewed by:

Richard F. Clarke, Chief Program Management Officer, (213) 922-7551

Debra Avila, Chief Vendor/Contract Management Officer, (213) 418-3051



Phillip A. Washington
Chief Executive Officer

PROCUREMENT SUMMARY
TUNNEL ADVISORY PANEL
CONTRACT NO. PS-2020-1055

1.	Contract Number: PS-2020-1055			
2.	Contractor: Geoffrey Martin			
3.	Mod. Work Description: Continued Tunnel Advisory Panel support			
4.	Contract Work Description: Tunnel Advisory Panel			
5.	The following data is current as of: March 23, 2020			
6.	Contract Completion Status		Financial Status	
	Contract Awarded:	5/1/2001	Contract Award Amount:	\$326,000
	Notice to Proceed (NTP):	5/1/2001	Total of Modifications Approved:	\$1,764,006
	Original Complete Date:	1/28/2015	Pending Modifications (including this action):	\$910,475
	Current Est. Complete Date:	6/30/2020	Current Contract Value (with this action):	\$3,000,481
7.	Contract Administrator: Tim Clark		Telephone Number: (323) 900-2110	
8.	Project Manager: Androush Danielians		Telephone Number: (213) 922-7598	

TUNNEL ADVISORY PANEL
CONTRACT NO. PS-8510-2493

1.	Contract Number: PS-8510-2493			
2.	Contractor: Edward Cording			
3.	Mod. Work Description: Continued Tunnel Advisory Panel support			
4.	Contract Work Description: Tunnel Advisory Panel			
5.	The following data is current as of: April 16, 2020			
6.	Contract Completion Status		Financial Status	
	Contract Awarded:	1/29/2010	Contract Award Amount:	\$1,225,000
	Notice to Proceed (NTP):	1/29/2010	Total of Modifications Approved:	\$850,778
	Original Complete Date:	1/28/2015	Pending Modifications (including this action):	\$923,457
	Current Est. Complete Date:	6/30/2020	Current Contract Value (with this action):	\$2,999,235
7.	Contract Administrator: Tim Clark		Telephone Number: (323) 900-2110	
8.	Project Manager: Androush Danielians		Telephone Number: (213) 922-7598	

**TUNNEL ADVISORY PANEL
CONTRACT NO. PS-1620-1000**

1.	Contract Number: TBD	
2.	Recommended Vendor: Dr. O'Rourke	
3.	Type of Procurement (check one): <input type="checkbox"/> IFB <input type="checkbox"/> RFP <input type="checkbox"/> RFP-A&E <input checked="" type="checkbox"/> Non-Competitive <input type="checkbox"/> Modification <input type="checkbox"/> Task Order	
4.	Procurement Dates:	
	A. Issued: N/A	
	B. Advertised/Publicized: N/A	
	C. Pre-proposal/Pre-Bid Conference: N/A	
	D. Proposals/Bids Due: N/A	
	E. Pre-Qualification Completed: TBD	
	F. Conflict of Interest Form Submitted to Ethics: TBD	
	G. Protest Period End Date: N/A	
5.	Solicitations Picked up/Downloaded: N/A	Bids/Proposals Received: N/A
6.	Contract Administrator: Eva Rodriguez	Telephone Number: (323)900-2111
7.	Project Manager: Androush Danielians	Telephone Number: (213) 922-7598

A. Procurement Background

This Board Action is to approve modifications in support of continued Tunnel Advisory Panel (TAP) support by Dr. Martin and Dr. Cording and award a sole source contract to Dr. O'Rourke.

Dr. Thomas O'Rourke is nationally and internationally recognized expert in the field of tunnels, seismology, geology, structures and Fault Rupture Deformation. Dr. O'Rourke is the Thomas R. Briggs Professor of Engineering, School of Civil & Environmental Engineering at Cornell University. His teaching and professional practice include geotechnical engineering for earth retention systems, foundations, and soil/structure interaction; earthquake engineering; underground construction technology, and engineering of large, geographically distributed systems such as water supplies, gas and liquid fuel systems, electric power, and transportation facilities. He has authored or co-authored over 340 publications on geotechnical, underground, earthquake engineering, and impact of extreme events on civil infrastructure.

Dr. O'Rourke was part of the Independent Review Panel convened by Metro CEO in September 2011 for the Westside Purple Line Extension Project (Contract No. PS85102798) to review and validate the technical approach and conclusions drawn by the Metro's

Consultants regarding earthquake faults in the general vicinity of Century City or tunneling through Beverly Hills and Century City.

On May 1, 2001, Contract No. PS-2020-1055 was awarded to Geoffrey Martin in the amount of \$326,000. On January 28, 2010, and PS-8510-2493 was awarded to Edward Cording, in the amount of \$1,225,000. The Board also authorized additional Modifications increasing the contract value and extending the period of performance to June 30, 2020. This Board Action is to approve the continuation of services of the TAP in support of Metro on various projects. Los Angeles County has challenging geologic and tunneling conditions and deep underground station construction, with some through tar impregnated soil, toxic gasses, and high concentration of methane. The TAP members, comprised of Dr. Geoffrey Martin, Dr. Edward Cording, and Dr. O'Rourke are recognized in the industry and throughout the world as engineering/construction experts in the areas of geotechnical analyses, tunneling, deep excavation, earthquake engineering and building settlements.

The proposed contract actions will be processed in accordance with Metro's Acquisition Policy and the contract type for each contract is a Labor Hour Contract.

B. Cost/Price Analysis

The existing individual Labor Hour contracts contain a fixed, negotiated labor rate of \$250 per hour which was established in 2015. Negotiations have resulted in the individual hourly rates for each contract being increased to \$300 per hour plus travel expenses. The Metro ICE is based on a labor rate (direct cost, overhead, and profit) of \$327.40 in the first year of the extension with escalation up to \$347.00 in the third year. The recommended amounts for the Modifications have determined fair and reasonable upon cost/price analysis, fact-finding, technical analysis and negotiations. The recommended not-to-exceed amount for the Contract with Dr. O'Rourke contains the same \$300 per hour plus travel expenses rates as the existing TAP contracts.

CONTRACT NO. PS-2020-1055

Modification	Metro ICE	Not-To-Exceed Amount
No. 11 – Increase Contract Value and extend Contract to June 30, 2023	\$1,077,963	\$910,475

CONTRACT NO. PS-8510-2493

Modification	Metro ICE	Not-To-Exceed Amount
No. 8 – Increase Contract Value and extend Contract to June 30, 2023	\$1,030,944	\$923,457

CONTRACT NO. PS-1620-1000

Award	Metro ICE	Not-To-Exceed Amount
Contract from June 1, 2020 to June 30, 2023	\$1,058,739	\$947,457

CONTRACT MODIFICATION/CHANGE LOG**TUNNEL ADVISORY PANEL****CONTRACT NO. PS-2020-1055**

Mod. No.	Original Contract	5/1/2001	\$326,000
1-4	Increase unit rate and extend period of performance to June 30, 2010	09/06/02-05/11/09	\$0
5	Increase unit rate and extend period of performance to January 28, 2015	1/29/10	\$875,000
6	Extend period of performance to June 30, 2015	1/9/15	\$0
7	Increase contract value and extend period of performance to July 30, 2015	6/22/15	\$28,915
8	Increase contract value and extend period of performance to August 31, 2015	7/17/15	\$28,915
9	Increase unit rate and extend period of performance September 30, 2015	8/10/15	\$28,915
10	Increase contract value and extend period of performance to June 30, 2020	10/1/15	\$802,261
11	Increase unit rate, contract value, extend period of performance to June 30, 2023	Pending Board Approval	\$910,475
	Total:		\$3,000,481

CONTRACT NO. PS-8510-2493

Mod. No.	Original Contract	1/29/10	\$1,225,000
1	Extend period of performance to June 30, 2015	1/9/15	\$0
2	Increase contract value and extend period of performance to July 30, 2015	6/22/15	\$28,915
3	Increase contract value and extend period of performance to August 31, 2015	7/17/15	\$28,915
4	Increase contract value and extend period of performance to September 30, 2015	8/10/15	\$28,915
5	Increase contract value and extend period of performance to June 30, 2020	10/12/15	\$764,033
6	Increase unit rate, contract value, extend period of performance to June 30, 2023	Pending Board Approval	\$923,457
	Total:		\$2,999,235

DEOD SUMMARY

TUNNEL ADVISORY PANEL

CONTRACT NOS. PS-2020-1055, PS-8510-2493 & PS-1620-1000

A. Small Business Participation

The Diversity and Economic Opportunity Department (DEOD) did not recommend a Disadvantaged Business Enterprise (DBE) goal for this sole source panel due to the lack of subcontracting opportunities. It was expected that Prime Contractors Geoffrey R. Martin, Dr. Edward J. Cording and Thomas O'Rourke would perform work with its own workforces.

B. Living Wage and Service Contract Worker Retention Policy Applicability

A review of the current service contract indicates that the Living Wage and Service Contract Worker Retention Policy (LW/SCWRP) was not applicable at the time of award. Therefore, the LW/SCWRP is not applicable to these modifications.

C. Prevailing Wage Applicability

Prevailing wage is not applicable to these modifications.

D. Project Labor Agreement/Construction Careers Policy

Project Labor Agreement/Construction Careers Policy is not applicable to these Contracts. Project Labor Agreement/Construction Careers Policy is applicable only to construction contracts that have a construction contract value in excess of \$2.5 million.



Board Report

File #: 2020-0283, **File Type:** Informational Report

Agenda Number: 25.

CONSTRUCTION COMMITTEE MAY 21, 2020

SUBJECT: PROGRAM MANAGEMENT SUPPORT SERVICES

ACTION: APPROVE RECOMMENDATIONS

RECOMMENDATION

AUTHORIZE:

- A. An increase in authorized funding for Contract No. AE35279 with Kal Krishnan Consulting Services/Triunity Engineering and Management Joint Venture (KTJV), for pending and future Contract Work Orders to provide Program Management Support Services (PMSS) in an amount not-to-exceed \$12,041,501, increasing the current authorized funding limit from \$51,306,204 to \$63,347,705 through FY21;
- B. The Chief Program Management Officer or designee to execute individual Contract Work Orders (CWOs) and Contract Modifications within the Board approved contract funding amount.

ISSUE

In June 2017, the Board approved awarding a five-year cost reimbursable fixed fee Contract No. AE35279, plus one two-year option, to KTJV, a DBE Prime Joint Venture, for Program Management support services for not-to-exceed \$90,809,070. This created the largest small business led consultant services contract at Metro. The Board action provided initial funding not-to-exceed \$24,970,960 through the end of FY19 as part of a multiyear contract with an anticipated five-year base contract value of \$63,347,705 plus \$27,461,365 for one two-year option, for a combined total amount not-to-exceed \$90,809,070 for seven years.

In April 2019, the Board approved two additional years of funding increasing the total not-to-exceed amount to \$51,306,204 for the first four years of the contract. However, staff has awarded CWO/Modifications totaling \$48,733,372.30 and has approximately \$2,572,831.70 of the authorized funding remaining. Attachment B lists the PMSS contract CWO/Modifications executed to date. Use of the Contract exceeded staff expectation especially considering the acceleration of several Major Transit Construction Measure M projects. However, due to COVID-19 financial impacts on projects, Metro staff has evaluated opportunities to reduce consultant support across all projects and are proposing a decrease in the current rate of consultant spending on the PMSS contract. Therefore,

Metro staff is now seeking to increase authorized funding of the Contract by \$12,041,501, for a new funding limit not-to-exceed \$63,347,705.

DISCUSSION

Metro is currently undertaking the largest transportation construction program in the nation. This creates an unprecedented challenge to project delivery. Recognizing that staffing is a key factor in project delivery, Program Management is committed to developing strengths in its capacity and capability to ensure the multi-billion-dollar capital program can be successfully managed. Attachment E lists the projects that the Contract currently supports and those we anticipate it will support over the duration of the PMSS contract.

Metro staff works with KTJV to scale staff up or down depending on Metro's transit, highway, regional rail and other capital improvement program needs. With the volume of work that accompanies Metro's fast-paced Capital program, the PMSS Contract utilization to assist Program Management in securing enough qualified, flexible resources across a broad spectrum of disciplines in a timely manner needed to manage and support delivery of Board approved projects has increased significantly. Therefore, as the needs of the projects increase to allow Metro efficient and effective staff augmentation and technical expertise, the needs of the authorized funding increase as well.

Scope

To support the aggressive project implementation schedule for delivering Metro's Capital Program, close coordination and expertise across multidisciplines are required in the following eight key functions: project management, program management, project delivery development support, project control, estimating, configuration management, project management and other technical training, and Project Management Information System (PMIS) support services. In addition, the scope has allowed for contract administration and small business contract compliance support assisting Vendor/Contract Management (V/CM) to efficiently provide sufficient staffing needed to perform V/CM support activities.

Combining all the above functions together into one contract has allowed for a better coordinated and more efficient allocation of resources for Metro than would be possible under a series of separate contracts. To date, the PMSS contract has succeeded in fulfilling the consultant staffing demand on a program-wide level on various multiple transit, regional rail, highway, and other capital improvement projects.

Contract funds are authorized by issuing separate CWOs for various projects using labor classifications and rates set forth in the contract, with funding solely supported through the Life of Project budget. This method of contracting results in more efficient cost and schedule management, since CWOs and modifications to existing CWOs are negotiated and issued as additional work is identified. For each CWO or modification, Metro prepares a scope of work and an estimate of hours, and KTJV subsequently provides a proposal. Metro and KTJV will fact-find and negotiate the hours if there is a discrepancy. After agreement, the CWO is issued and the work proceeds.

Consultant Services

To date, KTJV has completed and is continuing staff augmentation assignments on major transit construction projects, miscellaneous capital project, security and safety projects, rail and bus facility improvements, wayside systems, soundwalls, Regional Rail, Highway, and Environmental projects; Metro Gateway staff augmentation for program-wide support; specialty assignments such as constructability review, risk assessment support, procedure writing and training, Project Management Information System (PMIS), lessons learned/Best Management Practices implementation, WIN LA, DBE Commercially Useful Functions, and P3 capability development support; and other projects as necessary (see Attachments B and E). KTJV has been responsive and works with Metro staff to provide the qualified resources necessary for Program Management to meet the aggressive implementation schedule for delivering Metro's Capital Program.

DETERMINATION OF SAFETY IMPACT

This Board action will not have an impact on established safety standards for Metro's capital projects.

FINANCIAL IMPACT

The not-to-exceed award value is based on the anticipated level of services. Each individual CWOs will be funded from the associated projects' budget, within the limits of Board authorization. Staff is cognizant of the Continuation Resolution of FY20 Budget for Q1 of FY2021; the FY2021 budget will be brought to the Board for consideration in a September 2020 Board meeting. The project managers, cost managers and Chief Program Management Officer will be accountable for budgeting the cost in future years, including cost associated with exercising the option.

Impact to Budget

There will be no additional impact beyond the approved annual budget or respective project's authorized LOP amounts, where applicable. Most of the projects are funded with multiple sources of funds: federal and state grants, federal loans, bonds and local sales taxes. Much of local sales taxes are eligible for bus and rail operations and capital improvements. These funds are programmed to state of good repair projects and to augment the costs of mega projects, where eligible and appropriate.

ALTERNATIVES CONSIDERED

The Board may elect to discontinue using KTJV for PMSS. Staff does not recommend this alternative as the Program Management capital projects are in various degrees of completion and the loss of staff would cause these projects to be significantly impacted.

Another alternative would be to hire Metro staff to perform the required services. This alternative is also not recommended since the intent of the PMSS is to augment Metro staff in terms of technical expertise and availability of personnel. PMSS are typically required on a periodic or short-term basis to accommodate for peak workloads or specific tasks over the life of the projects. Further, for some

projects, the specific technical expertise required may not be available within the ranks of Metro staff, whereas the KTJV consultant can provide the technical expertise on an as-needed basis.

IMPLEMENTATION OF STRATEGIC PLAN GOALS

Recommendation supports Strategic Plan Goal #1 - Provide high-quality mobility options that enable people to spend less time traveling. This will be accomplished by providing program-wide support services to assist in delivering multiple capital projects on time and on budget while increasing opportunities for small business development and innovation.

NEXT STEPS

Upon Board approval, staff will continue to issue Contract Work Orders, as needed.

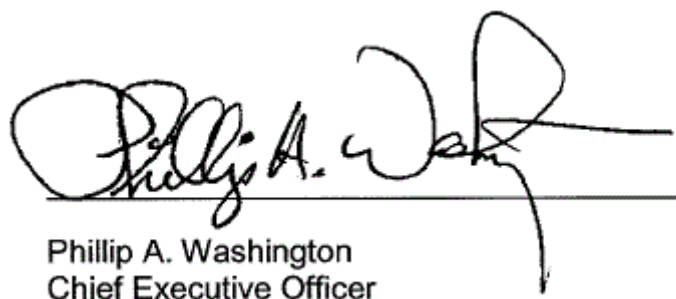
ATTACHMENTS

Attachment A - Procurement Summary
Attachment B - Contract Work Order/Modification Log
Attachment C - DEOD Summary
Attachment D - Current Support Provided by Project Category
Attachment E - Current and Anticipated List of Projects

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Phillip A. Washington
Chief Executive Officer

PROCUREMENT SUMMARY

PROGRAM MANAGEMENT SUPPORT SERVICES (PMSS)

1.	Contract Number: AE35279			
2.	Contractor: Kal Krishnan Consulting Services/Triunity Engineering and Management Joint Venture (KTJV)			
3.	Mod. Work Description: Funding for additional Contract Work Orders for projects listed in Attachment D – Anticipated List of Projects			
4.	Contract Work Description: Program Management Support Services (PMSS)			
5.	The following data is current as of: April 16, 2020			
6.	Contract Completion Status		Financial Status	
	Contract Awarded:	June 22, 2017	Original authorized funding limit:	\$ 24,970,960.00
	Contract Executed Date:	August 18, 2017	Total of Contract Work Orders and Modifications Approved:	\$ 48,733,372.30
	Original Completion Date:	August 18, 2022	Proposed and Pending Contract Work Orders and Modifications (including this action):	\$ 14,614,332.70
	Current Est. Completion Date:	August 18, 2022	Total authorized funding limit (with this action):	\$ 63,347,705.00
7.	Contract Administrator: Robert Romanowski		Telephone Number: (213) 922-2633	
8.	Project Manager: Mayumi Lyon		Telephone Number: (213) 922-4020	

A. Procurement Background

On June 22, 2017, the Board approved award of Contract No. AE35279 to Kal Krishnan Consulting Services/Triunity Engineering and Management Joint Venture (KTJV) for five years with funding approval through FY2019 in the amount of \$24,970,960.00, for the Scope of Services included in the Program Management Support Services (PMSS) Contract.

On April 25, 2019, the Board approved additional funding, increasing the total not-to-exceed amount to \$51,306,204 for the Work.

Attachment B shows that Forty Contract Work Orders and their Modifications have been issued to date to authorize and/or delete work, totaling \$48,733,372.30.

This Board Action is to approve an increase to the total authorized funding for Contract No. AE35279 in support of additional Program Management Support Services (PMSS) needs.

B. Cost/Price Analysis

All direct labor rates as modified by the annual economic price adjustment and the negotiated fixed fee factor for this cost reimbursable plus fixed fee contract remain unchanged from the original contract.

A fair and reasonable price for all future Contract Work Orders will be determined based upon fact finding, scope definition, technical evaluation, cost analysis, and negotiations before issuing work to the Consultant. Contract Work Orders will be processed in accordance with Procurement Policies and Procedures, within the additional funding requested.

CONTRACT WORK ORDER (CWO)/MODIFICATION LOG

Project	CWO #	Description / Working Title	CWO/Mod. Value	Date Executed	PoP Ends
Program Control Admin.	1	Metro requires Program Management Support Services (PMSS) in support of delivering Metro's transit, highway, regional rail, and other capital improvement projects on-time and within budget. The Consultant shall allocate technical expertise and proper resources in a timely manner, manage the contract budget, prepare forms and submittals as required, in addition to control, monitor, report on all costs, expenditures, schedule, and understand the contract requirements.	\$645,684.71	8/31/2017	6/30/2018
	1.1	Modify to add Risk Assessment Advisor: This modification adds James Zack Consulting, LLC to the CWO.	\$16,350.00	11/15/2017	6/30/2018
	1.2	Modify City of Los Angeles Guidelines for LA Metro Projects: Program Management requires additional personnel with different technical expertise be added to perform priority policies and procedures.	\$57,629.36	1/23/2018	6/30/2018
	1.3	Extend PoP for FY19 (SOW same as original)	\$724,833.00	6/20/2018	6/30/2019
	1.4	Vehicle Lease for DEO, Cost Estimating for travel to the Integrated Project Management Offices (IPMOs) and other work-related locations with a not to exceed yearly mileage of 12,000 miles.	\$9,303.00	8/24/2018	8/18/2019
	1.5	Add Facilitator/ Instructor for Program Management Leadership Team Workshop: facilitate a leadership team workshop of up to 30 Executive and Deputy Executive level attendees; curriculum focused on communication/trust, provide all handouts, conduct and facilitate the workshop; staff interviews; workshop; post workshop meeting debrief to discuss consultant recommendations.	\$24,164.51	10/9/2018	6/30/2019
	1.6	Vehicles lease for three 24-month vehicle leases for New Blue projects and two 24-month vehicle leases for Soundwall 11 for travel to work-related locations with a not to exceed yearly mileage of 12,000 miles per vehicle; monthly costs for lease, insurance, registration, and vehicle safety equipment and allocation for fuel and maintenance were included in the calculated NTE final value.	\$135,884.50	10/9/2018	10/30/2020
	1.7	Parking: add monthly parking passes for each leased vehicle. Three 24-month passes for New Blue projects and two 24-month passes for Soundwall 11.	\$10,230.00	11/15/2018	10/30/2020
	1.8	Extend PoP for FY20 (SOW same as original).	\$762,538.00	8/5/2019	6/30/2020
	1.9	Vehicle lease extension for Cost Estimating.	\$8,867.00	10/29/2020	9/30/2020
	1.10	Sr. Program Management Analyst support for Project Control tasks such as coordinating meetings, tracking budgets, creating and dispersing reports, etc.	\$95,405.00	10/18/2020	6/30/2020
ESOC	2	Constructability Evaluation and Risk Assessment Review: The Contractor shall perform a Constructability Evaluation and Risk Assessment relating to the Emergency Security Operation Center (ESOC) Project, particularly as it relates to transferred risks.	\$114,797.62	9/18/2017	11/17/2017
	2.1	Contractor shall perform a Constructability Evaluation and Risk Assessment relating to the ESOC, particularly as it relates to transferred risks.	\$19,205.95	10/27/2017	11/17/2017
	2.2	Constructability Evaluation and Risk Assessment Review Mod Time Extension through December 17, 2017. The SOW remains unchanged; no increase to the contract value.	\$0.00	11/15/2017	1/31/2018
	2.3	Constructability Evaluation and Risk Assessment Review - modify CWO to add Other Direct Costs (ODCs) -Travel, for previously approved personnel of Consultant to attend one review meeting with Metro staff; extend Period of Performance (PoP) through January 31, 2018	\$1,631.00	12/8/2017	1/31/2018
	2.4	Extend PoP; scope of services remains unchanged and there is no increase to the contract value.	\$0.00	1/30/2018	3/31/2018
	2.5	Extend PoP; scope of services remains unchanged and there is no increase to the contract value.	\$0.00	3/13/2018	6/30/2018
	2.6	CWO Closeout	(\$12,847.75)	3/18/2020	3/30/2020
Project Delivery Development	3	Project Delivery Development Support - Overall advice/assistance are required on federal and project implementation issues that arise on Metro's major capital, including assistance on National Environmental Policy Act (NEPA) issues and documents, and litigation issues involving or affecting Metro projects.	\$300,000.00	9/12/2017	6/30/2018
	3.1	Modification to replace fixed "Rate Per Hour" for the Project Delivery & Contract Development Technical Advisor with "Direct Rate Range".	\$0.00	10/26/2017	10/26/2017
	3.2	Extend PoP; continuation of support services for FY19; scope of services remains unchanged.	\$224,561.00	6/29/2018	6/30/2019
	3.3	Modification to add funding to support Project Delivery Development for Program Control, WPLE 2, WPLE 3	\$116,880.00	6/28/2019	6/30/2020
Crenshaw/LAX	4	Cost Estimating Support Services for Crenshaw/LAX and Southwestern Yard (SWY) Projects: services to assist Metro to perform estimating functions; support development of budgets for the projects, support design optimization and constructability of the projects, and support administration of both project contracts.	\$1,057,745.06	9/15/2017	6/30/2018
	4.1	Modification to add construction management support/Sr. Configuration Management Analyst on Division 16 SWY Maintenance Project.	\$121,907.44	11/13/2017	6/30/2018
	4.2	Cost Estimating Support Services for Crenshaw/LAX and SW Yard Projects - Add Personnel: Metro requires additional Sr. Cost Estimator to support Crenshaw/LAX and Division 16 Southwestern Yard Maintenance Projects and has designated an existing Sr. Cost Estimator with increased complexity of tasks justifying a rate increase.	\$148,972.69	12/22/2017	6/30/2018

CONTRACT WORK ORDER (CWO)/MODIFICATION LOG

Crenshaw LAX SWY	4.3	Crenshaw/LAX & Southwestern Yard Projects - Scheduling Support: addition of an experienced scheduler to perform schedule analysis tasks.	\$27,093.33	2/1/2018	6/30/2018
	4.4	Addition of estimating consultants including Sr. Estimator and Cost Estimating Manager to support existing scope; funding already in existence through original CWO.	\$0.00	5/4/2018	6/30/2018
	4.5	Extend PoP: continuation of support services through FY19.	\$1,804,836.00	6/25/2018	6/30/2019
	4.6	Addition of experienced scheduling support services for Crenshaw/LAX project to perform schedule analysis tasks.	\$218,069.00	9/5/2018	6/30/2019
	4.7	Addition of Sr. Configuration Management Analyst to perform schedule analysis tasks.	\$68,268.00	9/5/2018	6/30/2019
	4.8	Extend PoP: continuation of support services through FY20.	\$1,716,859.00	6/17/2019	6/30/2020
	4.9	Additional cost schedule analyst staff support services for Crenshaw and Eastside Light Rail Access.	\$70,633.00	3/3/2020	7/31/2020
PMIS	5	Project Management Information System (PMIS) Ongoing Support: Contractor shall provide technical expertise to perform ongoing PMIS supporting, including hosting and on-going technical and implementation support as required to support existing systems.	\$451,825.10	9/29/2017	6/30/2018
	5.1	Modify Contract Work Order AE35279-005 to add Other Direct Costs (ODCs) - Travel for previously approved personnel of listed subconsultant.	\$20,376.00	12/5/2017	6/30/2018
	5.2	Additional services required to supplement the existing CWO to provide technical expertise in resolving complex issues; actual level of efforts required for ongoing support has exceeded the planned level.	\$102,439.27	2/5/2018	6/30/2018
	5.3	Extend PoP; ongoing PMIS supporting, including hosting and on-going technical and implementation support as required to support existing systems.C29	\$599,106.00	6/20/2018	6/30/2019
	5.4	Revise sub-consultant SOW to include programming support and troubleshooting for the new Oracle Primavera Unifier application; support to assist in system design and testing for cost forecasting functionality development that will eventually replace the EcoSys application.	\$74,826.00	1/18/2019	6/30/2019
	5.5	Extend PoP; ongoing PMIS supporting, including hosting and on-going technical and implementation support as required to support existing systems.	\$1,925,894.00	7/31/2019	7/31/2020
	5.6	PMIS FY20 Oracle Unifier system requires system enhancements specific to Metro's application.	\$402,779.00	2/12/2020	6/30/2020
WPLE 1	6	WPLE 1 Project requires scheduling, cost engineering, and estimating support services.	\$919,952.06	9/19/2017	6/30/2018
	6.1	Extend PoP; continuation of services in original SOW.	\$722,326.00	6/21/2018	6/30/2019
	6.2	Substitute Sr. Cost Estimator at a lower rate.	(\$18,551.58)	11/13/2018	6/30/2019
	6.3	Extend PoP; continuation of cost estimating services and addition of cost/schedule analyst support for FY20.	\$1,363,051.00	6/10/2019	6/30/2020
WPLE 2	7	WPLE 2 Project requires scheduling, cost engineering, and estimating support services.	\$627,112.16	9/19/2017	6/30/2018
	7.1	Consultant shall substitute one Sr. Cost Estimator provided by its approved, listed Subconsultant to support Westside Purple Line Section 2.	(\$7,637.35)	12/27/2017	6/30/2018
	7.2	Eliminate Sr. Cost/Schedule Analyst Position: Based on the current Project needs, the Sr. Cost/Schedule Analyst Position is no longer required.	(\$234,501.26)	1/29/2018	6/30/2018
	7.3	Extend PoP; continuation of cost estimating support services for FY19.	\$504,336.00	6/29/2018	6/30/2019
	7.4	Extend PoP; continuation of cost estimating support services for FY20.	\$1,096,360.00	7/9/2019	6/30/2020
Environmental Compliance and Sustainability	8	The Environmental Compliance and Sustainability Program requires support services, including project controls and estimating support.	\$457,408.18	9/13/2017	6/30/2018
	8.1	Consultant to add more personnel that were inadvertently omitted from the list of approved personnel of approved, listed subconsultant, Lenax Construction.	\$0.00	11/20/2017	6/30/2018
	8.2	Additional personnel inadvertently omitted from the list of approved personnel of approved, listed subconsultant, Lenax Construction.	\$0.00	12/13/2017	6/30/2018
	8.3	Extend PoP; continued support services including project controls and estimating services through FY19.	\$630,051.00	6/20/2018	6/30/2019
	8.4	Substitute Personnel at different rates.	(\$41,041.95)	2/11/2019	6/30/2019
	8.5	Environmental compliance and Sustainability strategic team alignment workshop.	\$10,435.00	3/28/2010	6/30/2019
	8.6	Extend PoP; continued support services including project controls and estimating service through FY20.	\$194,044.00	6/27/2019	6/30/2020
	8.7	Additional funding Environmental Compliance estimating services in FY20.	\$99,384.00	12/23/2019	6/30/2020
Regional Connector	9	Regional Connector Transit Project requires program control support services, specifically, estimating support.	\$368,983.64	9/19/2017	6/30/2018
	9.1	Extend PoP; continue Regional Connector Project program control support services, specifically, estimating support through FY19.	\$50,396.00	6/8/2018	6/30/2019
	9.2	Additional Sr Cost Estimator for four months.	\$77,257.00	9/6/2018	12/31/2018
	9.3	Addition of project scheduling and cost engineering support services.	\$179,912.00	12/7/2018	6/30/2019
	9.4	Continuation of the cost estimating services with no cost increase through FY19.	\$0.00	3/8/2019	6/30/2019
PMIS Enhancement Analysis	9.5	Extend PoP; continue Regional Connector Project program control support services, specifically, estimating support through FY20.	\$917,271.00	6/25/2019	6/30/2020
	10	PMIS Unifier Prototype: Current Contract Management 14 of the PMIS is obsolete. Immediate analysis is needed to conduct initial assessments of the system needs and enhancements required to replace the current CM14 and EcoSys cost system.	\$245,165.16	9/21/2017	12/31/2017

CONTRACT WORK ORDER (CWO)/MODIFICATION LOG

DBE Contract Compliance	11	Contract Compliance Support Services/Diversity & Economic Opportunity Department (DEOD) requires contract compliance monitoring support services consistent with DOT 49 Code of Federal Regulations (CFR) Part 26 and Metro's DBE, SBE and/or DVBE program.	\$634,678.54	10/13/2017	6/30/2018
	11.1	Addition of Personnel - No Cost: add personnel to provide interim support as required.	\$0.00	2/28/2018	6/30/2018
	11.2	Extend PoP; there is no increase to the contract value.	\$0.00	6/6/2018	8/31/2018
	11.3	Addition of personnel to provide interim support as required; Senior Contract Compliance Officers to provide contract compliance monitoring support services consistent with DOT 49 CFR Part 26 and Metro's DBE Program.	\$1,117,360.00	9/6/2018	6/30/2019
	11.4	Add approved replacement personnel at a lower rate in the direct labor categories of Senior Contract Compliance Officer.	(\$9,449.00)	12/12/2018	6/30/2019
	11.5	Extend PoP; Sr. Consultant Compliance Officer consultant services to provide contract compliance monitoring support services through FY20.	\$1,544,380.00	8/1/2019	7/31/2020
	11.6	Addition of consultant staff to provide interim compliance monitoring support on various non-mega projects.	\$82,358.00	3/30/2020	7/31/2020
PMIS Enhancement Implementation	12	PMIS Enhancement Implementation: three phase implementation support needed to conduct the enhancements, required to replace the current CM14 and EcoSys cost system.	\$1,919,948.74	11/30/2017	12/31/2018
	12.1	Additional PMIS Implementation Support and Solution Architect: full-time position shall assist in the process transition from use of EcoSys for cost reporting to Oracle Primavera Unifier.	\$235,827.00	12/4/2018	6/30/2019
	12.2	PoP Extension and Additional Work: support extended outreach to business process support groups and projects during design to solicit engagement and acceptance and provide additional pilot testing/training; allowance for design changes that are likely to result from the extended outreach; change includes more comprehensive support efforts during the initial go live period for training, technical support, and minor design changes.	\$379,785.00	1/3/2019	6/30/2019
	12.3	Additional Pilot Testing: Consultant shall perform extended outreach sessions; extended Pilot Testing Period; re-development of business processes: redesign configuration management business processes from prior process used in CM14 to streamline processes and obtain staff buy-in; ongoing support for post go-live period; redesign Cost Engineer cost forecasting business processes and reporting.	\$499,224.00	2/26/2019	6/30/2019
	12.4	PMIS Unifier Implementation additional data migration testing.	\$149,997.44	5/8/2019	6/30/2019
	12.5	PMIS Unifier Implementation additional data migration testing - PoP extension.	\$0.00	6/27/2019	9/30/2019
	12.6	Closeout of CWO 12 and modifications.	(\$17,766.44)	1/31/2020	1/31/2020
Construction Market Analysis	13	Contractor to conduct a construction market analysis to assess key factors of the Los Angeles area construction market.	\$266,134.23	11/15/2017	4/30/2018
	13.1	Extend PoP; no cost increase.	\$0.00	5/7/2018	6/31/2018
WSAB	14	West Santa Ana Branch (WSAB) P3 Technical Advisory Support - technical advisory in support of evaluation of various P3 project delivery alternatives and subsequent development of a procurement package for a P3 contractor for the WSAB Light Rail Project.	\$203,546.08	12/28/2017	3/15/2018
	14.1	Extend PoP; no cost increase continuation of P3 technical advisory services.	\$0.00	2/28/2018	6/30/2018
	14.2	Additional personnel with different technical expertise be added to provide technical support required on the WSAB, specifically with a project workshop.	\$4,465.00	3/15/2018	6/30/2018
	14.3	Additional personnel with different technical expertise be added to provide partnering/workshop facilitation support required on the WSAB Project.	\$6,857.06	4/20/2018	6/30/2018
	14.4	Extend PoP: continuation of P3 technical advisory support through FY19.	\$1,548,668.00	7/10/2018	6/30/2019
	14.5	Additional Sr. Configuration Management Analyst and Sr. Cost Estimator personnel with technical expertise.	\$80,930.00	9/17/2018	6/30/2019
	14.6	Additional Project Delivery and Contract Development Advisor	\$119,677.00	11/5/2018	6/30/2019
	14.7	P3 Performance Requirements Development - consultant expertise to develop a set of comprehensive performance requirements and solicitation technical packages that will be used during all phases of the P3. Consultants range from Project Delivery and Contract Development/Compliance functions to Sr. Cost Estimator to maintain schedule for the P3 solicitation package.	\$1,561,563.15	1/3/2019	6/30/2019
	14.8	Closeout CWO 14, Modifications 2 and 3. The modification of these documents is a reduction of \$44,055.06. Reduction of hours in CWO 14, Mods 4 and 7 in the combined amount of \$955,944.57 = \$1M total.	(\$1,000,000.00)	3/8/2019	3/8/2019
	14.9	Extend PoP: continuation of project delivery and contract development support.	\$0.00	6/25/2019	7/31/2019
	14.10	Extend PoP: continuation of project delivery and contract development support through FY20.	\$4,092,522.00	7/31/2019	7/31/2020
	14.11	Modify CWO 14, and its Modifications to add Project Management support, reduce the Contract Value by \$1,500,000, and extend the PoP through December 31, 2020.	(\$1,500,000.00)	4/1/2020	12/31/2020
Patsaouras Busway Station	15	PMSS on Bus & Rail Capital and Soundwall Projects: Metro requires program control support services in accordance with the scope of work on Bus and Rail capital, and Soundwall projects.	\$96,072.21	12/13/2017	6/30/2018
	15.1	Extend PoP; continued program control support services on Bus and Rail Capital, and Soundwall Projects, as previously outlined in CWO No.15.	\$133,588.00	6/6/2018	6/30/2019
	15.2	Extend PoP services and PoP through FY20.	\$392,608.00	6/27/2019	7/31/2020

CONTRACT WORK ORDER (CWO)/MODIFICATION LOG

	15.3	Project Manager services necessary for providing oversight support in design review, construction oversight reporting, preparing technical documents, various office related support services.	\$126,051.00	3/11/2020	7/31/2020
I405 Closeout	16	I-405 Widening Project Closeout Support: Metro requires project close-out support in accordance with the scope of work on the I-405 project.	\$391,957.37	12/27/2017	12/31/2018
	16.1	Continue I-405 Widening Project Closeout Support through 3/2019.	\$206,241.00	10/4/2019	3/31/2019
	16.2	Continue I-405 Widening Project Closeout Support through 12/2019.	\$274,951.00	3/15/2019	12/31/2019
	16.3	Continue I-405 Widening Project Closeout Support through 12/2020.	\$95,098.00	1/9/2020	12/31/2020
WPLE 3	17	PMSS Project Management Support WPLE3: Metro requires project support services in accordance with the scope of work on Westside Purple Line Extension Section 3 Project.	\$286,495.87	1/18/2018	6/30/2018
	17.1	Extend PoP; continuation of support services for FY19.	\$781,400.00	6/29/2018	6/30/2019
	17.2	Add Sr. Cost Estimator and Sr. Configuration Mgmt Analyst for WPLE	\$258,335.00	2/14/2019	6/30/2020
	17.3	Extend PoP; continuation of services for cost estimating, cost/schedule analyst, and configuration management analyst through FY20.	\$1,168,236.00	8/22/2019	6/30/2020
WIN LA	17.4	Addition of a cost estimator through FY20.	\$104,905.00	11/7/2019	6/30/2020
	18	Workforce Initiative Now (WIN/LA): requires technical support for the development and implementation of the Workforce Initiative Now.	\$111,514.88	1/29/2018	6/30/2018
	18.1	Extend POP; continued technical support for the development of WinLA in FY19.	\$173,096.67	6/21/2018	6/30/2019
	18.2	No cost staff replacement.	\$0.00	1/14/2019	6/30/2019
Capital Improvement/SGR Projects	18.3	Extend POP; continued technical support for the development of WinLA in FY20.	\$10,380.00	6/25/2019	9/30/2019
	18.4	WIN LA CWO Closeout.	(\$3,096.54)	3/11/2020	3/11/2020
	19	Metro requires project support services on State of Good Repair (SGR) and Other Capital Projects.	\$112,974.65	2/8/2018	6/30/2018
	19.1	Extend PoP; continued technical support and revise CWO 19 to include project support services to MBL Track & Systems, which was not part of the original CWO.	\$307,665.00	6/5/2018	6/30/2019
Risk Mgmt Support Services	19.2	Extend PoP; continued support services on SGR and other Capital projects through CY19.	\$179,319.00	6/27/2019	12/31/2019
	19.3	No Cost PoP Extension.	\$0.00	2/11/2020	7/31/2020
	20	Risk Management Support Services: assist the Metro Risk Manager in the facilitation of cost and schedule risk analysis of major capital projects, ensure the requirements of the Metro Risk Management procedure are implemented correctly, work with project control staff in developing and managing project risk registers as required by Metro, record and analyze risk trends, and develop the risk sections of PMP.	\$99,436.00	9/21/2018	6/30/2019
	20.1	Extend PoP; continued support of Risk Management services.	\$98,039.00	6/27/2019	6/30/2020
Schedule Claims Support	20.2	Extend PoP and reduction of services.	(\$132,391.98)	2/11/2020	7/31/2020
	21	Schedule Claims Avoidance Support Services - Regional Connector Project requires schedule claims avoidance support specifically in the areas of analysis of early completion schedules, and recommendations for possible resolution of current and actual claims.	\$50,205.05	10/12/2018	12/31/2019
	22	Regional Rail: project management controls services in support of the Metro Regional Rail Program to prepare project controls deliverables.	\$95,595.00	9/24/2018	6/30/2019
	22.1	Extend PoP of existing scope of work through September 30, 2019.	\$0.00	6/27/2019	9/30/2019
Regional Rail	22.2	Regional Rail CWO Closeout.	(\$83,212.71)	3/3/2020	3/3/2020
	23	New Blue Projects - provide cost estimating, scheduling and configuration management support services for Construction Contracts.	\$640,047.00	9/24/2018	6/30/2019
	23.1	Extend PoP; continued services through FY20.	\$1,444,762.00	6/24/2019	6/30/2020
	23.2	Add a cost estimator position within the current approved CWO budget.	\$0.00	8/28/2019	6/30/2020
New Blue	23.3	Reduction in services for New Blue CWO.	(\$963,174.00)	4/7/2020	12/31/2020
	24	PMSS for Eastside Access Improvement Project: provide technical resources, knowledge, and expertise to perform project manager tasks, such as coordination of design meetings, quality control review on design submittals, communication & coordination with Metro design consultants, prepare monthly project status reports, review/update project design schedule, prepare monthly FT A status reports.	\$237,268.00	9/25/2018	12/31/2019
	24.1	Extend PoP for continued services in FY20.	\$27,579.00	7/19/2019	8/31/2019
	24.2	Extend PoP for continued services through CY20.	\$62,031.00	8/30/2019	12/31/2019
East San Fernando Valley	25	East San Fernando Valley (ESFV): requires Project Delivery & Contract Devel. Advisors with technical expertise be added to provide support required on the ESFV Project.	\$428,282.00	11/9/2018	6/30/2019
	25.1	No cost PoP extension.	\$0.00	6/26/2019	7/31/2019
	25.2	Extend PoP; continued support through FY20 and add services for P3 VfM Cost Data and Risk Assessment report.	\$1,136,791.00	7/17/2019	7/31/2020
	26	Contract Submittal Review: Consultant shall review contract language for submittal requirements and assess where City of LA submittal reviews can be streamlined; review contract language and assess where changes can be made that result in an even clearer and more equitable risk sharing between Metro and the contractor with regard to timely LA City submittal turn-around.	\$99,436.00	1/9/2019	6/30/2019
Program wide activities	26.1	Resident Engineer Manual: Consultants shall draft revised RE Manual for review by Metro, incorporate review comments, and submit final RE Manual revision to Metro Configuration Management for issuance.	\$99,668.00	1/14/2019	6/30/2019
	26.2	Extend PoP and add p/t Administrative Analyst.	\$7,800.00	6/20/2019	6/30/2020

CONTRACT WORK ORDER (CWO)/MODIFICATION LOG

	26.3	Addition of a Technical Program Manager for third party support.	\$214,199.00	9/23/2019	6/30/2020
	26.4	Consultant to research and create Progressive Design White Paper.	\$21,899.00	2/18/2020	6/30/2020
DRB Document Prep	27	DRB Presentation Support: WPLE 1 Project requires review, critique, comments on Metro position paper, created by Metro's project team including claims consultants, and associated documents prepared for the DRB hearing on the Fairfax Station subgrade; develop and present a formal presentation to the DRB on behalf of Metro; and represent Metro throughout the DRB process.	\$52,250.00	1/18/2019	6/30/2019
Sepulveda	28	Sepulveda Corridor Project P3 Technical Advisory Support: provide Project Delivery & Contract Development Advisor, Cost/Schedule Analyst, and Project Manager during the development of P3 procurement documents.	\$154,133.00	2/27/2019	6/30/2019
	28.1	Extend PoP through July 2019.	\$0.00	6/26/2019	7/31/2019
	28.2	Extend PoP; continue support for Sepulveda Corridor project P3 technical advisory support through FY20.	\$3,295,965.00	7/19/2019	7/31/2020
DBE Commercially Useful Function	29	Consultant to evaluate the management, supervision, and performance actions of DBE firms working on FTA-funded and/or State/local funded contracts to determine if DBE firms are performing commercial useful function (CUF).	\$50,456.18	5/13/2019	6/30/2019
	29.1	Extend PoP.	\$0.00	7/1/2019	7/15/2019
	29.2	Extend PoP; continue CUF site visits and related assignments for Contract Compliance monitoring services through FY20.	\$539,940.00	7/11/2019	6/30/2020
Centinela/Florence	30	Cost Estimating support services for the Centinela/Florence Grade Separation project through FY20.	\$26,130.00	5/24/2019	6/30/2020
I-5 N Capacity Enhancement	31	Consultant to provide PMSS for I-5 N capacity enhancement project in the form of executive oversight and direction for the highway construction program.	\$387,797.00	7/8/2019	6/30/2020
	31.1	Consultant to provide an independent constructability review for the I-5 HOV and Truck lanes project.	\$813,752.00	8/26/2019	6/30/2020
	31.2	Consultant to provide additional Sr. Program Management Analyst support to manage the development and implementation of computer monitoring systems for cost and schedule performance on the project.	\$711,659.00	11/4/2019	6/30/2020
Estimating Database	32	Consultant to assist in the development of the Metro in-house Timberline database to assist the Cost Estimating department with preparing estimates (Task 1 - assess in-house historical cost data and develop a work plan).	\$46,799.00	9/16/2019	1/31/2020
	32.1	Consultant to assist in the development of the Metro in-house Timberline database to assist the Cost Estimating department with preparing estimates (Task 2 and 3 - set up the database, then organize, update and test the database).	\$149,997.00	2/18/2020	7/31/2020
Construction Market Analysis	33	Consultant to conduct a construction market analysis to assess key factors of the Los Angeles area construction market.	\$149,854.00	10/3/2019	6/30/2020
Admin. Multiple Capital Projects	34	PMSS Administrative Analyst Services for Orange Line Enroute Bus Charging Stations, Division 1 Improvement, Division 11 & 22 Roofing Replacement / ROC Roofing Replacement, and Cesar Chavez Transit Pavilion.	\$94,497.00	11/18/2019	6/30/2020
Soundwall Package 11	35	Provide construction scheduling support to the Program Management Department in support of the Sound Wall Package 11 project.	\$44,220.00	1/13/2020	6/30/2020
Division 20 Portal Widening turnback	36	Provide Cost Estimating support services for Construction including technical resources, knowledge, and expertise to perform Cost Estimating tasks.	\$200,406.00	1/9/2020	6/30/2020
WIN LA Mapping	37	Provide technical support to DEOD staff to develop technical process mapping for integration of activities related to the second phase of WIN-LA program implementation. support DEOD staff with the integration of the private employer (prime contractor) business requirements, processes and workflow into the WIN-LA software system.	\$67,386.00	1/24/2020	6/30/2020
Airport Metro Connector	38	Provide Cost Estimating and Configuration Management support services for the Airport Metro Connector project.	\$190,635.00	2/11/2020	7/31/2020
OL BRT Improvement Project	39	Provide Project Manager support for Metro Orange Line Bus Rapid Transit Improvement during FY2020 and FY2021.	\$491,224.00	3/3/2020	6/30/2021
Green Line Extension	40	Provide assistance to Metro to manage performance of capital projects including all aspects of technical support, schedules, budget, funding, grants management, staffing, agency reporting, and prioritization of work.	\$325,058.00	4/9/2020	12/31/2020
Total of CWOs and Modifications:			\$48,733,372.30		
Board Authorized:			\$51,306,204.00		
Authorized Funds Remaining:			\$2,572,831.70		

DEOD SUMMARY

**PROGRAM MANAGEMENT SUPPORT SERVICES (PMSS)
CONTRACT NO AE35279**

A. Small Business Participation

Kal Krishnan Consulting Services/Triunity Engineering & Management Joint Venture (KTJV), a DBE Prime made a 73.31% DBE commitment for this contract. The overall DBE participation for this contract based on the cumulative value of all Contract Work Orders issued.

To date, forty (40) Contract Work Orders and their Modifications have been awarded. Based on payments reported, the contract is 55% complete and the cumulative DBE participation of all Work Orders awarded is 66.83%, representing a 6.48% shortfall.

KTJV contends, as concurred by Metro's Project Manager, that scope of work earmarked for non-DBE firms has grown significantly compared to the original cost proposal. However, KTJV does anticipate a growth in core Program and Project Control services, to be performed by DBE firms, that will increase KTJV's level of DBE participation.

KTJV acknowledges the lack of utilization of DBE firms on the team and offered the following update to address the under-utilization. The Omni Group/OGX recently completed work on the WIN LA process mapping project in March but has yet to bill KTJV. Additionally, while Metro has not yet identified a need and/or scope of work for MBI, KTJV will engage the firm once such a request is made.

Notwithstanding, Metro Project Managers and Contract Administrators will work in conjunction with DEOD to ensure that KTJV remains on schedule to meet or exceed its DBE commitments. Metro staff will request that KTJV submit an updated mitigation plan if KTJV is not on track to meet its small business commitment. Additionally, key stakeholders associated with the contract have been provided access to Metro's tracking and monitoring system to ensure that all parties are actively tracking Small Business progress.

SMALL BUSINESS COMMITMENT		73.31% DBE	SMALL BUSINESS PARTICIPATION	66.83% DBE
	DBE Contractors	Scope of Work	Ethnicity	Current Participation
1.	KKCS (JV Partner / DBE Prime)	Program Management, Project Control	Subcontinent Asian	26.59%

2.	Triunity (JV Partner / DBE Prime)	Program Management	African American	14.40%
3.	Armand Resource Group, Inc.	Contract Compliance	African American	6.73%
4.	Lenax Construction Services, Inc.	Cost Estimating & Project Controls Support Services	Caucasian Female	7.31%
5.	LKG-CMC, Inc.	Doc. Control, Configuration Mgmt. Admin.	Caucasian Female	2.02%
6.	MBI Media	Public Outreach and Meeting Facilitation	Caucasian Female	TBD
7.	The Omni Group, LLC	Project Program Management Support Services	African American	TBD
8.	Ramos Consulting Services	Project Controls & Estimating	Hispanic American	2.38%
9.	Stellar Services, Inc.	Program Management Information Systems	Asian Pacific American	1.08%
10.	Arkadia & Associates	Project Management Support Services	Caucasian Female	0.70%
11.	Destination Enterprises	Program Management Support Services	Caucasian Female	5.62%
Total DBE Participation				66.83%

B. Living Wage and Service Contract Worker Retention Policy Applicability

A review of the current service contract indicates that the Living Wage and Service Contract Worker Retention Policy (LW/SCWRP) was not applicable at the time of award. Therefore, the LW/SCWRP is not applicable to this modification.

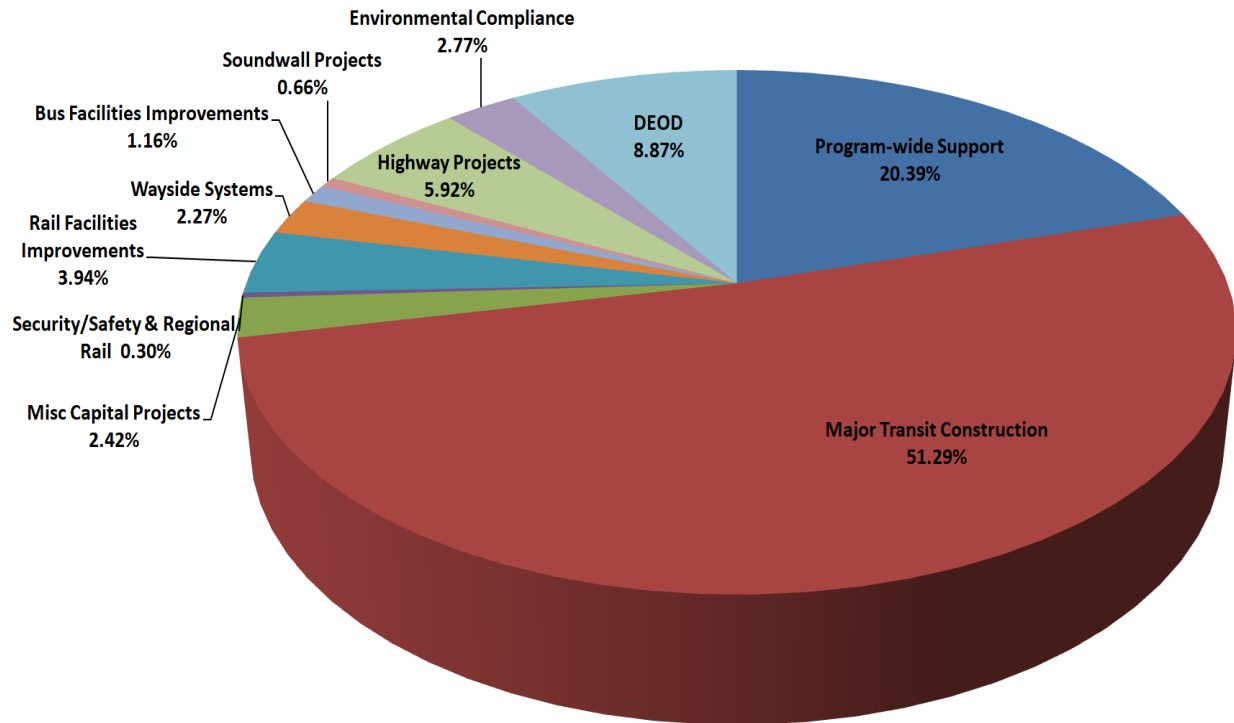
C. Prevailing Wage Applicability

Prevailing wage is not applicable to this modification.

D. Project Labor Agreement/Construction Careers Policy

Project Labor Agreement/Construction Careers Policy is not applicable to this Contract. Project Labor Agreement/Construction Careers Policy is applicable only to construction contracts that have a construction contract value in excess of \$2.5 million.

CURRENT SUPPORT PROVIDED BY PROJECT CATEGORY



CURRENT AND ANTICIPATED LIST OF PROJECTS

Program-wide Support

Measure M Program Support*
 Measure R Program Support*
 Policy/Procedure Streamlining*
 Project Management Information System*
 Implementation of Construction Management Best Practices*
 Estimating Database Development*
 Construction Risk Management*
 Public Private Partnerships*

Major Transit Construction

Crenshaw/LAX Light Rail Transit Construction*
 Regional Connector Construction*
 Westside Purple Line Extension Section 1 Project*
 Westside Purple Line Extension Section 2 Project*
 Westside Purple Line Extension Section 3 Project*
 Gold Line Foothill Extension Phase 2B Project
 Orange Line Bus Rapid Transit Improvements*
 West Santa Ana Branch Transit Project*
 East San Fernando Valley Transit Project*
 Sepulveda Transit Corridor*

Misc. Capital Projects

Division 20 Portal Widening Turnback Facility*
 Division 22 Paint and Body Shop
 Rail to Rail Corridor Active Transportation Connector
 Metro Eastside Access Improvement Projects*
 Airport Metro Connector*
 Green line Extension to Torrance*
 Rail to River*
 Centinela Grade Crossing*

Security/Safety

Metro Gold Line I-210 Barrier Replacement Phase I
 Metro Emergency Security Operations Center*
 Metro ROC/BOC*

Rail Facilities Improvement

Southwestern Maintenance Yard*
 Systemwide Elevator Installation (Vertical Systems)
 Light Rail Transit Freeway Stations Sound Enclosures
 Metro Red Line Civic Center Station
 Escalator/Elevator
 Modernization
 Willowbrook/Rosa Parks Station Improvement*
 Rail to River Planning*

Wayside Systems

Metro Blue Line Pedestrian Safety Enhancement at Grade Crossing
 Metro Blue Line Track and System Refurbishment*
 Metro Blue Line Signal System Rehabilitation*

Bus Facilities Improvements

Bus Rapid Transit Freeway Station Sound Enclosure
 Metro Silver Line Improvements and Upgrades
 Division 1 Improvements*
 Bus Facility Maintenance Improvement
 Enhancements Phase II & III
 Patsaouras Plaza Bus Station Construction*
 Rail Facility Improvement*
 Cesar Chavez Transit Pavillion*

Regional Rail

LINK US Project*
 Doran Street and Broadway/Brazil Safety and Access Project
 Brighton to Roxford Double Track Project
 Rosecrans/Marquardt Grade Separation Project*
 Lone Hill to White Double Track

Soundwall Projects

Soundwall Package 10
 Soundwall Package 11*

Highway

I-5 South – HOV project SR 14 to Parker Road*
 I-405 HOV Widening*
 Other Highway projects, as required

Environmental Compliance Program

Fuel Storage Tank Program*
 Soil Remediation*
 Energy Conservative Initiative Project*
 Sustainability Environmental Compliance*
 Carbon Emission Greenhouse*
 Sustainability Design Guide*

Diversity & Economic Opportunity in Construction

DBE Commercially Useful Function*
 Workforce Initiative Now (WIN LA)*

*Project is currently utilizing the PMSS Contract



Board Report

File #: 2020-0286, File Type: Informational Report

Agenda Number: 26.

CONSTRUCTION COMMITTEE MAY 21, 2020

SUBJECT: SUPPLEMENTAL ENGINEERING SERVICES (SES) CONSULTANT SERVICE CONTRACT

ACTION: CONTRACT MODIFICATION

RECOMMENDATION

AUTHORIZE the Chief Executive Officer to:

- A. EXERCISE a one-year extension option for Task Order Contract No. AE36687 with Mott MacDonald Group for Supplemental Engineering Services for Engineering Design of Rail and Highway Transportation Projects, extending the period of performance from June 22, 2020 through June 22, 2021.
- B. INCREASE the total contract value for Contract No. AE36687 with Mott MacDonald Group for Supplemental Engineering Services for Engineering Design for Rail and Highway Transportation Projects not-to-exceed \$2,500,000 increasing the total contract value from \$15,000,000 to \$17,500,000. Work will only be authorized by specific task orders, funded by specific project budgets.
- C. NEGOTIATE and EXECUTE Task Orders and modifications within the Board approved contract amount.

ISSUE

On June 15, 2017, the board approved a three-year contract for Supplemental Engineering Services with Mott MacDonald Group for Engineering and Design of Rail and Highway Transportation Projects with an option for two one-year extensions and \$5,000,000 increase in the budget. The current requested board action is for approval to exercise a one-year option for extension and \$2,500,000 increase in the budget authority of the Contract, to \$17,500,000 total. The approval of this one-year option will provide the time and budget to continue the Engineering and Design services that are currently underway.

BACKGROUND

The Mott MacDonald Group has been providing engineering and design support services on several projects through various task orders. One of these task orders includes preliminary engineering services for the Metro Orange Line BRT Improvements consisting of Grade Separation at Sepulveda and Van Nuys Stations and the Orange Line Gating for at-grade crossings. The preliminary engineering design of the Metro Orange Line BRT Improvements is not yet complete and will require additional time and budget.

This is a Task Order contract. Funding for the tasks to be performed in this contract comes from already approved project budgets.

DISCUSSION

Metro Engineering has developed this SES Contract to supplement Metro's engineering efforts. The SES consultant team has the capability of supporting its engineering group's technical disciplines.

Examples of Task Orders issued under this contract to date are:

- Preliminary engineering services for Metro Orange Line BRT Improvements
- MBL Special Trackwork Design
- MBL Fare Gates Addition Project
- MGL Track 2 Near Harbor Freeway Station Survey
- Expo/Crenshaw West Side Portal Conceptual Design
- Metro Expo II MSE Walls 726 and 727 Survey Monitoring Program
- MOL Colfax Recycled Water Project
- Conceptual Design/Planning in Support of the Metrolink SB/Gold Line Task Force
- MGL ROW and Easement Survey for Immediate Remedial Measures

The technical proficiencies required for this SES contract (PS8510-3002) are very comprehensive and include all engineering and specialties disciplines which Metro may require in support of its projects. These include the following:

General Services include:

1. Preliminary and Final Design of Transportation including Rail and Highway Projects.
2. Design Review Support & Coordination for CIP projects & other special projects.
3. Production of Project Status, Technical and Engineering Reports.
4. Design of Structures, Stations and Guideways.

5. Facilities/Systems Interface Coordination.
6. Surveying Services.
7. Cost Estimating.
8. Intra/Inter Disciplinary Coordination.
9. Scheduling and Cost Management for Task Orders.
10. Post Design Services including; Bid and Design Support during Construction.
11. Administrative Tasks associated with General Engineering Support Services.

Specific Rail Facilities and Third-Party Utility Design Services include:

12. Engineering Services for Review and Approval of Metro Projects.
13. Development of Technical Specifications, Drawings and Reference Documents.
14. Engineering Services for support of Metro Rail Operations and Maintenance.
15. Land Surveying and Legal Description.
16. Potholing.
17. Geotechnical Services, Borings and Reports.
18. Civil & Utility Engineering
19. Drainage Design and Hydraulic Calculations.
20. Structural Engineering.
21. Bridges and Aerial Structure Design.
22. Tunnels, Trenches and Underground Station Design.
23. Track Work Engineering, Plan and Profile.
24. CPUC Grade Crossing Application including attendance to field diagnostic meetings.
25. Yard and Shop Rail Maintenance Facility Design.
26. Architectural Design.
27. Station Site Development.
28. Urban Design Integration.
29. Landscape Architecture.
30. Traffic Control Plans including Striping Drawings and Signal Drawings.
31. CADD and MicroStation Drawings.
32. BIM Services and Training.
33. Project Presentation including Three-Dimensional Rendering.
34. Corrosion Control Measures and Cathodic Protection.
35. Noise and Vibration Analysis including Site Visits, Measurement and Mitigation.
36. Any other engineering or technical discipline not listed above that is ancillary to the Statement of Work and consistent with the general requirements of an approved Task Order.
37. HVAC design including HVAC and emergency ventilation.
38. Electrical Design.
39. Plumbing Design.
40. Fire Protection Design.
41. Value Engineering and Cost Reduction.

DETERMINATION OF SAFETY IMPACT

This Board Action will not have an impact on established safety standards for Metro's Construction Projects.

FINANCIAL IMPACT

The funding for these services is included in the approved FY20 budget in various Capital Projects. Task Orders will be issued and funded from the associated future fiscal year and Life-of-Project (LOP) budgets. The funding source differs depending on the individual project. These activities will remain within the approved LOP for each project. The specialized design for the MOL Grade Separation requires additional Task Orders which would exceed the current Not to Exceed Amount.

Since this is a multi-year contract, the cost center manager and Chief Officer, Program Management, will be accountable for the budgeting the cost of the annual work program.

IMPACT TO BUDGET

The funding for the task orders is provided by the specific project requiring the services. The source for these funds is in line with the respective projects' funding plans and fund sources may consist of federal and/or state grants as well as local funds. Many of the state of good repair projects are funded with local funding sources that are eligible for rail and bus operations.

IMPLEMENTATION OF STRATEGIC PLAN GOALS

This will promote Metro's strategic goal of expanding the transportation network and increasing mobility for all users.

ALTERNATIVES CONSIDERED

The Board may elect to not exercise this option with Mott MacDonald for the Supplemental Engineering Services. Staff does not recommend this alternative as the design they are assigned are in various degrees of design development, construction or the cost and schedule for each of these projects would be significantly impacted. Specifically, Mott MacDonald is performing preliminary engineering services for the Metro Orange Line BRT which requires extensive amount of coordination between Sepulveda Transit Corridor and East San Fernando Valley Transit Corridor (ESVFTC) projects as both projects have a station at the Metro Orange Line. The interface between ESVFTC terminus station with the proposed aerial station for Metro Orange Line improvements at Van Nuys is particularly important and requires extensive coordination between the two design teams to create a seamless circulation and transfer for the patrons using the station. Mott MacDonald has been performing this task, but the preliminary engineering design of the Metro Orange Line BRT Improvements is not yet complete and will require additional time and budget. Not exercising this option will adversely affect these three important projects. In addition, the cost of procuring another consultant in a timely manner would create potential delay to existing contracts where they are currently supporting Metro Engineering staff to design these projects.

Another alternative would be to hire Metro staff to perform the required services. This alternative is

also not recommended as it would be difficult to obtain qualified staff in a timely manner, and the services are only required on a periodic basis for peak workloads or specific tasks over the life of the project.

NEXT STEPS

Upon Board approval, staff will issue a Contract Modification to exercise a one-year option, and issue Contract Task Orders, as needed.

ATTACHMENTS

Attachment A: Procurement Summary
Attachment B: Contract Task Order/Modification Log
Attachment C: DEOD Summary

Prepared by:

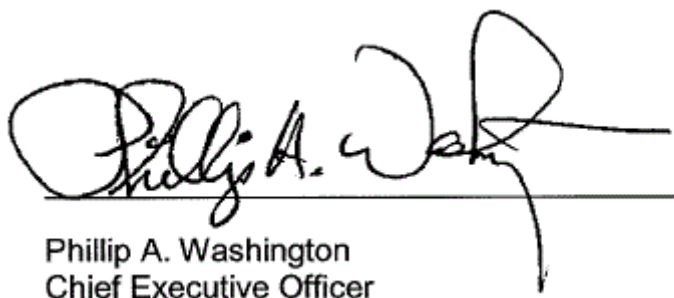
Androush Danielians, Executive Officer, Engineering (213) 922-7598

Aspet Davidian, Deputy Executive Officer, Engineering (213) 922-5258

Reviewed by:

Debra Avila, Chief Vendor/Contract Management Officer (213) 418-3051

Richard F. Clarke, Chief Program Management Officer (213) 922-7557



Phillip A. Washington
Chief Executive Officer

PROCUREMENT SUMMARY

SUPPLEMENTAL ENGINEERING SERVICES (SES)

1.	Contract Number: AE36687			
2.	Contractor: Mott MacDonald Group			
3.	Mod. Work Description: Funding for additional Contract Task Orders for MOL BRT Improvements			
4.	Contract Work Description: Supplemental Engineering Services(SES)			
5.	The following data is current as of: April 28, 2020			
6.	Contract Completion Status		Financial Status	
	Contract Awarded:	June 22, 2017	Original authorized funding limit:	\$ 15,000,000.00
	Contract Executed Date:	July 17, 2017	Total of Contract Work Orders and Modifications Approved:	\$ 12,734,877.70
	Original Completion Date:	June 22, 2020	Proposed and Pending Contract Work Orders and Modifications (including this action):	\$ 4,765,122.30
	Current Est. Completion Date:	June 22, 2022	Total authorized funding limit (with this action):	\$ 17,500,000.00
7.	Contract Administrator: Robert Romanowski		Telephone Number: (213) 922-2633	
8.	Project Manager: Aspet Davidian		Telephone Number: (213) 922-5258	

A. Procurement Background

On June 22, 2017, the Board approved award of Contract No. AE36687 Mott MacDonald Group for three years with funding approval through FY2020 in the amount of \$15,000,000, for the Scope of Work included in the Supplemental Engineering Services (SES) Contract.

Attachment B shows that Twenty-Two Contract Task Orders and their Modifications have been issued to date to authorize and/or delete work, totaling \$12,734,877.70.

This Board Action is to approve an increase to the total authorized funding for Contract No. AE36687 in support of additional Supplemental Engineering Services (SES) needs.

B. Cost/Price Analysis

All direct labor rates as modified by the annual economic price adjustment and the negotiated fixed fee factor for this cost reimbursable plus fixed fee contract remain unchanged from the original contract.

A fair and reasonable price for all future Contract Work Orders will be determined based upon fact finding, scope definition, technical evaluation, cost analysis, and negotiations before issuing work to the Consultant. Contract Work Orders will be processed in accordance with Procurement Policies and Procedures, within the additional funding requested.

CONTRACT TASK ORDER / MODIFICATION LOG

Task Order Number	Task Order Title	Task Order Award Amt	Approved Mods	Proposed and Pending Task Orders / Mods	Revised Task Order Award Amt	Completion Date	Status
AE36687-001	MOL Improvements Project - Preliminary Engineering Services	\$5,000,000.00	\$5,600,000.00	\$0.00	\$10,600,000.00	6/30/2021	Approved
AE36687-001-MOD-TBD	MOL Improvements Project - Design Development of Sepulveda and Van Nuys Stations Grade Separation and Gated Crossings			\$3,207,769.30	\$3,207,769.30	6/20/2022	<u>Pending</u>
AE36687-001A	MOL BRT Improvements - Engineering Support for Outreach Program	\$112,200.00	\$0.00	\$0.00	\$112,200.00	03/31/2018	Approved
AE36687-002	Supplemental Engineering Services - Geotechnical Engineering Support	\$240,000.00	(\$163,916.80)	\$0.00	\$76,083.20	02/28/2018	Approved
AE36687-003	Sepulveda Blvd Survey at Ovada PI	\$18,916.33	\$0.00	\$0.00	\$18,916.33	09/15/2017	Approved
AE36687-004	Cancelled	\$0.00	\$0.00	\$0.00	\$0.00		Cancelled
AE36687-005	MBL Special Trackwork Design including DSDC	\$382,261.43	\$491,910.00	\$0.00	\$874,171.43	7/31/2020	Approved
AE36687-006	Virginia TPSS Survey Services	\$10,297.88	\$0.00	\$0.00	\$10,297.88	12/31/2017	Approved
AE36687-007	Blue Line Fare Gates Addition Project Site Services	\$14,149.60	\$0.00	\$0.00	\$14,149.60	01/31/2018	Approved
AE36687-009	Lankershim Depot Park Topographic Survey Services	\$3,375.20	\$0.00	\$0.00	\$3,375.20	01/31/2018	Approved
AE36687-010	Lankershim Depot Park Landscape Architect - Design Review Services	\$7,265.22	\$14,594.57	\$0.00	\$21,859.79	01/31/2018	Approved
AE36687-011	Metro Blue Line Del Amo Station Survey	\$10,533.00	\$0.00	\$0.00	\$10,533.00	06/30/2018	Approved
AE36687-012	Legal Description Review for Vista Canyon/City of Santa Clarita Development Project	\$8,800.00	\$5,859.25	\$0.00	\$14,659.25	06/30/2018	Approved
AE36687-013	Metro Green Line Track 2 Near Harbor Freeway Station Survey	\$33,901.00	\$2,349.00	\$0.00	\$36,250.00	09/30/2019	Approved
AE36687-014	Expo/Crenshaw West Side Portal Conceptual Design	\$124,983.00	\$9,000.00	\$0.00	\$133,983.00	06/30/2019	Approved

CONTRACT TASK ORDER / MODIFICATION LOG

Task Order Number	Task Order Title	Task Order Award Amt	Approved Mods	Proposed and Pending Task Orders / Mods	Revised Task Order Award Amt	Completion Date	Status
AE36687-015	Metro Expo II Line MSE Walls 726 and 727 Survey Monitoring Program	\$55,759.00	\$0.00	\$0.00	\$55,759.00	03/31/2020	Approved
AE36687-016	Metro Expo II Line MSE Walls 726 and 727 - Top of Rails Survey	\$32,914.00	\$0.00	\$0.00	\$32,914.00	03/31/2020	Approved
AE36687-017	Metro Orange Line Colfax Recycled Water Project	\$76,738.00	\$46,438.00	\$79,413.00	\$202,589.00	6/30/2021	<u>Pending</u>
AE36687-018	Washington Satellite Yard Topographic Survey for the New Blue Project	\$18,033.00	\$7,389.02	\$0.00	\$25,422.02	03/31/2019	Approved
AE36687-019	Conceptual Design/Planning in Support of the Metrolink SB/Gold Line Task Force	\$443,999.00	\$0.00	\$0.00	\$443,999.00	9/30/2020	Approved
AE36687-020	Landscape Arch. Support for Metro Expo Line Bike Path Landscape Repairs/Turnover	\$24,739.00	\$0.00	\$0.00	\$24,739.00	09/30/2019	Approved
AE36687-021	Ridership Modeling and Risk Analysis	\$78,372.00	\$0.00	\$0.00	\$78,372.00	09/30/2019	Approved
AE36687-022	Metro Gold Line ROW and Easement Survey for Immediate Remedial Measures in the Vicinity of N Virginia Ave Grade Crossing Azusa	\$24,018.00	\$0.00	\$0.00	\$24,018.00	06/20/2020	Approved
AE36687-023	MOL Improvements Project - Pilot Gates Project			\$1,477,940.00	\$1,477,940.00	6/20/2021	<u>Pending</u>
Totals:		\$6,721,254.66	\$6,013,623.04	\$4,765,122.30	\$17,500,000.00		

DEOD SUMMARY

SUPPLEMENTAL ENGINEERING SERVICES (SES)

A. Small Business Participation

Mott MacDonald Group made a 17% Small Business Enterprise (SBE) and 3% Disabled Veteran Business Enterprise (DVBE) overall commitment for this on-call contract. The overall SBE/DVBE participation for the on-call contract is based on the cumulative value of all task orders issued.

To date, twenty-two (22) task orders have been awarded. Based on payments reported, the project is 50.7% complete. The cumulative SBE participation of all task orders awarded is 30.63%. Mott MacDonald Group is exceeding its SBE commitment by 13.63%. The cumulative DVBE participation of all task orders awarded is 2.35%, representing a .65% shortfall.

According to Mott MacDonald and concurred by Metro's Project Manager, the prime began assigning additional scope to the DVBE subconsultant in March of 2020. Mott MacDonald Group anticipates meeting its DVBE commitment, as design work progresses to 100 percent.

Notwithstanding, Metro Project Managers and Contract Administrators will work in conjunction with DEOD to ensure that Mott MacDonald Group remains on schedule to meet or exceed its SBE and DVBE commitments.

Small Business Commitment	17% SBE	Small Business Participation	30.63% SBE
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	SBE Subcontractors	Scope of Work	Current Participation
1.	Anil Verma	Mechanical, Electrical, and Plumbing Engineering and Architecture Services	1.79%
2.	Arellano Associates	Public Outreach, Communications, Stakeholder Engagement	TBD
3.	BA Inc.	Utility Design Engineering	5.92%
4.	Earth Mechanics	Geotechnical and Earthquake Engineering	.0.79%
5.	Engineering Solutions Services	Grant Writing, Structural Engineering	TBD
6.	Gibson Transportation	Transportation Engineering	TBD
7.	Lenax	Cost Estimating Services	2.20%

8.	McLean & Shultz	Architectural, Structural, and Civil Engineering Design Services	4.15%
9.	Morgner Construction Management	Construction Management Support Services, Pre-Construction Surveys	TBD
10.	PacRim Engineering	Structural Design Support	.55%
11.	Rail Surveyors Engineers	Rail Transit Engineering and Surveying	6.09%
12.	Terry Hayes and Associates	Environmental Services	TBD
13.	The Alliance Group	Utility Engineering Design, Coordination, Management, Third Party Coordination	1.47%
14.	The Solis Group	Project Controls: Scheduling and Document Control	0.46%
15.	Wagner Engineering	Land Surveying, Mapping, and Right of Way Engineering	7.01%
16.	Translink (Added)		0.20%
Total SBE Participation			30.63%

¹Current Participation = Total Actual amount Paid-to-Date to SBE firms ÷ Total Actual Amount Paid-to-date to Prime.

Small Business Commitment	3% DVBE	Small Business Participation	2.35% DVBE
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	DVBE Subcontractors	Scope of Work	Current Participation
1.	MA Engineering	Civil Engineering Services	1.96%
2.	Leland Saylor (Added)		0.39%
Total DVBE Participation			2.35%

¹Current Participation = Total Actual amount Paid-to-Date to DVBE firms ÷ Total Actual Amount Paid-to-date to Prime.

B. Living Wage and Service Contract Worker Retention Policy Applicability

A review of the current service contract indicates that the Living Wage and Service Contract Worker Retention Policy (LW/SCWRP) was not applicable at the time of award. Therefore, the LW/SCWRP is not applicable to this modification.

C. Prevailing Wage Applicability

Prevailing Wage requirements are applicable to this project. DEOD will continue to monitor contractors' compliance with the State of California Department of Industrial Relations (DIR), California Labor Code, and, if federally funded, the U S Department of Labor (DOL) Davis Bacon and Related Acts (DBRA). Trades that may be covered

include: surveying, potholing, field, soils and materials testing, building construction inspection, construction management and other support trades.

D. Project Labor Agreement/Construction Careers Policy

Project Labor Agreement/Construction Careers Policy is not applicable to this Contract. Project Labor Agreement/Construction Careers Policy is applicable only to construction contracts that have a construction contract value in excess of \$2.5 million.



Board Report

File #: 2020-0320, **File Type:** Informational Report

Agenda Number: 27.

CONSTRUCTION COMMITTEE MAY 21, 2020

SUBJECT: CRENSHAW/LAX CLOSE OUT PROJECT

ACTION: APPROVE RECOMMENDATION

RECOMMENDATION

CONSIDER adopting the Life-of-Project (LOP) budget of \$30,000,000 for a new Crenshaw/LAX Close Out Project.

ISSUE

The Crenshaw/LAX project is 95% complete. As the project reaches completion, Metro requires a close out project to provide funding for work anticipated to commence after substantial completion of the Crenshaw Project has been achieved. The funding is separate from the Crenshaw/LAX Construction Project which allows Metro flexibility to close out the Construction Project and related administrative elements in a timely manner. The scope of the new Project will include additional work required that due to timing constraints, is not recommended to be issued to the prime, Crenshaw/LAX Project design-builder. A new "catch-all contract" will be issued for bid to handle the remaining miscellaneous items that are required to be constructed separate from the design-build contract and may potentially be used for other projects as well.

BACKGROUND

The Crenshaw/LAX Transit Project is a north/south light rail line that serves the cities of Los Angeles, Inglewood, Hawthorne and El Segundo as well as portions of unincorporated Los Angeles County. The alignment extends 8.5 miles, from the intersection of Crenshaw and Exposition Boulevards to a connection with the Metro Green Line south of the Aviation/LAX Station. The project provides major connections with the Los Angeles International Airport (LAX) as well as links to the C Line (Green), the E Line (Expo) and countywide bus network.

The alignment is comprised of a double-tracked rail line consisting of sections of at-grade in-street, at-grade within railroad right-of-way, aerial, and below-grade guideway sections, eight stations, park and ride facilities at two locations, utilities, landscaping, roadway improvements required by the project and a maintenance & storage facility (Division 16 - Southwestern Yard).

DISCUSSION

The funding of the new Project will maximize the ability for Metro to mitigate the delay of the Crenshaw/LAX Construction Project substantial completion date by completing some non-revenue service required items before and after substantial completion.

The scope of the new Project will include additional work required that due to timing constraints, is not recommended to be issued to the Crenshaw/LAX Project design-builder. Therefore, a new “catch-all contract” will be issued for bid and notice to proceed issued to handle the remaining miscellaneous items that are required to be constructed but as a schedule mitigation, can be completed after substantial completion. This contract could potentially also be used for other projects subject to Board approval.

Funding is also included for legal services required to defend against any claims submitted by the design-builder.

The close out of the professional services contracts will be included as part of this Project. Current Metro and consultant staff will be allocated to perform under this Project and no new staff are being requested.

The funding in Recommendation A is requested to provide support to achieve Substantial Completion in December 2020 and to allow revenue service to commence in 2021.

DETERMINATION OF SAFETY IMPACT

This Board action will not have an impact on established safety standards for Metro’s construction projects.

FINANCIAL IMPACT

Activities for this project will commence in fiscal year 2021. Funds will be requested through the annual budget development process.

Since this is a multi-year capital project, the Chief Program Management Officer and the Project Manager will be responsible for budgeting costs in future fiscal years.

Impact to Budget

Eligible local funds (i.e., non-State, non-federal) available at the time of expenditure will be utilized to fund this project. These may include operating eligible funding sources. Eligible federal funds will be utilized and supplant operating eligible local funds.

Multiyear Impact

The sources of funds for the Project are capital funds identified in the recommended Funding/Expenditure Plan as shown in Attachment A. In accordance with the Measure R and Measure M Unified Cost Management Policy, staff has evaluated the required steps to address the

cost of the project that are identified in the policy, and due to the need to provide timely funding, recommend the use of countywide local funds that are not restricted to the project corridor or affected subregions.

IMPLEMENTATION OF STRATEGIC PLAN GOALS

Recommendation supports Strategic Plan Goal #1 - Provide high-quality mobility options that enable people to spend less time traveling.

ALTERNATIVES CONSIDERED

The Board may choose to not move forward with adopting the LOP Budget. This is not recommended as Metro will not have flexibility to complete required scope of work within the best timely and cost-effective opportunities.

NEXT STEPS

Upon approval by the Board, the LOP Budget will be adopted per the Recommendation.

ATTACHMENTS

Attachment A - Funding/Expenditure Plan

Attachment B - Projected Breakdown of Cost Allocation

Prepared by:

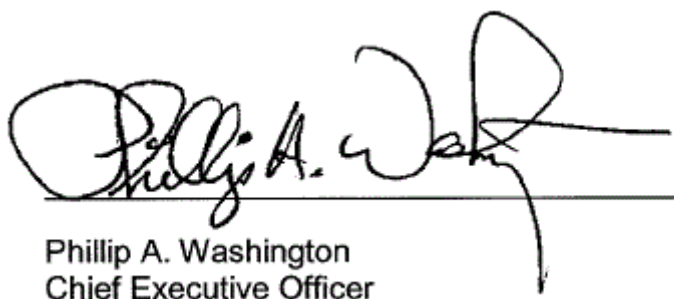
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Reviewed by:

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Phillip A. Washington
Chief Executive Officer

ATTACHMENT A

C/LAX Close Out Activities Project
Funding / Expenditure Plan*
(Dollars in Millions)

Capital Project N21CCO	FY20**	FY21	FY22	FY23	TOTAL	% Of Total
Uses of Funds						
Construction	-	1.0	11.0	3.0	15.0	50.0%
Prof Services	-	2.2	4.6	3.1	9.9	33.0%
Project Contingency	-	-	4.4	0.7	5.1	17.0%
Subtotal	-	3.2	20.0	6.8	30.0	100.0%
Total Project Costs:	-	3.2	20.0	6.8	30.0	100%
Sources of Funds						
Local/Federal Sources	-	3.2	20.0	6.8	30.0	100%
TOTAL:	-	3.2	20.0	6.8	30.0	100%

*Sources of funds are subject to change. Assumes Contractor Substantial Completion December 2020 and Metro Revenue Service June 2021.

**FY20 is projected.

ATTACHMENT B

C/LAX Close Out Activities Project
Projected Breakdown of Cost Allocation for \$30 million

Amount	Descriptions
\$15,000,000	"Catch-All" Contract (includes estimated \$5m Park Mesa work)
\$7,200,000	Legal Services
\$2,700,000	Professional Services: Metro project support staff Contract Compliance Community Outreach Miscellaneous support
\$5,100,000	Unallocated Contingency
\$30,000,000	Total Increase



Board Report

File #: 2020-0319, **File Type:** Informational Report

Agenda Number: 38.

CONSTRUCTION COMMITTEE MAY 21, 2020

SUBJECT: CRENSHAW/LAX TRANSIT PROJECT

ACTION: APPROVE RECOMMENDATION

RECOMMENDATION

CONSIDER amending the Life-of-Project (LOP) budget by \$90,000,000 for the Crenshaw/LAX Transit Project (Project) of \$2,058,000,000 to \$2,148,000,000, consistent with the provisions of the Board-adopted Measure R and Measure M Unified Cost Management Policy (Attachment B).

ISSUE

The Substantial Completion date for the Project is currently forecast to be delayed to December 2020 and the revenue service in 2021. As a result, the Project LOP budget needs to be increased, requiring an additional \$90,000,000 million beginning in the second half of 2020 for Metro staff and professional service contracts to continue management and oversight of the Project. No additional funding from this LOP increase is designated for the contractor. This represents the first LOP adjustment since the beginning of construction on the Project in 2013.

BACKGROUND

The Crenshaw/LAX Transit Project is a north/south light rail line that serves the cities of Los Angeles, Inglewood, Hawthorne and El Segundo as well as portions of unincorporated Los Angeles County. The alignment extends 8.5 miles, from the Metro E (Expo) line at Crenshaw and Exposition Boulevards to a connection with the Metro Green Line south of the Aviation/LAX Station. The project provides major connections with the Los Angeles International Airport (LAX) as well as links to the C Line (Green), the E Line (Expo) and countywide bus network.

The alignment is comprised of a double-tracked rail line consisting of sections of at-grade in-street, at-grade within railroad right-of-way, aerial, and below-grade guideway sections, eight stations, park and ride facilities at two locations, utilities, landscaping, roadway improvements required by the project and a maintenance & storage facility (Division 16 - Southwestern Yard).

On June 27, 2013, the Board authorized an LOP budget of \$1,923,000,000 for the base Project. In addition, the Board authorized an increase to the LOP budget in the amount of \$135,000,000 from \$1,923,000,000 to \$2,058,000,000, for the award of options for Leimert Park Station and Hindry Station (now called Westchester/Veterans Station). The LOP budget has not been

adjusted since that time.

Metro awarded a 57-month Design/Build contract to Walsh/Shea Corridor Constructors (WSCC) for construction of the Project in August 2013 and issued a Notice to Proceed to WSCC in September 2013. WSCC's Substantial Completion date was September 2018 with a revenue service date of October 2019.

DISCUSSION

In March 2017, Metro executed a Claims and Disputes Settlement Agreement with WSCC to resolve outstanding claims and disputes up to that point in the Project. WSCC's Contract Milestones were confirmed as part of the Agreement. WSCC committed to a Substantial Completion date of May 2019 as part of an approved Completion Schedule, which still enabled the October 2019 revenue service date.

WSCC's progress in 2018 fell behind the Completion Schedule dates agreed upon in the Claims and Disputes Settlement Agreement. Metro was informed by WSCC that, due to delays, it would not be able to complete its work by the projected deadline in the Completion Schedule. Since WSCC was not able to demonstrate that its forecasted delay was an Excusable Delay or a Compensable Delay under the Contract Terms and Conditions, Metro executed a Non-Compensable Time Extension. A Unilateral Change Order (CO-223.1) was executed in September 2018 resetting the Project Substantial Completion to December 11, 2019.

In 2019, the project continued to fall behind the dates reset in the Non-Compensable Time Extension. There have been several areas of work along the alignment that could not be completed due to damaged, incomplete and missing components (rework). This rework plus other performance and resource issues caused the contractor's progress to be less than planned, impacting WSCC's follow-on subcontractors work and creating inefficient performance. Metro has been assessing liquidated damages.

Due to extending the Project's Substantial Completion date, additional funding is now required. The existing LOP budget includes funding obligations for the contractor's work, but the LOP budget needs to be amended to provide additional funding for professional services that are required to support the completion of the Project. The required support includes Metro staff and professional services consultants who provide various services to assist in the management and oversight of the Project. The funding in Recommendation A is requested to provide support to achieve Substantial Completion in December 2020 and to allow revenue service to commence in 2021. A detailed breakdown of the proposed uses for the additional \$90 million LOP is contained in Attachment C.

DETERMINATION OF SAFETY IMPACT

This Board action will not have an impact on established safety standards for Metro's construction projects.

FINANCIAL IMPACT

Funds required through fiscal year 2020, in the amount of \$127,950,000, are included in Project 865512 Crenshaw/LAX Transit Project, in Cost Center 8510 (Construction Project Management).

Since this is a multi-year capital project, the Chief Program Management Officer and the Project Manager will be responsible for budgeting costs in future fiscal years.

Impact to Budget

The sources of funds for the recommended actions are local funds available and eligible at the time of expenditure, including operating eligible funding sources. Eligible federal funds will also be utilized to fund the increase.

Multiyear Impact

The sources of funds for the Project are capital funds identified in the recommended Funding/Expenditure Plan as shown in Attachment A. The project cost, prior to the proposed cost increase, is included and funded in the 2019 Long Range Transportation Plan Financial Forecast. With respect to the \$90,000,000 increase, Attachment B shows the Measure R and Measure M Unified Cost Management Policy (the Policy) analysis and funding strategy required for cost increases to Measure R Projects.

To comply with the Policy of the Metro Board of Directors, Metro staff has evaluated potential offsetting cost reductions, including value engineering, shorter segment, and reductions to other Metro projects in the corridor and subregion, and has determined these are not feasible, and that additional local funding resources (i.e., funding specific to the affected corridor or subregion), which are to be considered prior to Metro's countywide funding, are potentially available. The Policy analysis identifies a Measure M multi-year subregional program, Measure R highway program, and federal formula CMAQ funding as available funding sources in the Long Range Transportation Plan Financial Forecast that can address the \$90,000,000 cost increase. Metro staff has discussed the potential funding sources with representatives of each subregion and recommends the use of \$46.7 million from the subregional equity program (with the subregion's share based on a proportion to be agreed upon by the subregions), \$33.1 million of CMAQ, and the remaining \$10.2 million of other regional funds to cover the LAX portion of the project as it is a regional facility within LA County. The use of the subregional equity program will be subject to approval by the governing body of each subregion. Metro has allocated funding for the SEP starting in FY 2043 in the Long Range Transportation Plan Financial Forecast and has not developed yet an administrative process to program SEP funds to the subregions. Staff plans to discuss this further in the June/July Board cycle.

Attachment B provides a detailed discussion of the Policy. In summary, the Policy was developed in recognition that some projects would need additional funding and the Policy provides a consistent and equitable process to assure that any financial impacts are limited to the subregion where the project is located and not have a region-wide impact.

The Policy defines a cascading list of actions that can be taken. Because the Project is so far along,

actions such as value engineering or changes in scope are no longer feasible. Additional funding is the only option.

The table at the end of Attachment B identifies the potential funding sources that are available and recommended funding. The selection and application of specific resources has involved the affected stakeholders but requires further discussion.

It is important to note that the Project spans two subregions - South Bay and Central City - and a method to determine each subregion's share of the funding for the cost increase will need to be identified. Metro staff will conduct outreach to the subregions for their consensus and approval.

The most recent project to be evaluated under the Policy was the Foothill Extension to Pomona in 2019. Although the two projects are not directly comparable (Foothill was not yet under construction, so had more opportunity for scope changes), there are similarities that could be instructive.

In that case, the financial deficit was addressed by the subregional equity program of the San Gabriel Valley. Funds were accelerated to be taken from the subregional equity pool in the year that funding became available (2043). A board motion directed this approach and was subject to approval by the San Gabriel Valley Council of Governments.

IMPLEMENTATION OF STRATEGIC PLAN GOALS

Recommendation supports Strategic Plan Goal #1 - Provide high-quality mobility options that enable people to spend less time traveling.

ALTERNATIVES CONSIDERED

The Board may choose to not move forward with amending the LOP Budget. This is not recommended as Metro will be unable to provide funding for Metro staff or obligate any extension to existing professional service contracts, or other required services beyond June 2020.

NEXT STEPS

Upon approval by the Board, the LOP Budget will be amended accordingly per the Recommendation.

Metro staff will continue discussions with each subregion and identify the proportional shares that each subregion will contribute to the LOP increase, and work with the governing bodies of the subregions to obtain their approval for the use and amount of subregional equity program funds. Metro staff will make every effort to conclude these steps within three months and report back to the Board with an update at that time.

ATTACHMENTS

Attachment A - Funding/Expenditure Plan

Attachment B - Measure R and Measure M Unified Cost Management Policy Analysis

Attachment C - Projected Breakdown of Cost Allocation for \$90 million

Attachment D - SBCCOG letter to Metro CEO

Prepared by:

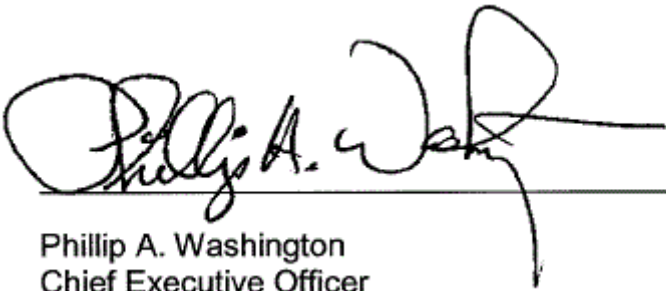
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Phillip A. Washington
Chief Executive Officer

ATTACHMENT A

Crenshaw/LAX Transit Project
Funding / Expenditure Plan*
(Dollars in Millions)

Capital Project 865512	Prior	FY20**	FY21	FY22	FY23	FY24	TOTAL
Uses of Funds							
Construction	1,267.1	15.1	73.8	10.0	-	-	1,366.0
Right-of-Way	132.4	1.4	-	-	-	-	133.8
Vehicles	78.8	4.7	-	-	-	-	83.6
Prof Services	364.3	46.3	78.0	30.0	20.0	-	538.6
Project Contingency	-	-	-	-	-	-	-
Subtotal	1,842.6	67.5	151.8	40.0	20.0	-	2,122.0
Environmental Planning	26.0						26.0
Total Project Costs:	1,868.6	67.5	151.8	40.0	20.0	-	2,148.0
Sources of Funds							
FEDERAL - CMAQ	54.0	50.0	-	-	-	-	104.0
FEDERAL - SECTION 5309 BUS CAPITAL	8.6	-	-	-	-	-	8.6
FEDERAL - REGIONAL STP	91.2	-	8.7	-	-	-	99.9
FEDERAL - ALTERNATIVE ANALYSIS	1.2	-	-	-	-	-	1.2
FEDERAL - TIGER II	13.9	-	-	-	-	-	13.9
STATE REGIONAL IMPROVEMENT PROG	36.6	-	-	-	-	-	36.6
STATE PPM	0.2	-	-	-	-	-	0.2
STATE PROP 1B PTMISEA	128.9	-	-	-	-	-	128.9
STATE PROP 1 B LOCAL PARTNERSHIP PROGRAM	49.5	-	-	-	-	-	49.5
MEASURE R - TIFIA LOAN	545.9	-	-	-	-	-	545.9
MEASURE R 35%	467.5	4.5	92.3	(20.0)	-	(15.0)	529.3
CITY CONTRIBUTION	43.6	3.1	20.0	20.0	-	15.0	101.7
GENERAL FUNDS	54.3	-	-	-	-	-	54.3
PROPOSITION C 25% HIGHWAY	368.4	9.9	(20.0)	20.8		-	379.1
PROPOSITION C 40% DISCRETIONARY	-	-	-	-	-	-	-
PROPOSITION A 35% RAIL CAPITAL	4.9	-	-	-	-	-	4.9
Local/Federal Sources		-	50.8	19.2	20.0	-	90.0
TOTAL:	1,868.7	67.5	151.8	40.0	20.0	-	2,148.0

*Sources of funds are subject to change. Assumes Contractor Substantial Completion December 2020 and Metro

**FY20 is projected.

Crenshaw/LAX Transit Project

Measure R and Measure M Unified Cost Management Policy Analysis

Introduction

The Measure R and Measure M Unified Cost Management Policy (the Policy) was adopted by the Metro Board of Directors in June 2018. The precursor Measure R cost management policy was adopted in March 2011. The intent of the Policy is to inform the Metro Board of Directors regarding cost increases to Measure R- and Measure M-funded projects and the strategies available to close a funding gap. The Crenshaw/LAX Transit Project (the Project) is subject to this policy analysis.

The life-of-project (LOP) budget for the Project was last approved by the Board in June 2013 at \$2,058,000,000. The Project is subject to the Policy analysis now due to a proposed \$90,000,000 increase to the LOP budget. Funding for the cost increase is needed through FY 2023. This analysis recommends trade-offs required by the Policy to identify the funds necessary to meet the cost increase.

The Project has previously recognized cost increases and the Metro Board implemented the Policy in June 2013 to address a \$160,100,000 cost increase to the base project (excluding a \$135,000,000 increase to the LOP for station improvements that were not considered cost increases). The Board approved funding of the cost increase using \$149,910,000 of the countywide share of Proposition C 25% and \$10,090,000 that was taken from the Wilshire Bus Rapid Transit project.

Measure R and Measure M Unified Cost Management Policy Summary

The adopted Policy stipulates the following

If a project cost increase occurs, the Metro Board of Directors must approve a plan of action to address the issue prior to taking any action necessary to permit the project to move to the next milestone. Increases will be measured against subsequent actions on cost estimates taken by the Metro Board of Directors, including the determination of the budget. Shortfalls will first be addressed at the project level prior to evaluation for any additional resources using these methods in this order as appropriate:

- 1) Scope reductions;
- 2) New local agency funding resources;
- 3) Value Engineering;
- 4) Other cost reductions within the same transit or highway corridor;
- 5) Other cost reductions within the same sub-region; and finally,
- 6) Countywide transit or highway cost reductions or other funds will be sought using pre-established priorities.

Scope Reductions

The Project cost increase is attributable to schedule delays and the need for additional Metro project management support services. Any attempt to identify and negotiate agreeable reductions to the scope may result in further delays and potential additional costs. Because of this, we recommend moving to the next step.

New Local Agency Funding Resources

Local funding resources (i.e., specific to the affected corridor or subregion) are considered in the next step as opposed to countywide or regional sources so as not to impact the funding of other Metro Board-approved projects and programs or subregions in the County.

The Project is eligible for both Measure M and Measure R funding and is currently allocated \$1,207,000,000 of funding that is identified in the Measure R sales tax ordinance Expenditure Plan, less \$131,800,000 that the Board reallocated to the Purple Line Extension project (Board item #2015-1630) to address a Regional Connector cost increase.

The Project is located in the South Bay and Central City Area subregions (as defined in the Policy, as amended), with station locations in the cities of Los Angeles and Inglewood. Local funding resources from both the subregions and cities could be considered for the cost increase.

Subregional Programs and Local Agency Contributions

Measure M includes funding for a transit-eligible multi-year subregional program (MSP) for the South Bay and Central City Area subregions. The subregion (represented by its Council of Governments) could allocate a portion of the funding for the Project. Measure R includes funding for a "highway program" in the South Bay. Any use of this funding source would require a transfer to the transit fund and an amendment of the Measure R ordinance so that the funds are eligible for a transit use. The Measure R transfer amendment is in progress and expected to be considered by the Metro Board in June 2020.

Local Agency Contributions

The cities with Project stations have agreed to contribute funding to the Project as part of the 3% local agency funding assumption included in the Measure R ordinance. Metro is front-funding the Los Angeles share of \$89.7 million with the city making payments to Metro through FY 2023. Inglewood has agreed to pay \$12 million, with \$6 million in-kind for future first-last-mile improvements, and \$6 million in payments made over 40 years (with no payments or interest accrued for ten years). The cities are generally not responsible for cost increases to the projects and this restriction is included in the local agency contribution agreements between Metro and the cities.

Measure M, as well as Measure R and Propositions A and C, provide “local return” funding to Los Angeles and Inglewood. The cities will receive an estimated \$3.3 billion of local return (Los Angeles \$3.2 billion, Inglewood \$90 million) over the ten year period FY 2021 to FY 2030 that is eligible for transit use and could contribute a portion to the Project (not adjusted for any negative impact to countywide sales tax due to the current global pandemic). However, prior Board actions relating to the Twenty-Eight by '28 Initiative and funding for the cost increase to Foothill Extension to Pomona did not support use of local return, and it is presumed these funds would not be available for the cost increase to the Project.

State and Federal Funding (Discretionary)

The State has previously granted the project \$129.1 million through Prop 1B grants and the USDOT has provided funding through a \$13.9 million TIGER grant and \$545.9 million TIFIA loan. Additional State or federal discretionary funding (where Metro would compete for the funding) is not probable, given the Project has experienced multiple cost increases and the design/build contract is already awarded.

Value Engineering

The Project cost increase is attributable to schedule delays and the need for additional Metro project management support services. Any attempt to identify and negotiate agreeable value engineering may result in further delays and potential additional costs. As a result, we recommend moving to the next step.

Other Cost Reductions within the Same Transit or Highway Corridor, or within the Same Sub-region

The cities and subregions have existing funding programs that have funding amounts yet to be spent. The potential use of the MSP, SEP, and Measure R highway program are discussed above in section "New Local Agency Funding Resources."

The cities also receive funding through the Call-For-Projects, the competitive grant program that is funded and managed by Metro for the benefit of LA County cities, transit operators, and State highway projects that was last held in 2015. At times the funding for certain projects in the Call-For-Projects is "de-obligated" if not spent within a reasonable timeframe and this can be a funding source for other uses. Currently there is not a meaningful amount of de-obligated funds available, and all other projects are moving through their respective development process.

The Project is within the same corridor as the Airport Metro Connector, the planned Project station intended to be a gateway to LAX. This project is currently in final design and pending a construction bid in mid-2020 to determine the LOP budget. Funding is not yet available from the project.

Countywide Cost Reductions and/or Other Funds

If new local agency resources are not allocated to the Project cost increase, regional or countywide funding could be considered. These funds are programmed for other uses in Metro's financial forecast, during the timeframe when funds are needed for the Project cost increase. A reallocation of the funds to the cost increase would divert the funding from other Board-approved uses and or require additional debt financing. Eligible sources of countywide funding include Proposition C 25% (Transit-Related Streets and Highways), Proposition C 40% (Discretionary), and Proposition A 35% (Rail Development).

Through FY 2023, the Proposition C 25% funds are currently planned, from highest to lowest, for debt service on Metro bonds, I-5 South Carpool and Mixed Flow Lanes I-605 to OCL, Freeway Service Patrol, Blue Line Track and System Refurbishment, and the Crenshaw/LAX Locally Funded Activities Project. The Proposition C 40% is planned for Metro bus operations, ADA-paratransit operations, debt service, Metro bus fleet replacement, and the municipal and non-Metro operators. The Proposition A 35% is planned for debt service on Metro bonds, Metro rail operations, Division 20, Heavy Rail Vehicles, and Light Rail Vehicles. The Project is currently allocated (prior to the proposed LOP increase) \$379.1 million in regional Proposition C 25% and \$4.9 million in regional Proposition A 35% funding.

State and Federal Funding (Formula)

Metro receives quasi-formula funding from the State through the Regional Improvement Program (RIP) and Local Partnership Program (LPP). This is considered regional funding as it can be applied countywide to both transit and highway spending. There is currently no capacity in the RIP or LPP through FY 2025. The RIP has been allocated to projects submitted in Metro's 2020 RTIP and the next cycle of the LPP is planned to be used on the \$801 million Division 20 project.

Due to the delay in revenue operation, approximately \$16.1 million from the State Low Carbon Transit Operations Program (LCTOP) and \$31.1 million from the federal Congestion Mitigation & Air Quality Program (CMAQ), which were allocated to operating costs of the Project in FY 2021, will no longer be needed for this purpose if the revenue service date is delayed. The LCTOP funds have already been earmarked for bus charging infrastructure, as these funds needed to be allocated to satisfy State requirements. The CMAQ funds in FY 2021 could be used for the cost increase and this would not take away funding from another Metro purpose (procedurally, in order to satisfy grant eligibility requirements, the CMAQ may reimburse previously incurred expenditures). The use of CMAQ is subject to the eligibility requirements related to the existing TIGER grant.

Recommendation

The following table summarizes the potential funding options for the Project cost increase. Based on discussions with each of the impacted subregions, Metro staff recommends the use of \$46.7 million from the subregional equity program, to be allocated among the subregions using a proportion to be agreed upon by the subregions, \$33.1 million of CMAQ funds that were initially earmarked for FY 2021 operating costs of the Project, and \$10.2 million from regional funds. Metro staff will work with the subregions to determine the proportional shares for each subregion, and seek formal approval from the governing body of each subregion for use of the subregional equity program.

Crenshaw/LAX
Potential Funding Sources/Cost Reductions
(\$ in millions)

Options	Potential Funding	Year Available
Multi-Year Subregional Programs	not eligible	
Subregional Equity Program-South Bay*	\$ 90.0	2021
Subregional Equity Program-Central City Area	160.0	2021
Measure R Highway Program**	500.0	2021
Local Return	-	2021
Value Capture Financings	-	2025
Scope Reductions/Value Engineering	-	
CMAQ	33.1	
Other Regional Funds***	10.2	
Total	\$ 793.3	

* Represents “discounted” value of amount that is currently programmed beginning in FY 2043.

** Requires amendment to Measure R ordinance.

***Source of funds to be determined.

ATTACHMENT C

Crenshaw/LAX Transit Project Projected Breakdown of Cost Allocation for \$90 million

Amount	Descriptions
\$4,000,000	ARCADIS INC - based on lessons learned project management has procured a claims support consultant to assist with preparing documentation and analysis in support of Metro's defense against claims submitted by the contractor.
\$5,000,000	City of Los Angeles/City of Inglewood-Leading to the completion of the project there still remains 3rd party coordination which will include administration support and street location support. Based on annual work plans.
\$60,000,000	Professional Services - Includes specific consultants and in-house Metro staff: <ul style="list-style-type: none"> o KKCS/TRIUNITY - Includes project management support services including estimating and project control support. o STANTEC - construction management support services procured to support Metro staff in oversight of specific areas of project construction disciplines such as field inspectors, resident engineers and other construction support. o Mott MacDonald - engineering management support services providing design review support and assessment of engineering issues during construction. There is complicated systems installation and testing during the last 5% of the project and this consultant provides oversight. o Metro staff at Gateway and at multiple field offices who perform oversight in various disciplines. o Legal Services - includes County Counsel and procured legal services to assist project management. o Contract Compliance - consultants that monitor the construction contractor compliance with project labor agreement and DBE requirements. o Community Outreach - consultants that provide assistance to support Metro initiatives along the Crenshaw Project alignment. o Miscellaneous support - there are several consultants companies who provide remaining environmental monitoring, systems testing guidance and miscellaneous support to project management.
\$3,900,000	Non-federal Real Estate Loss of Goodwill - goodwill in property acquisitions is not an allowable federal expense, but required under state law. Therefore, the project must use separate local funding for this component.
\$2,200,000	Non-federal funding must be applied for Metro costs to re-configure the Rail Operations Control (ROC) Center to accommodate the new Crenshaw communications system.
\$700,000	Non-federal Community Outreach - community events and programs that are not eligible for federal funding (Taste of Soul, Eat-Shop-Play). These programs have been very successful and should continue until the project is complete
\$14,200,000	Unallocated Contingency - not assigned to any particular line item but is required for anticipated but unknown cost increases.
\$90,000,000	Total Increase



SOUTH BAY CITIES
COUNCIL OF GOVERNMENTS

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April 28, 2020

Phillip A. Washington
Chief Executive Officer
Los Angeles County Metropolitan Transportation Authority
One Gateway Plaza
Los Angeles, CA 90012

Dear Mr. Washington:

The South Bay Cities Council of Governments (SBCCOG) Board of Directors reviewed your April 23, 2020 letter seeking use of Measure M South Bay Sub-Regional Equity Funds (local SEP funds) to partially pay for the \$90 million cost overrun on the Crenshaw/LAX line. As you are aware the SBCCOG has previously committed its entire \$130 million in our local SEP funds as a component of a Metro full-funding plan for delivery of the Centinela Grade Separation project on the Crenshaw/LAX line.

SBCCOG supports use of an appropriate proportionate share of the South Bay SEP funds for the Crenshaw/LAX line cost overrun with the following conditions:

1. Based on 37% of the Crenshaw Line being in the South Bay, the SBCCOG's proportionate share of the cost overrun will not exceed \$33.3 million (\$90 million x .37);
2. Since the balance of the Crenshaw/LAX line is in the City of Los Angeles, the South Bay SEP funding is contingent on Metro securing the \$56.7 million balance of the \$90 million overrun from the Central Area Subregion and Westside Subregion SEP funds or from City of Los Angeles local funding sources;
3. This contribution share constitutes a one-time contribution on the condition that no further requests for additional South Bay sub-regional funding for the Crenshaw/LAX line will be sought by Metro; and,
4. Consistent with your commitment to Metro Chair and Inglewood Mayor James Butts, the SEP contribution to the Crenshaw/LAX cost overrun is contingent on Metro staff recommending a full-funding strategy and implementation timeline for the regional Centinela Grade Separation project by June 2020 that includes a maximum of \$96.7 million in South Bay SEP funds (the remaining balance of the South Bay SEP funding).

LOCAL GOVERNMENTS IN ACTION

Carson El Segundo Gardena Hawthorne Hermosa Beach Inglewood Lawndale Lomita
Manhattan Beach Palos Verdes Estates Rancho Palos Verdes Redondo Beach Rolling Hills
Rolling Hills Estates Torrance Los Angeles District #15 Los Angeles County

The SBCCOG Board of Directors believes these contingencies are reasonable and appropriate to ensure that construction of the Crenshaw/LAX line is not delayed further and that the Centinela Grade Separation project will be delivered in a timely fashion.

With gratitude,

A handwritten signature in black ink, appearing to read 'Christian Horvath', with a long horizontal flourish extending to the right.

Christian Horvath, SBCCOG Chair
Redondo Beach City Councilman