



Metro

*One Gateway Plaza, Los Angeles, CA 90012,
3rd Floor, Metro Board Room*

Agenda - Final

Thursday, October 19, 2023

9:30 AM

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Construction Committee

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Paul Krekorian, Vice Chair

Janice Hahn

Tim Sandoval

Katy Yaroslavsky

Gloria Roberts, non-voting member

Stephanie Wiggins, Chief Executive Officer

METROPOLITAN TRANSPORTATION AUTHORITY BOARD AGENDA RULES
(ALSO APPLIES TO BOARD COMMITTEES)

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A member of the public may address the Board on agenda items, before or during the Board or Committee's consideration of the item for one (1) minute per item, or at the discretion of the Chair. A request to address the Board must be submitted electronically using the tablets available in the Board Room lobby. Individuals requesting to speak will be allowed to speak for a total of three (3) minutes per meeting on agenda items in one minute increments per item. For individuals requiring translation service, time allowed will be doubled. The Board shall reserve the right to limit redundant or repetitive comment.

The public may also address the Board on non-agenda items within the subject matter jurisdiction of the Board during the public comment period, which will be held at the beginning and/or end of each meeting. Each person will be allowed to speak for one (1) minute during this Public Comment period or at the discretion of the Chair. Speakers will be called according to the order in which their requests are submitted. Elected officials, not their staff or deputies, may be called out of order and prior to the Board's consideration of the relevant item.

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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- a. Disorderly behavior toward the Board or any member of the staff thereof, tending to interrupt the due and orderly course of said meeting.
- b. A breach of the peace, boisterous conduct or violent disturbance, tending to interrupt the due and orderly course of said meeting.
- c. Disobedience of any lawful order of the Chair, which shall include an order to be seated or to refrain from addressing the Board; and
- d. Any other unlawful interference with the due and orderly course of said meeting.

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

Live Public Comment Instructions:

Live public comment can be given by telephone or in-person.

The Committee Meeting begins at 9:30 AM Pacific Time on October 19, 2023; you may join the call 5 minutes prior to the start of the meeting.

Dial-in: 888-251-2949 and enter
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Public comment will be taken as the Board takes up each item. To give public comment on an item, enter #2 (pound-two) when prompted. Please note that the live video feed lags about 30 seconds behind the actual meeting. There is no lag on the public comment dial-in line.

Instrucciones para comentarios publicos en vivo:

Los comentarios publicos en vivo se pueden dar por telefono o en persona.

La Reunion de la Junta comienza a las 9:30 AM, hora del Pacifico, el 19 de Octubre de 2023. Puedes unirse a la llamada 5 minutos antes del comienzo de la junta.

Marque: 888-251-2949 y ingrese el codigo
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Los comentarios del público se tomaran cuando se toma cada tema. Para dar un comentario público sobre una tema ingrese # 2 (Tecla de numero y dos) cuando se le solicite. Tenga en cuenta que la transmisión de video en vivo se retrasa unos 30 segundos con respecto a la reunión real. No hay retraso en la línea de acceso telefónico para comentarios públicos.

Written Public Comment Instruction:

Written public comments must be received by 5PM the day before the meeting. Please include the Item # in your comment and your position of "FOR," "AGAINST," "GENERAL COMMENT," or "ITEM NEEDS MORE CONSIDERATION."
Email: BoardClerk@metro.net
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Board Administration
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Los Angeles, CA 90012

CALL TO ORDER**ROLL CALL**

APPROVE Consent Calendar Items: 19 and 20.

CONSENT CALENDAR**19. SUBJECT: LA RIVER PATH - AGREEMENTS**[2023-0492](#)**RECOMMENDATION**

CONSIDER authorizing the Chief Executive Officer (CEO) or her designee to:

- A. EXECUTE a Master Cooperative Agreement (MCA) with the City of Vernon for the LA River Path Project; and
- B. NEGOTIATE and execute as-needed agreements with other responsible stakeholder agencies, including the railroads.

Attachments: [Attachment A - Board Motion \(2021-0436\)](#)
 [Attachment B - City of Vernon Council meeting minutes on MCA](#)

20. SUBJECT: CEQA ADDENDUM FOR THE EAST SAN FERNANDO VALLEY LIGHT RAIL TRANSIT PROJECT[2023-0404](#)**RECOMMENDATION**

AUTHORIZE the Chief Executive Officer to approve the Addendum and adopt its Findings (Attachment A).

Attachments: [Attachment A - CEQA Addendum Presentation](#)

NON-CONSENT**21. SUBJECT: 2023 OIG CONSTRUCTION BEST PRACTICES REPORT [FOLLOW UP TO THE 2016 CAPITAL CONSTRUCTION PROJECT MANAGEMENT BEST PRACTICES STUDY]**[2023-0178](#)**RECOMMENDATION**

RECEIVE AND FILE Office of the Inspector General 2023 OIG Construction Best Practices Report (Follow Up to the 2016 OIG Construction Best Practices Report).

Attachments: [Attachment A - OIG Report: 2023 Follow Up Review](#)
 [Attachment B - Recommendations & Responses](#)
 [Presentation](#)

22. **SUBJECT: REVIEW OF METRO CONSTRUCTION PROJECTS** [2023-0474](#)
 QUANTITATIVE DATA

RECOMMENDATION

RECEIVE AND FILE Office of the Inspector General Review of Metro Construction Projects Quantitative Data.

Attachments: [Attachment A - Report](#)
 [Attachment B - Recommendations and Responses](#)
 [Presentation](#)

23. **SUBJECT: PROGRAM MANAGEMENT QUARTERLY CHANGE** [2023-0586](#)
 REPORT

RECOMMENDATION

RECEIVE AND FILE Quarterly Status Report on Program Management change orders.

Attachments: [Attachment A - Quarterly Change Orders Log for Reporting Period of 06/01/23 -](#)
 [Attachment B - OIG Construction Change Order Spot Checks](#)

24. **SUBJECT: OFFICE OF THE INSPECTOR GENERAL CONSTRUCTION** [2023-0553](#)
 CHANGE ORDER SPOT CHECKS

RECOMMENDATION

RECEIVE AND FILE Office of the Inspector General Construction Change Order Spot Check Report for the period June 1 to August 31, 2023.

Attachments: [Attachment A - Change Order Details](#)
 [Attachment B - Recommendations Responses 2018 to Oct 2023 Final 10/03/23](#)
 [Presentation](#)

SUBJECT: GENERAL PUBLIC COMMENT [2023-0645](#)

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 #: 2023-0492, **File Type:** Agreement

Agenda Number: 19.

**CONSTRUCTION COMMITTEE
OCTOBER 19, 2023**

SUBJECT: LA RIVER PATH - AGREEMENTS

ACTION: APPROVE RECOMMENDATION

RECOMMENDATION

CONSIDER authorizing the Chief Executive Officer (CEO) or her designee to:

- A. EXECUTE a Master Cooperative Agreement (MCA) with the City of Vernon for the LA River Path Project; and
- B. NEGOTIATE and execute as-needed agreements with other responsible stakeholder agencies, including the railroads.

ISSUE

The execution of the MCA and other agreements are key steps in the delivery of the LA River Path project on schedule and consistent with Metro Board direction in 2021 which authorized the CEO to negotiate and conditionally enter into a Cooperative Agreement with the Los Angeles County Department of Public Works (LACDPW), the City of Los Angeles, and the City of Vernon.

BACKGROUND

The LA River Path is an active transportation project to close an eight-mile continuous gap in the bicycle/pedestrian network between Elysian Valley and the City of Vernon, through downtown Los Angeles. This project is identified in the Measure M Expenditure Plan as the LA River Waterway & System Bike Path and has \$365 million of Measure M funds (2015\$) allocated to it.

At its June 2021 meeting, the Board approved Motion #49 by Directors Garcetti, Solis, Kuehl, Krekorian, and Najarian about the LA River Path Project delivery.(Attachment A) For the downtown segment, the specific ask was that Metro act as the funding agency administering Measure M, coordinating and pursuing additional funds, and the agency of record for environmental clearance.

The execution of the MCA and other agreements by the Board will facilitate the development and implementation of the LA River Path Project in the respective City/County portions and have

concerted coordination with other stakeholder agencies, including the railroads. Completion of the Project will require extensive design reviews, coordination, approval, and permitting for construction through the jurisdictions, as well as negotiation of the final owner, operator, and maintenance entity for the Project, including an operation and maintenance (O&M) plan.

The local coordination process begins with the Cities/County and their consultants providing input on design documents/O&M plan and attending meetings with Metro staff as part of the ongoing developmental phase of the Project. Once the Project's single alternative is selected for final design and construction, the Cities/County will continue to support the Project by providing valuable review and input to its design, and later, inspectors in the field to monitor and provide final acceptance of the contractor's work in their respective jurisdictions.

The MCA and other agreements constitute commitments for Metro, the City of Vernon, and other stakeholder agencies to continue to work together to progress and complete the LA River Path Project.

DISCUSSION

Planning and construction projects often need to coordinate with multiple jurisdictions and agencies to secure permits and approvals. The LA River Path is no exception. However, its uniqueness and challenges stem from the fact that Metro owns only <1% of the right-of-way (ROW) along the project corridor. In addition, per the 2021 Board direction , Metro will not be responsible for the operation and maintenance of the completed project.

In addition to the necessary approvals and permits, the MCA enables Metro leadership to engage in discussions to determine the ultimate owner/operator/maintenance entity for the Project as well as develop an O&M plan for approval. The determination of the ultimate owner is essential to advancing design to 60% and beyond since design standards and guidelines will need to adhere to the standards of the ultimate owner, who will also become the operating and maintenance entity.

The majority of the Project ROW lies within the City and unincorporated Los Angeles County. In addition, the LA County Flood Control District (LACFD) and the US Army Corps of Engineers (USACE) hold flood control easements over the river, within the project corridor. The City of Vernon acknowledges the LA River Path Project as a high-priority public works project, and as such, its City Council approved the MCA (Attachment B) in May 2023. The general intent of the MCA is for the City of Vernon to provide Metro with expedited review and approval procedures in connection with the design, design reviews, permitting property acquisition and other authority to be exercised by the City relating to the LA River Path Project. The MCA and other types of agreements for other responsible stakeholder agencies will be developed along the lines of the MCA developed for the City of Vernon.

The City of Vernon - Metro MCA describes the roles, responsibilities, and obligations of the parties and provides specificity under the following subheads:

- Scope and Duration
- Governance
- Design

- Construction
- Betterments
- Operation and Maintenance
- Reimbursement and Credits
- Indemnity, Warranties, and Insurance
- Resolution of Disputes
- Other Miscellaneous Items

With the approval of this MCA, all costs incurred by City staff and their consultants for design review and permit coordination, among others, would be reimbursed by Metro through an annual work plan authorization process specified in the MCA. In doing so, the City of Vernon agrees to waive permit fees specified in the MCA.

Considerations

Along with the authority to execute the MCA, staff recommends the Board also authorize the CEO or her designee to approve:

- a) any additional agreements that may be needed for other responsible stakeholder agencies;
- b) any necessary future revisions and/or updates to the MCA and other agreements; and
- c) approve an initial budget for reimbursement to the City and other stakeholder agencies until the annual work plan for fiscal year 2024 is established.

FINANCIAL IMPACT

This Project is funded on a fiscal year basis under Project number 474303 (LARVR Waterway Sys Bike Path), within cost center 4310, and is included within the FY24 Adopted Budget. Since this is a multi-year effort, the Cost Center Manager and Chief Planning Officer (CPO) will be responsible for budgeting funds in future years. The recommended action, however, will have no impact on the overall project cost.

Impact to Budget

The source of funds for the recommended actions is part of the project budget i.e., Measure M and there is no impact on the FY24 budget. The fund source is not eligible for bus and rail operations.

EQUITY PLATFORM

The Project, consistent with the Metro Board-adopted Equity Platform policy framework, is intended to bring improved transportation infrastructure to many of the Equity Focused Communities (EFCs) along the LA River. The Project will provide benefits of enhanced mobility and regional access to jobs, education, and other recreational opportunities for underserved populations within the project area. These goals are also part of the Measure M Expenditure Plan, which advances equity by creating jobs, reducing pollution, and generating local economic benefits.

For context, approximately 29% of the population in this area lives in poverty, 79% are Latino, and

more than 22% of the working-age population does not use automobiles as a primary mode of transportation. This path will not only be used for recreational purposes for the betterment of public health but also serve as a low-cost transportation option for those who have limited car ownership.

The execution of the MCA and other as-needed agreements with other responsible stakeholder agencies is essential to the successful and timely completion of this project, and subsequent benefits for project area communities.

IMPLEMENTATION OF STRATEGIC PLAN GOALS

The Project contributes to implementing multiple goals of Metro's Vision 2028 Strategic Plan. In particular:

- Goal 1: Provide high-quality mobility options that enable people to spend less time traveling;
- Goal 3: Transform LA County through regional collaboration and national leadership; and
- Goal 4: Provide responsive, accountable, and trustworthy governance within the Metro organization.

ALTERNATIVES CONSIDERED

The Board may choose not to approve the recommendations, however, doing so may hinder Metro's delivery of this Measure M project according to the timeline outlined in the Expenditure Plan. In addition, it will also be an impedance in fulfilling the City and County of Los Angeles' common goal of providing low-cost and low-impact alternative transportation options to marginalized communities.

NEXT STEPS

Upon Metro Board approval, the CEO or her designee will execute the MCA between Metro and the City of Vernon. Staff will continue to work with other responsible stakeholder agencies, including the railroads, to develop agreements, annual work plans and create a work order for payment.

This report also authorizes the CEO or her designee to approve an initial budget for reimbursement to the City and other stakeholders (if needed) until the annual work plan for fiscal year 2024 is established.

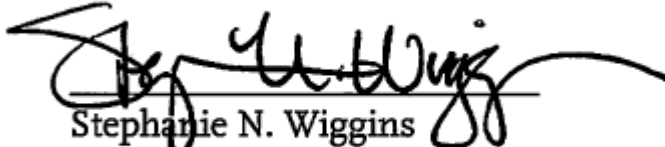
ATTACHMENTS

Attachment A - Board Motion (2021-0436)

Attachment B - City of Vernon Council meeting minutes on MCA

Prepared by: Mitali Gupta, Senior Manager, Countywide Planning & Development, (213) 922-5283
Eduardo Cervantes, Executive Officer, Third Party Administration, (213) 922-7255
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Ray Sosa, Deputy Chief Planning Officer, (213) 547-4274

Reviewed by: James de la Loza, Chief Planning Officer, (213) 922-2920
Sameh Ghaly, Chief Program Mgmt. Officer (Interim), (213) 418-3369



Stephanie N. Wiggins
Chief Executive Officer



Metro

Board Report

File #: 2021-0436, File Type: Motion / Motion Response

Agenda Number: 49.

REVISED
EXECUTIVE MANAGEMENT COMMITTEE
JUNE 17, 2021

Motion by:

DIRECTORS GARCETTI, SOLIS, KUEHL, KREKORIAN, AND NAJARIAN

LA River Bike Path Project Delivery

Active Transportation infrastructure along the Los Angeles River, separated from automobile traffic, can act as a spine for Class I bicycle infrastructure throughout the river's 51-mile length across the county. High-quality, protected, and separated bicycle and pedestrian infrastructure that connects communities to transit and local destinations is a part of a transportation system that reduces Vehicle Miles Traveled and Greenhouse Gas emissions. Thus, the Class I bikeway along the LA River helps meet transportation climate goals set by state legislation and the Metro Board.

Additionally, Active Transportation infrastructure provides low-cost transportation that supports public health. Protected and separated infrastructure improves traffic safety for all users and provides a safe space for users of all ages and abilities to exercise more. The LA River passes through many historically marginalized communities that Metro has identified as Equity Focused Communities.

Completing the LA River Bike Path is a goal of both the County and City of Los Angeles, and projects to do so are contained in the most recent LA River Master Plans from both the County and City, as well as the City of Los Angeles General Plan Mobility Element, Mobility 2035. Metro's Long-Range Transportation Plan and Active Transportation Strategic Plan also contain projects to complete the path.

Specifically, Metro's capital project portfolio contains three distinct projects to complete the LA River Bike Path along its length. The three projects are:

- A. The LA Riverway in the San Fernando Valley, a 12-mile series of gaps along the LA River from Canoga Park to ~~North Hollywood~~ Studio City, is known as Complete LA River Bikepath in the Measure M Expenditure Plan. This project is entirely within the City of Los Angeles and, as such, is a City-led project. The City will perform all phases of development and, in partnership with the United States Army Corps of Engineers, will own and maintain the project after construction is complete.
- B. The LA River Path through Downtown Los Angeles, an eight-mile continuous path from

Elysian Valley to Vernon, is known as the LA River Waterway & System Bikepath in the Measure M Expenditure Plan. This project is within the Cities of Los Angeles and Vernon and, as such, is a Metro-led project. Ownership and maintenance responsibilities will be decided in partnership with the Cities of Los Angeles and Vernon and the Los Angeles County Department of Public Works.

- C. The Lower LA River Bike Path in the Gateway sub-region, consisting of one or more elements defined by Motion 22.1 authored by Supervisor Solis in October 2015. This project is within the jurisdiction of the Los Angeles County Department of Public Works (LACDPW). LACDPW will act as the agency of record for environmental clearance and will construct, own, and maintain the project.

This action supersedes Board File 2018-0108 (May 2018).

SUBJECT: LA RIVER BIKE PATH PROJECT DELIVERY

RECOMMENDATION

APPROVE Motion by Directors Garcetti, Solis, Kuehl, Krekorian, and Najarian that the Board of Directors direct the Chief Executive Officer to assume and maintain the following roles in the delivery of each section of LA River Bike Path currently in development and to report back within 90 days on the status of each project, including funding plans, Sustainability, and Equity Assessments, milestone schedules, and execution of agreements with partner agencies:

- A. For the LA Riverway in the San Fernando Valley, Metro shall act as the funding agency administering Measure M and coordinating and supporting the pursuit of additional funds.
- B. For the LA River Path through Downtown Los Angeles, Metro shall act as the funding agency administering Measure M and coordinating and pursuing additional funds, the agency of record for environmental clearance, the constructing agency, and a partner in operating and maintaining the completed project.
- C. For the Lower LA River Bike Path, Metro shall act as the funding agency administering Measure M and coordinating and pursuing additional funds, and shall provide resources to perform the environmental clearance to LACDPW.

**MINUTES
VERNON CITY COUNCIL
REGULAR MEETING
TUESDAY, MAY 16, 2023
COUNCIL CHAMBER, 4305 SANTA FE AVENUE**

CALL TO ORDER

Mayor Larios called the meeting to order at 9:01 a.m.

FLAG SALUTE

Vernon Police Department Honor Guard presented the colors and led the Flag Salute.

ROLL CALL

PRESENT:

Crystal Larios, Mayor
Judith Merlo, Mayor Pro Tem
Leticia Lopez, Council Member
Melissa Ybarra, Council Member
Jesus Rivera, Council Member

STAFF PRESENT:

Carlos Fandino, City Administrator
Angela Kimmey, Deputy City Administrator
Zaynah Moussa, City Attorney
Lisa Pope, City Clerk
Scott Williams, Finance Director
Fredrick Agyin, Health and Environmental Control Director
Robert Sousa, Police Chief
Dan Wall, Public Works Director
Margie Otto, Public Utilities Assistant General Manager

APPROVAL OF THE AGENDA

MOTION

Council Member Ybarra moved and Council Member Lopez seconded a motion to approve the agenda. The question was called and the motion carried unanimously.

PUBLIC COMMENT

None.

PRESENTATIONS

1. Employee Service Pin Awards for April 2023

City Clerk Pope announced the recipients of the Employee Service Pin Awards.

2. Proclamation Commending Sweetener Products Company on its 100th Anniversary

Mayor Larios presented the proclamation to Sweetener Products Company in recognition of its 100th Anniversary.

Matthew Ruiz, Field Deputy for Assemblymember Miguel Santiago, presented a commendation to Sweetener Products Company.

Dale Jabour, President/CEO, and Jim Boltinghouse, Controller/CFO, thanked the Council for its recognition.

3. Swearing-In Ceremony for New Police Officer in the Police Department

Police Chief Sousa presented the staff report and introduced new Police Officer Salvador Ramos.

City Clerk Pope administered the Oath of Office to Officer Ramos.

4. Fiscal Year 2023-24 Budget Workshop II

City Administrator Fandino and Finance Director Williams presented a PowerPoint.

Health and Environmental Control Director Agyin discussed the proposed health program.

Tyler Evans, Wellness Equity Alliance (WEA), discussed his experience and the importance of health care.

Administrative Analyst Figueroa explained the CommUNITY Fund grant process, including administration costs and possibility of reducing the amount allocated.

Public Works Director Wall discussed the plan for street maintenance.

Public Utilities Assistant General Manager Otto discussed the proposed utility rate adjustments.

CONSENSUS

By consensus, the Council directed staff to reduce the total allocation to the CommUNITY Fund from the Fiscal Year 2022-23 amount of \$500,000 to \$250,000; and to include \$573,674 for WEA Health Services.

CONSENT CALENDAR

Council Member Ybarra pulled Item No. 15.

MOTION

Council Member Ybarra moved and Council Member Lopez seconded a motion to approve the Consent Calendar, with the exception of Item No. 15. The question was called and the motion carried unanimously.

The Consent Calendar consisted of the following items:

5. Meeting Minutes

Recommendation: Approve the May 2, 2023 Regular City Council Meeting Minutes.

6. Claims Against the City

Recommendation: Receive and file the claim submitted by Fred Gamboa in the amount of \$425.73.

7. Operating Account Warrant Register

Recommendation: Approve Operating Account Warrant Register No. 109, for the period of April 16 through April 28, 2023, totaling \$7,605,472.01 and consisting of ratification of electronic payments totaling \$7,429,785.37 and ratification of the issuance of early checks totaling \$175,686.64.

8. City Payroll Warrant Register

Recommendation: Approve City Payroll Warrant Register No. 803, for the period of April 1 through April 30, 2023, totaling \$2,708,248.97 and consisting of ratification of direct deposits, checks and taxes totaling \$1,767,051.71 and ratification of checks and electronic fund transfers for payroll related disbursements totaling \$941,197.26 paid through operating bank account.

9. Fire Department Activity Report

Recommendation: Receive and file the March 2023 Fire Department Activity Report.

10. Police Department Activity Report

Recommendation: Receive and file the March 2023 Police Activity Report.

11. Electrical Easement Deed with 3430 E. 26th Street Investors, LLC

Recommendation: Accept the Electrical Easement and authorize the Mayor to execute the Certificate of Acceptance.

12. Professional Services Agreement with The Pun Group LLC for Professional Auditing Services

Recommendation: Approve and authorize the City Administrator to execute a Professional Services Agreement with The Pun Group LLC, in substantially the same form as submitted, for Professional Auditing Services for a total amount not-to-exceed \$384,999, for a three-year term.

13. Services Agreement with Camfil Power Systems

Recommendation: A. Find that approval of the proposed action is exempt from California Environmental Quality Act (CEQA) review, because it is an administrative activity that will not result in direct or indirect physical changes in the environment, and therefore does not constitute a “project” as defined by CEQA Guidelines Section 15378. To the extent the future installation of the equipment constitutes a “project”, staff anticipates that the work will be exempt from CEQA review in accordance with CEQA Guidelines Section 15302, because the project consists of the replacement or reconstruction of existing equipment where the new equipment will be located on the same site as the equipment replaced and will have substantially the same purpose and capacity as the equipment replaced; the installation work will be procured through a separate selection process and contract at a later date. B. Approve and authorize the City Administrator to execute a Services Agreement with Camfil Power Systems (Camfil), in substantially the same form as submitted, to provide engineering and design services for generator cooling filter housing modification for a total amount not-to-exceed \$250,576; and C. Authorize a contingency amount of 10% or \$25,100 in the event of unforeseen changes in the project and grant authority to the City Administrator to issue amendments for an amount up to the contingency amount, if necessary.

14. Services Agreement with Waterline Technologies, Inc.

Recommendation: A. Accept the bid proposal from Waterline Technologies, Inc. (Waterline) as the lowest responsive and responsible bid for the supply of sodium hypochlorite 12.5 percent solution; B. Approve and authorize the City Administrator to execute a Professional Services Agreement with Waterline, in substantially the same form as submitted, for the supply of sodium hypochlorite 12.5 percent solution for a total amount not to exceed \$234,490.56, for a three-year term; and C. Authorize a contingency amount of 10% or \$23,449, in the event of increased system demands or price volatility and grant authority to the City Administrator to issue amendments for an amount up to the contingency amount, if necessary.

16. LA River Path Project Master Cooperative Agreement

Recommendation: A. Find that approval of the proposed action is exempt from California Environmental Quality Act (CEQA) review, because it is a continuing administrative activity that will not result in direct or indirect physical changes in the environment, and therefore does not constitute a “project” as defined by CEQA Guidelines Section 15378. To the extent that the LA River Path Project requires CEQA analysis, the Project is currently undergoing an environmental review process led by the Los Angeles County Metropolitan Transportation Authority (LACMTA or Metro); and B. Approve and authorize the City Administrator, to execute the Master Cooperative Agreement between the City of Vernon and the LACMTA, in substantially the same form as submitted, for the design and construction of a portion of the LA River Path Project.

The following item was pulled from the Consent Calendar for individual consideration:

15. Project Funded by Senate Bill 1: The Road Repair and Accountability Act for Fiscal Year 2023-2024

Public Works Director Wall explained the purpose of the item and that the allocation was based on population.

MOTION

Council Member Ybarra moved and Mayor Pro Tem Merlo seconded a motion to: A. Find that the approval of the proposed resolution does not constitute a "project" pursuant to Sections 15378(b)(2) and (4) of the Guidelines to the California Environmental Quality Act (CEQA), because it constitutes an administrative activity and government funding mechanism that does not involve any commitment to any specific project which may result in a potentially significant impact on the environment; and even if the adoption of the proposed resolution did constitute a project, it would be exempt from CEQA in accordance with Section 15061(b)(3), the general rule that CEQA only applies to project that may have a significant effect on the environment; and B. Adopt Resolution No. 2023-08 adopting a project list to be funded by Senate Bill 1: The Road Repair and Accountability Act for Fiscal Year (FY) 2023-2024. The question was called and the motion carried unanimously.

NEW BUSINESS

17. Citywide Striping and Pavement Markings FY22-23

Public Works Director Wall presented the staff report.

MOTION

Council Member Lopez moved and Council Member Ybarra seconded a motion to: A. Find that the proposed action is categorically exempt from California Environmental Quality Act (CEQA) review, in accordance with CEQA Guidelines Section 15301, because the project consists of the maintenance, repair or minor alteration of existing facilities and involves negligible or no expansion of an existing use; B. Accept the bid proposal from WGJ Enterprises Inc., dba PCI as the lowest responsive and responsible bid for the Citywide Striping and Pavement Markings FY22-23 project and reject all other bids; C. Approve and authorize the City Administrator to execute Contract No. 20230179 in the amount of \$332,005 for the Citywide Striping and Pavement Markings FY22-23 project for a period not to exceed 30 days; and D. Authorize a contingency of \$10,000 in the event of an unexpected changed condition in the project and grant authority to the City Administrator to issue a change order(s) for an amount up to the contingency amount if necessary. The question was called and the motion carried unanimously.

18. Los Angeles Unified School District Education Compact

City Administrator Fandino presented the staff report.

Genesis Coronado, LAUSD Legislative Analyst, explained the program.

MOTION

Council Member Lopez moved and Council Member Ybarra seconded a motion to approve and authorize the City Administrator to execute an Education Compact with the Los Angeles Unified School District, in substantially the same form as submitted, for a term through June 2026. The question was called and the motion carried unanimously.

ORAL REPORTS

19. City Administrator Reports on Activities and other Announcements.

City Administrator Fandino stated staff, WEA, and LA County Public Health would visit the Vernon Village Park Apartments to encourage participation in WEA's health needs assessment survey and to provide information about the County's free blood lead testing program. He provided an update on the lead remediation work at the Vernon Village Park apartments and announced upcoming meetings including the Vernon CommUNITY Fund Grant Committee meeting on May 17, 2023, at 10:00 a.m. and cancellation of the July 4, 2023 City Council meeting.

20. City Council Reports on Activities (including AB 1234), Announcements, or Directives to Staff.

Council Member Ybarra thanked the businesses that helped raise funds for the Vernon Elementary School field trip.

ADJOURNMENT

Mayor Larios adjourned the meeting at 11:31 a.m.

DocuSigned by:
Crystal Larios
199E8004833D45B
CRYSTAL LARIOS, Mayor

ATTEST:

DocuSigned by:

Lisa Pope

LISA POPE, City Clerk
(seal)

**Board Report**

File #: 2023-0404, **File Type:** Project**Agenda Number:** 20.

**CONSTRUCTION COMMITTEE
OCTOBER 19, 2023****SUBJECT: CEQA ADDENDUM FOR THE EAST SAN FERNANDO VALLEY LIGHT RAIL
TRANSIT PROJECT****ACTION: APPROVE RECOMMENDATION****RECOMMENDATION**

AUTHORIZE the Chief Executive Officer to approve the Addendum and adopt its Findings (Attachment A).

ISSUE

The East San Fernando Valley Transit Corridor (ESFVTC) Final Environmental Impact Statement/Environmental Impact Report (EIS/EIR) has completed Certification by the Board in accordance with the California Environmental Quality Act (CEQA). Since Certification of the environmental document in December 2020, the project has undergone Preliminary Engineering to further develop the design of the project which has resulted in updates to the project description. The Summary of project description updates is included in the [CEQA Addendum <https://www.dropbox.com/scl/fi/vc2or7j9v0gentbl9kzk4/ESFVTC_EIR-Addendum_v8.pdf?rlkey=cjeh66k0oz7kjjpdjw7y5m1s7&dl=0>](https://www.dropbox.com/scl/fi/vc2or7j9v0gentbl9kzk4/ESFVTC_EIR-Addendum_v8.pdf?rlkey=cjeh66k0oz7kjjpdjw7y5m1s7&dl=0) (Attachment A).

BACKGROUND

In December 2020, the Metro Board certified the Final EIR for the ESFVTC Project, a 9.2-mile light rail project with 14 at-grade stations, from the Metro G Line (Orange) Van Nuys Station at the south, to the Sylmar/San Fernando Metrolink Station to the north. The Board also approved a 6.7-mile segment along Van Nuys Boulevard, from the Metro G Line (Orange) Van Nuys Station to an interim terminus station at Van Nuys Boulevard/San Fernando Road, as an initial operating segment (IOS). This segment is known as the ESFV Light Rail Transit Project (Southern Segment), and it includes 11 stations and one Maintenance and Storage Facility (MSF).

Since the Board's certification of the ESFVTC Final EIR in December 2020, the ESFV Light Rail Transit (Southern Segment) project team has refined the project design to accommodate and meet City of Los Angeles standards. A detailed description of the changes to the Project Description is provided in the attached Addendum to the EIR (Attachment A).

DISCUSSION

California Environmental Quality Act (CEQA)

Metro, as the CEQA lead agency and proponent for the Project, has completed an Addendum to the EIR and associated technical reports for the updated project elements. The addendum focuses on several potential design elements proposed by the preliminary design and engineering team. Some design elements of note include a refinement in acquisition needs for sites such as traction power substations (TPSS), train control bungalows (TCB), and temporary construction easements (TCE) as well as refinements to traffic and circulation during construction and operations.

The preliminary engineering team identified 4 new properties impacted by TPSS locations that were not previously indicated in the FEIR/EIS. These locations were selected based on a study conducted by Metro to increase the power supply to the LRT from 750 volts of direct current (vdc) to 810 (vdc). The overall total number of TPSS sites decreased from 11 to 10, but the TPSS sites needed to be relocated to accommodate the new power supply spacing requirements. Addresses for the newly identified properties can be found in the addendum.

Additionally, the preliminary engineering team identified 267 temporary construction easements (TCEs) not previously indicated in the FEIR/EIS. These locations could not be previously identified in the FEIR/EIS because the design was not advanced enough at the time a record of decision was provided for the project. These TCEs are for construction activity that will occur on sidewalks and driveways during the construction of the LRT. No long-term operational impacts are associated with the properties. Sharing the locations will help the community to be more informed on how their properties may be impacted once the LRT is under construction in region.

Mitigation measures for construction were identified in the FEIS/EIR to address construction and operational impacts from these above stated impacts. Further detail on additional project elements can be found in the addendum. If the Metro Board concurs with the findings of the Addendum to the EIR, thereby confirming the original CEQA environmental clearance, the Project will continue additional right-of-way acquisitions, utility relocation, and other construction activities. Upon completion of the environmental analysis of the design refinements, the preparation of an Addendum was completed in compliance with CEQA, the Addendum is not required to be circulated for public comment (Cal. Code Regs. Tit. 14 § 15164). Metro did provide presentations and collaborated on the design refinements described in the document with LADOT, LABOE, the CPUC, and DWP.

DETERMINATION OF SAFETY IMPACT

This Board action will not have an adverse impact on safety standards for Metro.

FINANCIAL IMPACT

Impact to Budget

The source of funds for this work is provided within the Preconstruction Budget for the East San Fernando Valley Light Rail Transit project. Funding sources for this project were approved as part of the Preconstruction Budget. No additional funds are required upon approval of this Addendum.

With Board approval of the Addendum, the CEQA process for minor project updates will be complete. It is anticipated that FTA will complete a Re-evaluation for the National Environmental Policy Act (NEPA) in November 2023, confirming that the original NEPA certification and ROD are sufficient for the minor updates to the project.

EQUITY PLATFORM

Board certification of the Project is consistent with the goals and objectives outlined in the Metro Equity Platform Framework in that the Project alignment is located in a disadvantaged, underserved community where access to premium transit service is limited. There is a high concentration of minority communities residing in the Project study area, including a significant concentration of Hispanic or Latino 71.7% (35% higher than the average for the City of Los Angeles and 24% higher than the County). Approximately 17.5% of the households in the study area are below the poverty level, which is 0.2% higher than the City and 3.5% higher than the County. The Project will provide residents with a direct connection to the Metro G Line as well as with Metrolink's Ventura and Antelope Valley Lines. The alignment will provide residents with premium transit service to access employment, health, and educational opportunities, which otherwise would be difficult to reach. The FLM Project component will promote equity and sustainability by connecting underserved neighborhoods to the Metro transit network. The community was included in the process of identifying the pedestrian, bicycling, landscaping, and other FLM enhancements that are included in the FLM Plan.

IMPLEMENTATION OF STRATEGIC PLAN GOALS

The Project is consistent with the Metro Vision 2028 Strategic Plan goals by addressing key transportation challenges in the Project area, including growing travel demand, travel times, traffic congestion and limited connections to the regional rail system.

- The Project is aligned with Vision 2028 Goal #1 - Provide High Quality Mobility Options That Will Enable People to Spend Less Time Traveling. It will provide a high quality mobility option that will improve travel time, mobility, transit access, and connectivity to Metro's regional transit system. The Project area experiences heavy traffic congestion, slow speeds, and unreliable travel times along its major streets during peak travel periods. These conditions are expected to worsen over time. By 2040, the Project is expected to reduce travel time for transit

passengers from 48 minutes to approximately 30 minutes between the Metro G Line (Orange) Station and the Sylmar/San Fernando Metrolink Station. The ESFV Transit Corridor traverses several densely populated environmental justice communities. Many residents of these communities are transit-dependent. The Project is a major transit investment that will enhance mobility, access, and connectivity for ESFV communities and will reduce dependence on the automobile.

- The Project also supports Goal #3 - Enhance Communities through Mobility and Enhanced Access to Opportunity. It will connect communities in the San Fernando Valley to the regional Metro rail network.
- This Project will expand access to jobs, major activity centers, including educational and medical facilities, and recreational opportunities within the Project area and throughout the Los Angeles region.

ALTERNATIVES CONSIDERED

The Board could elect not to approve the Addendum and minor project changes, however, this action is not recommended as it would jeopardize the feasibility of the Project and delay the project schedule. The Board awarded a contract for Phase I Preconstruction Services of the progressive design-build contract in February 2023. Delaying the Project would delay this effort and could impact securing a Full Funding Grant Agreement through the Federal Transit Administration Expedited Project Delivery pilot program.

NEXT STEPS

Upon Board approval, Project staff will work with the FTA to ensure the timely completion of the NEPA Re-evaluation and application for the FFGA.

ATTACHMENTS

Attachment A - CEQA Addendum

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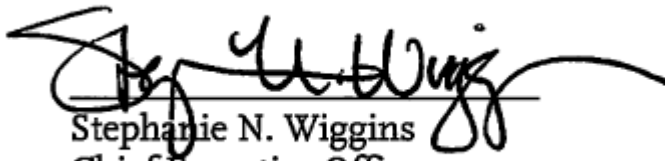
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Stephanie N. Wiggins
Chief Executive Officer

EAST SAN FERNANDO VALLEY TRANSIT CORRIDOR

Environmental Impact Report Addendum

Addendum to the Final Environmental Impact Study/Environmental Impact Report (FEIS/EIR)

September 2023

Prepared By:

*Los Angeles Metropolitan Transportation Authority
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In Consultation With:

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EAST SAN FERNANDO VALLEY TRANSIT CORRIDOR ADDENDUM

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1.0 Introduction

The Los Angeles County Metropolitan Transportation Authority (LACMTA) proposes modifications and refinements to the design of the East San Fernando Valley Transit Corridor Project (Project) in Los Angeles County, California. The Project consists of the design, construction, and future operation of a light rail transit (LRT) system that would operate over 9.2 miles along Van Nuys Boulevard (6.7 miles) and within LACMTA-owned rail right-of-way (2.5 miles).

The Federal Transit Administration (FTA) is the Lead Agency under the National Environmental Policy Act (NEPA) and the LACMTA is the Lead Agency under the California Environmental Quality Act (CEQA). The FEIS/EIR for the project was published in the Federal Register for review on October 2, 2020, and the comment period ended on November 2, 2020. The comment period was subsequently extended another 15 days to November 17, 2020. Online, virtual public information meetings were held on October 14, 2020, and October 26, 2020. On January 29, 2021, the FTA signed the Record of Decision (ROD) for the project. On December 3, 2020, the LACMTA adopted the Finding of Fact and Statement of Overriding Considerations and on December 8, 2020 filed the Notice of Determination (NOD).

On December 3, 2020, Metro Board of Directors approved and certified the Environmental Impact Report (EIR) for the project. On January 29, 2021, the FTA signed the Record of Decision (ROD) for the project. The ROD applied to the at-grade light rail transit (LRT) modified Alternative 4, also identified as the Locally Preferred Alternative (LPA), which was described and evaluated in the *East San Fernando Valley Transit Corridor Project Final Environmental Impact Statement/Final Environmental Impact Report* (FEIS/EIR), dated September 2020. Metro is proposing to construct the LPA in two phases. Phase 1, an Initial Operating Segment (IOS), consists of the portion of the LPA alignment along Van Nuys Boulevard, and Phase 2 includes the northern 2.5-mile segment of the LPA along the Metro-owned railroad right-of-way. Accordingly, the IOS phasing was included in the FEIS/EIR to enable Metro to realize potential cost savings that would not otherwise occur under the LPA. This analysis includes Phase I of the project, the IOS. The project name has been updated to "ESFV LRT Southern Segment"; however, this document refers to the 6.7-mile alignment as the "IOS", for consistency with the FEIS/EIR.

1.1 Basis for Decision to Prepare EIR Addendum

In determining whether an EIR Addendum is the appropriate document under CEQA, CEQA Guidelines Section 15164 (Addendum to an EIR or Negative Declaration) provides the following criterion:

- ◁ The lead agency or a responsible agency shall prepare an addendum to a previously certified EIR if some changes or additions are necessary but none of the conditions described in Section 15162 calling for preparation of a subsequent EIR have occurred.

CEQA Guidelines Sections 15162 states that a subsequent EIR or negative declaration shall be prepared if any of the following conditions are met:

- ◁ Substantial changes are proposed in the project which will require major revisions of the previous EIR or negative declaration due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects;
- ◁ Substantial changes occur with respect to the circumstances under which the project is undertaken which will require major revisions of the previous EIR or negative declaration due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects; or

- ◁ New information of substantial importance, which was not known and could not have been known with the exercise of reasonable diligence at the time the previous EIR was certified as complete or the negative declaration was adopted, which shows any of the following:
 - ◁ The project will have one or more significant effects not discussed in the previous EIR or negative declaration;
 - ◁ Significant effects previously examined will be substantially more severe than shown in the previous EIR;
 - ◁ Mitigation measures or alternatives previously found not to be feasible would in fact be feasible and would substantially reduce one or more significant effects of the project, but the project proponents decline to adopt the mitigation measure or alternative; or
 - ◁ Mitigation measures or alternatives which are considerably different from those analyzed in the previous EIR would substantially reduce one or more significant effects on the environment, but the project proponents decline to adopt the mitigation measure or alternative.

As demonstrated in the environmental analysis provided in Section 4.0 (Environmental Analysis), subsequent actions associated with the project would not meet the criteria for preparing a subsequent EIR or negative declaration. Therefore, an addendum is the appropriate environmental document to comply with CEQA.

2.0 FEIS/EIR Project Description

The following six alternatives were developed and considered in the DEIS/EIR, which was circulated in September and October 2017:

- ◁ No-Build Alternative
- ◁ Transportation Systems Management Alternative
- ◁ Build Alternative 1 ó Curb-Running Bus Rapid Transit Alternative
- ◁ Build Alternative 2 ó Median-Running Bus Rapid Transit Alternative
- ◁ Build Alternative 3 ó Low-Floor LRT/Tram Alternative
- ◁ Build Alternative 4 ó LRT

Based on the project objectives and in response to public comments received during the 60-day comment period for the DEIS/DEIR, a modified version of Alternative 4 was developed and included in the FEIS/EIR. The primary difference between Alternative 4 and modified Alternative 4 was the elimination of a 2.5-mile subway segment. Under the modified Alternative 4, the entire 9.2-mile alignment would be constructed at grade. The FEIS/EIR identified the modified Alternative 4: Light Rail Transit as the LPA.

The LPA consisted of a 9.2-mile, at-grade LRT with 14 stations. The LRT would be powered by electrified overhead lines and would travel 2.5 miles along Metro-owned right-of-way that is used by the Antelope Valley Metrolink line and Union Pacific Railroad from the Sylmar/San Fernando Metrolink Station south to Van Nuys Boulevard. As the LRT approaches Van Nuys Boulevard, it would transition to and operate in a median dedicated guideway in the median of Van Nuys Boulevard for approximately 6.7 miles south to the Metro G Line Van Nuys Station. Maintenance and Storage Facility (MSF) Option B would be constructed as the preferred MSF site located on the west side of Van Nuys Boulevard on approximately 25 acres. This site is bounded by Keswick Street on the south, Raymer Street on the east and north, and the Pacoima Wash on the west.

To ensure the objectives of the LPA were met in a timely manner and to avoid delays due to the timing of funding availability, Metro proposed constructing the LPA in two phases, an Initial Operating Segment (IOS) or Phase 1, which consists of the portion of the LPA alignment along Van Nuys Boulevard, and Phase 2, which includes the northern 2.5-mile segment of the LPA along the Metro-owned railroad right-of-way. Accordingly, the IOS phasing was included in the FEIS/EIR to enable Metro to realize potential cost savings that would not otherwise occur under the LPA.

It was anticipated that Phase 1 construction would begin in 2022 and take 4.5 to 5 years to complete. Although the schedule for completing Phase 2 was contingent upon securing funding and additional coordination with the Public Utility Companies, Metrolink, and the City of San Fernando, Metro expected that construction of Phase 2 would begin within 3 to 5 years of completing Phase 1 and would occur over a 3- to 4-year period in the FEIS/EIR. The following project description includes only Phase 1, the IOS.

2.1 Vehicles

LRT vehicles would be similar to those currently used throughout the existing Metro LRT system. ~~with up to three 90-foot rail cars, for a total train length of 270 feet.~~ Although LRT vehicles can operate at speeds of up to 65 miles per hour (mph) in an exclusive guideway, operating at-grade along Van Nuys Boulevard, the vehicles would not exceed the posted speed limit of the adjacent roadway, which is 35 mph. A three car consists (i.e., trains) could carry approximately 230 seated passengers and up to 400 passengers when standing passengers are included. V j g " N T V " v t c k p " u g v u " y q w n f " d g " e q p h k i w t g f " y k v j " c " f t k trains, allowing them to run in either direction without the need to turn around at the termini.

2.2 Alignment

The IOS alignment would extend from the Van Nuys Boulevard/San Fernando Road intersection on the north to the Metro Orange Line Station on the south, a distance of 6.7 miles. The IOS alignment would have two tracks and would be fully separated from automobile traffic along Van Nuys Boulevard by a barrier, except at signalized intersections and controlled at-grade crossings. The IOS would operate in a semi-exclusive right-of-way in what is currently the median of Van Nuys Boulevard. The LRT train would operate no faster than the adjacent prevailing traffic speeds and would be controlled by train signals that would coordinate with the traffic signals.

2.3 Stations

Stations would be constructed at approximately 0.75-mile intervals along the entire route. The 14 planned stations are as follows (from north to south):

- | | |
|--|--|
| 1. Sylmar/San Fernando Metrolink Station | 8. Nordhoff Station |
| 2. Maclay Station | 9. Roscoe Station |
| 3. Paxton Station | 10. Van Nuys Metrolink Station |
| 4. Van Nuys/San Fernando Station | 11. Sherman Way Station |
| 5. Laurel Canyon Station | 12. Vanowen Station |
| 6. Arleta Station | 13. Victory Station |
| 7. Woodman Station | 14. Van Nuys Metro Orange Line (now known as the G Line) Station |

The proposed stations would have designs consistent with the Metro Rail Design Criteria, including directive and standard drawings. Stations would be Americans with Disabilities Act (ADA) compliant, including compliance with the requirements pertaining to rail platforms, rail station signs, public address

systems, clocks, escalators, and track crossings, as described in Sections 8.10.5 through 8.10.10 of the 2010 ADA standards.

Common elements would include signage, maps, fixtures, furnishings, lighting, and communications equipment. All stations are proposed to have center platforms, allowing passengers to access trains traveling in either direction. Typically, at-grade station platforms are 270 feet long (to accommodate three-car trains), 39 inches high (to allow level boarding and full accessibility, in compliance with the ADA), and minimum 12.2 feet wide for side platforms to 16 feet wide for center platform stations.

Canopies at the LRT stations would be approximately 13 feet high and would incorporate directional station lighting to enhance safety. Stations would include seating elements and contain ticket vending machines, variable message signs, route maps, and fare gates, as well as the name and location of the LRT station. In addition, Metro is moving to a fare gate system, which would be integrated into station designs as appropriate.

Stations would also include bicycle parking and bike lockers at or near stations, as feasible. In addition, signage and safety and security equipment, such as closed-circuit televisions, public announcement systems, passenger assistance telephones, and variable message signs (providing real-time information), would be part of the amenities.

2.4 Supporting Facilities

As stated in the FEIS/EIR, the IOS would require a number of additional elements to support vehicle operations, including an Overhead Contact System (OCS) along the entire alignment, Traction Power Substations (TPSS) units, an MSF, and communications and signaling buildings.

2.4.1 Overhead Contact System

An OCS is a network of overhead wires that distributes electricity to tram or LRT vehicles. The OCS would include steel poles placed with the right-of-way to support overhead wires above the light rail track and deliver electric power to the vehicles. The OCS poles would be approximately 30 feet tall and typically located every 90 to 170 feet between the two tracks or in some locations where street width dictates, may be on the sidewalk.

2.4.2 Traction Power Substations

TPSS units are electrical substations that would be typically placed at approximate 0.75-mile intervals. The LRT vehicles would be powered by approximately 14 TPSS units (including one at the MSF), which would be spaced relatively evenly along the alignment to provide direct current to the LRT vehicles. The TPSS would be located at points along the alignment where maximum power draw is expected (such as at stations and on inclines). In the event that one TPSS needs to be taken offline, the LRT vehicles would continue to operate. The MSF would also have its own designated TPSS.

2.4.3 Maintenance and Storage Facility

The IOS includes construction of a new MSF, which would provide secure storage of the LRT vehicles when they are not in operation, and regular light maintenance to keep them clean and in good operating condition as well as heavy maintenance.

MSF Option B, as described in the FEIS/EIR, was identified as the locally preferred site by the Metro Board. The MSF site would be approximately 25 acres in size. The MSF would be located on the west

side of Van Nuys Boulevard and would be bounded by Keswick Street on the south, Rayner Street on the east and north, and the Pacoima Wash on the west. Access to the facility would be via two turnout tracks on the west side of the alignment. A northbound turnout would be located in the vicinity of Saticoy Street. A southbound turnout would be located in the vicinity of Keswick Street.

The MSF would accommodate both operational and administrative functions. The MSF would accommodate all levels of vehicle service and maintenance (i.e., progressive maintenance, scheduled maintenance, unscheduled repairs, warranty service, and limited heavy maintenance) in addition to storage space for vehicles. The typical MSF would provide interior and exterior vehicle cleaning, sanding, and inspection areas; maintenance and repair shops; storage yards for vehicles; and storage areas for materials, tools, and spare vehicle parts. The storage yard would be the point of origin and termination for daily service.

V j g " O U H " y q w n f " u g t x k e g " c u " v j g " ð j q o g " d c u g ö " h q t " v j g " dispatcher workstations, employee break rooms and/or lunchrooms, operator areas with lockers, showers and restrooms, and employee and visitor parking.

The MSF would include collision/body repair areas, enclosed paint booths, and wheel truing (the profiling of wheels to ensure the proper wheel to rail interface) machines. The MSF would also include maintenance-of-way, signals and communications, and traction power functions that would be housed in separate and smaller buildings.

The MSF site would accommodate the maximum number of LRT vehicles required for service and also allow for future expansion of transit service and vehicle maintenance and storage.

2.4.4 Communications and Signaling Buildings

Communications and signaling buildings that contain train control and communications equipment would be located at each station, crossover, and at-grade crossing.

2.5 Operations

The proposed LRT is anticipated to operate with a 6-minute peak and 12-minute off-peak headways when it opens and is projected to operate at 5-minute peak and 10-minute off-peak once ridership begins to increase. Metro Local Line 233 would operate with 8-minute peak and 16-minute off-peak headways, or as demand dictates.

2.6 Parking Loss and Travel Lane Loss

2.6.1 Parking Loss

With implementation of the IOS, all curbside parking would be prohibited along Van Nuys Boulevard.

2.6.2 Travel Lane Loss

The number of travel lanes on Van Nuys Boulevard would be reduced from three to two lanes in each direction for the segment between the Metro G Line and Parthenia Street. North of that point, the IOS would maintain two existing travel lanes in each direction to Laurel Canyon Boulevard and the existing on northbound lane and two southbound lanes along Van Nuys Boulevard from Laurel Canyon Boulevard to San Fernando Road.

2.6.3 Turning Restrictions

With implementation of the IOS, left turns from Van Nuys Boulevard onto cross streets would be maintained at most of the currently signalized intersections where the LRT would be running in the median. All crossings of the alignment would be controlled by a traffic signal. Motorists who desire to make a left turn where it would no longer be allowed would have to make a U-turn at a signalized left-turn location or choose a route that would allow them to use a signalized cross street.

Under the IOS, the intersections with turning restrictions were as follows:

- ◁ Pinney Street & San Fernando Road (closed via a cul-de-sac)
- ◁ Van Nuys Boulevard & El Dorado Avenue (southbound left only)
- ◁ Van Nuys Boulevard & Tamarack Avenue
- ◁ Van Nuys Boulevard & Telfair Avenue
- ◁ Van Nuys Boulevard & Cayuga Avenue
- ◁ Van Nuys Boulevard & Oneida Avenue
- ◁ Van Nuys Boulevard & Haddon Avenue
- ◁ Van Nuys Boulevard & Omelveny Avenue
- ◁ Van Nuys Boulevard & Amboy Avenue
- ◁ Van Nuys Boulevard & Rincon Avenue
- ◁ Van Nuys Boulevard & Remick Avenue
- ◁ Van Nuys Boulevard & Vena Avenue
- ◁ Van Nuys Boulevard & Bartee Avenue (northbound left only)
- ◁ Van Nuys Boulevard & Lev Avenue
- ◁ Van Nuys Boulevard & Arleta Avenue (southbound left only)
- ◁ Van Nuys Boulevard & Beachy Avenue (southbound left only and pedestrian crossings)
- ◁ Van Nuys Boulevard & Hartland Street (pedestrian crossing only)
- ◁ Van Nuys Boulevard & Archwood Street
- ◁ Van Nuys Boulevard & Haynes Street
- ◁ Van Nuys Boulevard & Hamlin Street
- ◁ Van Nuys Boulevard & Gilmore Street
- ◁ Van Nuys Boulevard & Canterbury Avenue
- ◁ Van Nuys Boulevard & Woodman Avenue (southbound left only)
- ◁ Van Nuys Boulevard & Vesper Avenue (northbound left only)
- ◁ Van Nuys Boulevard & Novice Street
- ◁ Van Nuys Boulevard & Gledhill Street
- ◁ Van Nuys Boulevard & Vincennes Street
- ◁ Van Nuys Boulevard & Osborne Street
- ◁ Van Nuys Boulevard & Rayen Street
- ◁ Van Nuys Boulevard & Parthenia Street (southbound left only)
- ◁ Van Nuys Boulevard & Lorne Street
- ◁ Van Nuys Boulevard & Blythe Street
- ◁ Van Nuys Boulevard & Michaels Street
- ◁ Van Nuys Boulevard & Keswick Street (southbound left only)
- ◁ Van Nuys Boulevard & Covello Street
- ◁ Van Nuys Boulevard & Wyndotte Street
- ◁ Van Nuys Boulevard & Gault Street (pedestrian crossing only)
- ◁ Van Nuys Boulevard & Hart Street
- ◁ Van Nuys Boulevard & Friar Street
- ◁ Van Nuys Boulevard & Erwin Street
- ◁ Van Nuys Boulevard & Delano Street
- ◁ Van Nuys Boulevard & Calvert Street
- ◁ Van Nuys Boulevard & Bessemer Street

2.7 Bicycle Facilities

When feasible, bicycle parking would be provided at or near Metro stations, as required by Metro Rail

Design Criteria. The existing bike lanes, which extend approximately two miles north along Van Nuys Boulevard from Parthenia Street to Beachy Avenue and from Laurel Canyon Boulevard to San Fernando Road, would be removed due to right-of-way constraints.

2.8 Accessibility

2.8.1 Pedestrian Access

All current crosswalks at signal-controlled intersections would be maintained. Between the signalized intersections, a barrier running down the median would be required to maintain current practice on its median-running LRT lines. Pedestrians would be required to walk to a signalized location to cross Van Nuys Boulevard. LRT passengers would reach the median station platforms from crosswalks at signalized intersections.

2.8.2 Vehicular Access

Vehicular access along Van Nuys Boulevard that would cross the LRT alignment would be limited to signalized crossings. All other streets or driveways would become right turns into and out of Van Nuys Boulevard.

2.9 Right-of-Way

Discussion of the right of way in the FEIR/EIS included number of properties required to construct the project. This included an account of properties for the MSF, stations, guideway, tracks, and the TPSS facilities. In total it would require 100 properties, which included 68 full parcels, 30 partial parcel acquisitions, one Metro-owned property, and one vacant alley. Most of these acquisitions are commercial or industrial properties. However, up to four acquisitions of single-family residences would also be required.

2.10 Gated Light Rail Transit Grade Crossings

There would also be left-turn lane gates, where feasible, at signalized intersections along Van Nuys Boulevard where left turns are permitted across the LRT dedicated guideway. The gates would be activated whenever a train approaches the intersection to enhance safety at these locations.

3.0 Changes to the Project Description

The Metro Design Team has since identified design changes and refinements to the IOS due to real estate and engineering constraints. The following paragraphs identify whether there have been any changes to the IOS described in the FEIS/EIR and summarize the proposed changes.

3.1 Vehicles

The project remains an LRT system. There are no changes to the LRT vehicles.

The existing LRT vehicles are A3 cars, which are 62 feet long and 10 feet wide. The proposed A3 cars would be 62 feet long and 10 feet wide. The existing LRT vehicles have a maximum speed of 35 miles per hour, which is the posted speed limit of the adjacent roadway (35 miles per hour) along the IOS. Each A3 car consists of three cars. The existing LRT vehicles are 45 feet long and 10 feet wide, allowing them to run in either direction without the need to turn around at termini.

3.2 Alignment

There are no changes to the LRT alignment (see **Attachment A**).

The IOS alignment would continue to be located at-grade and along the center (what is currently the median) of Van Nuys Boulevard between San Fernando Road to the north and the Metro G (Orange) Line station to the south.

3.3 Stations

There are no changes to the total number of stations or the approximate spacing of the stations along the IOS route.

However, due to real estate right of way constraints, LACMTA has identified changes to the following four station locations shown in the Advanced Conceptual Plans dated March 15, 2019:

- < Van Nuys/San Fernando Station was relocated to the middle of Van Nuys Boulevard;
- < Arleta Station was moved from south of Arleta Avenue to north of Arleta Avenue;
- < Woodman Station was moved from south of Woodman Avenue to north of Woodman Avenue;
- < Van Nuys Metro G (Orange) Line Station was relocated to the middle of Van Nuys Boulevard.

All stations, except the Van Nuys/San Fernando, Van Nuys/Metrolink, and Metro G (Orange) Line stations, now include an underground room for electrical, mechanical and systems equipment, due to recent updates to the Metro Rail Design Criteria (MRDC) and Architectural Standard Drawings.

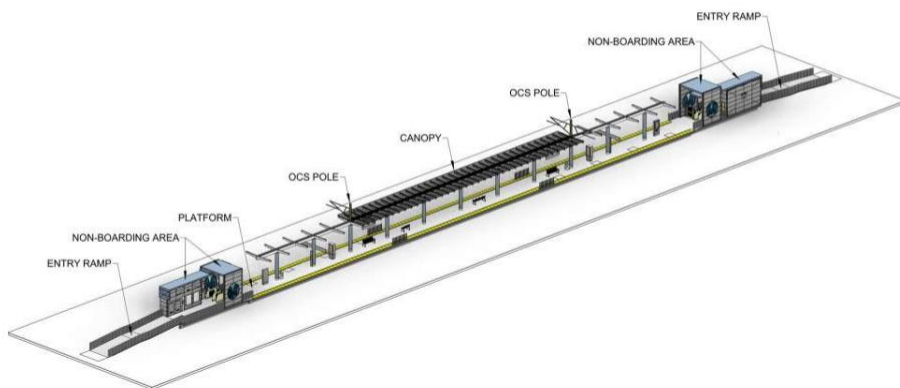


Figure 1: Typical at Grade Center Platform Station

3.4 Overhead Contact System (OCS)

There are no changes to the Overhead Contact System (OCS).

The OCS would continue to consist of a network of overhead wires supported above the LRT vehicles by steel poles located within the ROW. The support poles would be approximately 30 feet tall and placed

every 90 to 170 feet between the tracks of the IOS alignment or on the sidewalk. A pantograph on the roof of the vehicles would slide along the underside of the contact wire to deliver electric power to the vehicles.

3.5 Traction Power Substations (TPSS)

Previously, the description of the IOS included 10 Traction Power Substations (TPSS) sites along this portion of the alignment, as well as one TPSS within the Maintenance and Storage Facility (see below) for a total of 11 TPSS. As the design was progressed for IOS, LACMTA studied increasing the power from 750 volts of direct current (vdc) to 810 vdc and concluded that one of the TPSS sites could be eliminated, decreasing the total from 11 to 10 sites. All the sites along the IOS alignment were renumbered to account for the removal of one site. The previous and new TPSS numbers and locations along the IOS alignment are compared in the tables below. Four of the TPSS sites moved locations due to the study results.

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Table 1. Summary of Previous and New TPSS Locations

Previous TPSS No.	Previous Address	Change	New TPSS No.	New Address	Change
1	N/A (Bessemer St)	N/A	1	6073 Van Nuys Blvd	N/A
2A	6429 Van Nuys Blvd	No	2	6429 Van Nuys Blvd	None
3A	7027 Van Nuys Blvd	No	NA	NA	Removed
4	7627 Van Nuys Blvd	No	3	7254 Van Nuys Blvd	Moved south about 2000 feet
5B	8146 Van Nuys Blvd	Yes	4	7927 Van Nuys Blvd / 14510 W Blythe Street	Moved south about 1500 feet
6A	8760 Van Nuys Blvd	Yes	5	8751 Van Nuys Blvd	Moved to opposite side of Van Nuys Boulevard
7	9462 Van Nuys Blvd / 14540 Plummer St	Yes	6	9462 Van Nuys Blvd / 14540 Plummer Blvd	No change in location, change in TPSS number
8	14229 Van Nuys Blvd	Yes	7	14229 Van Nuys Boulevard	No change in location, change in TPSS number
9	10390 Remick Ave	No	8	13746 Van Nuys Boulevard / 13757 Van Nuys Boulevard	Moved north about 200ft
10A	13313 Van Nuys Blvd	No	9	13291 Van Nuys Boulevard / 13287 Van Nuys Boulevard / 13283 Van Nuys Boulevard	Moved southwest about 370 feet

3.6 Maintenance and Storage Facility (MSF)

There are no changes to the anticipated Maintenance and Storage Facility (MSF).

The Maintenance and Storage Facility would continue to be located along southbound Van Nuys Boulevard and would be generally bounded by Keswick Street on the south, Raymer Street on the east and north, and the Pacoima Wash on the west.

The number of full acquisitions of properties dedicated to the guideway into and out of the MSF have been identified as not needed for the IOS. However, these sites may still be utilized for future use in phase 2 of the project still being studied. Detailed description of the changes from the FEIR/EIS to now are described in Appendix C.

3.7 Communications and Signaling Buildings

Communications and signaling buildings that contain train control and communications equipment would continue to be located at each station, crossover, and at-grade crossings. Two standalone Train Control

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Bungalows (TCB) sites would be located at Vose Street and Covello Street. See ROW, below, for additional information on acquisitions necessary for TCB. Other TCBs would be co-located at stations, TPSS sites, etc.

3.8 Operations

There are no changes to the anticipated operations of the LRT.

The IOS would be designed to operate with 6-minute peak and 12-minute off-peak headways when it opens; however, headways would be revised depending upon train schedule and demand once adjacent and connecting bus lines are evaluated.

3.9 Parking Loss and Travel Lane Loss

There are no changes to the anticipated parking and travel lane loss for the IOS.

All curbside parking would continue to be prohibited along Van Nuys Boulevard. The number of travel lanes on Van Nuys Boulevard would be reduced from three to two lanes in each direction for the segment between the Metro G (Orange) Line and Parthenia Street. The two existing travel lanes for the segment between Parthenia Street and Laurel Canyon Boulevard, and the existing northbound lane and two southbound lanes for the segment between Laurel Canyon Boulevard and San Fernando Road, would be maintained.

3.10 Turning Restrictions

All currently unsignalized intersections would continue to be restricted to allow only right turns into and out of streets and driveways intersecting with Van Nuys Boulevard, due to the elimination of the median 2-way-left-turn lane and inclusion of the LRT system.

However, the following turn lanes would be removed or added:

- < Valerio Street- northbound left turn removed
- < Saticoy Street- southbound left turn removed
- < Lanark Street- southbound left turn removed
- < Chase Street- northbound left turn removed
- < Tupper Street- northbound and southbound left turns removed
- < Plummer Street- southbound left turn removed
- < Vesper Avenue- northbound left turn removed
- < Woodman Avenue- northbound left turn added
- < Arleta Avenue- southbound left turn removed; northbound left turn added
- < Bartee Avenue- northbound left turn removed; southbound left turn added
- < Sherman Way- northbound and southbound left turns removed
- < El Dorado Avenue- northbound and southbound left turns removed

3.11 Bicycle Facilities

There are no changes to the bicycle facilities or bicycle paths.

Approximately two miles of existing bike lanes along the IOS would be removed due to right-of-way constraints. When feasible, bicycle parking would be provided at or near stations, as required by the MRDC.

3.12 Pedestrian Access

As previously cleared, all current crosswalks at signal-controlled intersections along the IOS would be maintained, and a barrier would be installed between signal-controlled intersections to prevent uncontrolled pedestrian crossings. El Dorado Avenue would be closed for vehicular and pedestrian cross traffic due to the relocation of the Van Nuys/San Fernando Station.

3.13 Vehicular Access

Vehicular access along Van Nuys Boulevard that would cross the LRT alignment of the IOS would continue to be limited to signalized crossings. All other streets or driveways would become right turns only into and out of Van Nuys Boulevard.

Left-turn crossings will be incorporated into existing intersections, such that the movement of trains, motorists, and pedestrians are controlled by traffic signals, train control signals, striping, and signage. In accordance with the CPUC crossing approval process, diagnostic meetings were conducted for each crossing, including the Left Turn Gate designs.

Left turn movements along Van Nuys Boulevard would only be allowed at 25 of the remaining signalized intersections; the remaining left-turns would be converted to operate under protected-only phase operation to ensure that there is no possibility of interference and conflict between left-turning vehicles and the LRT train, so the LRT system can safely operate in the median of Van Nuys Boulevard.

During crossing diagnostic meetings, a team of engineers and representatives from LACMTA, CPUC, consultants, and City of Los Angeles reviewed preliminary designs for the crossings and supported Left Turn Gates (and IIRPMs). LACMTA raised concerns that motorist illegal left turn movements in front of oncoming trains account for over 70% of all light rail accidents. LACMTA noted the effectiveness of reducing illegal left turns for similar Left Turn Gate located at Flower St. and 18th St., Los Angeles. Example left turn gate can be seen below (Exhibit 1). Given the results of the evaluation, the design team determined the need to eliminate additional left turns not previously identified in the FEIR/EIS.



Exhibit 1 – Existing Left Turn Gate for LACMTA Blue Line Train – Flower St. and 18th St

The traffic signals at 11 existing signalized intersections would be removed entirely and converted to only allow right turns into and out of streets.

Four of the existing signalized intersections would be converted to pedestrian-only crossings (Tammarack Avenue, Canterbury Avenue, Panorama Mall, Calvert Street).

The intersections at Tupper Street and Sherman Way would remain signalized with no left-turn operations from Van Nuys Boulevard.

The remaining traffic signals along the corridor would be maintained but modified to accommodate LRT operations.

In addition, during construction, temporary construction easements (TCE) would be required for 245 parcels for sidewalk and driveway construction. The number of TCEs was not specified in the previous description of the IOS.

3.14 Right-of-Way and Temporary Construction Easements in the Public Right-of-Way

Based on the proposed design in the advanced engineering drawings, the number of public right-of-way (ROW) impacts have been identified and described in this document. There will be permanent and temporary construction easements needed to complete the project. These public ROW impacts will temporarily impact properties adjacent to the project. These impacts are largely temporary construction easements (TCEs) needed for construction of the IOS. The number and type of construction easements (temporary and permanent) not previously specified in the FEIR/EIS are presented below:¹

- < 267 identified TCEs which include:
 - o 267 construction impacts to property from TCEs primarily for sidewalk, driveway, and curb ramp construction, and temporary construction activities
- < 82 identified permanent easements which include:
 - o 82 parcels need permanent easement for construction and implementation roadway widening. This would also include easements for temporary construction activities
- < 54 identified permanent acquisitions specific to IOS.
 - o 54 parcels needed for the construction of TPSS, TCB, and MSF properties.
- < The number of full acquisitions of properties dedicated to the guideway into and out of the MSF have been identified as not needed for the IOS. However, these sites may still be utilized for future use in phase 2 of the project. These sites are still in the full tally of properties. Detailed description of the changes from the FEIR/EIS to now are described in Appendix C.

3.15 Gated Light Rail Transit Grade Crossings

Previously, the description of the IOS included left-turn lane gates at signalized intersections along Van Nuys Boulevard where left turns are permitted across the LRT guideway that would be activated when a train approaches. Left turn gates are now proposed to be installed at select left turn pockets, and the gates would be activated at all times to enhance safety at these locations.

3.16 Sidewalk Improvements

Overall major improvements to the sidewalks were not included in the previous description of the IOS; however, the previous description of the IOS did include anticipated narrowing of sidewalks at select locations.

Project design updates include sidewalk improvements along Van Nuys Boulevard for the entire alignment of the IOS to enhance accessibility and meet the 2010 Americans with Disabilities Act

¹ C " ò r t q r g t v { ö " k p " v j k u " e q p v g z v " o c { " e q p u k u v " q h " o w n v k r n g " n g i c parcels identified herein for acquisition is greater than the number of properties.

standards to the maximum extent feasible. This includes maintaining a minimum sidewalk width of 3 feet (36 inches) with passing areas of at least 5 feet by 5 feet every 200 feet. Curb ramps and driveways would also be reconstructed along this segment.

3.17 Utility Work

Overall major utility work project descriptions were not included in the previous description of the IOS. Project design updates include utility work along Van Nuys Boulevard and various side streets.

The limits of utility improvements for the IOS are primarily within the Van Nuys Blvd ROW. Various utility and drainage relocations and improvements have been identified to avoid conflicts with the track alignment. Additionally, roadway and sidewalk improvements require the relocation of various utility poles. These underground and overhead infrastructure relocations and improvements have expanded the area of potential effects to various side streets.

3.18 Pacoima Wash Culvert

A portion or all of the Pacoima Wash culvert would be replaced within the limits of the proposed LRT guideway. The existing culvert is approximately 15 feet below grade to the bottom of the structure and excavation would be required to approximately 10 feet below the existing culvert to accommodate the larger culvert section and to install base needed for the new structure. Temporary shoring is anticipated to be required to remove and replace the culvert. Traffic control/diversion of traffic may be required during the removal of the existing culvert and the installation of new culvert section.

3.19 Air Raid Sirens

Two existing World War Two era air raid sirens would be relocated. This relocation was not included in the previous description of the IOS.

Air Raid Siren No. 104 is currently located at the outer edge of the sidewalk on the east corner of Van Nuys and Laurel Canyon Boulevards. Air Raid Siren No. 207 is currently located at the outer edge of the sidewalk on the northwest corner of Van Nuys Boulevard and Valerio Street. Both air raid sirens would be removed from their current location to new locations. The selection of the new locations is at the discretion of the City of Los Angeles.

4.0 Environmental Analysis

A review of the technical analysis for the project has been conducted per CEQA Guidelines Sections 15162 to determine if any of the changes to the project would result in significant effects not discussed in the previous FEIS/EIR, if significant impacts previously examined would be substantially more severe than previously shown; if mitigation measures or alternatives previously found not to be feasible would in fact be feasible, or if mitigation measures or alternatives considerably different from those analyzed in the FEIS/EIR would substantially reduce one or more significant effects on the environment.

The review is based on the CEQA guidelines, as well as the most current FTA and LACMTA guidelines and policies. To the extent possible, the analysis uses the same methods and criteria developed as part of the FEIS/EIR to determine the significance of any potential environmental impacts. A discussion of the affected environment and consideration of potential impacts during construction and operation is included in the sections below. These impacts are then compared to the conclusions of the FEIS/EIR to determine if new or additional mitigation would be necessary if the design change were adopted by the project.

Mitigation measures identified in the FEIS/EIR would apply to all design changes.

4.1 Construction Activities

The proposed design changes would not change the findings for construction methods and impacts discussed in Chapter 2.6 Construction Activities and Chapter 4 of the FEIS/EIR. The duration of construction is estimated to be approximately 4.5 to 5 years. As discussed in the FEIS/EIR, the project could include temporary street and lane closures and detour routes. Temporary construction easements identified above would provide the contractor and public with look ahead of project impacts as the construction work starts and progresses. Construction activities would most likely begin simultaneously at several locations along the project corridor to accommodate areas of work requiring lengthy construction times and bring the different segments of the project to completion to meet the schedule. Changes to the project would result in additional work within roadway right-of-way, including areas outside of the original footprint. However, project construction would continue to adhere to all applicable local, state, and federal laws for building and safety. As was stated in the FEIS/EIR, working hours would vary to meet special circumstances and restrictions, and efforts would be made to ensure working hours are appropriate for the community. **Finding:** construction activities would continue to result in a significant impact under CEQA. This determination is consistent with the FEIS/EIR findings.

4.2 Transportation, Transit, Circulation, Parking, and Bicycle Facilities

The proposed design changes would not change the findings for transportation, transit, circulation, parking, and bicycle facilities discussed in Section 3, Transportation, Transit, Circulation, Parking, of the FEIS/EIR. The roadway geometry would mostly remain the same between the original FEIS/EIR and updated IOS. However, since the completion of the FEIS/EIR, a lane was removed on Van Nuys Boulevard from Laurel Canyon Boulevard to San Fernando Road. In addition, for existing conditions, the original analysis used traffic counts collected in 2011, 2012 and 2013, while this updated analysis was based on data collected in 2019. A separate study was conducted in 2020 to provide the interface plan for the vehicular traffic and train operations of the project under the 2028 scenario. The peak hour traffic volumes for this supplemental traffic analysis were estimated based on the 2028 volumes and average annual growth rates from the interface plan. These growth rates were applied to the 2028 traffic volumes to estimate the 2040 with project volumes.

Appendix B, Table 1 and Table 2 show the comparison of intersection operations between the original and updated IOS scenario. The updated IOS analysis shows that more intersections would operate below LOS D in the future build scenario (2040) in both AM and PM peak hours.

The updated traffic analysis indicates that under the updated 2040 IOS scenario, 16 out of 26 study intersections would operate below LOS D. And for the alternative including removing the northbound and southbound left-turn lanes at the Van Nuys Boulevard/Sherman Way intersection 17 out of 26 study intersections would operate below LOS D.

The new arterial travel time results show that under the 2040 build scenarios, arterials would operate similarly between the IOS and the proposed alternative. (see **Appendix B, Table 3 and Table 4**). During the AM Peak Hour northbound travel time would be reduced by about four minutes under the alternative scenario compared to the updated IOS. And southbound travel time would increase by about three minutes under the alternative scenario compared to the updated IOS. During the PM peak hour, northbound travel time would reduce by about four minutes under the alternative scenario compared to the updated IOS. Southbound travel time would increase by about two minutes under the alternative scenario compared to the updated IOS.

It was concluded in the FEIS/EIR that the IOS would have unavoidable adverse local traffic impacts during operation and the LACMTA would work with the City to reduce the significant impacts by implementing corridor-level mitigation measures such as signal optimization and coordination. The additional impacts of implementing the new left-turn changes would not change the order of magnitude of significant impacts.

The IOS would not include any changes to the bicycle facilities or bicycle paths. As described in the FEIS/EIR, the IOS could result in bicycle access and safety impacts due to the removal of Class II bike lanes on Van Nuys Boulevard, which could increase the potential for bicycle collisions. **Finding:** operation of the IOS would continue to result in significant impacts under CEQA. Parking is not considered a significant impact under CEQA. This determination is consistent with the FEIS/EIR findings.

4.3 Land Use

The proposed design changes would not change the findings for land use discussed in Section 4.1, Land Use, of the FEIS/EIR. As was stated in the FEIS/EIR, construction activities would involve temporary closures of streets, lanes, and sidewalks but are not expected to substantially divide existing communities or neighborhoods. The number of right-of-way permanent property acquisitions remains the same with one less due to the change in the number of total TPSS locations. Temporary construction easements identified represent a refinement of the project scope and they account for updates to the sidewalk, road, and driveway structures that are currently in the neighborhood. These TCEs are to update or maintain features of the community already existing in the neighborhood such as driveways and sidewalks.. These construction impacts were anticipated in the FEIR/EIS. The operation of the light rail transit line would improve overall access to transit in the neighborhood but would continue to result in significant traffic impacts (per initial EIR/EIS findings) due to a reduction in the number of mixed-flow travel lanes to accommodate the LRT. The localized traffic impacts under the IOS would continue to conflict with the congestion reduction goals and policies of local plans. **Finding:** operation and construction of the IOS would continue to result in significant impacts under CEQA. This determination is consistent with the FEIS/EIR findings.

4.4 Real Estate and Acquisitions

The proposed design changes would not change the findings for real estate and acquisitions discussed in Chapter 4.2 of the FEIS/EIR. The modified IOS would include no additional acquisitions, however there was a modification of the TPSS sites based on the new power needs for the LRT. A number of temporary construction easements will be required to assist in the construction of the project (see **Appendix C**). These were not previously described in the FEIR/EIS because the level of detail had not been completed at the time. The number of full permanent acquisitions for the project is at 126 parcels, which includes 54 full parcel acquisitions, 82 partial parcel acquisitions for permanent easements, and 267TCEs. The full acquisitions would be for the purposes of alignment, stations, the MSF site, and the TPSS. The primary impacts will be from temporary construction work in the form of TCEs primarily for driveway construction, sidewalk construction, and temporary construction activities.

The additional temporary easements would not result in any additional operational impacts on the properties; however, they would require the closure of sidewalks and driveways during construction. Mitigation measures for construction were identified in the FEIS/EIR to address impacts related to traffic and circulation, and there would be no additional impacts on real estate. Construction impacts are considered less than significant under CEQA.

As described in the FEIS/EIR, LACMTA would provide relocation assistance and compensation for all displaced businesses, as required by both the Uniform Act and the California Act. The details of these laws regarding relocation assistance and compensation for property acquisitions are described in Sections 2.1.1 and 2.1.2 of the 2015 Real Estate and Acquisitions Technical Report. Where acquisitions and relocations are unavoidable, LACMTA would follow the provisions of both acts and their amendments. All real property acquired by LACMTA would be appraised to determine its fair market value and just compensation would be made to each property owner. Each business displaced as a result of the project would be given advance written notice and would be informed of its eligibility for relocation assistance and payments. **Finding:** operation and construction of the IOS would continue to have no impact under CEQA. This determination is consistent with the FEIS/EIR findings.

4.5 Economic and Fiscal Impacts

The proposed changes would not change the findings for economic and fiscal impacts as discussed in Section 4.3 of the FEIS/EIR. The changes in design would continue to result in direct and indirect impacts during construction including minor economic impacts on local businesses due to reduced visibility and diminished access resulting from sidewalk or lane closures, loss of on-street parking during construction, and permanent removal of on-street parking spaces. Those impacts would continue under the new design changes and would be less than significant. Additionally, the induced impacts of constructing the project would be an estimated 20,525 jobs. **Finding:** construction and operation of the IOS would continue to result in a less than significant impact under CEQA. This determination is consistent with the FEIS/EIR findings.

4.6 Community and Neighborhoods

The proposed changes would not change the findings for communities and neighborhoods discussed in Section 4.4, Communities and Neighborhoods, of the FEIS/EIR. The IOS would continue to enhance mobility and access by public transit. The IOS would continue to increase connectivity within the eastern San Fernando Valley area and would result in more unified communities by providing additional transit services. The IOS would now require 54 full right-of-way permanent acquisitions and 72 partial acquisitions to support road widening(see **Appendix C**). Although full and partial acquisitions would largely be required from commercial and industrial land uses, they would also include four residential properties. As anticipated by the original FEIR/EIS temporary construction easements would impact sidewalks and driveways to accommodate utilities construction, which could affect the surrounding communities. This document locates the majority of locations for TCEs so neighbors can understand the r t q l possible impact immediate to the community. There are also additional areas of utility and pavement work that would be affected during construction. **Finding:** operation of the IOS would continue to result in significant impacts under CEQA. This determination is consistent with the FEIS/EIR findings.

4.7 Visual Quality and Aesthetics

The proposed design changes would not change the findings for visual resources discussed in Section 4.5, Visual Quality and Aesthetics, of the FEIS/EIR. As was stated in the FEIS/EIR, construction activities would temporarily affect visual resources within and surrounding the project corridor. Existing scenic resources could be affected due to removal of some existing landscaping and street trees. Visual character and quality would be affected by the presence of the LRT cars and new stations. As was stated in the FEIS/EIR, the IOS would be designed in accordance with local codes and ordinances, including visual and aesthetic elements such as siting and height restrictions, structure scale, streetscaping features, and landscape design. **Finding:** construction would continue to result in significant impacts under CEQA after

implementation of proposed mitigation measures. The operational impacts under CEQA would continue to be significant on scenic views, scenic resources, and visual character, and would be less than significant or would be beneficial on visual quality. This determination is consistent with the FEIS/EIR findings.

4.8 Air Quality

4.8.1 Criteria Pollutant Emissions

The proposed changes would not change the findings for criteria pollutant emissions discussed in Section 4.6, Air Quality, of the FEIS/EIR. The regional VMT and travel speed profile predicted to occur along the 6.7-mile corridor of Van Nuys Boulevard under the IOS would generate the regional criteria pollutant emissions estimates presented in **Appendix D, Table 1**. The table also shows daily emissions throughout the corridor with the proposed design changes; as discussed previously, emissions associated with the MSF and vehicle propulsion would not change from what was presented in the FEIS/EIR. Relative to the FEIS/EIR analysis, the design changes would result in marginal increases in daily emissions of ROG, CO, and NO_x due to increased vehicle delay; however, emissions would remain at lower magnitudes than under the No Build Alternative in the design year of 2040.

The ultimate objective of this analysis was to evaluate if and how the proposed design changes would affect the daily air pollutant emissions relative to those disclosed in the FEIS/EIR. **Appendix D, Table 2** provides a summary of the emissions presented in the FEIS/EIR and combines them with the incremental change in emissions associated with implementation of the proposed design modifications to the turning restrictions along Van Nuys Boulevard. Results of the analysis demonstrated that although corridor emissions attributed to vehicular travel and delay would be marginally higher than the FEIS/EIR analysis for the IOS, implementation of the design changes would still generate emissions of all pollutants presented in **Appendix D, Table 2** at lower magnitudes than under the No Build Alternative in the design year of 2040. Therefore, implementation of the proposed design modifications would not substantially alter the environmental benefits of the project related to air pollutant emissions. The design changes associated with IOS would not create a new impact or exacerbate an existing impact identified in the FEIS/EIR. **Finding:** operation of the IOS would continue to result in a less than significant impact under CEQA. This determination is consistent with the FEIS/EIR findings.

4.8.2 Carbon Monoxide Hot Spots

The proposed changes would not change the findings for carbon monoxide hot spots discussed in Section 4.6, Air Quality, of the FEIS/EIR. Based on ambient air monitoring data collected by SCAQMD, the South Coast Air Basin (Basin) has continually met state and federal ambient air quality standards for CO since 2003. As such, the Basin was reclassified to attainment/maintenance status from serious nonattainment, effective June 11, 2007. While the Final 2016 Air Quality Management Plan (AQMP) is the most recent AQMP, no additional regional or hotspot CO modeling has been conducted to demonstrate attainment of the 8-hour average CO standard since the analysis provided in the 2003 AQMP.

Since local CO concentrations are a function of 1) intersection traffic volumes, 2) peak-hour intersection congestion, 3) CO emissions factors [idle and grams/mile], and 4) the ambient CO background concentration; it is possible to identify which, if any, of the most congested intersection locations have a potential to violate state or federal CO standards. Table 4-7 in Appendix L (Air Quality Technical Report) of the FEIS/EIR shows intersections that meet the following criteria: 1) intersection congestion and/or delay would worsen under when compared to the No Build Alternative, and 2) the intersection would

operate at LOS F.

Total intersection approach volumes under the IOS would not exceed the maximum total intersection approach volume identified for a 2003 attainment demonstration intersection, during the AM or PM peak-hour period. In addition, the eastern San Fernando Valley is predicted to have an 8-hour CO background concentration of 5.5 parts per million in 2020 (farthest SCAQMD prediction), compared to an 8-hour background concentration of 7.8 parts per million used for the 2003 attainment demonstration analysis. And finally, the CO five miles per hour emissions factor for year 2040 is predicted to be 1.1 grams per mile. This emission rate is less than 10 percent of the CO five miles per hour emissions factor of 13.9 grams per mile used for the 2003 AQMP attainment demonstration. Therefore, although implementation of the design modification would result in marginal increases in CO emissions at the Van Nuys Boulevard intersections with turning restrictions, emissions would still decrease relative to the No Build Alternative. The design changes associated with the IOS would not create a new impact or exacerbate an existing impact identified in the FEIS/EIR. **Finding:** operation of the IOS would continue to result in a less than significant impact under CEQA. This determination is consistent with the FEIS/EIR findings.

4.8.3 Toxic Air Contaminant Emissions

The proposed changes would not change the findings for toxic air contaminant emissions discussed in Section 4.6, Air Quality, of the FEIS/EIR. The travel speed profile and average intersection delay along the 6.7-mile Van Nuys Boulevard corridor that were forecasted using transportation modeling under the IOS would generate the MSAT emissions estimates presented in the second-to-left column of **Appendix D, Table 3**. Implementation of the proposed design changes would result in no material effect to regional MSAT emissions disclosed in the FEIS/EIR under the IOS, as shown in the columns presenting the net change from the IOS analysis. This conclusion is similar to what was presented in the FEIS/EIR in comparing the IOS to the No Build Alternative, which is also shown in **Appendix D, Table 3** for comparison. The FEIS/EIR Regional Analysis in the right portion of the table includes all regional on-road VMT emissions as described in the FEIS/EIR, whereas the supplemental analysis focused only on the vehicle volumes, travel speeds, and intersection delay throughout the IOS corridor along Van Nuys Boulevard. The differences in MSAT emissions observed by comparing the design changes to the IOS would not result in any previously disclosed reduction becoming an increase in daily emissions.

Moreover, EPA regulations for vehicle engines and fuels will cause overall MSAT emissions to decline significantly over the next several decades. Based on regulations now in effect, an analysis of national emission rate for the priority MSAT from 2010 to 2050 while vehicle-miles of travel are projected to increase by over 100 percent. This will both reduce the background level of MSAT as well as the possibility of even minor MSAT emissions from this project. The design changes associated with the IOS would not create a new impact or exacerbate an existing impact identified in the FEIS/EIR. **Finding:** operation of the IOS would continue to result in a less than significant impact under CEQA. This determination is consistent with the FEIS/EIR findings.

4.9 Greenhouse Gas Emissions

The proposed changes would not change the findings for greenhouse gas emissions discussed in Section 4.7, Air Quality, of the FEIS/EIR. **Appendix D, Table 4** presents a summary of the annual GHG emissions associated with operation of the IOS with the proposed design changes as well as the emissions that were disclosed in the FEIS/EIR. The table shows emissions associated with each major source component involved in project operations in the 2040 analysis year: the MSF, LRT vehicle propulsion and station operations, and construction activities (the design changes would not alter construction

emissions from those presented in the FEIS/EIR). 2040 is the appropriate baseline year for determining the significance of impacts related to GHG emissions because the project and other transit system improvements would be fully integrated into the regional circulation patterns and travel behaviors of members of the public. Also included in **Appendix D, Table 4** are the net GHG emissions associated with the displacement of on-road vehicle travel.

Moving the station locations would not affect GHG emissions during construction or future operation of the IOS. The FEIS/EIR construction emissions analysis accounted for the same number of stations as would be built with the design changes, and the new sites would not alter the off-road equipment and on-road vehicle inventories required to build the stations. Annual GHG emissions during construction would be consistent with the magnitude of emissions analyzed in the FEIS/EIR. Furthermore, the operational on-road vehicular travel emissions reductions disclosed in the FEIS/EIR would occur when considering the new station locations because the increases in transit ridership and decreases in on-road vehicle miles traveled (VMT) would not change relative to what was previously analyzed. The new station sites would not have any effect on transit ridership, and therefore no further analysis of GHG emissions is warranted for this design change.

Construction of the IOS with the proposed MSF modification would not change the total or annual average GHG emissions that were disclosed in the FEIS/EIR. Installation of the PV solar array and BESS would not require additional off-road equipment use or on-road vehicle activity. Furthermore, implementation of the IOS with the proposed solar PV array and BESS would result in less operational GHG emissions than those that were disclosed in the FEIS/EIR because the IOS would require less energy from the grid, which is a source of indirect GHG emissions. Information provided by the LACMTA Metro indicated that the MSF rooftop solar PV and BESS would yield an annual offset of 74.5 percent and maintain a payback period of 25 years. The FEIS/EIR analysis determined that annual GHG emissions resulting from MSF electricity consumption would be approximately 471 MTCO_{2e}; therefore, the PV and BESS would reduce MSF indirect energy emissions by approximately 350 MTCO_{2e} relative to the analysis presented in the FEIS/EIR.

Removal of the turn lanes along Van Nuys Boulevard would increase annual peak hour vehicle emissions by approximately 1,066 MTCO_{2e} under the design change. The net annual emissions relative to the 2040 No Build Alternative baseline with implementation of the design change would be reductions of approximately 9,505 MTCO_{2e} or 9,082 MTCO_{2e}, respectively. The design changes associated with IOS would not create a new impact or exacerbate an existing impact identified in the FEIS/EIR. **Finding:** operation of the IOS would continue to result in a less than significant/beneficial impact under CEQA. This determination is consistent with the FEIS/EIR findings.

4.10 Noise and Vibration

The proposed changes would not change the findings for noise and vibration as described in Section 4.8 of the FEIS/EIR. Three aspects of the IOS were identified and analyzed to identify potential changes to the operational noise and vibration impact results: (TPSS, crossovers, and right-of-way (ROW) building acquisitions.

4.10.1 Traction Power Substations

Appendix E, Table 1 summarizes the noise assessment results for TPSS Sites 3, 4, 5, 8, and 9 which were relocated. The table provides existing and predicted future noise levels at the closest noise-sensitive receiver. There would be no noise impact at TPSS Sites 3, 4, or 8; however, there would be severe noise impacts per FTA criteria at Receiver Cluster SB-7a adjacent to TPSS Site 5 and at Receiver Cluster SB-

39 adjacent to TPSS Site 9 (see **Appendix F, Figure 1** and **Figure 2**). Receiver Cluster ID SB-7a represents 5 multi-family residential buildings with approximately 18 total residential units. The closest building is approximately 34 feet to the west of TPSS 5. Noise impacts are predicted at all of the buildings in this cluster and at Receiver Cluster SB-7b to the northwest. Receiver cluster ID SB-39 represents a cluster of single-family residences located on Pinney Street. The closest building is approximately 41 feet west of the TPSS site. Noise impact is predicted at residences within 135 feet of the TPSS unit.

The FEIS/EIR included mitigation measures for TPSS units, including MM-NOI-3a, MM-NOI-3b, and MM-NOI-3c to reduce noise impacts resulting from TPSS units. These mitigation measures would be implemented at the TPSS locations where impact is predicted. **Finding:** with implementation of these measures, operation of the IOS would continue to result in a significant impact under CEQA. This determination is consistent with the FEIS/EIR findings.

4.10.2 Crossovers and Special Trackwork

The IOS would require special trackwork, including turnouts and crossovers. Turnouts and crossovers for light-rail transit require special trackwork where two rails cross. The special fixture used where two rails cross is a frog. The wheels striking the ends of the gap cause localized increases in noise and vibration levels. An adjustment to the predicted noise levels of +6 dB is applied when special trackwork would be located within 300 feet of sensitive receivers. An adjustment to the predicted vibration levels of +10 dB is applied when special trackwork would be located within 200 feet of sensitive receivers.

There are no noise-sensitive receivers located within 300 feet of the double crossover between Calvert Street and Delano Street, and the single crossovers at Hamlin Street would not result in noise impacts (see **Appendix E, Table 2** and **Table 3**). The remaining crossovers would result in noise levels at nearby receivers exceeding FTA thresholds.

The FEIS/EIR included mitigation measures for crossovers and special trackwork, including MM-VIB-2a, MM-VIB-2b, and MM-VIB-2c to reduce noise impacts resulting from this work. These measures included additional study of noise and vibration impacts, installation of frog points at appropriate locations. As a result of the updated studies, low-impact frogs are recommended at the following crossover locations:

- < Single crossovers at Hart Street
- < Yard lead turnouts at Keswick Street
- < Double crossover at Covello Street
- < Single crossovers at Titus Street
- < Single crossovers between Parthenia Street and Rayen Street
- < Single crossovers at north of Vincennes Street and at Gledhill Street
- < Single crossovers between Canterbury Avenue and Beachy Avenue
- < Double crossover north of Remick Avenue
- < Double crossovers between Telfair Avenue and Tamarack Avenue

At some of the crossover locations, a moderate noise impact was predicted in the FEIS/EIR without any noise contribution from the crossover. To reduce the predicted noise levels to below the FTA moderate noise impact threshold at these locations, the following additional mitigation measure would be included to accomplish the same noise reductions:

- < MM-NOI-3d: The following measures would be included in project plans as needed to meet applicable noise level thresholds:
 - o *Specify low-noise vehicles* ó Manufacturers can achieve low-noise specifications with a combination of vehicle skirts, a well-designed suspension, and under-car absorption. Low-noise vehicles may reduce noise levels by 3 dB.
 - o *Building sound insulation* ó Sound insulation of residences and buildings improves the outdoor-to-indoor noise reduction. Although this approach has no effect on noise in exterior areas, it may be the best choice for sites where noise barriers are not feasible or desirable or for buildings where indoor sensitivity is of most concern.
 - o *Install ballast-and-tie track* ó Ballast is an absorptive material, so it reflects less noise than a concrete track bed. Ballast-and-tie track systems are about 3 decibels quieter than traditional embedded track systems.
 - o *Apply absorptive material to the concrete track bed* ó Although not common there are several examples of this approach being used as a noise mitigation measure on Asian and European transit systems. However, this option is difficult to implement in a right-of-way where there are many cross-streets.

The FEIS/EIR identified moderate noise impacts from crossovers but did not identify severe noise threshold for the project; however, noise mitigation is also considered for any locations where moderate exceed the severe impact criteria and the severe impact criteria was used as the NEPA threshold in the FEIS/EIR. **Finding:** operation of the IOS would continue to result in a significant impact under CEQA. This determination is consistent with the FEIS/EIR findings.

4.10.3 Vibration

There are no vibration-sensitive receivers located within 200 feet of the double crossover between Calvert Street and Delano Street and the single crossovers at Hart Street and the double crossover at Covello Street would not result in vibration impacts (see **Appendix E, Table 4**). The remaining crossover locations would result in cause vibration levels at nearby receivers exceed FTA thresholds. The FEIS/EIR included mitigation measures for vibration including MM-VIB-2a, MM-VIB-2b, and MM-VIB-2c to reduce vibration impacts resulting from this work. These measures included additional study of noise and vibration impacts, installation of frog points at appropriate locations. As a result of the updated studies, low-impact frogs are recommended at the following crossover locations:

- < Single crossovers at Hamlin Street
- < Yard lead turnouts at Keswick Street
- < Single crossovers at Titus Street
- < Single crossovers between Parthenia Street and Rayen Street
- < Single crossovers at north of Vincennes Street and at Gledhill Street
- < Single crossovers between Canterbury Avenue and Beachy Avenue
- < Double crossover north of Remick Avenue
- < Double crossovers between Telfair Avenue and Tamarack Avenue

At the single crossovers between Parthenia Street and Rayen Street and the crossovers between Vincennes

Street and Gledhill Street vibration impact was predicted in the FEIS/EIR without any vibration contribution from the crossover. The following mitigation measures were included in the FEIS/EIR and have been amended based on the additional analysis performed as a result of the proposed design changes to accomplish the same noise reductions:

MM-VIB-2b: The contractor shall install moveable point frogs at the crossovers on Van Nuys Boulevard/Osbourne Street and at Van Nuys Boulevard/Canterbury Avenue. If further investigation confirms that an alternative low-impact frog would reduce vibration levels below the applicable thresholds, the alternative may be installed.

MM-VIB-2c: Low-impact frogs such as conformal frogs or spring frogs shall be used at all crossovers and turnouts not covered under MM-VIB-2b. Traditional crossovers may be used in locations where analysis shows vibration levels will not exceed the applicable thresholds at nearby sensitive receivers.

Vibration mitigation measure MM-VIB-4 d " y q w n f " d g " w r f c v g f " v q " õ -Vajl g " e q p v frogs at the crossovers on Van Nuys Boulevard/Parthenia Street, Van Nuys Boulevard/Gledhill Street and Van Nuys Boulevard/Beachy Street. Like moveable point frogs, spring rail frogs provide a continuous running surface in the mainline direction and are therefore expected to provide similar noise and vibration reduction. However moveable point frogs require additional switch equipment that is unlikely to fit in the right-of-way. If further investigation confirms that an alternative low-impact frog would reduce noise and vibration levels below the applicable thresholds, such as conformal frogs, the alternative may be k p u v c n n g f 0 ö

Vibration mitigation measure MM-VIB-2c woulf " d g " w r f c v g f " v q " õ -Vajl g " e q p v impact" frogs such as conformal frogs or spring frogs shall be used at all crossovers and turnouts not covered under MM-VIB-2b, except for the double crossover between Calvert Street and Delano Street where there are no sensitive receivers located within 300 feet. At locations where sensitive receivers are further than 300 feet from the special v t c e m y q t m . " u v c p f c t f " h t q i u " c t g " c e e g r v c d n g 0 ö "

The *Draft Vibration Assessment and Mitigation Recommendations* (February 2021) report recommended a continuous mat floating slab and a monoblock frog with conformal top for the crossover located at Parthenia Street. This same engineering approach to vibration reduction could be applied to the crossover at Gledhill Street in place of the moveable point frogs recommended in MM-VIB-2b to reduce predicted vibration levels to below the impact threshold.

The vibration mitigation recommendations for low-impact frogs would also provide noise mitigation for the sensitive receivers where severe noise impact is predicted. The vibration mitigation recommendations in MM-VIB-2b and MM-VIB-2c would reduce all predicted severe noise impacts to equal to or below the severe noise impact threshold for all crossover locations. A moveable point frog at the Beachy Avenue crossover (MM-Vib-2b) would reduce the predicted noise levels to below the severe impact threshold; however, the engineering approach of using continuous mat floating slab and a monoblock frog with conformal top would not provide the same noise reduction as a moveable point frog. Measurements may show that a monoblock frog with a conformal top would reduce noise levels to below the severe impact threshold at Beachy Avenue, but data is not currently available and a conservative assumption of noise reduction from a monoblock frog was applied. **Finding:** with implementation of these measures, operation of the IOS would continue to result in a less than significant impact under CEQA. This determination is consistent with the FEIS/EIR findings.

4.10.4 Right-of-Way Acquisitions

The proposed design changes would not change the findings for right-of-way acquisitions discussed in Section 4.8, Noise, of the FEIS/EIR.

One full acquisition was identified where there was a previously predicted moderate noise impact in the FEIS/EIR at receiver cluster ID SB-22, shown in **Appendix F, Figure 3**. SB-22 is a cluster of single-family residences that includes 7 units. The single-family residence at 14229 Van Nuys Boulevard would be a full acquisition to accommodate TPSS Site #7. The removal of this residential building would slightly affect noise propagation from traffic and light-rail operations on Van Nuys Boulevard at receiver cluster ID SB-23, which is setback one row off of Van Nuys Boulevard. However, with the TPSS building and other equipment occupying this space, the effect of removing this one building is expected to be negligible.

Full property acquisition is also required for TPSS 9 for several buildings on Van Nuys Boulevard between El Dorado Road and San Fernando Road. The existing buildings form a continuous façade that significantly reduces the noise levels at the sensitive receiver cluster ID SB-39, which is set back one row off of Van Nuys Boulevard. The TPSS and other project facilities located at this site would not provide similar noise reduction as the existing buildings, and the removal of the buildings would result in an increase in noise levels above the noise impact threshold. Noise mitigation would be included in the TPSS site design to account for the increase in traffic noise levels from removing the buildings.

The FEIS/EIR included MM-NOI-2a, which would include a sound wall where the row of buildings would be removed near the intersection of Van Nuys Boulevard and San Fernando Road. **Finding:** with implementation of this measure, construction and operation of the IOS would continue to result in a significant impact under CEQA. This determination is consistent with the FEIS/EIR findings.

4.11 Geology, Soils, and Seismicity

The proposed design changes would not change the findings for geological resources discussed in Section 4.9, Geology, Soils, and Seismicity, of the FEIS/EIR. As was stated in the FEIS/EIR, the project would be designed in compliance with current building codes and regulatory requirements. Previously proposed mitigation measures, MM-GEO-1 and MM-GEO-4 . " c p f " e q o r n k c p e g " y k v j " O g v t q latest federal and state seismic and environmental requirements, and state and local building codes, would reduce potential impacts on geological resources to a less-than-significant level. **Finding:** construction and operation of the IOS would continue to result in a less than significant impact under CEQA. This determination is consistent with the FEIS/EIR findings.

4.12 Hazardous Waste and Materials

The proposed design changes would not change the findings for hazardous materials discussed in Section 4.10, Hazardous Waste and Materials, of the FEIS/EIR. As was stated in the FEIS/EIR, hazardous materials could be encountered during excavation as well as any accidental release of hazardous materials from construction equipment. Deeper ground excavation for foundations or structures could result in groundwater contamination by volatile organic compounds. Lead-based paint and asbestos containing material could be encountered in waste building materials during demolition of existing structures for the MSF and TPSS facilities. As was stated in the FEIS/EIR, the removal, handling, and disposal of hazardous materials would be conducted in accordance with all applicable federal, state, and local regulations, and would comply with the mitigation measures, MM-HAZ-1 through MM-HAZ-6. **Finding:** construction and operation and construction of the IOS would continue to result in a less than significant impact under CEQA. This determination is consistent with the FEIS/EIR findings.

4.13 Energy

The proposed design changes would not change the findings regarding energy resources as discussed in Section 4.11, Energy, of the FEIS/EIR. Diesel fuel consumption would increase due to the utility work that was not included in the FEIS/EIR. However, this increase would be minimal and would represent a negligible increase in regional demand. Construction energy use would not be adverse under NEPA. The MSF is now proposed to be powered by a rooftop photovoltaic and battery storage system. This would reduce energy derived from the LADWP electricity services. Energy needed to power the MSF is not expected to change due to the design changes. The number of TPSS stations is being reduced from 10 to nine stations and the voltage is increasing; however, this would not change the energy usage estimates. Energy usage for the propulsion systems was calculated based on the length of the LRT alignment. The alignment has not undergone any change; therefore, it would require the same amount of energy to power the LRT. **Finding:** operation of the IOS would continue to result in a less than significant impact under CEQA. This determination is consistent with the FEIS/EIR findings.

4.14 Ecosystems and Biological Resources

The proposed design changes would not change the findings for biological resources discussed in Section 4.12, Ecosystems and Biological Resources, of the FEIS/EIR. As was stated in the FEIS/EIR, proposed mitigation measures MM-BIO-1 through MM-BIO-4 would reduce potential impacts on special-status bats, nesting birds, jurisdictional waters, or protected trees. Project operation would remain the same and no impact or effects on biological resources would be anticipated. **Finding:** construction and operation of the IOS would continue to result in a less than significant impact under CEQA. This determination is consistent with the FEIS/EIR findings.

4.15 Water Resources/Hydrology and Water Quality

The proposed design changes to the modified IOS would not change the findings regarding water resources as discussed in Section 4.13, Water Resources/Hydrology and Water Quality, of the FEIS/EIR. The IOS alignment has not changed. Sidewalk and driveway improvements could require additional drainage improvements and may change the grade. However, stormwater would continue to drain into the existing major storm drain line that runs through the Van Nuys Boulevard corridor and San Fernando Road corridor and crosses the Pacoima Wash Channel and Pacoima Wash Control Channel. The proposed design changes would not place structures that would impede or redirect flood flows as mapped on any flood hazard delineation map as discussed in the FEIS/EIR. The project would continue to comply with the statewide National Pollutant Discharge Elimination System. **Finding:** construction and operation of the IOS would continue to result in a less than significant impact under CEQA. This determination is consistent with the FEIS/EIR findings.

4.16 Safety and Security

The proposed design changes would not change the findings regarding safety and security as discussed in Section 4.14, Safety & Security, of the FEIS/EIR. The IOS alignment has not changed. The project is not located within an airport land use plan area or in the immediate vicinity of any airport or within a wildland fire area. The installation of left turn gates would increase safety along the corridor based on the traffic analysis conducted. However, the removal of mix-flow lanes would potentially adversely affect emergency response time and emergency response plans as emergency response vehicles may be required to take a more circuitous route. **Finding:** construction and operation of the IOS would continue to result in a significant impact under CEQA. This determination is consistent with the FEIS/EIR findings.

4.17 Parklands and Community Resources

The proposed design changes would not change the findings regarding parklands and community facilities as discussed in Section 4.15, Parklands and Community Facilities, of the FEIS/EIR. The IOS alignment has not changed. The IOS would require a TCE from the Albert Piantanida Intergenerational Center. Views of construction areas could be possible from parklands and community facilities; however, mitigation measures MM-VIS-1, MM-VIS-2, MM-VIS-3, MM-VIS-4, and MM-VIS-5 would be implemented to reduce visual impacts. Access to parklands and community facilities would be maintained during construction with implementation of a Traffic Management Plan, including traffic control measures and mitigation measures MM-TRA-1 and MM-TRA-2. **Finding:** with implementation of these measures, construction and operation of the project would continue to result in a significant impact under CEQA. This determination is consistent with the FEIS/EIR findings.

4.18 Historic, Archaeological, and Paleontological Resources

4.18.1 Historic Resources

The IOS alignment has not changed; however, the proposed design changes resulted in an expansion of the APE and over 150 additional built environment resources that would traditionally require evaluation for the purposes of Section 106 compliance and CEQA. With approval from SHPO to use the same streamlined methodology used for the FEIS/EIR, 13 additional individual built-environment resources were evaluated and it was determined that they were not historic properties for the purposes of Section 106 or historical resources for the purposes of CEQA.

Due to their large size and limited potential for effects resulting from the undertaking, four previously identified large-scale resources are assumed eligible for the National Register of Historic Places (NRHP) as historic districts for the purposes of this undertaking only. Individual components of these districts were reviewed to assess whether they dated from the period of significance and possessed the physical integrity that would be necessary to contribute to the significance of the assumed NRHP-eligible districts. As such, the following are presumed to be historic properties and historical resources for the purposes of this undertaking only for compliance with Section 106 and CEQA:

1. Los Angeles Air Raid Sirens
 - a. Air Raid Siren #207
 - b. Air Raid Siren #104
2. Los Angeles County Drainage Area Project
 - a. Pacoima Diversion Channel Segment

3. Panorama City Historic District
4. San Fernando Valley Administrative Center
 - a. James C. Corman Federal Building (6230 Van Nuys Blvd)
 - b. Van Nuys Post Office (14441 W. Delano St)
 - c. Van Nuys State Office Building (6162 Van Nuys Blvd)

The findings for the expanded APE are preliminary, pending SHPO concurrence.

The following properties within the expanded APE were previously identified as being eligible for the NRHP and SHPO concurred on April 5, 2017. Therefore, they are historic properties and historical resources for the purposes of Section 106 and CEQA.

5. Panorama Movie Theater (9110 Van Nuys Boulevard)
6. Panorama City Bank of America (8324 Van Nuys Boulevard)
7. Great Western Savings Bank (8201 Van Nuys Boulevard)
8. Bank of America (6551 Van Nuys Boulevard)
9. Owl-Rexall Drug Co. (6353 Van Nuys Boulevard)

Because the identification and evaluation findings are still pending SHPO concurrence, the criteria of adverse effect have not yet been applied to the newly identified historic properties within the expanded APE or the previously identified historic properties for the proposed design changes. It is not yet known whether the proposed design changes would change the findings for built-environment resources discussed in Section 4.16, Historical, Archaeological, and Paleontological Resources, of the FEIS/EIR; however, based on initial analysis effects are not expected to be adverse and impacts are not expected to be significant under CEQA. There have been no changes to the proposed operation of the LRT, so no operational impacts are anticipated. This preliminary assessment of effects is based on the project design as of March 31, 2023, and is subject to change following more detailed analysis.

4.18.2 Archaeological Resources

The proposed design changes would not change the findings for archaeological resources discussed in Section 4.16, Historical, Archaeological, and Paleontological Resources, of the FEIS/EIR. The modified IOS would now include shallow excavations for the reconstruction of the existing sidewalk along Van Nuys Boulevard and the relocation of one TPSS which is located outside of the previous Area of Potential Effects (APE). All new areas proposed for ground disturbance are in existing urban development areas (e.g., including existing sidewalks, paved parking lots or other areas covered in asphalt). The development in these areas likely resulted in some disturbance to the native ground surface, either through grading, or excavation. No new impacts on existing archaeological resources are anticipated as a result of the revised APE. The FEIS/EIR included measures MM-AR-2 and MM-AR-3 would reduce potential impacts on any previously unidentified archaeological resources. Project operation would remain the same and no impact or effects on archaeological resources would be anticipated. **Finding:** with implementation of these measures, construction and operation of the IOS would continue to result in a less than significant impact under CEQA. This determination is consistent with the FEIS/EIR findings.

4.18.3 Paleontological Resources

The proposed design changes would not change the findings for paleontological resources discussed in Section 4.16, Historical, Archaeological, and Paleontological Resources, of the FEIS/EIR. The modified IOS would now include shallow excavations for the reconstruction of the existing sidewalk along Van Nuys Boulevard. The FEIS/EIR included measures MM-PR-1 and MM-PR-2 to reduce potential impacts

on paleontological resources. Project operation would remain the same and no impact or effects on paleontological resources would be anticipated. **Finding:** construction and operation of the IOS would continue to result in a less than significant impact under CEQA. This determination is consistent with the FEIS/EIR findings.

4.19 Environmental Justice

The proposed design changes would not change the findings for environmental justice discussed in Section 4.17, Environmental Justice, of the FEIS/EIR. The IOS would continue to result in new transit opportunities, which would improve connectivity and transit equity. According to the FEIS/EIR, the project study area includes low-income and minority communities and the displacements associated with the IOS would result in disproportionately high and adverse impacts on minority and low-income communities. However, with implementation of proposed mitigation measures, the impacts would not be substantial. The number of full permanent acquisitions for the project is at 126 parcels, which includes 54 full parcel acquisitions, 72 partial acquisitions for permanent easements. There will be a need for 267 TCEs. The full acquisitions would be for the purposes of alignment, stations, the MSF site, and the TPSS. The number of partial permanent easements was increased from 17 to 82 properties for road widening. **Finding:** construction and operation of the IOS would result in no disproportionately high and adverse effects on environmental justice populations. This determination is consistent with the FEIS/EIR findings.

4.20 Growth-Inducing Impacts

The proposed design changes would not change the findings for growth inducement discussed in Section 4.18, Growth-Inducing Impacts, of the FEIS/EIR. As was stated in the FEIS/EIR, construction activities would not likely induce growth because there is already a large pool of construction workers in Los Angeles County. In addition, the proposed improvements to the transit system and increases in transportation network efficiency and connectivity could be a catalyst for new development but this would not be anticipated to induce growth. **Finding:** construction and operation of the IOS would continue to result in a less than significant impact under CEQA. This determination is consistent with the FEIS/EIR findings.

5.0 Results and Conclusions

The LACMTA has evaluated the potential for new impacts or change in the level of impacts from the Design Changes, based on the analysis above, the design changes on the IOS for the East San Fernando Valley Transit Corridor Project, would result in environmental effects that would be different from those previously identified in the FEIS/EIR. Based on the results of the additional environmental analyses and with implementation of mitigation, LACMTA finds that the design changes would result in minor changes to impacts compared to those identified in the FEIS/EIR, NOD, and Statement of Overriding Considerations, but would not result in a change in the magnitude of impacts to the extent that would change impact determinations.

Mitigation measures included in the FEIS/EIR would be adequate to mitigate updated impacts, with the exception of noise and vibration impacts (see Section 5.10). Additional mitigation measures are included in Section 5.9 to mitigate additional noise and vibration impacts. Mitigation would be implemented consistent with the Mitigation Monitoring and Reporting Program. **Table 2** includes a summary of mitigation measures and impacts after mitigation for the IOS described in the FEIS/EIR and the updated IOS analyzed in this Addendum. **Appendix G** includes a summary of mitigation measures referenced in **Table 2**.

EAST SAN FERNANDO VALLEY TRANSIT CORRIDOR ADDENDUM

Table 2. Mitigation Comparison Table

Affected Resource	Timing	IOS (Original FEIS/EIR)		IOS (Updated)	
		Mitigation	Impacts After Mitigation	Additional Mitigation Required	Impacts After Mitigation
Transportation, Transit, Circulation, and Parking	Construction	MM-TRA-1 to 3	Significant (transit, traffic, bicycle facilities)	N/A	Significant (transit, traffic, bicycle facilities)
	Operation	MM-TRA-4 to 7	Significant (traffic, bicycle facilities)	N/A	Significant (traffic, bicycle facilities)
Land Use	Construction	MM-NOI-1a MM-VIB-1 MM-AQ-1 to 9	Less than Significant	N/A	Less than Significant
	Operation	MM-NOI-2a to 2b MM-NOI-3a to 3c	Significant (conflicts with general plan due to increased traffic congestion)	MM-NOI-3d	Significant (conflicts with general plan due to increased traffic congestion)
Real Estate and Acquisitions	Construction	N/A	Less than Significant	N/A	Less than Significant
	Operation	N/A	No Impact	N/A	No Impact
Economic and Fiscal Impacts	Construction	MM-TRA-1 to 3 MM-CN-1	Less than Significant	N/A	Less than Significant
	Operation	N/A	Less than Significant	N/A	Less than Significant
Communities and Neighborhoods	Construction	MM-TRA-1 to 3 MM-VIS-1 to 5 MM-AQ-1 to 9 MM-NOI-1a to 1d MM-NOI-2a to 2b MM-NOI-3a to 3c MM-SS-1 to 23 MM-CN-1	Significant (removal of bike lanes, community impacts due to business displacements)	N/A	Significant (removal of bike lanes, community impacts due to business displacements)
	Operation	MM-TRA-4 to 7	Significant	MM-NOI-3d	Significant

EAST SAN FERNANDO VALLEY TRANSIT CORRIDOR ADDENDUM

Affected Resource	Timing	IOS (Original FEIS/EIR)		IOS (Updated)	
		Mitigation	Impacts After Mitigation	Additional Mitigation Required	Impacts After Mitigation
		MM-VIS-2 to 5 MM-NOI-2a to 2b MM-NOI-3a to 3c MM-VIB-2a to 2c MM-SS-12 to 23	(removal of bike lanes, business displacements, and visual impacts)		(removal of bike lanes, business displacements, and visual impacts)
Visual Quality and Aesthetics	Construction	MM-VIS-1	Significant	N/A	Significant
	Operation	MM-VIS-2 to 5	Significant	N/A	Significant
Air Quality	Construction	MM-AQ-1 to 9	Less than Significant	N/A	Less than Significant
	Operation	N/A	Less than Significant	N/A	Less than Significant
Greenhouse Gas Emissions	Construction	MM-AQ-1 to 3 MM-AQ-6	N/A	N/A	N/A
	Operation	MM-AQ-1 to 3 MM-AQ-6	Less than Significant /Beneficial	N/A	Less than Significant /Beneficial
Noise and Vibration	Construction	MM-NOI-1a to 1e MM-VIB-1	Significant (Noise Only)	N/A	Significant (Noise Only)
	Operation	MM-NOI-2a to 2b MM-NOI-3a to 3c MM-VIB-2a to 2c	Less than Significant	MM-NOI-3d	Less than Significant
Geology, Soils, and Seismicity	Construction	N/A	Less than Significant	N/A	Less than Significant
	Operation	MM-GEO-1 MM-GEO-2	Less than Significant	N/A	Less than Significant
Hazardous Waste and Materials	Construction	MM-HAZ-1 to 6	Less than Significant	N/A	Less than Significant
	Operation	N/A	Less than Significant	N/A	Less than Significant

EAST SAN FERNANDO VALLEY TRANSIT CORRIDOR ADDENDUM

Affected Resource	Timing	IOS (Original FEIS/EIR)		IOS (Updated)	
		Mitigation	Impacts After Mitigation	Additional Mitigation Required	Impacts After Mitigation
Energy	Construction	N/A	Less than Significant	N/A	Less than Significant
	Operation	N/A	Less than Significant	N/A	Less than Significant
Ecosystems/ Biological Resources	Construction	MM-BIO-1 to 4	Less than Significant	N/A	Less than Significant
	Operation	N/A	Less than Significant	N/A	Less than Significant
Water Resources/ Hydrology and Water Quality	Construction	N/A	Less than Significant	N/A	Less than Significant
	Operation	N/A	Less than Significant	N/A	Less than Significant
Safety and Security	Construction	MM-SS-1 to 11	Less than Significant	N/A	Less than Significant
	Operation	MM-SS-12 to 23	Significant	N/A	Significant
Parklands and Community Facilities	Construction	MM-TRA-1 to 2 MM-VIS-1 MM-AQ-1 to 8 MM-NOI-2a to 2b MM-NOI-3a to 3c MM-SS-2 MM-SS-4 to 5	Less than Significant	N/A	Less than Significant
	Operation	N/A	Significant (emergency vehicle access, visual impacts)	N/A	Significant (emergency vehicle access, visual impacts)
Historic Resources	Construction	N/A	Less than Significant	N/A	Less than Significant
	Operation	N/A	Less than Significant	N/A	Less than Significant

EAST SAN FERNANDO VALLEY TRANSIT CORRIDOR ADDENDUM

Affected Resource	Timing	IOS (Original FEIS/EIR)		IOS (Updated)	
		Mitigation	Impacts After Mitigation	Additional Mitigation Required	Impacts After Mitigation
Archaeological Resources	Construction	MM-AR-1 to 3	Less than Significant	N/A	Less than Significant
	Operation	N/A	No Impact	N/A	No Impact
Paleontological Resources	Construction	MM-PR-1 to 2	Less than Significant	N/A	Less than Significant
	Operation	N/A	No Impact	N/A	No Impact
Environmental Justice	Construction	MM-TRA-1 to 3 MM-VIS-1 to 5 MM-AQ-1 to 9 MM-NOI-1a to 1d MM-NOI-2a to 2b MM-NOI-3a to 3c MM-SS-1 to 23	No Impact	N/A	No Impact
	Operation	MM-CN-1	No Impact	N/A	No Impact
Growth Inducing Impacts	Construction	N/A	Less than Significant	N/A	Less than Significant
	Operation	N/A	Less than Significant	N/A	Less than Significant

Appendix A. Updated Project Alignment



Project Alignment
East San Fernando Valley Transit Corridor

Appendix B. Traffic Tables

Table 1. Comparison of Intersection Operations Between Original and Updated IOS - AM Peak Hour

#	Intersection	IOS (Original FEIS/EIR)		IOS (Updated)	
		All Vehicle Delay (s)	LOS	All Vehicle Delay (s)	LOS
8	Van Nuys at Sylvan	5.4	A	74.7	E
10	Van Nuys at Victory	29.3	C	182.9	F
14	Van Nuys at Kittridge	6.0	A	201.8	F
16	Van Nuys at Vanowen	>100	F	130.1	F
22	Van Nuys at Vose	23.2	C	98.9	F
25	Van Nuys at Sherman Way	54.4	D	146.5	F
27	Van Nuys at Valerio	16.0	B	44.2	D
29	Van Nuys at Saticoy	84.3	F	165.5	F
30	Van Nuys at Keswick	18.6	B	13.2	B
32	Van Nuys at Arminta	14.6	B	51.3	D
37	Van Nuys at Lanark	29.1	C	225.0	F
39	Van Nuys at Roscoe	53.7	D	299.2	F
40	Van Nuys at Panorama Mall Dwy	3.2	A	1.7	A
41	Van Nuys at Chase	37.0	D	55.1	E
42	Van Nuys at Parthenia St & Vesper Av	23.6	C	29.1	C
43	Van Nuys at Parthenia	9.2	A	5.0	A
48	Van Nuys at Nordhoff	>100	F	129.2	F
52	Van Nuys at Tupper	8.9	A	9.5	A
56	Van Nuys at Plummer	71.9	E	124.6	F
62	Van Nuys at Woodman	81.0	F	100.6	F
66	Van Nuys at Beachy	41.3	D	75.8	E
69	Van Nuys at Arleta	>100	F	150.2	F
73	Van Nuys at Bartee	-	-	25.6	C
81	Van Nuys at Laurel Canyon	>100	F	166.8	F
90	Van Nuys at Kewen	5.7	A	29.9	C
99	Van Nuys at San Fernando	>100	F	48.7	D

Source: Elite Transportation Group, Inc. 2022

Table 2. Comparison of Intersection Operations Between Original and Updated IOS - PM Peak Hour

#	Intersection	IOS (Original FEIS/EIR)		IOS (Updated)	
		All Vehicle Delay (s)	LOS	All Vehicle Delay (s)	LOS
8	Van Nuys at Sylvan	6.7	A	22.0	C
10	Van Nuys at Victory	24.9	C	164.1	F
14	Van Nuys at Kittridge	8.6	A	141.1	F
16	Van Nuys at Vanowen	>100	F	114.2	F
22	Van Nuys at Vose	47.1	D	53.6	D
25	Van Nuys at Sherman Way	>100	F	178.5	F
27	Van Nuys at Valerio	23.5	C	77.4	E
29	Van Nuys at Saticoy	>100	F	236.5	F
30	Van Nuys at Keswick	29.5	C	25.8	C
32	Van Nuys at Arminta	24.9	C	133.4	F
37	Van Nuys at Lanark	33.8	C	152.5	F
39	Van Nuys at Roscoe	56.0	E	147.1	F
40	Van Nuys at Panorama Mall Dwy	14.0	B	6.5	A
41	Van Nuys at Chase	68.8	E	95.7	F
42	Van Nuys at Parthenia St & Vesper Ave	84.8	F	35.9	D
43	Van Nuys at Parthenia	25.1	C	10.1	B
48	Van Nuys at Nordhoff	>100	F	142.6	F
52	Van Nuys at Tupper	5.0	A	6.9	A
56	Van Nuys at Plummer	>100	F	122.3	F
62	Van Nuys at Woodman	>100	F	97.3	F
66	Van Nuys at Beachy	19.8	B	32.6	C
69	Van Nuys at Arleta	>100	F	90.1	F
73	Van Nuys at Bartee	-	-	21.9	C
81	Van Nuys at Laurel Canyon	>100	F	176.4	F
90	Van Nuys at Kewen	7.5	A	26.3	C
99	Van Nuys at San Fernando	>100	F	68.3	E

Source: Elite Transportation Group, Inc. 2022

Table 3. Vehicle Travel Time Summary for 2040 Build Alternatives - AM Peak Hour

Travel Time Corridor	Segment	Direction	IOS		Alternative 1		Alternative 2	
			Travel Time (sec)	Travel Speed (mph)	Travel Time (sec)	Travel Speed (mph)	Travel Time (sec)	Travel Speed (mph)
NB Van Nuys	Orange Line to Victory	NB	106	13.9	109	13.5	106	13.9
NB Van Nuys	Victory to Vanowen	NB	175	10.3	133	13.5	131	13.7
NB Van Nuys	Vanowen to Sherman Way	NB	151	12.0	130	13.8	129	14.0
NB Van Nuys	Sherman Way to Roscoe	NB	572	8.9	554	9.2	520	9.8
NB Van Nuys	Roscoe to Nordhoff	NB	245	14.4	229	15.4	228	15.4
NB Van Nuys	Nordhoff to Woodman	NB	192	16.0	199	15.5	194	16.0
NB Van Nuys	Woodman to Laurel Canyon	NB	659	6.7	562	7.9	562	7.9
NB Van Nuys	Laurel Canyon to San Fernando	NB	193	14.4	196	14.2	196	14.1
SB Van Nuys	San Fernando to Laurel Canyon	SB	150	18.5	158	17.5	157	17.6
SB Van Nuys	Laurel Canyon to Woodman	SB	243	18.2	498	8.9	498	8.9
SB Van Nuys	Woodman to Nordhoff	SB	361	8.5	371	8.3	379	8.2
SB Van Nuys	Nordhoff to Roscoe	SB	202	17.5	182	19.4	182	19.4
SB Van Nuys	Roscoe to Sherman Way	SB	815	6.2	833	6.1	773	6.6
SB Van Nuys	Sherman Way to Vanowen	SB	388	4.6	370	4.9	343	5.2
SB Van Nuys	Vanowen to Victory	SB	551	3.3	551	3.3	549	3.3
SB Van Nuys	Victory to Orange Line	SB	162	9.1	154	9.6	162	9.1
NB Van Nuys	Orange Line to San Fernando (minutes)	NB	38.2		35.2		34.4	
SB Van Nuys	San Fernando to Orange Line (minutes)	SB	47.9		51.9		50.7	

Source: Elite Transportation Group, Inc. 2022

Table 4. Vehicle Travel Time Summary for 2040 Build Alternatives - PM Peak Hour

Travel Time Corridor	Segment	Direction	IOS		Alternative 1		Alternative 2	
			Travel Time (sec)	Travel Speed (mph)	Travel Time (sec)	Travel Speed (mph)	Travel Time (sec)	Travel Speed (mph)
NB Van Nuys	Orange Line to Victory	NB	230	6.4	230	6.4	230	6.4
NB Van Nuys	Victory to Vanowen	NB	316	5.7	305	5.9	277	6.5
NB Van Nuys	Vanowen to Sherman Way	NB	287	6.3	284	6.3	126	14.2
NB Van Nuys	Sherman Way to Roscoe	NB	737	6.9	599	8.5	753	6.7
NB Van Nuys	Roscoe to Nordhoff	NB	286	12.3	291	12.1	292	12.1
NB Van Nuys	Nordhoff to Woodman	NB	175	17.5	160	19.4	179	17.3
NB Van Nuys	Woodman to Laurel Canyon	NB	512	8.6	404	10.9	446	9.9
NB Van Nuys	Laurel Canyon to San Fernando	NB	278	10.0	278	10.0	278	10.0
SB Van Nuys	San Fernando to Laurel Canyon	SB	181	15.3	158	17.5	155	17.9
SB Van Nuys	Laurel Canyon to Woodman	SB	230	19.3	481	9.2	470	9.4
SB Van Nuys	Woodman to Nordhoff	SB	317	9.7	285	10.9	304	10.2
SB Van Nuys	Nordhoff to Roscoe	SB	201	17.5	192	18.4	191	18.5
SB Van Nuys	Roscoe to Sherman Way	SB	968	5.2	849	6.0	745	6.8
SB Van Nuys	Sherman Way to Vanowen	SB	281	6.4	216	8.3	435	4.1
SB Van Nuys	Vanowen to Victory	SB	219	8.2	228	7.9	222	8.1
SB Van Nuys	Victory to Orange Line	SB	62	23.7	62	23.7	62	23.7
NB Van Nuys	Orange Line to San Fernando (minutes)	NB	47.0		42.5		43.0	
SB Van Nuys	San Fernando to Orange Line (minutes)	SB	41.0		41.2		43.1	

Source: Elite Transportation Group, Inc. 2022

Appendix C. IOS Right of Way Updates and Impacts Table

Table 1. Right-of-Way Impacts Comparison Table APN	Address	Previous Impact or Acquisitions Type	Previous Intended Use	New Impact or Acquisitions Type	New Intended Use	Existing Use
Note: This table compares the Real Estate Impacts and Acquisitions for the IOS and MSF listed in Tables 4.2-3 and 4.2-4 of the FEIR with the Real Estate Acquisitions table prepared by LACMTA in June 2022.						
2210-010-022	8201 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Partial	Road Widening	Furniture Store
2210-010-039	14500 Roscoe Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Partial	Road Widening	Office Building
2210-011-029	8155 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Apartment
2210-011-033	8111 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Storage Building
2210-011-902	8121 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Medical Building
2210-018-900	8043 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Panorama City High School
2210-018-901	8043 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Panorama City High School
2210-018-902	8043 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Panorama City High School
2210-018-903	8043 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Panorama City High School
2210-018-904	8043 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Panorama City High School
2210-018-905	8043 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Panorama City High School
2210-018-906	8043 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Panorama City High School
2210-018-907	8043 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Panorama City High School
APN	Address	<i>Previous Acquisition Type</i>	<i>Previous Intended Use</i>	New Impact/ Acquisition	New Intended Use	Existing Use

2210-018-909	8043 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Panorama City High School
2210-018-910	8043 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Panorama City High School
2210-019-003	7957 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Light Industrial
2210-019-004	7963 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Storage Building
2210-019-015	7945 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Restaurant
2210-018-908	8043 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Panorama City High School
2210-022-011	7855 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Office Building
2210-022-014	7915 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Office Building
2210-022-040	7927 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Full	TPSS	Storage Building & Parking Lot
2210-022-056	7927 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Full	TPSS	Storage Building & Parking Lot
2210-022-059	7905 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Auto Sales
2210-022-060	7869 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Gym
2210-025-005	14635 Keswick St	<i>Full</i>	<i>MSF</i>	Full	MSF	Industrial Building
2210-025-007	14646 Raymer St	<i>Full</i>	<i>MSF</i>	Full	MSF	Recycling Center
APN	Address	<i>Previous Acquisition Type</i>	<i>Previous Intended Use</i>	<i>New Impact/ Acquisition Type</i>	<i>New Intended Use</i>	<i>Existing Use</i>
2210-025-008	14660 Keswick St	<i>Full</i>	<i>MSF</i>	Full	MSF	Industrial Building
2210-025-009	14663 Keswick St	<i>Full</i>	<i>MSF</i>	Full	MSF	Industrial Building
2210-025-010	14704 Raymer St	<i>Full</i>	<i>MSF</i>	Full	MSF	Industrial Building

2210-025-013	14766 Raymer St	<i>Full</i>	<i>MSF</i>	Full	MSF	industrial
2210-025-015	14737 Keswick St	<i>Full</i>	<i>MSF</i>	Full	MSF	industrial
2210-025-016	14743 Keswick St	<i>Full</i>	<i>MSF</i>	Full	MSF	Industrial Building
2210-025-017	14751 Keswick St	<i>Full</i>	<i>MSF</i>	Full	MSF	Industrial
2210-025-018	14747 Keswick St	<i>Full</i>	<i>MSF</i>	Full	MSF	Industrial
2210-025-019	14757 Keswick St	<i>Full</i>	<i>MSF</i>	Full	MSF	industrial
2210-025-034	14663 Keswick St	<i>Full</i>	<i>MSF</i>	Full	MSF	Parking Lot
2210-025-035	14645 Keswick St	<i>Full</i>	<i>MSF</i>	Full	MSF	Industrial Building
2210-025-036	14731 Keswick St	<i>Full</i>	<i>MSF</i>	Full	MSF	industrial
2210-025-044	14718 Raymer St	<i>Full</i>	<i>MSF</i>	Full	MSF	Industrial Building
2210-025-045	14742 Raymer St	<i>Full</i>	<i>MSF</i>	Full	MSF	Industrial Building
APN	Address	<i>Previous Acquisition Type</i>	<i>Previous Intended Use</i>	New Impact/ Acquisition Type	New Intended Use	Existing Use
2210-025-048	14746 Raymer St	<i>Full</i>	<i>MSF</i>	Full	MSF	industrial
2210-025-049	14745 Keswick St	<i>Full</i>	<i>MSF</i>	Full	MSF	Industrial Building
2210-030-007	14523 Keswick St	<i>Full</i>	<i>MSF</i>	Full	MSF	Industrial Building
2210-030-008	14533 Keswick St	<i>Full</i>	<i>MSF</i>	Full	MSF	Industrial Building

2210-030-009	No Address	<i>Full</i>	<i>MSF</i>	Full	MSF	Parking Lot
2210-030-010	No Address	<i>Full</i>	<i>MSF</i>	Full	MSF	Parking Lot
2210-030-011	14545 Keswick St	<i>Full</i>	<i>MSF</i>	Full	MSF	Industrial Building
2210-030-013	14555 Keswick St	<i>Full</i>	<i>MSF</i>	Full	MSF	Industrial Building
2210-030-014	No Address	<i>Full</i>	<i>MSF</i>	Full	MSF	Parking Lot
2210-030-016	14605 Keswick St	<i>Full</i>	<i>MSF</i>	Full	MSF	Industrial Building
2210-030-017	14626 Raymer St	<i>Full</i>	<i>MSF</i>	Full	MSF	Adult Entertainment
2210-030-018	14606 Raymer St	<i>Full</i>	<i>MSF</i>	Full	MSF	Industrial Building
2210-030-019	No Address	<i>Full</i>	<i>MSF</i>	Full	MSF	Parking Lot
2210-030-024	14617 Keswick St	<i>Full</i>	<i>MSF</i>	Full	MSF	Industrial Building
2210-030-027	14529 Keswick St	<i>Partial</i>	<i>Road Widening</i>	Full	TCB/ Alignment	Industrial Building- Marble and Granite Sales

APN	Address	<i>Previous Acquisition Type</i>	<i>Previous Intended Use</i>	New Impact/ Acquisition Type	New Intended Use	Existing Use
2210-030-028	14556 Raymer St	<i>Full</i>	<i>MSF</i>	Full	MSF	Industrial Building
2210-030-029	14546 Raymer St	<i>Full</i>	<i>MSF</i>	Full	MSF	Primarily a bus parking lot with small office bldg.
2210-030-030	No Address	<i>Full</i>	<i>MSF</i>	Full	MSF	Industrial Building
2210-030-031	No Address	<i>Full</i>	<i>MSF</i>	Full	MSF	Industrial Building
2210-031-001	7627 Van Nuys Blvd	<i>Full</i>	<i>Guideway/ TPSS 4A</i>	Construction	TCE	Auto repair facility
2210-031-003	7605 Van Nuys Blvd	<i>Full</i>	<i>Guideway</i>	Construction	TCE	Auto repair facility

2210-031-010	7649 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Partial	TCE/Road Widening	Carl's Jr. - Fast Food Restaurant
2210-031-011	7649 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Partial	TCE/Road Widening	Carl's Jr. - Fast Food Restaurant
2210-031-012	7639 Van Nuys Blvd	Full	Guideway	<i>None Proposed</i>		<i>None Proposed</i>
2210-031-033	7621 Van Nuys Blvd	Full	Guideway/ TPSS Site	<i>None Proposed</i>	<i>None Proposed</i>	<i>Automotive uses</i>
2210-031-034	7627 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Auto Sales
2212-001-014	8000 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Partial	Road Widening	Shopping Center
2212-002-018	8030 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Restaurant
2212-002-019	8050 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Service Station

APN	Address	<i>Previous Acquisition Type</i>	<i>Previous Intended Use</i>	New Impact/ Acquisition Type	New Intended Use	Existing Use
2212-003-015	8126 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Store Building
2212-003-016	8100 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Auto Repair Facility
2212-003-017	8146 Van Nuys Blvd	Partial	TPSS 8A Site	Construction	TCE	Store Building
2212-028-018	7888 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Shopping Center
2212-028-019	7940 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Shopping Center
2212-028-020	7940 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Shopping Center
2212-028-021	7930 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	In-N-Out
2212-028-033	7864 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Partial	TCE/Road Widening	Shopping Center
2212-028-035	7858 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Partial	TCE/Road Widening	7 Eleven Service Station
2215-001-007	7554 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Partial	TCE/Road Widening	PPG Paints
2215-001-008	7530 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Partial	TCE/Road Widening	Carwash

2215-001-910	No Address	<i>None Proposed</i>	<i>None Proposed</i>	Partial	TCE/TCB	Maintenance Yard
2215-001-912	No Address	<i>None Proposed</i>	<i>None Proposed</i>	Partial	Road Widening	Vacant Land
2215-026-002	7444 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Retail Commercial Strip Center
APN	Address	<i>Previous Acquisition Type</i>	<i>Previous Intended Use</i>	New Impact/ Acquisition Type	New Intended Use	Existing Use
2215-026-048	7400 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Office/Retail Strip Center
2215-028-012	7600 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Partial	TCE/Road Widening	U Haul Rental Facility
2215-028-014	7600 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Partial	TCE/Road Widening	U Haul Rental Facility
2215-028-018	7650 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Partial	TCE/Road Widening	Retail Building/ Delta Nine Collective/ Acu Therapy
2215-028-020	7622 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Store Building
2215-028-023	7638 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Restaurant Building
2217-002-026	7300 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Multi-Tenant Automotive Service Center
2217-002-037	7344 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Multi-Tenant Automotive Service Center
2217-002-038	7330 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Multi-Tenant Automotive Service Center
2217-002-039	7310 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Multi-Tenant Automotive Service Center
2217-003-016	7222 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Retail Commercial Strip Center
2217-003-026	7222 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Retail Commercial Strip Center

2217-003-043	7222 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Retail Commercial Strip Center
APN	Address	<i>Previous Acquisition Type</i>	<i>Previous Intended Use</i>	New Impact/ Acquisition Type	New Intended Use	Existing Use
2217-003-044	7204 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Service Station
2217-003-045	7222 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Retail Commercial Strip Center
2217-003-046	7222 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Retail Commercial Strip Center
2217-003-056	7242 and 7254 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Full	TPSS	Big Five Sporting Goods and Vacant Land
2217-003-057	7242 and 7254 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Full	TPSS	Big Five Sporting Goods and Vacant Land
2217-007-017	7054 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Commercial Building/Banquet Hall
2217-007-032	7138 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Northeast Valley Heath Center
2217-007-039	7138 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Northeast Valley Heath Center
2217-007-040	7138 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Northeast Valley Heath Center
2217-007-047	7006 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Automotive Service Center
2217-007-050	7012 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Service Station
2217-007-051	7028 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Mixed Use Retail/Office Building
2217-007-052	7104 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Mixed Use Retail/Office Building

2217-007-053	7148-7160 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Retail Commercial Strip Center
APN	Address	<i>Previous Acquisition Type</i>	<i>Previous Intended Use</i>	New Impact/Acquisition Type	New Intended Use	Existing Use
2217-007-054	7148-7160 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Retail Commercial Strip Center
2217-009-006	6900 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	<u>Self Storage</u>
2217-009-011	6842 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Office Building
2217-009-016	6834 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Mixed Use Ground Floor Retail/Multi Family
2217-009-022	6850 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Office Building
2217-009-024	6952 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Church
2217-009-033	6800 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Wells Fargo Bank
2217-009-034	6856 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	McCalla Company Janitorial Supply
2217-009-801	6920 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Partial	TCE/Transformer	Pacific Bell Office
2217-009-902	6946 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Housing Authority-Office Building
2218-003-901	7501 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Office Complex
2218-003-903	7501 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Office Complex
2218-003-904	7501 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Office Complex

APN	Address	<i>Previous Acquisition Type</i>	<i>Previous Intended Use</i>	New Impact/ Acquisition Type	New Intended Use	Existing Use
2218-003-905	7501 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Office Complex
2218-003-906	7501 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Office Complex
2218-003-907	7501 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Office Complex
2218-003-908	7501 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Office Complex
2218-003-909	7501 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	office
2218-004-014	7401 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Retail Commercial Strip Center
2218-004-015	7401 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Retail Commercial Strip Center
2218-004-016	7425 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Partial	TCE/TCB	Retail Commercial Strip Center
2218-017-001	7357 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Retail Commercial/ Restaurant
2218-017-002	7357 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Retail Commercial/ Restaurant
2218-017-023	7349 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Commercial Building
2218-017-026	7335 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Mixed Use Retail/ Office Building
2218-024-009	14503 Sherman Way	<i>None Proposed</i>	<i>None Proposed</i>	Partial	TCE/Road Widening	Retail Commercial Strip Center
2218-024-013	7227 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Partial	TCE/Road Widening	Retail Commercial Strip Center

APN	Address	<i>Previous Acquisition Type</i>	<i>Previous Intended Use</i>	New Impact/ Acquisition Type	New Intended Use	Existing Use
2218-024-014	7249 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Partial	Road Widening	Restaurant Building
2218-024-015	7221 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Partial	Road Widening	Retail Commercial Strip Center
2219-008-007	7115 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Chios Restaurant
2219-008-008	7155 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Walgreens
2219-008-011	7131 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Sizzler
2219-009-025	7045 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Partial	TCE/Road Widening	McDonald's- Fast Food Restaurant
2219-010-006	No Address	<i>Full</i>	<i>TPSS 3A Site</i>	Full	TCB	Development Site
2219-010-018	7021 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Automotive uses
2219-010-019	7017 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	office
2219-010-022	7009 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Earl Scheib Paint and Body
2219-025-004	6823 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Used Car Lot
2219-025-024	6833 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Starbucks
2219-025-025	6811 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Automotive Service Center
2219-025-034	14526 Hartland St	<i>Full</i>	<i>Vanowen Station Elec Box</i>	None Proposed	None Proposed	vacant

APN	Address	<i>Previous Acquisition Type</i>	<i>Previous Intended Use</i>	New Impact/ Acquisition Type	New Intended Use	Existing Use
2219-026-009	6945 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Apartment Building
2219-026-025	6859-6901 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Maaco Paint and Body
2219-026-027	6853 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Three Unit Retail Commercial Building
2219-026-036	6961 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Automotive Service Center
2219-026-045	6847 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Jack in the Box
2219-026-051	6911 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Chayka Truck Driving School
2219-026-063	6859-6901 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Maaco Paint and Body
2219-026-066	6931 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Office Building with Ground Floor Retail
2236-009-001	6755 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	99c Only Store
2236-009-005	No Address	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Private Rodway
2236-011-004	No Address	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Medical Clinic
2236-023-001	6429 Van Nuys Blvd	<i>Full</i>	<i>TPSS 2A Site</i>	Full	TPSS	Restaurant
2237-001-005	6728 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Apartment Building

APN	Address	<i>Previous Acquisition Type</i>	<i>Previous Intended Use</i>	New Impact/ Acquisition Type	New Intended Use	Existing Use
2237-001-008	6710 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Multi-Tenant Automotive Service Center
2237-001-009	6700 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	California Healthcare
2237-001-018	6640 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Parking Lot
2237-001-020	6600 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Mixed Use Retail/Office Building
2237-013-017	6558 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Retail Commercial Strip Center
2237-014-001	6530 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Firestone Tire - Automotive Service Center
2237-023-001	6472 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Automotive Repair
2237-023-019	6454 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Valley Professional Building
2240-005-910	No Address	<i>None Proposed</i>	<i>None Proposed</i>	Partial	Road Widening	Van Nuys State Office Building
2240-006-001	6110 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Partial	TCE/Road Widening	Auto Dealership
2240-006-010	6110 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Partial	TCE/Road Widening	Auto Dealership
2241-004-007	6453 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Partial	Road Widening	Commercial Building
2617-002-032	13967 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Duplex
2241-013-001	6231 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Commercial Store Building
2241-020-001	6177 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Partial	Road Widening	Commercial Building

APN	Address	<i>Previous Acquisition Type</i>	<i>Previous Intended Use</i>	New Impact/ Acquisition Type	New Intended Use	Existing Use
2241-020-028	6171 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Service Station
2241-021-018	6103 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Partial	Road Widening	Auto Dealership
2241-026-903	No Address	<i>LACMTA Owned</i>	<i>TPSS 1A</i>	None Proposed	None Proposed	Orange Line Route & Bike Path
2241-027-003	6073 Van Nuys Blvd	<i>Full</i>	<i>Guideway</i>	Full	TPSS Site 1	7-11, 6 Day Medical Weight Loss Clinic, automotive repair facility, double faced illuminated urban rotate outdoor advertising sign
2241-027-006	6059 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Partial	TCE/Road Widening	Automotive Dealership and Vacant Land
2617-001-037	14001 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Auto Sales Lot
2617-001-038	14001 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Auto Sales Lot

2617-001-039	14011 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Commercial Store Building
2617-001-040	14011 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Commercial Store Building
2617-001-041	14021 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE/Road Widening	Auto Repair
2617-002-031	13961 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Duplex

APN	Address	<i>Previous Acquisition Type</i>	<i>Previous Intended Use</i>	New Impact/ Acquisition Type	New Intended Use	Existing Use
2617-002-033	13973 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Duplex
2617-002-034	13977 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Duplex
2617-003-054	13943 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Auto Repair
2617-003-055	13947 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	SFR
2617-003-067	13931 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Partial	TCE/Road Widening	Store Building
2618-019-012	13821 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Auto Repair
2618-020-003	10390 Remick Ave	<i>Partial</i>	<i>TPSS 9A Site</i>	Construction	TCE	Church/School (Mary Immaculate)
2618-020-006	13771 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Parking Lot
2618-020-014	13757 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Full	TPSS	Restaurant
2618-020-015	13757 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Full	TPSS	Restaurant
2618-020-019	13741 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Auto Repair
2618-020-026	13749 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Full	TPSS	Store Building and Parking Lot
2618-020-033	10403 Laurel Canyon Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Store Building

APN	Address	<i>Previous Acquisition Type</i>	<i>Previous Intended Use</i>	New Impact/ Acquisition Type	New Intended Use	Existing Use
2618-020-034	13749 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Full	TPSS	Store Building and Parking Lot
2618-020-036	13749 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Full	TPSS	Store Building and Parking Lot
2618-020-037	10390 Remick Ave	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Church/ School (Mary Immaculate)
2618-023-001	13629 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Multiple Uses
2618-023-002	13643 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Store Building
2618-023-005	13657 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Partial	TCE/Road Widening	Financial Building
2618-023-021	13627 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Multiple Uses
2618-023-022	13613 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Store Building
2618-024-004	13679 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Commercial Vacant Lot
2618-024-007	13687 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Misc. Commercial Services
2618-024-019	13719 and 13721 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Store Bldg. and Office
2618-024-020	13719 and 13721 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Store Bldg. and Office
2618-024-021	13701 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Store Building

APN	Address	<i>Previous Acquisition Type</i>	<i>Previous Intended Use</i>	New Impact/ Acquisition Type	New Intended Use	Existing Use
2618-024-030	13663 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Store Building
2618-024-033	10402 Laurel Canyon Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Partial	TCE/Road Widening	Store Building
2619-017-001	10801 San Fernando Road	<i>None Proposed</i>	<i>None Proposed</i>	Partial	TCE/Road Widening	Mixed-use including store bldgs., church, two SFRs, <u>ancilliary parking</u>
2619-017-002	10823 San Fernando Road	<i>Full</i>	<i>Guideway</i>	None Proposed	None Proposed	Mixed-use including store bldgs., church, two SFRs, <u>ancilliary parking</u>
2619-017-004	13273 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Partial	TCE/Road Widening	Mixed-use including store bldgs., church, two SFRs, <u>ancilliary parking</u>
2619-017-007	13283 Van Nuys Blvd	<i>Partial</i>	<i>Guideway</i>	Full	TPSS	Retail/Veterinarian
2619-017-008	13287 Van Nuys Blvd	<i>Full</i>	<i>Guideway</i>	Full	TPSS	Retail/Restaurant
2619-017-009	13291 Van Nuys Blvd	<i>Full</i>	<i>Guideway</i>	Full	TPSS	El Paseo Restaurant and Nightclub
2619-017-010	13301 Van Nuys Blvd	<i>Full</i>	<i>Guideway</i>	Construction	TCE	Mixed-use commercial and 2nd floor

APN	Address	<i>Previous Acquisition Type</i>	<i>Previous Intended Use</i>	New Impact/ Acquisition Type	New Intended Use	Existing Use
Residential						
2619-017-011	13303 Van Nuys Blvd	Full	Guideway	<i>None Proposed</i>	<i>None Proposed</i>	<i>Commercial</i>
2619-017-012	13309 Van Nuys Blvd	Full	Guideway	<i>None Proposed</i>	<i>None Proposed</i>	<i>Vettrinarian/Hospital</i>
2619-017-022	13326 Pinney St	Full	Guideway/Alignment	<i>None Proposed</i>	<i>None Proposed</i>	Mixed-use including store bldgs., church, two SFRs, <u>ancilliary parking</u>
2619-017-023	13322 Pinney St	Full	Guideway/Alignment	<i>None Proposed</i>	<i>None Proposed</i>	Mixed-use including store bldgs., church, two SFRs, <u>ancilliary parking</u>
2619-017-024	13320 Pinney St	Full	Guideway	<i>None Proposed</i>	<i>None Proposed</i>	Mixed-use including store bldgs., church, two

						SFRs, <u>ancillary</u> parking
2619-017-025	13320 Pinney St	Full	Guideway	<i>None Proposed</i>	<i>None Proposed</i>	Mixed-use including store bldgs., church, two SFRs, <u>ancillary</u> parking
2619-017-026	No Address	Full	Guideway/Al ignment	<i>None Proposed</i>	<i>None Proposed</i>	Mixed-use including store bldgs., church, two SFRs, <u>ancillary</u> parking
2619-017-030	13277 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Partial	TCE/Road Widening	Mixed-use including store bldgs., church, two SFRs, <u>ancillary</u> parking

APN	Address	<i>Previous Acquisition Type</i>	<i>Previous Intended Use</i>	New Impact/ Acquisition Type	New Intended Use	Existing Use
2619-017-031	13281 Van Nuys Blvd	Partial	Guideway	<i>None Proposed</i>	<i>None Proposed</i>	<i>retail</i>
2619-017-035	No Address	Full	Guideway	<i>None Proposed</i>	<i>None Proposed</i>	Mixed-use including store
bldgs., church, two SFRs, <u>ancillary</u> parking						
2619-017-036	13313 Van Nuys Blvd	Full	Guideway/ TPSS 10A Site	<i>None Proposed</i>	<i>None Proposed</i>	<i>retail</i>
2619-017-037	No Address	Full	Guideway	<i>None Proposed</i>	<i>None Proposed</i>	Mixed-use including store bldgs., church, two SFRs, <u>ancillary</u> parking

2619-018-015	13425 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Residential Lot
2619-018-024	13425 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Residential Lot
2619-018-025	13425 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Residential Lot
2619-018-027	13355 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Mixed-use Commercial
2619-025-002	13441 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Multiple Uses
2619-025-003	13449 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Carwash
2619-025-004	13451 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Quadruplex
2619-025-005	13473 and 13477 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Store Building & Parking Lot
APN	Address	<i>Previous Acquisition Type</i>	<i>Previous Intended Use</i>	New Impact/ Acquisition Type	New Intended Use	Existing Use
2619-025-006	13473 and 13477 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Store Building & Parking Lot
2619-025-017	13433 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Restaurant
2619-025-900	No Address	<i>None Proposed</i>	<i>None Proposed</i>	Partial	TCE/Road Widening	Vacant Land
2619-026-006	13563 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Partial	TCE/Road Widening	Medical Building
2619-026-011	13527 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Apartment
2619-026-012	13525 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Multiple Uses

2619-026-029	13557 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Stores and Offices
2619-026-030	13535 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Church
2619-026-900	13507 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Partial	TCE/Road Widening	Office Building
2620-002-024	13272 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Multi-tenant Commercial/Retail Building
2620-002-030	10763 San Fernando Rd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Mixed-Use Commercial
2620-002-033	13274 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Retail Strip Center
2620-003-900	13300 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Partial	TCE/Road Widening	Pacoima District Health Center
2620-006-003	13360 and 13368 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Mixed-use commercial
APN	Address	<i>Previous Acquisition Type</i>	<i>Previous Intended Use</i>	New Impact/Acquisition Type	New Intended Use	Existing Use
2620-006-004	13360 and 13368 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Mixed-Use Commercial
2620-006-025	13352 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Mixed-use Commercial
2620-007-001	13404 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Liquor Store/Market
2620-007-002	13408 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Retail/Commercial Building
2620-007-003	13412 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Retail/Commercial Building

2620-007-004	13416 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Retail/ Commercial Building
2620-010-023	13432- 13436 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Auto Repair
2620-010-024	13444 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Restaurant and Vacant Land
2620-010-025	13444 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Restaurant and Vacant Land
2620-010-026	13456 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Partial	TCE/Road Widening	Store and Offices
2620-010-027	13432- 13436 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Auto Repair
2620-011-003	13472 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Store Building

APN	Address	Previous Acquisition Type	Previous Intended Use	New Impact/ Acquisition Type	New Intended Use	Existing Use
2620-011-004	13476 Van Nuys Blvd	None Proposed	None Proposed	Partial	TCE/Road Widening	Multiple Uses
2620-011-900	13460 Van Nuys Blvd	None Proposed	None Proposed	Partial	TCE/Road Widening	Office Building
2620-015-002	13556 Van Nuys Blvd	None Proposed	None Proposed	Construction	TCE	Duplex
2620-015-003	13564 Van Nuys Blvd	None Proposed	None Proposed	Construction	TCE	Office Building
2620-015-029	13570 Van Nuys Blvd	None Proposed	None Proposed	Construction	TCE	Service Station
2636-038-016	8353 Van Nuys Blvd	Partial	Road Widening	None Proposed		None Proposed
2638-001-046	8500 Van Nuys Blvd	None Proposed	None Proposed	Construction	TCE	Shopping Center
2638-001-059	No Address	None Proposed	None Proposed	Construction	TCE	Parking Lot
2638-022-044	14441 Roscoe Blvd	None Proposed	None Proposed	Construction	TCE	Shopping Lot
2638-022-061	8340 Van Nuys Blvd	None Proposed	None Proposed	Partial	TCE/Transformer	Parking Lot
2638-038-002	8333 Van Nuys Blvd	Partial	Road Widening	Partial	TCE/Road Widening	Walmart
2638-038-016	8353 Van Nuys Blvd	None Proposed	None Proposed	Partial	TCE/Road Widening	Panorama City Shopping Center (mall)
2638-038-017	14525 Roscoe Blvd	Partial	Road Widening	Partial	TCE/Road Widening	El Gallo Giro Restaurant / Check Cashing
2638-039-010	8501 Van Nuys Blvd	None Proposed	None Proposed	Partial	TCE/Road Widening	Shopping Center

APN	Address	<i>Previous Acquisition Type</i>	<i>Previous Intended Use</i>	New Impact/Acquisition Type	New Intended Use	Existing Use
2638-039-011	14608 Parthenia St	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Shopping Center
2639-001-017	8802 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Religious
2639-001-021	8780 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Office
2639-001-022	8770 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Apartment
2639-001-023	8760 Van Nuys Blvd	<i>Full</i>	<i>TPSS 6A Site</i>	None Proposed	None Proposed	Automotive Uses
2639-001-024	No Address	<i>Full</i>	<i>TPSS 6A Site</i>	None Proposed	None Proposed	Vacant
2639-001-026	8790 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Apartment
2639-007-021	14555 Osborne St	<i>Partial</i>	<i>Crossover Control Box</i>	None Proposed	None Proposed	Retirement home
2639-007-024	14526 Nordhoff St	<i>None Proposed</i>	<i>None Proposed</i>	Partial	TCE/Road Widening	Multi-tenant Retail
2639-008-011	9110 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Partial	TCE/Road Widening	Multi-tenant Retail
2639-008-012	9110 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Partial	TCE/Road Widening	Multi-tenant Retail
2639-008-025	9110 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Partial	TCE/Road Widening	Multi-tenant Retail
2639-008-056	9140 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Office, med clinic
2639-008-134	9110 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Partial	TCE/Road Widening	Multi-tenant Retail

APN	Address	<i>Previous Acquisition Type</i>	<i>Previous Intended Use</i>	New Impact/ Acquisition Type	New Intended Use	Existing Use
2639-008-135	9110 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Partial	TCE/Road Widening	Multi-tenant Retail
2644-001-901	14210 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Vacant Land
2644-002-904	No Address	<i>None Proposed</i>	<i>None Proposed</i>	Partial	TCE/Road Widening	Vacant Land
2644-024-025	9700 Woodman Ave	<i>Partial</i>	<i>Road Widening</i>	Partial	TCE/Road Widening	Shopping Center
2644-024-027	9714 Woodman Ave	<i>None Proposed</i>	<i>None Proposed</i>	Partial	TCE/Road Widening	Shopping Center
2644-024-901	14400 Van Nuys Blvd	<i>Partial</i>	<i>Road Widening</i>	Partial	TCE/Road Widening	DMV Office
2644-025-006	9618 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Apartment
2644-025-014	9510 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Multi-Family
2644-025-015	9502 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Automotive Repair
2644-025-019	14556 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Commercial Vacant Lot and Auto Repair
2644-025-020	14556 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Commercial Vacant Lot and Auto Repair
2644-025-021	14556 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Commercial Vacant Lot and Auto Repair
2644-025-022	14540 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Auto Repair

APN	Address	<i>Previous Acquisition Type</i>	<i>Previous Intended Use</i>	New Impact/ Acquisition Type	New Intended Use	Existing Use
2644-025-033	9608 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Stores and Offices
2644-025-142	14500 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Partial	TCE/Road Widening	Condominium Complex
2644-025-191	9600 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Condominium Complex
2644-025-254	9628 and 9640 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Apartment
2644-025-255	9628 and 9640 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Apartment
2644-025-901	9540 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Park
2644-030-011	9450-9456 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Retail/Automotive
2644-030-015	9450-9456 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Retail/Automotive
2644-030-016	9462 Van Nuys Blvd	<i>Full</i>	<i>TPSS 7A Site</i>	Full	TPSS	Office
2644-030-078	14540 Plummer St	<i>Full</i>	<i>TPSS 7A Site</i>	Full	TPSS	SFR
2644-030-079	9450-9456 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Retail/Automotive
2644-030-086	9404 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Multi-Family

APN	Address	<i>Previous Acquisition Type</i>	<i>Previous Intended Use</i>	New Impact/ Acquisition Type	New Intended Use	Existing Use
2645-001-027	13920 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Restaurant
2645-002-003	13952 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Partial	TCE/Road Widening/Transformer	Store Building
2645-002-022	13934 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Partial	TCE/Road Widening	Supermarket
2645-012-002	13968 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	SFR
2645-012-003	13972 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	SFR
2645-012-026	13978 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	SFR
2645-012-027	13982 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	SFR
2645-013-002	14006 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Duplex
2645-013-004	14018 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Partial	TCE/Road Widening	Shopping Center
2645-013-024	14018 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Partial	TCE/Road Widening	Shopping Center
2645-014-001	14034 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Partial	TCE/Road Widening	Auto Sales
2645-014-002	14036-14040 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Partial	TCE/Road Widening	Store Building & Residence
2645-014-003	14036-14040 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Partial	TCE/Road Widening	Store Building & Residence
2645-014-023	14066 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Partial	TCE/Road Widening	Condominium Complex

APN	Address	<i>Previous Acquisition Type</i>	<i>Previous Intended Use</i>	New Impact/ Acquisition Type	New Intended Use	Existing Use
2645-014-047	14060 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Partial	TCE/Road Widening	Apartment
2645-021-001	14150 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Shopping Center
2645-021-002	14140 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	SFR
2645-021-003	14132 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	SFR
2645-021-006	14120 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	SFR
2645-021-018	14104 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Apartment
2646-001-047	13812 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Service Station
2646-001-050	13736 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Restaurant
2646-001-055	13764 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Carwash
2646-001-058	13752 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Warehouse
2646-001-061	13770 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Restaurant
2646-002-029	13801 Hoyt St	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Condominium Complex
2646-004-019	13720 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Restaurant
2646-005-006	13684 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Partial	TCE/Road Widening	Store Building

APN	Address	<i>Previous Acquisition Type</i>	<i>Previous Intended Use</i>	New Impact/ Acquisition Type	New Intended Use	Existing Use
2646-005-024	13660 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Partial	TCE/Road Widening	Store Building
2646-006-024	13648 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Restaurant
2646-006-025	13630 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Shopping Center
2646-007-021	13632 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Auto Sales
2646-007-022	13606 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Store Building
2646-007-023	13618 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Office Building
2647-017-009	14035 Van Nuys Blvd	<i>Partial</i>	<i>Arleta Station Elec Box</i>	None Proposed	None Proposed	retail
2647-017-011	14035 Van Nuys Blvd	<i>Partial</i>	<i>Arleta Station Elec Box</i>	None Proposed	None Proposed	restaurant
2647-017-013	14055 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Church
2647-017-015	10137 Arleta Ave	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Condominium Complex
2647-018-902	No Address	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Vacant Lot
2647-019-025	14125 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	SFR
2647-019-026	14115 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	SFR
2647-019-027	14101 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Church

APN	Address	<i>Previous Acquisition Type</i>	<i>Previous Intended Use</i>	New Impact/ Acquisition Type	New Intended Use	Existing Use
2647-022-011	14175 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	SFR
2647-022-012	14201 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	SFR
2647-022-013	14211 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	SFR
2647-022-014	14219 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	SFR
2647-022-015	14229 Van Nuys Blvd	<i>Full</i>	<i>TPSS 8A Site</i>	Full	TPSS	SFR
2647-022-020	14163 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Partial	TCE/Road Widening	Church
2647-022-021	14237 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	SFR
2647-023-902	No Address	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Vacant Lot
2647-028-015	14423 Van Nuys Blvd	<i>Partial</i>	<i>Road Widening</i>	Construction	TCE	Shopping Center
2647-028-101	14419 Van Nuys Blvd	<i>Partial</i>	<i>Road Widening</i>	Construction	TCE	Shopping Center
2647-028-103	9750 Woodman Ave	<i>Partial</i>	<i>Road Widening</i>	Partial	TCE/Road Widening	Shopping Center
2647-028-BRK	14333 Van Nuys Blvd	<i>Partial</i>	<i>Road Widening</i>	<i>None Proposed</i>		<i>None Proposed</i>
2647-030-016	14555 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Partial	TCE/Road Widening	Store Building
2647-030-109	9800 Vesper Ave	<i>None Proposed</i>	<i>None Proposed</i>	Partial	TCE/Road Widening	Condominium Complex
2650-021-001	9541 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Hospital

APN	Address	<i>Previous Acquisition Type</i>	<i>Previous Intended Use</i>	New Impact/ Acquisition Type	New Intended Use	Existing Use
2650-021-002	9561 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Office Building
2650-021-003	9635 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	<u>Self Storage</u>
2650-021-009	9603 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Condominium Complex
2650-025-037	9501 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Retail
2650-026-023	14602 Plummer St	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Automotive Repair
2650-028-027	14602 Vincennes St	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Apartment
2651-009-015	9147 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Apartment
2651-009-025	9213 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Apartment
2651-009-026	9237 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Apartment
2651-009-055	9107 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	McDonald's
2651-010-061	9059 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Multi-tenant Retail
2651-010-062	9051 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Retail/Office
2651-010-064	9075 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Multi-tenant Retail
2653-001-003	8849 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Apartment

APN	Address	<i>Previous Acquisition Type</i>	<i>Previous Intended Use</i>	New Acquisition Type	New Intended Use	Existing Use
2653-001-004	8843 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Apartment
2653-001-005	8837 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Apartment
2653-001-006	8831 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Apartment
2653-001-007	8827 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Apartment
2653-001-008	8821 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Apartment
2653-001-009	8815 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Apartment
2653-001-033	8781 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Medical Clinics
2653-001-035	8803 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Apartment
2653-002-006	8747 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Office
2653-002-008	8737 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Medical Offices
2653-002-030	8751 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Full	TPSS	Restaurant
2653-002-034	8701 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Vehicle Sales
2653-002-035	8719 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Parking Lot
2653-002-036	8717 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Retail
2653-002-038	8761 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Dental Office
2653-002-062	8771 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE	Medical Offices
2653-002-064	8727 Van Nuys Blvd	<i>None Proposed</i>	<i>None Proposed</i>	Construction	TCE/Road Widening	Offices
N/A	N/A (alley between Pinney St and Van Nuys Blvd)	N/A	Closure of Public Right-of-Way (ROW)	<i>None Proposed</i>		<i>None Proposed</i>

Appendix D. Air Quality and Greenhouse Gas Tables

Table 1: Regional Criteria Pollutant Emissions for IOS Operations with Design Changes (2040)

Source	Daily Emissions in Pounds per Day				
	ROG	CO	NO _x	PM10	PM2.5
Traffic Emissions					
IOS (FEIS/EIR)	24.1	314.1	154.2	17.3	5.3
Design Change	25.4	331.0	162.8	17.2	5.3
Net Emissions	1.3	16.9	8.6	-0.1	0.0
SCAQMD Thresholds	55	550	55	150	55
Exceed Thresholds	No	No	No	No	No

Source: Terry A. Hayes Associates

Table 2: IOS Regional Criteria Pollutant Emissions for Operations in FEIS/EIR (2040)

Source	Daily Emissions in Pounds per Day				
	ROG	CO	NO _x	PM10	PM2.5
Maintenance Facility	2	<1	<1	<1	<1
Vehicle Propulsion	1	7	8	1	1
Traffic Emissions					
No Build	53,827	648,715	174,018	130,420	35,736
IOS	53,619	648,222	173,693	130,413	35,734
FEIS/EIR Net Emissions	(205)	(486)	(317)	(6)	(1)
Design Change	1.3	16.9	8.6	-0.1	0.0
DC Net Total	(203)	(469)	(308)	(6)	(1)
SCAQMD Thresholds	55	550	55	150	55
Exceed Thresholds	No	No	No	No	No

Source: Terry A. Hayes Associates, 2022

Table 3: MSAT Emissions (2040)

FEIS/EIR IOS Regional Analysis						
Pollutant Name	IOS (lbs./day)	Design Change (lbs./day)	Net Change (lbs./day)	IOS (lbs./day)	No Build Alternative	Net Change (lbs./day)
1,3-Butadiene	0.157	0.165	+0.009	152	152	(<1)
Acetaldehyde	0.557	0.591	+0.034	370	371	(<1)
Acrolein	0.033	0.035	+0.002	33	33	(<1)
Benzene	0.744	0.785	+0.041	1,009	1,012	3
DPM	0.228	0.241	+0.013	904	903	1
Ethylbenzene	0.294	0.310	+0.016	807	810	(3)
Formaldehyde	1.341	1.421	+0.080	966	967	(1)
Naphthalene	0.029	0.030	+0.002	74	75	(<1)
POM	0.027	0.028	+0.002	24	24	(<1)
DEOG	5.871	6.241	+0.370	3,319	3,323	(4)

Source: Terry A. Hayes Associates, 2022

Table 1: IOS Annual GHG Emissions (2040)

Emissions Source	IOS Design Change (MTCO_{2e})	IOS as Assessed in the FEIS/EIR (MTCO_{2e})
Net Regional On-Road Vehicle Travel	(20,751)	(20,751)
Net IOS Corridor Peak Hour Traffic	1,066	-
MSF Operations	1,066	1,416
LRT Propulsion & Station Operations	9,397	9,397
30-Year Amortized Construction	140	140
2040 Net Total Annual Emissions (Relative to 2040 No Build Alternative)	(9,082)	(9,797)
Percent Change from 2040 Baseline	(0.0177%)	(0.019%)

Source: Terry A. Hayes Associates, 2022

Appendix E. Noise Tables

Table 1: TPSS Noise Assessment Results

TPSS Site #	Closest Receiver Cluster ID	Distance, TPSS to Cluster (ft)	Existing Noise (L_{dn} in dBA) ¹	TPSS Noise (L_{dn} in dBA) ¹	Total Future Noise (L_{dn} in dBA) ²	Noise Increase (dB) ³	FTA Moderate/Severe Noise Impact?
3	NB-4a ⁴	190	55	52	57	2	None
4	NB-7	574	53	42	54	1	None
5	SB-7a	34	55	67	67	12	Severe
8	NB-30	249	55	49	56	1	None
9	SB-39	41	54	65	65	11	Severe

Notes: L_{dn} = 24-hour day-night level; dBA = A-weighted decibel, referenced to 20 μ Pa

¹ Noise levels for land use category 2 (residential) are based on L_{dn} and measured in dBA.

² Predicted total future noise levels represent the total future predicted noise levels with the project.

³ Total future noise level minus existing noise level.

⁴ Cluster NB-4a is the townhome development at 7201 Lennox Avenue. These residences were not included in the FEIS/EIR assessment because they are located beyond the screening distances for light-rail.

Source: Cross-Spectrum Acoustics, 2022

Table 2: New and Relocated Crossover Locations and Nearby Receivers

Type	Approx. Civil Station #	Location Description	Nearby Receiver Cluster ID
Double crossover	108+50	Between Calvert Street and Delano Street	none
Single crossover	130+50	South of Hamlin Street	SB-B
Single crossover	133+50	North of Hamlin Street	
Single crossover	162+50	South of Hart Street	NB-C, NB-3a, SB-2, SB-3, SB-4
Single crossover	164+50	North of Hart Street	
Double crossover	199+00	Covello Street	NB-6
Yard lead turnout	209+00	South of Keswick Street	none
Yard lead turnout	212+00	North of Keswick Street	
Single crossover	243+50	South of Titus Street	NB-E, NB-8, NB-9
Single crossover	245+50	North of Titus Street	
Single crossover	281+50	North of Parthenia Street / South of Rayen Street	SB-F, SB-6, SB-7a, SB-7B, NB-10a, NB-10b, NB-10c, NB-11a, NB-11b
Single crossover	285+00	North of Parthenia Street / South of Rayen Street	
Single crossover	321+00	North of Vincennes Street	NB-15, NB-15b, SB-13, SB-14, SB-15, SB-16, SB-17
Single crossover	324+50	Gledhill Street	
Single crossover	365+00	North of Canterbury Avenue / South of Beachy Avenue	NB-19, NB-20, NB-I, SB-21, SB-22, SB-23
Single crossover	368+00	North of Canterbury Avenue / South of Beachy Avenue	

Type	Approx. Civil Station #	Location Description	Nearby Receiver Cluster ID
Double crossover	406+50	North of Remick Avenue	NB-29, NB-30, SB-34
Single crossover	440+50	North of Telfair Avenue	NB-38, NB-39, NB-40, SB-37c, SB-38a, SB-38b
Double crossover	440+50	North of Telfair Avenue/South of Tamarack Avenue	

Source: Cross-Spectrum Acoustics, 2022

Table 3: New and Relocated Crossover Noise Assessment Results

Crossover Location	Cluster ID	Cluster Description	Existing Noise Level ¹ (dBA)	FTA Impact Assessment				Predicted Project Noise after Mitigation
				Predicted Project Noise ¹ (dBA)	FTA Moderate Impact Threshold, Project Noise (dBA)	FTA Severe Impact Threshold, Project Noise (dBA)	FTA Level of Impact before Mitigation	
Hamlin St.	SB-B	School	71 ³	69 ³	70 ³	75 ³	-	--
Hart St.	NB-C	Church	68 ³	68 ³	68 ³	73 ³	Moderate	65
Hart St.	NB-3a	MFR	66	65	62	67	Moderate	62
Hart St.	SB-2	SFR	56	63	56	61	Severe	60
Hart St.	SB-3	MFR	59	66	57	63	Severe	63
Hart St.	SB-4	MFR	55	64	55	61	Severe	61
Keswick St.	SB-5b	MFR	69	72	64	69	Severe	69
Covello St.	NB-6	SFR	55	62	55	61	Severe	59
Titus St.	NB-E	School	73 ³	68 ³	70 ³	77 ³	--	65 ³
Titus St.	NB-8	SFR	53	61	55	61	Severe	58
Titus St.	NB-9	SFR	53	61	55	61	Severe	58
Parthenia St.	NB-10a	MFR	66	71	62	67	Severe	65
Parthenia St.	NB-10b	MFR	66	72	62	67	Severe	66
Parthenia St.	NB-10c	MFR	66	72	62	67	Severe	66
Parthenia St.	NB-11a	SFR	54	62	55	61	Severe	56
Parthenia St.	NB-11b	SFR	55	62	55	61	Severe	56
Parthenia	SB-6	MFR	67	72	62	68	Severe	66

Crossover Location	Cluster ID	Cluster Description	Existing Noise Level ¹ (dBA)	FTA Impact Assessment				Predicted Project Noise after Mitigation
				Predicted Project Noise ¹ (dBA)	FTA Moderate Impact Threshold, Project Noise (dBA)	FTA Severe Impact Threshold, Project Noise (dBA)	FTA Level of Impact before Mitigation	
St.								
Parthenia St.	SB-7a	MFR	55	61	55	61	Severe	55
Parthenia St.	SB-7b	MFR	55	61	55	61	Severe	55
Parthenia St.	SB-F	Church	69 ³	69 ³	69 ³	74	Moderate	63 ³
Gledhill St.	NB-15	MFR	67	72	62	67	Severe	66
Gledhill St.	NB-15b	MFR	57	65	56	62	Severe	59
Gledhill St.	SB-13	MFR	67	72	62	67	Severe	66
Gledhill St.	SB-14	MFR	68	72	63	68	Severe	66
Gledhill St.	SB-15	MFR	68	73	63	68	Severe	67
Gledhill St.	SB-16	MFR	55	62	55	61	Severe	56
Gledhill St.	SB-17	MFR	57	64	56	62	Severe	58
Beachy Ave.	NB-I	School	70 ³	67 ³	69 ³	75 ³	--	61
Beachy Ave.	NB-19	SFR	65	71	61	66	Severe	65
Beachy Ave.	NB-20	SFR	55	62	55	61	Severe	56
Beachy Ave.	SB-21	MFR	66	72	62	67	Severe	66
Beachy Ave.	SB-22	SFR	66	71	61	67	Severe	65
Beachy Ave.	SB-23	SFR	52	59	54	60	Moderate	53
Remick Ave.	NB-29	MFR	69	72	64	69	Severe	69
Remick	NB-30	SFR	55	61	55	61	Severe	58

Crossover Location	Cluster ID	Cluster Description	Existing Noise Level ¹ (dBA)	FTA Impact Assessment				Predicted Project Noise after Mitigation
				Predicted Project Noise ¹ (dBA)	FTA Moderate Impact Threshold, Project Noise (dBA)	FTA Severe Impact Threshold, Project Noise (dBA)	FTA Level of Impact before Mitigation	
Ave.								
Remick Ave.	SB-34	SFR	53	60	55	61	Moderate	57
Telfair Ave.	NB-38	SFR	55	61	55	61	Severe	58
Telfair Ave.	NB-39	SFR	55	63	55	61	Severe	60
Telfair Ave.	NB-40	MFR	58	64	57	62	Severe	61
Telfair Ave.	SB-37c	SFR	55	64	55	61	Severe	61
Telfair Ave.	SB-38a	SFR	55	62	55	61	Severe	59
Telfair Ave.	SB-38b	SFR	54	76 ⁴	55	61	Severe	57

Notes: L_{dn} = 24-hour day-night level; L_{eq} = hourly equivalent sound level; dBA = A-weighted decibel, referenced to 20 μ Pa; MFR = multi-family residence; SFR = single-family residence

¹ Noise levels for land use category 2 (residential) are based on L_{dn} and measured in dBA. Noise levels for land use category 3 (institutional) are based on hourly L_{eq} and measured in dBA.

² Predicted total future noise levels represent the total future predicted noise levels with the project.

³ Category 3, institutional land use noise levels are hourly L_{eq} and measured in dBA.

⁴ Crossovers at Parthenia, Gledhill or Beachy assume mitigation measure MM-Vib-2b and all other crossover locations with impact assume mitigation measure MM-Vib-2c.

Source: Cross-Spectrum Acoustics, 2022

Table 4: New and Relocated Crossover Vibration Assessment Results

Crossover Location	Cluster ID	Cluster Description	Predicted L_v (Band Max ¹)	1/3 Octave Band ²	FTA Impact Threshold (VdB)	Impact?	FTA Threshold Exceedance (VdB)
Hamlin St.	SB-B	School	79	40	78	Yes	1
Hart St.	NB-C	Church	75	40	78	-	-
Hart St.	NB-3a	MFR	58	40	72	-	-
Hart St.	SB-2	SFR	62	40	72	-	-
Hart St.	SB-3	MFR	53	40	72	-	-
Hart St.	SB-4	MFR	56	40	72	-	-
Keswick St.	SB-5b	MFR	75	40	72	Yes	3
Covello St.	NB-6	SFR	56	40	72	-	-

Crossover Location	Cluster ID	Cluster Description	Predicted L _v (Band Max ¹)	1/3 Octave Band ²	FTA Impact Threshold (VdB)	Impact?	FTA Threshold Exceedance (VdB)
Titus St.	NB-E	School	81	40	78	Yes	3
Titus St.	NB-8	SFR	52	40	72	-	-
Titus St.	NB-9	SFR	52	40	72	-	-
Parthenia St.	NB-10a	MFR	83	50	72	Yes	11
Parthenia St.	NB-10b	MFR	84	50	72	Yes	12
Parthenia St.	NB-10c	MFR	71	63	72	-	-
Parthenia St.	NB-11a	SFR	61	80	72	-	-
Parthenia St.	NB-11b	SFR	67	80	72	-	-
Parthenia St.	SB-6	MFR	82	63	72	Yes	10
Parthenia St.	SB-7a	MFR	61	80	72	-	-
Parthenia St.	SB-7b	MFR	62	80	72	-	-
Parthenia St.	SB-F	Church	78 ³	50	78	-	-
Gledhill St.	NB-15	MFR	82	40	72	Yes	10
Gledhill St.	NB-15b	MFR	59	40	72	-	-
Gledhill St.	SB-13	MFR	83	40	72	Yes	11
Gledhill St.	SB-14	MFR	85	40	72	Yes	13
Gledhill St.	SB-15	MFR	85	40	72	Yes	13
Gledhill St.	SB-16	MFR	60	40	72	-	-
Gledhill St.	SB-17	MFR	70	40	72	-	-
Beachy Ave.	NB-I	School	77	40	78	-	-
Beachy Ave.	NB-19	SFR	76	40	72	Yes	4
Beachy Ave.	NB-20	SFR	64	40	72	-	-
Beachy Ave.	SB-21	MFR	77	40	72	Yes	5
Beachy Ave.	SB-22	SFR	76	40	72	Yes	4
Beachy Ave.	SB-23	SFR	59	40	72	-	-
Remick Ave.	NB-29	MFR	77	40	72	Yes	5
Remick Ave.	NB-30	SFR	65	40	72	-	-
Remick Ave.	SB-34	SFR	65	40	72	-	-
Telfair Ave.	NB-38	SFR	60	40	72	-	-
Telfair Ave.	NB-39	SFR	73	40	72	Yes	1
Telfair Ave.	NB-40	MFR	73	40	72	Yes	1
Telfair Ave.	SB-37c	SFR	60	40	72	-	-
Telfair Ave.	SB-38a	SFR	59	40	72	-	-

Crossover Location	Cluster ID	Cluster Description	Predicted L_v (Band Max ¹)	1/3 Octave Band ²	FTA Impact Threshold (VdB)	Impact?	FTA Threshold Exceedance (VdB)
Telfair Ave.	SB-38b	SFR	59	40	72	-	-

Notes: L_v = vibration velocity level; VdB = decibels referenced to 1 μ -inch/second; MFR = multi-family residence; SFR = single-family residence

¹ The band maximum is the vibration level from the maximum 1/3 octave band of the L_{max} spectra.

² The 1/3 octave band in which the band maximum occurs.

³ The band maximum is 77.6 VdB which is below the impact threshold.

Source: Cross-Spectrum Acoustics, 2022

Appendix F. Noise Figures

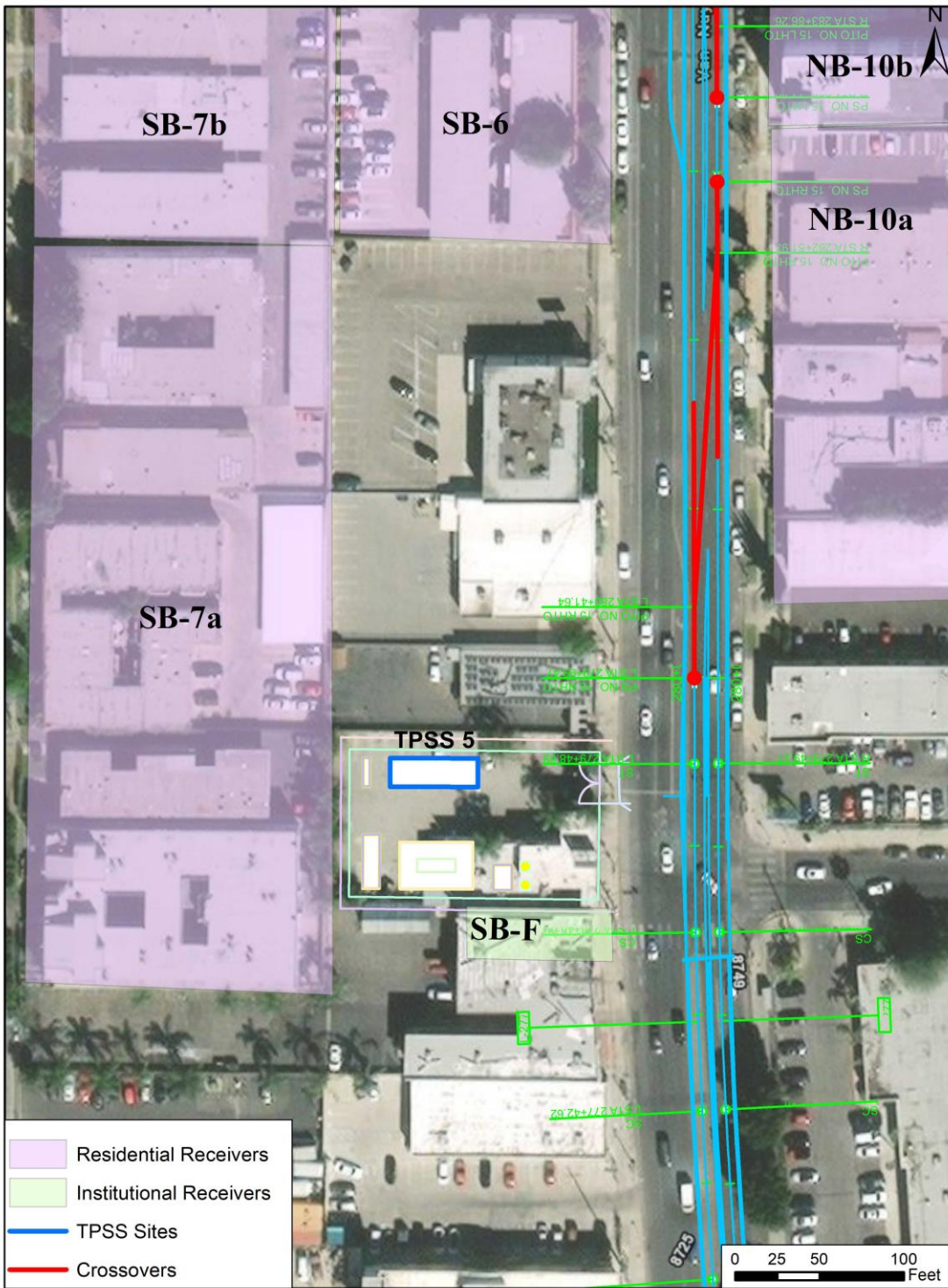


Figure 1: TPSS Site 5 and Nearby Noise-Sensitive Receiver Clusters

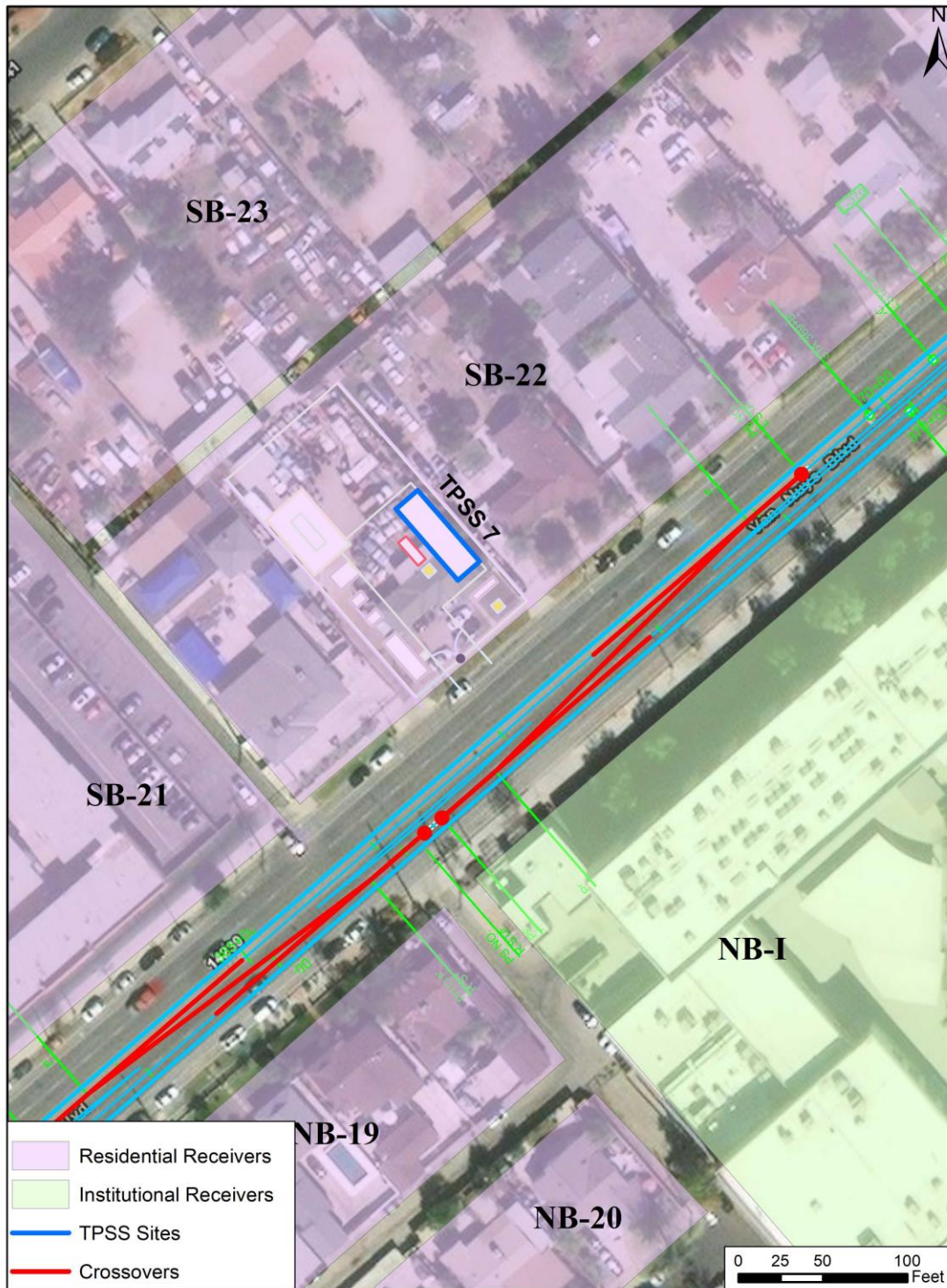


Figure 2: TPSS Site 7 and Nearby Noise-Sensitive Receiver Clusters

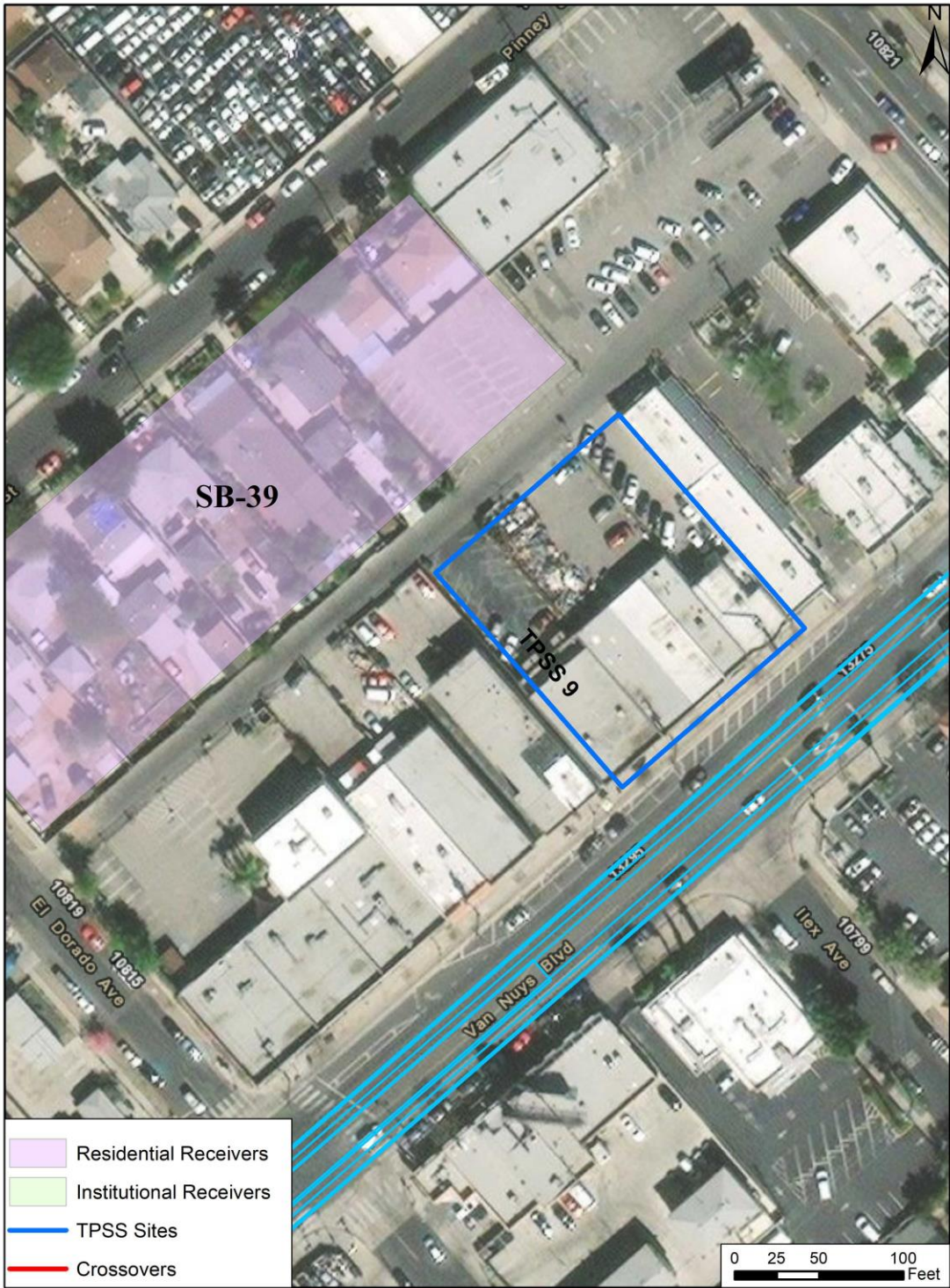


Figure 3: TPSS Site 9 and Nearby Noise-Sensitive Receiver Clusters

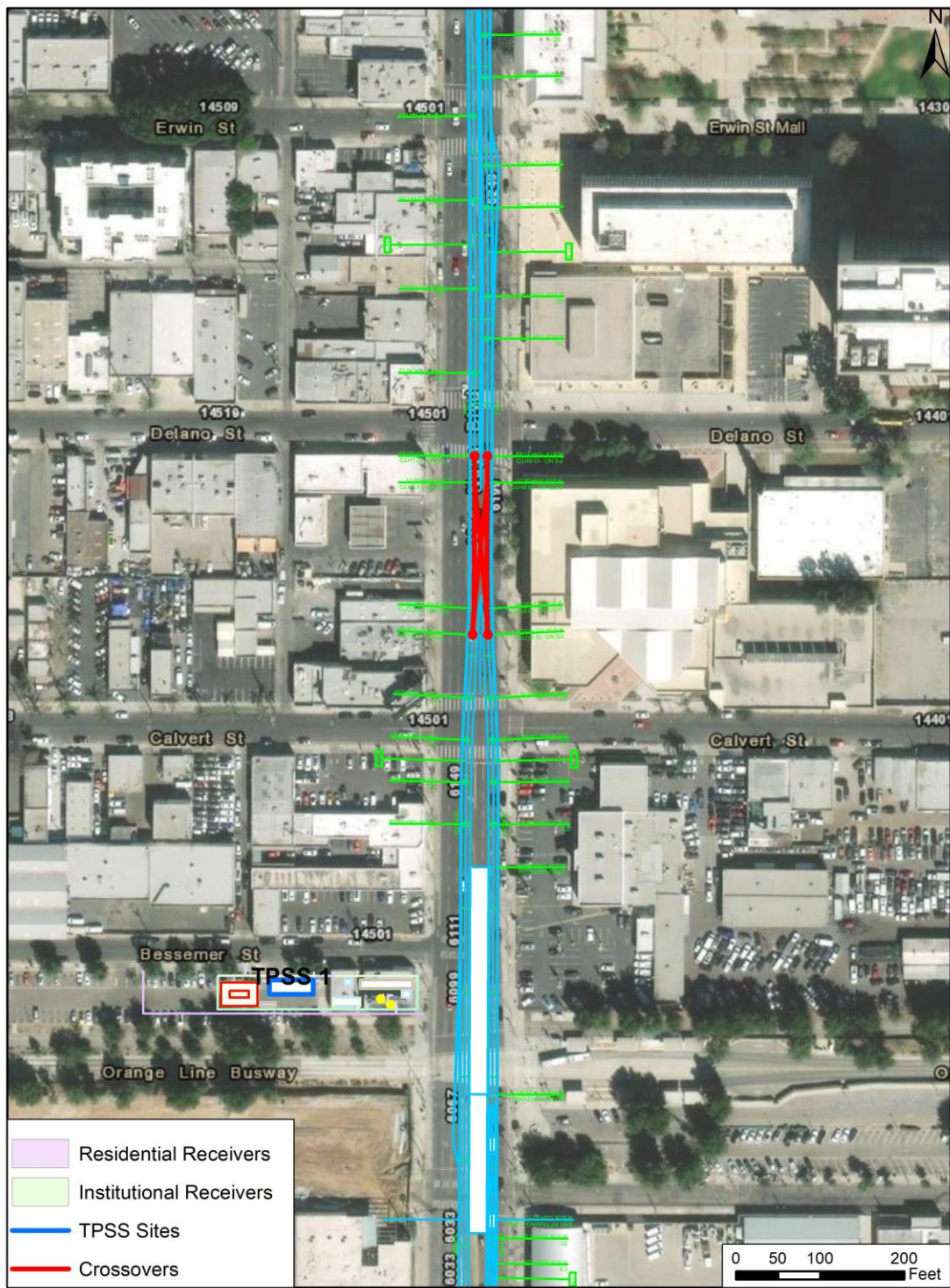


Figure 5: Sensitive Receiver Clusters Nearby Crossovers between Calvert St. and Delano St.

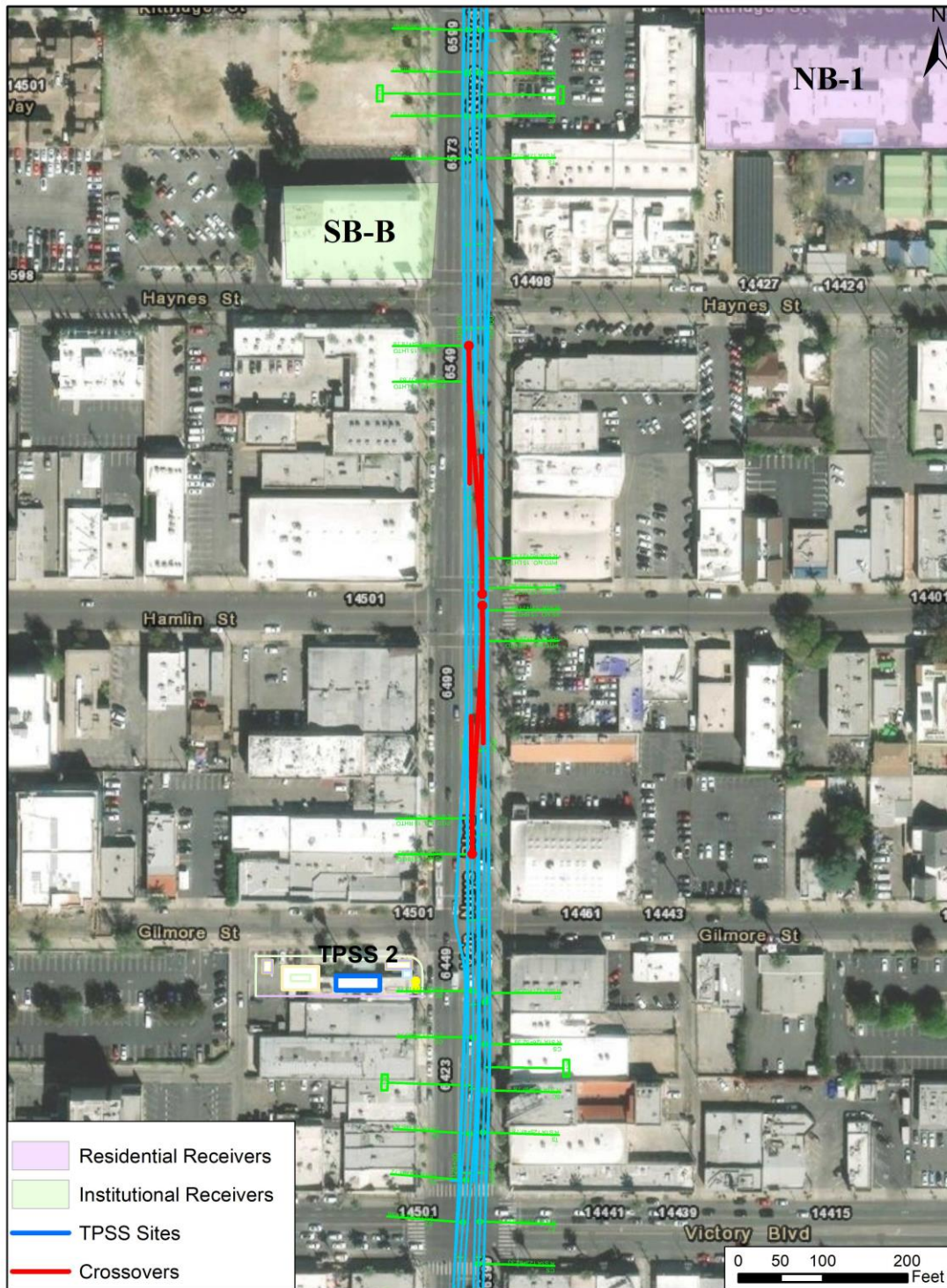


Figure 6: Sensitive Receiver Clusters Nearby Crossovers at Hamlin St.

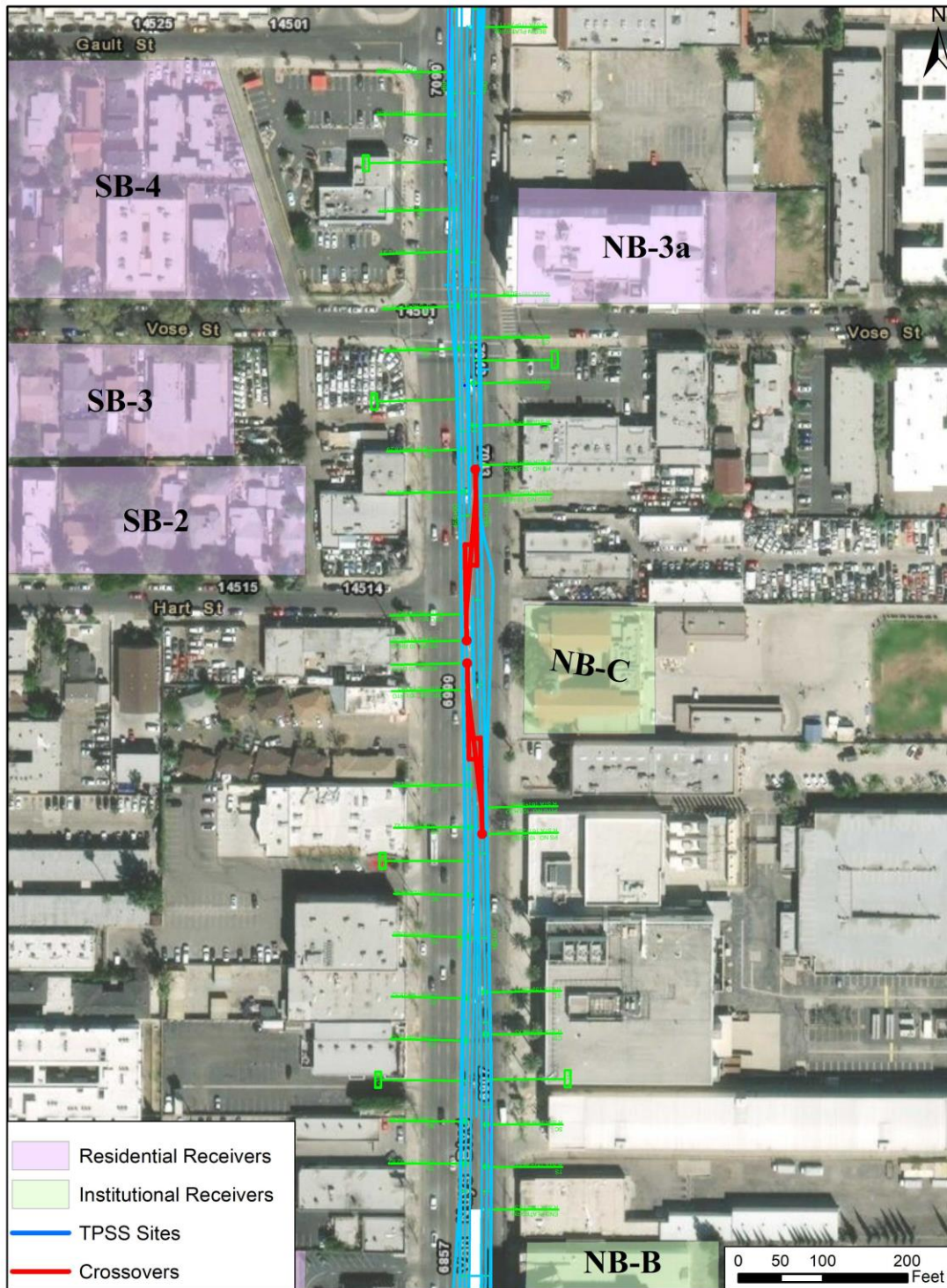


Figure 7: Sensitive Receiver Clusters Nearby Crossovers at Hart St.

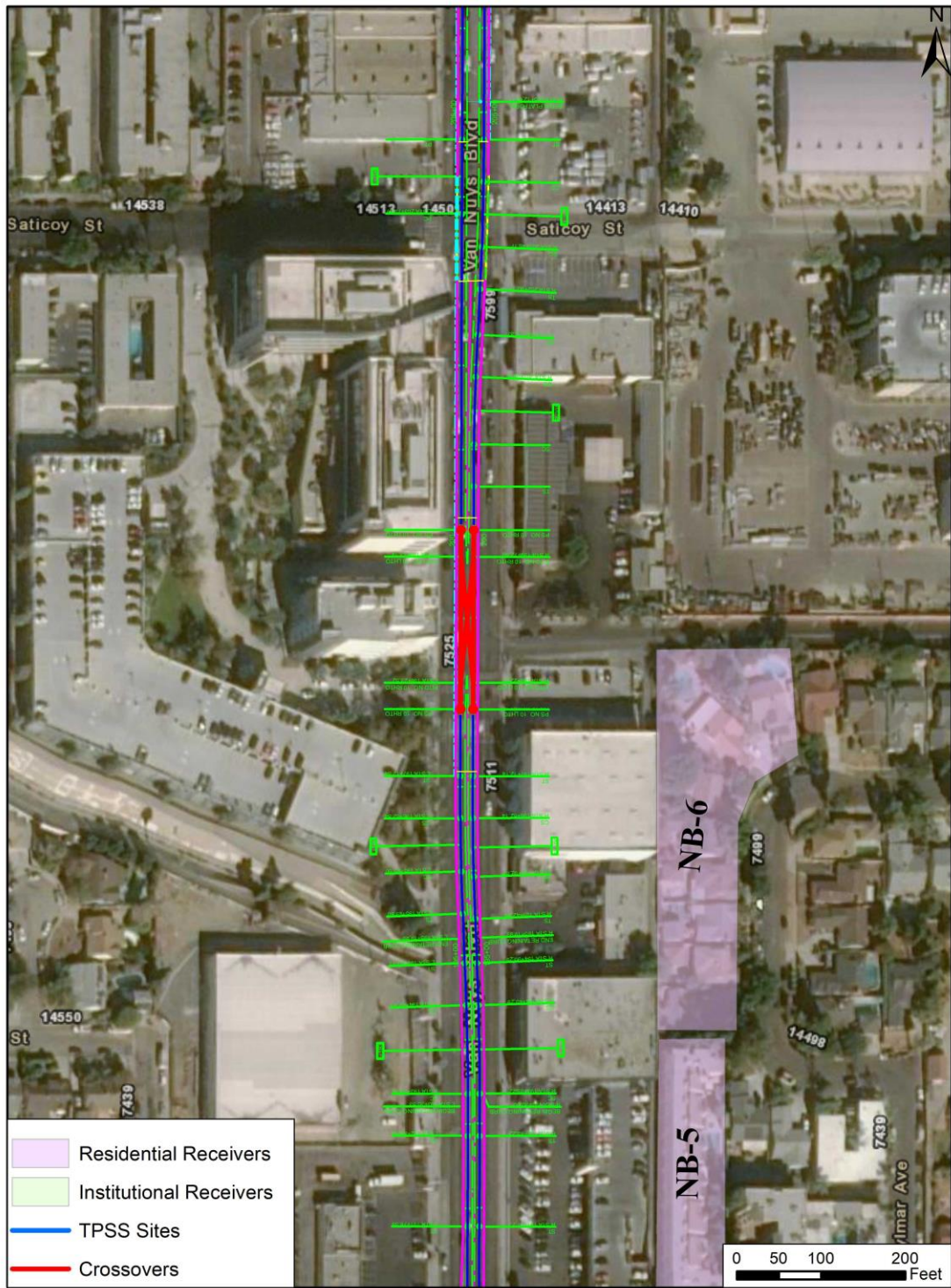


Figure 8: Sensitive Receiver Clusters Nearby Crossovers at Covello St.

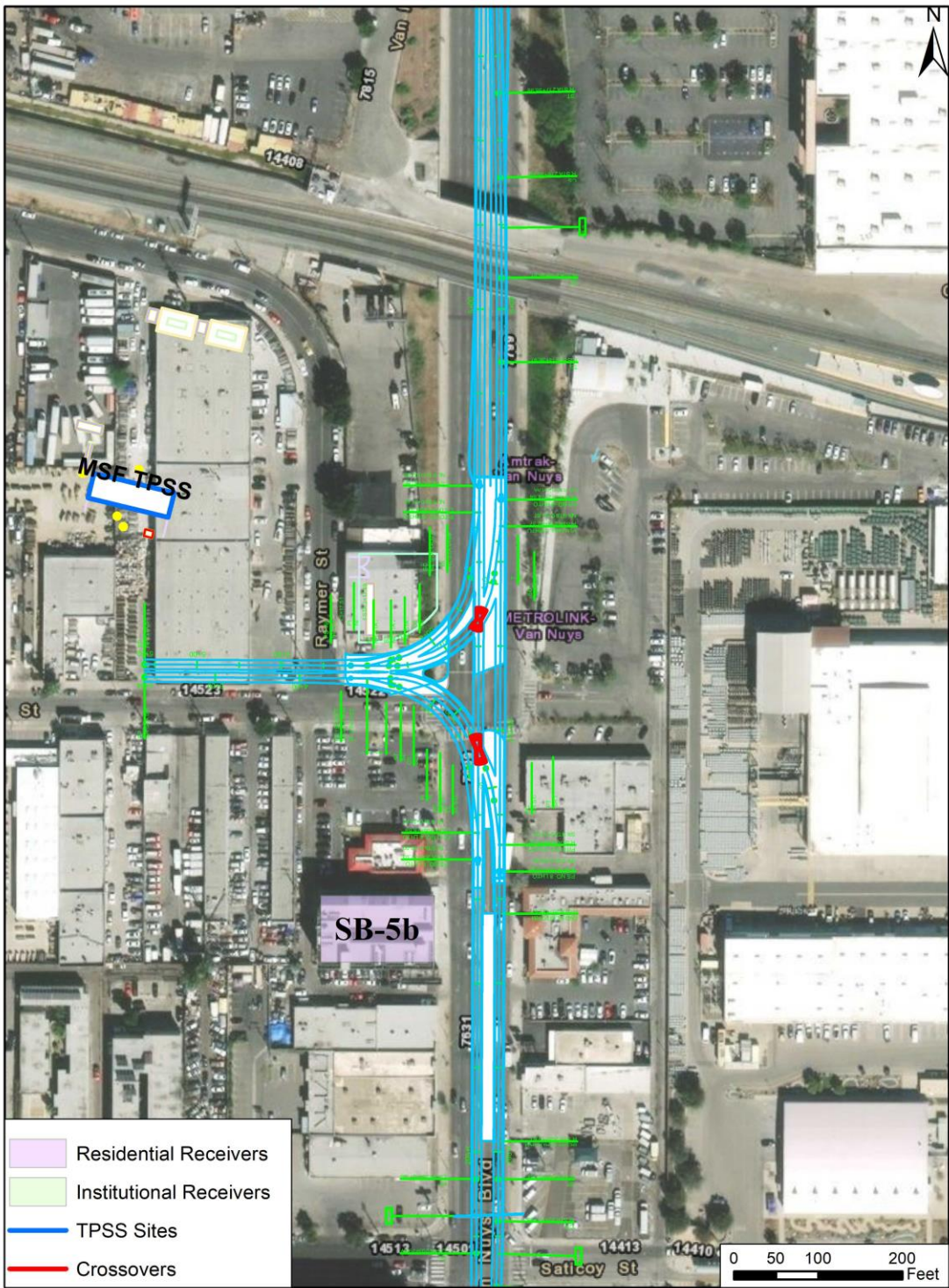
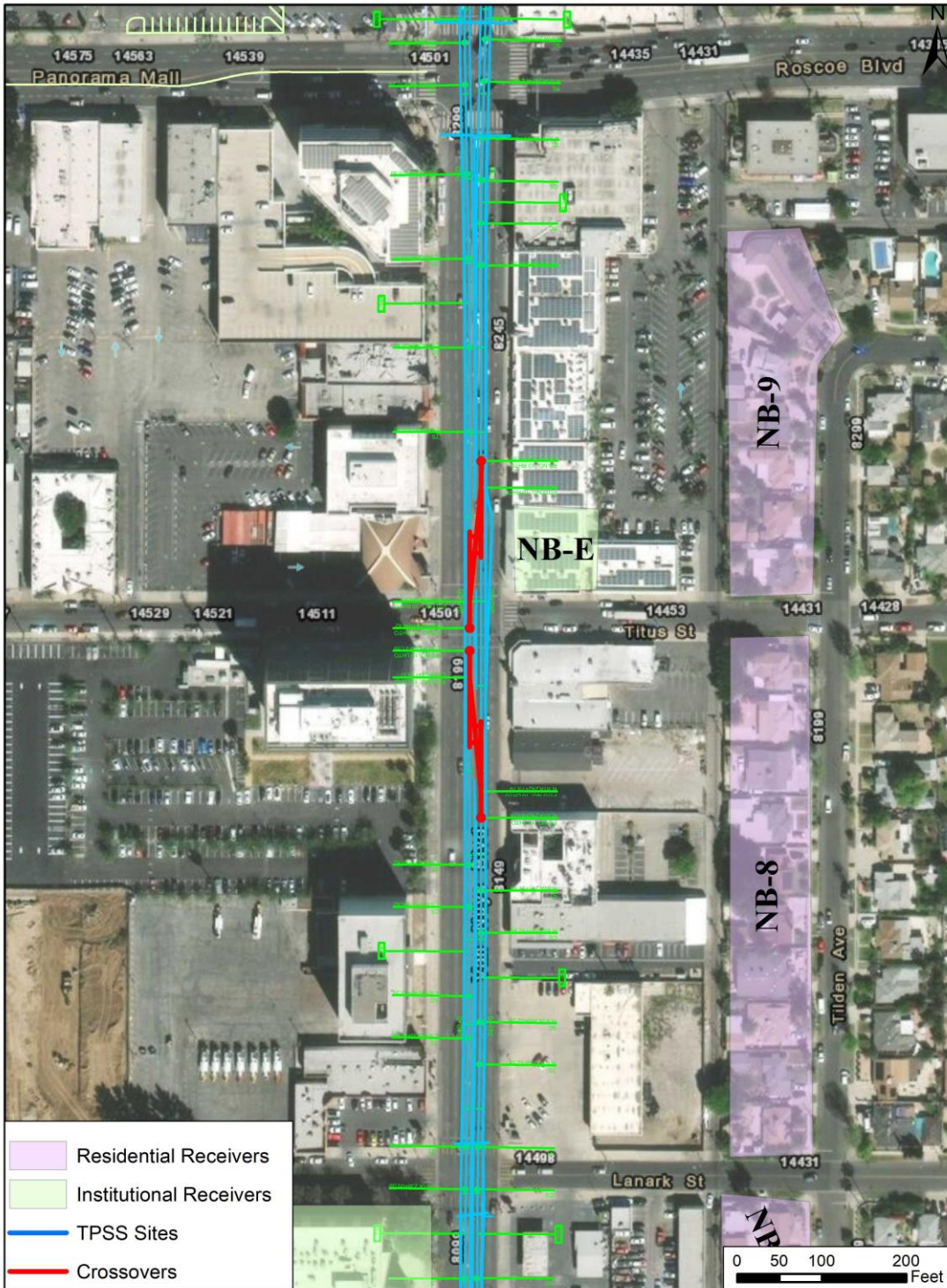


Figure 9: Sensitive Receiver Clusters Nearby Crossovers at Keswick St.



10: Sensitive Receiver Clusters Nearby Crossovers at Titus St.

Figure

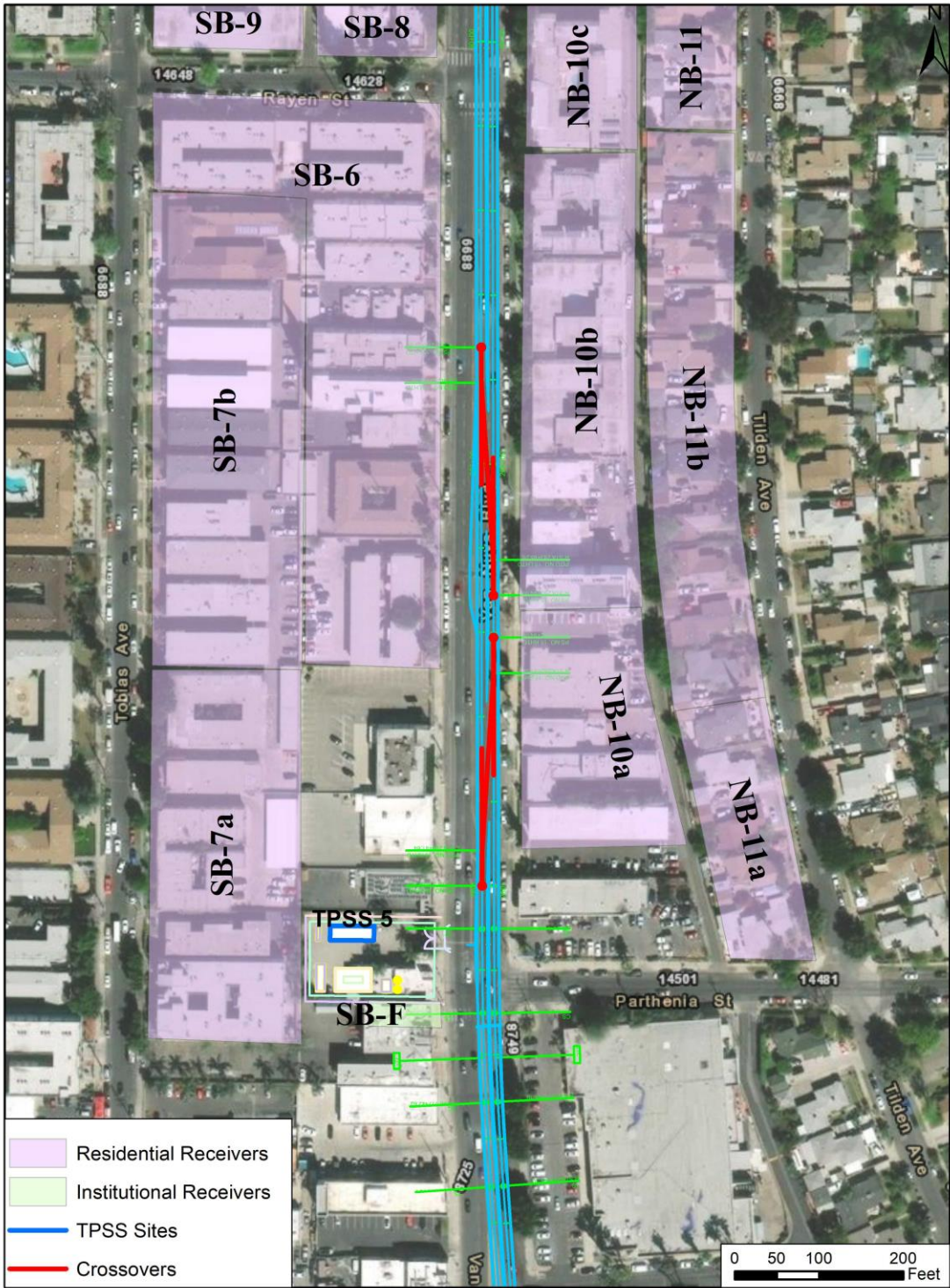


Figure 11: Sensitive Receiver Clusters Nearby Crossovers at Parthenia St.

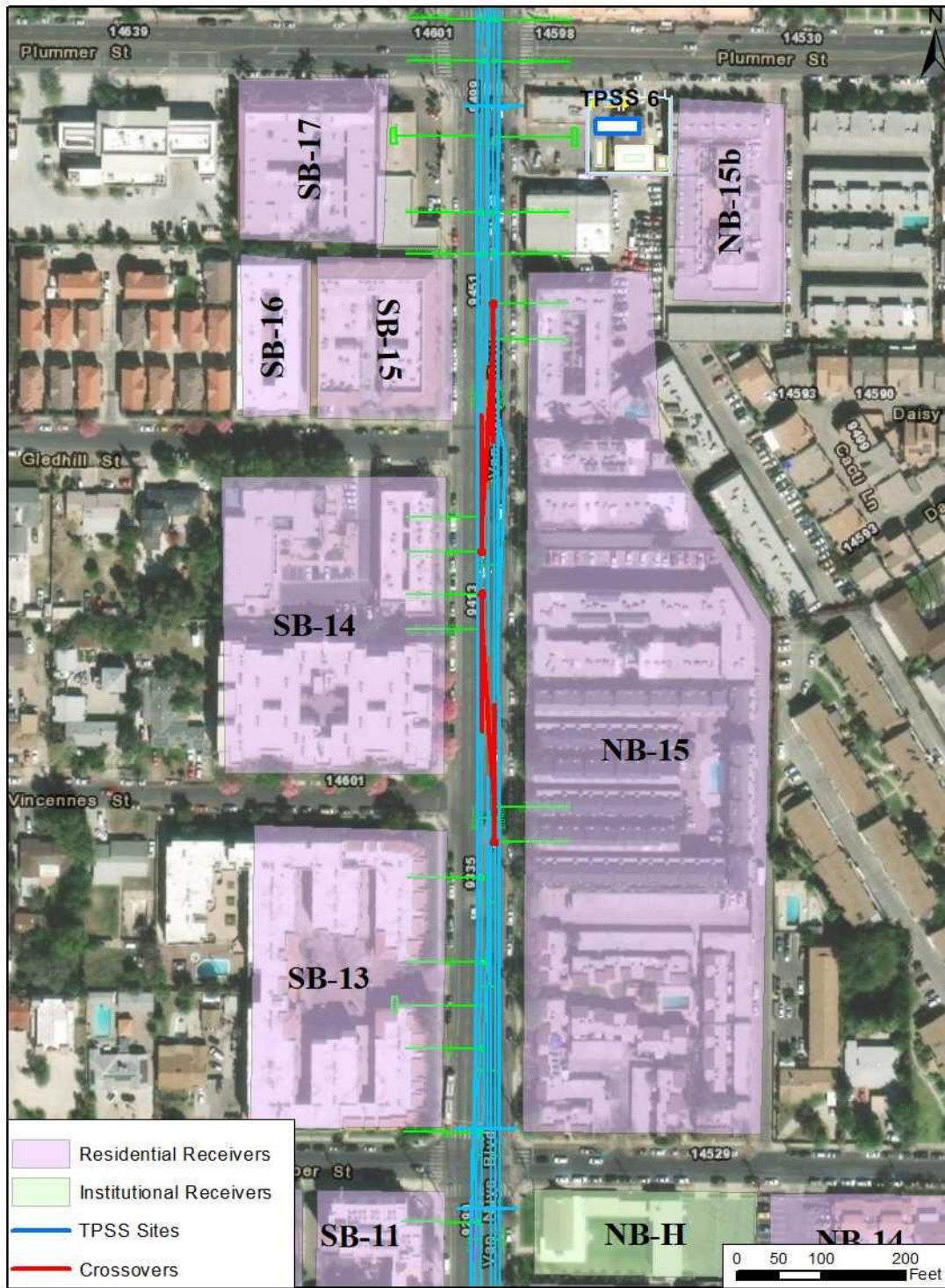


Figure 12: Sensitive Receiver Clusters Nearby Crossovers at Gledhill St.

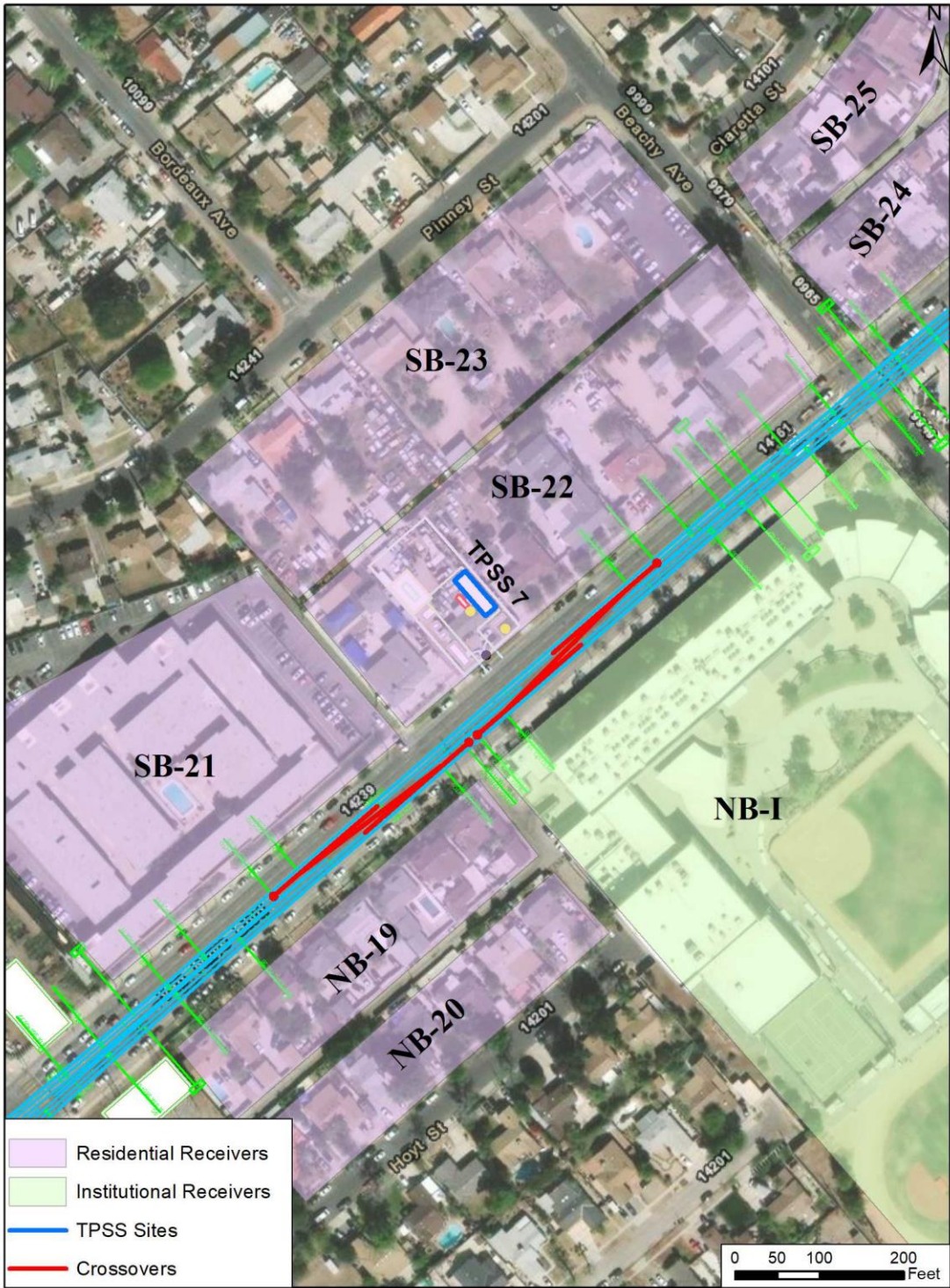


Figure 13: Sensitive Receiver Clusters Nearby Crossovers South of Beachy Ave.



Figure 14: Sensitive Receiver Clusters Nearby Crossovers at Remick Ave.



Figure 15: Sensitive Receiver Clusters Nearby Crossovers at Telfair

Appendix G. List of Mitigation Measures

Table ES-3: Proposed Mitigation Measures

Affected Resource	Mitigation Measures
Transportation, Transit, Circulation, and Parking (Chapter 3 of this FEIS/FEIR)	
Construction	<p>MM-TRA-1: The Traffic Management Plan shall require Metro to communicate closures and information on any changes to bus service to local transit agencies in advance and develop detours as appropriate. Bus stops within work areas shall be relocated, with warning signs posted in advance of the closure, and warnings and alternate stop notifications posted during the extent of the closure.</p> <p>MM-TRA-2: The Traffic Management Plan shall include the following typical measures, and others as appropriate:</p> <ul style="list-style-type: none"> • Schedule a majority of construction-related travel (i.e., deliveries, hauling, and worker trips) during the off-peak hours. • Develop detour routes to facilitate traffic movement through construction zones without significantly increasing cut-through traffic in adjacent residential areas. • Where feasible, temporarily restripe roadways including turning lanes, through lanes, and parking lanes at the affected intersections to maximize the vehicular capacity at those locations affected by construction closures. • Where feasible, temporarily remove on-street parking to maximize the vehicular capacity at those locations affected by construction closures. In these areas where street parking is temporarily removed in front of businesses, the contractor shall provide wayfinding to other nearby parking lots or temporary lots, with any temporary parking secured well in advance of parking being removed in the affected area. • Place station traffic control officers at major intersections during peak hours to minimize delays related to construction activities. • Assign a Construction Relations team inclusive of a manager, senior officers, and social media strategist to develop and implement the Metro Board’s adopted Construction Relations model. The team will conduct the outreach program to inform the general public about the construction process, planned roadway closures, and anticipated mitigations through community briefings in public meeting spaces and use of signage (banners, etc.). • Develop and implement a program with business owners to minimize effects to businesses during construction activities, including but not limited to signage, Eat, Shop, Play, and promotional programs. • Consult and seek input on the designation and identification of haul routes and hours of operation for trucks with the local jurisdictions, school districts, and Caltrans. The selected routes should minimize noise, vibration, and other effects. • To the extent practical, maintain traffic lanes in both directions, particularly during the morning and afternoon peak hours. • Maintain access to adjacent businesses and schools (including passenger loading areas for parents dropping off students) via existing or temporary driveways or loading areas throughout the construction period. • Coordinate potential road closures and detour routes and other construction activities that could adversely affect vehicle routes in the immediate vicinity of local schools with local school districts. • Install and maintain appropriate traffic controls (signs and signals) to ensure vehicular safety. <p>MM-TRA-3: To ensure potential impacts on pedestrian and bicycle facilities are minimized to the extent feasible, the Traffic Management Plan and Traffic Control Plan shall include the following:</p> <ul style="list-style-type: none"> • Bicycle detour signs shall be provided, as appropriate, to route bicyclists away from detour areas with minimal-width travel lanes and onto parallel roadways. • Sidewalk closure and pedestrian route detour signs shall be provided, as appropriate, that safely route pedestrians around work areas where sidewalks are closed for safety reasons or for specific construction work within the sidewalk area. In addition, the project contractor shall ensure appropriate “Open during Construction,” wayfinding, and promotional signage for businesses affected by sidewalk closures is provided and access to these businesses is maintained.

Affected Resource	Mitigation Measures
Operation	<p>MM-TRA-4: During the Preliminary Engineering phase of the project, Metro will work with the Cities of Los Angeles and San Fernando to synchronize and coordinate signal timing and to optimize changes in roadway striping to minimize potential operational traffic impacts and hazards to the extent feasible.</p> <p>MM-TRA-5: Additional visual enhancements, such as high-visibility crosswalks that meet current LADOT design standards, to the existing crosswalks at each proposed station location shall be implemented to further improve pedestrian circulation.</p> <p>MM-TRA-6: To further reduce potential adverse and less-than-significant pedestrian impacts, Metro shall prepare a First/Last Mile study that documents preferred pedestrian access to each station, general pedestrian circulation in the immediate vicinity of the station, and potential sites for connections to nearby bus services. The purpose of this study shall include ensuring sufficient circulation, access, and information important to users of the transit system. The results of the study shall be implemented through coordination between Metro and the local jurisdictions of the City of Los Angeles and the City of San Fernando.</p> <p>MM-TRA-7: To reduce the potential impacts due to removal of the existing bike lanes extending approximately 2 miles north on Van Nuys Boulevard from Parthenia Street to Beachy Avenue and from Laurel Canyon Boulevard to San Fernando Road, two parallel corridors have been identified for consideration and approval by the Los Angeles Department of Transportation (LADOT) as bike friendly corridors. These include Filmore Street to the west and Pierce Street to the east, which can be developed as Class III Bike Friendly streets by striping sharrows and providing signage. Metro shall also continue to work with LADOT to identify, to the extent feasible, replacement locations for Class II bike lanes that meet the goals and policies in the City of Los Angeles Bicycle Plan.</p>
Land Use (Section 4.1 of this FEIS/FEIR)	
Construction	MM-NOI-1a–1d, MM-VIB-1, and MM-AQ-1–9.
Operation	MM-NOI-2a, MM-NOI2b, MM-NOI-3a, MM-NOI-3b, and MM-NOI-3c.
Real Estate and Acquisitions (Section 4.2 of this FEIS/FEIR)	
Construction	None required.
Operation	None required.
Economic and Fiscal Impacts (Section 4.3 of this FEIS/FEIR)	
Construction	MM-TRA-1, MM-TRA-2, MM-TRA-3, and MM-CN-1.
Operation	None required.
Communities and Neighborhoods (Section 4.4 of this FEIS/FEIR)	
Construction	<p>MM-TRA-1–3, MM-VIS-1–5, MM-AQ-1–9, MM-NOI-1a–1d, MM-NOI-2a–2b, MM-NOI-3a–3c, and MM-SS-1–23.</p> <p>In addition, the following measure is proposed:</p> <p>MM-CN-1: A formal educational and public outreach campaign shall be implemented to discuss potential community and neighborhood concerns, including relocations, visual/aesthetics changes, and fare policies, and to communicate information about the project with property owners and community members.</p>
Operation	See mitigation measures listed in Chapter 3, Transportation, Transit, Circulation, and Parking; Section 4.5, Visual Quality and Aesthetics; Section 4.8, Noise and Vibration; and Section 4.14, Safety and Security sections of this table that would be implemented to minimize operational impacts on communities and neighborhoods.

Affected Resource	Mitigation Measures
Visual Quality and Aesthetics (Section 4.5 of this FEIS/FEIR)	
Construction	<p>MM-VIS-1: Construction staging shall be located away from residential and recreational areas and shall be screened to minimize visual intrusion into the surrounding landscape. The screening shall be a height and type of material that is appropriate for the context of the surrounding land uses. There shall be Metro-branded community-relevant messaging on the perimeter of the construction staging walls. Lighting within construction areas shall face downward and shall be designed to minimize spillover lighting into adjacent properties.</p>
Operation	<p>MM-VIS-2: Vegetation removal shall be minimized and shall be replaced following construction either in-kind or following the landscaping design palette for the project, which would be prepared in consultation with the City of Los Angeles and San Fernando, including the City Tree Removal Policy and replacement ratio.</p> <p>MM-VIS-3: Scenic resources, including landscape elements such as rows of palm trees (along Van Nuys Boulevard) or mature trees (along San Fernando Road) and uniform lighting, shall be preserved, where feasible.</p> <p>MM-VIS-4: Lighting associated with the project shall be designed to face downward and minimize spillover lighting into adjacent properties, in particular residential and recreational properties.</p> <p>MM-VIS-5: Infrastructure elements shall be designed with materials that minimize glare.</p>
Air Quality (Section 4.6 of this FEIS/FEIR)	
Construction	<p>MM-AQ-1: Construction vehicle and equipment trips and use shall be minimized to the extent feasible and unnecessary idling of heavy equipment shall be avoided.</p> <p>MM-AQ-2: Solar powered, instead of diesel powered, changeable message signs shall be used.</p> <p>MM-AQ-3: Electricity from power poles, rather than from generators, shall be used where feasible.</p> <p>MM-AQ-4: Engines shall be maintained and tuned per manufacturer's specifications to perform at EPA certification levels and to perform at verified standards applicable to retrofit technologies. Periodic, unscheduled inspections shall be conducted to limit unnecessary idling and to ensure that construction equipment is properly maintained, tuned, and modified consistent with established specifications.</p> <p>MM-AQ-5: Any tampering with engines shall be prohibited and continuing adherence to manufacturer's recommendations shall be required.</p> <p>MM-AQ-6: New, clean (diesel or retrofitted diesel) equipment meeting the most stringent applicable federal or state standards shall be used, and the best available emissions control technology shall be employed. Tier 4 engines shall be used for all construction equipment. If non-road construction equipment that meets Tier 4 engine standards is not available, the Construction Contractor shall be required to use the best available emissions control technologies on all equipment.</p> <p>MM-AQ-7: EPA-registered particulate traps and other appropriate controls shall be used where suitable to reduce emissions of diesel particulate matter (PM) and other pollutants at the construction site.</p> <p>MM-AQ-8: Consistent with South Coast Air Quality Management District Rule 1113, all architectural coatings for building envelope associated with the project shall use coatings with a Volatile Organic Compound content of 50 grams per liter or less.</p> <p>MM-AQ-9: The Design-Builder shall implement feasible means and methods that would minimize cumulative air quality impacts during the construction period, including, but not limited to, the following:</p> <ol style="list-style-type: none"> 1. Timing project-related construction activities associated with the maintenance facility, stations, and track installation such that overlapping schedules are minimized. 2. Timing project-related construction activities so that overlapping schedules with other projects in the area are avoided. 3. Reducing the number of pieces of diesel-fueled equipment used at a given time when construction activities occur in the vicinity of sensitive receptors, including, but not limited to residences, schools, parks, hospitals, and nursing homes.
Operation	None required.

Affected Resource	Mitigation Measures
Greenhouse Gas Emissions (Section 4.7 of this FEIS/FEIR)	
Construction and Operation	MM-AQ-1, MM-AQ-2, MM-AQ-3, and MM-AQ-6.
Noise and Vibration (Section 4.8 of this FEIS/FEIR)	
Construction	<p>MM-NOI-1a: Specific measures to be employed to mitigate construction noise impacts shall be developed by the contractor and presented in the form of a Noise Control Plan. The Noise Control Plan shall be submitted for review and approval before the beginning of construction noise activities.</p> <p>MM-NOI-1b: The contractor shall adequately notify the public of construction operations and schedules no less than 72 hours in advance of construction through a construction notice with confirmed details and a look-ahead briefing several weeks in advance.</p> <p>MM-NOI-1c: If a noise variance from Section 41.40(a) of the Los Angeles Municipal Code is sought for nighttime construction work, a noise limit shall be specified. The contractor shall employ a combination of the noise-reducing approaches listed in MM-NOI-1d to meet the noise limit.</p> <p>MM-NOI-1d: Where feasible, the contractor shall use the following noise-reducing approaches:</p> <ul style="list-style-type: none"> • The contractor shall use specialty equipment with enclosed engines and/or high-performance mufflers. • The contractor shall locate equipment and staging areas as far from noise-sensitive receivers as possible. • The contractor shall limit unnecessary idling of equipment. • The contractor shall install temporary noise barriers to enclose stationary noise sources, such as compressors, generators, laydown and staging areas, and other noisy equipment. • The contractor shall reroute construction-related truck traffic away from residential buildings to the extent practicable. • The contractor shall sequence the use of equipment so that simultaneous use of the loudest pieces of equipment is avoided as much as practicable. • The contractor shall avoid the use of impact equipment and, where practicable, use non-impact equipment. Non-impact equipment could include electric or hydraulic-powered equipment rather than diesel and gasoline-powered equipment where feasible. • The contractor shall use portable noise control enclosures for welding in the construction staging area. • The contractor shall use lined or covered storage bins, conveyors, and chutes with noise-deadening material for truck loading and operations. • The contractor shall use strobe lights or other OSHA-accepted methods rather than back-up alarms during nighttime construction. <p>MM-NOI-1e: If the proposed mitigation measures identified in this section do not reduce the identified significant noise impacts on Los Angeles Unified School District schools to a less-than-significant level, Metro shall develop new and appropriate measures, to the extent feasible, to effectively reduce construction-related or operational noise. Provisions shall be made to allow the affected school or designated representative(s) to notify Metro when such measures are warranted.</p> <p>MM-VIB-1: Where equipment, such as a vibratory roller, that produces high levels of vibration is used near buildings, the Construction Vibration Control Plan shall also include mitigation measures to minimize vibration impact during construction. Recommended construction vibration mitigation measures that shall be considered and implemented where feasible include:</p> <ul style="list-style-type: none"> • The contractor shall minimize the use of tracked vehicles. • The contractor shall avoid vibratory compaction. • The contractor shall monitor vibration levels near sensitive receivers during activities that generate high vibration levels to ensure thresholds are not exceeded.

Affected Resource	Mitigation Measures
Operation	<p>MM-NOI-2a: A sound wall shall be constructed at the northern edge of the alignment where the LRT curves to transition between Van Nuys Boulevard and San Fernando Road, in the area bounded by Pinney Street, El Dorado Avenue, Van Nuys Boulevard, and San Fernando Road. The sound wall shall be constructed to mitigate the increase in traffic noise levels that would result from removing the row of buildings in this area. Sound walls should be constructed in such a fashion as to not impair the train operator vision triangle sightlines.</p> <p>MM-NOI-2b: Friction control shall be incorporated into the design for the curves at Van Nuys Boulevard/San Fernando Road, Van Nuys Boulevard/El Dorado Boulevard, and Van Nuys Boulevard/Vesper Avenue. Friction control may consist of installing lubricators on the rail or using an onboard lubrication system that applies lubrication directly to the wheel.</p> <p>MM-NOI-3a: The following noise limit shall be included in the purchase specifications for the TPSS units: TPSS noise shall not exceed 50 dBA at a distance of 50 feet from any part of a TPSS unit.</p> <p>MM-NOI-3b: The TPSS units shall be located within the parcel as far from sensitive receivers as feasible. If possible, the cooling fans shall be oriented away from sensitive receivers.</p> <p>MM-NOI-3c: If necessary, a sound enclosure shall be built around the TPSS unit to further reduce noise levels at sensitive receivers to below the applicable impact threshold. Predicted vibration levels could be reduced to below the CEQA significance thresholds at all sensitive receivers with traditional floating-slab track and use of low-impact frogs. A floating slab consists of a concrete slab supported by rubber or steel springs. Floating slab is the most expensive vibration mitigation measure; however, it provides the most reduction in vibration levels. Further investigation may show that vibration levels could be reduced to below the applicable thresholds with a less expensive option, such as a continuous-mat floating slab. Low-impact frogs such as conformal frogs and spring frogs result in a smoother transition over the gaps, reducing noise and vibration levels. Conformal frogs smooth the transition through wing slopes, which match the wheel profile, and spring frogs use a spring-loaded mechanism. A moveable point frog includes a signal mechanism that allows trains running on the mainline to avoid any gaps in the rail, eliminating the noise and vibration impact of the special trackwork. Moveable point frogs are required mitigation measures in areas where other low-impact frogs do not provide enough vibration reduction.</p> <p>MM-VIB-2a: Metro shall complete additional vibration analysis to confirm the locations where vibration levels would exceed CEQA significance thresholds. Where exceedances would occur, the contractor shall employ methods to reduce vibration to levels below applicable thresholds. A floating-slab track, a continuous-mat floating slab, or a vibration-isolated embedded track system, such as QTrack, could be considered.</p> <p>MM-VIB-2b: The contractor shall install moveable point frogs at the crossovers on Van Nuys Boulevard/Osborne Street and at Van Nuys Boulevard/Canterbury Avenue. If further investigation confirms that an alternative low-impact frog would reduce vibration levels below the applicable thresholds, the alternative may be installed.</p> <p>MM-VIB-2c: Low-impact frogs such as conformal frogs or spring frogs shall be used at all crossovers and turnouts not covered under MM-VIB-2b. Traditional crossovers may be used in locations where analysis shows vibration levels will not exceed the applicable thresholds at nearby sensitive receivers.</p>
Geology, Soils and Seismicity (Section 4.9 of this FEIS/FEIR)	
Construction	None required
Operation	<p>MM-GEO-1: Metro design criteria require probabilistic seismic hazard analyses (PSHA) to estimate earthquake loads on structures. These analyses take into account the combined effects of all nearby faults to estimate ground shaking. During Final Design, site-specific PSHAs shall be used as the basis for evaluating the ground motion levels along the project corridor. The structural elements of the proposed project shall be designed and constructed to resist or accommodate appropriate site-specific estimates of ground loads and distortions imposed by the design earthquakes and conform to Metro's Design Standards for the Operating and Maximum Design Earthquakes. The concrete structures will be designed according to the Building Code Requirements for Structural Concrete (ACI 318) by the American Concrete Institute.</p>

Affected Resource	Mitigation Measures
	<p>MM-GEO-2: At liquefaction or seismic settlement prone areas, evaluations by geotechnical engineers shall be performed during Final Design to provide estimates of the magnitude of the anticipated liquefaction or settlement. Based on the magnitude of evaluated liquefaction, either structural design, or ground improvement (such as deep soil mixing) or deep foundations to non-liquefiable soil (such as drilled piles) measures shall be selected. Site-specific design shall be selected based on State of California guidelines and design criteria set forth in the Metro Seismic Design Criteria</p>
Hazardous Waste and Materials (Section 4.10 of this FEIS/FEIR)	
Construction	<p>MM-HAZ-1: An environmental investigation shall be performed during design for transit structures, TPSS locations, stations, and the MSF. The environmental investigation shall collect soil, groundwater, and/or soil gas samples to delineate potential areas of contamination that may be encountered during construction or operations. The environmental investigation shall include the following:</p> <ul style="list-style-type: none"> • Properties potentially to be acquired are listed on multiple databases and shall be evaluated further for contaminants that were manufactured, stored, or released from the facility. If contaminated soil (e.g., soil contaminated from organic wastes, sediments, minerals, nutrients, thermal pollutants, toxic chemicals, and/or other hazardous substances) is found, it shall be removed, transported to an approved disposal location, and remediated according to state law. • Phase II subsurface investigations for potential impacts from adjoining current or former UST sites and nearby LUST sites. • A Phase II subsurface investigation to evaluate potential presence of PCE shall be performed along the portions of the project alignment that are adjacent to former and current dry cleaners. If contaminated soil is found, it shall be removed, transported to an approved disposal location, and remediated according to state law. • If construction encroaches into the two former plugged and abandoned dry-hole oil exploration wells mapped adjacent to the proposed project right-of-way, the project team shall consult with DOGGR regarding the exact locations of the abandoned holes and the potential impact of the wells on proposed construction. • The locations of proposed improvements involving excavations adjacent to (within 50 feet of) the electrical substation shall be screened prior to construction by testing soils within 5 feet of the existing ground surface for PCBs. If contaminated soil is found, it shall be removed, transported to an approved disposal location, and remediated according to state law. • Buildings that will be demolished shall have a comprehensive ACM inspection prior to demolition. In addition, ACM may be present in the existing bridge crossings at the Pacoima Diversion Channels. If improvements associated with the proposed project will disturb the existing bridge crossings, then these structures shall be evaluated for suspect ACM. If ACM is found, it shall be removed, and transported to an approved disposal location according to state law. • Areas where soil may be disturbed during construction shall be tested for ADL according to Caltrans ADL testing guidelines. If contaminated soil is found, it shall be removed, transported to an approved disposal location, and remediated according to state law. • Lead and other heavy metals, such as chromium, may be present within yellow thermoplastic paint markings on the pavement. These surfacing materials shall be tested for LBP prior to removal. If contaminated soil is found, it shall be removed, transported to an approved disposal location, and remediated according to state law. • Former railroad rights-of-way that crossed or were adjacent to the project right-of-way may contain hazardous materials from the use of weed control, including herbicides and arsenic, and may also contain Treated Wood Waste (TWW). Soil sampling for potentially hazardous weed control substances shall be conducted for health and safety concerns in the event that construction earthwork involves soil removal from the former railroad rights-of-way. If encountered during construction, railroad ties designated for reuse or disposal (including previously salvaged railroad ties in the project right-of-way) shall be managed or disposed of as TWW in accordance with Alternative Management Standards provided in CCR Title 22 Section 67386.

Affected Resource	Mitigation Measures
	<p>MM-HAZ-2: The contractor shall implement a Worker Health and Safety Plan prior to the start of construction activities. All workers shall be required to review the plan, receive training if necessary, and sign the plan prior to starting work. The plan shall identify properties of concern, the nature and extent of contaminants that could be encountered during excavation activities, appropriate health and environmental protection procedures and equipment, emergency response procedures including the most direct route to a hospital, and contact information for the Site Safety Officer.</p> <p>MM-HAZ-3: The contractor shall implement a Contaminated Soil/Groundwater Management Plan during construction to establish procedures to follow if contamination is encountered in order to minimize associated risks. The plan shall be prepared during the final design phase of the project, and the construction contractor shall be held to the level of performance specified in the plan. The plan shall include procedures for the implementation of the following measures:</p> <ul style="list-style-type: none"> • Contacting appropriate regulatory agencies if contaminated soil or groundwater (e.g., groundwater contaminated from organic wastes, sediments, minerals, nutrients, thermal pollutants, toxic chemicals, and/or other hazardous substances) is encountered • Sampling and analysis of soil and/or groundwater known or suspected to be impacted by hazardous materials • The legal and proper handling, storage, treatment, transport, and disposal of contaminated soil and/or groundwater shall be delineated and conducted in consultation with regulatory agencies and in accordance with established statutory and regulatory requirements in Section 4.10.1.1 of this FEIS/FEIR • Implementation of dust control measures such as soil wetting, wind screens, etc., for contaminated soil • Groundwater collection, treatment, and discharge shall be performed according to applicable standards and procedures listed in Section 4.10.1.1 of this FEIS/FEIR <p>MM-HAZ-4: The contractor shall properly maintain equipment and properly store and manage related hazardous materials, so as to prevent motor oil, or other potentially hazardous substances used during construction, from spilling onto the soil. If contaminated soil is found, it shall be removed, transported to an approved disposal location, and remediated according to state law.</p> <p>MM-HAZ-5: For reconstruction of the Pacoima Wash bridge that crosses Metro right-of-way, the construction spoils (e.g., excavated soils, cuttings generated during installation of CIDH piles), including those in contact with the groundwater, shall be contained and tested for total chromium, 1,4-dioxane, trichloroethylene (TCE), and PCE to determine appropriate disposal.</p> <p>MM-HAZ-6: A Contaminated Soil/Groundwater Management Plan shall be prepared during final design that describes appropriate methods and measures to manage contamination encountered during construction.</p>
Operation	None required
Energy (Section 4.11 of this FEIS/FEIR)	
Construction	None required.
Operation	None required.
Ecosystems/Biological Resources (Section 4.12 of this FEIS/FEIR)	
Construction	<p>MM-BIO-1: Avoid and Minimize Project-Related Impact on Special-Status Bat Species</p> <p>In the maternity season (April 15 through August 31) prior to the commencement of construction activities, a field survey shall be conducted by a qualified biologist to determine the potential presence of colonial bat roosts (including palm trees) on or within 100 feet of the project boundaries. Should a potential roost be identified that will be affected by proposed construction activities, a visual inspection and/or one-night emergence survey shall be used to determine if it is being used as a maternity-roost.</p> <p>To avoid any impacts on roosting bats resulting from construction activities, the following measures shall be implemented:</p>

Affected Resource	Mitigation Measures
	<p data-bbox="562 237 850 264">Bridges and Overpasses</p> <ul data-bbox="562 269 1896 574" style="list-style-type: none"> <li data-bbox="562 269 1896 407">• Should potential bat roosts be identified that will require removal, humane exclusionary devices shall be used. Installation would occur outside of the maternity season and hibernation period (February 16-April 14 and August 16-October 30, or as determined by a qualified biologist) unless it has been confirmed as absent of bats. If the roost has been determined to have been used by bats, the creation of alternate roost habitat shall be required, with CDFW consultation. The roost shall not be removed until it has been confirmed by a qualified biologist that all bats have been successfully excluded. <li data-bbox="562 412 1896 574">• Should an active maternity roost be identified, a determination (in consultation with the California Department of Fish and Wildlife or a qualified bat expert) shall be made whether indirect effects of construction-related activities (i.e., noise and vibration) could substantially disturb roosting bats. This determination shall be based on baseline noise/vibrations levels, anticipated noise-levels associated with construction of the proposed project, and the sensitivity to noise-disturbances of the bat species present. If it is determined that noise could result in the temporary abandonment of a day-roost, construction-related activities shall be scheduled to avoid the maternity season (April 15 through August 31), or as determined by the biologist. <p data-bbox="562 579 632 607">Trees</p> <p data-bbox="562 612 1896 662">All trees to be removed as part of the project shall be evaluated for their potential to support bat roosts. The following measures would apply to trees to be removed that are determined to provide potential bat roost habitat by a qualified biologist.</p> <ul data-bbox="562 667 1896 1421" style="list-style-type: none"> <li data-bbox="562 667 1896 805">• If trees with colonial bat roost potential require removal during the maternity season (April 15 through August 31), a qualified bat biologist shall conduct a one-night emergence survey during acceptable weather conditions (no rain or high winds, night temperatures above 52°F) or if conditions permit, physically examine the roost for presence or absence of bats (such as with lift equipment) before the start of construction/removal. If the roost is determined to be occupied during this time, the tree shall be avoided until after the maternity season when young are self-sufficiently volant. <li data-bbox="562 810 1896 972">• If trees with colonial bat roost potential require removal during the winter months when bats are in torpor, a state in which the bats have significantly lowered their physiological state, such as body temperature and metabolic rate, due to lowered food availability. (October 31 through February 15, but is dependent on specific weather conditions), a qualified bat biologist shall physically examine the roost if conditions permit for presence or absence of bats (such as with lift equipment) before the start of construction. If the roost is determined to be occupied during this time, the tree shall be avoided until after the winter season when bats are once again active. <li data-bbox="562 977 1896 1221">• Trees with potential colonial bat habitat can be removed outside of the maternity season and winter season (February 16 through April 14 and August 16 through October 30, or as determined by a qualified biologist) using a two-step tree trimming process that occurs over 2 consecutive days. On Day 1, under the supervision of a qualified bat biologist, Step 1 shall include branches and limbs with no cavities removed by hand (e.g., using chainsaws). This will create a disturbance (noise and vibration) and physically alter the tree. Bats roosting in the tree will either abandon the roost immediately (rarely) or, after emergence, will avoid returning to the roost. On Day 2, Step 2 of the tree removal may occur, which would be removal of the remainder of the tree. Trees that are only to be trimmed and not removed would be processed in the same manner; if a branch with a potential roost must be removed, all surrounding branches would be trimmed on Day 1 under supervision of a qualified bat biologist and then the limb with the potential roost would be removed on Day 2. <li data-bbox="562 1226 1896 1421">• Trees with foliage (and without colonial bat roost potential), such as sycamores, that can support lasiurine bats, shall have the two-step tree trimming process occur over one day under the supervision of a qualified bat biologist. Step 1 would be to remove adjacent, smaller, or non-habitat trees to create noise and vibration disturbance that would cause abandonment. Step 2 would be to remove the remainder of tree on that same day. For palm trees that can support western yellow bat (the only special-status lasiurine species with the potential to occur in the project area), shall use the two-step tree process over two days. Western yellow bats may move deeper within the dead fronds during disturbance. The two-day process will allow the bats to vacate the tree before removal.

Affected Resource	Mitigation Measures
	<p>MM BIO-2: Avoid Impacts on Nesting Birds (including raptors) To avoid any impacts on migratory birds, resulting from construction activities that may occur during the nesting season, March 1 through August 31, the following measure shall be implemented:</p> <ul style="list-style-type: none"> • A qualified biologist shall conduct a preconstruction survey of the proposed construction alignment with a 150-foot buffer for passerines and 500-feet for raptors around the site. This preconstruction survey shall commence no more than 3 days prior to the onset of construction, such as clearing and grubbing and initial ground disturbance. • If a nest is observed, an appropriate buffer shall be established, as determined by a qualified biologist, based on the sensitivity of the species. For nesting raptors, the minimum buffer shall be 150 feet. The contractor shall be notified of active nests and directed to avoid any activities within the buffer zone until the nests are no longer considered to be active by the biologist. <p>MM BIO-3: Jurisdictional Waters Any work resulting in materials that could be discharged into jurisdictional features shall adhere to strict best management practices (BMPs) to prevent potential pollutants from entering any jurisdictional feature. Applicable BMPs to be applied shall be included in the Stormwater Pollution Prevention Plan and/or Water Quality Management Plan and shall include, but not be limited to, the following BMPs as appropriate:</p> <ul style="list-style-type: none"> • Containment around the site shall include use of temporary measures such as fiber rolls to surround the construction areas to prevent any spills of slurry discharge or spoils recovered during the separation process; • Downstream drainage inlets shall be temporarily covered to prevent discharge from entering the storm drain system; • Construction entrances/exits shall be properly set up so as to reduce or eliminate the tracking of sediment and debris offsite by including grading to prevent runoff from leaving the site, and establishing "rumble racks" or wheel water points at the exit to remove sediment from construction vehicles; • Onsite rinsing or cleaning of any equipment shall be performed in contained areas and rinse water shall be collected for appropriate disposal; • Use of a tank on work sites to collect the water for periodic offsite disposal; • Soil and other building materials (e.g., gravel) stored onsite shall be contained and covered to prevent contact with stormwater and offsite discharge; and • Water quality of runoff shall be periodically monitored before discharge from the site and into the storm drainage system. <p>MM BIO-4: A Project Tree Report Shall Be Approved by the City of Los Angeles and City of San Fernando Prior to construction, the contractor shall review the approved alternative alignment to determine whether any trees protected by the City of Los Angeles Tree Ordinance 177404 and City of San Fernando Comprehensive Tree Management Program Ordinance (Ordinance No. 1539) will be removed or trimmed. A tree report must be prepared, by a qualified arborist, for the project and approved by each city. Trees approved for removal (or replacement) shall be done in accordance with the specifications outlined in the city ordinances.</p>
Operation	None required.
Water Resources/Hydrology and Water Quality (Section 4.13 of this FEIS/FEIR)	
Construction	None Required.
Operation	None Required.
Safety and Security (Section 4.14 of this FEIS/FEIR)	
Construction	MM-SS-1: Alternate walkways for pedestrians shall be provided around construction staging sites in accordance with ADA requirements.

Affected Resource	Mitigation Measures
	<p>MM-SS-2: Safe and convenient pedestrian routes to local schools shall be maintained during construction.</p> <p>MM-SS-3: Ongoing communication with school administrators shall be maintained to ensure sufficient notice of construction activities that could affect pedestrian routes to schools is provided.</p> <p>MM-SS-4: All pedestrian and bicyclist detour locations around staging sites shall be signed and marked in accordance with the Manual on Uniform Traffic Control Devices “work zone” guidance, and other applicable local and state requirements.</p> <p>MM-SS-5: Appropriate traffic controls (signs and signals) shall be installed and maintained to ensure pedestrian and vehicular safety.</p> <p>MM-SS-6: To the extent feasible, construction haul trucks shall not use haul routes that pass any school, except when the school is not in session.</p> <p>MM-SS-7: Staging or parking of construction-related vehicles, including worker-transport vehicles, shall not occur on or adjacent to a school property when school is in session.</p> <p>MM-SS-8: Crossing guards or flaggers shall be provided at affected school crossings when the safety of children may be compromised by construction-related activities.</p> <p>MM-SS-9: Barriers or fencing shall be installed to secure construction equipment and to minimize trespassing, vandalism, short-cut attractions, and attractive nuisances.</p> <p>MM-SS-10: Security patrols shall be provided to minimize trespassing, vandalism, and short-cut attractions where construction activities occur in the vicinity of local schools.</p> <p>MM-SS-11: Project plans, work plans, and traffic control measures shall be coordinated with emergency responders during preliminary engineering, final design, and construction to limit effects to emergency response times.</p>
Operation	<p>MM-SS-12: All stations shall be illuminated to avoid shadows and all pedestrian pathways leading to/from sidewalks and parking facilities shall be well illuminated. In addition, lighting would provide excellent visibility for train operators to be able to react to possible conflicts, especially to pedestrians crossing the track.</p> <p>MM-SS-13: Proposed station designs shall not include design elements that obstruct visibility or observation nor provide discrete locations favorable to crime; pedestrian access to at-grade stations shall be at ground-level with clear sight lines.</p> <p>MM-SS-14: The following measures shall be implemented to reduce pedestrian circulation impacts and hazards:</p> <ul style="list-style-type: none"> • Sidewalk widths shall be designed with the widest dimensions feasible in conformance with the Los Angeles/Metro’s adopted “Land Use/Transportation Policy.” • Minimum widths shall not be less than those allowed by the State of California Title 24 access requirements, or the ADA design recommendations. Section 1113A of Title 24 states that walks and sidewalks shall be a minimum of 48 inches (1,219 mm) in width, except that walks serving dwelling units in covered multi-family dwelling buildings may be reduced to 36 inches (914 mm) in clear width except at doors. • Accommodating pedestrian movements and flows shall take priority over other transportation improvements, including automobile access. • Physical improvements shall ensure that all stations are fully accessible as defined in the ADA. <p>MM-SS-15: Wide crosswalks shall be provided in areas immediately around proposed stations to facilitate pedestrian mobility.</p> <p>MM-SS-16: Metro shall coordinate and consult with the LAFD, LAPD, LASD, and the City San Fernando Police Department to develop safety and security plans for the proposed alignment, parking facilities, and station areas.</p> <p>MM-SS-17: Fire separations shall be provided and maintained in public occupancy areas. Station public occupancy shall be separated from station ancillary occupancy by a minimum 2-hour fire-rated wall. The only exception is that a maximum of two station agents, supervisors, or information booths may be located within station public occupancy areas.</p>

Affected Resource	Mitigation Measures
	<p>MM-SS-18: For portions of the alignment where pedestrians and/or motor vehicles must cross the tracks, Metro shall prepare grade crossing applications in coordination with the CPUC and local public agencies, such as LADOT, City of Los Angeles Bureau of Engineering, and the City and County of Los Angeles Fire Departments. Crossings shall require approval from the CPUC and shall meet applicable CPUC standards for grade crossings.</p> <p>MM-SS-19: All proposed LRT stations and related parking facilities shall be equipped with monitoring equipment, which would primarily consist of video surveillance equipment to monitor strategic areas of the LRT stations and walkways, and/or be monitored by Metro security personnel on a regular basis.</p> <p>MM-SS-20: Metro shall implement a security plan for LRT operations. The plan shall include both in-car and station surveillance by Metro security or other local jurisdiction security personnel.</p> <p>MM-SS-21: Metro is continuing to investigate light rail vehicle modifications to increase light rail vehicle safety and minimize or prevent train and pedestrian conflicts. Metro's design criteria also identify multiple efforts to increase light rail vehicle safety and minimize or prevent the potential for pedestrians and vehicle conflicts. Measures identified shall be included during the final design of the LPA.</p> <p>MM-SS-22: To reduce potential risk of collisions between LRTs and automobiles on the street portion of the LPA, Metro shall coordinate with the CPUC, City and County of Los Angeles traffic control departments, City of Los Angeles Bureau of Engineering, and the City and County of Los Angeles Fire Departments, and also comply with the Federal Highway Administration's Manual on Uniform Traffic Control Devices for signing and pavement marking treatments.</p> <p>MM-SS-23: The diverse needs of different types of traveling public including senior citizens, disabled citizens, low-income citizens, shall be addressed through a formal educational and outreach campaign. The campaign shall target these diverse community members to educate them on proper system use and benefits of LRT ridership.</p> <p>Also see mitigation measure MM-TRA-7 for measures to reduce the impact due to removal of the existing bike lanes on Van Nuys Boulevard.</p>
Parklands and Community Facilities (Section 4.15 of this FEIS/FEIR)	
Construction	MM-TRA-1, MM-TRA-2, MM-VIS-1, MM-AQ-1 through MM-AQ-8, MM-NOI-2a and 2b, MM-NOI-3a through 3c, MM-SS-2, MM-SS-4, and MM-SS-5
Operation	None required.
Historic, Archaeological, and Paleontological Resources	
Historic Resources - Construction	None required.
Historic Resources – Operation	None required.
Archaeological Resources – Construction	<p>MM-AR-1: Ground disturbing activities within site areas 19-001124 and 19-002681 and within a 50-foot buffer area around the sites shall be monitored by an Archaeological and Native American monitor. Construction related ground disturbance includes grading, excavation, trenching, and drilling. An Archaeological monitor and a Native American monitor shall examine all sediments disturbed during earth moving activities, including geotechnical drilling and environmental borings, if being conducted, prior to construction.</p> <p>Archaeological monitoring for site CA-LAN-2681 shall be conducted as discussed in the project's Cultural Resources Monitoring Plan (CRMP). All archeological monitoring and any necessary identification, testing, and evaluation of resources identified during monitoring shall be conducted per the methods and procedures described in the CRMP for the project.</p> <p>Standard methods of excavation such as grading and trenching shall be monitored by observation of the excavations as they occur.</p>

Affected Resource	Mitigation Measures
	<p>Drilling of project features such as the overhead contact system (OCS) results in earthen materials being delivered to the ground surface as loosened spoils. Materials to be examined by the Archaeological and Native American monitors are spoils removed from the drill holes while the drilling occurs. The monitors must be provided a safe location and opportunity to view spoils as they are being stored prior to being hauled away from the work area. Access of the monitors to the spoils material may be limited by safety concerns or by hazardous materials contamination.</p> <p>If requested by an Archaeological or Native American monitor, opportunities shall be provided for the monitor, as part of their daily shift activities, to screen or rake spoils to determine if the spoils contain cultural materials.</p> <p>Archaeological monitors are empowered to briefly halt construction if a discovery is made during standard excavation, such as grading and trenching, in the area of that discovery and a 50-foot buffer zone. If a Native American monitor wishes to halt construction, the monitor shall consult with the Archaeological monitor, who may then briefly halt construction. A request to halt activities by the Archaeological monitor should have no effect on ground disturbing activities outside the 50-foot buffer zone; however, spoil piles may not be removed until the monitor can examine them.</p> <p>If an Archaeological or Native American monitor observes an isolated find, the Archaeological monitor shall temporarily halt construction in order to document the find. Documentation shall be completed by collecting a GPS point, photography, and recording information onto the daily monitoring log. All isolated prehistoric artifacts shall be collected. Diagnostic historic-era items shall be collected. Once an isolated item is documented, construction may resume.</p> <p>MM-AR-2: If buried cultural materials are encountered in areas not actively being monitored during construction, the Contractor Project Foreman shall halt construction in a 50-foot radius around the discovery and shall immediately contact the Metro Project Manager, Metro Environmental Specialist, and Project Archaeologist.</p> <p>Per the CRMP prepared for the proposed project, for any discovery of an archaeological feature, regardless of eligibility, the Metro Environmental Specialist shall notify all consulting parties identified for the project within 48 hours of any discovery. Notifications shall not be made for ubiquitous infrastructure elements such as modern utilities (cistern, electric, gas, sewer, and water supply lines), transportation infrastructure (bridge piers, buried roadways, and rail segments), sidewalks, and concrete rubble, fill, or waste.</p> <p>MM-AR-3: In the event that human remains are encountered during construction, potentially destructive activities in the vicinity of the discovery shall be stopped and the provisions of California PRC § 5097.98 and HSC § 7050.5 shall be followed. The Archaeological monitor shall halt construction, establish a 50-foot buffer around the discovery, and shall contact the Metro Project Manager, Metro Environmental Specialist, and Project Archaeologist. The Metro Environmental Specialist shall notify the County Coroner and FTA on the same day as the discovery. FTA shall notify SHPO, Advisory Council on Historic Preservation (ACHP), and other consulting parties within 48 hours of discovery. Treatment of the remains and all subsequent actions shall be completed per the PA and Cultural Resources Treatment and Monitoring Plan (CRTMP).</p>
Archaeological Resources – Operation	None required.
Paleontological Resources – Construction	<p>MM-PR-1: Metro shall retain the services of a qualified paleontologist (minimum of graduate degree, 10 years of experience as a principal investigator, and specialty in vertebrate paleontology) to oversee execution of this mitigation measure. Metro’s qualified principal paleontologist shall then develop a Paleontological Resources Monitoring and Mitigation Plan (PRMMP) acceptable to the collections manager of the Vertebrate Paleontology Section of the Natural History Museum of Los Angeles County. Metro will implement the PRMMP during construction. The PRMMP will clearly demarcate the areas to be monitored and specify criteria. At the completion of paleontological monitoring for the proposed project, a paleontological resources monitoring report will be prepared and submitted to the Natural History Museum of Los Angeles County to document the results of the monitoring activities and summarize the results of any paleontological resources encountered.</p>

Affected Resource	Mitigation Measures
	<p>The PRMMP shall include specifications for processing, stabilizing, identifying, and cataloging any fossils recovered as part of the proposed project. Metro's qualified principal paleontologist shall prepare a report detailing the paleontological resources recovered, their significance, and arrangements made for their curation at the conclusion of the monitoring effort.</p> <p>MM-PR-2: Prior to the start of construction a qualified Principal Paleontologist shall prepare a Paleontological Mitigation Plan (PMP) that includes the following requirements:</p> <ul style="list-style-type: none"> • All project personnel involved in ground-disturbing activities shall receive paleontological resources awareness training before beginning work. • Excavations, excluding drilling, deeper than 8 feet below the current surface in the Quaternary alluvium shall be periodically spot checked to determine when older sediments conducive to fossil preservation are encountered. Once the paleontologically sensitive older alluvium is reached, a qualified paleontologist shall perform full-time monitoring of construction. Should sediments in a particular area be determined by the paleontologist to be unsuitable for fossil preservation, monitoring shall be suspended in those areas. A paleontologist shall be available to be on call to respond to any unanticipated discoveries and may adjust monitoring based on the construction plans and field visits. • Sediment samples from the Quaternary older alluvium shall be collected and screened for microfossils. • Recovered specimens shall be stabilized and prepared to the point of identification. Specimens shall be identified to the lowest taxonomic level possible and transferred to an accredited repository for curation along with all associated field and lab data. • Upon completion of project excavation, a Paleontological Mitigation Report (PMR) documenting compliance shall be prepared and submitted to the Lead Agency under CEQA.
Paleontological Resources – Operation	None required.
Environmental Justice (Section 4.17 of this FEIS/FEIR)	
Construction	MM-TRA-1, MM-TRA-2, MM-TRA-3, MM-VIS-1-5, MM-AQ-1-9, MM-NOI-1A-1D, MM-NOI-2A-2B, MM-NOI-3A through 3C, and MM-SS 1-23.
Operation	MM-CN-1
Growth Inducing Impacts (Section 4.18 of this FEIS/FEIR)	
Induce substantial population growth in an area either directly or indirectly	None required.
Irreversible and Irretrievable Commitments of Resources	
Construction and Operation	No mitigation measures are required



We're building light rail for the Valley.

EAST SAN FERNANDO VALLEY LIGHT RAIL TRANSIT



LA METRO Construction Committee
October 19, 2023

CEQA ADDENDUM FOR THE EAST SAN FERNANDO VALLEY LIGHT RAIL TRANSIT PROJECT



December 2020: Metro Board certified Final Environmental Impact Report

January 2021: Record of Decision signed by the Federal Transit Administration

- Southern Segment: 6.7-mile Light Rail Transit from the G Line Bus Rapid Transit Station to Van Nuys Blvd./San Fernando Rd.
- Northern: 2.5-mile from Van Nuys Blvd./San Fernando Rd. to Sylmar/San Fernando Metrolink station

2021 -2022 – Preliminary Engineering

2023: EIR Addendum and NEPA Reevaluation

2024: FTA FFGA Approval



CEQA ADDENDUM FOR THE EAST SAN FERNANDO VALLEY LIGHT RAIL TRANSIT PROJECT



Southern Segment

- 6.7-mile at-grade double-track light rail transit system
- 11 center-platform stations
- 10 Traction Power Substations
- Procurement of 34 Light Rail Vehicles
- Maintenance and Storage Facility
- Communication line to and expansion of Rail Operations Center



CEQA ADDENDUM FOR THE EAST SAN FERNANDO VALLEY LIGHT RAIL TRANSIT PROJECT

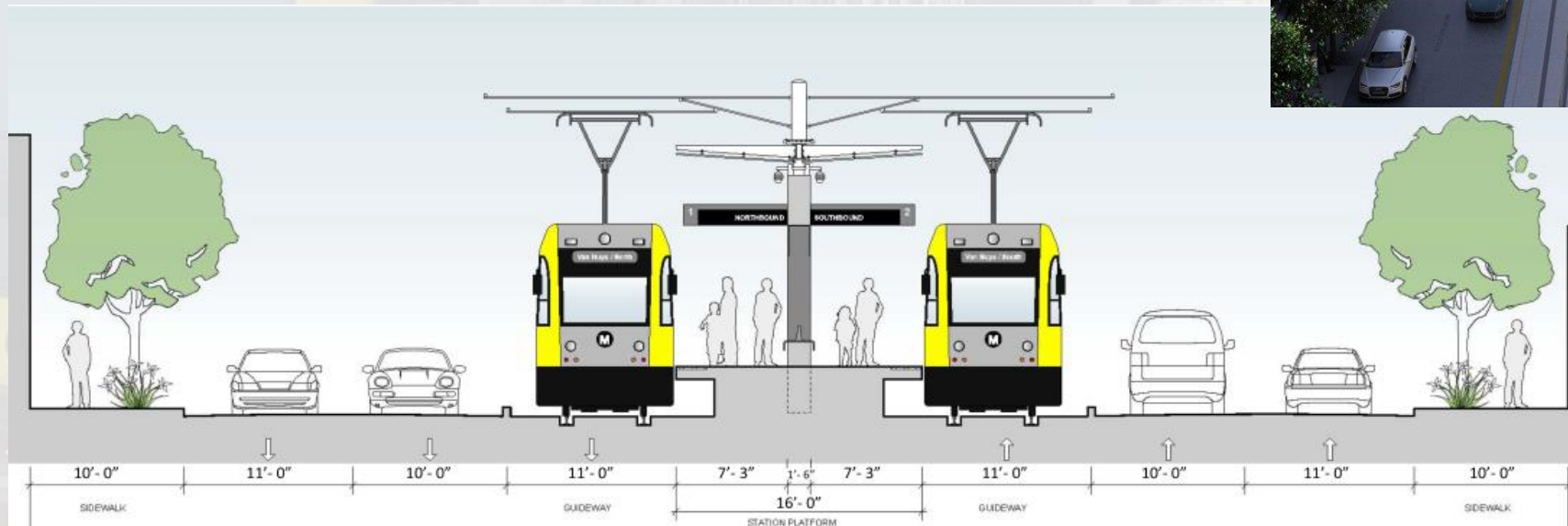
DESIGN MODIFICATIONS AND REFINEMENTS

- Modification to Station Locations
- Elimination of one TPSS, revised TPSS locations and Train Control Facilities
- Turn lane configurations at intersections
- Sidewalk and Driveways
- Utility Work
- Design Refinements
- Right of Way – TCEs, Partial Acquisitions

CEQA ADDENDUM FOR THE EAST SAN FERNANDO VALLEY LIGHT RAIL TRANSIT PROJECT

RECOMMENDATION:

AUTHORIZE the Chief Executive Officer to Approve the Addendum and adopt it's Findings





Board Report

File #: 2023-0178, **File Type:** Informational Report

Agenda Number: 21.

**CONSTRUCTION COMMITTEE
OCTOBER 19, 2023**

**SUBJECT: 2023 OIG CONSTRUCTION BEST PRACTICES REPORT
[FOLLOW UP TO THE 2016 CAPITAL CONSTRUCTION PROJECT MANAGEMENT
BEST PRACTICES STUDY]**

ACTION: RECEIVE AND FILE

RECOMMENDATION

RECEIVE AND FILE Office of the Inspector General 2023 OIG Construction Best Practices Report (Follow Up to the 2016 OIG Construction Best Practices Report).

ISSUE

The Office of the Inspector General (OIG) has conducted a follow up review of its 2016 Capital Project Construction Management Best Practices Study (“2016 BP Study”). The 2023 OIG Construction Best Practices Report objective is to determine if the 109 recommendations in the 2016 BP Study were implemented and report the status to the Chief Executive Office and the Metro Board.

BACKGROUND

The 2016 BP Study resulted in over 100 findings leading to 109 recommendations for Metro to consider implementing to enhance their existing practices. Metro management provided responses to the 109 recommendations, which were included with the 2016 BP Study presented in 2016 to Metro’s Board. Of the 109 recommendations, Metro agreed with 99 as either a beneficial enhancement or in accord with existing policies or practices. Ten of the 109 recommendations were rejected as not perceived as beneficial at that time.

We found that Metro’s Program Management Group (“PMG”) developed some new and revised some existing policies and procedures based on the 2016 BP Study recommendations. The PMG also made organizational changes by increasing staff in some departments, modified some reporting relationships, and made collaborative enhancements between the PMG and Countywide Planning & Development. Out of the 109 recommendations, new or revised policies and procedures were implemented for 32 of the 109 recommendations and new or revised practices were initiated for 66 recommendations.

The Inspector General has now performed a comprehensive review of the status of PMG's implementation of the 99 recommendations they agreed were worthy of further consideration. The objectives were to determine whether:

- New or revised policies and procedures were developed to implement the recommendations in the 2016 BP Study.
- New or revised practices were established to implement the recommendations in the 2016 BP Study and if those practices meet the intent of the recommendations.
- Any gaps remain in Metro's policies, procedures, and practices, and identify opportunities for enhancements to current policies, procedures, and practices.

The OIG reviewed PMG's policies and procedures, interviewed Metro personnel, and evaluated the status of each recommendation. That evaluation was grouped into various clusters and categories to combine related matters and better direct the OIG recommendations to various Metro departments.

DISCUSSION

This report has been arranged to analyze the recommendations status grouped into 5 "Clusters" (lettered) and 22 associated "Categories" (numbered):

- A. Pre-Procurement Project Development Cluster
Categories: (1) Delivery Method Selection and Criteria; (2) General Readiness; (3) Utilities and Third Party; (4) City Approvals; (5) Life of Project Budget; (6) Risk Management; (7) Project Management Plan
- B. Post-Procurement Project Management Cluster
Categories: (8) Contract Administration; (9) Board Delegation; (10) Enforcement and Compliance; (11) Partnering; (12) Quality Management; (13) Lessons Learned; (14) Safety.
- C. Project Management Support Cluster
Categories: (15) Public Involvement; (16) Program Management. Information System; (17) Administrative Controls; (18) Reorganization, Staffing & Training; (19) Project Management KPIs.
- D. Strategic Program Oversight Cluster
Category: (20) Metro Wide Program Oversight (including EIT)
- E. Relocated Groups Cluster
Categories: (21) Highway; (22) Asset Management.

The OIG identified strengths and vulnerabilities in the construction management program based on our review of data from PMG's current policies and procedures, manuals, board reports, interviews with staff, and a review of secondary resources on construction management best practices.

Documentation review and interviews occurred throughout 2022 into 2023. The 5 Clusters listed on the following pages state the highlights of the OIG findings.

Cluster A: PRE-PROCUREMENT PROJECT DEVELOPMENT

Strengths: Metro has developed comprehensive procedures, including detailed checklists to guide both the project delivery selection process and general readiness as a project moves toward procurement. Metro is expanding its use of alternative methods of project delivery, which will assist in assessing and mitigating project risks.

Vulnerabilities: Third party project stakeholders - public and private utility owners and permitting authorities - continue to create risks, delay, and cost increases to the extent they lack resources or the collaborative drive to assist Metro. PMG does not appear to be using robust risk management tools and deep project management planning on lower cost, less complex projects.

Cluster B: POST-PROCUREMENT PROJECT MANAGEMENT

Strengths: Metro has streamlined the Change Order process and implemented Delegation of Authority authorized by the Board, that has saved staff time and possibly construction money. A quarterly audit by the OIG's office assists Metro's Board in overseeing that the streamlined Change Order process operates as intended.

Vulnerabilities: Construction contractors' claims for delay remain challenging to resolve on the merit of the claims and the amount warranted for claims in a timely and transparent manner, often resulting in an accumulation of large end-of-project claims needing resolution. Partnering may not be used effectively as a tool for resolution across all claim types or projects due to differing skills, training, or philosophies about that methodology. The Lessons Learned program is not being used by all PMG related departments nor used for all projects. Also, PMG has not established a process for evaluating the contractor's performance across all projects consistently in a way that is useful for future procurements. We recommend better utilization of a vendor score card program in coordination with Vendor/Contract Management.

Cluster C: PROJECT MANAGEMENT SUPPORT

Strengths: Administrative Controls and the Program Management Information Systems ("PMIS") conform to the 2016 recommendations and are functioning well. There are strong document controls in place, and policies and procedures are adequate. PMIS effectively collects, tracks, and handles data and status reporting for large projects.

Vulnerabilities: A "gap" exists in working with the public early in the project planning process. PMG should advocate for improved public involvement at the earliest opportunity to maximize good public relations. Metro's full-time employees to consultant ratio across project and program management is at a 30/70 ratio in favor of consultants. Metro staff have identified the need to improve this to a 50/50 ratio. We believe the agency management agrees that a better balance is desirable and will work toward that objective, however, the current environment for recruitment of staff is challenging.

Cluster D: STRATEGIC PROGRAM OVERSIGHT

Strengths: Some of the recommendations made in the 2016 BP Study are addressed by Metro's

implementation of a cross-departmental team of experts, referred to as the Early Intervention Team (“EIT”). This team uses a problem-solving approach to mitigate challenges related to market conditions (e.g., the pandemic, supply chain, and inflation), project delivery methods, scope issues, and unforeseen conditions.

Vulnerabilities: Separation of duties between Countywide Planning & Development (“CP&D”) and PMG during the project planning phase is a threat to Metro’s successful delivery of capital projects. Silos between these departments without unified program guidance affect project planning, budget, and procedures and will remain a weakness until the EIT and/or the Project Charter approach has proven to mitigate this threat.

Cluster E: RELOCATED GROUPS

Strengths: The Highways group relocated to the CP&D Department and can now work more closely with Caltrans in the planning phase of projects. The Enterprise Transit Asset Management (ETAM) program is moving forward in the development phase of the maturity path now that ETAM is relocated under Operations.

Vulnerabilities: The relocation of the Highways group to CP&D has created some obstacles in reporting the status of projects. CP&D does not have the same type of regular quarterly Board reporting responsibilities as PMG. ETAM needs maintenance and warranty information to be folded into the Construction phase for tracking new assets, and the contractor needs to collect and report information to be added to Metro’s ETAM database. ETAM also needs State of Good Repair information to be integrated into the review of capital budgets to avoid the situation where new projects are proposed and implemented without consideration of older, inter-dependent transit facilities.

EQUITY PLATFORM

Equity-related issues around public involvement were investigated in the OIG’s review. The OIG identified that a “gap” may exist in working with the public early in the project planning process. A recommendation is made in this 2023 OIG Construction Best Practices Study that PMG should advocate for improved public involvement at the earliest opportunity to maximize good public relations, especially in equity focused communities

IMPLEMENTATION OF STRATEGIC PLAN GOALS

This 2023 OIG Construction Best Practices Study supports Metro’s Strategic Plan Goal #5: Provide responsive, accountable, and trustworthy governance within the Metro organization and CEO goals to exercise fiscal discipline to ensure financial stability. The OIG mission includes reviewing expenditures for fraud, waste, and abuse in Metro programs, operations, and resources. The goal of the 2016 BP Study was to identify opportunities for enhancing the capital projects’ construction management practices. This 2023 follow up report demonstrates that Metro benefitted from the 2016 study by implementing improved processes. This report provides accountable and trustworthy governance by identifying areas of strength and reports areas that could use further enhancements with recommendations for Metro to consider.

NEXT STEPS

The 2023 OIG Construction Best Practices Report includes 37 recommendations to further enhance Metro's construction management best practices. The list of 2023 OIG recommendations and Metro management responses is an attachment to this OIG report (Attachment B).

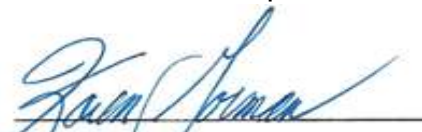
ATTACHMENTS

Attachment A - OIG Report: 2023 Follow Up Review on Implementation of the 2016 Construction Best Practices Recommendations

Attachment B - Recommendations & Responses

Prepared by: Suzanna Sterling, Construction Specialist Investigator, (213) 244-7368
Patricia Parker, Legal Research Specialist, (213) 244-7321

Reviewed by: Karen Gorman, Inspector General, (213) 244-7337



Karen Gorman
Inspector General

**Los Angeles County
Metropolitan Transportation Authority
Office of the Inspector General**

**2023 OIG CONSTRUCTION
BEST PRACTICES REPORT**

(Follow Up to the 2016 OIG Construction Best Practices Report)

**OIG Case Number: 2021-0046
Legistar # 2023-0178**


September 13, 2023





Los Angeles County
Metropolitan Transportation Authority

Office of the Inspector General 213.244.7300 Tel
818 West 7th Street, Suite 500
Los Angeles, CA 90017

DATE: July 24, 2023
TO: LA Metro Board of Directors
FROM: Karen Gorman, Inspector General 
SUBJECT: 2023 OIG Construction Best Practices Report (Follow Up to 2016 OIG Report)

The Office of the Inspector General (OIG) has completed its 2023 Construction Best Practices report (2023 OIG Report). It is a follow up on the 2016 Construction Best Practices study we issued (2016 OIG Report). Our objective was to determine what recommendations from that 2016 OIG Report have been implemented. This report describes the status of those recommendations for the Chief Executive Office and the LA Metro Board.

The OIG’s specific objectives were to determine whether:

- New or revised policies and procedures were developed to implement the recommendations in the 2016 OIG Report.
- New or revised practices were established to implement the 109 recommendations of 2016 OIG Report and whether those practices meet the intent of the 2016 OIG Report.
- Any gaps that remain in Metro’s policies, procedures, and practices, and identify opportunities for enhancements to current policies, procedures, and practices; and action could be taken in the future to address those recommendations that are still pending.

To complete this report the OIG interviewed staff and gathered data across many departments contributing to project delivery success including those departments shown in the table below.

DEPARTMENTS CRITICAL TO PROJECT DELIVERY	
Internal to Program Management	External to Program Management
Program Management - Construction	Office of the Chief Executive Office
Program Management - Project Controls	Countywide Planning & Development
Program Management - Risk	Vendor/Contract Management
Program Management - Quality	Office of Management & Budget
Engineering & Construction - Mega Projects	Communications
Engineering & Construction – Capital Improvements	Safety
Third Party Administration	Enterprise Transit Asset Management

The results of the report are heavily based on the input we received from the Metro staff and data they provided, and we thank them for that information and cooperation.

Conclusions and Recommendations

We were impressed to find that action has been taken to some extent on 96 out of the 109 recommendations in the 2016 OIG Report, though some of those actions are still a work-in-progress and not entirely completed.

We were able to make 46 recommendations in this 2023 OIG Report [a table of those recommendations are in an appendix beginning on page A16] for further construction related policies and procedures enhancements including the following areas:

- Project planning and scope definition
- Project management
- Project delivery
- Utility relocation
- Staffing
- Change management
- Community involvement
- Partnering
- Procurement
- Oversight

The 2016 OIG Report can be accessed through this link:

http://libraryarchives.metro.net/DB_Attachments/160303_LACMTA_Best_Practices_Study_Report.pdf

EXECUTIVE SUMMARY

In 2016, the Office of Inspector General (OIG) published its Capital Project Construction Management Best Practices Study (“2016 BP Study”) to identify best practices for improving Metro’s management and oversight of major construction projects. The resulting report made 109 recommendations for enhancements in the following areas:

- Project planning and scope definition
- Project management
- Project delivery
- Utility relocation
- Staffing
- Change management
- Community involvement
- Partnering
- Procurement
- Oversight

Metro’s Program Management Group (“PMG”) was the primary focus of the review, and responsible for responding to the 2016 BP Study. After reviewing the 2016 BP Study, PMG executive management stated, “We generally agree with most of the findings and recommendations in the report. Overall, the report provides a comprehensive set of recommendations that we plan to use as a catalyst for positive changes in the program management processes and approaches in the future.” Implementation of the recommended best practices has taken time, and to some extent, those efforts are ongoing.

Six years later, the OIG began conducting a follow up review to determine the current status of implementing the 109 recommendations in the 2016 BP Study. The 2023 follow up review found that actions have been taken or initiated to implement 96 (88%) of the 109 recommendations, and 13 (12%) recommendations have not been implemented or need further improvement. New or revised policies and procedures were implemented for 32 of the 109 recommendations and new or revised practices were initiated for 66 recommendations.

For reporting purposes, we distributed the 109 recommendations across five topic clusters of construction management areas. For each cluster, the review identified the following high points “Strengths” and areas that need improvement “Vulnerabilities.”

Cluster A: PRE-PROCUREMENT PROJECT DEVELOPMENT

- **Strengths**: Metro has developed comprehensive procedures including detailed checklists to guide both the project delivery selection process and general readiness as a project moves toward procurement. Metro is expanding its use of alternative methods of project delivery which will assist in assessing and mitigating project risks.
- **Vulnerabilities**: Third party project stakeholders – public and private utility owners and permitting authorities – continue to create risks, delay, and cost increases to the extent they lack resources or the collaborative drive to assist Metro. PMG is not using risk management tools and deep project management planning on lower cost, less complex projects.

Cluster B: POST-PROCUREMENT PROJECT MANAGEMENT

- **Strengths:** Metro has implemented a streamlined Change Order process and implemented Delegation of Authority that have saved time and money. A quarterly audit by the OIG's office assists Metro's Board in overseeing that the streamlined Change Order process operates as intended.
- **Vulnerabilities:** Construction contractors' alleged claims for delay remain challenging to resolve for merit of the claims and the amount warranted for claims in a timely and transparent manner, often resulting in large end-of-project claims needing resolution. Partnering may not be getting used effectively as a tool for resolution across all claim types. The Lessons Learned program is not being used by all PMG related departments nor used for all projects. Also, PMG has not established a process for evaluating the contractor's performance in a way that is useful for future procurements. The Federal Transportation Administration (FTA) offers a template that will be separately reviewed for a future scorecard program.

Cluster C: PROJECT MANAGEMENT SUPPORT

- **Strengths:** Administrative Controls and the Program Management Information Systems ("PMIS") conform with the 2016 recommendations and are functioning well. There are strong document controls in place, and policies and procedures are adequate. PMIS effectively collects, tracks, and handles data and status reporting.
- **Vulnerabilities:** A "gap" exists in working with the public early in the project planning process. PMG should advocate for improved public involvement at the earliest opportunity to maximize good public relations. Metro's full-time employees to consultant's ratio across project and program management is currently at a 30/70 ratio, in favor of consultants. The Metro Board has requested Metro to improve to a 50/50 ratio.

Cluster D: STRATEGIC PROGRAM OVERSIGHT

- **Strengths:** Some of the recommendations made in the 2016 BP Study are addressed by Metro's implementation of a cross-departmental team of experts, referred to as the Early Intervention Team ("EIT"). This team uses a problem-solving approach through the procurement process to mitigate challenges related to scope, cost, schedule, project delivery method, third parties and market conditions (e.g., the pandemic, supply chain, and inflation).
- **Vulnerabilities:** Separation of duties between Countywide Planning & Development ("CP&D") and PMG during the project planning phase continues to threaten Metro's successful delivery of capital projects. The long-established silos between these departments without unified program guidance affects project planning, budget, and procedures and will remain a weakness until the EIT and/or the Project Charter approach has proven to mitigate this threat.

Cluster E: RELOCATED GROUPS

- **Strengths:** The Highways group relocated to the CP&D Department and can now work more closely with Caltrans in the planning phase of projects. The Enterprise Transit Asset Management (ETAM) program is moving forward in the development phase of the maturity path now that ETAM has relocated to Risk, Safety and Asset Management.
- **Vulnerabilities:** The relocation of the Highways group to CP&D has created some obstacles in reporting the status of projects. CP&D does not have the same type of regular quarterly Board reporting responsibilities as PMG. ETAM needs maintenance and warranty information to be folded into the Construction phase for tracking new assets, and the contractor needs to collect and report information to be added to Metro's ETAM database. ETAM also needs State of Good Repair information to be integrated into the review of capital budgets to avoid the situation where new projects are proposed and implemented, without consideration of older, inter-dependent transit facilities.



Crenshaw project – K Line - Elevated concrete fixed rail
above Imperial Highway and below 105 Freeway

Acronym Table

ACRONYM	DEFINITION
AUR	Advanced Utility Relocation
BPS	Capital Project Construction Management's Best Practices Study (OIG Report 2016)
CEO	Chief Executive Officer
CIP	Capital Improvement Project
COLA	City of Los Angeles
CP&D	Countywide Planning and Development
CPUC	California Public Utilities Commission
CSSM	Construction Safety and Security Manual
DB	Design-Build
DBB	Design-Bid-Build
EIT	Early Intervention Team
ETAM	Enterprise Transit Asset Management
FTA	Federal Transportation Agency
GPR	Ground Penetrating Radar
HR	Human Resources
IPMO	Integrated Project Management Office
IPP	Individual Performance Plan
KPI	Key Performance Indicator
LACMTA	Los Angeles County Metropolitan Transportation Authority
LADWP	Los Angeles Department of Water and Power
LLPP	Lessons Learned Program Plan
LOP	Life of Project (Budget)
MASD	Management Audit Services Department
MRDC	Metro Rail Design Criteria
OIG	Office of the Inspector General
OMB	Office of Management and Budget
PM	Project Manager
PMBOK	Project Management Book of Knowledge
PMG	Program Management Group
PMI	Project Management Institute
PMIS	Program Management Information System
PMO	Program Management Office
PMP	Project Management Plan
QMO	Quality Management Oversight
TPA	Third Party Administration
V/CM	Vendor/Contract Management
WP	White Paper

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CHAPTER 1: INTRODUCTION

Looking Back

In 2015, with the approval of Measure R funds (2008, half-cent sales tax) and anticipated Measure M funds (2016, approved another half-cent sales tax) Metro was moving forward to implement Los Angeles County's ambitious transit improvement program. To optimize Metro's performance on behalf of the public, the Office of Inspector General (OIG) engaged an expert consultant team to perform a review to identify possible enhancements that might be made to Metro's construction management program for project delivery. The objectives of this review were to identify (1) effective, efficient, safe, and proactive approaches in managing staff, schedules, costs, and stakeholder relationships, and (2) state of the art technology, planning, data collection, and status reporting related to capital project management and delivery. The consultant proposed to reach these objectives by comparing current practices within Metro to relevant practices implemented by Metro's peer agencies. Metro's Program Management Group ("PMG") was the primary focus of the review of policies and procedures, staff interviews, and surveys.

The OIG's 2016 Capital Project Construction Management Best Practices Study ("2016 BP Study") resulted in over 100 findings leading to 109 recommendations to enhance existing practices.¹ The 2016 BP Study report included (1) findings and recommendations, (2) documentation supporting the findings, and (3) comparable agency benchmarks, which contributed to the recommendations.

Pursuant to typical OIG protocol, Metro Management was asked to provide a response to the 109 Recommendations. Metro's responses were added to the 2016 BP Study report, which was presented to Metro's Board. Out of the 109 recommendations, Metro agreed with 99 as either a beneficial enhancement or in accord with existing policies or practices. Ten of the 109 recommendations were declined as not a perceived enhancement or something that could be addressed in another way.

Subsequent Actions

Shortly after the 2016 BP Study, PMG commenced developing new policies and procedures and revising key existing policies and procedures, partly by using consultant experts. PMG also acted to make internal organizational changes, including building up departments and changing reporting relationships. Also, collaborative enhancements were implemented between PMG and other Metro departments particularly Countywide Planning & Development. PMG with the CEO's Office developed the 2016 Metro Program Management Plan as an organization-wide initiative for ensuring capital delivery best practices.²

Metro's Management Audit Services Department ("MASD") verified management's actions to implement the recommendations in 2017-2018. The OIG iteratively worked with MASD and followed up with PMG to update the status of recommendations to "close out" recommendations that were implemented.

¹ The entire 2016 BP Study can be accessed at the following link: [16-AUD-01 Final Report LACMTA Best Practices Study - 02.29.16](#). The first 100-pages encompass the most critical information.

² Metro's 2016 Metro Program Management Plan is no longer available on Metro's website. Please contact the OIG for a copy.

Review Objectives

The overall objective of this review was to follow up on the implementation of recommendations made in the 2016 BP Study and report the status to the Chief Executive Office and Board. Specific objectives were to determine whether:

- New or revised policies and procedures were developed to implement the recommendations in the 2016 BP Study.
- New or revised practices were established to implement the recommendations in the 2016 BP Study and if those practices meet the intent of the 2016 BP Study.
- Any gaps remain in Metro's policies, procedures and practices, and identify opportunities for further enhancements to current policies, procedures, and practices.



Crenshaw project – K Line - Elevated rail above Aviation Blvd. and W. Century Blvd.

CHAPTER 2: METHODOLOGY

Introduction to Methodology

The OIG’s method for evaluating Metro’s implementation of the recommendations in the 2016 Construction Best Practices Study consisted of reviewing policies and procedures and interviewing Metro staff. We reviewed the universe of policies and procedures relied upon by Program Management Group (“PMG”) or other Metro groups and identified which new and revised policies and procedures were responsive to the 2016 findings and recommendations. We also interviewed Metro staff to (1) confirm implementation of policies and procedures, and (2) learn of new or enhanced practices inspired by the 2016 BP Study not evident from a review of the formal policies and procedures.

The OIG identified departments both internal and external to PMG that contribute to project delivery success. External groups can vary as to the criticality of impact on construction management practices. Countywide Planning & Development (“CP&D”) and Vendor/Contract Management (“V/CM”) have extensive impact on PMG; others, such as Office of Management and Budget and Human Resources, play support roles. For this 2023 Follow Up Review, we gathered data across many departments contributing to project delivery success, interacted directly with these departments shown in Table 1 below (the 2016 BP Study interacted indirectly with some departments).

DEPARTMENTS CRITICAL TO PROJECT DELIVERY	
Internal to Program Management	External to Program Management
Program Management - Construction	Office of the CEO
Program Management - Project Controls	Countywide Planning & Development
Program Management - Risk	Vendor/Contract Management
Program Management - Quality	Office of Management & Budget
Engineering & Construction - Mega Projects	Communications
Engineering & Construction – Capital Improvement	Safety
Third Party Administration	Enterprise Transit Asset Management

Table 1 – Internal Program Management groups and external Metro departments that support project delivery.

Data Collection Method

To accomplish the review, the OIG gathered and reviewed policies, procedures, and manuals newly developed or revised since the 2016 BP Study and interviewed Metro personnel.

Relevant Policies, Procedures, and Manuals

The OIG collected current applicable policies, procedures and manuals relied upon by PMG and other departments that support Metro’s capital delivery program. A table of the policies, procedures, bulletins, white papers, and manuals reviewed by the OIG is in Appendix 1.

Materials created or revised after the 2016 BP Study received more attention than those pre-dating that study. All new and revised materials (since 2016) are generally acknowledged to reflect Metro’s enterprise-wide best practices efforts, whether or not acknowledged as “inspired by” the 2016 BP Study. The OIG ascribed a status to all materials based on date created or

revised. For pre-2016 materials, the OIG notes in progress efforts to revise the materials. Refer to Table 2.

POST - 2016 MATERIALS	PRE-2016 MATERIALS
Established post-2016, New	Established pre-2016, Revision in Progress
Established pre-2016, Revised post-2016	Established pre-2016, Needs Improvement

Table 2 – Policies, procedures and manuals – Categorized.

Metro Staff Interviews

Recognizing that new and revised policies require implementation to be effective, the OIG conducted interviews to query about practices. Since the 2016 recommendations do not strictly correspond to PMG or departments external to PMG, the OIG sorted recommendations by departmental subject matter. Then, the OIG reached out to the lead for each group/department to schedule interviews; interviewees were allowed to invite subject matter experts within their group to participate in the interview.

In advance of each interview, interviewees were provided with a link to the 2016 BP Study report, the recommendations pertaining to their functional area, and proposed interview questions. The OIG’s questions were designed to gather information on the status of implementation of the relevant recommendations and invite feedback on the perceived status of current capital project delivery “best practices.”

Using this approach, the OIG engaged in 15 separate Teams interviews. Twenty-four Metro employees participated either in an interview or corresponded by email for follow up information (see Appendices 2 and 3).

Evaluation Method

Each of the 109 recommendations was evaluated using the data gathered on policies and procedures, practices, and staff feedback. The OIG also identified what construction management processes are working well versus those processes that may benefit from further enhancement.

For data evaluation, the OIG developed a three-level hierarchy to rank Metro’s implementation of each recommendation. The ranking process was designed to accommodate nuance. Complex recommendations do not necessarily lend themselves to black and white determinations of implementation. The ranking levels are:

- **Established**: Data shows that the recommendation for the best practice is adopted and functioning.
- **Evolving**: Data indicates efforts have been commenced to implement the intent of the best practice but a substantially complete solution is still “in progress” with iterative improvements.
- **Needs Improvement**: Data indicates that the recommended best practice whether “agreed” or “rejected” by Metro in 2016 continues to need effort, is worthy of consideration or in need of re-evaluation and some action.

See Appendix 4 for a summary of the ranking of the implementation for the 109 recommendations in the 2016 BP Study report, and Appendix 5 for a table of the 2016 recommendations and management responses.

Category Areas

The OIG connected the 109 recommendations in the 2016 report to 22 functional category areas that are assigned to the five clusters topics A through E shown in Table 3 below.

CATEGORY AREAS	2016 Recommendation Numbers
A. PRE-PROCUREMENT PROJECT DEVELOPMENT	
Delivery Method Selection & Criteria	5,15,57,68
General Readiness	1,2,3,4,6,16,37,38,39
Utilities & Third Parties	58,79,80,81,82,83,84,85,86,87,88,89
City Approvals	35,36,40,90
Life of Project Budget	8,55,56,107,108
Risk Management	9,32,33,34
Project Management Plan	41,42,43,45,47,48
B. POST-PROCUREMENT PROJECT MANAGEMENT	
Contract Administration	17,18,19,20,21,22,23,24, 25,26,29,30,64
Board Matters	44,73,74,75,76,77,78
Enforcement & Compliance	28
Partnering	10,11,12,13,14
Quality Management	91,104
Lessons Learned	51
Safety	66,67
C. PROJECT MANAGEMENT SUPPORT	
Public Involvement	71,72,95
PMIS	27,31,96,106,109
Administrative Controls	61,69,70
Staffing and Training	46,59,65,97,98,99,100, 101,102,103,105
Project Management KPIs	62,63
D. STRATEGIC PROGRAM OVERSIGHT	
Metro-wide Program Oversight	49,50,52,92,93,94
E. RELOCATED GROUPS	
Highways	53,54,60
Asset Management	7

Table 3 – Category Areas and 2016 Recommendation Numbers.

Recommendations

During the review, we identified areas where policies, procedures, or practices could be improved and made recommendations to adopted for capital project delivery best practices to be accomplished. The recommendations are at the end of each Category area in Chapter 3 and are also summarized in Chapter 5. Additionally, a Table of 2023 Recommendations / Responses for Metro Senior Management to respond is at Appendix 6.



Crenshaw project - Elevated double crossover rail above Aviation Blvd. and below 105 freeway

CHAPTER 3: RESULTS OF REVIEW

A. PRE-PROCUREMENT PROJECT DEVELOPMENT

CATEGORY #1: Delivery Method and Selection

This category includes 4 Recommendations (Numbers 5, 15, 57, and 68) made in the 2016 BP Study report.

A. Background

Design-Bid-Build (“DBB”), considered the “traditional” project delivery method, was historically used by public agencies based on statutory competitive bid requirements.³ California’s Legislature has acted to authorize flexibility using the Design-Build (“DB”) delivery approach as an alternative the DBB method. The DB delivery method has evolved to include variations based on timing of involvement of the contractor, risk-shifting approaches, and financing. Delivery method decisions must be made in the Planning Phase through collaborative analyses by PMG with the Planning group. DBB is seldom used by Metro for complex projects. The 2016 BP report referenced only the generic “design-build” alternative.

B. Evaluation of Implementation Actions

Our review found that Metro’s best practices in the area of project delivery method and selection criteria have been strengthened by PMG’s efforts to develop and deploy comprehensive checklists and procedures that allow for orderly delivery method selection. Moreover, Metro’s efforts toward implementing alternative project delivery methods presents ongoing opportunities to avoid the pitfalls of the tradition design-build model. Our evaluation ranked all four recommendations as “Evolving” as discussed below:

Recommendations 5 and 57 – Consider project delivery methodology on a project-by-project basis, and assess the most efficient method of project delivery: PMG has developed Procedure PM01/Project Delivery Selection to guide the process for delivery method selection. In interviews with staff, it was learned that the procedure will soon be supplemented by checklists for the Progressive-Design-Build methodology, a method being added based on lessons learned after use of the original Design-Build approach.

Recommendation 15 – Carefully evaluate design-build on a case-by-case basis: In interviews, PMG staff stated that since 2016 a robust process of analysis has been implemented, and lessons are being learned and considered in the development of further alternative methods for project delivery.

Recommendation 68 – Develop and implement a detailed decision-making process on the selection of a project delivery method: The OIG confirmed in interviews with PMG staff that Procedure PM01/Project Delivery Selection was developed and implemented in response to the 2016 BP Study. In interviews, the OIG has learned that the development and implementation of Procedure PM01/Project Delivery Selection was insufficient to control the impacts of utility-related design complexities and/or scope changes. PMG reports that its procedures will undergo continuous review and iterative improvements based on lessons learned.

OIG Comments – In interviews, PMG staff acknowledged that no delivery method is risk-free, and there will be a learning curve for implementation of each new delivery method. Staff

³ Owners prepare plan and specifications to 100% level prior to procuring a construction contractor, and the contract is awarded to the responsive and responsible contractor on a lowest bid basis.

indicated that extensive efforts are being made to take lessons learned into account, and consultant expertise is available to assist Metro in analyzing and leveraging the benefits of alternative delivery methods. PM01/Project Delivery Selection policy is being updated to ensure a rigorous review of the trade-offs for each delivery method.

C. 2023 Recommendation

The OIG recommends:

- 1.1 PMG should continue to timely update policies and procedures to include the range of alternative delivery methods currently used by Metro.

CATEGORY #2: General Readiness

This Category includes 9 Recommendations (Numbers 1, 2, 3, 4, 6, 16, 37, 38, and 39) made in the 2016 BP Study report.

A. Background

The 2016 BP Study identifies “general readiness” as a core capital project objective to ensure that a project is ready in terms of staff, Memorandum of Understanding (MOU), project plans and procedures, oversight plans, and established schedules that identify consequences for schedule delays, (BPS, p. 9.) Optimum project readiness is established in the Planning Phase and involves mutual responsibilities of PMG and Metro’s Planning Group (Countywide Planning & Development). PMG commences the initial general readiness review when project management responsibility transitions from the Planning Group to PMG. This hand-over typically occurs at the conclusion of the environmental compliance process and/or preliminary engineering.

B. Evaluation of Implementation Actions

Our review found that most of the recommendations in this Category have been adopted or alternative steps taken to implement the intent of the recommendation. However, improvements are needed for several of the recommendations. Our evaluation ranked the 9 recommendations in this Category as “Established” (4), “Evolving” (3), and “Needs Improvement” (2) as discussed below:

1. Established

Recommendations 1, 2, and 16 – Adopt FTA oversight procedures and checklists including use of a formal stage-gate process: PMG’s development and implementation of the PC14 REV 2 - Readiness Review Procedure demonstrates full compliance with these recommendations.

Recommendation 37 – Develop and implement executive-level partnering (Caltrans): In interviews with Highways staff, it was determined that Metro staff meets regularly with Caltrans to ensure cooperation and transparency between the parties.

2. Evolving

Recommendation 3 – Allow two years to identify and relocate utilities: In 2016, PMG did not agree with this recommendation and stated that it would unduly delay engineering and other preliminary activities that can occur concurrently with utility relocation. PMG also stated that the time allocated in the project schedule for utilities to be relocated does need to be a major focus in the development of project schedules and will continue to be emphasized. However, limiting when engineering can start appears arbitrary and could significantly delay projects. Many engineering activities can proceed while concurrently addressing necessary utility relocations. Third Party Administration staff confirmed that utility relocation activities are not currently planned or scheduled to be completed before other project delivery activities.

Recommendations 38 and 39 – Engage with utility companies in the Planning Phase and establish quarterly: PMG stated that Project Managers (“PM”) are engaged in the project planning phase earlier and are also involved with utility companies earlier. In interviews with Third Party Administration (“TPA”) staff it was learned that TPA typically engages at 30% of the design stage and sometimes as early as 15% – which is very beneficial for achieving general

readiness. PMG agreed to the recommendation and stated they will evaluate whether quarterly meetings is the right interval.

3. Needs Improvement

Recommendation 4 – Implement strategies to support third parties, such as providing financial assistance to utility companies and government entities in order to obtain the necessary resources to effectively support project delivery: The 2016 BP Study described that challenges associated with third parties may require innovative solutions including financial assistance or lobbied-for changes to controlling law. In interviews with TPA staff, the OIG learned that Metro has made internal efforts to mitigate third-party challenges through earlier planning efforts, but there is no evidence of Metro offering or providing resource support external to Metro. It is unclear whether these potential mitigations are financially, legally, or politically untenable.

Recommendation 6 – Use gateway process, stakeholder engagement program, and FTA oversight procedures to effectively support project delivery: The OIG confirmed in interviews that PMG Procedure PC14/Project Readiness was developed and implemented in response to the 2016 BP Study. However, the development of PC14 with its checklists has not sufficiently mitigated the types of risk that can derail a project. Third party issues and project unknowns cannot be completely controlled, but there are other challenges that may be avoidable. Under *Category #20 appearing later in this report, Metro-wide Program Oversight*, the OIG describes in-process enhancements to Metro’s strategic program oversight that may further mitigate project readiness risks.

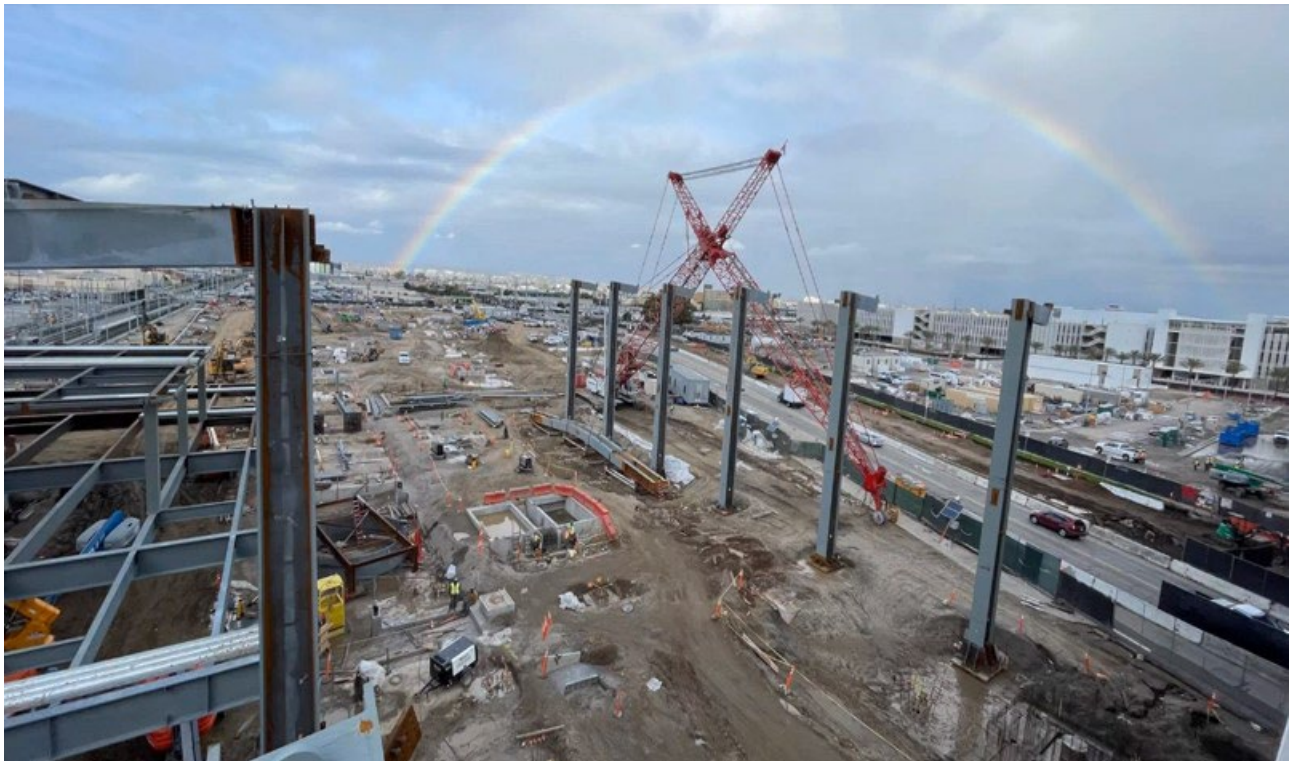
OIG Comments – PMG has done an excellent job developing and implementing a readiness review process in response to the 2016 OIG report. In 2022, PMG requested support from Metro’s Board of Directors for a project “Early Intervention Team” (“EIT”). The EIT consists of Metro’s finest and the best staff from planning, program management, operations, government relations, budget, and procurement to undertake best practice investigations. The EIT is a constructive development that has been significantly enhancing and ensuring that projects proceed with “true readiness” as demonstrated by controlled scope, budget, and schedule. Staff told us this has been fully embraced and implemented into the PGM culture.

Collaborative decisions made by PMG and Planning to involve PMG staff, in particular Engineering and Construction, Third Party Administration, and Risk Management earlier in the Planning Phase are positive steps that ensure information-sharing and provide the potential for proactive measures with respect to utilities and engagement with third parties. Moreover, no matter how proactive Metro may be from an organizational perspective, Metro will not be successful if third parties – whether private utility companies or public entities – fail to act timely because they lack staff and/or funding to prioritize the identification and relocation of utilities or facilities; or if they are backlogged in permit review or just don’t make Metro’s requests a priority.

C. 2023 Recommendation

- 2.1 Metro should investigate strategic initiatives to beneficially support third parties cooperative and timely assistance toward timely and cost-efficient project delivery.
- 2.2 Third party utility relocation issues continue to be one of the larger reasons for change orders and project delays. The OIG recommends the PMG partner with the Early Intervention Team (“EIT”) to revisit the PMG’s 2016 rejection of Recommendation Nos. 3 and 6 and apply a lessons learned approach to investigating the feasibility of initiating

utility relocation work much earlier in the pre-construction management process to remove unnecessary risk and enhance mitigation by planning and scheduling of relocation completion prior to other project delivery activities, without any intention of limiting or mandating when Engineering can begin. If the progressive design build approach or other alternative delivery approach will minimize utility impacts in the same manner as separate contracts for advanced utility relocation, the PMG's response should be updated.



Airport Metro Connector project – steel structure - aerial of project site along Aviation Blvd.

Category #3: Utilities and Third Parties

This Category includes 12 Recommendations (Numbers 58, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, and 89) made in the 2016 BP Study report.

A. Background

The 2016 BP Study identifies the utility relocation process as presenting significant risk to Metro capital projects cost and schedule, which is the case for most urban developers: “The ability to effectively and efficiently identify, analyze and relocate public and private utilities (gas, electric, sewer, water, communication, etc.) within or ahead of capital construction for both transit and highway projects is one of the most critical elements to Capital Program deployment and individual project success.”⁴ (BPS, p. 73, emphasis added.)

Best practices for detection and handling of utility lines, obtaining permits and approvals, and interaction with third parties are the focus of the 12 recommendations in this area.

B. Evaluation of implementation Actions

Our review found that action has been taken or is in progress to implement recommendations; however, enforcement of utility requirements and penalties for non-compliance is still a problem area that needs improvement. Our evaluation ranked the 12 recommendations in this Category as “Established” (10), “Evolving” (1), and “Needs Improvement” (1) as discussed below:

1. Established

Recommendations 80, 87, 88, and 89 – Innovate Metro’s utility relocation processes through increased staffing, re-engineering, technology assessment, and process improvement: All of these recommendations have been implemented. We found that additional Metro staffing level was approved in the FY 2018 budget process. Also, following the BP Study, the Third-Party Administration (“TPA”) group relocated to report directly to the Chief Executive of Program Management. This made TPA a higher priority with more focused attention and support by management across capital programs. In addition, TPA was embedded earlier in the planning process. Metro now starts its efforts for identifying and responding to potential utility issues at 15% to 30% of the design stage, in order to identify any conflicts earlier and start “potholing” and investigating existing underground utilities issues with more robust technology.

Recommendations 58, 79, 83, and 86 – Use of advanced utility relocation (“AUR”) contracts to support highway projects; continue to expand the best practices of having a dedicated third-party coordination group; complete as much utility work in advance of the construction contract; and apply for FTA funding for AUR contracts: PMG agreed and implemented these recommendations. Metro frequently uses FTA funds for advance utility relocations as part of the overall cost of a project. Also, Program Management assesses the use of AUR contracts to support highway projects on a case-by-case basis.

Recommendations 82 and 85 – Communicate utility risk to contractors and allow more time and contingency for utility identification and relocation: PMG agreed and implemented the recommendations. PMG staff described that the move toward non-traditional project delivery methods were being viewed as an opportunity to control risk. For instance, the Progressive

⁴ The 2016 BP Study cites a Purdue University cost savings study from 2000 that concludes every \$1.00 spent on subsurface utility identification will realize \$4.62 in avoided costs for scope changes, additional excavation, redesign delays, change orders, etc. (BPS, p. 73.)

Design Build delivery method allows for phased potholing and investigation prior to or contemporaneous with design. In this case, the contractor would not be fully bound to a set price.

In general, TPA participates in the delivery method selection process to improve the chances of a successful hand-off of a project from utility work phase to construction. The goal is for utility “pre-work” to be completed prior to the construction contractor coming on board. This can only happen with comprehensive readiness review efforts described in PC14, and success depends on accurate advanced utility work, which is only as accurate as investigative efforts.

Metro is making progress on increasing planned time for utility relocation with advanced discussions and planning involving TPA at 15% to 30% of design work to identify conflicts earlier. Early engagement at 15% is starting between TPA, utilities, and Metro groups, but this must occur on a continual basis. If TPA does not become engaged early in the planning phase, it can create problems later in the project. New policies and procedures are being developed and will build on standardizing investigations and actions based on type of project. Utility location continues to be a primary source of change order claims, so no amount of attention to this topic can be too much.

2. Evolving

Recommendation 81 – Increase utility identification by doing more exploratory work during early phases of project delivery (planning, preliminary engineering): Since 2016, TPA has been involved much earlier in the planning process, including contributing to the project delivery selection process. With the Planning department leading the efforts, both TPA and PMG are now more embedded in the planning process than in previous years. Regular meetings are occurring monthly and weekly on the mega-projects based on project phase and complexity. The former separation is now minimized between Program Management and TPA, and both groups encourage information sharing and “a warm hand-off” from advanced utility relocation to the construction phase.

Third Party Administration stated that Metro has traditionally relied upon Ground Penetrating Radar (GPR) for identification of utilities which has not been that accurate. In Spring of 2022, a more advanced GPR with eight additional sensors was scheduled for demonstration to Metro. It was described as scanning to depths of 30 feet below an asphalt street. At the time of this report, Metro has not yet procured that technology.

3. Needs Improvement

Recommendation 84 – Enforce utility investigations requirements and penalties for non-compliance: PMG staff stated going forward, PMs and Third-Party Administration will assess and if needed, advise V/CM to enforce non-compliance penalties. The OIG has learned that this is an area that needs improvement. Metro has tried many ways to enforce making a contractor or a third-party act, unfortunately it is not that simple to enforce a penalty – perhaps contract language could be clarified. Another approach may be to incentivize compliance and invest in technologies that mitigate conflicts and obstacles.

OIG Comments – The OIG learned that Metro’s adoption of alternative project delivery methods was driven in part by the impacts arising from the dual issues of utility identification and relocation, and the difficulty of working through third-party collaboration. By phasing the work, with the progressive design build approach, Metro should begin to mitigate the cost and

schedule impacts that arise from differing site conditions and potential utility and design conflicts.

The earlier involvement of Third-Party Administration and Risk Management in the Planning phase will provide opportunities for Metro to identify proactive measures to mitigate utility impacts and to implement alternative project delivery methods.

C. 2023 Recommendation

The OIG recommends:

- 3.1** Utility investigations, work, and relocations performed by Metro's contractors or others pose cost and schedule risks for Metro projects, including potential issues with reviews, approvals, and oversight by the third-party utility owners. The construction contract may specify timelines and/or sequences for utility-related work. To avoid cost and schedule impacts caused by third parties or contractor(s), Metro should utilize legal counsel's assistance to mitigate the risks related to utility investigations, work, and relocations. Metro should enhance its procedures and relationships to enable self-permitting. Transparency, documentation, and trust are key to Metro achieving self-permitting.



Concrete trucks on Wilshire Blvd awaiting delivery to Rodeo station for concrete slab

CATEGORY #4: City Approvals

This Category includes 4 Recommendations (Numbers 35, 36, 40, and 90) made in the 2016 BP Study report.

A. Background

The 2016 BP Study found numerous coordination, collaboration, and communication issues with the City of Los Angeles (“COLA”) regarding capital projects. Challenges exist with respect to responsiveness to Metro requests, old, expired, and outdated Master Cooperative Agreements and Memorandums of Understanding, and inconsistencies in approvals and collaboration toward shared goals. The three main issues related to COLA’s Bureau of Engineering’s Special Permitting Process are (1) lack of staffing resources, (2) differing design standards, and (3) requests for Betterments. These issues continually impact review and approval of designs submitted by Metro’s consultants and contractors.

Under the Project Management Book of Knowledge (“PMBOK”), third parties such as COLA are deemed “stakeholders” to Metro’s projects. Best practices for effective stakeholder management includes treating stakeholders as partners, with clearly defined roles and responsibilities on each project. There must be continuous involvement, ongoing communication, and transparency on issues. (See BPS, p. 46.)

B. Evaluation of Implementation Actions

Our evaluation ranked the recommendations status in this Category as 3 “Evolving”, and one recommendation status as “Needs Improvement” as discussed below:

1. Evolving

Recommendation 35 – Develop and implement strategic executive-level partnering between Metro and COLA resulting in agreed goals and objectives: Metro has implemented this recommendation. Former Mayor Garcetti’s “Partnership Letter” dated January 6, 2017, to General Managers, Directors and Commissioners across relevant City departments and bureaus set forth guidelines for “Accountability and Responsible Delivery of Transportation Infrastructure.” The objective of the letter was to foster and continue a strong partnership between the City and Metro to support project delivery. The directive was issued but sometimes the spirit of it has been challenging when staff of each party have different viewpoints.

Recommendations 36 and 40 – Execute a new Master Cooperative Agreement based on results of both executive and management level partnering: The Master Cooperative Agreement (MCA) is currently being negotiated between the Metro and COLA and is about 90% complete. Metro took the lead on drafting the document to move the MCA forward but has had to be patient to bring COLA to understand Metro’s perspective and the long-term value of Metro’s approach. COLA, LA Department of Water and Power (LADWP) and Edison needs to trust Metro to do the right and fair thing in accordance with any agreement we enter, but Metro needs to earn that trust. In addition, the MCA with LADWP is in negotiations. Also, Southern California Edison is “at the table” but resisting an MCA, preferring instead to negotiate terms and conditions separately for each project.

2. Needs Improvement

Recommendation 90 – Establish a Legislative/Legal Improvement Team: In its response, PMG rejected this recommendation as “not necessary for utility relocation.” The OIG will include a

recommendation for the Early Intervention Team to revisit this recommendation to consider whether legislative action is appropriate given circumstances that have occurred since 2016 involving litigation and also legislative actions encouraging streamlined housing development (which may spur need for accelerated transit planning).

Detailed information in January 2023 OIG report (Legistar 2022-0704) on CEQA Streamlining and Attachment A “Impact Sciences CEQA Streamlining Report and Recommendations” publicly located on the LA Metro website. [2022-0704 - OFFICE OF INSPECTOR GENERAL CEQA STREAMLINING REPORT - Metro Board](https://boardagendas.metro.net/board-report/2022-0704/) <https://boardagendas.metro.net/board-report/2022-0704/>

OIG Comments – Metro staff cannot be successful in confronting and overcoming third-party issues and obtaining timely permits without a multi-pronged approach. Metro currently funds COLA’s public works staff to review and issue permits for construction drawings, but the inconsistencies in staff review and additional staff requests has slowed approval of plans. Political demands have also resulted in betterment requirements. With respect to “partnering,” former Mayor Garcetti’s 2017 Letter titled, “Partnership with City of Los Angeles,” is considered a model for establishing protocols for streamlined permit review. Continuous active partnering may be necessary if the “paper promise” is not reflected in parties’ practices.

The OIG understands that an updated Master Cooperative Agreement between Metro and COLA is being negotiated and is close to a final agreement. In this regard, there are multiple areas where a good agreement could be a win, and COLA for Metro when a formal procedure is in place. Opportunities exist for the City to have more trust in Metro as Metro negotiates to being self-certifiable in areas where Metro and its contractors have significant experience, e.g., underground tunneling, underground monitoring, and excavations for underground stations.

PMG rejected Recommendation No. 90, as “not necessary for utility relocation,” for establishing a Legislative/Legal Improvement Team to assess and evaluate existing legislation and legal requirements for the utility relocation process. We suggest a review occur if topics are identified in consultation with outside counsel to develop a plan where the California Legislature can act to impose some common sense “rules of engagement” between public and private entities sharing the public right of way. A relevant example is the recent steps taken by the legislature to codify the USA/Dig Alert procedures for “safe excavations” previously overseen solely by associations of utilities groups.⁵

C. 2023 Recommendations

The OIG recommends:

- 4.1** Metro should complete a new and improved Master Cooperative Agreement between City of Los Angeles and LA Metro.
- 4.2** Metro should conduct a Legislative/Legal Improvement review to determine if there are any legislative adjustments that would improve work or construction related requirements for transit projects and assist in better resourcing third party stakeholders impacted by (and benefitting from) Metro capital projects.

⁵ [DigAlert.org - California Law \(2017\)](https://www.digalert.org/)

CATEGORY #5: Life of Project Budget

This category includes 5 Recommendations (Numbers 8, 55, 56, 107, and 108) made in the 2016 BP Study report.

A. Background

The 2016 BP Study describes that Life of Project (“LOP”) budgets are developed to “control and monitor execution of the project scope of work.” Understanding and controlling the factors that significantly increase the risk of cost changes to a project during project development was a critical issue in the 2016 BP Study. Project lifecycle costs may change as details are developed throughout the life of a project; for that reason, the 2016 BP Study found that: “Setting and strictly holding to an LOP Budget at the beginning of project development and not reassessing the budget at the project delivery stage is not an effective process.” (BPS, p. 27.)

B. Evaluation of Implementation Actions

We found that the actions have been taken or are in process to implement the 2016 recommendations. Our evaluation ranked 3 of the recommendations in this Category as “Established” (3) and two as “Evolving” as discussed below:

1. Established

Recommendations 55 and 56 – Establish Independent Cost Estimate and Contingency Review and establish a detailed Work Breakdown Structure for scheduling and budgeting: The OIG found that PMG developed and implemented policies and procedures that addressed these recommendations (e.g., PSC Tasks #3 & #6, Readiness Procedure & Risk Management).

Recommendation 108 – Reassess and implement revised executive-level reporting requirements: The OIG found that PMG has developed and implemented policies and procedures, including use of the Program Management Information System (“PMIS”) tools, which is further discussed in Category #16, PMIS. The Deputy Chief Executive Officer reports satisfaction with the level of data transparency and method of reporting.

2. Evolving

Recommendation 107 – Incorporate the entire capital program into PMIS and Metro's reporting system: In response to the recommendation, PMG stated that they will (1) evaluate the resources needed to expand use of PMIS for all capital projects, including Highways and Regional Rail projects, and (2) determine whether to use PMIS for a project depending on its size and complexity.

Recommendations 8 – Develop and implement an LOP budget with phased reassessments: In response to the recommendation, Metro stated that they will implement a two-step LOP budget (Phase 1 design; Phase 2 construction) for design-bid-build projects. As part of the new Annual Program Evaluation process, the LOP budget for each project will be evaluated on an annual basis.

Recent concerns have been raised by a repeating pattern of projects returning to the Board of Directors for significant budget increases. The OIG interviewed a representative of the Office of Management and Budget (OMB) about the LOP budget process and learned that OMB “fully supported” the OIG’s 2016 recommendation to implement the two-step LOP budget process. Current practices, however, have been identified as lacking reliability. We were told the initial estimate is “too rough” and impacts the Board of Director’s confidence in the process as insufficiently transparent. For that reason, Metro’s Board is asking for more information as the

two-step process is “no longer working.” OMB realized after a few years of practice that Metro has gaps in the reporting and tracking process. Utilizing a “lessons learned” rubric, it is proposed procedures be revised to add an intermediate budget review/approval step between construction cost control and the budgetary process.

OIG Comments – Because development of the LOP budget can be both an “art” and a “science,” long-term integrity depends on a number of circumstances outside the control of Metro employees. Recent circumstances stemming from the global pandemic have inflated prices and product demands. Pandemic inflation has greatly contributed to undermining the reliability of an LOP budget. Metro is experiencing multiple projects that have to go back to the Board and request more funds. Ultimately the continual request to increase the LOP budget will affect the “big money pot” of having other planned projects be delayed multiple years or not reaching development.

C. Recommendations

The OIG recommends:

- 5.1** Metro should focus on quickly adapting its budgeting practices for all new construction projects given the changing circumstances and trends of increased prices.
- 5.2** Metro should evaluate, assess, and document emerging financial conditions before requesting a budget change, and include an analysis in the Board request for LOP funding increases.
- 5.3** Based on statements included in Board Report No. 2023-0106, Attachment A, the OIG understands that EIT Project Review Process will include multiple “intervention points” for review of the Life of Project Budget. The OIG recommends the development and implementation of detailed procedures describing the process for LOP Budget development across the project life cycle. Requests to increase the LOP make after the procurement phase should include a “lessons learned” justification for the increase.

CATEGORY #6: Risk Management

This category includes 4 Recommendation (Numbers 9, 32, 33, and 34) made in the 2016 BP Study report.

A. Background

The purpose of a Risk Management Program in capital projects delivery is to identify and assess potential events that may impact a project’s budget and/or schedule and the probability and potential magnitude of each event. Strategic decisions to mitigate the risk of events or their impact can be made in response to the assessment. It is a best practice that risk management plans be developed during the planning phase and updated throughout the project lifecycle.

The 2016 BP Study found that Metro generally needed to embrace a culture of risk management throughout the project lifecycle. In particular, the 2016 recommendations focused on enhancing risk analysis during the project planning phase. (BPS, p. 28.)

B. Evaluation of Implementation Actions

PMG in conjunction with Countywide Planning and Development has implemented integrated risk management processes beginning at the planning phase, which are carried forward by PMG across the project lifecycle. However, the program is not universally applied to all projects

of varying sizes and complexity. Our evaluation ranked the recommendations in this Category as one “Established”, one “Evolving”, and two “Needs Improvement” as discussed below:

1. Established

Recommendation 34 – Hide contingency amounts: PMG rejected this recommendation because public funds awarded from the FTA must be published (FTA’s Oversight Procedure 40b – Risk and Contingency Review). The OIG agrees that FTA requires transparency related to budgets and contingency values, which obstructs the ability to implement this recommendation. Also, PMG does not treat the contingency funds as “available” to the contractor, and while it is suspected that the contractor does not want to leave funds available untapped, there is no evidence the contractor submits claims based on the contingency.

2. Evolving

Recommendation 9 – Incorporate risk management into the culture of the organization from project conception through closeout: Metro stated that a more formal risk management program needs to be developed. In response to the 2016 BP Study’s recommendation, PMG hired a full-time Risk Manager. As a first priority, PC07/Risk Management was developed to encourage project managers to forecast and trend project risks at project inception and as a tool for efficiently analyzing and controlling actual risk during project execution. In an interview, Program Management staff stated that it would be appropriate for more transparency on contingency decisions following a risk management review. Also, cost integrity would benefit from re-review of estimates including risk contingency through a stage-gate process. In regard to whether Risk Management should be applied to smaller projects, it was stated that the value to be derived from enhanced project controls oversight may not be fully understood by Capital Improvement Program (CIP) Project Managers. There is the view that the cost of additional measures overshadows limited benefits. One interviewee indicated that a considerable benefit arises from running non-complex, lower cost projects in a “light touch fashion.”

3. Needs Improvement

Recommendations 32 and 33 – Revise risk and contingency procedures for all projects and enforce procedures using risk to set contingencies for all projects: PMG has developed and implemented policies and procedures critical to sound Risk Management practices, e.g., policies PC07 REV 9 - Risk Management Program Plan and PC12 REV 2 – Transit Project Contingency. However, currently, Risk Management efforts are only applied to “mega” capital projects. The 2016 BP Study recommended universal application of risk management principles as essential to building a risk management culture at Metro. For less complex, low-cost CIP projects, the risk review process can be simpler. Moreover, newer project managers handling simpler projects will be better prepared for analyzing and managing the risks of bigger projects if introduced to risk management best practices at the earliest opportunity.

OIG Comments – At this time, Metro may be treating risk management as a “luxury program.” Some view the costs associated with a comprehensive risk management program as outweighing the benefits. One interviewee indicated that a considerable benefit arises from running non-complex, lower cost projects in a “light touch fashion.” PMG should consider reviewing this current approach and utilize risk management oversight across all projects of varying sizes and complexity. While not connected to a 2016 recommendation, it is additionally suggested that it might be beneficial for Risk Management staff to participate in lessons learned discussions to encourage bi-directional sharing of risk-related information.

C. 2023 Recommendations

The OIG recommends:

- 6.1** PMG should determine whether risk management plans (whether full or “light” plans for smaller projects) – including mitigation plans for risk findings adjusted by PMG management – should be developed for all projects regardless of size, complexity, or use of federal funding.
- 6.2** PMG should strive to establish a progressively robust risk management culture that ensures controlled and mitigated risk throughout the entire project lifecycle.
- 6.3** PMG should determine if it is beneficial for Risk Management staff to participate in lessons learned discussions to encourage bi-directional sharing of risk-related information. This will ensure knowledge will be transferred, built upon and not be lost, as mature employees retire from Metro.

CATEGORY #7: Project Management Plan

This category includes 6 Recommendations (Numbers 41, 42, 43, 45, 47, and 48) made in the 2016 BP Study report.

A. Background

The 2016 BP Study describes Metro as a “composite organization,” meaning it combines “a strong matrix organization, with functional departments and a Project/Program Management department, with a projectized organization for major projects, with team members under dual assignment to the functional departments, but also assigned with key team members co-located at the project site.” (BPS, p. 50.) Recommendations under this area relate to project teams being guided toward project success through the comprehensive road map in the Project Management Plan (“PMP”), ideally developed and implemented in accordance with the Project Management Book of Knowledge (“PMBOK”)

PMBOK is a globally accepted industry standard for all project management processes. A project management professional (PMP) certification, utilizing ISO 9001 standards, is a globally recognized project management certificate that identifies the person has the ability to lead a project in any industry.

B. Evaluation of Implementation Actions

We found that Metro has taken actions to implement the recommendations. However, Project Management Plans are not enforced by Metro for application for all capital projects. A PMP is useful for managing a project because it provides the roadmap needed to instill confidence across all roles on the project team and decreases roadblocks to decision-making. Our evaluation ranked the recommendations in this Category as four “Established”, one “Evolving”, and one “Needs Improvement” as discussed below:

1: Established

Recommendation 41 – Develop and implement strategic plan for project team management: PMG in 2016 stated that they disagree with the need for a strategic PMO, however a strategic plan as part of a Program Management Department's Program Management Plan will be investigated. PMG has addressed this recommendation in the Program Management Plan.

Recommendation 42 – Implement an Integrated Project Management Office (“IPMO”) environment for all projects: PMG stated that they will establish an IPMO for a project depending on its size and complexity. In practice, PMG implements an IPMO for mega-projects during the construction phase but does not universally do so for smaller CIP projects under \$100 million. Now it has agreed to stand up an IPMO for projects as needed.

Recommendation 45 – Reduce the number of internal project team meetings to occurring regularly and as needed but not excessively and when not needed: PMG unreservedly agreed with less meetings generally and is looking into more virtual meetings. The use of virtual meetings will be scheduled on a case-by-case basis and is dependent on the capability of remote conferencing with field staff from Gateway.

Recommendation 48 – Assign a Project Manager (“PM”) at project initiation and empower the PM with the authority for project decision making and control responsibilities throughout the entire project lifecycle: PMG agreed that the PM should be involved throughout the project lifecycle and empowered with decision making authority upon the completion of planning. Also, during the planning phase, responsibilities should be shared with the Planning Department. In

this regard, a new Senior Executive Officer, Project Management was approved in the FY 2018 budget to lead the interface with the Planning Department beginning with environmental/planning phases of new Measure R and M transit projects.

2: Evolving

Recommendation 47 – Adopt Project Management Institute (“PMI”) as the organizational standard for project management: PMG agreed to research PMI standards and employ as appropriate. Metro uses various tools and guidance to deliver projects and is not restricted to only PMI standards. In this regard, PMG will research PMBOK and other standards to determine how to effectively incorporate the recommendation.

3: Needs Improvement

Recommendation 43 – Require all projects to utilize a Project Management Plan (“PMP”). PMG agreed with the recommendation for larger projects. PC04 – Program Management Plan establishes that all capital projects with a total cost in excess of \$100 million shall have a PMP. However, a PMP is not required for projects less than \$100 million. From interviews with the PMG staff, the OIG understands that a preference exists for running smaller CIP projects with a lighter touch. Along with no PMP, this also typically means there will be no Risk Management Plan and minimal use of PMIs.

OIG Comments – Differentiating construction management practices between mega projects and smaller CIP projects is a policy decision by PMG. Doing so without a formal policy or procedure suggests that the differentiated approach continues out of habit, not thorough analysis or fact-supported decision making. Without a PMP, there is less transparency as to performance metrics and successful completion of the administrative aspects of a project. Additionally, for newer Project Managers, differentiating practices for smaller projects may diminish training and development opportunities needed to step up to more complex projects.

C. 2023 Recommendation

The OIG recommends:

- 7.1 Revisit the 2016 Recommendation requiring all projects regardless of size or complexity to develop and use a PMP which will standardize practices related to change management, quality, risk, and develop and use a PMIs.



Tunnel Boring Machine break through at Purple Line Extension Section 1

B POST-PROCUREMENT PROJECT MANAGEMENT

CATEGORY #8: Contract Administration

This Category includes 13 Recommendation (Numbers 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 29, 30, and 64) made in the 2016 BP Study report.

A. Background

Best practices related to “contract administration” emerge once Metro acts to procure and engage a contractor to implement the project plans under the selected delivery method. The 2016 BP Study describes that effective and efficient contract administration is foundational to project delivery success – with a primary focus on clearly stated and enforceable change management terms and conditions.

Contract General Conditions must unambiguously describe the contractor’s reasonable obligations for timely submission of substantiated requests for cost, scope, and/or schedule adjustments. Equally important, the owner’s representative, who may be Metro’s Project Manager, Construction Manager, or a Contract Administrator, must be timely and professional in handling change requests. Consistent and timely responses to the contractor’s submissions are essential. In short, the 2016 BP Study conveys that successful contract administration involves both parties understanding and acting to fulfill mutual contractual obligations. Challenges arise when either or both parties fail to act timely with documented support. Disputes and adversarial relations are likely to develop from delayed resolution, leading to more complex and higher cost and schedule impact claims.

The 2016 BP Study’s recommendations guide Metro to be organizationally proactive in streamlining merited change orders, and to act timely to resolve all resolvable disputes.

B. Evaluation of Implementation Actions

Our evaluation ranked the 13 recommendations in this Category as nine “Established”, one “Evolving”, and three “Needs Improvement” as discussed below:

1: Established

Recommendations 20, 21, 22, 23, 24, 25, 26 and 30 – Expand and empower Metro’s Contract Administration processes with a strong change control group that firmly and consistently enforces both contractor’s contract and Metro timeline: Our review of policies and procedures and interviews with staff confirmed Metro’s implementation of these recommendations through the collaborative efforts of the PMG and Vendor/Contract Management. Metro has the advantage of having construction procurement staff with over 20 years’ experience at Metro that makes this collaboration easy to do.

Recommendation 18 – Establish timeline for Metro responses to project changes: Policies and procedures have been updated establishing timelines for Metro’s responsive actions and time to process on project claims and changes.

2: Evolving

Recommendation 17 – Address project delays as they occur: PMG agreed and stated that delays are worked on as they occur. In interviews, management commented that both Metro and contractors may defer resolving schedule impacts. Both causation and impact may be

disputed, and resolution may require considerable scheduler resources. PMG staff indicated discussions are occurring for aggregating schedule issues into quarterly reviews for “global” resolutions.

3: Needs Improvement

Recommendation 19 – Establish a contractor’s daily overhead rate: PMG agreed to the recommendation and stated that they will need concurrence from Vendor/Contract Management. PMG also stated that Metro’s Contract General Conditions may include a contractor’s bid “daily overhead rate,” but the inclusion of this risk mitigation tool does not necessarily result in expedient resolution of schedule disputes.⁶

Recommendation 29 – Clarify timelines for contractor claims and Metro responses: PMG’s response to the recommendation stated that change to contract language pertaining to the contractor’s timelines is not desirable or necessary. PMG staff stated Metro has not experienced any major complaints (schedulers & contractors) to the current timeline specifications. However, it appears that Metro’s General Conditions were modified to extend timelines for the contractor to submit support for delay claims. Also, when preparing OIG Quarterly Construction Change Spot Check reports we have observed an instance where a contractor’s claim was processed years after the occurrence.

Recommendation 64 – Establish an enforcement and compliance mechanism into the contractor performance evaluation. In its response, PMG supported use of the Quality Management program for providing contractor feedback on performance issues. PMG communicated that a formal performance appraisal process might not be “the right approach.” The OIG learned that PMG’s focus on fostering positive relationships with contractors to get a job done may conflict with a concurrent duty to engage with the contractor in frank evaluations of performance during the performing period. A process for debaring poor quality contractors exists for contractors that Metro believes merit disqualification (which is almost impossible to use for large contractors because it introduces many years of costly litigation) – but there are no guidelines for having conversations about “satisfactory versus unsatisfactory” performance. For this reason, there is little current policies, procedures, or practices to gather information on current performance to identify “responsive and responsible bidders” for use in future projects.

OIG Comments – Informal tracking of rejected Request for Changes (outside the PMIS) may lack transparency and contribute to claims being revived by the contractor at the end of a project. This practice, if occurring, is an obstacle to Metro and the contractor confronting their differences in findings on the facts and conclusions of merit at the earliest possible time. Thus, there is no finality, in part, because of missed opportunities to use partnering and the dispute resolution process to reach finality early.

Metro might also benefit from considering if its contractor evaluation/assessment program (typically performed at the end of the project) is consistently used and is as robust as it could be to evaluate contractors’ historical performance to assess and track for purposes of future source selection. A database could be made available for tracking this information and to provide Metro an opportunity to maintain key performance information and to learn from other

⁶ A contractor seeking compensation for delay will request a daily rate based on incurred overhead costs (from being on the job longer than expected). That daily rate can be the product of a current audit or can be a value established at the time of bid. The 2016 BP Study advocates for use of the bid process to establish a Daily Overhead Rate. A Daily Rate may not foreclose a contractor from seeking amounts above and beyond the Daily Rate but that doesn’t demolish all benefits of using a risk management tool.

projects. The OIG will be making a further separate proposal for a vendor scorecard program for best practices in procurement.

Approved schedules are necessary for tracking performance of the work and establishing the start/stop events for alleged delays. Metro should ensure its General Conditions set forth enforceable terms for baseline and updated schedules. Partnering should be used to resolve schedule disputes and trigger the contractor's obligation to submit a claim. Partnering training will be further mentioned at the end of the report along with other training.

C. 2023 Recommendations

The OIG recommends:

- 8.1** PMG should revisit Recommendation Number 29 and review current General Conditions requirements for contractors to submit time impact analysis ("TIA"), and the conditions when to impose a "waiver" on untimely and improper claims that are not properly presented by the contractor. Metro should review its contract language regarding the requirements for TIAs and the conditions for imposing waivers, as well as opportunities to add contractual language emphasizing the contractor's duty to timely submit support for impact damages and to mitigate alleged harm.
- 8.2** PMG should revisit Recommendation Number 64 regarding:
 - (a) Developing a formal robust Ongoing Performance Assessment Program for consultants and contractors that is used yearly during and at the end of the term of the contract to ensure satisfactory and compliant performance.
 - (b) Developing and utilize a Past Performance Assessment for contractors and consultants that allows Metro to consider the contractor's overall contract compliance in future solicitations including an opportunity for contractors to respond to assessments.
 - (c) Updating Metro's General Conditions to inform consultants and contractors of performance assessment actions.
 - (d) With regard to contractor claims for damages for delays, PMG and V/CM to work together to review, and expand when proper, the use of construction contracts to include a "bid" daily rate for damages that will be used to reimburse substantiated delay damages. The OIG encourages all construction contracts to include a "bid" daily rate for damages that will be used to reimburse substantiated delay damages.

CATEGORY #9: Board Matters

This Category includes 7 Recommendation (Numbers 44, 73, 74, 75, 76, 77, and 78) made in the 2016 BP Study report.

A. Background

The 2016 BP Study identifies Board Delegation as giving authority to the CEO/General Manager for significant project changes, in order to avoid delays in construction while the Board of Directors remain available for decision-making at the policy level. Post-2016 enhancements made in response to the 2016 BP Study were key to the overall success of strengthening PMG's and Vendor/Contract Management's ("V/CM") joint contract administration practices.

Section 130630 of the California Public Utilities Code states that "the board provides counsel and direction to management and shall not be involved in the day-to-day affairs of [Metro]." A key finding in the 2016 BP Study was that "...almost unanimously interviewees consider the Board of Directors oversight, approval, and reporting requirements for capital projects a significant part of the project management and could be improved." (BPS, p. 69.)

B. Evaluation of Implementation Actions

Our evaluation ranked all of the 7 recommendations in this Category as "Established." We found that Metro has taken actions to implement all 7 of the following recommendations:

Recommendation 44 – Establish a governance model with delegated authority.

Recommendation 73 – Improve adherence to Metro rule (Public Utility Code, section 130630).

Recommendation 74 – Assess increasing Board meeting frequency.

Recommendation 75 – Delegate more authority to Chief Executive Officer (CEO).

Recommendation 76 – Reassess Board review and approval process.

Recommendation 77 – The Board of Directors should recognize and support a need for process improvement.

Recommendation 78 – Develop and implement a Board education series.

Board Delegation of Authority

Recommendation 75, delegate more authority to the CEO, is the recommendation that has had the most significant impact. In response to this recommendation, Metro's Board of Directors approved a program to delegate authority to the Metro CEO to execute certain lower value project change agreements. To ensure transparency and protection of public funds, the Board directed the Inspector General to audit change orders executed under the Delegation Authority. As an ongoing program, the OIG has issued quarterly Spot Check reports that included recommendations for improving the program. The Delegation Authority is working well and has reduced the long lead times to get a board item on the Board agenda saving both costs and construction time.

- In a follow up 2018 Board report (Legistar 2017-0827 and 2017-0924), PMG stated that in one year alone, the new delegation of authority generated cost savings on three

mega-projects ranging from \$22.5 to \$30 million. The savings were generated by reducing the time to execute change orders, thus avoiding project schedule delays. We have not seen any data from staff to actually prove this estimate, so we remain skeptical of this number.

- The OIG’s Spot Checks of construction change orders, over the past 5 years (2018-2023) across six projects, found that 2,075 workdays have been saved in executing change orders under the Delegation Authority versus the prior method, as shown in the adjacent table.

PROJECT NAME	TOTAL WORK DAYS SAVED	YEARS SAVED
Crenshaw/Lax	336	1.3
Regional Connector	420	1.6
Purple Line Section 1	629	2.4
Purple Line Section 2	397	1.5
Purple Line Section 3	248	1.0
Division 20	45	0.2
TOTAL SAVINGS	2,075	8.0

OIG Comments – Metro’s actions taken since publication of the 2016 BP Study have greatly improved the efficiency with which PMG and V/CM are able to process construction change orders. Capital projects have benefited from the delegation of authority that created greater efficiency.

C. Recommendation

The OIG recommends:

- 9.1 Metro should continue the current practice and level of utilizing the delegated authority that has proven to speed up the change approval process with sufficient oversight and quality. The OIG will continue to monitor the change orders.
- 9.2 We recommend that Metro’s Management Audit Services Department do periodic audits during projects of use of funds for change orders in compliance with Metro Standards which will breed responsibility.

CATEGORY #10: Enforcement and Compliance

This Category includes one Recommendation (Number 28) made in the 2016 BP Study report.

A. Background

The 2016 BP Study identifies a critical need for Metro to clarify and strengthen contractual requirements to facilitate timely claim resolution and to impose waivers where the contractor unreasonably delays submitting change requests. To do so, Metro “needs to make a strong public announcement to contractors, consultants, and staff to avoid any argument by contractors that Metro has waived its right to enforce its contract language by past failures to enforce it.” (BPS, p. 38.)

B. Evaluation of Implementation Actions

Our evaluation ranked Recommendation 28 as “Needs Improvement.” The recommendation states – enhance compliance and enforce Metro’s contractual rights related to timely and supported submittal of contractor claims. In response to the recommendation, PMG affirmed its support for a “tough but fair” posture with contractors but noted that they would need to collaborate with Vendor/Contract Management to ensure both groups were united in approach. PMG’s follow up comment in 2017, stated, “Going forward, Metro will enforce contractor compliance pursuant to the contract, and if needed, implement financial disincentives.”

Procedure CF14/Change Control, Construction/Procurement Contracts, pre-dates the 2016 BP Study and establishes PMG’s procedures for changes to construction, procurement, installation, or specialty contracts awarded for construction of Metro facilities and systems. The Procedure provides the standards and requirements for contract change control including process steps and documentation, but it is incomplete – missing the delegation of authority approved by Metro’s Board of Directors.

Interviews – Staff interviews indicated that for merited change requests, Project Managers working with Contract Administrators efficiently work through scope and quantum issues and issue a unilateral change if the contractor does not agree to Metro’s proposed resolution. Challenges arise when the contractor submits a Request for Change (“Req. Change”) that lacks (1) merit on its face, and/or (2) sufficient evidentiary support. Delay claims are particularly susceptible to a lack of diligence by contractors. Project Managers view delay claims as difficult to resolve efficiently and having less opportunity for unilateral action by Metro. Due to this complexity, mutual inaction by contractor and Metro may result in complex schedule/delay claims lingering until the end of a project (a common outcome at peer agencies surveyed in the 2016 BP Study).

Metro staff indicated that they lack contractual leverage to force the contractor to timely submit Req. Changes or to pursue “next step” claims if the Req. Change is rejected by Metro. Staff believe this to be true whether the rejection is based on an evidence-based merit analysis or the rejection is based on the contractor’s failure to submit substantiation in the form of detailed costs and/or a required Time Impact Analysis.

One interviewee noted that Project Managers may not have a firm practice of tracking Req. Changes in the PMIS system if rejected on merit or for lack of evidence. This can be problematic because eventually, the contractor may revive the claim, which can greatly impact a budget contingency levels for delayed or neglected claims that appear late in the project. The partial solution to that is transparently tracking all Req. Changes and correspondence.

OIG Comments – Metro’s General Conditions should be reviewed for “best practices” as compared to peer agencies with demonstrated success in encouraging contractors to comply with its contractually prescribed change management processes. It is asserted that Metro may lack leverage based on the contract imposing no hard timeline to submit and actively resolve these types of claims, and based on recent California law establishing timelines and processes for an agency’s response to contractor’s claims that may not be subject to waiver.

Metro increases its risk of cost or schedule impacts arising from failing to act timely and completely in response to the contractor’s Requests for Change. To the extent the contractor delays in submitting requests or evidence in support of requests, Metro should respond quickly and document its response of rejection.

Where the contractor has alluded to potential cost or schedule claims but does not act aggressively to respond to those claims, Metro may want to consider going on the “offense.” “Noes” to merit could be handled with the same diligence and speed as Metro’s “Yeses.” The reason for a proactive response is because once delay claims start to be asserted, the contractor’s monthly schedule update will lose integrity, and the contractor may leverage “multifactorial” causation to make non-compensable delays appear compensable. Metro is encouraged to prepare a record of justification supporting denials of merit. This evidence can then be used to “force” a response from the contractor and to compel use of partnering and/or the dispute resolution process for a timely and comprehensive discussion of the facts.

C. 2023 Recommendations

The OIG recommends:

- 10.1** PMG and V/CM should collaborate in the review of current General Conditions establishing timelines and required actions for initial change matters and also for resolution of disputed matters.
- 10.2** PMG should revise CF14/Change Control to describe internal processes regarding the 2018 CEO Delegation of Authority and best practices for using partnering, claims procedures and the Dispute Resolution Board to reach finality on contested change matters.
- 10.3** PMG should consider tracking the Project Manager’s performance in meeting responsive timelines for all change items (merited or not), to confirm compliance with the General Terms and Conditions and PMG’s policies and procedures.
- 10.4** Contract should specify time limits for submission of claims and enforce these time limits where legally permissible. Vendors will request time limits for Metro’s response to their claims so Metro will need to be prepared to respond to that.

CATEGORY #11: Partnering

This Category includes 5 Recommendation (Numbers 10, 11, 12, 13, and 14) made in the 2016 BP Study report.

A. Background

The 2016 BP Study identifies partnering as an important tool for fostering project success, and recommends enhancements intended to make partnering part of Metro's "fabric of doing business."⁷ (BPS, p. 30.) Partnering with contractors and other third parties during the construction phase is discussed in Special Provision 30, Partnering, in the construction contract.

B. Evaluation of Implementation Actions

Our evaluation ranked all 5 recommendations in this Category as "Evolving" as discussed below:

Recommendation 10 – Make partnering mandatory across all projects: At this time, partnering is mandatory for mega-projects, but may not be implemented for other smaller CIP projects. Contracts for mega-projects typically include General Conditions describing "partnering." The 2016 recommendations related to partnering concerned enhancements to guide its broader and successful use. The use of partnering was advocated for not only Metro and the construction contractor including key subcontractors but also Metro and any third-party stakeholders, such as utilities and cities.

Recommendations 11, 12, and 14 – Establish partnering procedural standards; use multi-tiered partnering; and agree upon a plan during partnering meetings and act consistently with plans. The OIG's review found that a partnering program exists at Metro that incorporates these recommendations. In interviews, some Metro staff described partnering as helpful for "team building" which contributes to problem-solving, but others we interviewed found partnering with contractors to be unproductive. Partnering has been successful when used by trained, skilled project managers. Unfortunately, some Metro staff and contractor staff may have become discouraged when attempts at partnering were not successful. Partnering was not typically understood to apply to relationship building with third party stakeholders, such as utilities owners or cities.

Recommendation 13 – Train staff and contractors prior to partnering sessions. Metro's response stated that prior to partnering sessions, all participants, including facilitators, are informed and made aware of the rules, intent, purpose, and objectives of the partnering sessions.

OIG Comments – For a "Partnering Positive" culture to be created, staff must be fully trained in the process and guidelines developed for successful partnering. Escalation ladders must be in place and efficiently accessed so participants do not view partnering efforts as a waste of time. One benefit to partnering is that the process will lead to the discovery of new or different facts than those initially understood by the participants. For that reason, participants in partnering

⁷ "Partnering" in the construction industry "is intended to assist project teams with setting goals, resolving disputes and improving project outcomes . . . by developing mutually agreed upon project and partnership success goals and by monitoring the achievement of these goals for the duration of the project. The construction partnering team will also develop an agreed upon process for resolving disputes should they arise, called a dispute resolution ladder." ([Construction partnering - Wikipedia](#), footnotes removed.)

must be willing to revisit initial determinations and engage in iterative risk analyses that may change a decision or approach to resolution.

Using partnering in lieu of a Dispute Resolution Board saves time and costs. Even if partnering is not successful, the efforts will not be wasted if the parties develop a better understanding of a dispute. The OIG acknowledges that for some alternative project delivery methods, typical “partnering” may be replaced by a jointly developed project charter. Instead of partnering facilitators, there may be “coaches” that will be utilized to assist Metro, the designer, and the contractor to work together. This new era of engagement will bring opportunities to learn and improve upon older methods.

C. 2023 Recommendations

The OIG recommends:

- 11.1** For effective partnering, Metro should develop effective internal processes for vetting issues appropriate for the partnering process and developing an evaluation of the facts and issues.
- 11.2** Metro should implement a “Partnering Positive” culture supported by Executive Management, in order to minimize the need to use Dispute Resolution Board hearings or to litigate a dispute.

CATEGORY #12: Quality Management

This Category includes 2 Recommendations (Numbers 91 and 104) made in the 2016 BP Study report.

A. Background

The 2016 BP Study recommendations related to Quality Management discuss “quality” from two perspectives. First, internally as to Metro’s oversight of its own practices; and second, the “quality assurance” aspects of Metro’s oversight of consultants’ and contractors’ own contractual quality control responsibilities. The 2016 Recommendations propelled Metro to pursue and establish a much-improved Quality Management Oversight Program.

B. Evaluation Implementation Actions

The PMG has acted to implement a comprehensive Quality Management Oversight program that has been used to complement Metro’s best practices Risk Management Program. Our evaluation ranked Recommendation 104 as “Established” and Recommendation 91 as “Evolving.”

1: **Established**

Recommendation 104 – Assess the risk of Quality Management within the Engineering and Construction division: PMG agreed with this recommendation, and following the 2016 review, a decision was made to move Quality Management from under Engineering and Construction to directly under the Chief Executive Officer of PMG, which gives higher level attention and focus to quality issues. Also, PMG had the Quality Manager from Denver RTD spend some time at Metro, and he made a number of pertinent observations, which will be evaluated.

2: **Evolving**

Recommendation 91 – Develop and update policies and procedures organization-wide, especially for capital project delivery and project management; and institute Quality Assurance into all policies and procedures: PMG has developed and implemented policies and procedures that include sound quality management practices. In 2021, Metro commenced roll-out of its new Metro’s Quality Management Oversight (“QMO”) program making it applicable in “beta mode” to new mega-projects (older projects are “grandfathered in” the previous Quality program). Quality Management describes that iterative improvements are being made to the policies and procedures and the complimentary technology. In addition, Metro staff explained that Quality Management hired a consultant to develop and implement the Quality Management Oversight system. This new system will provide oversight and verification of project documents, develop workflow capabilities, and capture and track lessons learned across the construction projects.

OIG Comments – In conjunction with the development and implementation of a comprehensive QMO program, the Quality group almost tripled in size. The investment in this effort has been substantial and offers a high return on investment. Prioritizing the Quality group with staff (consultants) and implementing a tracking mechanism for documents, workflow, and lessons learned will enhance Metro’s performance with current and future construction projects.

C. 2023 Recommendation

The OIG recommends:

- 12.1** PMG should review whether best practices require expanding the scope of the quality program to include all projects, regardless of size or complexity, to participate in the enhanced Quality Management Program, including the Lessons Learned program.

CATEGORY #13: Lessons Learned

This Category includes Recommendation Number 51 made in the 2016 BP Study report.

A. Background

The 2016 BP Study identifies a need for “lessons learned” to be programmatically captured organization-wide at Metro. FTA’s Oversight Procedure 26 – Lessons Learned describes the process for capturing and disseminating information related to project challenges that can be used to avoid or minimize cost impacts on future projects.⁸

Lessons learned on capital projects may be identified across all project phases and across all departments that participate directly and indirectly in the project. Lessons learned only have value if systematically captured and analyzed with recommendations for improvement and are accessible to the departments and staff that can use the information. Without such a program, valuable lessons are simply lost and are not captured for continuous improvement. (BPS, p. 58.)

B. Evaluation Implementation Actions

Our evaluation ranked Recommendation 51 as “Evolving.” This recommendation states – establish a formal, organization-wide Lessons Learned Program.

We found that PMG has developed a lessons learned process to gather facts related to past incidences and investigating unanticipated or unwelcome outcomes. Also, Quality Management has developed the technology for tracking and disseminating this information. A fundamental “best practice” for any public entity is to learn and improve over time, based on prior efforts. Accordingly, Metro is encouraged to develop a culture that embraces lessons learned.

Our review also found that PMG revised and supplemented its existing lessons learned procedures, and the Quality group under PMG is in the process of implementing a detailed Lessons Learned program.

LL2 REV 0 - Lessons Learned Program Plan (“LLPP”) outlines the framework for establishing a program to foster continuous institutional learning and process improvements in a timely, comprehensive, and user-friendly manner. The LLPP provides guidance on how lessons learned documentation is to be prepared; establishes the basis for implementation of an easily accessible database for lessons learned reference and sharing; and establishes a process for advancing select best practices derived from lessons learned into formal policies or procedures.

In interviews with PMG staff, there is support for the concept of lessons learned but no indication that Metro has established an agency-wide culture where a formal lessons learned process is a priority. The OIG views any hesitancy across Metro or implement and actively participate in a Lessons Learned program as a potential issue.

OIG Comments – A Lessons Learned Program should be structured to allow capturing useful lessons continuously throughout the life of a project, with a formal lessons learned meeting at the close of each phase of the project (Planning, Preliminary Engineering, Design, and Construction) for all types of project delivery methods (design/build, design/bid/build, etc.). In addition, lessons learned should be captured in all elements of a project (structural, utility, traffic, geotechnical, etc.) and in all knowledge areas of project management (scope, schedule,

⁸ [Oversight Procedure 26 – Lessons Learned \(dot.gov\)](#)

cost, quality, risk, etc.). Metro should evaluate and incorporate, as deemed necessary, the best practices above into a Lessons Learned program.

C. 2023 Recommendation

The OIG recommends,

- 13.1** PMG should develop a program and culture that reports lessons learned from internal and external management (across all groups) to those participating in capital projects and methods to ensure regular review and revision of policies and procedures to ensure cross-department utilization of all lessons learned to advance and build on the Metro Program Management and improve each project as it planned, designed, developed, and constructed.

CATEGORY #14: Safety

This Category includes 2 Recommendations (Numbers 66 and 67) made in the 2016 BP Study report.

A. Background

The 2016 BP Study recognizes Metro's excellence in the area of safety. The report stated: "Reviews, interviews, project workshops and survey responses clearly indicate that safety is the number one priority of Metro, and the organization has established itself as a leader in safety management." The study notes that for capital projects, "safety is considered in all phases of the project lifecycle, from the development of design standards, to purchasing, fabrication, and construction." (BPS, p. 64.) The OIG views the 2016 BP Study as informative of Metro's safety best practices during project construction. The Study did not cover safety issues related to planning and design in any depth.

B. Evaluation of Implementation Actions

On a project-by-project basis, Metro demonstrates that safety is a priority, and there is no doubt safety is paramount to the organization. Metro would benefit from more broadly communicating its positive safety record as it relates to capital projects.

Our evaluation ranked the implementation of one of the recommendations in this Category as "Established" and the other recommendation as "Needs Improvement" as discussed below:

1: Established

Recommendation 67 – Incorporate safety considerations into the updating of design criteria, standards and specifications: The Safety group confirmed that Metro Rail Design Criteria (MRDC) includes robust safety requirements for contractors and consultants, e.g., Fire/Life/Safety and CPUC compliance. Staff describes MRDC elements as subject to continuous review to incorporate lessons learned after a project goes into operation. One recent example is the updated criteria for the maximum gap between the emergency walkway and train on a curve. Moreover, Metro's design criteria and standards are subject to continuous review and update.

2: Needs Improvement

Recommendation 66 – Consider installing a safety "ticker" in the Metro lobby, to communicate the importance of safety to stakeholders and the organization to applaud the success of the safety program: PMG deferred this recommendation to the Safety group. The Safety group rejected the recommendation to install a "safety ticker" in the Metro Gateway lobby at the time as impractical and duplicative to other safety reporting. The OIG views this specific recommendation as reasonably rejected. However, the OIG recommends consideration of other approaches to herald contractors with excellent safety practices, as reflected in low reported injuries. Perhaps reporting this data on project websites for public attention or posting statistics monthly as part of Metro's Daily Brief could help build a more transparent "safety culture" at Metro. Reporting safety promotes continuous safety consciousness and reinforces a safety culture in Metro.

Policies and Procedures – Metro's Safety group regularly reviews and revises its Construction Safety and Security Manual ("CSSM") and has done so since 2016. The CSSM is used to guide oversight of the contractor's mandatory safety program. The OIG found that the strong safety oversight practices, mentioned in the 2016 BP Study, continue through 2023 even if they fall

short of the safety culture that was set in place in the early 2000's by the Dupont Corporation to establish a program through training and discussion of safety in everyday meetings and activities.

Practices – Safety practices include reporting events that result in safety “near misses” and injuries. On a monthly basis, the contractor must collect and report its safety statistics. Additionally, the contractor’s safety practices must comport with local, state, and federal laws.

OIG Comments – The Safety group perhaps missed the point of the original recommendation of a “Safety Ticker” in the lobby. Yes, everyone on a project will feel pride knowing safety is a priority, but to ensure a contractor treats safety as a paramount priority – a broad audience will benefit all individuals potentially impacted by lax safety practices. Recent publicity regarding a safety stand-down on one of Metro’s projects showed the value of publicity. The better approach is for trending concerns to be transparently reported for immediate and meaningful response.

C. 2023 Recommendations

The OIG recommends:

14.1 The Safety Group should revisit Recommendation Number 66 to determine whether there may be opportunities to broadly communicate safety statistics across capital projects to reflect Metro’s Safety culture and to further incentivizes contractor best practices. Sharing statistics monthly or quarterly in the same manner COVID-19 information was shared may be appropriate.

14.2 The Safety group should update their outdated pre-2016 construction safety-related procedures and review for conformity with current industry best practice standards.⁴

- (a) PMG should verify that all projects have the updated construction safety policy.
- (b) V/CM should include updated construction safety policy in future contracts.

⁴ The Safety group has notified the OIG that it has recently acted to revise its outdated policies and procedures. The recommendation remains to encourage regular review and update of policies and procedures across Metro.



C. PROJECT MANAGEMENT SUPPORT

CATEGORY #15: Public Involvement

This Category includes 3 Recommendations (Numbers 71, 72, and 95) made in the 2016 BP Study report.

A. Background

The 2016 BP Study describes public/community involvement as “the process to identify, plan, manage and control...Effective engage stakeholders in project decisions and execution...Community involvement issues can involve all areas and elements of the project, from alignment and alternatives issues in the Planning phase to systems and aesthetic concerns during design and construction.” (BPS, p. 68.)

B. Evaluation of Implementation Actions

Our evaluation ranked the implementation of one of the three recommendations in this Category as “Established” and the other two recommendations as “Evolving” as discussed below:

1: Established

Recommendation 95 – Establish a Capital Project Delivery website: Metro has developed and implemented a website for the public to get information on all mega capital projects. PMG will assess the potential enhancements to the website.

2: Evolving

Recommendation 71 – Develop a strategic Public Involvement Action Plan at an executive level: In response to this recommendation, PMG agreed with the concept that “Community Relations is vital to a successful project” and believes that “this is happening but needs to be emphasized.” The OIG’s 2023 review confirmed that public involvement during the construction phase is fully established. The “evolving” ranking was applied because enhanced practices for public involvement during the planning phase would benefit Metro’s Equity Objectives. In interviews, staff described community involvement at the planning/design stage as less than optimal, especially in contrast to best practices in place during the construction phase. Staff viewed minimal or late public outreach practices during the planning phase as the cause of increased public resistance (or general lack of support) at later phases. During the pandemic it became clear that the public embraces virtual outreach and engagement, so this method should be frequently utilized for this purpose occurring through other departments input regardless of whether it is called an informal committee.

Recommendation 72 – Establish a process improvement committee to develop recommendations (surrounding community involvement): PMG’s response rejected this recommendation stating, “Do not believe another committee is needed.” The OIG treats PMG’s response as “evolving” because it appears that the timing and use of the Communications team is a shared responsibility with Countywide Planning and Development. Data collected by the OIG indicates that efforts are in progress to enhance practices that serve Metro’s Equity Objectives.

Interviewees indicated that over-committed staffing resources may lead to Public Outreach shifting to a regional approach rather than staff assigned to specific projects. This approach was described as potentially degrading outreach opportunities with a likely decrease in the

quality of engagement with communities targeted for improved outcomes based on Metro's Equity Platform.

Prior to the pandemic, community outreach often involved in-person public meetings combined with other media. The pandemic emergency introduced remote meetings using Zoom, Lifesize, and Teams. Opportunities for virtual engagement may be leveraged for less costly and expanded outreach to more fully engage the public early on and throughout the development process. A supportive public may decrease project costs overall and reach more people.

OIG Comments – When the Communications group has sub-optimal involvement in the planning phase of the project, there may be a greater threat of public resistance and lack of or oppositional participation at community meetings. Another item of concern is that the design-build delivery method reduces time for community involvement which increases project risk to Metro and contractors are not held accountable when there is a schedule slip or cost increase. Finally, Metro's Equity Platform is threatened within a community when there is a decrease in the quality of engagement with the public. An emerging challenge appears to be optimizing community input earlier in a manner that considers the impacts of the chosen delivery method.

C. Recommendation

The OIG recommends:

- 15.1** PMG should consult with Countywide Planning and Development to re-visit the 2016 recommendations to ensure current public outreach practices timing, and methods meet best practice goals by addressing earlier community involvement in the planning phase, implementing a quality and equal platform for all communities, and increasing funding for public outreach efforts.

CATEGORY #16: Program Management Information System (“PMIS”)

This Category includes 5 Recommendations (Numbers 27, 31, 96, 109, and 109) made in the 2016 BP Study report.

A. Background

The 2016 BP Study advocates universal use of Metro’s Program Management Information System (“PMIS”) as a best practice for transparent and efficient access to the status of each project and the overall program of capital project delivery. PMIS is a shorthand reference to a suite of software products supporting different functions across management of capital projects, e.g., Primavera P6 Planning/Scheduling; Project Status and Risk Management Issue; Oracle Unifier; SharePoint; and ECOSys Enterprise Project Controls.

B. Evaluation of Implementation Actions

We found that Metro appears to have a mature deployment of PMIS which supports transparency and accessing executive-level reporting on project and program status. However, there may be opportunities to broaden or enhance PMIS resources.

Our evaluation ranked the implementation of all 5 recommendations in this Category as “Established” as discussed below:

Recommendations 27, 31, and 106 – Use PMIS and the PMIS control management database on all projects: In responding to the 2016 BP Study, PMG agreed and stated: (1) a consistent reporting mechanism is needed and research is needed to determine whether this is PMIS or something else; (2) PMG will evaluate the use of PMIS to document negotiations; and (3) Metro will evaluate the resources needed to expand use of PMIS for all capital projects, including Highway and Regional Rail projects.

Interviews with staff disclosed that the suite of PMIS technology products currently available has vastly improved since 2016, and that resources have been made available for training, maintenance, and satisfactory “Help Desk” type assistance. Staff stated that additional customization of Oracle Unifier could enhance its functionality and cost-benefit reviews were currently in process.

Staff maintains that Oracle Unifier need not be used on smaller, less complex projects, and Excel offers sufficient functionality for tracking budgets, Metro/contractor correspondence, and change matters on smaller projects. The cost of licenses, training and oversight – combined with less enthusiasm for use on smaller projects – results in less than universal PMIS use. Reports produced by Unifier do not include smaller projects so are not comprehensive presentations of all Metro capital projects and therefore provide less information for management decision making and most importantly, less transparency.

Recommendations 96 and 109 – Improve end-user documentation for PMIS and develop additional training on the use of PMIS: PMG agreed and stated PMIS module-specific training is available and accessible to all users in SharePoint.

Interviews indicate that Metro and consultant staff are provided with the resources and training needed to use current PMIS tools. PMG staff reported that in 2015 at the time of the BP Study, there was one temporary employee with limited availability to assist on use of CM14. Now there is a full-time Metro employee in place along with a fully matured support ticket system and a manual and videos to ensure timely and knowledgeable assistance across all technology platforms. Both Project Teams and construction contractors are provided training in PMIS and have access to the support ticket system.

OIG Comments – The OIG’s take away from its review of policies and procedures, and interviews is PMG has made great strides to develop and implement useful information technology by hiring and training staff. We note that additional resources to customize Oracle Unifier and other systems may offer a high return on investment. Finally, to the extent smaller projects operate outside the PMIS umbrella, Metro may be missing an opportunity to implement optimal controls across all projects. Excel spreadsheets continue to have a place in data tracking, but they can be unreliable and do not promote transparency as to the status of a project.

C. 2023 Recommendations

The OIG recommends:

- 16.1** PMG should revisit whether all projects should use PMIS regardless of size or complexity.
- 16.2** PMG should review whether there are resources available for Oracle Unifier information reporting enhancements, for example an “Alert Report” triggered by looming (or passed) response deadlines.

CATEGORY #17: Administrative Control

This Category includes 3 Recommendations (Numbers 61, 69, and 70) made in the 2016 BP Study report.

A. Background

Category #8 (Contract Administration) covers the topic of administrating/monitoring the contract from an “overarching” perspective, while similar sounding this Category (Administrative Control) pertains to utilizing the Project Management Body of Knowledge (PMBOK) methodology for control of documents including plans and specifications. The 2016 findings identified a need for enhanced schedule reviews throughout the project lifecycle and consistent oversight over project close-out.

B. Evaluation of Implementation Actions

PMG staff indicated that pre-2016 policies and procedures for administrative controls continue as effective guidance. Currently, these procedures are under review for potential enhancements. Also, Metro has strong close-out practices for field-related matters.

Our evaluation ranked the implementation all of 3 recommendations in this Category as “Established” as discussed below:

Recommendation 61 – Improve the configuration management and document control processes: PMG staff indicated that current processes are adequate. PMG reports that it is in the process of reviewing administrative controls to identify opportunities for enhancements and ensure best practices. In interviews, no staff indicated problems with configuration management or document control.

Recommendation 69 – Establish a scheduling section within project controls: PMG stated that while not a separate section within Program Control, there are scheduling resources available which perform the recommended roles and responsibilities. In this regard, PMG has ready access to scheduling experts for its mega-projects provided by program management consultant contracts.

Recommendation 70 – Establish close-out compliance mechanisms: PMG stated that close-out procedures were already in place prior to the OIG audit. PMG staff indicated that project close-out compliance is not problematic. Field close-out compliance mechanisms, which can include oversight by the California Public Utilities Commission, are universally understood and diligently followed to turn a completed project over to Operations.

OIG Comments – Handling of documents and controlling where they are located within PMIS is extremely important through the lifecycle of a construction project. At project close out, it is mandatory to verify that documentation comply with applicable Metro, local, state and federal standards. If effective administrative controls are not in place, it would be impossible to confirm at close out if required documents were received. If this should occur, the contractor and Metro could incur fines, and there is potential for lawsuits.

C. 2023 Recommendation

The OIG has no recommendation regarding Administrative Control.

CATEGORY #18: Staffing and Training

This Category includes 11 Recommendations (Numbers 46, 59, 65, 97, 98, 99, 100, 101, 102, 103, and 105) made in the 2016 BP Study report.

A. Background

The 2016 BP Study identifies utilization of proficient human resources – trained and practiced in application of sound project management principles and processes – as critical to the success of Metro’s capital projects program. “Soft skills” such as effective team communication are just as important as the “hard skills” to implement project delivery policies and procedures consistently and judiciously. (BPS, p. 55, 87.) Developing and retaining in-house talent rather than over-reliance on consultants is also highlighted as a best practice.

B. Evaluation of Implementation Actions

In response to the 2016 BP Study, PMG has taken actions to implement the recommendations in this Category by developing formal policies and procedures for staffing and training. Our evaluation ranked the implementation of 8 the 11 recommendations in this Category as “Established,” 2 recommendations as “Evolving” and 1 recommendation as “Needs Improvement” as discussed below:

Established

Recommendations 59, 98, 99 and 100 – Provide staff training in project management; expand participation of the Project Manager (PM) Academy; further develop the PM curriculum; and develop formal curriculum for all staff levels. In response to the 2016 recommendations PMG:

- Implemented the Project Management Leadership Institute, which provides training in project management. In addition to highway technical skills, specific off-site training provided include Project Management Institute training/certification, construction management and construction related legal training, and Information/Technology Systems related training.
- Stated that Program Management will continue to support Talent Development in the assessment of agency wide needs and enhance the PM curriculum as appropriate.
- Agreed that development of communications and interpersonal skills should be a key component of any training program and will work with Talent Management to enhance the PM curriculum.

In June 2017, a program support consultant prepared a “Training Needs White Paper” in response to recommendations made in the 2016 BP Study. The White Paper presents a training plan for PMG to augment and consolidate existing training platforms at Metro including the Project Management Academy and the Project Management Leadership Institute. The key objective was to develop “a refreshed curriculum that focuses on practical job application” by drawing from nationwide transportation capital program management practices and institutional knowledge at Metro.

Recommendations 97 and 103 – Staff augmentation contracts managed by individual functional departments and develop a strategic plan for the use of consultants: PMG reported that consultant personnel are managed by the Project Manager to whose project they are assigned as extension of staff. PMG agreed to the need to strategically define and describe the use of consultants in the Program Management Department. PMG addressed this matter in the Program Management Plan.

Regarding staff sufficiency and expertise, PMG staff described having difficulty filling open full-time employees (“FTE”) positions due to market competition. The worker shortage makes it necessary to continue to rely on consultant staff. PMG executive staff stated that it would be an organizational advantage to be able to tap into Metro’s or other transit’s agencies retired expertise to supplement Metro’s work force with former Metro or experienced experts seeking part-time or variable employment. It appears, however, that former employees are less motivated to return to work directly for Metro because consultants may offer a more robust compensation package than Metro and then charge Metro these higher rates.

These situations may be contributing to the difficulties of improving the current ratio of FTEs to consultants. Moreover, current recruitment practices may be impacting Metro’s ability to build a “deep bench” of technical and management experts who can build and carry forward institutional knowledge. Management states that it is undertaking a study on use of consultants. A study of that sort would provide comprehensive up-to-date information that can be used to improve Metro’s staff capacity planning.

Recommendation 101 – Establish training programs and tie to HR development goals: The recommendation has been implemented as part of the Project Management Leadership Institute training program.

Recommendation 105 – Consider development of a step pay system: PMG agreed and stated that implementing the recommendation will require coordination with OMB and HR. PMG staff stated that the hiring and salary process can be a challenge in finding and keeping good people.

Evolving

Recommendation 46 – Establish soft skills training and development for all project team members: PMG agreed with the recommendation and stated that they need to do an assessment of department training needs tailored to the functions of the Program Management Department. In addition, the Project Management Leadership Institute has been established to train project team members.

Recommendation 102 – Develop and implement a detailed staffing analysis process for all departments: PMG agreed and stated the process for requesting and budgeting for staff is challenging and will require coordination with the OMB department. PMG addressed this matter in the PSC Task #3, Readiness Review Checklist.

Needs Improvement

Recommendation 65 – Assess whether additional safety training is needed: PMG deferred this recommendation to Metro’s safety department. Based on our discussion of this matter with Metro safety staff, it appears that the current level of safety training is adequate. However, in interviews, the OIG learned that the Safety group and PMG do not track safety certifications or training. It is recommended that a tracking system is established for persons in positions that require certifications or licenses and confirm staff keeps certifications and licenses in good standing.

Safety staff stated that in addition to specific contract safety and security requirements, Metro conducts Construction Safety Orientation for newly hired employees whose job responsibilities require them to enter into on-going construction worksite/zones. Also, Metro employees and site visitors are required to participate in orientations of safety procedures related to personal

protective equipment and specific underground self-rescuer training prior to visiting underground/tunnel environments.

The Corporate Safety department has assessed the need for the training topics that need to be covered for Metro employees based on the tasks they perform and has identified which training topics pertain to each discipline. Based on this assessment, the department offers all regulatory-required training to Metro employees based on their job-specific duties. This training is conducted routinely by two dedicated safety trainers supplemented by other subject-matter experts.

Metro's contractors are required contractually to have an Injury Illness Prevention Program and the law mandates that contractors provide specific safety training for their employees. The responsibility to provide all necessary task-specific training rests solely with the contractors who construct capital projects.

OIG Comments – PMG's efforts to build, train, and retain a top capital projects delivery team should rest on a comprehensively developed training/leadership program. While it is clear that Project Managers are encouraged to attend offered training and to independently pursue training and certifications that will enhance their career at Metro, what is lacking is (1) an identifiable program of development and (2) a perceived ladder for accessing long-term opportunities. Moreover, morale suffers when it appears that consultant employees – paid by Metro – appear to have more opportunities and better compensation.

For ongoing capital projects delivery success, Metro will need to obtain skilled construction management professionals at all levels of experience. Metro is encouraged to commit to helping less experienced staff develop the skills and experience required for long-term success at Metro.

C. 2023 Recommendations

The OIG recommends:

- 18.1** Metro should develop and implement an agency-wide initiative for attracting and retaining construction management professionals as full-time employees and consider increasing the ration of employees to consultants.
- 18.2** Metro should develop and implement a program for inviting experts to work for Metro on an as-needed basis to mentor and train new Metro staff.
- 18.3** PMG should revisit the, "2017 Training Needs White Paper" prepared in response to the 2016 BP Study to determine additional training needs.

CATEGORY #19: Project Management Key Performance Indicators (“KPIs”)

This Category includes 2 Recommendations (Numbers 62 and 63) made in the 2016 BP Study report.

A. Background

The 2016 BP Study identifies Project Manager performance through talent development and tracking of key performance indicators as an important capital project objective. Building high performing project talent involves (1) executives who want to help staff succeed, (2) high performance staff who pursue education, experience and credentials on their own, (3) a support structure to nurture talent, and (4) an organization that values project management.

Performance metrics based on a project’s schedule/cost variance, change requests to project scope, resource utilization, quality, and customer/stakeholder satisfaction are recommended to be included in a Project Manager’s performance assessment. (BPS, p. 63.)

B. Evaluation of Implementation Actions

PMG has implemented the recommendations. Our evaluation ranked the implementation status of the 2 recommendations in this Category as “Established” as discussed below:

Recommendation 62 – Develop a Project Manager Performance Plan: PMG agreed and stated Metro’s Individual Performance Plan (“IPP”) is in place. As part of the IPP, at the beginning of each performance year, Project Managers are given goals, strategic direction, and deliverables for the evaluation period.

For purposes of hiring or promoting employees, the PMG has developed a series of Job Specifications to cover the roles needed for the delivery of capital projects, including Project Managers. Each Job Specification includes a Job Summary and describes (1) duties and responsibilities, (2) essential knowledge, skills and abilities, and (3) the minimum qualifications for the position, such as education, experience and certifications, licenses, and special requirements.

Recommendation 63 – Establish performance metrics into Project Managers’ performance assessments: PMG agreed. Performance metrics are in each Project Manager’s Individual Performance Plan (“IPP”). In interviews with the OIG, PMG Executive Management stated that evaluations of Project Manager performance occur as part of the annual performance review process. During the review process, Project Managers are provided feedback on overall and specific performance based on the duties of their position. As part of this performance review, Project Managers are encouraged to discuss desired training or promotional pathways, and together the Project Manager and management identify opportunities for growth and development.

OIG Comments – The 2016 BP Study referenced a Project Management Institute 2013 White Paper (“WP”), “Building High Performance Project Talent,”⁹ which is on the internet that PMG may want to re-visit. This WP states that “truly great” project-driven organizations “stand out because of their people” and it is “the portfolio of talent that makes or breaks an organization.” This WP discusses the need for “next generation” skills and describes the need to maximize three complementary skillsets: (1) technical project management, (2) strategic and business management, and (3) leadership.

⁹ [building-high-performing-project-talent.pdf \(pmi.org\)](https://www.pmi.org/building-high-performing-project-talent.pdf)

To attract and retain the best and brightest project management professionals, an organization should establish initiatives that include:

- Defined career paths and skills requirements.
- Identification and grooming of top performers by senior management.
- Regular assessment reviews.
- Alignment between strategic goals, project portfolios, and staff.
- Stretch assignments that give young project leaders opportunities to extend their skills, knowledge, and network.
- Mentoring and coaching.

Metro has an opportunity to develop a program based on best practices for developing project management talent. This program should reflect Metro's core values and align with the PMG's mission and include leadership training.

C. 2023 Recommendations

The OIG recommends:

- 19.1** PMG should develop formal policies and procedures that describe Project Manager roles and responsibilities that will be evaluated, encouraged, and strengthened.
- 19.2** PMG should ensure that the Project Manager Performance Plan identifies and develops future leaders and encourages broad expertise across the entirety of the capital project construction management skillsets.



Airport Metro Connector project adjacent to Division 16 rail yard and maintenance facility

D. STRATEGIC PROGRAM OVERSIGHT

CATEGORY #20: Metro-Wide Program Oversight

This Category includes 6 Recommendations (Numbers 49, 50, 52, 92, 93, and 94) made in the 2016 BP Study report.

A. Background

The 2016 BP Study identifies two core best practices for capital projects program oversight: (1) adoption of Project Management Body of Knowledge (PMBOK) principles across participating groups, and (2) establishment of a Strategic Program Management Office (“PMO”). These best practices serve to guide and oversee the entire project lifecycle, from planning, procurement, construction, testing/startup, and hand-over to Operations.

The 2016 BP Study identified PMBOK principles as beneficial to the process of conception, development, and construction of capital projects. “Project Management is not just a process, but a philosophy. It is a critical and fundamental element of an organization. . . [that] should be established across all areas of an organization. In addition, the project management process and methodology cover the entire project lifecycle utilizing process groups, knowledge areas, policies and procedures, and tools and techniques to effectively manage and deliver capital projects.” (BPS, p. 56.)

In regard to a Strategic PMO, the 2016 BP Study found that “organizational review, communication, and coordination issues exist between departments during project delivery. Peer agencies engaging in best practices have recommended unified control over projects starting at project initiation and continuing through the planning and implementation phases.” (BPS, p. 56.) The separation of duties between PMG and Countywide Planning and Development during the Planning phase was identified by the 2016 BP Study as a “threat” to Metro’s successful delivery of capital projects. Also, Metro’s spotty (or absent) use of PMBOK principles was viewed as contributing to gaps in collaboration. Planning is a key role that needs to occur prior to commencement of construction and have control of the project while planning is occurring, however PMG needs to participate and give input to Planning during this phase.

B. Evaluation of Implementation Actions

Metro/PMG implemented the recommendations, or in one case, initiated alternative steps in lieu of establishing a Strategic PMO. Our evaluation ranked the implementation status of 2 of the 6 recommendations in this Category as “Established” and the other 4 recommendations as “Evolving” as discussed below:

1. **Established**

Recommendation 92 – Establish project metrics for compliance to policies and procedures: This recommendation is addressed under PSC Task #3, Project Readiness Procedure. The OIG found that policies and procedures, and universal and consistent use of existing PMIS tools are in place for verifying compliance to policies and procedures.

Recommendation 93 – Establish a Knowledge Management System to maintain and access all policies and procedures: PMG agreed that policies and procedures need to be more widely disseminated and is using SharePoint. Also, PMG has established a system for developing and tracking its operative policies and procedures. The 2016 BP Study advocates for use of PMBOK principles to guide consistency in procedures, processes, and approaches. PMG and other relevant departments have established policies and procedures that guide this effort.

2. Evolving

Recommendation 49 – Implement an organization-wide project management initiative: PMG supports the structure of having a field office for projects. In 2023, as in 2016, PMG disagrees with a field office being overseen by a Strategic PMO at Gateway. The OIG continues to advocate for interdepartmental collaboration to continue at least through procurement and to be considered for the entire project life cycle.

Recommendations 50 and 52 – Establish a Strategic PMO, and assign ownership of capital project delivery to the Strategic PMO: PMG disagreed with the need for a separate strategic PMO, and stated that the Program Management Department, with support from other groups, can achieve the objectives of a Strategic PMO. Metro is currently undertaking a “quasi” organization-wide approach to project management and is trending toward greater strategic oversight. At this point, it appears that Metro is meeting the intent of the recommendations related to a Strategic PMO, while avoiding making the process centralized in one office that decision-making bottlenecks occur. It is fair to describe the agency’s evolution as now better able to work together without barriers for the good of the Agency.

The primary purpose of the Strategic PMO is to ensure cross-functional cooperation. PMG’s actions in 2022 to advocate for an organization-wide approach for successful capital project delivery is a positive trend and aligns with the 2016 BP Study recommendation.

In 2022, a “leap forward” in Metro-wide organizational oversight occurred with the initiation of an Early Intervention Team (“EIT”). The EIT consists of staff from the PMG, Planning, Budget, V/CM, Operations and other departments to join as one entity to anticipate and resolve issues occurring on projects. There appears to be broad support for the EIT, and the perspective that the EIT offers an alternative approach to achieving the benefits of collaborative decision-making with less of the detriments of a unified Strategic PMO. The OIG is optimistic that lessons learned since 2016 will drive a constructive alternative to the recommended Strategic PMO.

Recommendation 94 – All departments should own their policies and procedures, and Strategic PMO should ensure consistency, compliance, and integration: PMG agreed and stated each department owns responsibility of its policies/procedures and is accountable for compliance with policies and procedures. But PMG disagreed for the need of a strategic PMO. In interviews, the OIG learned that individual departments develop comprehensive policies and procedures that PMG tracks for collaboration, but there is no Metro-wide oversight body that reviews separate groups policies and procedures to ensure overarching soundness.

OIG Comments – In interviews with PMG staff, the OIG learned that there is some difference of opinion on the value of a Strategic PMO approach, suggesting that now may be a good time to revisit any cost-benefit analysis on this issue. In 2022 interviews, the (former) Chief Program Management Officer described that in 2016 – and currently, they had reasonable concerns that the model of a Strategic PMO would interfere with PMG’s ability to be nimble in its response to project challenges. Specifically, decision-making could become slow and lead to political or bureaucratic bottlenecks.

C. **2023 Recommendations**

The OIG recommends:

- 20.1** Metro and PMG should revisit the 2016 recommendation advocating for the adoption of PMBOK principles and processes, especially in light of the Early Intervention Team (EIT) initiative.

- 20.2** The EIT is essentially a pre-construction initiative but the interdepartmental collaboration may be helpful post-award to provide coordination and support for problem solving. The interdepartmental team may be reconstituted for a revised mission that supports the field office.



Airport Metro Connector and Los Angeles Airport Automated People Mover construction site

E. RELOCATED GROUPS

CATEGORY # 21: Highways

This Category includes 3 Recommendations (Numbers 53, 54, and 60) made in the 2016 BP Study report.

A. Background

The 2016 BP Study stated that “while Metro is primarily a transit improvement authority, a significant portion of the capital program is dedicated to highway improvements (carpool lanes, freeway interchanges, gap closures, etc.)” (BPS, p. 60.) Generally, the study commented that highway projects may not receive the same “organizational commitment” appearing secondary to Metro’s transit projects but noted: “Highway improvements are one of the critical elements to the overall success of the Los Angeles County infrastructure, and it is essential that highway project delivery be effectively staffed, resourced, and managed.” (BPS, p. 60.)

In 2015, Metro had 180 open projects under the Highway group. Fifteen were “direct projects” where Metro hired a consultant to manage the project; another 15 were projects where Metro engaged Caltrans to manage the project; and the remaining 150 projects were “funding only” projects where Metro acted as an oversight role while cities and counties were directly responsible for carrying out the project.

For the 180 projects, issues included: (1) limited transparency to the Board on highway projects; (2) lack of policies and procedures for project management tailored to highway projects; (3) less resource/support commitment from external departments; (4) lack of in-house expertise on highway design and construction; (5) deficient training opportunities for the niche area; (6) challenging coordination issues with Caltrans; (7) missed design-build delivery opportunities; (8) less-than ideal scheduling function; and (9) need for robust quality management oversight.

B. Evaluation of Implementation Actions

We found that the recommendations have been implemented. Our evaluation ranked the implementation status of all 3 recommendations in this Category as “Established” as discussed below:

Recommendation 53 – Incorporate the IPMO structure into highway projects: This recommendation has been implemented. Highways staff reported that the Highways group is primarily involved during the planning phase of a capital project. Upon completion of final design, a project that will be implemented by Metro is handed over to Project Management. Highways group Project Managers stay engaged and support the construction Project Manager based on their continuing obligation to oversee funding.

Recommendation 54 – Improve the highway reporting process: For projects where Metro is both the funder and implementer, Metro’s Project Development Team reports monthly to Caltrans on the status of projects. Caltrans reports to Metro where Caltrans is the implementer. Prior to the Highways group moving to Planning, Highways would report information on budget and status to Program Management’s executive team to include information in regular reporting to the Board. The lead for Planning would like Caltrans to report directly to the Board on all projects involving Caltrans (which was done in the past). However, Caltrans is not eager to do this as it prefers to avoid public forums.

In 2021, the Highways group was relocated from PMG to Countywide Planning and Development. This move was made to better support California policies moving away from the widening of freeways to focus on maintaining existing highways while enhancing alternative modes of transportation. Highways staff describes the move to Planning as a “double-edged sword” for reporting. On one hand, it is helpful to have outside visibility under the large umbrella of the capital projects of Program Management. On the other hand, highway projects can be politically sensitive, and exposure during the planning phase can do more harm than the good.

Recommendation 60 – Develop a Quality Plan for highway projects: A Quality Plan for Highways has been developed. The Highways group does not use Quality or Program Management lessons learned program; it uses its own internal program.

OIG Comments – Metro is moving toward less direct management of Highways construction projects in lieu of Caltrans taking the lead to deliver the project. For that reason, the impetus behind the 2016 recommendations – to align Highways project practices more strongly with PMG’s approach to non-highways projects, may no longer be relevant. Current efforts are being made to closely work with Caltrans for regular reporting. Best practices oversight of Caltrans should be subject to lessons learned and continuous improvement. Of course, if Caltrans manages and constructs a project, Metro will not have that detailed information input into our PMIs system for analysis.

C. 2023 Recommendation

The OIG recommends:

- 21.1** Since the Highways group has been relocated to the Planning department, PMG should collaborate with Countywide Planning and Development to ensure that Metro’s Board is receiving complete information on highway capital projects.

CATEGORY #22: Asset Management

This Category contains Recommendation Number 7 made in the 2016 BP Study report.

A. Background

The 2016 BP Study identifies the State of Good Repair and Life Cycle Costs and Asset Management programs as needing general improvement and the need to align the program with PMG’s singular focus on capital project delivery. (BPS, p. 27.) The study indicates that projects-oriented teams and programs supporting State of Good Repair/Asset Management goals are in competition for limited agency funding. Operation and maintenance costs of an asset might not be adequately assessed for project funding and development consideration. (BPS, p. 27.)

B. Evaluation of Implementation Actions

The recommendation has been implemented. Our evaluation ranked the implementation status of the recommendation as “Established.”

Recommendation 7 – Establish a Life Cycle Asset Management Program: Metro agreed with the recommendation and stated that recently the Enterprise Transit Asset Management (“ETAM”) program has been relocated to Risk, Safety and Asset Management and policies are being developed consistent with MAP-21 requirements.

The OIG learned in interviews that the ETAM program is “on the maturity path,” thereby establishing compliance with the 2016 BP Study recommendation. ETAM’s current ideas for best practices improvement from a Metro-wide perspective were provided, as follows: (1) broader ETAM participation in Metro’s budget development for capital programs to ensure State of Good Repair data has constructive impact; and (2) more robust support from PMG and Vendor/Contract Management for the contractor’s scope of work including information gathering and tracking requirements of the ETAM program. Moreover, it is more efficient for construction contractors to collect and provide asset identification/serial numbers, maintenance schedules, and warranty information as part of their duties. This minimizes additional post-project expenditures following project close-out and turnover to Operations.

OIG Comments – When contractors go through the close out period on a construction contract, they are supposed to provide identification, serial numbers, and warranty information as part of the contractual requirements. When a contractor fails to properly identify asset identification and serial numbers, Metro has to expend additional resources after close-out of the project.

Now that ETAM has relocated to Risk, Safety and Asset Management, cross-departmental coordination between PMG and ETAM is important to consider budget priorities for capital improvements, including Metro’s State of Good Repair Asset management program.

C. 2023 Recommendations

The OIG recommends,

- 22.1** V/CM should include in the contractor’s scope of work collecting and reporting asset serial numbers, warranty, and maintenance information.
- 22.2** Metro and OMB should plan and budget for State of Good Repair information in the event it is not part of the construction scope of work.



Purple Line Extension Section 1 tunnel and scaffolding framework

CHAPTER 4: CONCLUSION

Our follow up review found that Metro has taken or initiated actions to implemented 96 (88%) of the 109 recommendations in the 2016 BP Study report. New or revised policies and procedures were implemented for 32 of the 109 recommendations and new or revised practices were initiated for 66 recommendations. Based on data collected during the review, the status of the 109 recommendations are as follows:

Rankings - 109 Recommendations	Rank Count	Percentage of Total
Established	65	60%
Evolving	31	28%
Implemented (Subtotal)	96	88%
Needs Improvement	13	12%

- **Established:** Data shows that the recommendation for the best practice is adopted/well-functioning (65 recommendations).
- **Evolving:** Data supports the efforts to implement the intent of the best practice “in progress” with iterative improvements (31 recommendations).
- **Needs Improvement:** Data indicates that the recommended best practice whether “agreed” or “rejected” by Metro in 2016 continues to be worthy of consideration or in need of re-evaluation by PMG/Metro (13 recommendations).

Significant observations noted during the review are summarized below.

Cluster A: Pre-Procurement Project Development

Cluster A Includes the 2016 BP Study’s “planning phase” recommendations along with a subset of that study’s “overarching” recommendations that are particularly significant to the early stages project development.

Delivery Method and Selection: The implementation status of the recommendations for this area is “Evolving” for all recommendations. We found that PM01/Project Delivery Selection has been established and provides comprehensive procedures to guide the selection of a project delivery methodology. However, PMG learned over time that PM01 needs to be expanded to include guidance on the Progressive Design Build method. That supplementation is currently in process. Such effort is an excellent example of “lessons learned” being applied to project delivery selection process.

In accordance with the PC14/Readiness Review Procedure, the earliest readiness reviews by PMG commence before selection of the delivery method (while CP&D is still the lead department). At this point, PMG brings its expertise forward to participate in development of design and construction plans, schedules, estimates, and risk assessments. Once environmental planning and clearances are in place, PMG undertakes readiness steps related to requests for federal funding, and generally continues to act in partnership with CP&D pending transfer of responsibility to PMG.

General Readiness: The OIG found that most of the recommendations in this area were implemented as reflected by the predominant “Established” and “Evolving” rankings. However, some gaps were identified in policies, procedures, and practices. PMG has acted to mitigate organizational challenges that were undermining its best efforts at controlling scope, budget, and schedule. The OIG did rank three recommendations as “Needs Improvement” under

General Readiness related to (1) time period to identify and relocate utilities, (2) use of strategies to support third parties, and (3) use of the gateway process, stakeholder engagement program, and FTA oversight procedures to effectively support project delivery.

Utilities & Third Parties and City Approvals: The OIG determined that the recommendations in these areas were mostly implemented. Enhancements to Metro's best practices are (1) Third Party Administration ("TPA") being moved under the Chief Program Management Officer that will provide greater attention for utilities and city approval issues, and (2) TPA being engaged earlier as an expert on utility and permitting issues (while CP&D is still the lead). Also, the Master Cooperative Agreement between Metro and the City of Los Angeles is currently being negotiated and is about 90% complete. However, the OIG ranked two recommendations as "Needs Improvement" that involve (1) enforcing utility requirements and penalties for noncompliance, and (2) establishing a Legislative/Legal Improvement Team.

Issues involving utilities and the acts and/or omissions of third parties present the greatest risk to Metro's scope, budget, and schedule. If private or public utilities are refusing to engage in fair and reasonable negotiations on an issue, it may be appropriate to legislate cost-sharing or other reasonable risk-shifting measures.

Risk Management and Project Management Plan: The OIG found that recommendations in these areas were mostly implemented but ranked three recommendations as "Needs Improvement" — (1) revising risk and contingency procedures for all projects, (2) enforcing procedures using risk to set contingencies for all projects, and (3) requiring all projects to utilize a Project Management Plan ("PMP"). We found that PMG does not apply the practices related to risk management and the PMP to less costly and/or less complex projects. The OIG identified no basis for the distinction of applying practices to larger projects but not smaller projects other than anecdotal information regarding preferences within PMG. If having a tiered system of policies and procedures across different types of projects is sound policy, it is advisable to formalize that policy in writing. If this is the case, it should be possible for exceptions to the tiering approach to be approved based on written justification. The OIG supports a nimble/agile approach to project management but is less enthusiastic if an approach seems arbitrarily or merely based on entrenched practice.

Cluster B: Post-Procurement Project Management

Cluster B includes category areas involving functions after Metro procured the designer and/or contractor. The OIG identified robust actions were initiated to implement the 2016 recommendations.

Contract Administration: The OIG determined that the recommendations were mostly implemented. However, we ranked three recommendations as "Needs Improvement" that involved (1) clarifying timelines for contractor claims and Metro responses; (2) establishing enforcement and compliance mechanism into contractor performance evaluation; and (3) establishing a contractor's daily overhead rate.

There appears to be "gaps" in best practices needed to ensure that the contractor provides timely notice of alleged delay claims and documentary support in the form of a compliant time impact analyses. Some staff believe that a contractor gains significant advantage in creating ambiguity across its schedule, especially if delay causation becomes a mix of compensable and non-compensable delays. Staff also stated that Project Managers are resistant to push for

resolution of schedule issues because they are complex and costly. In some instances, this may lead to Metro paying for delays that the contractor encounters at a later date.

Delay in resolution of disputes generally works against Metro's interests. Not acting if the contractor fails to support Requests for Change creates outsized risks for exceeding the budget. It also increases the risk of animosity interfering with collaborative working relationships. Partnering is one path for resolving disputes; and if the contractor fails to act to resolve a claim, Metro can independently invoke the Dispute Resolution procedures included in Metro's General Conditions of the contract.

There is also a need to review whether the Daily Overhead Rate helps or hinders Metro's resolution of delay claims. In interviews with staff, the OIG received general feedback that the resolution of delays claims could be improved – and that improvements were being reviewed, such as using a quarterly scheduled reconciliation process.

Board Matters: Metro implemented all of the recommendations in this category area. One notable action was PMG, in conjunction with the CEO's office and Vendor/Contract Management ("V/CM"), developing delegation policies and procedures approved by Metro's Board that removed the Board's involvement, review, and approval of lower value contracts and change orders. The delegation resulted in enhanced efficiencies that have been extrapolated to real savings in time and budget in some cases. Enforcement of timely submission of procurement claims documentation is critical to ensure the success of this delegation does not deteriorate the administration of the claims. To ensure adequate controls and continued oversight by Metro's Board at the "macro level," the OIG instituted a quarterly Change Order Spot Check audit. These delegation efforts are viewed by many as an unqualified success.

Partnering: The OIG found that the status of implementation of the recommendations in this area is "Evolving." We did not identify any formal policies or procedures addressing partnering outside Metro's contract General Conditions. It appears that there are tools in place for partnering to be constructive, but there may be a lack of will to pursue the promise of constructive partnering. To clarify, partnering is useful if it (1) brings parties together to discuss complex or disputed issues prior to the hardening of positions, (2) uses partnering as a forum for discussion of a mutually beneficial resolution, and (3) results in implementing mutually agreements and resolutions. The partnering process should be started at the lowest level of the escalation ladder; Metro management at the higher levels ideally assist those at the lowest levels to formulate reasonable approaches to problem resolution. The partnering process is least successful where the contractor learns they will get a better result "up the ladder" – making it all the more important that issues get thoroughly reviewed at the lowest level with supported resolutions.

Lessons Learned: The OIG ranked the implementation of the recommendation in this Category area as "Evolving." We found that although all the departments under PMG have an awareness of the Lessons Learned program, not all of them expressed deep interest in using the process. It may be that the benefits of robust use of Quality's Lessons Learned program needs to be sold as a net good. Lessons learned are typically generated in response to challenges, and there may be reluctance to document challenges that occurred during a project. Also, it may be appropriate to treat some lessons learned confidentially.

Safety: The 2016 BP Study unambiguously described safety as an area of strength for PMG and Metro. However, a key recommendation was rejected by the PMG, and the OIG ranked the recommendation as "Needs Improvement." PMG is entitled to reject as a matter of policy, the

recommendation to “herald” the good news of solid safety compliance by Metro and contractors when that occurs. However, the OIG is not convinced with the stated reason (installing a “safety ticker” in the Metro Gateway lobby as impractical and duplicative to other safety reporting as just are methods of publicity to spur a safety culture). The publication of safety statistics on the job site is inadequate to bring positive attention to top safety performers. It also may be impeding constructive attention for the less than stellar performers on safety. The OIG believes that PMG should consider a publicized method for encouraging contractor best practices for safety. The OIG suggests steps such as a quarterly report on Metro’s Daily Briefing email and/or a published Board Report focusing on safety performance across projects and safety celebrations or reviews periodically at the project site with contractor and Metro employees.

Cluster C: Project Management Support

Cluster C includes the 2016 BP Study’s recommendations related to administrative and program management functions and processes that support capital project management and delivery. This cluster includes Public Involvement, which could have significant impacts on project cost and timelines. Also included are personnel areas related to practices on staffing and training top Project Management talent.

Administrative Controls and Program Management Information System (“PMIS”): All of the 2016 recommendations in these two Category areas have been implemented, and all of the recommendations were ranked as “Established.”

Interviews with staff disclosed that the suite of PMIS technology products currently available has vastly improved since 2016, and that adequate resources have been made available for training, maintenance, and satisfactory “Help Desk” type assistance. Metro’s Board and Executive Management have access to comprehensive and useful information at the touch of a button on a dashboard.

We found that PMIS is an effective application that supports transparency and accessing executive-level reporting on project and program status. However, currently PMIS is maximized only for the most complex mega projects. To the extent smaller projects operate outside the PMIS umbrella, Metro may be missing an opportunity to implement optimal controls across all projects. Also, there is an indication that contract change-related trends may not be timely tracked, in the hope the contractor drops a rejected issue.

Public Involvement: We found that that the 2016 recommendations have been implemented. PMG and the Communications team have collaborated on a Capital Project Delivery website, and the Communications group is well-integrated into the construction management process during the construction phase. Best practices are to engage the public early and often of construction plans and potential impacts. However, in some cases, there is a “gap” that exists in working with the public early in the project planning process. Constructive outreach at this time can go far to impress upon the public that Metro takes seriously its values of equity and inclusion. Also, early involvement helps stimulate public support which pays dividends in the event of challenges to the environmental review; it may also help build public resilience to the inevitable construction impacts. A project lacking substantial community support may have to be modified. Moreover, the budget and project schedule could suffer if the public commences active resistance to a project. The pandemic conditions resulted in more public willing to engage virtually on matters, so this is an area Metro can expand into to satisfy early public engagement.

Staffing and Training: The OIG found that the 2016 recommendations in this area have been implemented and ranked the recommendations with a mix of “Established” and “Evolving.” PMG has initiated efforts to expand participation of the PM Academy and other training opportunities. The Claims training modules developed by a consultant are very detailed and reflect a diligent effort to enhance the expertise of Metro’s Project Managers. PMG Executive Management describes that the annual performance review cycle is robustly used for each Project Manager to plan additional training and develop steps toward improved skills and enlarged leadership opportunities.

Metro has not been successful in moving the needle on the lopsided ratio of Metro FTEs to consultants across project and program management. Currently, the ratio is 30/70 in favor of consultants with a goal of a 70/30 ratio in favor of Metro – but even 50/50 mix would offer improvement. The lack of a step-pay system at Metro and the rate of pay offered to Metro’s contract employees may be interfering with progress in improving the Metro FTEs to consultant’s ratio. PMG is not responsible for these challenges because they are organizational issues not capable of resolution solely by PMG. For maximizing current Project Management talent, PMG is aware of the need for continued training and career building. Luring back retired talent in flexible but mutually beneficial contractual arrangements could build a Metro bench that adds mentoring capabilities and staffing flexibility without resorting to consultant contracts. There are some legal barriers to hiring retirees as consultants within the first one to three years after they leave that warranted, but compromise solutions are still achievable.

Cluster D: Strategic Program Oversight

Cluster D includes the 2016 BP Study’s recommendations pertaining to the need for a centralized Strategic Program Management Office (“PMO”). The authors of the 2016 study viewed the separation of duties between Countywide Planning & Development (“CP&D”) and PMG during the project planning phase as a threat to Metro’s successful delivery of capital projects. The 2016 authors also recommended implementing principles from the Project Management Book of Knowledge (“PMBOK”) for consistency of practices as related and necessary best practices.

Metro-wide Program Oversight: This is an “overarching” area, which affects practices across all project management areas. Key 2016 recommendations were: (1) establish a Strategic PMO that oversees the entirety of the capital projects; (2) establish an Integrated Project Management Office (“IPMO”), and (3) implement PMBOK principles as a set of unifying processes.

The PMG agreed to continue use of the IPMO approach for project management, but the recommendation related to establishing a Strategic PMO was rejected. As for PMBOK, the recommendation only indirectly referenced PMBOK principles; PMG never rejected those principles but did not commit to implement PMBOK as a construction management “north star,” either. The OIG views PMBOK as particularly necessary where the Strategic PMO approach is adopted; but PMBOK is still useful in its absence.

During interviews and through regular observation of matters brought by PMG to Metro’s Board, the OIG learned of PMG’s efforts to mitigate some budget and schedule challenges brought to light during its Fiscal Year 2023 Program Management Annual Program Evaluation. Over the course of 2022, and with the Metro Board’s support, Metro has acted to implement a cross-departmental team of experts, now referred to as the Early Intervention Team (“EIT”). This team uses a problem-solving approach to mitigate challenges to project delivery related to

market conditions (associated with the pandemic, supply chain and inflation), project delivery methods, scope issues, and unforeseen conditions.

One key outcome of the EIT is the development of a revised (Proposed) Project Charter for Alternative Delivery (“Proposed Charter”) – which is currently in a “Confidential/Deliberative Draft” status. The Proposed Charter describes an organization-wide approach to decision-making and proactive problem-solving in a method that arguably meets – in an alternative fashion – the intent of the 2016 recommendation for a Strategic PMO. This alternative approach appears to be a constructive response to lessons learned based on events transpiring since 2016 and accelerated by the pandemic.

The long-established case of CP&D and PMG operating from separate silos from each other, without unified program guidance, affects the budget and policies and procedures and will remain a potential weakness until the EIT and/or Project Charter approach addressing unified participation and roles. Also, it may not be ideal for PMG to “tier” projects of less cost/complexity from the Metro-wide Program Oversight policies currently being developed. If so, it is recommended that the basis and justification for “tiering” be formalized in a written policy.

Cluster E: Relocated Groups

The Cluster E consists of two unrelated functional areas external to PMG. Both Highways and the Enterprise Transit Asset Management (“ETAM”) groups were moved out of PMG. Highways moved to Countywide Planning and Development, and ETAM and the State of Good Repair program relocated to Risk, Safety and Asset Management.

Our review ranked the implementation of all the recommendations in these Category areas as “Established.”

Highways: In 2021, the Highways group was relocated from PMG to CP&D Development and can now work more closely with Caltrans in the planning phase of projects. During interviews, it was commented that the relocation of this group has created some obstacles to reporting the status of projects because CP&D does not have the same type of regular quarterly Board reporting responsibilities as PMG.

Metro is moving toward less direct management of Highways construction projects in lieu of Caltrans taking the lead to deliver the project. For that reason, the impetus behind the 2016 recommendations – to align Highways project practices more strongly with PMG’s approach to non-highways projects, may no longer be relevant. Current efforts are being made to closely work with Caltrans for regular reporting.

Enterprise Transit Asset Management: Since the 2016 BP Study, the recommended Asset Management Plan was completed and approved, and the ETAM program is moving forward “in the development phase of the maturity path.”

During interviews, it was discussed that ETAM could be more efficient if preliminary steps for tracking new assets, maintenance, and warranty information was folded into the construction phase. The contractor is in an optimal position to collect and report information that needs to be added to Metro’s ETAM database. The same is true for Metro supplied materials and equipment. Finally, ETAM recommends that State of Good Repair information be integrated into the review of capital budgets to avoid the situation where new projects are proposed and

implemented without consideration of older, inter-dependent transit facilities and in-house facilities capital improvement projects.



Crenshaw project – K Line – elevated tracks

CHAPTER 5: RECOMMENDATIONS

2023 Recommendations by Cluster and Category

During evaluation of PMG's actions to implement 2016 BP Study recommendations, the OIG identified vulnerable areas that need improvement. Accordingly, the OIG identified 36 new recommendations, which are listed below:

CLUSTER A. PRE-PROCUREMENT PROJECT DEVELOPMENT

Category #1 - Delivery Method and Selection

- 1.1 PMG should continue to timely update policies and procedures to include the range of alternative delivery methods currently used by Metro.

Category #2 - General Readiness

- 2.1 Metro should investigate strategic initiatives to beneficially support third parties cooperative and timely assistance toward timely and cost-efficient project delivery
- 2.2 Third party utility relocation issues continue to be one of the larger reasons for change orders and project delays. The OIG recommends the PMG partner with the Early Intervention Team ("EIT") to revisit the PMG's 2016 rejection of Recommendation Nos. 3 and 6 and apply a lessons learned approach to investigating the feasibility of initiating utility relocation work much earlier in the pre-construction management process to remove unnecessary risk and enhance mitigation by planning and scheduling of relocation completion prior to other project delivery activities, without any intention of limiting or mandating when Engineering can begin. If the progressive design build approach or other alternative delivery approach will minimize utility impacts in the same manner as separate contracts for advanced utility relocation, the PMG's response should be updated.

Category #3 - Utilities and Third Parties

- 3.1 Utility investigations, work, and relocations performed by Metro's contractors or others pose cost and schedule risks for Metro projects, including potential issues with reviews, approvals, and oversight by the third-party utility owners. The construction contract may specify timelines and/or sequences for utility-related work. To avoid cost and schedule impacts caused by third parties or contractor(s), Metro should utilize legal counsel's assistance to mitigate the risks related to utility investigations, work, and relocations. Metro should enhance its procedures and relationships to enable self-permitting. Transparency, documentation, and trust are key to Metro achieving self-permitting.

Category #4 - City Approvals

- 4.1 Metro should complete a new and improved Master Cooperative Agreement between City of Los Angeles and LA Metro.
- 4.2 Metro should conduct a Legislative/Legal Improvement review to determine if there are any legislative adjustments that would improve work or construction related requirements for transit projects and assist in better resourcing third party stakeholders impacted by (and benefitting from) Metro capital projects.

Category #5 - Life of Project Budget

- 5.1 Metro should focus on quickly adapting its budgeting practices for all new construction projects given the changing circumstances and trends of increased prices.
- 5.2 Metro should evaluate, assess, and document emerging financial conditions before requesting a budget change, and include an analysis in the Board request for LOP funding increases.
- 5.3 Based on statements included in Board Report No. 2023-0106, Attachment A, the OIG understands that EIT Project Review Process will include multiple “intervention points” for review of the Life of Project Budget. The OIG recommends the development and implementation of detailed procedures describing the process for LOP Budget development across the project life cycle. Requests to increase the LOP make after the procurement phase should include a “lessons learned” justification for the increase.

Category #6 - Risk Management

- 6.1 PMG should determine whether risk management plans (whether full or “light” plans for smaller projects” – including mitigation plans for risk findings adjusted by PMG management – should be developed for all projects regardless of size, complexity, or use of federal funding.
- 6.2 PMG should strive to establish a progressively robust risk management culture that ensures controlled and mitigated risk throughout the entire project lifecycle.
- 6.3 PMG should determine if it is beneficial for Risk Management staff to participate in lessons learned discussions to encourage bi-directional sharing of risk-related information. This will ensure knowledge will be transferred, built upon and not be lost, as mature employees retire from Metro.

Category #7 - Project Management Plan

- 7.1 Revisit the 2016 Recommendation requiring all projects regardless of size or complexity to develop and use a PMP which will standardize practices related to change management, quality, risk, and develop and use a PMIs.

CLUSTER B. POST-PROCUREMENT PROJECT MANAGEMENT

Category #8 - Contract Administration

- 8.1 PMG should revisit Recommendation Number 29 and review current General Conditions requirements for contractors to submit time impact analysis (“TIA”), and the conditions when to impose a “waiver” on untimely and improper claims that are not properly presented by the contractor. Metro should review its contract language regarding the requirements for TIAs and the conditions for imposing waivers, as well as opportunities to add contractual language emphasizing the contractor’s duty to timely submit support for impact damages and to mitigate alleged harm.
- 8.2 PMG should revisit Recommendation Number 64 regarding:
 - (a) Developing a formal robust Ongoing Performance Assessment Program for consultants and contractors that is used yearly during and at the end of the term of the contract to ensure satisfactory and compliant performance.
 - (b) Developing and utilize a Past Performance Assessment for consultants and contractors that allows Metro to consider the contractor’s overall contract compliance in future solicitations including an opportunity for contractors to respond to assessments.

- (c) For delay damages based on a daily rate, PMG and V/CM to work together to expand the daily rate to include (a) the types of cost impacts to cover multiple scenarios for delay and (b) the circumstances under which delay damages will be paid based on the daily rate. The OIG encourages all construction contracts to include a “bid” daily rate for damages that will be used to reimburse substantiated delay damages. Contracts omitting a bid daily rate should include a “ceiling” that will be applied post-award for any daily rate proposed by the contractor. (c) The contractor needs to be informed that proposed daily rates that were not included as a bid daily rate will be subject to audit.
- (d) With regard to contractor claims for damages for delays, PMG and V/CM to work together to review, and expand when proper, the use of construction contracts to include a “bid” daily rate for damages that will be used to reimburse substantiated delay damages. The OIG encourages all construction contracts to include a “bid” daily rate for damages that will be used to reimburse substantiated delay damages.

Category #9 - Board Matters

- 9.1 Metro should continue the current practice and level of utilizing the delegated authority that has proven to speed up the change approval process with sufficient oversight and quality. The OIG will continue to monitor the change orders.
- 9.2 We recommend that Metro’s Management Audit Services Department do periodic audits during projects of use of funds for change orders in compliance with Metro Standards which will breed responsibility.

Category #10 - Enforcement and Compliance

- 10.1 PMG and V/CM should collaborate in the review of current General Conditions establishing timelines and required actions for initial change matters and also for resolution of disputed matters.
- 10.2 PMG should revise CF14/Change Control to describe the internal processes regarding the 2018 CEO delegations of authority and best practices for using partnering, claims procedures and the Dispute Resolution Board to reach finality on contested change matters.
- 10.3 PMG should consider tracking the Project Manager’s performance in meeting responsive timelines for all change items (merited or not), to confirm compliance with the General Terms and Conditions and PMG’s policies and procedures.
- 10.4 Contractors should specify time limits for submission of claims and enforce these time limits where legally permissible. Vendors will request time limits for Metro’s response to their claims so Metro will need to be prepared to respond to that.

Category #11 – Partnering

- 11.1 For effective partnering, Metro should develop effective internal processes for vetting issues appropriate for the partnering process and developing an evaluation of the facts and issues.
- 11.2 Metro should implement a “Partnering Positive” culture supported by Executive Management, in order to minimize the need to use Dispute Resolution Board hearings or to litigate a disputed issue.

Category #12 - Quality Management

- 12.1** PMG should review whether best practices require expanding the scope of the quality program to include all projects, regardless of size or complexity, to participate in the enhanced Quality Management Program, including the Lessons Learned program.

Category #13 - Lessons Learned

- 13.1** PMG should develop a program and culture that reports lessons learned from internal and external management (across all groups) to those participating in capital projects and methods to ensure regular review and revision of policies and procedures to ensure cross-department utilization of all lessons learned to advance and build on the Metro Program Management and improve each project as it planned, designed, developed and constructed.

Category #14 – Safety

- 14.1** The Safety Group should revisit Recommendation Number 66 to determine whether there may be opportunities to broadly communicate safety statistics across capital projects to reflect Metro’s Safety culture and to further incentivizes contractor best practices. Sharing statistics monthly or quarterly in the same manner COVID-19 information was shared may be appropriate.
- 14.2** The Safety group along with the PMG should review the PMG’s pre-2016 safety-related procedures for conformity to current industry best practice standards.
- (a) PMG should verify that all projects have the updated construction safety policy.
- (b) V/CM should include updated construction safety policy in future contracts.

CLUSTER C. PROJECT MANAGEMENT SUPPORT

Category #15 - Public Involvement

- 15.1** PMG should consult with Countywide Planning and Development to re-visit the 2016 recommendations to ensure current public outreach practices timing, and methods meet best practice goals by addressing earlier community involvement in the planning phase, implementing a quality and equal platform for all communities, and increasing funding for public outreach efforts.

Category #16 - Program Management Information System (“PMIS”)

- 16.1** PMG should revisit whether all projects should use PMIS regardless of size or complexity.
- 16.2** PMG should review whether there are resources available for Oracle Unifier information reporting enhancements, for example an “Alert Report” triggered by looming (or passed) response deadlines.

Category #17 - Administrative Control

- 17.0** The OIG has *no recommendations* toward Administrative Control.

Category #18 – Staffing and Training

- 18.1 Metro should develop and implement an agency-wide initiative for attracting and retaining construction management professionals as full-time employees and consider increasing the ration of employees to consultants.
- 18.2 Metro should develop and implement a program for inviting experts to work for Metro on an as-needed basis to mentor and train new Metro staff.
- 18.3 PMG should revisit the, “2017 Training Needs White Paper” prepared in response to the 2016 BP Study to determine additional training needs.

Category #19 - Project Management Key Performance Indicators (“KPIs”)

- 19.1 PMG should develop policies and procedures that describe Project Manager roles and responsibilities that will be evaluated, encouraged, and strengthened.
- 19.2 PMG should ensure that the Project Manager Performance Plan identifies and develops future leaders and encourages broad expertise across the entirety of the capital project construction management skillsets.

CLUSTER D. STRATEGIC PROGRAM OVERSIGHT

Category #20 - Metro-Wide Program Oversight

- 20.1 Metro and PMG should revisit the 2016 recommendation advocating for the adoption of PMBOK principles and processes, especially in light of the Early Intervention Team (EIT) initiative.
- 20.2 The EIT is essentially a pre-construction initiative but the interdepartmental collaboration may be helpful post-award to provide coordination and support for problem solving. The interdepartmental team may be reconstituted for a revised mission that supports the field office.

CLUSTER E. RELOCATED GROUPS

Category #21 – Highway

- 21.1 Since the relocation of the Highways group to the Planning department, the PMG should collaborate with Countywide Planning and Development to ensure that Metro’s Board is receiving complete information on highway capital projects.

Category #22 - Asset Management

- 22.1 V/CM should include the contractor’s scope of work should include collecting and reporting asset serial numbers, warranty, and maintenance information.
- 22.2 Metro and OMB should plan and budget for State of Good Repair information in the event it is not part of the construction scope of work.



CHAPTER 6: Appendices

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List of Policies and Procedures

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New After 2016

ESTABLISHED POST-2016, NEW			
Title	Version Date	Source	Description
2016 Metro Program Management Plan	10/19/2016	CEO	Manual
Construction Safety and Security Manual (CSSM - Rev. 5.0)	01/01/2022	PM/Safety	Manual
Quality Management Oversight Plan & Procedures	01/30/2021	PM/Quality	Manual
Quality Management Policy Manual (In Progress)	04/26/2022	PM/Quality	Manual
Training Needs "White Paper"	6/13/2017	PM/ProgMgt	Manual
"2021 Metro Best Practices Report" May 2021	05/01/2021	CEO	Policy
Compliance Bulletin 18-03/CO Streamlining/2018 Delegation Matrix	7/03/2018	Board/CEO	Policy
Early Intervention Project Team - 2022-0361 Board Report	6/23/2022	CEO	Policy
OIG's Spot Check Program - Change Orders Over \$500k	02/01/2018	OIG	Policy
Partnership with City of Los Angeles (Mayor Garcetti Letter June 2017)	01/06/2017	Board	Policy
Past/Planned Training Matrix	9/30/2022	PM/ProgMgt	Policy
EST01 Rev 0 - Cost Estimating	6/28/2017	PM/ProgControl	Procedure
LL2 Rev 0 - Lessons Learned	9/11/2017	PM/ProgMgt	Procedure
PC14 REV 2 - Readiness Review	11/25/2019	PM/ProgControl	Procedure
PC16 Rev 0 - Cost Contingency Drawdown	12/1/2021	PM/ProgControl	Procedure
PM01 Rev 3 - Project Delivery Selection	10/30/2020	PM/ProjMgmt	Procedure
PM02 Rev 0 - Request for Proposal (RFP) Development	8/8/2020	PM/ProjMgmt	Procedure

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Revised After 2016

ESTABLISHED PRE-2016, REVISED POST-2016			
Title	Version Date	Source	Description
Acquisition Policy & Procedure Manual - "ACQ-1"	07/16/2010	VCM	Manual
Acquisition Procedures Manual - "ACQ-2"	07/01/2021	VCM	Manual
Title VI Plan & Public Participation Plans (DRAFT 2022)	06/17/2022	Public Outreach	Policy
Enterprise Transit Asset Management - State of Good Repair	1/1/2015	Safety/Risk	Policy
Master Cooperative Agreement with City of Los Angeles (Revision Pending)	11/07/2022	PM/ThirdParty	Policy
Metro's Contract - General Conditions	Ongoing	VCM	Policy
PC00 REV5- Definitions	5/10/2017	PM/ProgControl	Procedure
PC01 REV 7 -Work Breakdown Schedule (WBS)	5/10/2017	PM/ProgControl	Procedure
PC02 REV 8 - Budget	12/22/2021	PM/ProgControl	Procedure
PC03 REV 4 -Cost Estimating	5/10/2017	PM/ProgControl	Procedure
PC04 REV 6 - Project Management Plan	5/10/2017	PM/ProgControl	Procedure
PC05 REV 9 - Cost Reporting Forecasting	12/1/2021	PM/ProgControl	Procedure
PC06 REV 7 - Performance Measure Earned Value	5/10/2017	PM/ProgControl	Procedure
PC07 REV 9- Risk Mgmt	2/2/2028	PM/ProgControl	Procedure
PC08 REV 6 - Cash Flow	5/10/2017	PM/ProgControl	Procedure
PC09 REV 9 - Schedule Control	12/31/2021	PM/ProgControl	Procedure
PC10 REV 7 - Physical Progress Monitoring	5/10/2017	PM/ProgControl	Procedure
PC11 REV 6 - Capital Program Controls	5/10/2017	PM/ProgControl	Procedure
PC12 REV 2 - Contingency	5/10/2017	PM/ProgControl	Procedure
PC13 REV 1 - Program Management Information System (PMIS)	5/10/2017	PM/ProgControl	Procedure

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Revision in Progress

ESTABLISHED PRIOR TO 2016, REVISION IN PROGRESS			
Title	Version Date	Source	Description
CF01 REV 2 - Config Mgmt Plan	8/29/2011	PM/ConfigMgmt	Procedure
CF02 REV 2 - Document Control	8/28/2011	PM/ConfigMgmt	Procedure
CF03 REV 4 - Doc Control formatting	8/29/2011	PM/ConfigMgmt	Procedure
CF04 REV 4 - Doc Control Submittals	8/29/2011	PM/ConfigMgmt	Procedure
CF05 REV 2 - Doc Control As Builts	8/29/2011	PM/ConfigMgmt	Procedure
CF06 REV 2 - Doc Control Close Out	8/29/2011	PM/ConfigMgmt	Procedure
CF07 REV 3 - Procedures Revision Controls	7/22/2011	PM/ConfigMgmt	Procedure
CF08 REV 3 - Baseline Docs Controls	8/29/2011	PM/ConfigMgmt	Procedure
CF09 REV 2 - Design Changes Doc Controls	8/29/2011	PM/ConfigMgmt	Procedure
CF10 REV 4 -Change Control AE	7/21/2005	PM/ConfigMgmt	Procedure
CF12 REV 3 - Subj Codes Doc Controls	8/29/2011	PM/ConfigMgmt	Procedure
CF13 REV 4 -Correspondence Doc Controls	8/29/2011	PM/ConfigMgmt	Procedure
CF14 REV 4 -Change Control Constr Proc	4/7/2015	PM/ConfigMgmt	Procedure
CF15 REV 5 - Ops Config Change	1/21/2021	PM/ConfigMgmt	Procedure
CF16 REV 1 - Electronic Archiving	8/29/2011	PM/ConfigMgmt	Procedure
CF17 REV 0 - Betterment Change Requests	1/28/2013	PM/ConfigMgmt	Procedure
QMP01 REV 2 - Prep/Revision to QualMgt Procedures	1/3/2012	PM/Quality	Procedure
QMP02 REV 4 - Audits	4/21/2014	PM/Quality	Procedure
QMP03 REV 3 - Surveillance	1/31/2012	PM/Quality	Procedure
QMP04 REV 2 - Quality Action Request	1/31/2012	PM/Quality	Procedure
QMP05 REV 2 - Corrective Action Request	1/31/2012	PM/Quality	Procedure
QMP06 REV 3 - Suspension of Work Notice	1/31/2012	PM/Quality	Procedure
QMP07 REV5- Control of Nonconforming Items	7/30/2014	PM/Quality	Procedure
QMP08 REV 3 - Submittal Review	1/31/2012	PM/Quality	Procedure
QMP10 REV 2 - Quality Records	1/31/2012	PM/Quality	Procedure
QMP11 REV 3 -Training and Certification	1/31/2012	PM/Quality	Procedure
QMP12 REV 4 - Quality Assurance Programs	1/31/2012	PM/Quality	Procedure
QMPM01 REV 2 - Organization	11/29/2011	PM/Quality	Procedure
QMPM02 REV 2 - Quality Management Program	11/29/2011	PM/Quality	Procedure
QMPM03 REV 3 - Design Control	11/29/2011	PM/Quality	Procedure
QMPM04 REV 2 - Procurement Control	11/29/2011	PM/Quality	Procedure
QMPM05 REV 2 - Construction-Installation Control	11/29/2011	PM/Quality	Procedure
QMPM06 REV 2 - Instructions, Procedures, and Drawings	11/29/2011	PM/Quality	Procedure
QMPM07 REV 2 - Document Control	11/29/2011	PM/Quality	Procedure
QMPM08 REV 2 - Control of Equipment, Materials, and Services	11/29/2011	PM/Quality	Procedure
QMPM09 REV 2 - Control of Special Processes and Job Control Testing	11/29/2011	PM/Quality	Procedure
QMPM10 REV 2 - Inspection and Test	11/29/2011	PM/Quality	Procedure
QMPM11 REV 2 - Control of Measuring and Test Equipment	11/29/2011	PM/Quality	Procedure
QMPM12 REV 3 - Control of Nonconforming Items	3/26/2014	PM/Quality	Procedure
QMPM13 REV - Quality Records	11/29/2011	PM/Quality	Procedure
QMPM14 REV 3 -Audits and Surveillances	3/26/2014	PM/Quality	Procedure
QMPM15 REV 2 - Corrective Action	11/29/2011	PM/Quality	Procedure
QMPM16 REV 2 - Stop Work	11/29/2011	PM/Quality	Procedure
QMPM17 REV 2 - Definitions	11/29/2011	PM/Quality	Procedure
THD1 REV 3 -Third Party Coordination	9/8/2011	PM/ThirdParty	Procedure
THD2 REV 4 - Third Party Agreements	9/8/2011	PM/ThirdParty	Procedure
THD3 REV 4 - Third Party Work Orders	9/8/2011	PM/ThirdParty	Procedure
THD4 REV 4 - Third Party Req for Permits	9/8/2011	PM/ThirdParty	Procedure
THD5 REV 4 - Third Party City LA Permits	9/8/2011	PM/ThirdParty	Procedure
THD6 REV 2 - Third Party RR CPUC Coord	9/8/2011	PM/ThirdParty	Procedure

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Needs Improvement

ESTABLISHED PRIOR TO 2016, NEEDS IMPROVEMENT			
Title	Version Date	Source	Description
CM1 REV 1 - Utility Reloc Coordination	6/8/2011	PM/ConstructionMgmt	Procedure
CM17 REV 4 - Cert Compl Third Party Agency Util	10/19/2011	PM/ConstructionMgmt	Procedure
CM19 REV 5 - Progress Pymts	7/22/2011	PM/ConstructionMgmt	Procedure
CM20 REV 3 - System Integration Testing	5/31/2011	PM/ConstructionMgmt	Procedure
CM23 REV 3 - Care Custody Control Facilities	6/1/2011	PM/ConstructionMgmt	Procedure
CM24 REV 3 - Pre Post Construction Surveys	10/19/2011	PM/ConstructionMgmt	Procedure
CM3 REV 4 - Constructability Reviews	5/31/2011	PM/ConstructionMgmt	Procedure
CM4 REV 4 - Licenses Permits Approvals	10/19/2011	PM/ConstructionMgmt	Procedure
CM7 REV 4 - Traffic Control	10/19/2011	PM/ConstructionMgmt	Procedure
CM8 REV 3 - Environmental Monitoring	10/10/2011	PM/ConstructionMgmt	Procedure
CU02 REV 1 - Prof Services Invoice Approval	7/14/2005	PM/ConstProjMgmt	Procedure
DSGN00 REV 2 - Engineering Policies Proc	7/29/2011	PM/TransitProjDelivery	Procedure
DSGN01 D-B REV 2 - Scope Def Review Acc DB	9/8/2011	PM/TransitProjDelivery	Procedure
DSGN01 D-B-B REV 2 - Design Review Acc DBB	10/10/2011	PM/TransitProjDelivery	Procedure
DSGN02 REV 2 - Design Baseline Changes	8/30/2011	PM/TransitProjDelivery	Procedure
DSGN03 REV 2 - Third Party Des Review Coord	8/30/2011	PM/TransitProjDelivery	Procedure
DSGN04 REV 2 - Peer Review	8/30/2011	PM/TransitProjDelivery	Procedure
DSGN05 REV 2 - Value Engineering	8/30/2011	PM/TransitProjDelivery	Procedure
DSGN07 REV 2 - Eng Consultants Progress Audit	9/1/2011	PM/TransitProjDelivery	Procedure
DSGN08 REV 2 - Eng Design Suspension_Cancel	9/1/2011	PM/TransitProjDelivery	Procedure
ENG01 REV 3 - Design Review Accept	9/26/2011	PM/TransitProjDelivery	Procedure
LL1 Rev 0 - Lessons Learned	11/16/2005	PM/ProgMgt	Procedure
Resident Engineer Manual	09/11/2012	PM/ConstructionMgmt	Manual
SM01 REV 1 - Safety Mgmt PPE	8/17/2011	PM/Safety	Procedure
SM02 REV 1 - Safety Mgmt Red Tag	8/17/2011	PM/Safety	Procedure
SM03 REV 1 - Safety Mgmt Site Security Admin Audit	8/17/2011	PM/Safety	Procedure
SM04 REV 2 - Safety Mgmt Notification	10/5/2011	PM/Safety	Procedure
SM06 REV 1 - Safety Mgmt Lessons Learned	10/5/2011	PM/Safety	Procedure
SS1 REV 4 - System Safety Certification	10/18/2011	PM/Safety	Procedure
SS2 REV 4 - System Safety Fire Life	10/18/2011	PM/Safety	Procedure

Tables of Interviews by Category Area

No.	PRIORITY	Lead Interviewee	Additional/Support	Recommendation Nos.
PRE-PROCUREMENT PROJECT DEVELOPMENT				
1	Delivery Method Selection & Criteria	Bryan Pennington, Julie Owen	Sameh Ghaly, Tim Lindholm	5,15,57,68
2	General Readiness	Bryan Pennington, Julie Owen	Sameh Ghaly, Tim Lindholm	1,2,3,4,6,16,37,38,39
3	Utilities & Third Party	Eduardo Cervantes	David Mieger, Philip Tong	58,79,80,81,82,83,84,85, 86,87,88,89
4	City Approvals	Eduardo Cervantes	N/A	35,36,40,90
5	Life of Project Budget	Melissa Wang	Julie Owen	8,55,56,107,108
6	Risk Management	David Davies	Julie Owen, Camelia Davis	9,32,33,34
7	Project Management Plan	Bryan Pennington, Julie Owen	Sharon Gookin	41,42,43,45,47,48
POST-PROCUREMENT PROJECT MANAGEMENT				
8	Contract Administration	Ivan Page	Sameh Ghaly, Tim Lindholm	17,18,19,20,21,22,23,24, 25,26,29,30,64
9	Board Delegation	Bryan Pennington, Julie Owen	Sameh Ghaly, Tim Lindholm	44,73,74,75,76,77,78
10	Enforce & Compliance	Ivan Page	Sameh Ghaly, Tim Lindholm	28
11	Partnering	Sameh Ghaly, Tim Lindholm	Bryan Pennington, Sharon Gookin	10,11,12,13,14
12	Quality Program	Camellia Davis	Julie Owen	91,104
13	Lessons Learned	Camellia Davis	All Interviewees	51
14	Safety Management	Vijay Khawani	Kenneth Hernandez, Charles (Pat) Chism	66,67
PROJECT MANAGEMENT SUPPORT				
15	Public Involvement	Yvette Rapose	Anthony Crump, Maya Emsden	71,72,95
16	PMIS	Julie Lansford	Julie Owen	27,31,96,106,107
17	Administrative Controls	Ivan Page	Sameh Ghaly, Tim Lindholm	61,69,70
18	Reorganization, Staff Analysis & Training	Julie Owen, Sameh Ghaly	Kathy Knox	46,59,65,97,98,99,100, 101,102,103
19	Project Management KPIs	Bryan Pennington, Julie Owen	Sameh Ghaly, Tim Lindholm, Ivan Page	62,63
STRATEGIC PROGRAM OVERSIGHT				
20	Metro-wide Program Oversight (EIT)	Bryan Pennington, Julie Owen	Sharon Gookin	49,50,52,92,93,94
RELOCATED GROUPS				
21	Highways	Ernesto Chaves	Nellie Derderian	53,54,60
22	Asset Management	Denise Longley	Bryan Pennington	7

List of Interviewees

2023 BP Review - Interviewees				
INTERVIEWEE(S)	Position Title	Department	Mode	Date
David Davies	Deputy Executive Officer Program Management, Program Control (Risk)	Program Management/ Project Management Oversight	Teams	4/21/2022
Eduardo Cervantes	Executive Officer, Interim Project Engineering (Third-Party Administration)	Program Management/Third Party	Teams	4/26/2022
Melissa Wang	Deputy Chief Financial Officer Office of Management & Budget	Strategic Financial Management/ Office of Management & Budget	Telephone	6/7/2022
Debra Avila	Deputy Chief Vendor/Contract Management Chief Admin Services Officer	Strategic Financial Management/ Vendor Contract Management	Teams	6/16/2022
Ivan Page	Executive Officer, Vendor/Contract Management Contract Admin-Ping/MASD/OIG	Strategic Financial Management/ Vendor Contract Management	Teams	6/16/2022
Anthony Crump	Executive Officer (Interim) Community Relations (Construction Focus)	Customer Experience Office/ Community Relations	Teams	6/17/2022
Maya Emsden	Executive Officer (Interim) Art Asset Management & Cultural Programming	Customer Experience Office/ Art & Community Enrichment	Teams	6/17/2022
Yvette Rapose	Chief Communications Officer	Customer Experience Office/ Communications	Teams	6/17/2022
Julie Lansford	Director Configuration Systems Program Control	Program Management/ Project Controls	Teams	6/22/2022
Ernesto Chaves	Sr. Executive Officer (Interim) Engineering (Highway Capital)	Planning & Development/ Highway	Teams	6/23/2022
Nellie Derderian	Director, Financial & Administrative Management Services (Road & Highways)	Planning & Development/ Highway	Teams	6/23/2022
Charles (Pat) Chism	Director, Construction Safety	Safety Office/ Risk/Safety & Asset Management	Teams	6/27/2022
Kenneth Hernandez	Deputy Chief Risk, Safety & Asset Management Officer/Risk Management	Safety Office/ Risk/Safety & Asset Management	Teams	6/27/2022
Vijay Khawari	Executive Officer Corporate Safety	Safety Office/ Risk/Safety & Asset Management	Teams	6/27/2022
Denise Longley	Deputy Executive Officer Strategic Development (Facilities/Operations) Asset Management	Safety Office/ Enterprise Transit Asset Management	Teams	6/28/2022
Julie Owen	Sr. Executive Officer Project Management Oversight	Program Management/ Project Management Oversight	Teams	6/22/22; 7/1/2022
Philip Tong	Director, Financial & Administrative Services Executive Office County-wide Planning & Development	Planning & Development/ Long Range Transportation	Teams	7/28/2022
Tim Lindholm	Deputy Chief Program Management Officer Alternate Delivery/Construction	Program Management	Teams	8/9/2022
Sameh Ghaly	Deputy Chief Program Management Officer Project Management, Construction	Program Management/ Construction	Teams	8/10/2022
Bryan Pennington	Chief Program Management Officer Project Management, Construction	Program Management/ Construction	Teams	9/9/2022
Sharon Gookin	Deputy Chief Executive Officer	Office of the CEO	Teams	12/2/2022
Camila Davis	Executive Officer, Interim Quality Department	Program Management/ Quality Management	Teams	4/21/2022; 4/22/22
David Mieger	Sr. Executive Officer, County-wide Planning & Development Executive Office, Long Range Planning & Mobility	Planning & Development/ Long Range Transportation	Email / Teams	7/27/22; 7/28/2022
Kathy Knox	Executive Officer, Project Control & Administration	Program Management/ Construction	Email	9/30/22; 10/03/22

Evaluation Ranking of Implementation of 2016 Recommendations

No.	CONSTRUCTION MANAGEMENT PRIORITIES	ALL Recommendation Nos.	ESTABLISHED 59%	EVOLVING 28%	NEEDS IMPROVEMENT 13%	SPOTLIGHT Recommendation Nos. BOLD
A. PRE-PROCUREMENT PROJECT DEVELOPMENT						
1	Delivery Method Selection & Criteria	5,15,57,68		5,15,57,68		5,15,57,68
2	General Readiness	1,2,3,4,6,16,37,38,39	1,2,16,37	3,38,39	4,6	1,2,3,4,6,16,37,38,39
3	Utilities & Third Party	58,79,80,81,82,83,84,85,86,87,88,89	58,79,80,82,83,85,86,87,88,89	81	84	58,79,80,81,82,83,84,85,86,87,88,89
4	City Approvals	35,36,40,90		35,36,40	90	35,36,40,90
5	Life of Project Budget	8,55,56,107,108	55,56,108	8,107		8,55,56,107,108
6	Risk Management	9,32,33,34	34	9	32,33	9,32,33,34
7	Project Management Plan	41,42,43,45,47,48	42,45,48	47	41,43	41,42,43,45,47,48
B. POST-PROCUREMENT PROJECT MANAGEMENT						
8	Contract Administration	17,18,19,20,21,22,23,24,25,26,29,30,64	18,20,21,22,23,24,25,26,30	17	19,29,64	17,18,19,20,21,22,23,24,25,26,29,30,64
9	Board Delegation	44,73,74,75,76,77,78	44,73,74,75,76,77,78			44,73,74,75,76,77,78
10	Enforce & Compliance	28			28	28
11	Partnering	10,11,12,13,14		10,11,12,13,14		10,11,12,13,14
12	Quality Program	91,104	104	91		91,104
13	Lessons Learned	51		51		51
14	Safety Management	66,67	67		66	66,67
C. PROJECT MANAGEMENT SUPPORT						
15	Public Involvement	71,72,95	95	71,72		71,72,95
16	PMIS	27,31,96,106,109	27,31,96,106,109			27,31,96,106,109
17	Administrative Controls	61,69,70	61,69,70			61,69,70
18	Reorganization, Staff Analysis & Training	46,59,65,97,98,99,100,101,102,103,105	59,97,98,99,100,101,103,105	46,102	65	46,59,65,97,98,99,100,101,102,103
19	Project Management KPIs	62,63	62,63			62,63
D. STRATEGIC PROGRAM OVERSIGHT						
20	Metro-wide Program Oversight (EIT)	49,50,52,92,93,94	92,93	49,50,52,94 - 67%		49,50,52,92,93,94
E. RELOCATED GROUPS						
21	Highways	53,54,60	53,54,60			53,54,60
22	Asset Management	7	7			7

2016 Recommendations and Management Responses

2023 CAPITAL PROJECTS CONSTRUCTION MANAGEMENT BEST PRACTICES REVIEW 2016 RECOMMENDATIONS SORTED BY (1) CLUSTER, (2) CONNECTED PRIORITIES and (3) RECOMMENDATION NUMBER				
CLUSTER A: CONNECTED PRIORITIES - PRE-PROCUREMENT PROJECT DEVELOPMENT				
PRIORITY #1, DELIVERY METHOD SELECTION & CRITERIA				
2016 Rec No.	2016 Summary Recommendation	2016 Program Management's Initial Response	2017 Audit Response	RANK
5	Consider project delivery methodology decision on a project-by- project basis.	Agree. A formal project delivery selection process needs to be developed and implemented. We are in the early stages of developing this process and have already started to formalize and document the decision making process.	Addressed under PSC Task #4, Project Delivery Selection Procedure	EVOLV
15	Carefully evaluate design build on a case-by-case basis	Agree that the delivery method selection needs to be carefully analyzed for each project. See response to recommendation #5.	Addressed under PSC Task #4, Project Delivery Selection Procedure	EVOLV
57	Assess the most effective method of project delivery	Agree. See response to #5.	Addressed under PSC Task #4, Project Delivery Selection Procedure	EVOLV
68	Develop and implement a detailed decision-making process on the selection of a project delivery method	Agree that project delivery method selection process needs to be more formalized and thoroughly evaluated. Also, need to eliminate "one size fits all" rules such as design cannot exceed 30% on design-build projects. See response to #5.	Addressed under PSC Task #4, Project Delivery Selection Procedure	EVOLV
PRIORITY #2, GENERAL READINESS				
1	Adopt FTA oversight procedures and checklists for all projects. Provide training and audit compliance	In general agree that a checklist would be valuable to implement. We need to research the FTA operating procedures more to determine if this is a checklist that is most appropriate for Metro projects or whether there are other models that can be used.	Addressed under PSC Task #3, Readiness Procedure. Implementation of FTA procedures at management's direction as applicable to Metro projects.	ESTAB
2	Implement a formal Stage-Gate process	Agree. Should note that a stage gate from design to construction would not apply in design-build. Also, note that the project requirements do not have to be at 100% complete to move into the next stage, but gaps should be identified along with a plan to address gaps.	Addressed under PSC Task #3, Readiness Procedure. Check-points used instead of Stage-Gates	ESTAB
3	Allow two (2) years to identify and relocate utilities. Start third party coordination in Planning	Do not agree. The time allocated in the project schedule for utilities to be relocated does need to be a major focus in the development of project schedules and will continue to be emphasized. However, limiting when engineering can start appears arbitrary and could significantly delay projects. Many engineering activities can proceed while concurrently addressing necessary utility relocations.	Not accepted by Metro - limiting when engineering can start engineering activities can proceed while concurrently addressing necessary utility relocations	EVOLV
4	Metro's decision to accelerate the timeline for delivering its capital program has placed a significant burden on project stakeholders. The volume and pace of construction far exceeds the capacity of utility companies, government reviewers and other third parties to keep up. Metro should continue to develop and implement strategies to support third parties, such as providing financial assistance to utility companies and government entities in order to obtain the necessary resources to effectively support project delivery.	Agree. Review of the processes used by approving agencies to streamline the duration is also needed.	Addressed under PSC Tasks #6 & #7, Risk Management & Lessons Learned Program Plan	Needs impv
6	Use gateway process, stakeholder engagement program and FTA oversight procedures	Agree, but do not think this is a major problem at Metro. Will include it on readiness checklists that are developed.	Addressed under PSC Task #3, Readiness Procedure	Needs improv
16	Assure readiness by using FTA OP-54	Agree that a readiness checklist is needed that assesses the project risks specific to a design build delivery method. NOTE: While agree with the recommendation, there are concerns about some of the discussion of this item. In general, it ignores many of the benefits of design build and just focuses on the negative. Also, question the statement "where projects have not gone well like Crenshaw."	Addressed under PSC Task #3, Readiness Procedure	ESTAB
37	Develop and implement executive-level partnering (esp. Caltrans)	Agree.	Monthly meeting underway	ESTAB
38	Engage with utility companies in the Planning phase	Agree.	Program Management's PMs are engaged in projects in the planning phase earlier and are involving utility companies earlier	EVOLV
39	Establish quarterly coordination meetings (esp. w/ utilities)	Agree, although will have to evaluate if quarterly is the right interval.	Meetings with utility companies are on-going	EVOLV
PRIORITY #3, UTILITIES & THIRD PARTY				
58	Assess the use of Advance Utility Relocation (AUR) projects to support highway projects	Agree for selected projects.	Program Management will assess the use of AUR projects to support highway projects on a case-by-case basis, and will implement if feasibility.	ESTAB
79	Continue to expand the best practices of having a dedicated third party coordination group and use of advance utility relocation (AUR) contracts, master service agreements with utilities and other third parties and advance identification.	Agree.	Addressed under PSC Task #3, Readiness Review Checklist.	ESTAB
80	Increase Third Party Coordination Unit staffing level	Agree that the third party group needs to be sized consistent with the workload. Getting needed positions approved through the annual budgeting process is challenging. See response to #39.	Additional Metro staffing level was approved in the FY18 process in addition to the consultants as needed support. Continual effort to refine staffing level as appropriate.	ESTAB
81	Metro should increase its investment in utility identification by doing more exploratory work during early phases of project delivery (planning, preliminary engineering).	Agree.	Addressed under PSC Task #3, Readiness Review Checklist.	EVOLV
82	Communicate utility risk to contractors	Agree.	Addressed under PSC Task #3, Project Readiness Procedure	ESTAB
83	Complete as much utility work in advance of construction contract	Agree where appropriate.	Already implemented, Westside PLE Section 1 Project success in address utility work in advance are being learned to be applied consistently on other projects.	ESTAB

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84	Enforce Utility investigations requirements and penalties for non-compliance	Not sure what type and amount of penalties are being proposed. Would need more information on this.	Going forward, PMs and Third Party will assess and if needed, advise V/CM to enforce non-compliance penalties. [BRYAN Q]	NEEDS IMPR
85	Allow more time and contingency for identification and relocation	Agree that this should be considered on a project-by-project basis.	Addressed under PSC Task #6, Risk Management	ESTAB
86	Apply for FTA funding for AUR contracts	Metro frequently uses FTA funds for advance utility relocations as part of the overall cost of a project.	Already implemented - Metro frequently uses FTA funds for advance utility relocations as part of the overall cost of a project.	ESTAB
87	Re-engineer the Utility Relocation process	Will investigate.	Addressed under PSC Task #7, Lessons Learned	ESTAB
88	Establish a Utility Relocation Technology Assessment Team	Have to investigate whether the cost and effort to do this would provide significant value.	Continuous efforts is underway to monitor utility relocation technology.	ESTAB
89	Establish a Utility Relocation Process Improvement Team	See response to #88.	Addressed under PSC Task #7, Lessons Learned, and Lessons Learned Report re: Engage Third Parties Early. Continuous efforts are underway to apply lessons learned on other projects	ESTAB
PRIORITY #4, CITY APPROVALS				
35	Develop and implement strategic executive-level partnering (esp. COLA)	Agree. Already underway.	Already implemented at Metro	EVOLV
36	Execute new Master Cooperative Agreement with City of LA	Agree. Need to discuss with City of LA.	Mayor's Measure M 1/8/2017 Letter to City Depts on Accountability and Responsible Delivery of Transportation Infrastructure (attached)	EVOLV
40	The Third party Coordination Unit should assess all Master Agreements, develop the recommended Metro improvements to these agreements, as needed, and engage with utility companies to create new master Agreements. These engagements can be accomplished through the quarterly coordination meetings suggested in item c above.	Agree, but will require agreement from the utility companies.	Addressed under PSC Task #3, Readiness Procedure	EVOLV
90	Establish a Legislative/Legal Improvement Team	See response to #88.	Not accepted by Metro - not necessary for utility relocation	NEEDS IMPR
PRIORITY 5: LIFE OF PROJECT BUDGET				
8	Develop and implement an LOP with phased reassessments	Agree. Plan to implement two step LOP budget (Phase 1 design; Phase 2 construction) for design-bid-build projects. As part of the new Annual Program Evaluation process, LOP budget for each project will be evaluated on an annual basis.	Already implemented at Metro	EVOLV
55	Establish Independent Cost Estimate and Contingency review	Agree.	Addressed under PSC Tasks #3 & #6, Readiness Procedure & Risk Management	ESTAB
56	Establish detailed Work Breakdown Structure (WBS) for scheduling and budgeting	Agree.	Already implemented prior to IG audit	ESTAB
107	Incorporate entire capital program into PMIS and Metro's reporting system	Agree. See response to #106.	Program Management will determine whether to use PMIS CM for a project depending on its size and complexity.	ESTAB
108	Reassess and implement revised executive-level reporting requirements	Agree	Program Management has implemented and is continually enhancing the reporting requirements, if needed.	ESTAB
PRIORITY #6: RISK MANAGEMENT				
9	Incorporate risk management into the culture of the organization from conception through closeout	Agree. A more formal risk management program needs to be developed.	Addressed under PSC Task #6, Risk Management Program Plan, new Risk Manager will be onboard Dec 2017	EVOLV
32	Revise risk and contingency procedures for all projects	Agree	Addressed under PSC Task #6, Risk Management	NEEDS IMPR
33	Enforce procedures using risk to set contingencies for all projects	Agree	Addressed under PSC Task #6, Risk Management	NEEDS IMPR
34	Hide contingency amounts or send a strong message	Do not agree. Do not see this as a problem.	Recommendation not accepted by Metro	ESTAB
PRIORITY #7: PROJECT MANAGEMENT PLAN				
41	Develop and implement strategic plan for project team management	Disagree with the need for a strategic PMO, however a strategic plan as part of a Program Management Department's Program Management Plan will be investigated.	Addressed in Program Management Plan	NEEDS IMPR
42	Implement an IPMO environment for all projects	Agree.	Program Management will determine to establish IPMO for a project depending on its size and complexity.	ESTAB
43	Require all projects to utilize a Project Management Plan (PMP)	Agree for most larger projects.	Addressed under PSC Task #3, Readiness Procedure	NEEDS IMPR
45	Reduce the number of internal management meetings with project team	Agree.	Management has been advised. Will address case-by-case basis, to install capability for remote conferencing with field staff from Gateway	ESTAB
47	Adopt Project Management Institute (PMI) as the organizational standard for project management	Agree. We will research PMBOK and other standards to determine how to effectively incorporate recommendation.	Metro uses various tools and guidance required to deliver project and is not restricted to only PMI standards.	EVOLV
48	Assign a Project Manager at project initiation and empower with the authority for project decision-making throughout the lifecycle.	Agree that Project Manager should be involved throughout the project lifecycle and empowered with decision making authority upon the completion of planning. During the planning phase, responsibilities should be shared with the Planning Department.	A new Sr. EO, Project Management was approved in the FY18 budget to lead interface with Planning beginning with environmental/planning phases of new Measure R/M transit projects.	ESTAB

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CLUSTER B: CONNECTED PRIORITIES - POST-PROCUREMENT PROJECT MANAGEMENT				
PRIORITY #8, CONTRACT ADMINISTRATION				
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17	Address delays as they occur	Couldn't agree more. It is currently being addressed.	Already in progress	EVOLV
18	Establish timelines for agency response	Agree.	Already implemented - Current Metro's procedures and RE Manual already cover this item	ESTAB
19	Establish a contractor's daily overhead rate	Agree. Will need concurrence from Vendor/Contract Management	Solicitation is customized on case-by-case basis and is implemented as appropriate on major transit projects.	NEEDS IMPR
20	Establish a change control group with a strong leader	Agree that a visit to SFPUC Water by Metro senior management may be valuable in getting their insights as described in the report. Disagree. This recommendation would add to the confusion of responsibility and accountability. The Project Manager should have lead responsibility for dealing with the change process, with support from appropriate departments. See Recommendation #26.	Amended response: Chief Program Mgmt Officer, Deputy Chief Program Management Officer, and Sr. EO, Program Control meet with EO, V/CM for Construction on a monthly basis to address issues, potential disputes, and changes.	ESTAB
21	Establish minimum requirements for Contract Administrators in the Change Control Group	Agree. Will need concurrence from Vendor/Contract Management.	Job specification has been revised to require heavy construction and change control experience	ESTAB
22	Improve Contract Administration training	Agree. Will need concurrence from Vendor/Contract Management.	Implementation of V/CM Training Program is in progress. (see attached V/CM Training Program)	ESTAB
23	Consistently apply change control processes	Agree	Change control processes are already in place. Program Management will determine the most appropriate format/form tracking for each project, depending on its size and complexity.	ESTAB
24	Establish an audit function	Agree	Addressed under PSC Task #3, Readiness Procedure	ESTAB
25	Establish accountability for document turnaround times	Agree. This is being tracked as part of the Key Performance Indicators.	Already Implemented - Being tracked as part of Key Performance Indicators (KPIs)	ESTAB
26	Metro should put the Project Manager/Construction Manager back in charge of the change order process, with support from co-located professional contract administrators from Vendor/Contract Management.	Agree. Will need concurrence from Vendor/Contract Management	Addressed under PSC Tasks #7. PMs in collaboration with CA is to be responsible of the change control process. Pursuant of the 1-year pilot LOP budget program for the 4 major transit projects, signature authority levels for mods/change orders were streamlined (see attached)	ESTAB
29	The currently specified timeframes should be revised to a more realistic timeframe, and exceptions to the hard durations be allowed for special circumstances. The ten calendar days after notice to submit a Time Impact Analysis is unrealistic. The notice is due at the start of a delay, but the TIA cannot be completed until the delay itself has ended or a reasonably accurate date can be forecast. Thus it is better to state "Notify Metro within five calendar days of becoming aware of a delay and submit a Time Impact Analysis within ten calendar day after the delay has ended, can be reasonable forecast, or upon demand by the Engineer, whichever is earlier".	Suggest the following language "Notify Metro within five calendar days of becoming aware of a delay and submit a Time Impact Analysis within ten calendar days if the delay can be reasonably forecast or the delay has ended. Metro may provide additional time for the Time Impact Analysis to be completed at its discretion."	Staff has further evaluated the recommendation and determined the current specification should remain unchanged. Metro has not experienced any major complaints (schedulers & contractors) to the current spec language/section.	NEEDS IMPR
30	Use a model more like the SFPUC best practice described above, where the PM and CM are in charge of the change order process, with support from professional contract administrators that are empowered to disagree with the PM/CM if they are not following the contract. An enhancement to the SFPUC model Metro might consider is to have the Field Contract Administrators that handle contractor change orders remain VCM employees, but deploy them to the field in a matrix organization. To handle the volume of changes during the accelerated \$40B capital program, it is also recommended that VCM procure one or more on call Contract Administration firms to help them handle the volume. All consultant staff should meet the same qualifications and get the same training as Metro VCM staff. These are cross cutting recommendations, impacting numerous processes. It should be noted that when implementing the recommendations for this issue, it is essential that these recommendations be closely coordinated and integrated, not only for this set of recommendations, but in consideration with all of the proposed recommendations within this report (refer to the Implementation roadmap within the Executive Summary for additional discussion).	Agree. Will try to plan a visit to SFPUC.	Project Managers in collaboration with the Contract Administrators are responsible of the change control process. Pursuant of the 1-year LOP Budget program for the 4 major transit projects, signature authority levels for mods/changes were streamlined.	ESTAB
64	Establish enforcement and compliance mechanism into Contractor performance evaluations	Agree that feedback needs to be given to contractors/consultants. Not sure formal performance appraisals are the right approach. Better to integrate into the quality program.	Already implemented through QA Program - feedback needs to be given to contractors/consultants. Not sure formal performance appraisals are the right approach. Better to integrate into the quality program	NEEDS IMPR
PRIORITY #9, BOARD DELEGATION				
44	Establish governance model with delegated authority	Agree with this approach. Like the example escalation ladder shown.	The Board approved Pilot Life-of-Project Budget Program is in progress.	ESTAB
73	Improve adherence to Metro rule (Pub. Util. Code, Sec. 130630)	Agree.	Implemented Pilot LOP Budget Program	ESTAB
74	Assess increasing Board meeting frequency	Do not agree. One board meeting per month is sufficient. However, the long lead times to get a board item on the agenda and approved is a problem.	Not accepted by Metro - one board meeting per month is sufficient	ESTAB
75	Delegate more authority to Chief Executive Officer (CEO)	Agree, but first have to build more confidence in project delivery capabilities before requesting this from the Board.	Already implemented	ESTAB
76	Reassess Board review and approval process	Agree. See the response to #74.	Already implemented - Pilot program in place	ESTAB
77	The Board of Directors should recognize and support a need for process improvement.	Agree.	Through the PSC efforts, Metro has addressed the need for process improvement.	ESTAB

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78	Develop and implement a Board education series	Agree that this would be helpful if it could be scheduled.	Chief Program Management Officer has met and exchanged information on project delivery process with Board members i.e. Pilot LOP Budget Program, Contingency and Change Activities, Annual Program Evaluation, Program Management Plan, etc.	ESTAB
PRIORITY #10: ENFORCE AND COMPLIANCE				
28	Improve contractor compliance and Metro enforcement	Agree. Will need concurrence from Vendor/Contract Management	Going forward, Metro will enforce contractor compliance pursuant to contract and if needed, implement financial disincentives.	NEEDS IMPR
PRIORITY #11: PARTNERING				
10	Consider making partnering mandatory on all projects	Agree. However would suggest formal partnering on "most" projects, not "all" projects. This is already underway at Metro.	Already implemented at Metro on "most" projects	EVOLV
11	Establish a partnering procedural standard	Agree that partnering should be consistent across projects.	Metro is member of International Partnering Institute. Program Management Chief and Deputy Chief attend the partnering session as much as possible to ensure consistency in quality of partnering across projects.	EVOLV
12	Utilize multi-tiered partnering	Agree. Metro executive staff also participates	Already implemented at Metro	EVOLV
13	Train staff and contractors prior to partnering sessions	Agree, this can be part of the initial partnering meeting.	Prior to partnering sessions, all participants, including facilitators, are informed and made aware of the rules, intent, purpose, and objectives of the partnering sessions.	EVOLV
14	Enforce a post-partnering follow-up plan	Agree with post session follow-up and pre-session scorecard survey. Already being done on many projects. Do not agree with imposing consequences. Will lead to unnecessary disputes	Not accepted by Metro - Already being done on many projects at Metro. Do not agree with imposing consequences, which may lead to unnecessary disputes	EVOLV
PRIORITY #12: QUALITY/LESSONS LEARNED				
91	Metro needs to begin an initiative to develop, update and detail policies and procedures organization wide, especially for capital project delivery and project management. Institute Quality Assurance into all Policies and Procedures. Institute a quarterly project review that includes measurement of compliance to Policies and Procedures. Utilize a Lessons Learned program to make the results of these reviews available to the wider capital program. Institute an annual review of Policies and Procedures to encourage continual process improvement. Ensure that policies and procedures are updated. The policies and procedures reviewed in this study for example have not been reviewed and updated in over 2 years, and the documented changes in the last two (2) years were only due to the renaming and reorganizing of department such as the movement of the PMO from Engineering and Construction, to its own Division.	Agree. Have already bought the Quality Director from Denver RTD to work with staff and make recommendations.	Addressed under PSC Task #7, Lessons Learned Program Plan. As part of continual process improvement, policies and procedures for capital project delivery and project management are being reviewed for updates/revisions, as required, and will be accessible in Sharepoint.	EVOLV
104	Assess the risk of Quality Management within the Engineering & Construction division	We had the Quality Manager from Denver RTD spend some time at Metro and he made a number of pertinent observations, which we need to evaluate.	Already implemented at Metro	ESTAB
PRIORITY #13, LESSONS LEARNED				
51	Establish formal, organization-wide Lessons Learned Program	Agree with recommendation to establish a formal Lessons Learned Program, but this can be done within the existing Program Management Department.	Addressed under PSC Task #7, Lessons Learned	EVOLV
PRIORITY #14: SAFETY				
66	Consider installing a safety "ticker" in the Metro lobby, to communicate the importance of safety to stakeholders and the organization to applaud the success of the safety program.	Defer to safety department. Safety reminders, notifications more appropriate at project locations.	Sharing vital safety information at the Project Construction site level starts with a "Bulletin-Board." Metro's Contractors are required by contract and by State/Federal safety regulations to establish a project construction site "Bulletin-Board" which displays vital safety and other pertinent information such as: Current Work Related Injury/Illness Log, Call/OSHA Annual Permits (Scaffold/Falsetwork/Vertical Shoring, Excavation & Diesel Permits); OSHA Citations/Disposition information, Underground Classifications, Emergency Phone Numbers & Hot-Line Incident Reporting Information, Evacuation Procedures, Hot Work Permits, Job Safety & Health Poster and (Employee Rights & Responsibilities). Add Mgmt Info Since the focus of this study was on Construction Management activities related to the construction of large Capital Projects, the directly affected stakeholders are the employees and public at the various sites where the construction activity occurs. Therefore, from a safety standpoint, the messaging needs to be focused towards the audience who needs to be most aware of safety performance, and with those with whom the message will resonate the most. Therefore, Metro's & our partner Contractors' strategy has been to communicate the importance of safety and to showcase each capital project's safety record on an on-going basis at the construction sites and in the immediate adjacent community, rather than in the headquarters lobby, where there is a transitory audience and where it will have negligible impact. The communication of safety efforts and their results are done through various means at the sites on any given projects, ranging from all-hands meetings, safety banners, safety bulletin boards, and signage. We believe this prominent showcasing of our collective efforts has had a positive impact on the safety performance of the projects, as acknowledged in the Consultant's report	NEEDS IMPR
67	Incorporate safety considerations into the updating of design criteria, standards and specifications	Agree.	Already implemented prior to IG audit	ESTAB

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CLUSTER C: PROJECT MANAGEMENT SUPPORT				
PRIORITY #15: PUBLIC INVOLVEMENT				
2016 Recommendation No.	2016 Summary Recommendation	2016 Program Management's Initial Response	2017 Audit Response	
71	Develop strategic Public Involvement Action Plan	Agree that Community Relations is vital to a successful project. Believe this is happening, but needs to be emphasized.	Already implemented	EVOLV
72	Establish process improvement committee to develop recommendations (surrounding the community involvement)	Do not agree. Do not believe another committee is needed.	Not accepted by Metro - do not believe another committee is needed	EVOLV
95	Establish a Capital Project Delivery website	Project information is currently available on Metro website but will assess potential enhancements.	Already implemented project information is currently available on Metro website, but will assess potential enhancements	ESTAB
PRIORITY #16: PROJECT MANAGEMENT INFORMATION SYSTEM (PMIS)				
27	All project use PMIS contract management database	Agree that a consistent reporting mechanism is needed. Need to research whether this is PMIS or something else.	Program Management will determine whether to use PMIS CM for a project depending on its size and complexity.	ESTAB
31	Use PMIS on all projects, including CM14 record of negotiation form	Agree. Will evaluate the use of PMIS to document negotiations.	Program Management will determine whether to use PMIS CM for a project depending on its size and complexity.	ESTAB
96	Improve end-user documentation for PMIS	Agree to assess current documentation for improvement.	PMIS module-specific training are available and accessible to all users in Sharepoint.	ESTAB
106	Utilize PMIS for all projects	Agree. Metro will evaluate the resources needed to expand use of PMIS for all capital projects, including Highway and Regional Rail projects.	Program Management will determine whether to use PMIS CM for a project depending on its size and complexity.	ESTAB
109	Develop additional training on the use of PMIS	Agree. Will assess our existing role based training and documentation for improvement, including "desk instructions".	Different PMIS/CM trainings are being offered at least quarterly for users, including contractors, configuration management, contract administrators, etc.	ESTAB
PRIORITY #17: ADMINISTRATIVE PROCESS				
61	Improve configuration management and document control processes	Agree. While we believe the existing processes are adequate, we agree that it would be helpful to reassess for potential improvement.	Updates to CF and document control processes are already in progress.	ESTAB
69	Establish a scheduling section within Project Controls	While not a separate section within Program Control, there are scheduling resources available which perform the recommended roles and responsibilities. Will reassess capabilities and performance for potential improvement.	Already implemented - there are scheduling resources available within Program Control who perform the recommended roles and responsibilities. Will reassess capabilities and performance for potential improvement	ESTAB
70	Establish close-out compliance mechanisms	Agree.	Already in-place prior to IG audit	ESTAB

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PRIORITY #18, REORGANIZATION, STAFF ANALYSIS & TRAINING				
46	Establish soft skills training and development for all project team members	Agree. Need to do an assessment of department training needs tailored to the functions of the Program Management Department.	Program Management Leadership Institute (PMLI) is a training for all project team members. Addressed under PSC Task #5, Training.	EVOLV
59	Provide staff training and education in project management and highway technical skills	Agree.	Implemented at Metro through PMLI. In addition to highway technical skills, specific off-site training provided include PMI training/certification, construction management, and construction related legal training, and ITS related training.	ESTAB
65	Assess whether additional safety training is needed	Defer to safety department.	In addition to specific contract Safety/Security/ requirements, Metro conducts Construction Safety Orientation (CSO) for newly hired employees whose job responsibilities/tasks require them to enter into on-going construction work-site/zones including underground environments. The safety orientation covers Metro's Core Values, Philosophies, Documents, Safety Personnel, Functions, Activities, Metro Construction Safety History and Lessons-Learned and Site Specific issues. In addition to an initial CSO, Metro employees and site visitors are required to participate in safety orientations to review safety procedures related to Personal Protective Equipment and specific underground self-rescuer training prior to visiting underground/tunnel environments. Metro's Contractors are required contractually to submit an Injury Illness Prevention Program and the law mandates that Contractors provide specific safety training for their employees. The Corporate Safety department has assessed the need for the training topics that need to be covered for Metro employees based on the tasks they perform, and has identified which training topics pertain to each discipline. Based on this assessment, the department offers all regulatory-required training to Metro employees based on their job-specific duties. This training is conducted routinely by 2 dedicated safety trainers and other subject-matter experts in the various topics. Since the Study was focused on Capital Project Construction Management, Metro requires the contractor(s), (who are normally hired for Capital Project construction), through the contract they enter into with Metro to design/build our Capital Projects, to provide the required safety training to employees they hire. The responsibility to provide all necessary task-specific training therefore rests solely with the various contractors who construct the Capital Projects. Therefore, it would be inappropriate for Metro to assess what additional training, if any, is needed for such contractors or their employees.	NEEDS IMPROV
97	Staff augmentation contracts managed by individual functional departments	The consultant personnel are managed by the Project Manager to whose project they are assigned as extension of staff.	Not accepted by Metro - the consultant personnel are managed by the Project Manager to whose project they are assigned as extension of staff	ESTAB
98	Expand participation of the PM Academy	Agree. Program Management will continue to support Talent Development in the assessment of agency wide needs and enhance the PM curriculum as appropriate. See response to #46.	Program Management has implemented Program Management Leadership Institute and as each division has implemented or in the progress of implementing own department training.	ESTAB
99	Further develop the PM curriculum	Agree that development of communications and interpersonal skills should be a key component of any training program. Will work with Talent Management to enhance the PM curriculum.	Program Management has implemented Program Management Leadership Institute	ESTAB
100	Develop formal curriculum for all levels of staff	Agree. See response to #46.	Addressed under PSC Task #5, Training. Also Program Management Leadership Institute (PMLI) is a training for all project team members.	ESTAB
101	Establish training programs and tie to HR development goals	Agree. See response to #46.	Already implemented - Part of Program Management Leadership Institute Training program	ESTAB
102	Develop and implement a detailed staffing analysis process for all departments	Agree. The process for requesting and budgeting for staff is challenging. This will require coordination with the OMB department.	Addressed under PSC Task #3, Readiness Review Checklist	EVOLV
103	Develop strategic plan for the use of consultants	Agree. that we need to strategically define and describe the use of consultants in the Program Management Department.	Addressed in the Program Management Plan	ESTAB
105	Consider development of a step pay system	Agree. Will require coordination with OMB and HR. The hiring and salary process can be a challenge in finding and keeping good people.	Pilot compensation structure program in progress	ESTAB

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PRIORITY #19, SAFETY MANAGEMENT				
66	Consider installing a safety "ticker" in the Metro lobby, to communicate the importance of safety to stakeholders and the organization to applaud the success of the safety program.	Defer to safety department. Safety reminders, notifications more appropriate at project locations.	<p>Sharing vital safety information at the Project Construction site level starts with a "Bulletin Board." Metro's Contractors are required by contract and by State/Federal safety regulations to establish a project construction site "Bulletin-Board" which displays vital safety and other pertinent information such as; Current Work Related Injury/Illness Log, Cal/OSHA Annual Permits (Scaffold/Falsetwork/Vertical Shoring, Excavation & Diesel Permits); OSHA Citations/Disposition information, Underground Classifications, Emergency Phone Numbers & Hot-Line Incident Reporting Information, Evacuation Procedures, Hot Work Permits, Job Safety & Health Poster and (Employee Rights & Responsibilities).</p> <p>Add Mgmt Info Since the focus of this study was on Construction Management activities related to the construction of large Capital Projects, the directly affected stakeholders are the employees and public at the various sites where the construction activity occurs. Therefore, from a safety standpoint, the messaging needs to be focused towards the audience who needs to be most aware of safety performance, and with those with whom the message will resonate the most. Therefore, Metro's & our partner Contractors' strategy has been to communicate the importance of safety and to showcase each capital project's safety record on an on-going basis at the construction sites and in the immediate adjacent community, rather than in the headquarters lobby, where there is a transitory audience and where it will have negligible impact. The communication of safety efforts and their results are done through various means at the sites on any given projects, ranging from all-hands meetings, safety banners, safety bulletin boards, and signage. We believe this prominent showcasing of our collective efforts has had a positive impact on the safety performance of the projects, as acknowledged in the Consultant's report</p>	NEEDS IMPR
67	Incorporate safety considerations into the updating of design criteria, standards and specifications	Defer to safety department. Safety reminders, notifications more appropriate at project locations.	<p>Sharing vital safety information at the Project Construction site level starts with a "Bulletin Board." Metro's Contractors are required by contract and by State/Federal safety regulations to establish a project construction site "Bulletin-Board" which displays vital safety and other pertinent information such as; Current Work Related Injury/Illness Log, Cal/OSHA Annual Permits (Scaffold/Falsetwork/Vertical Shoring, Excavation & Diesel Permits); OSHA Citations/Disposition information, Underground Classifications, Emergency Phone Numbers & Hot-Line Incident Reporting Information, Evacuation Procedures, Hot Work Permits, Job Safety & Health Poster and (Employee Rights & Responsibilities).</p> <p>Add Mgmt Info Since the focus of this study was on Construction Management activities related to the construction of large Capital Projects, the directly affected stakeholders are the employees and public at the various sites where the construction activity occurs. Therefore, from a safety standpoint, the messaging needs to be focused towards the audience who needs to be most aware of safety performance, and with those with whom the message will resonate the most. Therefore, Metro's & our partner Contractors' strategy has been to communicate the importance of safety and to showcase each capital project's safety record on an on-going basis at the construction sites and in the immediate adjacent community, rather than in the headquarters lobby, where there is a transitory audience and where it will have negligible impact. The communication of safety efforts and their results are done through various means at the sites on any given projects, ranging from all-hands meetings, safety banners, safety bulletin boards, and signage. We believe this prominent showcasing of our collective efforts has had a positive impact on the safety performance of the projects, as acknowledged in the Consultant's report</p>	ESTAB
PRIORITY #10, PROJECT MANAGEMENT KPIs				
62	Develop a Project Manager Performance Plan	Agree.	Metro's Individual Performance Plan is in place	ESTAB
63	Develop Project Manager performance metrics into performance assessments	Agree.	Performance metrics in Project Manager IPPs	ESTAB

2016 Rec No.	2016 Summary Recommendation	2016 Program Management's Initial Response	2017 Audit Response	RANK
CLUSTER D: STRATEGIC PROGRAM MANAGEMENT				
PRIORITY #20: METRO-WIDE PROJECT OVERSIGHT				
2016 Recommendation No.	2016 Summary Recommendation	2016 Program Management's Initial Response	2017 Audit Response	
49	Implement an organization-wide project management initiative.	Agree with the objectives of the recommendation, but responsibility should reside with the Program Management Department versus a separate strategic PMO.	Program Management Plan was developed in October 2016	EVOLV
50	Establish a Strategic Program Management Office (PMO)	Disagree with the need for a separate strategic PMO. The Program Management Department, with support from other groups can achieve the objectives of a strategic PMO.	Program Management Department, with support from other groups can achieve the objectives of a strategic PMO.	EVOLV
52	Assign ownership of capital project delivery to the Strategic PMO	Same as response to #50.	Not accepted by Metro - disagree with the need for a separate strategic PMO. The Program Management Department, with support from other groups, can achieve the objectives of a strategic PMO	EVOLV
92	Establish project metrics for compliance to policies and procedures	Agree.	Addressed under PSC Task #3, Project Readiness Procedure	ESTAB
93	Establish a Knowledge Management System to maintain and access all policies and procedures;	Agree that policies and procedures need to be more widely disseminated.	Using Sharepoint	ESTAB
94	All departments own their policies and procedures, Strategic PMO ensures consistency, compliance and integration	Agree on accountability for compliance with policies and procedures but disagree on need for strategic PMO.	Each department owns responsibility of their policies/procedures related to project management and capital project delivery are accessible in Sharepoint. Updates/revisions are supported/facilitated by Configuration Management	EVOLV

CLUSTER E: RELOCATED GROUPS				
PRIORITY #21 HIGHWAY				
	2016 Summary Recommendation	2016 Program Management's Initial Response	2017 Audit Response	
53	Incorporate IPMO structure into highway projects	Agree for select highway construction projects.	This was implemented prior to IG audit (such as I-405)	ESTAB
54	Improve highway reporting process	Agree, has already started.	Already implemented at Metro	ESTAB
60	Develop a Quality Plan for highway projects	Agree.	Already in-place prior to IG audit	ESTAB
PRIORITY #22: ASSET MANAGEMENT				
7	Establish Life Cycle Asset Management Program	Agree. Metro has recently established a State of Good Repair Department and policies are being developed consistent with MAP-21 requirements.	Metro has recently established a State of Good Repair Department and policies are being developed consistent with MAP-21 requirements. Attached is Metro's Transit Asset Management Plan developed in July 2015.	ESTAB

CLUSTER A: CONNECTED PRIORITIES - PRE-PROCUREMENT PROJECT DEVELOPMENT		
2023 Rec No.	2023 Recommendation	2023 Metro Management's Response
CATEGORY #1, DELIVERY METHOD SELECTION & CRITERIA		
1.1	PMG should continue to timely update policies and procedures to include the range of alternative delivery methods currently used by Metro.	In Process: There are several new departmental policies and procedures that have been updated, such as the Risk Management, Estimating and schedule specifications. PMG will continue working with internal departments to update estimating spec and other controls specs. Anticipated completion date: 12/23. Updates to the Value Engineering policy are expected to be signed by Operations in October 2023.
CATEGORY #2, GENERAL READINESS		
2.1	Metro should investigate strategic initiatives to beneficially support third parties' cooperative and timely assistance toward timely and cost-efficient project delivery.	In process: Metro advances cooperative agreements with municipalities along future projects. The new MCA with the City of Los Angeles is for all projects in the City boundaries and is in final review phase, anticipated to be complete in October 2023. A similar citywide agreement is anticipated with LADWP next, with a target date of October 2024.
2.2	Third party utility relocation issues continue to be one of the larger reasons for change orders and project delays. The OIG recommends the PMG partner with the Early Intervention Team ("EIT") to revisit the PMG's 2016 rejection of Recommendation Nos. 3 and 6 and apply a lessons learned approach to investigating the feasibility of initiating utility relocation work much earlier in the pre-construction management process to remove unnecessary risk and enhance mitigation by planning and scheduling of relocation completion prior to other project delivery activities, without any intention of limiting or mandating when Engineering can begin. If the progressive design build approach or other alternative delivery approach will minimize utility impacts in the same manner as separate contracts for advanced utility relocation, the PMG's response should be updated.	Completed: PMG is already part of the EIT team and process and utility risk is already discussed with the EIT. Utility relocations are a major risk for any rail project. Potholing, utility mapping, geotechnical investigations can be done earlier. PMG has added advanced construction management staff to support the planning team during the preconstruction process, before the environmental document is finalized. PMG's Third Party Administration team is also included in the EIT process to assist in the planning and scheduling of utility relocations. The time allocated for the relocation of utilities is a major focus of the development of project delivery schedules. However, for projects which Metro is applying for Federal funding, the earliest start date may be dictated by the FTA New Starts Process. Alternative delivery may in some instances minimize utility related impacts due to the flexibility of early works packages.
CATEGORY #3, UTILITIES & THIRD PARTY		
3.1	Utility investigations, work, and relocations performed by Metro's contractors or others pose cost and schedule risks for Metro projects, including potential issues with reviews, approvals, and oversight by the third-party utility owners. The construction contract may specify timelines and/or sequences for utility-related work. To avoid cost and schedule impacts caused by third parties or contractor(s), Metro should utilize legal counsel's assistance to mitigate the risks related to utility investigations, work, and relocations. Metro should enhance its procedures and relationships to enable self-permitting. Transparency, documentation, and trust are key to Metro achieving self-permitting.	In process: PMG and V/CM are working with County Counsel and other Metro stakeholders to properly address the risks when contractors perform utility-related work on Metro projects. Metro is also negotiating new master cooperative agreements with third-party utility owners, as well as updating of Metro's division 1 specifications.
CATEGORY #4, CITY APPROVALS		

4.1	Metro should complete a new and improved Master Cooperative Agreement between City of Los Angeles and LA Metro.	In Process: A new MCA is anticipated to be completed in October 2023
4.2	Metro should conduct a Legislative/Legal Improvement review to determine if there are any legislative adjustments that would improve work or construction related requirements for transit projects and assist in better resourcing third party stakeholders impacted by (and benefitting from) Metro capital projects.	Current Practice: Government Relations already has a yearly process with County Counsel to conduct legislative reviews, which solicits input from affected Departments.
CATEGORY #5: LIFE OF PROJECT BUDGET		
5.1	Metro should focus on quickly adapting its budgeting practices for all new construction projects given the changing circumstances and trends of increased prices.	Current Practice: The latest Metro construction market analysis is underway to provide updated information on the current state and conditions of the construction market and identify strategies to control/contain costs. Report completion expected December 2023.
5.2	Metro should evaluate, assess, and document emerging financial conditions before requesting a budget change, and include an analysis in the Board request for LOP funding increases.	Current Practice: Metro's risk management and cost estimating processes, which are utilized to assess the magnitude of any LOP budget increase, already addresses the risks posed by emerging financial conditions. For future Board reports recommending LOP budget increases consistent with the Measure R and Measure M Unified Cost Management Policy, PMG will continue to document its evaluations and assessments of all costs.
5.3	Based on statements included in Board Report No. 2023-0106, Attachment A, the OIG understands that EIT Project Review Process will include multiple "intervention points" for review of the Life of Project Budget. The OIG recommends the development and implementation of detailed procedures describing the process for LOP Budget development across the project life cycle. Requests to increase the LOP make after the procurement phase should include a "lessons learned" justification for the increase.	<p>Current Practice: The Early Intervention Team (EIT) has established a project review process that facilitates an agency wide assessment of projects during earlier phases of project development. These reviews include consideration of project forecast cost (not always LOP), applicable to the phase of project development. LOP Budget is established at later stages of project development, typically aligning with initiation or completion of engineering phases. Thus, Project Control procedures govern the oversight and tracking of the LOP.</p> <p>Project control procedures were recently updated in December 2021 regarding budget and cost forecasting. Any request to modify the LOP already includes justifications that detail causes and notification protocols. Lessons learned associated with future LOP increases will be incorporated into board reports. Any LOP Budget increase is subject to multi-department reviews (e.g. VCM, Planning, etc)</p>
CATEGORY #6: RISK MANAGEMENT		
6.1	The PMG should determine whether risk management plans (whether full or "light" plans for smaller projects" – including mitigation plans for risk findings adjusted by PMG management – should be developed for all projects regardless of size, complexity, or use of federal funding.	Completed: Metro Project Controls Procedure PC-07 for Risk and Contingency Management was updated in June 2023 and incorporates a scalable approach for project risk management for all project sizes. The level of effort (LOE) for risk management is determined between the Project Manager and Metro's Risk Manager. Project value is not necessarily the rationale for the project risk management LOE, and smaller value projects may have significant risk that needs to be managed more robustly. At a minimum all projects are required to have in place, and actively manage, a project risk register.

6.2	PMG should strive to establish a progressively robust risk management culture that ensures controlled and mitigated risk throughout the entire project life cycle.	Current Practice: Since December 2018 a full time Risk Manager has been employed to implement effective risk management on Metro projects. Due to the expanding work load, Program Management are expanding the Risk Management resources accordingly. Risk management requirements have been expanded to include projects in environmental planning, engineering, and construction, through to substantial completion and revenue service.
6.3	PMG should determine if it is beneficial for Risk Management staff to participate in lessons learned discussions to encourage bi-directional sharing of risk-related information. This will ensure knowledge will be transferred, built upon and not be lost, as mature employees retire from Metro.	Completed: Since June 2023 Risk Management staff have been participating in lessons learned discussions. This has resulted in Metro developing a list of generic risks that could be applied to similar projects. PMG is also able to identify management and mitigation strategies that were applied successfully on previous projects and apply them on active projects.
CATEGORY #7: PROJECT MANAGEMENT PLAN		
7.1	Revisit the 2016 Recommendations requiring all projects regardless of size or complexity to develop and use a PMP which will standardize practices related to change management, quality, risk and use of PMIS.	Current Practice: PMG amended the PC04 Project Management Plan procedure to require PMPs on all projects with estimated total project costs greater than \$100M in value (01/05/2023).
CLUSTER B: CONNECTED PRIORITIES - POST-PROCUREMENT PROJECT MANAGEMENT		
2023 Rec No.	2023 Recommendation	2023 Metro Management's Response
CATEGORY #8, CONTRACT ADMINISTRATION		
8.1	PMG should revisit Recommendation Number 29 and review current General Conditions requirements for contractors to submit time impact analysis ("TIA"), and the conditions when to impose a "waiver" on untimely and improper claims that are not properly presented by the contractor. Metro should review its contract language regarding the requirements for TIAs and the conditions for imposing waivers, as well as opportunities to add contractual language emphasizing the contractor's duty to timely submit support for impact damages and to mitigate alleged harm.	In process: Staff is working with County Counsel to review the Changes provisions in the Contract General Conditions including obligations to notify Metro of an event that caused a delay and promptly submit TIAs. V/CM and PMG will work with County Counsel to determine what changes in General Conditions, if any, can be made regarding consequences when delay claims are not timely pursued by the Contractor. Complete by 12/15/23
8.2	PMG should revisit Recommendation Number 64 regarding:	
8.2A	Developing a formal robust Ongoing Performance Assessment Program for consultants and contractors that is used yearly during and at the end of the term of the contract to ensure satisfactory and compliant performance.	Will Consider: PMG and V/CM will initiate discussions with County Counsel on the possibility of implementing a Performance Assessment Program. Complete by 12/15/23
8.2B	Developing and utilize a Past Performance Assessment for consultants and contractors that allows Metro to consider the contractor's overall contract compliance in future solicitations including an opportunity for contractors to respond to assessments.	Will Consider: PMG and V/CM will initiate discussions with County Counsel on the possibility of implementing a Performance Assessment Program. Complete by 12/15/23
8.2C	Updating Metro's General Conditions to inform consultants and contractors of performance assessment actions.	Will Consider: Consistent with the resolution of recommendations 8.2A and B above. Complete by 12/15/23

8.2D	With regard to contractor claims for damages for delays, PMG and V/CM to work together to review, and expand when proper, the use of construction contracts to include a “bid” daily rate for damages that will be used to reimburse substantiated delay damages. The OIG encourages all construction contracts to include a “bid” daily rate for damages that will be used to reimburse substantiated delay damages.	In process: All RFPs and IFBs for construction can require daily delay rates to be bid/proposed. This is already an existing practice on several Metro projects. Program Management practices should include this in the pricing sheets provided to VCM for the prices to be submitted by contractors. PMG and V/CM will engage in discussions with County Counsel on contract terms to determine the types of cost impacts to be covered and the circumstances for payment at the contract daily rate prior to the release of an RFP or IFB. Daily delay rates proposed by a contractor post-award are already subject to audit, but the contract terms will be reviewed to determine if any changes are necessary. Complete by 12/15/23
CATEGORY #9, BOARD DELEGATION		
9.1	Metro should continue the current practice and level of utilizing the delegated authority that has proven to speed up the change approval process with sufficient oversight and quality. The OIG will continue to monitor the change orders.	Current Practice: PMG will continue to utilize the delegated authority with internal oversight consistent with Board approval in Jan 2018.
9.2	We recommend that Metro’s Management Audit Services Department do periodic audits during projects of use of funds for change orders in compliance with Metro Standards which will breed responsibility.	Completed: This is an existing process. Management Audit Services, MAS, performs multiple incurred cost audits every year, which always include testing of material change orders, as the primary source of cost overruns. MAS also performs performance audits and reviews of high risk Metro projects in progress every year, which also examine change orders and the change order process, as drivers of cost and schedule overruns.
CATEGORY #10: ENFORCE AND COMPLIANCE		
10.1	PMG and V/CM should collaborate in the review of current General Conditions establishing timelines and required actions for initial change matters and also for resolution of disputed matters.	In process: PMG, VCM, and County Counsel are in the process of updating the standard form of contract. Anticipated completion March 2024.
10.2	PMG should revise CF14/Change Control to describe the internal processes regarding the 2018 CEO delegations of authority and best practices for using partnering, claims procedures and the Dispute Resolution Board to reach finality on contested change matters.	In Process: CF14 has been amended to include CEO delegated authority and is being routed for approval. Anticipated completion 10/23.
10.3	PMG should consider tracking the Project Manager’s performance in meeting responsive timelines for all change items (merited or not), to confirm compliance with the General Terms and Conditions and PMG’s policies and procedures.	Will consider: Timeliness of changes is currently tracked by Contract Administrator on most projects. Program Management and VCM will consider tracking project team performance on departmentwide basis, taking into consideration that sometimes delays to changes are caused by contractors. Complete by 12/15/23
10.4	Contracts should specify time limits for submission of claims and enforce these time limits where legally permissible. Vendors will request time limits for Metro’s response to their claims so Metro will need to be prepared to respond to that.	Completed: Contract provisions for Claims already require fully prepared and certified claims to be submitted within 60 days from the Contractor having submitted a Notice of Intent to Claim (NOIC). Public Contract Code 9204, for all construction contracts entered into after January 1, 2017, requires Metro to respond to the Claim within 45 days on what is merited or not merited. Since January 2017 the requirements of PCC 9204 has been incorporated into Metro construction contracts.
CATEGORY #11: PARTNERING		
11.1	For effective partnering, Metro should develop effective internal processes for vetting issues appropriate for the partnering process and developing an evaluation of the facts and issues.	Current Practice: PMG executive management and project managers meet prior to each partnering meeting to discuss topics for the meeting. PMG executive management reviews and approves partnering agendas and presentations.

11.2	Metro should implement a “Partnering Positive” culture supported by Executive Management, in order to minimize the need to use Dispute Resolution Board hearings or to litigate a disputed issue.	Current Practice: PMG executive management is actively emphasizing the importance of partnering on all mega projects and other capital projects (based on project size). Partnering should emphasize building trust and fostering open communication, to minimize or avoid disputes. PMG will continue to emphasize partnering as part of its internal training.
CATEGORY #12: QUALITY/LESSONS LEARNED		
12.1	PMG should review whether best practices require expanding the scope of the quality program to include all projects, regardless of size or complexity, to participate in the enhanced Quality Management Program, including the Lessons Learned program.	Completed: The Lessons Learned procedure has been moved from the QMO plan and procedures to the new QMSM, rev 0 which applies to all projects regardless of size or complexity. It has been determined that the QMO plan and procedures does not apply to small low risk projects. Completed Dec 2022.
CATEGORY #13, LESSONS LEARNED		
13.1	PMG should develop a program and culture that reports lessons learned from internal and external management (across all groups) to those participating in capital projects and methods to ensure regular review and revision of policies and procedures to ensure cross-department utilization of all lessons learned to advance and build on the Metro Program Management and improve each project as it planned, designed, developed and constructed.	Current Practice: As projects are completed, PMG is implementing its Lessons Learned process to help with future mega projects. Anticipated completion July 2024. Scope can be expanded as other departments are brought into the process.
CATEGORY #14: SAFETY		
14.1	The Safety Group should revisit Recommendation Number 66 to determine whether there may be opportunities to broadly communicate safety statistics across capital projects to reflect Metro’s Safety culture and to further incentivizes contractor best practices. Sharing statistics monthly or quarterly in the same manner COVID-19 information was shared may be appropriate.	Completed: Safety data that is presented at the FTA quarterly meetings will be shared on the project websites. This data will be updated every quarter to coincide with the schedule of the FTA quarterly meetings. Completed September 2023.
14.2	The Safety group along with the PMG should review the PMG’s pre-2016 safety-related procedures for conformity to current industry best practice standards.	Completed: Separate Memo to OIG will provides status of the pre-2016 safety-related procedures. Completed August 2023.
14.2A	(a) PMG should verify that all projects have the updated construction safety policy.	Completed: All active construction projects included the latest Construction Safety and Security Manual and safety related General Requirements prepared by Metro Safety. Verified with Safety September 2023.
14.2B	(b) V/CM should include updated construction safety policy in future contracts.	Current Practice: As part of the readiness review required by existing PMG policy, and prior to advertising any construction contract, PMG and Metro Safety will verify that the contract documents include the latest Construction Safety and Security Manual and safety related General Requirements. Furthermore, PMG, Safety, VCM, and County Counsel developed new evaluation criteria for future RFPs based each proposers' Experience Modification Rating (EMR). Any contractor with an EMR greater than 1.0 will be considered non-responsive (Completed July 2023)

CLUSTER C: CONNECTED PRIORITIES - PROJECT MANAGEMENT SUPPORT		
023 Rec No.	2023 Recommendation	2023 Metro Management's Response
CATEGORY #15: PUBLIC INVOLVEMENT		
15.1	PMG should consult with Countywide Planning and Development to re-visit the 2016 recommendations to ensure current public outreach practices timing, and methods meet best practice goals by addressing earlier community involvement in the planning phase, implementing a quality and equal platform for all communities, and increasing funding for public outreach efforts.	Will Consider: PMG will schedule a meeting with CPD and CX to review the 2016 recommendations and ensure that Metro's public outreach plans meet the best practice goals.
CATEGORY #16: PROJECT MANAGEMENT INFORMATION SYSTEM (PMIS)		
16.1	PMG should revisit whether all projects should use PMIS regardless of size or complexity	Will Consider: PMG will evaluate potential expansion of PMIS to all capital projects. Estimated completion by June 2024.
16.2	PMG should review whether there are resources available for Oracle Unifier information reporting enhancements, for example an "Alert Report" triggered by looming (or passed) response deadlines.	Agree: PMG will create audit report that alerts for missed deadlines. Estimated completion by December 2023.
CATEGORY #17: ADMINISTRATIVE PROCESS		
17	No Recommendations	N/A
CATEGORY #18, REORGANIZATION, STAFF ANALYSIS & TRAINING		
18.1	Metro should develop and implement an agency-wide initiative for attracting and retaining construction management professionals as full-time employees and consider increasing the ration of employees to consultants.	In Process: Program Management is partnering with Chief People Office to develop and implement an agency-wide initiative for attracting and retaining program management professionals. Procure a consultant to conduct an industry analysis on compensation to improve Metro's salary ranges to attract and retain external program management professionals. To retain existing staff, evaluate Program Management staff salaries to align compensation with current market conditions. Estimated completion - December 31, 2024.
18.2	Metro should develop and implement a program for inviting experts to work for Metro on an as-needed basis to mentor and train new Metro staff.	Will Consider: PMG Deputy Chiefs are already mentoring new project managers. PMG will consider hiring experienced Project Executives to supplement this effort for projects greater than \$500M.
18.3	PMG should revisit the, "2017 Training Needs White Paper" prepared in response to the 2016 BP Study to determine additional training needs.	In Process: The 2017 Training Needs White Paper was a draft document. PMG is currently developing a comprehensive Leadership Development Plan as part of Program Management Leadership Institute (PMLI) - estimated completion March, 2024.
CATEGORY #19, - Project Management Key Performance Indicators ("KPIs")		
19.1	PMG should develop policies and procedures that describe Project Manager roles and responsibilities that will be evaluated, encouraged, and strengthened.	Current Practice: PMG will continue to reinforce roles and responsibilities of all PMG staff through yearly Individual Performance Plans and specific training programs.
19.2	PMG should ensure that the Project Manager Performance Plan identifies and develops future leaders and encourages broad expertise across the entirety of the capital project construction management skillsets.	Current Practice: PMG continues to identify and train future leaders through support in programs such as Metro's Leadership Academy, LeadershipAPTA, and ENO programs.

CLUSTER D: STRATEGIC PROJECT MANAGEMENT		
023 Rec No.	2023 Recommendation	2023 Metro Management's Response
CATEGORY #20: METRO-WIDE PROJECT OVERSIGHT		
20.1	Metro and PMG in particular is recommended to revisit the 2016 Recommendations advocating for the adoption of PMBOK principles and processes, especially in light of the Early Intervention Team (EIT) initiative.	In Process: PMG is expanding the existing training curriculum for Program Management to encompass additional management principles. PMG will continue to be an active participant in the EIT initiative.
20.2	The EIT is essentially a pre-construction initiative but the interdepartmental collaboration may be helpful post-award to provide coordination and support for problem solving. The interdepartmental team may be reconstituted for a revised mission that supports the field office.	Will Consider: The EIT is constituted to cultivate an agency wide response and input during the most crucial phase of the project development, where the influence on the project is the most - the Planning phase. Issues during construction require Subject Matter Experts in construction. The construction phase is the implementation and execution of the construction contract. Post award, and if beneficial, PMG will consider using the EIT as a vehicle to leverage internal departments for collaboration and alignment.
CLUSTER E: RELOCATED GROUPS		
023 Rec No.	2023 Recommendation	2023 Metro Management's Response
CATEGORY #21 HIGHWAY		
21.1	Since the relocation of the Highways group to the Planning department, the PMG should collaborate with Countywide Planning and Development to ensure that Metro's Board is receiving complete information on highway capital projects.	Current Practice: PMG will continue to coordinate with Planning to ensure that complete and transparent information is provided to the Board. Currently, Planning reports on all highway projects that are administered by Caltrans and Program Management reports on all highway projects that are administered by Metro
CATEGORY #22: ASSET MANAGEMENT		
22.1	V/CM should include the contractor's scope of work and should include collecting and reporting asset serial numbers, warranty, and maintenance information.	In process: PMG continues to refine the maintenance and warranty process during the construction phase. PMG will engage Metro Operations to identify pain points related to project turnover and asset identification, and will incorporate lessons learned into future contract requirements. Complete by 12/15/23.

CLUSTER A: CONNECTED PRIORITIES - PRE-PROCUREMENT PROJECT DEVELOPMENT

2023 Rec No.	2023 Recommendation	2023 Metro Management's Response
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CATEGORY #1, DELIVERY METHOD SELECTION & CRITERIA

1.1	PMG should continue to timely update policies and procedures to include the range of alternative delivery methods currently used by Metro.	In Process: There are several new departmental policies and procedures that have been updated, such as the Risk Management, Estimating and schedule specifications. PMG will continue working with internal departments to update estimating spec and other controls specs. Anticipated completion date: 12/23. Updates to the Value Engineering policy are expected to be signed by Operations in October 2023.
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CATEGORY #2, GENERAL READINESS

2.1	Metro should investigate strategic initiatives to beneficially support third parties' cooperative and timely assistance toward timely and cost-efficient project delivery.	In process: Metro advances cooperative agreements with municipalities along future projects. The new MCA with the City of Los Angeles is for all projects in the City boundaries and is in final review phase, anticipated to be complete in October 2023. A similar citywide agreement is anticipated with LADWP next, with a target date of October 2024.
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2.2	<p>Third party utility relocation issues continue to be one of the larger reasons for change orders and project delays. The OIG recommends the PMG partner with the Early Intervention Team ("EIT") to revisit the PMG's 2016 rejection of Recommendation Nos. 3 and 6 and apply a lessons learned approach to investigating the feasibility of initiating utility relocation work much earlier in the pre-construction management process to remove unnecessary risk and enhance mitigation by planning and scheduling of relocation completion prior to other project delivery activities, without any intention of limiting or mandating when Engineering can begin.</p> <p>If the progressive design build approach or other alternative delivery approach will minimize utility impacts in the same manner as separate contracts for advanced utility relocation, the PMG's response should be updated.</p>	<p>Completed: PMG is already part of the EIT team and process and utility risk is already discussed with the EIT. Utility relocations are a major risk for any rail project. Potholing, utility mapping, geotechnical investigations can be done earlier. PMG has added advanced construction management staff to support the planning team during the preconstruction process, before the environmental document is finalized. PMG's Third Party Administration team is also included in the EIT process to assist in the planning and scheduling of utility relocations.</p> <p>The time allocated for the relocation of utilities is a major focus of the development of project delivery schedules. However, for projects which Metro is applying for Federal funding, the earliest start date may be dictated by the FTA New Starts Process. Alternative delivery may in some instances minimize utility related impacts due to the flexibility of early works packages.</p>
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CATEGORY #3, UTILITIES & THIRD PARTY

3.1	Utility investigations, work, and relocations performed by Metro's contractors or others pose cost and schedule risks for Metro projects, including potential issues with reviews, approvals, and oversight by the third-party utility owners. The construction contract may specify timelines and/or sequences for utility-related work. To avoid cost and schedule impacts caused by third parties or contractor(s), Metro should utilize legal counsel's assistance to mitigate the risks related to utility investigations, work, and relocations. Metro should enhance its procedures and relationships to enable self-permitting. Transparency, documentation, and trust are key to Metro achieving self-permitting.	In process: PMG and V/CM are working with County Counsel and other Metro stakeholders to properly address the risks when contractors perform utility-related work on Metro projects. Metro is also negotiating new master cooperative agreements with third-party utility owners, as well as updating of Metro's division 1 specifications.
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CATEGORY #4, CITY APPROVALS

4.1	Metro should complete a new and improved Master Cooperative Agreement between City of Los Angeles and LA Metro.	In Process: A new MCA is anticipated to be completed in October 2023
4.2	Metro should conduct a Legislative/Legal Improvement review to determine if there are any legislative adjustments that would improve work or construction related requirements for transit projects and assist in better resourcing third party stakeholders impacted by (and benefitting from) Metro capital projects.	Current Practice: Government Relations already has a yearly process with County Counsel to conduct legislative reviews, which solicits input from affected Departments.
CATEGORY #5: LIFE OF PROJECT BUDGET		
5.1	Metro should focus on quickly adapting its budgeting practices for all new construction projects given the changing circumstances and trends of increased prices.	Current Practice: The latest Metro construction market analysis is underway to provide updated information on the current state and conditions of the construction market and identify strategies to control/contain costs. Report completion expected December 2023.
5.2	Metro should evaluate, assess, and document emerging financial conditions before requesting a budget change, and include an analysis in the Board request for LOP funding increases.	Current Practice: Metro's risk management and cost estimating processes, which are utilized to assess the magnitude of any LOP budget increase, already addresses the risks posed by emerging financial conditions. For future Board reports recommending LOP budget increases consistent with the Measure R and Measure M Unified Cost Management Policy, PMG will continue to document its evaluations and assessments of all costs.
5.3	Based on statements included in Board Report No. 2023-0106, Attachment A, the OIG understands that EIT Project Review Process will include multiple "intervention points" for review of the Life of Project Budget. The OIG recommends the development and implementation of detailed procedures describing the process for LOP Budget development across the project life cycle. Requests to increase the LOP make after the procurement phase should include a "lessons learned" justification for the increase.	<p>Current Practice: The Early Intervention Team (EIT) has established a project review process that facilitates an agency wide assessment of projects during earlier phases of project development. These reviews include consideration of project forecast cost (not always LOP), applicable to the phase of project development. LOP Budget is established at later stages of project development, typically aligning with initiation or completion of engineering phases. Thus, Project Control procedures govern the oversight and tracking of the LOP.</p> <p>Project control procedures were recently updated in December 2021 regarding budget and cost forecasting. Any request to modify the LOP already includes justifications that detail causes and notification protocols. Lessons learned associated with future LOP increases will be incorporated into board reports. Any LOP Budget increase is subject to multi-department reviews (e.g. VCM, Planning, etc)</p>
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6.1	The PMG should determine whether risk management plans (whether full or "light" plans for smaller projects" – including mitigation plans for risk findings adjusted by PMG management – should be developed for all projects regardless of size, complexity, or use of federal funding.	Completed: Metro Project Controls Procedure PC-07 for Risk and Contingency Management was updated in June 2023 and incorporates a scalable approach for project risk management for all project sizes. The level of effort (LOE) for risk management is determined between the Project Manager and Metro's Risk Manager. Project value is not necessarily the rationale for the project risk management LOE, and smaller value projects may have significant risk that needs to be managed more robustly. At a minimum all projects are required to have in place, and actively manage, a project risk register.

6.2	PMG should strive to establish a progressively robust risk management culture that ensures controlled and mitigated risk throughout the entire project life cycle.	Current Practice: Since December 2018 a full time Risk Manager has been employed to implement effective risk management on Metro projects. Due to the expanding work load, Program Management are expanding the Risk Management resources accordingly. Risk management requirements have been expanded to include projects in environmental planning, engineering, and construction, through to substantial completion and revenue service.
6.3	PMG should determine if it is beneficial for Risk Management staff to participate in lessons learned discussions to encourage bi-directional sharing of risk-related information. This will ensure knowledge will be transferred, built upon and not be lost, as mature employees retire from Metro.	Completed: Since June 2023 Risk Management staff have been participating in lessons learned discussions. This has resulted in Metro developing a list of generic risks that could be applied to similar projects. PMG is also able to identify management and mitigation strategies that were applied successfully on previous projects and apply them on active projects.
CATEGORY #7: PROJECT MANAGEMENT PLAN		
7.1	Revisit the 2016 Recommendations requiring all projects regardless of size or complexity to develop and use a PMP which will standardize practices related to change management, quality, risk and use of PMIS.	Current Practice: PMG amended the PC04 Project Management Plan procedure to require PMPs on all projects with estimated total project costs greater than \$100M in value (01/05/2023).
CLUSTER B: CONNECTED PRIORITIES - POST-PROCUREMENT PROJECT MANAGEMENT		
2023 Rec No.	2023 Recommendation	2023 Metro Management's Response
CATEGORY #8, CONTRACT ADMINISTRATION		
8.1	PMG should revisit Recommendation Number 29 and review current General Conditions requirements for contractors to submit time impact analysis ("TIA"), and the conditions when to impose a "waiver" on untimely and improper claims that are not properly presented by the contractor. Metro should review its contract language regarding the requirements for TIAs and the conditions for imposing waivers, as well as opportunities to add contractual language emphasizing the contractor's duty to timely submit support for impact damages and to mitigate alleged harm.	In process: Staff is working with County Counsel to review the Changes provisions in the Contract General Conditions including obligations to notify Metro of an event that caused a delay and promptly submit TIAs. V/CM and PMG will work with County Counsel to determine what changes in General Conditions, if any, can be made regarding consequences when delay claims are not timely pursued by the Contractor. Complete by 12/15/23
8.2	PMG should revisit Recommendation Number 64 regarding:	
8.2A	Developing a formal robust Ongoing Performance Assessment Program for consultants and contractors that is used yearly during and at the end of the term of the contract to ensure satisfactory and compliant performance.	Will Consider: PMG and V/CM will initiate discussions with County Counsel on the possibility of implementing a Performance Assessment Program. Complete by 12/15/23
8.2B	Developing and utilize a Past Performance Assessment for consultants and contractors that allows Metro to consider the contractor's overall contract compliance in future solicitations including an opportunity for contractors to respond to assessments.	Will Consider: PMG and V/CM will initiate discussions with County Counsel on the possibility of implementing a Performance Assessment Program. Complete by 12/15/23
8.2C	Updating Metro's General Conditions to inform consultants and contractors of performance assessment actions.	Will Consider: Consistent with the resolution of recommendations 8.2A and B above. Complete by 12/15/23

8.2D	With regard to contractor claims for damages for delays, PMG and V/CM to work together to review, and expand when proper, the use of construction contracts to include a “bid” daily rate for damages that will be used to reimburse substantiated delay damages. The OIG encourages all construction contracts to include a “bid” daily rate for damages that will be used to reimburse substantiated delay damages.	In process: All RFPs and IFBs for construction can require daily delay rates to be bid/proposed. This is already an existing practice on several Metro projects. Program Management practices should include this in the pricing sheets provided to VCM for the prices to be submitted by contractors. PMG and V/CM will engage in discussions with County Counsel on contract terms to determine the types of cost impacts to be covered and the circumstances for payment at the contract daily rate prior to the release of an RFP or IFB. Daily delay rates proposed by a contractor post-award are already subject to audit, but the contract terms will be reviewed to determine if any changes are necessary. Complete by 12/15/23
CATEGORY #9, BOARD DELEGATION		
9.1	Metro should continue the current practice and level of utilizing the delegated authority that has proven to speed up the change approval process with sufficient oversight and quality. The OIG will continue to monitor the change orders.	Current Practice: PMG will continue to utilize the delegated authority with internal oversight consistent with Board approval in Jan 2018.
9.2	We recommend that Metro’s Management Audit Services Department do periodic audits during projects of use of funds for change orders in compliance with Metro Standards which will breed responsibility.	Completed: This is an existing process. Management Audit Services, MAS, performs multiple incurred cost audits every year, which always include testing of material change orders, as the primary source of cost overruns. MAS also performs performance audits and reviews of high risk Metro projects in progress every year, which also examine change orders and the change order process, as drivers of cost and schedule overruns.
CATEGORY #10: ENFORCE AND COMPLIANCE		
10.1	PMG and V/CM should collaborate in the review of current General Conditions establishing timelines and required actions for initial change matters and also for resolution of disputed matters.	In process: PMG, VCM, and County Counsel are in the process of updating the standard form of contract. Anticipated completion March 2024.
10.2	PMG should revise CF14/Change Control to describe the internal processes regarding the 2018 CEO delegations of authority and best practices for using partnering, claims procedures and the Dispute Resolution Board to reach finality on contested change matters.	In Process: CF14 has been amended to include CEO delegated authority and is being routed for approval. Anticipated completion 10/23.
10.3	PMG should consider tracking the Project Manager’s performance in meeting responsive timelines for all change items (merited or not), to confirm compliance with the General Terms and Conditions and PMG’s policies and procedures.	Will consider: Timeliness of changes is currently tracked by Contract Administrator on most projects. Program Management and VCM will consider tracking project team performance on departmentwide basis, taking into consideration that sometimes delays to changes are caused by contractors. Complete by 12/15/23
10.4	Contracts should specify time limits for submission of claims and enforce these time limits where legally permissible. Vendors will request time limits for Metro’s response to their claims so Metro will need to be prepared to respond to that.	Completed: Contract provisions for Claims already require fully prepared and certified claims to be submitted within 60 days from the Contractor having submitted a Notice of Intent to Claim (NOIC). Public Contract Code 9204, for all construction contracts entered into after January 1, 2017, requires Metro to respond to the Claim within 45 days on what is merited or not merited. Since January 2017 the requirements of PCC 9204 has been incorporated into Metro construction contracts.
CATEGORY #11: PARTNERING		
11.1	For effective partnering, Metro should develop effective internal processes for vetting issues appropriate for the partnering process and developing an evaluation of the facts and issues.	Current Practice: PMG executive management and project managers meet prior to each partnering meeting to discuss topics for the meeting. PMG executive management reviews and approves partnering agendas and presentations.

11.2	Metro should implement a “Partnering Positive” culture supported by Executive Management, in order to minimize the need to use Dispute Resolution Board hearings or to litigate a disputed issue.	Current Practice: PMG executive management is actively emphasizing the importance of partnering on all mega projects and other capital projects (based on project size). Partnering should emphasize building trust and fostering open communication, to minimize or avoid disputes. PMG will continue to emphasize partnering as part of its internal training.
CATEGORY #12: QUALITY/LESSONS LEARNED		
12.1	PMG should review whether best practices require expanding the scope of the quality program to include all projects, regardless of size or complexity, to participate in the enhanced Quality Management Program, including the Lessons Learned program.	Completed: The Lessons Learned procedure has been moved from the QMO plan and procedures to the new QMSM, rev 0 which applies to all projects regardless of size or complexity. It has been determined that the QMO plan and procedures does not apply to small low risk projects. Completed Dec 2022.
CATEGORY #13, LESSONS LEARNED		
13.1	PMG should develop a program and culture that reports lessons learned from internal and external management (across all groups) to those participating in capital projects and methods to ensure regular review and revision of policies and procedures to ensure cross-department utilization of all lessons learned to advance and build on the Metro Program Management and improve each project as it planned, designed, developed and constructed.	Current Practice: As projects are completed, PMG is implementing its Lessons Learned process to help with future mega projects. Anticipated completion July 2024. Scope can be expanded as other departments are brought into the process.
CATEGORY #14: SAFETY		
14.1	The Safety Group should revisit Recommendation Number 66 to determine whether there may be opportunities to broadly communicate safety statistics across capital projects to reflect Metro’s Safety culture and to further incentivizes contractor best practices. Sharing statistics monthly or quarterly in the same manner COVID-19 information was shared may be appropriate.	Completed: Safety data that is presented at the FTA quarterly meetings will be shared on the project websites. This data will be updated every quarter to coincide with the schedule of the FTA quarterly meetings. Completed September 2023.
14.2	The Safety group along with the PMG should review the PMG’s pre-2016 safety-related procedures for conformity to current industry best practice standards.	Completed: Separate Memo to OIG will provides status of the pre-2016 safety-related procedures. Completed August 2023.
14.2A	(a) PMG should verify that all projects have the updated construction safety policy.	Completed: All active construction projects included the latest Construction Safety and Security Manual and safety related General Requirements prepared by Metro Safety. Verified with Safety September 2023.
14.2B	(b) V/CM should include updated construction safety policy in future contracts.	Current Practice: As part of the readiness review required by existing PMG policy, and prior to advertising any construction contract, PMG and Metro Safety will verify that the contract documents include the latest Construction Safety and Security Manual and safety related General Requirements. Furthermore, PMG, Safety, VCM, and County Counsel developed new evaluation criteria for future RFPs based each proposers' Experience Modification Rating (EMR). Any contractor with an EMR greater than 1.0 will be considered non-responsive (Completed July 2023)

CLUSTER C: CONNECTED PRIORITIES - PROJECT MANAGEMENT SUPPORT		
023 Rec No.	2023 Recommendation	2023 Metro Management's Response
CATEGORY #15: PUBLIC INVOLVEMENT		
15.1	PMG should consult with Countywide Planning and Development to re-visit the 2016 recommendations to ensure current public outreach practices timing, and methods meet best practice goals by addressing earlier community involvement in the planning phase, implementing a quality and equal platform for all communities, and increasing funding for public outreach efforts.	Will Consider: PMG will schedule a meeting with CPD and CX to review the 2016 recommendations and ensure that Metro's public outreach plans meet the best practice goals.
CATEGORY #16: PROJECT MANAGEMENT INFORMATION SYSTEM (PMIS)		
16.1	PMG should revisit whether all projects should use PMIS regardless of size or complexity	Will Consider: PMG will evaluate potential expansion of PMIS to all capital projects. Estimated completion by June 2024.
16.2	PMG should review whether there are resources available for Oracle Unifier information reporting enhancements, for example an "Alert Report" triggered by looming (or passed) response deadlines.	Agree: PMG will create audit report that alerts for missed deadlines. Estimated completion by December 2023.
CATEGORY #17: ADMINISTRATIVE PROCESS		
17	No Recommendations	N/A
CATEGORY #18, REORGANIZATION, STAFF ANALYSIS & TRAINING		
18.1	Metro should develop and implement an agency-wide initiative for attracting and retaining construction management professionals as full-time employees and consider increasing the ration of employees to consultants.	In Process: Program Management is partnering with Chief People Office to develop and implement an agency-wide initiative for attracting and retaining program management professionals. Procure a consultant to conduct an industry analysis on compensation to improve Metro's salary ranges to attract and retain external program management professionals. To retain existing staff, evaluate Program Management staff salaries to align compensation with current market conditions. Estimated completion - December 31, 2024.
18.2	Metro should develop and implement a program for inviting experts to work for Metro on an as-needed basis to mentor and train new Metro staff.	Will Consider: PMG Deputy Chiefs are already mentoring new project managers. PMG will consider hiring experienced Project Executives to supplement this effort for projects greater than \$500M.
18.3	PMG should revisit the, "2017 Training Needs White Paper" prepared in response to the 2016 BP Study to determine additional training needs.	In Process: The 2017 Training Needs White Paper was a draft document. PMG is currently developing a comprehensive Leadership Development Plan as part of Program Management Leadership Institute (PMLI) - estimated completion March, 2024.
CATEGORY #19, - Project Management Key Performance Indicators ("KPIs")		
19.1	PMG should develop policies and procedures that describe Project Manager roles and responsibilities that will be evaluated, encouraged, and strengthened.	Current Practice: PMG will continue to reinforce roles and responsibilities of all PMG staff through yearly Individual Performance Plans and specific training programs.
19.2	PMG should ensure that the Project Manager Performance Plan identifies and develops future leaders and encourages broad expertise across the entirety of the capital project construction management skillsets.	Current Practice: PMG continues to identify and train future leaders through support in programs such as Metro's Leadership Academy, LeadershipAPTA, and ENO programs.

CLUSTER D: STRATEGIC PROJECT MANAGEMENT		
023 Rec No.	2023 Recommendation	2023 Metro Management's Response
CATEGORY #20: METRO-WIDE PROJECT OVERSIGHT		
20.1	Metro and PMG in particular is recommended to revisit the 2016 Recommendations advocating for the adoption of PMBOK principles and processes, especially in light of the Early Intervention Team (EIT) initiative.	In Process: PMG is expanding the existing training curriculum for Program Management to encompass additional management principles. PMG will continue to be an active participant in the EIT initiative.
20.2	The EIT is essentially a pre-construction initiative but the interdepartmental collaboration may be helpful post-award to provide coordination and support for problem solving. The interdepartmental team may be reconstituted for a revised mission that supports the field office.	Will Consider: The EIT is constituted to cultivate an agency wide response and input during the most crucial phase of the project development, where the influence on the project is the most - the Planning phase. Issues during construction require Subject Matter Experts in construction. The construction phase is the implementation and execution of the construction contract. Post award, and if beneficial, PMG will consider using the EIT as a vehicle to leverage internal departments for collaboration and alignment.
CLUSTER E: RELOCATED GROUPS		
023 Rec No.	2023 Recommendation	2023 Metro Management's Response
CATEGORY #21 HIGHWAY		
21.1	Since the relocation of the Highways group to the Planning department, the PMG should collaborate with Countywide Planning and Development to ensure that Metro's Board is receiving complete information on highway capital projects.	Current Practice: PMG will continue to coordinate with Planning to ensure that complete and transparent information is provided to the Board. Currently, Planning reports on all highway projects that are administered by Caltrans and Program Management reports on all highway projects that are administered by Metro
CATEGORY #22: ASSET MANAGEMENT		
22.1	V/CM should include the contractor's scope of work and should include collecting and reporting asset serial numbers, warranty, and maintenance information.	In process: PMG continues to refine the maintenance and warranty process during the construction phase. PMG will engage Metro Operations to identify pain points related to project turnover and asset identification, and will incorporate lessons learned into future contract requirements. Complete by 12/15/23.

Office Of Inspector General

2023 OIG Construction

Best Practices

Report

Presented By
Karen Gorman
Inspector General

October 2023

Construction Committee

Los Angeles County Metropolitan Transportation Authority



Strengths: Metro has implemented OIG recommendations & continues to enhance

- Comprehensive procedures
- Detailed readiness checklists for PMG planning & project delivery selection
- Earlier engagement by PMG within the early project planning process

Vulnerabilities: Enhancements continue to be critical to mitigating risks

- Subsurface conditions including utilities & other structures
- Collaborative (and early) engagement with third party permitting authorities & utility owners
- Comprehensive use of risk management tools and deep project management on lower cost, less complex projects

Recommendation:

- Accelerate implementation of “lessons learned” including robust best practices extending to deep cross-departmental collaboration & partnering with third party stakeholders

Strengths: Metro has implemented OIG recommendations & continues to enhance

- Streamlined Change Order process with delegated authority practices balanced by controls through OIG's Quarterly Change Order Spot Check program
- Initiated Quality Management Oversight Program on new projects

Vulnerabilities: Enhancements continue to be critical to mitigating risks

- Contractors' disputed claims require aggressive disposition by Metro including partnering, mediation, and dispute resolution board
- Quality's Lessons Learned program is not universally embraced by participants in projects
- Metro will benefit from end-of-project assessments of contractors akin to federal programs to enlighten future procurement determinations

Recommendation: Accelerate implementation of "lessons learned" through enhancements to all policies, procedures and practices

Strengths: Metro has implemented OIG recommendations & continues to enhance

- Administrative Controls & Metro technology (“PMIS”) functions
- Strong document controls in place for Mega projects
- PMIS effectively collects, tracks, and handles data

Vulnerabilities: Enhancements continue to be critical to improving efficiencies

- Gaps may exist in effective public outreach early in project planning
- Metro’s full-time employees to consultant’s ratio for capital projects sits at 30/70 ratio with challenges to move toward goal of 50/50 ratio
- PMG data may be better tracked and marshalled using better coding
- Utilize PMIS to provide a transparent “score card” on Budget/Schedule/Safety

Recommendations:

- Continue to implement “lessons learned” for robust public participation
- Consider extended use of PMIS across smaller capital projects
- Accelerate initiatives to attract & retain staff & implement alternative staffing strategies

CLUSTER D: STRATEGIC PROGRAM OVERSIGHT

Strengths: Metro has implemented OIG recommendations and continues to enhance

- The 2022 launch of the Early Intervention Team (“EIT”) identifies & overcomes project challenges using cross-departmental expertise

Vulnerabilities: Enhancements continue to be critical to mitigating risks

- Application of Project Management Book of Knowledges (“PMBOK”) principles & processes are lacking
- Unified program of collaboration is a continuing vulnerability – but the EIT mitigates it

CLUSTER E: RELOCATED GROUPS

Strengths: Highways group relocated to Planning; more closely aligned with Caltrans.

Enterprise Transit Asset Management (ETAM) relocated to Operations & showing progress meeting goals.

Vulnerabilities: For Highways: a lack of reporting & transparency; for ETAM: collaboration with the PMG.

NEXT STEPS

File #
2023-0178

The 2023 OIG Construction Best Practices Report includes 37 recommendations to further enhance Metro’s construction management best practices.

The list of OIG recommendations & Metro responses are attached to this OIG report (Attachment B).

Additionally, concurrently with this report, the OIG submits a report entitled “Review of Metro Construction Projects Quantitative Data” (Legistar Report No. 2023-0474). That report describes an opportunity for the PMG to regularly report data and trends reflecting change order activity, reasons for change and revisions to the Board-approved Life of Project budget(s).

October 2023

Construction Committee

Los Angeles County Metropolitan Transportation Authority



**Board Report**

File #: 2023-0474, **File Type:** Informational Report**Agenda Number:** 22.

**CONSTRUCTION COMMITTEE
OCTOBER 19, 2023****SUBJECT: REVIEW OF METRO CONSTRUCTION PROJECTS QUANTITATIVE DATA****ACTION: RECEIVE AND FILE****RECOMMENDATION**

RECEIVE AND FILE Office of the Inspector General Review of Metro Construction Projects Quantitative Data.

ISSUE

The OIG has completed its Review of Metro Construction Projects Quantitative Data. This is a companion report to the 2023 OIG Construction Best Practices Report (Follow Up to the 2016 OIG Construction Best Practices Report).

BACKGROUND

The Board queried the Office of Inspector General (OIG) whether, given all the checks and balances and systems and processes that appear to be in place, has the OIG seen any measurable results related to the number and amount of change orders showing, is Metro moving in the right direction. The OIG is responding to the Board's request by reviewing cost/budget escalation across 29 construction contracts, schedule compliance / extensions, and Metro's safety incident experiences at construction project locations.

DISCUSSION

In the 2023 OIG Construction Best Practices Report found Metro to be in compliance with most of the recommended best practices over areas such as readiness, procurement, and management of construction projects. In this review analyzed quantitative data pertaining to three areas - Cost/Life of Project budgets, schedules, and safety management to evaluate the impact of the enhanced best practices. The cost/budget information includes Life of Project ("LOP") budgets escalation history and change order activity since 2013 across 29 construction contracts allowing for quantitative review.

LOP Budget - We reviewed data on the initial and revised LOP budgets presented to Metro's Board for authorization to commence and continue projects. We found the data suggests that to lessen LOP budgets revisions, Metro should strive for fixed and stable project definitions; enhance its estimating basis and analysis across the project life cycle; accept conservative risk analyses and encourage early and comprehensive site investigation to avoid subsurface conflicts and/or unanticipated extra work.

1. Of the 17 projects reviewed, 4 had no revision to the original Board approved LOP budget, 4 had 1 revision, and 9 had 2-3 revisions. Some of these projects are still open so additional increases to the LOP budget may occur in the future.
2. Substantial LOP budget increases are typically due to the addition of new work. However, in the case of PLE-3 the base contract work was procured separately (stations separate from tunnels). End-of-project claims for delay-related and change impact costs also contributes to exceeding LOP budgets (which was the case for Crenshaw/LAX).
3. Comparing the allocation of hard costs to soft costs across projects from the original LOP budget to the revised LOP budget shows that the allocation changes from hard costs being 75% of the LOP budget in the beginning but moving to 67% of the budget later. The reasons for this shift are different for each project.

Change Orders - We reviewed data on change order activity across the 29 construction contracts to identify “challenge” areas and trends. For all construction projects, large or small, transit or non-transit, the number and value of change orders can reveal both challenges and opportunities to be addressed by planners and implementers of design and construction projects.

1. The 29 construction contracts reviewed had a total of 2,261 change orders. These change orders resulted in an average 13% increase to the original value of the contracts. However, over half the construction contracts we reviewed are still open and may have pending or future claims that may result in additional change orders to the contract.
2. The three most common reasons for change orders (based on total value) is: 1) extra work at \$520m, 2) owner design changes at \$228m, and 3) differing site conditions at \$157m.
3. Design - build (DB) method projects experience a higher level of cost increase due to change order activity (whether open or closed) than design - bid - build (dbb) method projects (DB 14% vs dbb 10%).
4. Change orders over \$500,000 constitute 90% of change order costs yet equate to only 14% of overall 2,261 change orders. The average change order value in this category is over \$3 million. Nine of the 29 construction contracts are responsible for 53% of the total change order value over \$500,000.
5. Change Order basis coding broadly describes the reason for a contractor receiving an equitable adjustment to the contract but fails to provide internal visibility to the “true” cause of the change. Enhancements are needed for this data to be utilized for lessons learned purposes. In place of vague descriptors from the contractor’s point of view, the Change Order basis coding should inform management of the nature of the additional work and whether the cost was avoidable versus unavoidable, to improve Metro’s control and decision-making tools over budget, timing, pre-construction investigation, and the delivery method strategy.
6. Projects started in the last several years may not produce measurable data for some years in the future. The Metro Program Management Group (PMG) presented April 2023 the 18 Strategic initiatives for enhancements to construction management best practices. Some initiatives include: a revised LOP budget process, comprehensively applied risk management oversight, reviewing project soft costs, and continued efforts by the Early Intervention Team. As these initiatives are implemented, measurable data should become available for PMG to

compare with this baseline report.

Schedule - For purposes of this report we used the award date as the start date for each project we reviewed. The OIG used this data to determine schedule variances across the 7 projects.

1. Schedule variance exceeded 40% on 3 of the 7 projects; 2 projects experienced variances between 17% and 22%; and for the remaining 2 projects the schedules showed 0% change. For open projects, there is no assurance the current variances will not change.
2. Correlating schedule variances to LOP variances (looking only at the 7 sample projects), the OIG identified that for Crenshaw/LAX, Regional Connector and PLE-1 cost and delay variance had some correlation which could change based on future change orders. For Patsaouras Plaza, the LOP variance greatly exceeded the delay percentage which may be due to the conservative initial LOP budget and/or the high costs incurred for delay (the project was placed on hold for archeological investigation for about a year). For the Willowbrook Rosa Parks project, schedule variance did not result in a correspondingly high LOP budget variance which may relate to the delay being non-compensable.

The limited nature of reason coding for the schedule changes affected the OIG's ability to engage in complex analysis of a costs to schedule nexus. The OIG recommends enhanced reasons coding for change orders awarding time extensions whether compensable or not.

Construction Safety - The OIG selected data from four (4) projects to review and found:

1. Contractors universally cooperate in preparing certain required submittals including the Safety Plan for the project and providing pro forma monthly reports on general statistics about work hours, injuries, restricted employees, other matters. Contractors make excuses for not fully participating in safety investigations, root cause analysis and corrective action reports for "liability reasons."
2. Contractors may vary in how proactively they implement a best practices safety culture on the worksite. The Regional Connector sets a high standard for the contractor self-correcting safety non-compliances and working collaboratively with Metro's Safety Team. The OIG observes that this project's Incident Log contained the highest amount of administrative enforcement/engagement entries that demonstrates consequences for safety issues were imposed and reduced serious injuries.
3. Metro's success in overseeing contractor safety compliance depends on Metro hiring contractors with a robust safety culture. That is typically demonstrated by low "experience modification rates" less than 1.0. A rate under 1.0 shows a contractor is lower risk with less insurance claim history; above 1.0 demonstrates a risky contractor not focused on a safety culture and has multiple insurance claims (work site accidents) history.
4. The success of Metro's safety management program clearly depends on identification of a contractor's willingness to be collaborative and engaged concerning work site safety, throughout the project implementation. Post-award Metro would benefit from receiving from the contractor its documentation required by Cal/OSHA and by increasing periodic training on safety requirements from the Safety Manual that are connected to its contract with Metro.

Ending Comments - Although the outcome of implementing best practices could not definitively be quantified or measured to cost/budget, schedule, and safety at this time, by comparing similarly situated pre-2016 projects to post 2016 projects, (year references the OIG 2016 Construction Best Practices proposed 109 recommendations) the controls Metro has recently put in place are perceived anecdotally if not quantitatively to have an overall positive impact on the lifecycle of Metro's construction projects. Staff has stated that the Metro construction culture is continuing to improve, such as by the enhanced readiness reviews being performed. Thus, Metro should continue to identify and implement best practices. In this regard, the data presented in this report should be used as an initial baseline for PMG to conduct subsequent studies, identify trends in cost/budget, schedule, and safety, and to improve their management of construction projects.

FINANCIAL IMPACT

This report itself has no financial impact on the Agency. The OIG is reporting data provided by PMG and others on Life of Project Budgets and Change Orders, schedule information, and safety statistics and presenting the information to the Board in chart and tables.

EQUITY PLATFORM

There are no equity-related issues around geography or populations for any low-income equity-based communities related to this report. The report only discusses historical data and proposals for continued enhancement to construction related program management and administration.

IMPLEMENTATION OF STRATEGIC PLAN GOALS

This 2023 OIG Construction Best Practices Study supports Metro's Strategic Plan Goal #5: Provide responsive, accountable, and trustworthy governance within the Metro organization and CEO goals to exercise fiscal discipline to ensure financial stability. The OIG mission includes reviewing expenditures for fraud, waste, and abuse in Metro programs, operations, and resources. The goal this Review of Construction Projects Quantitative Data is to present to the Board cost/budget challenge areas, schedule conformance, and construction safety history and identify areas for improvement.

NEXT STEPS

This Review of Metro Construction Projects Quantitative Data report includes 13 recommendations to further enhance Metro's construction management best practices. Metro management responses are included as an attachment as (Attachment B). Additionally, concurrently, the OIG submits a report titled, OIG Report: 2023 OIG Construction Best Practices Report [Follow Up to the 2016 OIG Capital Projects Construction Best Practices Study]. That report describes strengths and vulnerabilities with best practice recommendations (Legistar 2023-0178). The two reports suggest management consider further enhancements to the program management and administration which they will inform us of their implement over time.

ATTACHMENTS

Attachment A - Report

Attachment B - Recommendations and Responses

File #: 2023-0474, **File Type:** Informational Report

Agenda Number: 22.

Prepared by: Prepared by: Suzanna Sterling, Construction Specialist Investigator (213) 244-7368

Reviewed by: Karen Gorman, Inspector General (213) 922-2975



Karen Gorman
Inspector General

Los Angeles County
Metropolitan Transportation Authority
Office of the Inspector General

Review of Metro Construction Projects
Quantitative Data

Case Number: 2023-0019
Legistar Report No. 2023-0474

October 3, 2023





Metro

**Los Angeles County
Metropolitan Transportation Authority**

Office of the Inspector General 213.244.7300 Tel
818 West 7th Street, Suite 500
Los Angeles, CA 90017

DATE: August 24, 2023

TO: Sharon Gookin

FROM: Karen Gorman, Inspector General

SUBJECT: Review of Metro Construction Projects Quantitative Data,
a companion report to the 2023 OIG Construction Best Practices Report

The OIG has completed its Review of Metro Construction Projects Quantitative Data. This is a companion report to the 2023 OIG Construction Best Practices Report (Follow Up to the 2016 OIG Construction Best Practices Report).¹

In this report the OIG presents data on Cost/Budget, Schedule, and Safety. We gathered data from Program Managements PMIS program of the data repository from years 2015 to 2023. The budget information includes change orders activity across 29 construction contracts to identify “challenge” areas and Life of Project (“LOP”) budgets escalation history. This report will discuss schedule compliance and extensions across a sample of Metro’s capital projects. Lastly, this report presents construction safety data from several projects.

The data presented in this report can be used to create a baseline for PMG to conduct subsequent studies to identify trends and improve management of capital projects.

We know this is short notice but could you please review this report and respond to the 13 recommendations on Cost/Budget, Schedule, and Safety. Please provide your responses on the spread sheet on or before August 31, 2023 so we may submit in time for FINAL CEO submittal into Legistar.

Respectfully,



Karen Gorman
Inspector General

cc: Stephanie Wiggins Sharon Gookin Sameh Ghaly Tim Lindholm Julie Owen
Gina Osborn Kenneth Hernandez Vijay Khawani

¹ The 2023 OIG CONSTRUCTION BEST PRACTICES REPORT (Follow Up to the 2016 OIG Construction Best Practices Report) will be published as Legistar Report No. 2023-0178 and OIG Report No. 2021-0046). This 2023 report follows up on progress since the OIG’s 2016 Capital Project Construction Management Best Practices Study, (“2016 Best Practices Study,” OIG Report No. 16-AUD-01).

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INTRODUCTION

At the April 20, 2023, Construction Committee meeting, a Board Director posed the question to the Office of Inspector General (OIG), “How are we doing? Are things getting better? Given all the checks and balances and systems and processes that appear to be in place, has the OIG seen any measurable results related to the number and amount of change orders showing that Metro is moving in the right direction?” The Director stated that the public would benefit from a “report card” providing visibility on Metro’s success in managing its capital program dollars.

The Inspector General responded that an OIG team is finalizing a report on a 2023 follow up on implementation of 2016 OIG Construction Best Practices Recommendations report (“2023 OIG Construction Best Practices Report”)² which describes the current status of Metro’s implementation of construction management best practices and would respond at least partially to the Director’s inquiry. This is the companion report to the 2023 follow up report as promised.

The 2023 OIG Construction Best Practices Report (follow up to the 2016 OIG Construction Best Practices Report) found that Metro’s Program Management Group (“PMG”) implemented 64 of the OIG’s 109 recommendations in the prior OIG report. For 31 other recommendations, improved practices were identified as actively “evolving” in response to iterative lessons learned. Lastly, the OIG determined 14 of the previous recommendations need further improvement. The Director’s inquiry inspired the OIG to bridge the conceptual findings of the 2023 OIG Construction Best Practices Report with supplemental data describing the cost/budget, schedule, and safety impacts across a sample of Metro’s capital projects.

In this companion report, the OIG presents data on costs/budget, schedules, and safety. The cost/budget information includes Life of Project (“LOP”) budgets escalation history and change order activity since 2013 across 29 construction contracts allowing for quantitative review. This report will discuss cost/budget challenge areas along with related schedule conformance across a sample of Metro’s capital projects. Lastly, this report presents construction safety data from several projects. The data presented in this report can be used to create a baseline for PMG to conduct subsequent studies to identify trends and improve management of capital projects.

We attempted to determine if the implementation of the best practices following the 2016 report has clearly resulted in cost/budget, schedule, and safety improvements. We are unable to make that certain correlation at this time, but we think this report can serve as a baseline for tracking data in the future to begin to make that correlation.

² The 2023 OIG CONSTRUCTION BEST PRACTICES REPORT (Follow Up to the 2016 OIG Construction Best Practices Report) will be published as Legistar Report No. 2023-0178 and OIG Report No. 2021-0046). This 2023 report follows up on progress since the OIG’s 2016 Capital Project Construction Management Best Practices Study, (“2016 Best Practices Study,” OIG Report No. 16-AUD-01).

RESULTS OF REVIEW

A. COSTS/BUDGET

1. Project Data

Program Management Group (“PMG”) provided budget and schedule data for seventeen (17) projects active during the 2013-2023 period. A project’s budget includes costs for associated construction contracts. Table 1, summarizes the 17 projects and lists each project’s associated construction contract(s).³

Project Name	Contract No.	Contract Name
Patsaouras Plaza Station Improvement	C0970	Union/Patsaouras Plaza Busway Station
Crenshaw LAX Transit Corridor	C0988	Crenshaw/LAX Transit Corridor Design-Build
Crenshaw Closeout	C1217	Crenshaw/LAX Construction Punch Out Work
Regional Connector	C0980	Regional Connector Transit Corridor Project Design/Build
Willowbrook Rosa Parks	C1157	Willowbrook/Rosa Parks Station Improvements Package E & F
	C1161	Willowbrook/Rosa Parks Station Improvement - A & C
MBL Track/System Refurbish	C1161	Willowbrook/Rosa Parks Station Improvement - A & C
	C1168	Metro Blue Line Track and System Refurbishment
I5N North County	C0988	Crenshaw/LAX Transit Corridor Design-Build
	C0991	Division 16: Southwestern Yard
Eastside Access	C1207	Eastside Access Improvements
Soundwall 11	C1101	Soundwall Package 11
Metro Center Street	C--1169-2	Metro Center St Project Design/Build
Division 20 Portal Widening	C1136	Division 20 Portal Widening Turnback
	C--1184	Division 20 Traction Power Substation PWT2
Purple Line Section 2	C1120	Westside Purple Line Extension, Section 2 - Design/Build
Rosecrans/Marquardt	C--1210	Rosecrans/Marquardt Grade Separation Project
Rail to Rail	C1166	Rail to Rail Active Transportation Corridor
Purple Line Section 1	C1034	WSE Project Exploratory Shaft
	C1045	Westside Subway Extension Project, Section 1
	C1048	WSE Project Advanced Utility Relocations (La Brea Station)
	C1055	Advanced Utility Relocations (Fairfax Station)
	C1056	Advanced Utility Relocations (La Cienega Station)

³ A project may have more than one construction contract. Also, a construction contract may “touch” more than one project which is the case with C0988, C0991 and C1161 (red font). Multiple projects may pertain to related work, e.g., the two listed Crenshaw/LAX projects. For I5 North, the OIG reviewed LOP and change data for Project No. 460303, but only change order data for Project No. 460313

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	C1078	Maintenance of Way/Non Revenue Vehicle Maintenance Building 61S
Purple Line Section 3	C1151	Purple Line Extension Sec 3 Tunnels Project
	C1152	Purple Line Extension Section 3 Stations Project - Design/Build
	C1153	Advanced Utility Relocations for Section 3
	C1204	VA Shuttle and Valet Services During Construction
Airport Metro Connector	C0988	Crenshaw/LAX Transit Corridor Design-Build
	C0991	Division 16: Southwestern Yard
	C1197	Airport Metro Connector Transit Station/96th Street Station

Table 1: List of 17 Projects with Construction Contracts

2. Establishing and Holding to the Life of Project Budget

Project conception and development starts in Metro’s Countywide Planning and Development Department (“Planning”) and incorporates early but limited PMG involvement. Typically, at the conclusion of the environmental compliance process and preliminary engineering (approximately 30% engineering), project management responsibility fully transitions from Planning to PMG. PMG is responsible for developing, and getting the approval of Metro’s Board for, “all budget necessary for internal and external resources required to advance the project through Engineering and into a Delivery Procurement ...”⁴

PMG develops a Life of Project (“LOP”) budget for each construction project. In lieu of a baseline LOP budget, a “preliminary LOP budget” sufficient to cover early-stage costs and contingency for risk may be developed. The “true” board-approved LOP budget covers all costs for project implementation through the end of the project.⁵ The OIG’s 2023 Construction Best Practices Report describes development of an enhanced LOP budget process where the LOP budget may be “phased” in two steps to allow for refinements following completion of preconstruction investigation and design.

Metro’s current policies and procedures implement best practices for establishing and holding to the board-approved LOP budget. In practice, a number of circumstances impact Metro holding to its LOP budget, including:

- The status of funding for an entire project which may prompt interim budget actions for severable components phased for implementation;
- The reliability of cost estimates;
- Risk analyses identifying and establishing contingency based on “known-unknowns”;

⁴ See the PMG’s PC14 – Readiness Review Procedure.

⁵ Pursuant to PC-14 – Readiness Review, Budget/Cost considerations include a “rough order of magnitude (ROM) or parametric level (Class 5) cost estimate covers design and construction costs, utilities, real estate, vehicles, professional services, contingency, finance charges, and escalation to Year of Expenditure (YOE)”;

and “a cost estimate Basis & Assumptions document is in place that describes the estimating methodology, sources of unit costs, escalation, allocated and unallocated contingency, parametric estimating approaches, use of design allowance and escalation. . .”

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- Minimal changes or additions to scope by Metro, including pursuant to third-party stakeholders' requests;
- Materially accurate and timely pre-construction site investigations;
- Comprehensive and accurate plans and specifications considering local requirements;
- Minimal impacts from force majeure events, including, weather, pandemics, supply chain disruptions, global inflation.

3. Life of Project Budget Data

Data for the 17 separate projects includes the original LOP budget, current LOP budget, total LOP budget variance (current budget less original amount), the calculated percent increase, and the count of increases following the original LOP budget.

Table 2 summarizes by project the LOP budget amounts, budget variances, and percent increases. The white-shaded rows show projects with no LOP budget variance.

PROJECT Information		PROJECT Cost Data				
No.	Project	Orig LOP	Current LOP	Variance	% Variance	# Increase
202317	Patsaouras Plaza Station Improv.	16,800,000	50,900,000	34,100,000	203%	3
865518	Purple Line Section 1	2,774,000,000	3,129,000,000	355,000,000	13%	3
869512	Crenshaw Closeout	30,000,000	57,000,000	27,000,000	90%	2
212121	Metro Center Street	112,700,000	143,700,000	31,000,000	28%	2
460324	Soundwall 11	89,200,000	111,000,000	21,800,000	24%	2
860228	Regional Connector	1,420,000,000	1,755,800,000	335,800,000	24%	2
865512	Crenshaw/LAX Pre-Award	1,762,900,000	2,148,000,000	385,100,000	14%	2
	Crenshaw/LAX Post-Award*	2,058,000,000	2,148,000,000	90,000,000	4%	1
210509	Rail to Rail*	115,900,000	140,290,000	24,390,000	21%	2
865519	Division 20 Portal Widening	802,000,000	957,000,000	155,000,000	19%	2
865523	Purple Line Section 3	3,169,000,000	3,224,000,000	55,000,000	2%	1
210151	Willowbrook Rosa Parks	109,300,000	128,300,000	19,000,000	17%	1
205115	MBL Track/System Refurbish	90,800,000	102,300,000	11,500,000	13%	1
865522	Purple Line Section 2	2,440,969,299	2,574,969,299	134,000,000	5%	1
460303	I5N North County	679,300,000	679,300,000	0	0%	0
463300	Eastside Access	29,700,000	29,700,000	0	0%	0
460066	Rosecrans/Marquardt	156,400,000	156,400,000	0	0%	0
860303	Airport Metro Connector	898,600,000	898,600,000	0	0%	0

Table 2: 17 Projects –Original and Current LOP Budget, Variance and Percent Increase

In Table 2, after discussion with PMG, the OIG agreed to adjust the “raw” original LOP data (provided by PMG) for the Crenshaw and PLE-3 projects to include amounts added once

Metro's funding actions were completed.

- PLE-3 original budget was adjusted to include an increase of \$1,849,000,000. This projects' original LOP budget covered advanced the utility relocation and the tunnel contracts, but there was a planned additional contract to incorporate the stations contract once funding become available. The new addition, which caused of \$53,000,000 was from an unanticipated request to construct the VA hospital parking garage. PLE-3's final LOP of \$3.22 billion incorporates all contracts for the PLE-3 project. PMG clarified that the increase was from Metro issuing multiple interim life of project budgets pending approval of the Federal Transit Administration's ("FTA") full funding grant agreements (FFGA) – not to unanticipated project changes. The OIG thus learned that issuing interim LOP budgets as a project is phased, is in accordance with FFGA approved funding but is an exception to typical PGM practices.
- Records show that the Crenshaw/LAX Project's original budget started at (\$1.749M). LOP increases were based on: (a) \$13.9M from an FTA TIGER II Discretionary Grant, (b) \$160.1M from to higher-than-expected cost proposals, (c) \$135.0M to fund Crenshaw/Vernon and Florence/Hindry stations, and (d) \$90M for extension of project beyond substantial completion. For this report, Project Controls reported an original "Pre-Award" (construction) LOP budget of \$1.762M. Program Management says \$2.058M is the "Post-Award" (construction) LOP which includes 2 addition stations. No pending end-of-project claim amounts are included in the LOP.

In the aggregate, the total original LOP budgets are \$14,697,569,299 and the sum of the variance amounts are \$1,588,690,000. Thirteen (13) of the 17 projects experienced LOP budget increases for an overall 11% increase in total LOP budget. The discussion that follows briefly summarizes LOP budget increases and does not attempt a comprehensive review of each project's LOP increase.

Summary of Project LOP Budgets

Two projects experienced 3 LOP budget increases. Patsaouras Bus Plaza infamously encountered sensitive archeological artifacts causing the project to be placed on standby status leading to delay damages payable to the contractor. Purple Line Extension Section 1 ("PLE-1"), increases for the most part, result from differing subsurface site conditions. These differing site conditions could have been more foreseeable with a robust geological study but not wholly avoidable.

Seven (7) projects currently show 2 increases to the LOP budget. For 3 projects, PMG provided brief explanations of the increases: the Crenshaw/LAX Transit Center budget was revised to include additional stations; the Metro Center Street Project budget was set before the start of design (essentially guaranteeing a need to revisit), and the Rail-to-Rail Project had an increase to the LOP budget with receipt of funding from the City of Los Angeles.

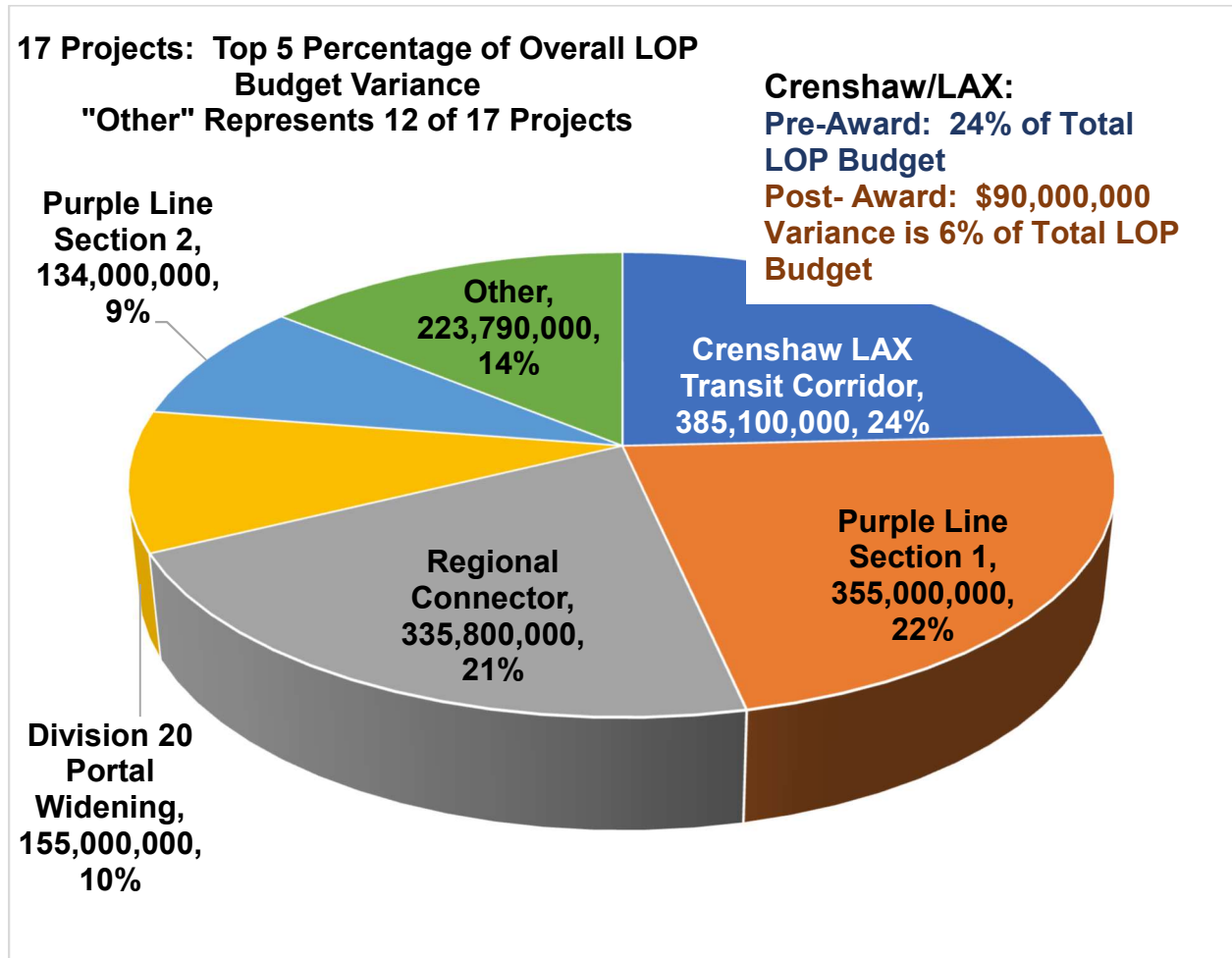
Four (4) projects required one revision to the LOP budget. The LOP budget for Purple Line Extension Section 2 ("PLE-2"), was increased in July 2023 for reasons including (1) previously unidentified scope; (2) third party requirements; and (3) professional services and utility companies' costs.⁶ Moreover, additional risks have developed from the contractor submitting

⁶ PMG's data was supplemented by the LOP budget increase for PLE-2. (See Legistar #2023-0316.)

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Request for Change notices alleging compensable schedule delay costs. The Purple Line Extension Section 3 (“PLE-3”) LOP budget was increased to accommodate separate contracts. Metro instituted a phased approach to this project resulting in phasing of the LOP budget to include: advanced utility relocations, tunnels, stations, and a parking garage structure.

Four (4) projects show no revision to the original Board approved LOP budget. Those projects are “open” with the potential for an increase to budget. Two of the construction contracts under I-5 North County project show no change order activity after June 2022 and PMG reports minimal change order activity on its primary open contract (the OIG was not provided that data).



Five (5) projects are responsible for 86% of the \$1.6 billion LOP budget increase.

Chart 1: Top 5 Projects by Allocation of Total LOP Budget Increase

Chart 1, shows the 5 projects and the percentage of the \$1.6 billion for which the project is responsible.

Correlating LOP Budget Increases to Hard versus Soft Project Costs

The baseline LOP budget is “based on cost estimates for each procurement and construction contract, professional services, right-of-way acquisition, vehicles, and contingency for the

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project.”⁷ The LOP budget is developed during the project adoption process and is approved by Metro’s Board of Directors. The LOP budget does not include amounts incurred prior to submission of Metro’s application to the Federal Transit Administration for a full-funding grant agreement (“FFGA”) which typically includes early planning costs, such as environmental review and preliminary engineering costs.

For this report, the OIG distinguishes two categories of costs.

- **Hard Costs:** Amounts that will be paid under construction/design contracts, including an assumed 15% contingency.
- **Soft Costs**⁸: All other costs accounted for under the LOP budget to implement a project once (1) the project is transferred to PMG as the lead project manager, and (2) Metro’s FFGA application has been submitted. These costs may include legal review, program, project and construction management services and additional contingency.

PMG provided data for 29 construction contracts including original contract amount and all associated change order activity. A total of 2,261 final, approved change orders (contract modification) were provided by PMG with each having the effect of modifying the original contract to (a) add or change the Scope of Work and, as appropriate, (b) compensating the contractor for additional costs or schedule time. A change order can be deductive - reducing work, costs, or time - as well as additive.

Table 3 summarizes for the 29 construction contracts, the quantity count, and value, of change orders. The contracts are sorted by highest to lowest Change Order activity by percent of the original contract amount. “Change Order” is abbreviated “CO” in the column headings. The Top 7 highest percentage change order projects (over 30%) are bolded. **Table 4** provides a “key” for identifying the Top 7 construction contracts by name and project. (Refer to **Table 1**, for contract number and project/contract name.)

Contract Number	Original Contract Amount	CO Count	CO Total	Revised Contract Amount	CO %
C0970	19,832,000	35	\$12,353,618	\$32,185,618.35	62%
C1161	53,752,115	148	\$29,260,843	\$83,012,958.00	54%
C1048	6,181,000	40	\$2,242,237	\$8,423,237.00	36%
C1168	67,953,655	39	\$24,368,112	\$92,321,767.42	36%
C1204	2,952,701	2	\$1,018,159	\$3,970,860.00	34%
C1078	52,830,310	51	\$17,137,597	\$69,967,906.62	32%
C0980	927,226,995	258	\$276,405,958	\$1,203,632,952.95	30%
C1136	431,777,000	196	\$119,530,910	\$551,307,910.16	28%
C60373-C1184	16,187,495	19	\$3,693,567	\$19,881,062.00	23%
C1101	66,041,760	73	\$11,908,122	\$77,949,881.63	18%
C1153	11,439,000	13	\$2,036,849	\$13,475,849.02	18%
C1045	1,636,418,585	191	\$272,864,722	\$1,909,283,306.51	17%
C0988	1,272,632,356	561	\$176,734,198	\$1,449,366,554.43	14%
C1120	1,376,500,000	192	\$152,173,015	\$1,528,673,015.43	11%
C1166	84,548,733	43	\$8,930,546	\$93,479,279.30	11%
C1081	81,513,000	23	\$8,447,654	\$89,960,654.26	10%

⁷ See PMG Policy & Procedure, PC02, Project Budget.

⁸ The OIG use of the term “soft costs” differs from Federal Transit Administration definitions for funding purposes.

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C1151	410,002,000	25	\$24,439,564	\$434,441,563.74	6%
C1207	8,947,201	15	\$374,022	\$9,321,223.38	4%
C0991	86,532,695	59	\$2,937,193	\$89,469,888.11	3%
C1034	6,487,020	13	\$156,712	\$6,643,732.27	2%
C1152	1,363,620,000	126	\$32,801,845	\$1,396,421,844.63	2%
C1197	470,627,000	23	\$9,721,218	\$480,348,218.00	2%
C1217	6,777,065	3	\$137,436	\$6,914,501.36	2%
C77307C1210	48,376,253	4	\$556,634	\$48,932,887.00	1%
C52151C11692	83,650,722	38	\$911,506	\$84,562,228.18	1%
C70396C1205	379,957,232	27	\$180,654	\$380,137,885.95	0%
C1055	14,430,000	25	-\$352,220	\$14,077,780.35	-2%
C1056	20,250,000	13	-\$1,096,590	\$19,153,410.11	-5%
C1157	3,004,000	6	-\$1,501,754	\$1,502,246.00	-50%
Grand Total	9,010,447,893	2,261	\$1,188,372,329	\$10,198,820,222	13%

Table 3: Total Change Order Activity for 29 Construction Contracts

Contract #	Contract Name	Project #	Project Name
C0970	Union/Patsaouras Plaza Busway Station	202317	Patsaouras Plaza Station Improvement
C0980	Regional Connector Transit Corridor Project Design-Build	860228	Regional Connector
C1048	WSE Project Advanced Utility Relocations (La Brea Station)	865518	Purple Line Section 1
C1078	Maintenance of Way/Non Revenue Vehicle Mntce Building 61S Design Build	865518	Purple Line Section 1
C1168	Metro Blue Line Track and System Refurbishment	205115	MBL Track/System Refurbish
C1204	VA Shuttle and Valet Services During Construction	865523	Purple Line Section 3
C1161	Willowbrook/Rosa Parks Station Improvement - A & C	210151	Willowbrook Rosa Parks
		205115	MBL Track/System Refurbish

Table 4: Top 7 Construction Contracts by Percent Change Order Activity

The OIG adjusted original LOP budgets to reflect interim budgeting based on FFGA funding, however, we did not modify change order data under the construction contracts under Crenshaw/LAX or PLE-3.

Combining LOP budget data with construction contract data, the OIG analyzed the allocation of hard to soft costs using the following methodology:

Step 1: Total hard costs by construction contract: For each of the construction contracts, the OIG added a 15% reserve contract amount.

Step 2: Total hard costs by project: For each project, the OIG summed the total hard costs across all construction contracts under the project.

Step 3: Total “soft costs” by project: The OIG deducted the total hard costs from the LOP budget to identify the remaining costs as soft costs.

Step 4: The OIG analyzed the proportion of hard cost to soft cost for (a) the Original LOP Budget and (b) the Current LOP Budget. The distinction between “(a)” and “(b)” is that for “(b)” in Step 1, OIG supplements the hard costs with total change orders to date; for Step 2, the OIG uses the current revised LOP budget amount to allocate current soft costs.

Step 5: Project Status: The OIG applies an assumption regarding project status designating a project as “open” if there has been change order activity after June 2022; if not, the project is deemed “closed.” The OIG acknowledges that administrative matters such as end-of-project claims may be pending.

Table 5 (appearing on page 10) summarizes the status of the LOP budget in relation to original and post-change order construction contract amounts. The data is high level (lacking detail or nuance on the circumstances of a particular project) but it offers the opportunity for observations on Metro's performance of the LOP budgets.

Negative values are shown where initial LOPs were insufficient to cover the original hard costs for construction. See, e.g., Patsaouras Plaza and PLE-1. The I-5 North County project calculated 0% hard costs – reflecting error or anomaly and is excluded from observations.

On average, the allocation for original LOP budgets is 67% hard costs and 33% soft costs. For current LOP budgets, the average allocation changes to 66% for hard costs and 34% for soft costs. In the aggregate, there is minimal variability of the allocation from the original to current LOP budget. There can be wide variability within projects that are not explainable from the data alone. One can speculate that a project with hard costs lower than the average allocations (and concurrently higher soft cost allocation) has increased its reserves for additional work.

To achieve reliability in any analysis, PMG's data would have to include approved change orders and pending change orders and additionally provide transparency to received/rejected Requests for Change ("RFC"). The OIG surmises that in some instances a current LOP budget includes risk-based amounts, as mentioned in the recent LOP increase for PLE-2. However, the analysis reveals the only allocation of soft costs appears to be large or increase when either (a) there is little change order activity or (b) there may be the potential for a large end of project change order.

PMG has described that there is full visibility in its database system for all received/rejected RFCs. PMG emphasizes the timely processing of approved RFCs (which become change orders); however, with rejected RFCs, the OIG understands that the timing for final response to the contractor is less tightly controlled. The OIG will recommend robust and timely RFC tracking for purposes of monitoring the risk of potential claims by a contractor. Additionally, this information becomes key to defending Metro if the rejected matters become part of an end of project claim.

The OIG makes no recommendation about the anomaly created when a project's LOP budget is an exception to the budget process where a project can be phased but the budget is developed using an interim budget approach pending the FFGA funding. In undertaking this quantitative data analysis, the OIG assumed that revisions to the LOP budget would universally relate to construction management performance. However, we found this is not true. Policy decisions to phase separable project components due to funding constraints result in undermining the usefulness of the LOP budget as performance indicator. In such cases, it may be appropriate for Metro's Board to review and approve a "program-level" project budget concurrently with its review and approval of the latest LOP budget to allow for full transparency to the public on project costs.

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PROJECT Information	PROJECT Cost Data		Original LOP - Soft Costs Analysis		Hard Costs	Current LOP - Soft Costs Analysis		Hard Costs
Project Name	A. Original LOP Budget	B. Current LOP Budget	C. Original LOP Less Orig Contract Plus 15%	D. Original Percent Soft Costs (C ÷ A)	Percent of LOP 100% - Soft % (D)	E. Current LOP Less New Contract Value Plus 15%	F. Current LOP Percent Soft Costs/Reserves (E ÷ B)	Percent of LOP 100% - Soft % (F)
Closed Projects								
MBL Track/System Refurbish	90,800,000	102,300,000	12,653,297	14%	86%	-\$722,816	-1%	101%
Regional Connector	1,420,000,000	1,755,800,000	353,688,956	25%	75%	\$413,082,998	24%	76%
Crenshaw LAX Transit Corridor	1,762,900,000	2,148,000,000	299,372,791	17%	83%	\$545,105,363	25%	75%
Willowbrook Rosa Parks	109,300,000	128,300,000	44,030,468	40%	60%	\$35,779,379	28%	72%
Patsaouras Plaza Station Improvement	16,800,000	50,900,000	-6,006,800	-36%	136%	\$15,739,582	31%	69%
Crenshaw Closeout	30,000,000	57,000,000	26,604,394	89%	11%	\$52,586,235	92%	8%
Open Projects								
Soundwall 11	89,200,000	111,000,000	13,251,976	15%	85%	\$23,143,854	21%	79%
Rail to Rail	115,900,000	140,290,000	18,668,957	16%	84%	\$11,784,484	24%	76%
Purple Line Section 1	2,774,000,000	3,129,000,000	776,913,548	28%	72%	\$840,961,090	27%	73%
Metro Center Street	112,700,000	143,700,000	16,501,670	15%	85%	\$46,590,164	32%	68%
Purple Line Section 2	2,440,900,000	2,574,969,299	857,925,000	35%	65%	\$839,821,284	33%	67%
Division 20 Portal Widening	802,000,000	957,000,000	286,840,831	36%	64%	\$318,616,354	33%	67%
Purple Line Section 3	3,169,000,000	3,224,000,000	1,112,784,244	35%	65%	\$1,107,996,906	34%	66%
Airport Metro Connector	898,600,000	898,600,000	357,378,950	40%	60%	\$345,699,212	38%	62%
Rosecrans/Marquardt	156,400,000	156,400,000	100,767,309	64%	36%	\$100,210,675	64%	36%
Eastside Access	29,700,000	29,700,000	19,410,719	65%	35%	\$19,036,696	64%	36%
I5N North County	679,300,000	679,300,000	679,300,000	100%	0%	\$639,384,644	94%	6%
Totals	14,697,500,000	16,286,259,299						
Average Soft Cost Estimated Allocation			4,970,086,308	34%	66%	5,354,816,103	33%	67%
Average Hard Cost Estimated Allocation			9,727,413,692	66%	34%	10,931,443,196	67%	33%

Table 5: Estimated Allocation of Hard & Soft Costs for 17 Projects' LOP Budgets

4. Visibility on Reasons for Increases to the LOP Budget

Section 3 encountered and discussed circumstances when it might be appropriate to adjust an original LOP budget to avoid mischaracterizing the bases for revisions to the LOP budget. Having established the appropriate baseline LOP budget, the OIG next reviewed LOP budget increases in the context of increases to the project’s hard costs (e.g., costs paid to a contractor to design and/or build a project). For each construction contract, the OIG analyzed the “reason for change” assigned to each individual change order. In the aggregate, change order reasons data illuminates the areas of challenge for Metro in establishing and holding to its LOP budget.

The record supporting a change order must include a merit determination describing the contractor’s entitlement to a change order. PMG currently uses two systems of “shorthand” descriptions to track the reasons for change in Metro’s change order database. The “1994 Reasons” is Metro’s legacy system used for all 2,261 change orders. Table 6 summarizes the 1994 Reasons. PMG’s formal procedure “Contract Change Basis Coding System” is attached in the appendix as Attachment A.

1994 REASON - Change Basis	
110 - Extra Work	440 - Quantity Adjustments
120 - Deletion of Work	510 - Owner Design Changes
130 - Contract Scope Deletion	530 - Document Corrections
210 - Delay of Work (Compens)	540 - Value Eng - Contractor
220 - Acceleration of Work	620 - Comprehensive Claims
230 - Milestone Rev (No Cost)	710 - Outside Agency Request
310 - Diff. Site Condition	720 - Design Changes
320 - Hazardous Material	730 - Outside Agency
330 - Safety Conditions	800 - Exercz Contract Options
410 - Terms/Conditions -Owner	810 - Period of Performance
430 - Editorial Clarification	900 - Other

Table 6: Change Basis – 1994 Reasons

A newer coding basis initiated in approximately 2018, “Reasons – Streamlined” is summarized in Table 7. PMG’s initial export of data dated from January 2017 included this basis on all change orders. A second data release from 2013 forward was incomplete. Therefore, 861 change orders for the period 2013 through 2016 do not use this coding basis. For that reason, the OIG will limit its use of the “Reasons – Streamlined data.

REASON - Streamlined Change Basis
1 - Betterment
2 - Third Party
3 - Differing Site Conditions
4 - Regulatory Requirements
5 - Scope
6 - Value Engineering
7 - Safety

Table 7: Change Basis - Streamlined

As a first step, the OIG analyzes the change order reason data “globally” with no parsing based on type of project for an understanding of the general distribution of change orders across “reasons for change.”

Second, the OIG analyzes the change order reasons data in accordance with the OIG’s Spot Check program which was adopted as a quality assurance measure following the Metro Board’s adoption of the 2018 Delegation of Authority Policy reporting PMG’s contracting and change order actions.⁹ Under this program, selected change orders over \$500,000 are reviewed for compliance with PMG’s policies and procedures and to confirm best practices were used for merit and significant determinations. Additionally, recommendations and lessons learned are made in these reports. For this review, change orders were grouped by value, as follows: (a) over \$500,000 (OIG Spot Check threshold value); (b) from \$.01 to \$500,000; and (c) \$0 and net credit (deductive).

Third, the OIG classifies the data by “delivery method,” referring to the type of procurement used by Metro to implement the project. For the design bid build (“dbb”) method, Metro oversees pre-design research and the design process before inviting bids from general contractors to implement the completed 100% design. The subsequent construction contract involves only construction work. For a design build (“DB”) type project, Metro tackles a portion of pre-design work to create preliminary designs and project requirements.¹⁰ Metro then invites bids from vendors interested in performing both the final design (including final plans and specifications) and implementing the construction work. Bidders on DB projects are typically joint enterprises composed of independent designers and general contractors. A project that involves multiple construction contracts may have a mix of DB and dbb delivery methods. This is the case for both PLE-1 and PLE- 2 using dbb for advanced utility relocation and DB for stations and tunnels construction.

Change Order Reason Analysis

Tables 8 and 9 summarize the count and value of all 2,261 change orders by change basis code. The data is sorted from highest to lowest percent of change order by change basis. For “1994 Reasons,” the Top 7 basis for change (by percentage) are bolded. The bolded data is then summarized by the accompanying Chart 2.

Consistently across all contracts and both change coding bases, the top reason for change is “Extra Work” (change to scope). The next top reasons for change orders are “Owner Design Changes,” “Differing Site Conditions” and “Outside Agency” (also referred as “Third Party”). Still on the chart but as a smaller percentage is “Comprehensive Claims” and “Delay.” This data appears to convey that either (a) Metro awards its construction contracts prior to establishing a fixed and stable work scope, and/or (b) Metro awards its construction contracts prior to completed pre-construction work that would allow for incorporation of all project work site constraints.

Regardless of what the data appears to convey, the OIG makes no findings on the data because descriptors are too vague to capture the true reason for a change order; as such, they

⁹ See Compliance Bulletin 18-03/(Re)Delegation of Authority – Matrix Compliance Bulletin 18-03/Re-Issue of Change Order Streamlining Rules.

¹⁰ Metro is expanding its methodologies to include variations on standard DB approaches (e.g., “progressive DB”). PMG may want to “code” its delivery methods to capture these DB variations.

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are not a useful diagnostic tool for lessons learned. For example, the 110 code, Extra Work, has 958 change orders (42% of the total 2,261 change orders) and appears to be a “catch all” for a person who may not be fully informed to the exact problem.

The reasons for these changes should be more specifically identified to inform Executive Management and Metro’s Board whether a change was “avoidable” versus “unavoidable.” Further distinctions of descriptors could include a category of “avoidable,” a term which implies the ability to apply Metro’s resources *pre-procurement* to avoid the change.¹¹ Differing Site Conditions related to anything found under the soil, including utilities, are classic subsurface examples that could be avoidable with a more robust geotechnical exploration and supporting geotechnical report. Additionally, better coding could help identify future lessons learned and help Metro to compare the costs of better site investigation versus other change related costs for additional work.

PMG describes that its database program for tracking change orders includes a field for “Cost Recovery Type” that may provide the additional detail the OIG describes as useful and necessary. Opportunities for enhanced reporting are readily available, with improved coding standards, training, consistent, and utilization. Metro will have a much-improved change basis reporting system.

1994 REASON	CO Count	CO Total
110 - Extra Work	958	\$520,700,202
510 - Owner Design Changes	340	\$228,429,064
310 - Diff. Site Condition	200	\$157,199,723
620 - Comprehensive Claims	45	\$87,064,248
210 - Delay of Work (Compens)	23	\$60,119,831
710 - Outside Agency Request	173	\$48,827,539
730 - Outside Agency	56	\$30,359,462
410 - Terms/Conditions -Owner	56	\$28,567,029
800 - Exercz Contract Options	10	\$23,455,675
530 - Document Corrections	160	\$22,469,535
220 - Acceleration of Work	14	\$12,878,638
330 - Safety Conditions	31	\$6,562,492
440 - Quantity Adjustments	15	\$5,591,585
320 - Hazardous Material	26	\$2,814,685
900 - Other	5	\$1,611,401
810 - Period of Performance	9	\$233,896
720 - Design Changes	1	\$217,004
230 - Milestone Rev (No Cost)	12	\$0
430 - Editorial Clarification	49	-\$106,760
120 - Deletion of Work	52	-\$13,112,073
130 - Contract Scope Deletion	19	-\$13,127,098
540 - Value Eng - Contractor	7	-\$22,383,748
Grand Total	2,261	\$1,188,372,329

Table 8: 1994 Reason for Change - All COs – Top 7 Reasons in Bold.

REASON - STREAMLINED	CO Count	SubTotal
#N/A	861	\$413,154,981
5 - Scope	823	\$422,394,845
3 - Differing Site Conditions	172	\$175,950,321
2 - Third Party	265	\$115,375,120
1 - Betterment	25	\$59,274,704
7 - Safety	59	\$20,055,398
4 - Regulatory Requirements	43	\$7,525,174
6 - Value Engineering	13	-\$25,358,214
Grand Total	2,261	\$1,188,372,329

Table 9: Reason - Streamlined - All COs

¹¹ The OIG recognizes that variations on the DB delivery method are being instituted to leverage opportunity to phase construction work in a way that avoids the need for change orders.

Chart 2 displays the 1994 Reasons showing only the Top 7 change reasons and combining all other changes (only 5%) in one group referenced as “Other.”

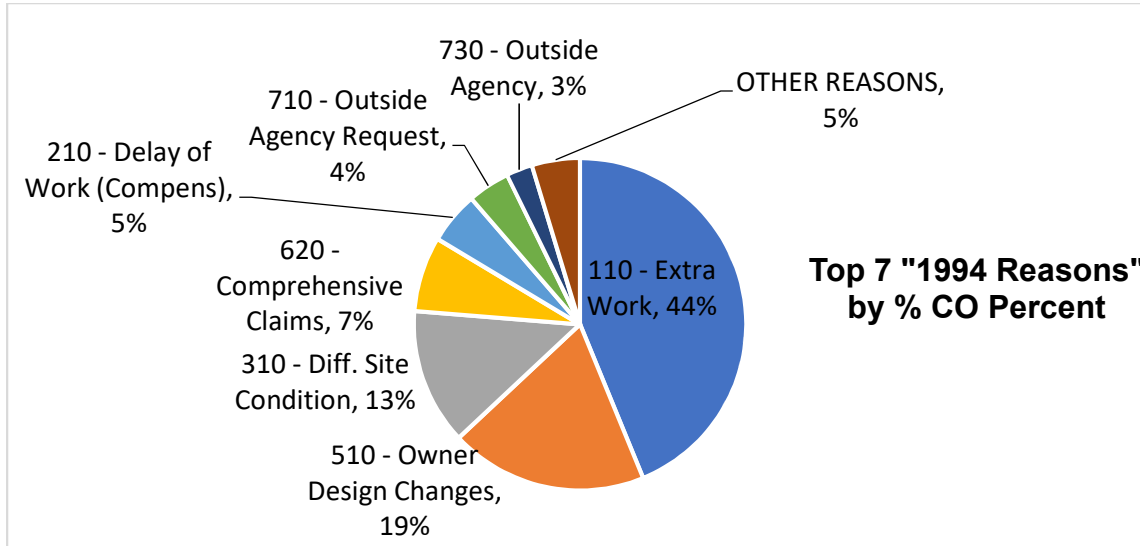


Chart 2: Top 7 “1994 Reasons” for Change Orders by Percent Across 29 Contracts

Applying the OIG’s Spot Check criteria, [Table 10](#), summarizes for 29 construction contracts initiated after 2013 the total count and value of change orders, and categorizes and subtotals the change orders according to whether they have a value of (a) no or credit amount (\$0 or net credit), (b) under \$500,000 and (c) over \$500,000 (OIG Spot Check threshold value).

Change Orders	Count	Value	% Count	% Value	Average Value
Over \$500k	322	\$1,068,097,081	14%	90%	\$3,317,072
Under \$500k	1,641	\$185,205,139	73%	16%	\$112,861
\$0/Credit	298	-\$64,929,891	13%	-5%	-\$217,886
All COs	2,261	\$1,188,372,329	100%	100%	\$525,596

Table 10: Summary of Change Order Count/Value by OIG Spot Check Threshold

To highlight the impact that high dollar change orders have on the quantitative analysis of change orders, [Table 11](#) displays a secondary sort of change orders over \$10 million (each) to identify which specific construction contracts most contributed to in increased project costs. These relatively few change orders account for 53% of the value of the Over \$500k change orders.

Contract Title of Change Orders Over \$10 million	DB or dbb	Change Order Value
Regional Connector Transit Corridor Project Design-Build	DB	\$161,400,000
Westside Subway Extension Project, Section 1	DB	\$136,610,016
Westside Purple Line Extension, Section 2 - Design/Build	DB	\$95,930,258
Crenshaw/LAX Transit Corridor Design-Build	DB	\$70,500,000
Division 20 Portal Widening Turnback	dbb	\$43,300,000
Metro Blue Line Track and System Refurbishment	DB	\$18,251,899
Willowbrook/Rosa Parks Station Improvement - A & C	DB	\$14,330,374
Purple Line Extension Section 3 Stations Project - Design/Build	DB	\$11,585,029
Purple Line Extension Section 3 Tunnels Project	DB	\$11,217,006
Grand Total		\$563,124,582
Grand Total as Percentage of \$1,068,097,081 (from Table 10)		53%

Table 11: Construction Contracts with Change Orders over \$10 million

Table 12, along with Chart 3 summarizes the “Reasons” data for change orders valued over \$500,000.

OIG Spot Check Threshold Over \$500,000		
REASON	Count	CO Total
110 - Extra Work	159	\$433,747,523
510 - Owner Design Changes	50	\$200,432,418
310 - Diff. Site Condition	29	\$142,365,753
620 - Comprehensive Claims	11	\$83,403,353
210 - Delay of Work (Compens)	14	\$59,123,642
710 - Outside Agency Request	18	\$33,129,741
410 - Terms/Conditions -Owner	4	\$32,120,971
730 - Outside Agency	8	\$25,591,513
800 - Exercz Contract Options	8	\$23,015,675
220 - Acceleration of Work	3	\$11,512,634
530 - Document Corrections	8	\$8,542,823
440 - Quantity Adjustments	3	\$4,606,000
330 - Safety Conditions	5	\$4,571,897
900 - Other	1	\$4,400,000
120 - Deletion of Work	1	\$1,533,138
Grand Total	322	\$1,068,097,081

Table 12: "1994 Reasons" - Change Orders over \$500,000Top 7 Reasons in Bold

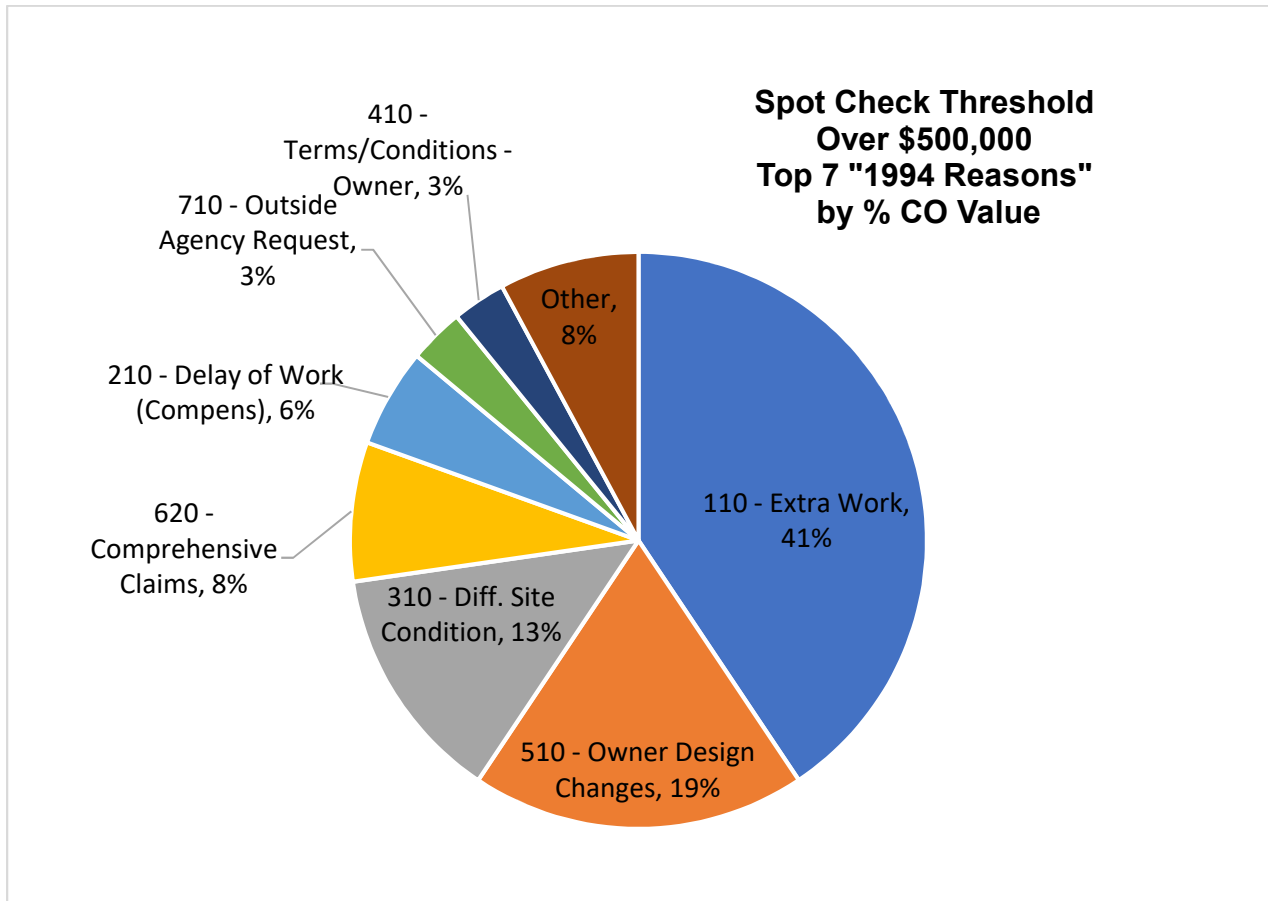


Chart 3: Top 7 "1994 Reasons" for Change Orders Over \$500,000 by Percent

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Charts 4 and 5, summarize the Top 7 Reasons for Change by percentage of change orders for change orders valued under \$500,000 and \$0/credit value.

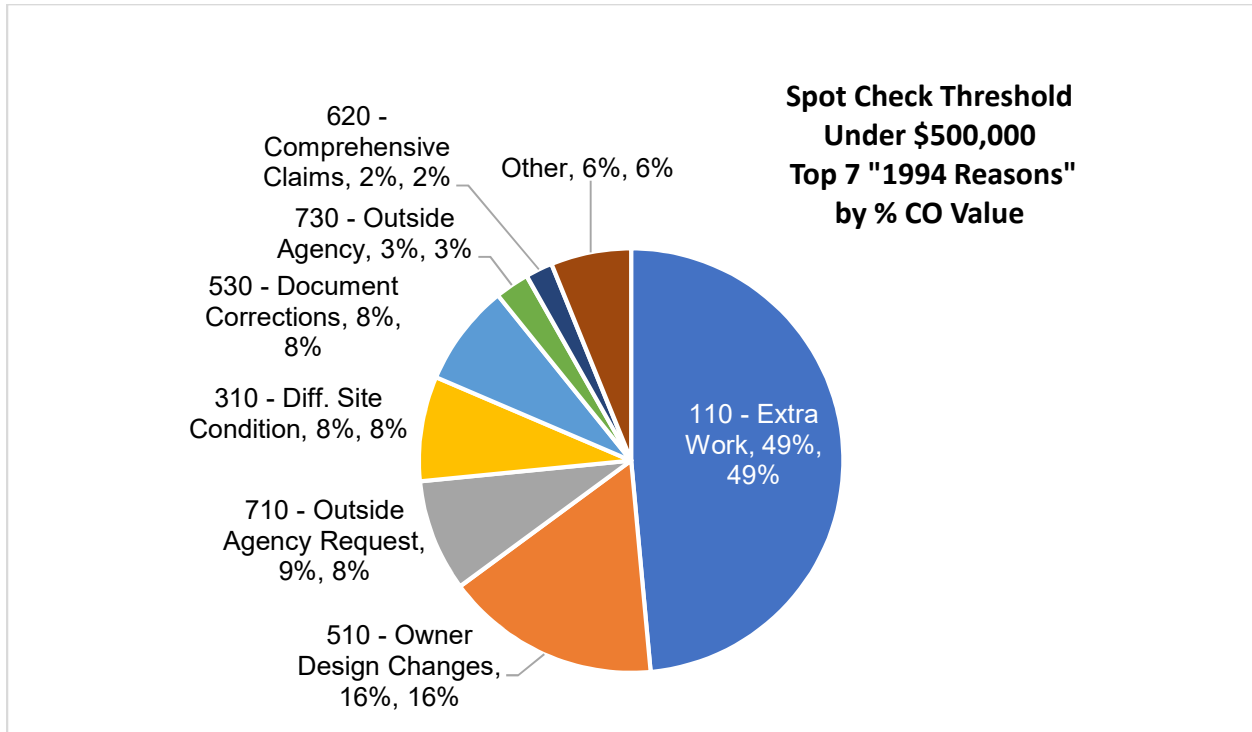


Chart 4: Top 7 "1994 Reasons" for Change Orders Under \$500,000 by Percent

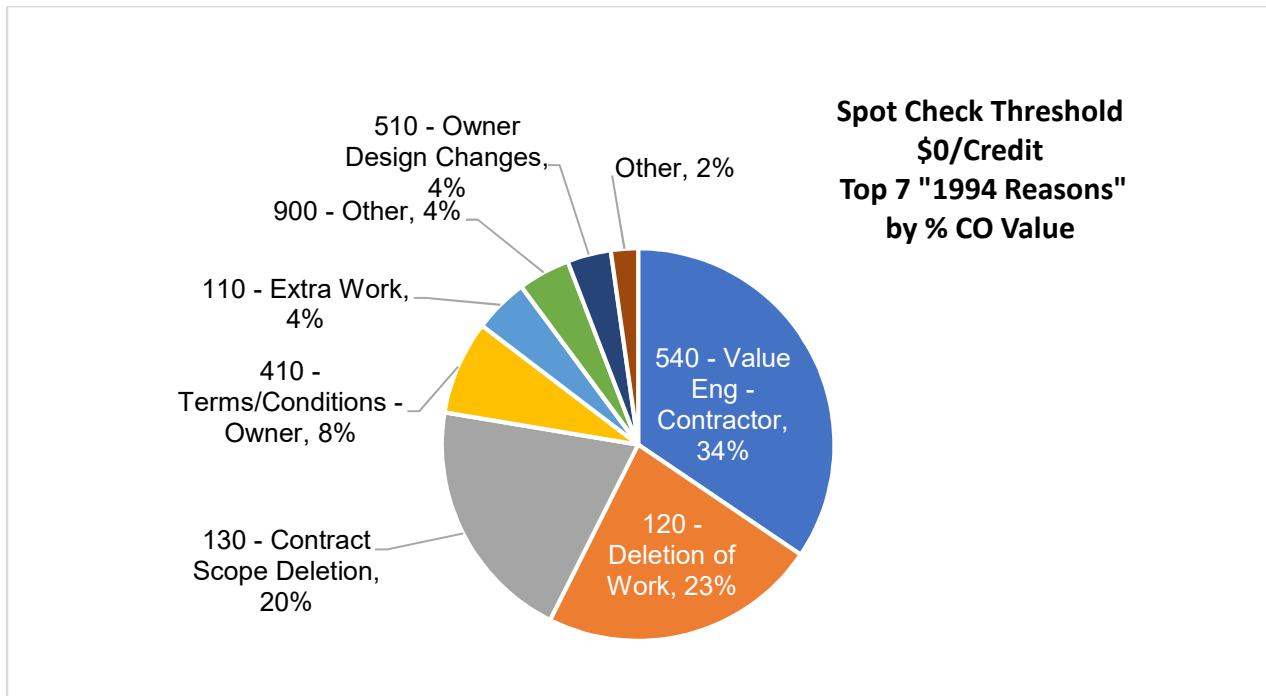


Chart 5: Top 7 "1994 Reasons" for Change Orders for \$0/Credit by Percent

Finally, the OIG analyzed the change order data for distinctions or patterns related to delivery method for Design Build (DB) versus Design Bid Build (dbb) projects using only the “Reasons-Streamlined” coding basis. Tables 13 and 14 summarize the Top 7 1994 Reasons with all remaining change orders combined under the category of “Other”) with a dollar total and a count of change orders for each classification.

DESIGN BUILD CONSTRUCTION CONTRACTS			
1994 REASON	% CO	SubTotal	Count
110 - Extra Work	47%	\$485,211,952	796
510 - Owner Design Changes	15%	\$157,545,580	257
310 - Diff. Site Condition	13%	\$135,545,497	134
620 - Comprehensive Claims	8%	\$87,064,248	45
210 - Delay of Work (Compens)	5%	\$49,632,191	16
710 - Outside Agency Request	4%	\$44,704,342	159
410 - Terms/Conditions -Owner	3%	\$29,565,467	44
Other	4%	\$40,064,794	301
Grand Total		\$1,029,334,072	1752

Table 13: Top 7 1994 Reason for Change - DB Contracts

DESIGN-BID-BUILD CONSTRUCTION CONTRACTS			
1994 REASON	% CO	SubTotal	Count
510 - Owner Design Changes	45%	\$70,883,484	83
110 - Extra Work	22%	\$35,488,251	162
310 - Diff. Site Condition	14%	\$21,654,225	66
530 - Document Corrections	9%	\$14,536,322	89
210 - Delay of Work (Compens)	7%	\$10,487,639	7
710 - Outside Agency Request	3%	\$4,123,197	14
730 - Outside Agency	2%	\$3,975,775	16
Other Reasons	-1%	-\$2,110,636	72
Grand Total		\$159,038,258	509

Table 14: Top 7 1994 Reason for Change - dbb Contracts

Charts 6 and 7 visually summarize the data in Tables 13 and 14 and show that the majority of changes under both DB and dbb related to either (a) Extra Work or (b) Owner Design Changes. However, the proportion of each of those change categories “flips” for DB versus dbb projects. For DB projects, Extra Work is 47% of the change orders, for dbb the proportion is only 22%. For dbb projects, Owner Design Changes is 45% of the change orders and for DB that reason for change is 15% of change orders. The OIG observes that the total amount of these two categories of changes (Extra Work plus Owner Design Changes) is 62% for DB projects and 67% for dbb projects.

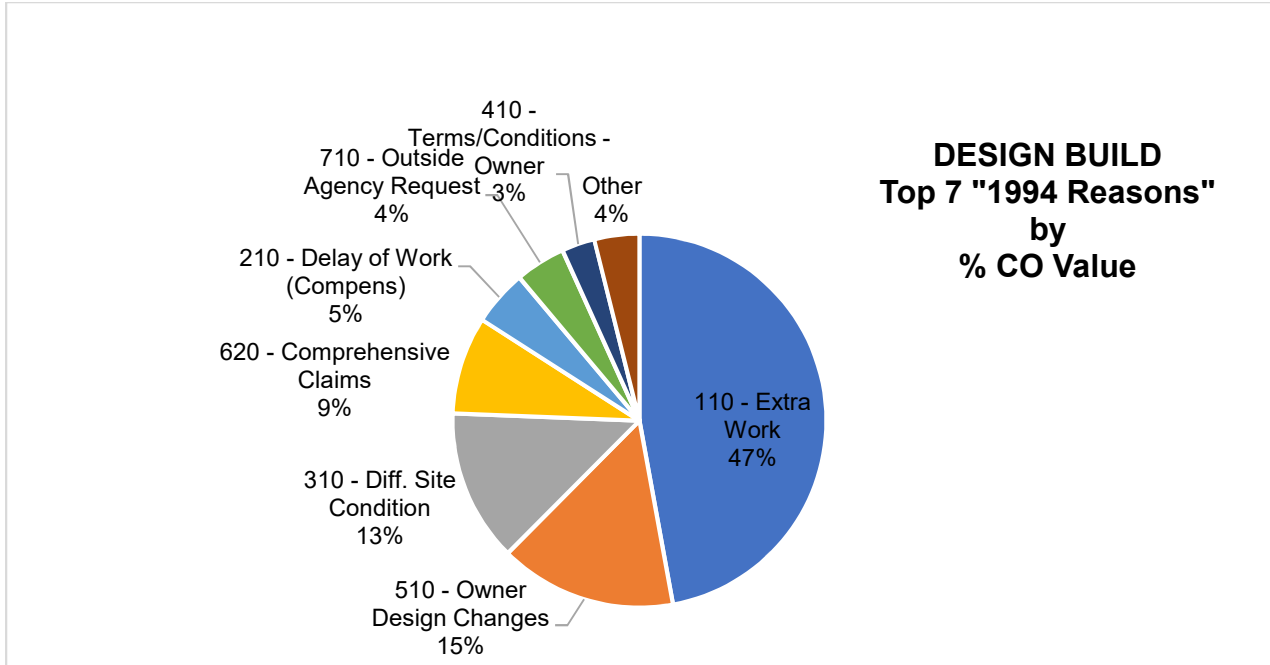


Chart 6: Top 7 DB 1994 Reasons for Change, by Change Order Value

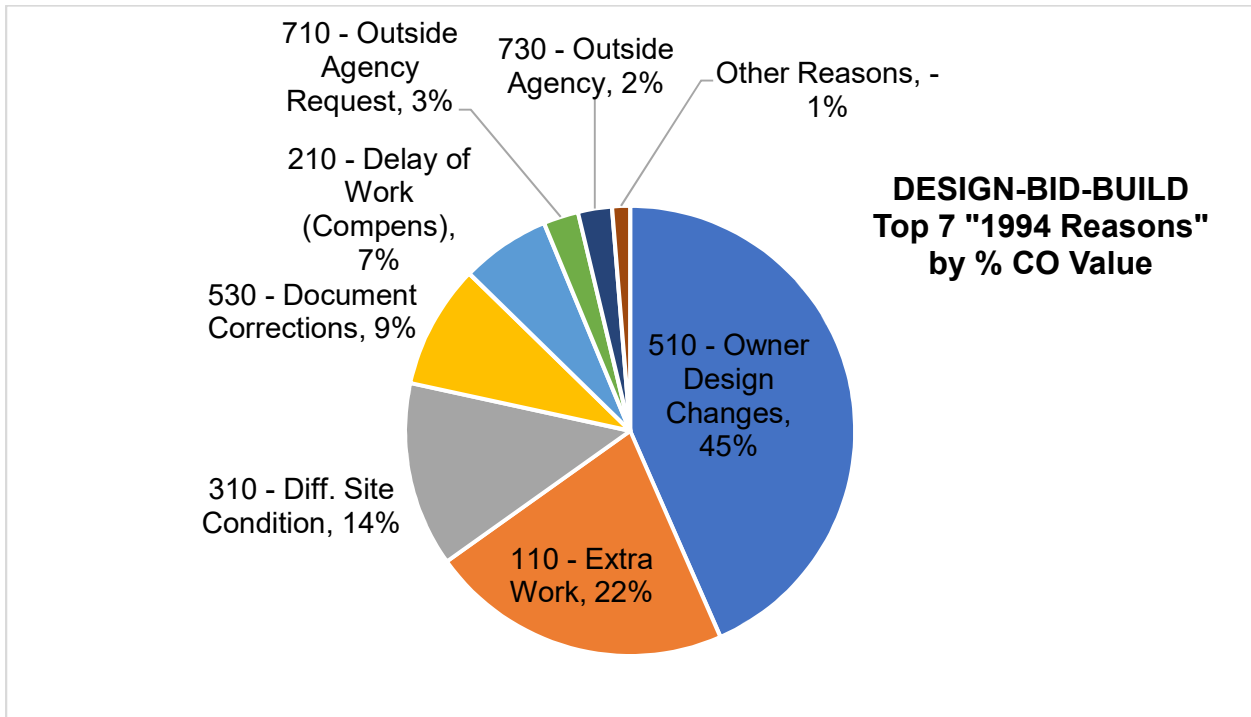


Chart 7: Top 7 dbb 1994 Reasons for Change, by Change Order Value

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The OIG surmises that for the DB delivery method the contractor’s involvement at the design phase limits the need for post-award design changes but will lead to extra work not identified at the time of contract award. Conversely, for dbb delivery method projects, changes identified after contract award are typically the result of design errors or omissions. Since these two categories of change together account for between 62% to 67% of changes, one method of delivery may not necessarily be “better than the other” for avoiding change orders. But looking at [Table 15](#), it does appear that the dbb method tends to have a lower overall change order cost impact.

Contract No.	Original Contract Amount	COs Count	Total of COs	Av CO Value	New Contract Value	% COs
CLOSED DESIGN-BUILD (DB)						
C0970	\$19,832,000	35	\$12,353,618	\$352,961	\$32,185,618	62%
C0980	\$927,226,995	258	\$276,405,958	\$1,071,341	\$1,203,632,953	30%
C0988	\$1,272,632,356	561	\$176,734,198	\$315,034	\$1,449,366,554	14%
C0991	\$86,532,695	59	\$2,937,193	\$49,783	\$89,469,888	3%
C1078	\$52,830,310	51	\$17,137,597	\$336,031	\$69,967,907	32%
C1081	\$81,513,000	23	\$8,447,654	\$367,289	\$89,960,654	10%
C1157	\$3,004,000	6	-\$1,501,754	-\$250,292	\$1,502,246	-50%
C1161	\$53,752,115	148	\$29,260,843	\$197,708	\$83,012,958	54%
C1168	\$67,953,655	39	\$24,368,112	\$624,823	\$92,321,767	36%
Subtotal	\$2,565,277,126	1,180	\$546,143,420	\$462,833	\$3,111,420,546	21%
OPEN DESIGN-BUILD (DB)						
C1045	\$1,636,418,585	191	\$272,864,722	\$1,428,611	\$1,909,283,307	17%
C1120	\$1,376,500,000	192	\$152,173,015	\$792,568	\$1,528,673,015	11%
C1151	\$410,002,000	25	\$24,439,564	\$977,583	\$434,441,564	6%
C1152	\$1,363,620,000	126	\$32,801,845	\$260,332	\$1,396,421,845	2%
C52151C1169-2	\$83,650,722	38	\$911,506	\$23,987	\$84,562,228	1%
Subtotal	\$4,870,191,307	572	\$483,190,651	\$844,739	\$5,353,381,958	10%
Open+Closed	\$7,435,468,433	\$1,752	\$1,029,334,072	\$587,519	\$8,464,802,505	14%
CLOSED DESIGN-BID-BUILD (dbb)						
C1034	\$6,487,020	13	\$156,712	\$12,055	\$6,643,732	2%
C1048	\$6,181,000	40	\$2,242,237	\$56,056	\$8,423,237	36%
C1055	\$14,430,000	25	-\$352,220	-\$14,089	\$14,077,780	-2%
C1056	\$20,250,000	13	-\$1,096,590	-\$84,353	\$19,153,410	-5%
C1153	\$11,439,000	13	\$2,036,849	\$156,681	\$13,475,849	18%
C1217	\$6,777,065	3	\$137,436	\$45,812	\$6,914,501	2%
Subtotal	\$65,564,085	107	\$3,124,425	\$29,200	\$68,688,510	5%
OPEN DESIGN-BID-BUILD (dbb)						
C1101	\$66,041,760	73	\$11,908,122	\$163,125	\$77,949,882	18%
C1136	\$431,777,000	196	\$119,530,910	\$609,852	\$551,307,910	28%
C1166	\$84,548,733	43	\$8,930,546	\$207,687	\$93,479,279	11%
C1197	\$470,627,000	23	\$9,721,218	\$422,662	\$480,348,218	2%
C1204	\$2,952,701	2	\$1,018,159	\$509,080	\$3,970,860	34%

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C1207	\$8,947,201	15	\$374,022	\$24,935	\$9,321,223	4%
C60373C1184	\$16,187,495	19	\$3,693,567	\$194,398	\$19,881,062	23%
C70396C1205	\$379,957,232	27	\$180,654	\$6,691	\$380,137,886	0%
C77307C1210	\$48,376,253	4	\$556,634	\$139,159	\$48,932,887	1%
Subtotal	\$1,509,415,375	402	\$155,913,833	\$387,845	\$1,665,329,207	10%
Open+Closed	\$1,574,979,460	509	\$159,038,258	\$312,452	\$1,734,017,718	10%
Grand Total	\$9,010,447,893	2,261	\$1,188,372,329	\$525,596	\$10,198,820,222	13%

Table 15: All Change Orders by Delivery Method, Status, Count, Value and CO Percent

Table 15 shows that DB projects experience a slightly higher level of cost increase due to change order activity (whether open or closed) than dbb projects (DB 14% vs dbb 10%).

- **DB** – The data also shows that closed DB projects experienced a higher percentage cost increase due to change orders than open projects are currently experiencing. This could mean either early DB projects had a high “learning curve” – or there could be forthcoming additional change order activity on open projects. There is no data to suggest the 21% change order cost increase for DB contracts is “typical,” but there is no evidence to suggest the 10% level for the open DB contracts will hold.
- **dbb** – The data shows closed dbb projects had about 5% in cost increase due to change orders and open projects are currently at 10%. It is notable that larger value contracts are now “in the mix” for open status dbb construction contracts, as compared to closed dbb contracts.

The “Grand Total” row shows that overall, Metro is experiencing a 13% average cost increase due to change order activity across all projects from 2013 to today. However, over half the construction contracts are still open and may have pending or future claims that may result in additional change orders to the contract.

5. Enhancements on the Horizon

The 2023 OIG Construction Best Practices Report identifies and discusses three strong initiatives in place and evolving in response to lessons learned that promise to improve Metro’s performance on budget and schedule. The OIG also proposes (without necessarily recommending), expanding tools in the negotiation toolbox for resolving disputed delay matters.

LOP Budget Process: In the March 2023 Construction Committee meeting, [Legistar # 2023-0172], PMG presented an 18-point strategic initiative for enhancing its LOP budgeting processes. These new initiatives promise across-the-board improvement to the FY24 Annual Program Evaluation (APE) process and underlying budgeting practices. PMG in collaboration in the Office of Management and Budget have identified enhancements to the process typically used to establish the LOP budget. As discussed, PMG’s procedures already contemplate that a “preliminary LOP budget” could be put in place which would be superseded by the “true” baseline LOP budget. One baseline LOP budget may not support the design-build delivery method. Multiple reviews may be needed to reach the final baseline LOP budget as the project’s design is moved toward completion. The OIG makes no recommendation in this regard, but it may be necessary for PMG and the Office of Management and Budget to engage in multiple budget reviews.

Risk Management – Metro’s Risk Management program appears to be well-developed and ready to provide important and constructive guidance across all projects. Reliable LOP budgets require careful consideration of the risk guidance. Risk reviewers suggest mitigation measures and make estimates based on the agency adhering to construction best practices and include this in a comprehensive pre-construction investigation and preparation reports. If this approach is not followed without justification for a less conservative risk method, management may be foregoing a best practice approach. If the extent of the risk is not identified, the LOP budget may be exceeded.

Early Intervention Team (“EIT”) –The EIT shows promise of both enhancing Metro’s construction management best practices and improving capital project delivery outcomes. Coordinated inter-departmental collaboration across the project life cycle will be a potentially stronger mitigator of cost impacts.^{12,13}

The EIT’s Project Review Program describes that an inter-departmental Metro team will review and analyze project planning and readiness across 7 key intervention points. Importantly, the soundness of the LOP budget will be visited at 6 of the review stage gates:

1. EIT Project Review #1 (“EIT-1”) – Simultaneously with the development of the Draft Environmental Impact Report, the EIT will identify whether a rough order of magnitude (“ROM”) has been developed for each project alternative.
2. EIT-2, Pre-Final Environmental – At this intervention point, the EIT will revisit current ROMs for the project alternatives and encourage deep review of value and cost drivers.
3. EIT-3, Pre-transition to Engineering – As early engineering plans are developed and refined, the EIT will check in on the process of moving from the ROM toward a “best practice” cost and schedule estimate.
4. EIT-4, Pre-Final Delivery Method Selection – As the selected project alternative moves into the Engineering Phase, Metro will start looking at delivery method. The EIT will intervene to review risk issues and the developing schedule and cost estimates.
5. EIT-5, Pre-RFP/IFB Release¹⁴ – The EIT will engage to review “true readiness” to ensure that scope, schedule and cost risk is properly allocated between the designer, contractor, and Metro.
6. EIT-6, Pre-Notice to Proceed – The EIT will intervene to check whether baseline schedule, and awarded construction costs are within the LOP budget, including acceptable level of contingency for risks.

¹² Experts from the Office of the CEO, Operations, Program Management, Countywide Planning and Development, Office of Management and Budget, Vendor/Contract Management, Government Relations and Customer Experience participate. See Board Report Nos. 2023-0073 and 2023-0106 - Informational Reports with detailed Attachments presented to the Construction Committee on March 16, 2023.

¹³ Board Report No. 2023-0106, Attachment A, provides a summary of the context and history of the EIT. Board Report Nos. 2022-0168, 2022-0361, and 2022-0565 offer a “deeper dive” into EIT’s history.

¹⁴ “RFP” is “Request for Proposal” and “IFB” is “Invitation for Bids.”

OIG Proposal for Facilitating Resolution of Delay-Related Impacts – Metro’s goal should be to quickly and comprehensively “resolve the resolvable.” Expanding the “tools” available to resolve contested delay issues may be necessary.

PMG and V/CM are encouraged to consider adding to all future construction contracts three alternative escalating scenarios for substantiated “delay damages” not feasible to mitigate through acceleration or other measures. These provisions will require detailed contract language to define and administer. As a condition of receipt of an equitable adjustment for delay, the Contractor must provide a written release agreeing that accepting the enhanced markup releases Metro from further liability for alleged delay and ripple effect impacts related to the Additional Work which will include all subcontractors of any tier. In the event of dispute, the contract should provide notice that the rates will be subject to audit. From lowest to highest delay impacts:

- (a) Additional Supervision Delay (“ASD”) Rate: For this type of delay, Metro would agree to pay an enhanced mark up to labor for the Additional Work, e.g., 15 + x% instead of 15%.
- (b) Field Overhead and Ripple Effect Delay (“FORED”) Rate: In addition to an enhanced 15 + x% labor markup, Metro agrees to pay to the contractor the bid FORED daily rate that compensates for material impacts to non-critical path work and other alleged delay and ripple effect impacts. The FORED shall not exceed x% of the daily rate bid for critical path delays, e.g., CPRED.
- (c) Critical Path and Ripple Effect Delay (“CPRED”) Rate: In addition to an enhanced 33% labor markup, Metro agrees to pay to the contractor the bid CPRED daily rate that compensates for material impacts to critical path work and other alleged delay and ripple effect impacts.

OIG Part A “COST/BUDGET” Recommendations

1. PMG should enhance LOP budget revision tracking by implementing coding to capture reasons for revisions to the LOP budget so management and the Board can readily identify why the increase is requested.
2. PMG should separately track and report project soft costs versus hard costs (construction) to enhance LOP budget usage and report in the Annual Program Evaluation presented to the Board.
3. PMG should expand the Revised Change Base Coding for “Extra Work” to specifically identify the nature of the change (from 5 to 10 codes max) and allow differentiation between field changes. All project staff and V/CM must be trained in the new codes to appropriately choose the correct base coding. This extra identification will provide transparency to the public regarding the reasons for post-award change orders to contractors.
4. PMG should determine if adding an identification of “avoidable” for coding of change orders would enhance future reporting and better allocate resources where needed.

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5. PMG should determine if it would benefit Metro and the public to: Identifiably track change orders that have been resolved following Dispute Resolution Board and/or partnering efforts.
6. PMG should determine if it would be helpful to track Document Control smaller projects the same as larger, because smaller projects still involve many millions of taxpayer dollars.

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B. SCHEDULE

In this section, the OIG is using PMG’s data to review the status of Project Schedules. PMG provided schedule data for 13 projects including planned versus revised data schedule data. For each project, the OIG was provided (a) the original and revised substantial completion date and (b) the original and revised revenue service dates. PMG provided a “variance” (in months) calculated from the difference between the original and revised dates (same result whether based on substantial completion or revenue service).¹⁵

The OIG converted the delay from months to days. For seven (7) DB projects, in response to the OIG’s request for a project “start date,” PMG provided an award date for at least one associated construction contract. The OIG used that date to compare original project time to actual/forecasted project time.

For “closed” projects, the OIG assumes that schedule data is fixed and reliable. For “open” projects, the OIG makes no similar assumption.¹⁶ The number of days delay to a project may not be the same as the number of days delay to a construction contract but delay to construction contracts are typically drivers to project delay.

Table 19 below summarizes schedule delay from 0 to almost 1600 days (4.3 years) by project showing Open versus Closed status and showing the delivery method.

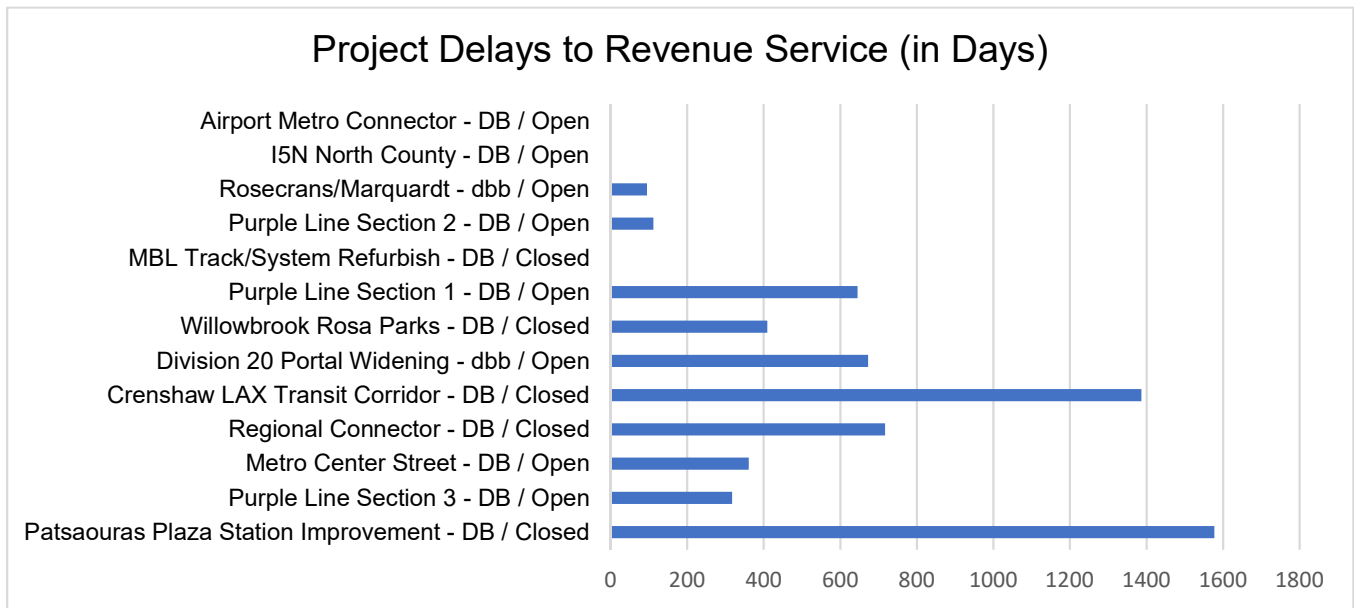


Chart 7: Project Schedule Delay by Days, Status and Delivery Method

¹⁵ For this review, the OIG did not adjust the original LOP budget to reflect interim budgeting practices, as described under A. COSTS/BUDGET.

¹⁶ The OIG’s 2023 Best Practices Report touches upon construction management challenges related to (a) resolution of delay claims, and (b) transparent and useful tracking of disputed claims.

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Table 20 lists the 7 projects that the PMG provided an award date for at least one construction contract. The OIG used that award date as a “proxy” for the “start date” of the project (which may not be 100% accurate) and calculated the original anticipated number of days for the project (original revenue service date less contract award date). This provided a “schedule variance” as an additional data point to the schedule variance based on the count of days. This data does not demonstrate a clear correlation between LOP budget variance and schedule variance.

Project #'s	Project	LOP Variance	Schedule Variance
210151	Willowbrook Rosa Parks - DB / Closed	17%	85%
202317	Patsaouras Plaza Station Improvement - DB / Closed	203%	64%
865512	Crenshaw LAX Transit Corridor - DB / Closed	23%	41%
860228	Regional Connector - DB / Closed	24%	22%
865518	Purple Line Section 1 - DB / Open	13%	17%
205115	MBL Track/System Refurbish - DB / Closed	13%	0%
860303	Airport Metro Connector - DB / Open	0%	0%

Table 20:

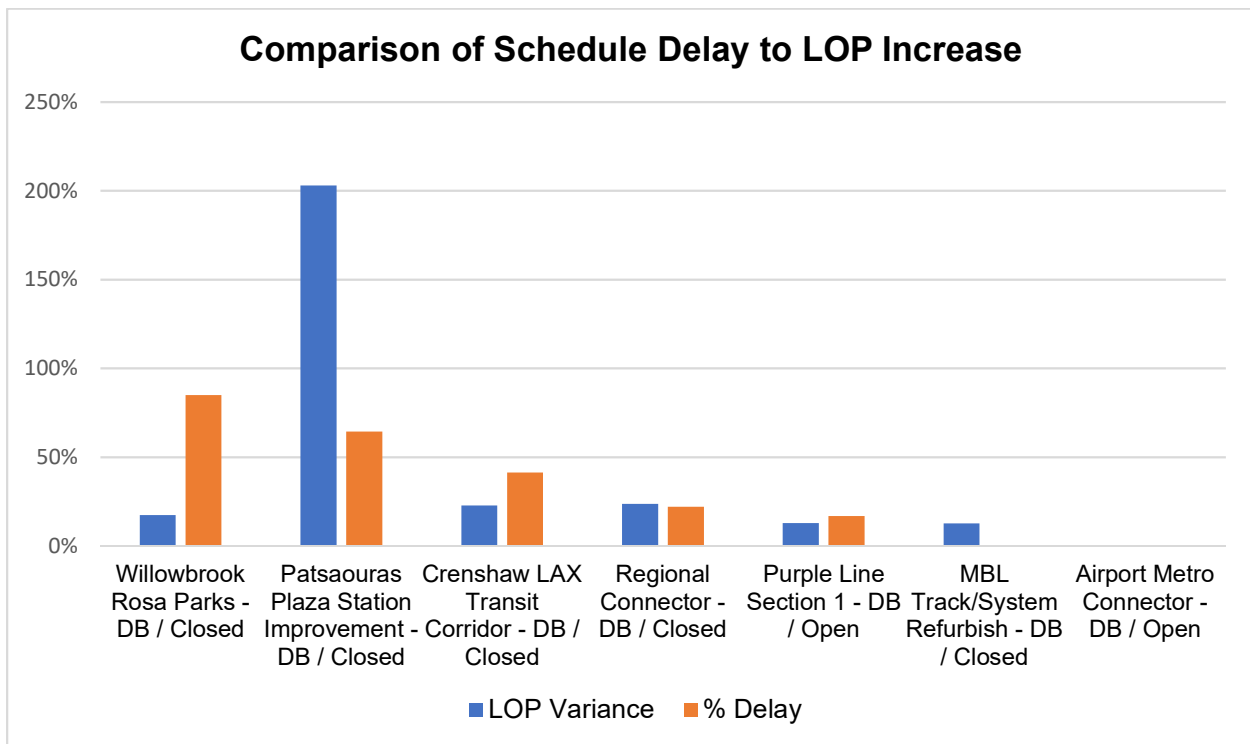


Chart 8: Comparison of Percent Delay to Percent LOP Variance.

Chart 8 allows for review of the correlation between schedule delay and LOP budget increases. The LOP budget increase and delays to the schedule may have a greater correlation to the reason for change order than any other factor and reveals distinctions that bear explanation. The Patsaouras Bus Plaza project appears to have LOP increases much larger

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than impacts on the schedule. The OIG understands that archeological mitigation took a full year which incurred substantial delay costs. The Willowbrook project shows a much greater delay variance when compared to LOP variance, which suggests the delays occurred were not wholly compensable in nature. As for the Crenshaw/LAX project, the delay percentage appears to exceed LOP budget variance; close-out claims are pending, and these variances may change. The other projects shown seem to have comparable delay and LOP budgets variances. Currently, the Airport Metro Connector shows no increase to cost or time.

Two challenges are apparent from the quantitative review of schedule data, (1) Disputes between Metro and the contractor on delay issues may result in some lack of visibility as to actual or forecasted delay; and (2) there is no separate protocol for assigning a “reason for change” solely to contract time extensions. For schedule disputes, the PMG may want to consider independently tracking under project data (not construction contract data) “trend” information related to schedule.

Schedule delay disputes typically pertain to monetary damages (e.g., liquidated damages to Metro and/or compensation to the contractor). Regardless of outcome, if a project is trending as delayed, this information needs to be tracked and reported. The 1994 Reasons discussed earlier in this report has a code for “delay of work” when, if used, obfuscates the underlying reason for the delay (such as for differing site conditions versus design change).

OIG Part B “SCHEDULE” Recommendations:

7. PMG should enhance Metro’s LOP schedule reporting by providing visibility to specific project delay at the project level and at the construction contract level. In Part A, Costs/Budget, above, the OIG provided recommendation(s) pertaining to enhanced change order reasons coding. A new separate coding basis should be considered at the project level to distinguish between construction contract-related delay, e.g., if funding is delayed.

C. SAFETY

Introduction

Metro's construction contract imposes upon the contractor (a) health and safety requirements for employees as well as Metro's team and third parties, and (b) requirements for security, which includes minimizing harm to Metro's property, contractor's in-process work, equipment and materials, and third-party property. We reviewed data for indicators of Metro's performance in overseeing contractor adherence to best safety practices. The data shows that Metro's success varies based on the contractor's safety culture and practices. Also, Metro's Construction Safety Team ("Safety Team") shared initiatives to enhance safety outcomes, which the OIG adopts as recommendations so that these initiatives continue if successful, are tracked, and updated.

Construction Safety Data

We reviewed four sample projects: (1) Crenshaw/LAX, (2) Westside Purple Line Extension Section 1 ("PLE-1"), (3) Westside Purple Line Extension Section 2 ("PLE-2"), and (4) Regional Connector. Metro's Safety Team provided the following data topics:

- Project Injury and Incident Logs.
- Contractor's monthly submittal, "Safety – Injury and Work Hours Report" (on the jobsite) for August 2022 (one sample).
- Safety Reviews:
 - June 6, 2023, C1120 Management System Audit Report – Worksite Safety Audit for PLE-2.
 - June 12, 2015, CEO Washington's Response to Metro Board on Crenshaw/LAX Project Safety.

The OIG interviewed two Safety Team members and revisited documentation gathered during the 2023 OIG Construction Best Practices Report, e.g., General Provisions pertaining to safety and Metro's Construction Safety and Security Manual ("Safety Manual"), which is incorporated by reference in the contractor's construction contract.

Background

Contractor's Duties: Metro's construction contract delegates to the contractor express duties for workplace safety. Contractor's duties include (a) broad direction to comply with applicable laws related to safety, including Cal/OSHA (state/federal law), and (b) specific contractual (including Construction Safety and Security Manual ("Safety Manual")) requirements pertaining to safety submittals, notice of injuries and property incidents, and administrative reporting and documentation requirements. Also, the contractor must notify Metro of the following types of incidents:

- injury to employees (contractor or subcontractor),
- injury to other individuals,
- incidents of damage to public, private, and commercial property, and
- "near miss" incidents related to the above.

Email notice is authorized for injury requiring first aid or less; a Supervisor's Incident Investigation Report, CS-52, is required for more serious injuries.¹⁰ (See Safety Manual, pp. 59-60.)

On a monthly basis, the contractor is required to submit an Injury Summary and Work Hour Report, which needs to comply with Metro's Recordkeeping Policy for Occupational Injuries and Illnesses.

Metro's Duties: Metro's Safety Team (a) receives and reviews the contractor's Safety Program submittals and other related monthly documents, (b) engages daily with the contractor's safety team to encourage and monitor safety practices at the worksite, and (c) acts as Metro's "eyes and ears" on the site to survey and observe safety best practices. In overseeing contractor's safety duties, the Safety Team may not interfere with the contractor's work. In general, any person on a worksite observing a patently unsafe work practice may act to correct or halt the unsafe practice.

Notice and Documentation: Cal/OSHA requires the contractor to keep and submit a Log of Work-Related Injuries and Illnesses (Form 300) documenting defined safety incidents. Annual totals for incident categories are required to be summarized and submitted (Form 300A). An Injury and Illness Incident Report is required for "recordable" work-related injuries and illnesses (Form 301). Cal/OSHA permits employee names to be redacted from documentation for privacy. Cal/OSHA does not require its documentation to be shared with owners such as Metro. Metro's contract does not require the contractor to provide a copy of its Cal/OSHA records.

Safety of Persons and Property Data

The Safety Team's Excel-based Injury and Incident Logs ("Incident Logs") vary across projects and the log format changes over time and across projects. For instance, the Crenshaw and Regional Connector Incident Logs track: date, company, incident classification, and location (e.g., worksite or a street intersection) and include a "Remarks" field (typically a detailed narrative). PLE-1's Incident Log is like Crenshaw's but omits Company. PLE-2's Incident Log does not track Company or Location but includes Incident Classification and two columns that together provide information about the event and contractor's planned measures to avoid a future similar event.

Crenshaw's lengthy Incident Log (listing 788 incidents) contains some variability on use of the key field of "incident classification" which prompted the OIG to develop its own safety coding to maximize the level of detail that could be analyzed. The coding first distinguishes between two categories titled "(A) Safety/Health" which pertains data on the contractor employees, and "(B) Safety of Property & Third Parties" which relates to all other types of incidents involving non-employees and property. Coding for incident classification and subclassification under each category was also developed and applied. The OIG also coded the incident for general location, e.g., "onsite" versus "offsite."¹¹ Lack of detail on safety incidents hampered the OIG's use of subclassifications for category "(A) Safety/Health".

¹⁰ Thorough investigations are required to generate recommendations for corrective actions to prevent recurrence of similar incidents. (Safety Manual, p. 61.) The contractor is required to submit its fact-gathering documentation along with drawings and pictures to Metro; and the contractor is required to accommodate Metro's request for a contemporaneous investigation. Upon completion of the investigation, the contractor is to engage in analysis and corrective action.

¹¹ An example of an offsite incident would be a "fender bender" by an employee while on lunch break.

Tables 22 and 23, depict the OIG safety coding applied to the incident logs for Crenshaw, PLE-1, and PLE-2.

Codes	(A) SAFETY /Employee Health
1	Recordable
	A. Death
	B. Loss of Consciousness
	C. Days away from work
	D. Restricted work activity/transfer
	E. Medical treatment >first aid
2	First Aid
	F. Not Recordable
3	Other
	G. Needlestick
	H. Medical removal from field
	I. Tuberculosis
	J. Hearing Test
4	Near Miss
5	Wobbler (Recordable?)
6	Administrative Non-Compliance & OSHA Inspections
7	Substance Abuse

Table 20: Category (A) - Safety/Employee Health

Codes	(B) SAFETY/Third Party & Property
11	Property Damage (UTILITY)
	K. Contractor probable liability
	L. Contractor potential non-liability
12	Property Damage (NON-UTILITY)
	M. Vehicle
	N. Other
13	Third Party Involvement
	O. Loss - Property, Damage, Theft
	P. Non-loss
	Q. Other
14	Workplace Violence w Employees
15	Work Stop (NON-Gas)
	R. Archeology
	S. Safety Stand-down/Check
	T. Other
16	Work Stop (GAS)
17	Work Stop (Other)
18	Third Party Injury from Work

Table 21: Category (B) - Safety/Third Party & Property

“Wobbler” is used by the OIG to code for first aid incidents that jump off the page as a potentially recordable event. It may not be Metro’s duty to enforce the contractor’s Cal/OSHA compliance but if a pattern emerges of “loose” designations, Metro should follow up with the Contractor.

(A) Safety/Employee Health Data

Tables 22A and 22B summarize for the four sample projects the OIG’s quantitative analysis of the number and type of safety incidents within and across the four sample projects. The analysis uses the total employee workhours (at the end of the project for closed projects, and “to date” for open projects) to calculate “experience ratings.”

The insurance industry has developed a formula for calculating an employer’s “experience modification rating” (“EMR”) to identify the level of risk of harm to employees on the job site based on recordable injuries.¹⁷ An EMR close to “1.00” indicates average safety incidents.

¹⁷ The formula takes the number of recordable injuries experienced on a job and multiplies that number by 200,000 work hours, then divides by that number by the total number of employee hours.

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Lower than 1.00 is considered better than average safety performance; higher than 1.00 is treated as reflecting poor safety outcomes.

Determining an EMR is either infeasible or will be inaccurate for new or small projects based on the low number of workhours. But for large projects, the EMR is very helpful for capturing a project’s safety profile and for tracking “trends” over time. The EMR is a “lagging indicator” meaning it may take a cycle or two of changed performance for current practice to be accurately depicted in the data.

CLOSED PROJECTS (A) SAFETY /Employee Health		Regional Connector		% per 200k Work Hours	Crenshaw / LAX		% per 200k Work Hours
0-9	Types of Safety Incidents	7,886,846 Work Hours			12,059,920 Work Hours		
1	Recordable	28	25%	0.71	85	22%	1.41
2	First Aid	30	27%	0.76	213	56%	3.53
3	Other	1	1%	0.03	1	0%	0.02
4	Near Miss	20	18%	0.51	52	14%	0.86
5	Wobblers (Recordable Not First Aid?)	0	0%	0.00	11	3%	0.18
6	Administrative & OSHA Inspections	28	25%	0.71	17	4%	0.28
7	Substance Abuse	3	3%	0.08	4	1%	0.07
Totals		110	100%	2.79	383	100%	6.35

Table 22A: Summary (A) Safety - Employees Incident Data Across CLOSED Sample Projects

OPEN PROJECTS (A) SAFETY /Employee Health		PLE-1 ¹⁸		% per 200k Work Hours	PLE-2		% per 200k Work Hours
0-9	Types of Safety Incidents	8,636,811			3,390,250		
1	Recordable	41	41%	0.95	51	28%	3.01
2	First Aid	45	45%	1.04	99	55%	5.84
3	Other	1	1%	0.02	2	1%	0.12
4	Near Miss	8	8%	0.19	23	13%	1.36
5	Wobblers (Recordable Not First Aid?)	2	2%	0.05	5	3%	0.29
6	Administrative & OSHA Inspections	2	2%	0.05	1	1%	0.06
7	Substance Abuse	0	0%	0.00	0	0%	0.00
Totals		99	100%	2.29	181	100%	10.68

Table 22B: Summary (A) Safety - Employees Incident Data Across OPEN Sample Projects

The OIG acknowledges that using the EMR formula for other than recordable injuries is “untested.” Using the value of “1.0” as the average would be unsupported based on lack of

¹⁸ For this table, the OIG uses an updated count on recordable injuries that varies from the incident log data, e.g., the incident log included 36 incidents, but an actual contractor count is 41. This discrepancy may relate to either (a) additional recent injuries; (b) the timing of the handover of incident logs, or (c) a communication issue in the pipeline between the contractor and Metro’s Safety Team.

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cumulative data showing 1.0 as a reliable “average.” However, the experience rating can be used to identify trends over time.

Metro’s Safety Team describes the closed Regional Connector project as the “gold standard” for safety culture and safety performance. Using the data in [Table 22A](#) to compare Regional Connector to Crenshaw/LAX shows that the former had a .71 rating compared to the latter’s 1.41 rating. The difference is very stark on first aid incidences, as well. Turning to [Table 22B](#), and open projects PLE-1 and PLE-2, whether comparing the closed projects or to each other, PLE-2’s safety rating is abysmal.

The OIG observes a high inspection rating may not be a negative thing - Regional Connector’s “Administrative & OSHA Inspections” rating is highest and reflects a high number of tracked disciplinary actions in Metro’s incident log for the project. Thus, it appears that a contractor’s enforcement actions against its non-compliant employees, or alternatively, proactive safety interventions by Metro or Cal/OSHA, directly correlates with better safety outcomes.

[Chart 9](#) summarizes the counts on safety incidents by Classification code and allows for comparison across each of the four projects. What stands out is that PLE-1 and PLE-2 as open projects are ahead of Regional Connector in counts of recordable and first aid incidents. PLE-2 reports more near miss incidents than a project that is now complete, Regional Connector. It is an interesting data point that the Regional Connector has the most entries in the incident log related to administrative engagements of non-compliances, which shows a greater involvement by the Metro Safety team and Cal/OSHA inspections.

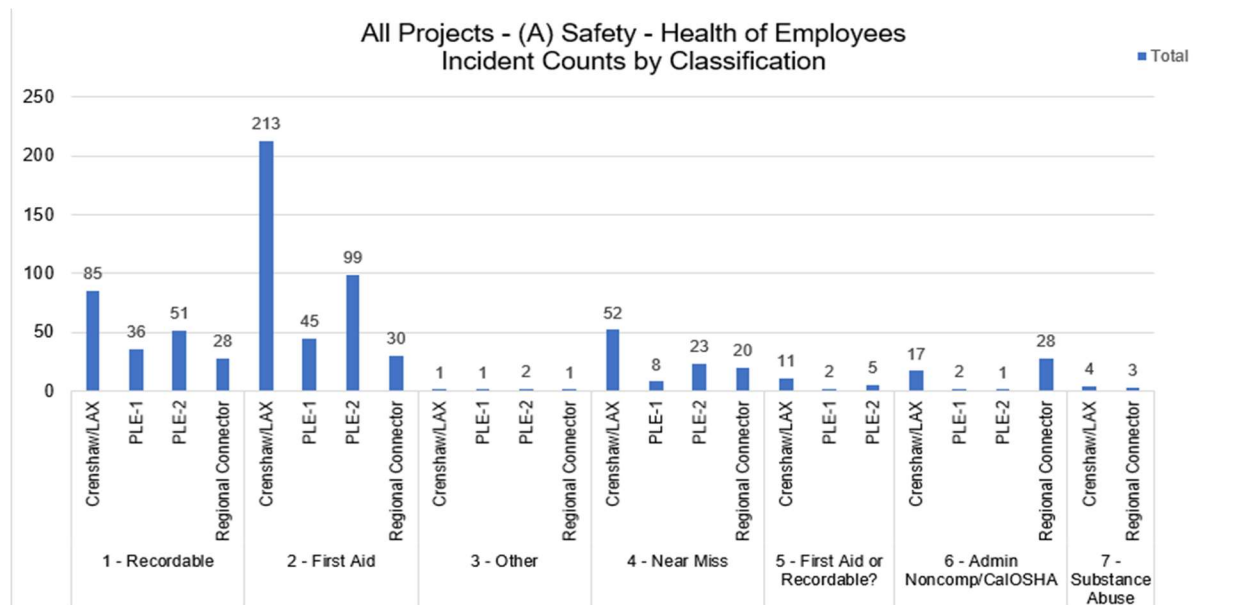


Chart 9: All Projects, (A) Safety – Health of Employees, Incident Counts by Classification & Project

(B) Safety – Third Parties & Property

[Tables 23A and 23B](#) mirror expanded use of the EMR formula as applied to incident data for “(B) Safety – Third Parties & Property.” These types of safety incidents involve property damage with utilities and non-utilities. The OIG reiterates that the “1.0” average is not tested for this use.

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CLOSED PROJECTS (B) SAFETY/Third Party & Property		Regional Connector		% per 200k Work Hours	Crenshaw / LAX		% per 200k Work Hours
10-18	Security Incidents	7,886,846 Work Hours			12,059,920 Work Hours		
11	Property Damage (UTILITY)	21	24%	0.53	126	31%	2.09
12	Property Damage (NON-UTILITY)	22	26%	0.56	135	33%	2.24
13	Third Party Involvement	32	37%	0.81	143	35%	2.37
14	Workplace Violence w Employees	1	1%	0.03	4	1%	0.07
15	Work Stop (NON-Gas)	0	0%	0.00	0	0%	0.00
16	Work Stop (GAS)	3	3%	0.08	0	0%	0.00
17	Work Stop (Other)	6	7%	0.15	0	0%	0.00
18	Third Party Injury from Work	1	1%	0.03	0	0%	0.00
Totals		86	100%	2.18	408	100%	6.77

Table 23A: Summary (B) Safety- Third Parties & Property Incident Data Across CLOSED Sample Projects

(B) SAFETY/Third Party & Property		PLE-1		% per 200k Work Hours	PLE-2		% per 200k Work Hours
10-18	Security Incidents	8,636,811			3,390,250		
11	Property Damage (UTILITY)	46	11%	1.07	30	29%	1.77
12	Property Damage (NON-UTILITY)	51	12%	1.18	55	53%	3.24
13	Third Party Involvement	51	12%	1.18	10	10%	0.59
14	Workplace Violence w Employees	2	0%	0.05	3	3%	0.18
15	Work Stop (NON-Gas)	7	2%	0.16	1	1%	0.06
16	Work Stop (GAS)	269	63%	6.23	0	0%	0.00
17	Work Stop (Other)	1	0%	0.02	1	1%	0.06
18	Third Party Injury from Work	2	0%	0.05	3	3%	0.18
Totals		429	100%	9.93	103	100%	6.08

Table 23B: Summary (B) Safety- Third Parties & Property Incident Data Across OPEN Sample Projects

Looking at [Table 23A](#) for closed projects, the Regional Connector had comparable proportions of overall third-party and property incidents, but the “ratings” are not comparable, suggesting that the Crenshaw had a much higher count of incidents per employee work hour. [Table 23B](#) data reveals that the PLE-1 and PLE-2 projects are both trending higher than the Regional Connector project across incident classifications but are less than Crenshaw/LAX. However, the exception is that on PLE-2, there is a much higher incidence of property damage involving non-utility property.

[Chart 10](#) summarizes by classification code, the “count” of property and third-party related safety incidents across the 4 sample projects. The chart shows Crenshaw/LAX had more safety-related incidents involving third parties and property damage than Regional Connector. The data itself does not reveal whether the distinctions relate to the type of project, the circumstances of the work, or the contractor’s work practices. This analysis provides some useful visibility as to non-injury events the field and could prompt helpful investigation and/or partnering with the Contractor.

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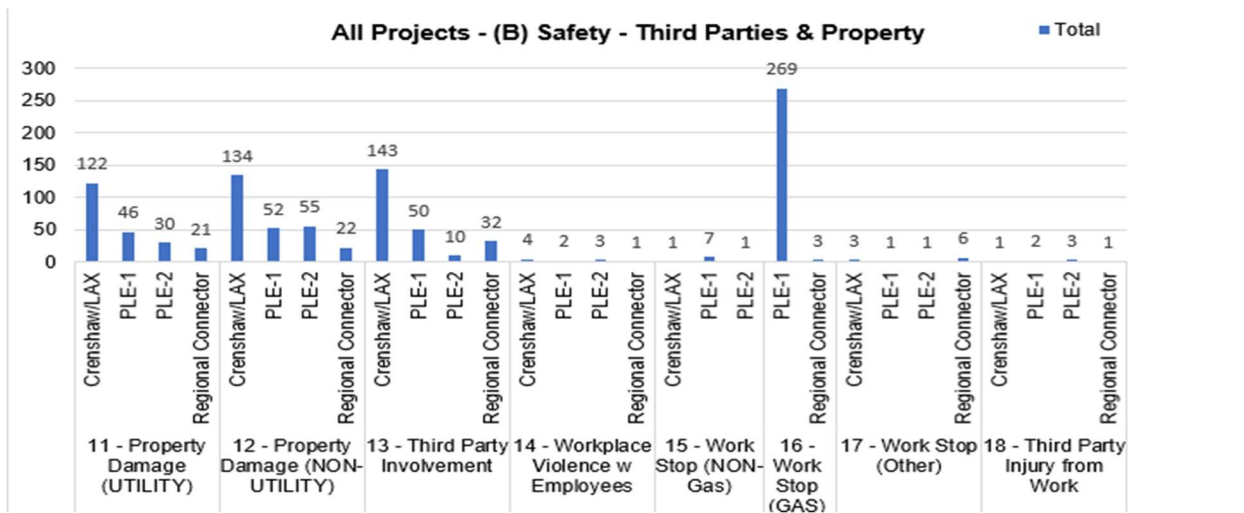


Chart 10: All Projects, (B) Safety – Third Parties & Property, Incident Counts by Classification & Project

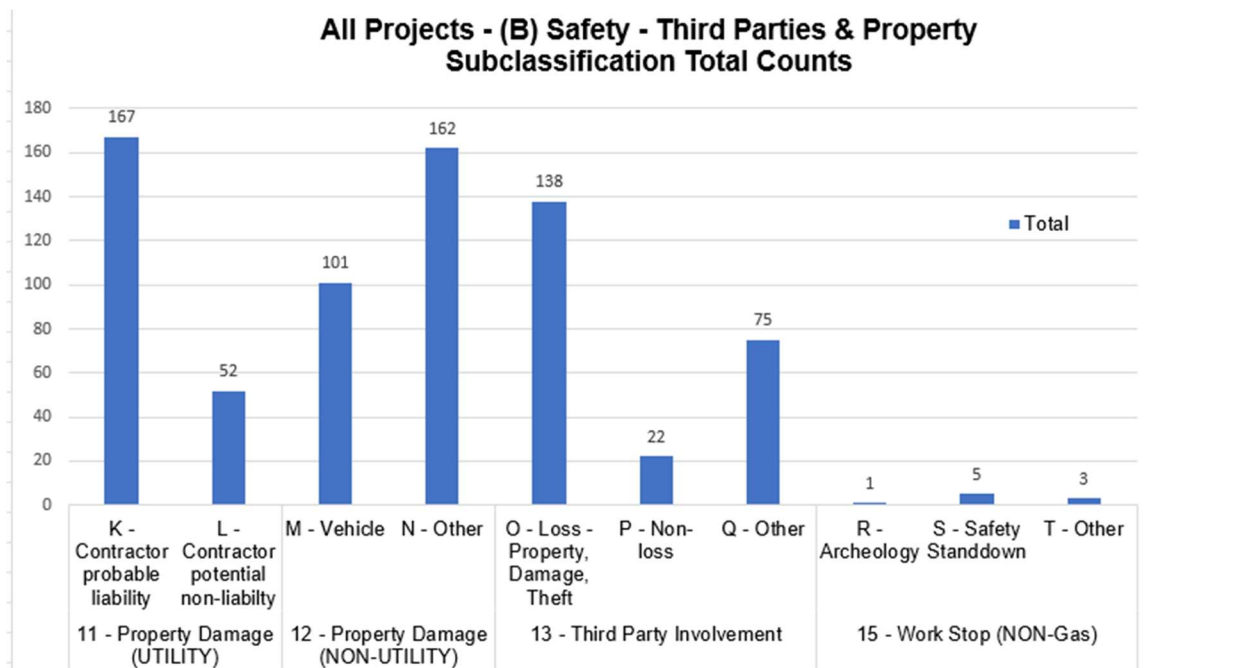


Chart 11: All Projects, (B) Safety – Third Parties & Property, Incident Counts by Subclassification

Chart 11 captures incident log data across all projects (these are typical incidents that can interrupt a contractor in the field). Utility-related incidents are quite common as well as non-utility related incidents. Over the course of a project, there can be quite a bit of damage to on-site vehicles or equipment from the contractor or third parties. Damage can also arise to vehicles by the contractor (or subcontractors) coming or going from the work site. Theft of tools and materials come from the troubling amounts of trespass onto the site. Both the contractor

and Metro, must contend with the unhoused and mentally ill breaching the job site, attacking workers; and there are incidents of gunshots and the need to alert police to criminal behavior.

OIG Observations -

Safety Plan Requirements - Positively, Contractors universally cooperate in preparing the Safety Plan as well the required submittals for the project. Contractors, per their contract, cooperate in providing pro-forma monthly reports on general statistics about work hours and reportable injuries.

Negatively, each contractor's characteristics and behavior varies. The OIG has observed (or was told in some cases) variability across contractors (and across superintendents for the same contractors) arise in the following areas:

- Timely and complete reporting of the details of safety incidents and reportable injuries;
- Cooperating with after actions including documenting root cause analyses and corrective actions;
- Openness to sharing information and/or welcoming objective feedback from Metro observations

Contractor's Safety Culture – Negatively, Contractors have demonstrated variability of safety culture across projects. Contractors are duly concerned about the safety of their employees, but they vary in their approach. The OIG was told that some contractors prefer to be “opaque” with respect to safety information and practices. It was mentioned that a contractor's own safety representative may become frustrated with their employer's non-compliance. Further we were told Contractors have not been welcoming collaborative efforts on the part of Metro's Safety Team. Contractors, in their role as employer, may face liability because of safety incidents. This possibility should not be used as an excuse to withdraw from the important practice of root cause review and corrective action reports.

Lessons Learned – OIG observes that it is useful to track the information on incidents that pertain to utility and non-utility incidents as well as damage to vehicles and equipment. In order to provide future contractors sufficient mitigation, a lessons learned is to track the numerous events from the trespassers, unhoused, and mentally ill people coming onto the job sites stealing tools, construction materials, and attacking the workers. Another lessons learned is to consider increased security at particular locations where criminal activity is high. Criminal behavior should be tracked to provide safety to the workers and because the OIG has received several reports of workers having guns in their cars at construction sites. The OIG has alerted the police, Metro's SSLE department, and the contractor's headquarters of these matters. It is likely to be occurring because the construction workers do not feel safe.

Ideas from Metro's Safety Team - The success of Metro's safety management program clearly depends on collaborative and engaged contractors. The Safety Team shared ideas for increasing Metro's chances of hiring contractors with proven safety-first cultures as follows:

1. As part of the procurement process, review markers of a strong safety culture for both the contractor and key subcontractors, i.e., (a) OSHA industry incidence rates for Injury, Illness and Fatalities, and (b) contractor's Workers' Compensation experience modification rates demonstrating low injury rates.

2. Include in Metro's General Provisions a new requirement for contractors to submit to Metro the same documentation submitted to Cal/OSHA, e.g., Forms 300, 300A, and 301.

Separate Safety Session - The OIG recommends for Metro to consider, enhancing the contract General Provisions to include critical safety culture documentation. Currently the Construction Safety and Security Manual ("Safety Manual") is incorporated in the contract by reference only, (an electronic pdf link) which works for legal purposes, but apparently some contractors give these requirements little attention or weight. It is suggested that this document be used for a training session to advise the contractor from the beginning, prior to commencement of work, what they must adhere to. This method suggests the contract winning contractor will know exactly what is required in the Safety Manual and to adhere their safety culture towards it.

Warning System - The OIG offers the methodology used to analyze data tracked in each project's Incident Log as a template for a "Red, Yellow, Green" warning system on safety. The Regional Connector project was described as a safety success story by Metro's Safety Team, and the data supports that conclusion. It may be feasible to set Regional Connector as a "baseline" for comparing the metrics of future projects.

Tracking Data and Future Audits - The PLE-2 safety audit performed under the auspices of Metro's Quality Management Oversight program (which acted to hire an outside consultant) offers important guidance for improving the contractor's performance and for supporting proactive oversight measures by Metro's Safety Team. To improve a contractor's safety practices, whether through calling for a safety stand down or initiate an audit of the type performed this year on the PLE-2 project, Metro's Safety Team must be able to substantiate its concerns with computer based tracked data. This will be key to resisting threats of "change orders" in response to reasonable safety oversight actions. The data base and Audit reports can identify lessons learned to generate improved contract language, enhance the Safety Manual, and assist regular safety reporting to Metro's management.

OIG Part C "SAFETY" Recommendations

8. PMG should work with Procurement to enhance the contract language by requiring bidder's response to include information reflecting the strength of the contractors Safety Culture such as: (a) OSHA industry incidence rates for Injury, Illness, and Fatalities and (b) bidder's Worker's Compensation experience modification rates demonstrating low injury rates.
9. PMG should work with Procurement to enhance the contract language requiring contractors to submit documentation to Metro on Recordable Injuries documentation submitted to Cal/OSHA during project construction (Forms 300, 300A, and 301).
10. Metro's Safety Team should work with Procurement and PMG to arrange a training session at the beginning of the contract to review the safety and security manual in detail with the prime contractor, subcontractors, and staff. Additionally, hold periodic refresher training to take place during the performance of the project enhanced by project lessons learned.

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11. Metro should consider joining with other governmental agencies to lobby to change the law to permit random drug and alcohol testing for safety sensitive heavy civil construction work.
12. Metro's Safety Team should establish a consistent and universal practice across all projects for logging incidents into a computer data base that will allow for accessible and transparent data analysis.
13. Metro should leverage the Quality Management Oversight (QMO) audit of PLE-2 safety practices (C1120 Management System Audit Report – Worksite Safety Audit for PLE-2) to identify and remediate gaps in: 1) contract requirements, 2) Metro's Safety Manual, and 3) data reporting practices.

CONCLUSION

In the 2023 OIG Construction Best Practices Report found Metro to be in compliance with most of the recommended best practices over areas such as readiness, procurement, and management of construction projects. In this review we analyzed quantitative data pertaining to three areas – Cost/Life of Project budgets, schedules, and safety management to evaluate the impact of the enhanced best practices. Projects take years to implement and only a small sample of projects have been started, implemented, and completed since the 2016 OIG Construction Best Practices Report. It is difficult to establish a clear nexus between improved best practices and quantitative data. This report’s evaluation of data can serve as a baseline for future comparison or as a basis to create baseline data to better establish the nexus.

A. COSTS/BUDGET

LOP Budget - We reviewed data on the initial and revised Life of Project (“LOP”) budgets presented to Metro’s Board for authorization to commence and continue projects. Metro’s Board reasonably expects accurate budget and schedule data on which to set policy and authorize planning and implementation of transit projects. We found the data suggests that to lessen LOP budgets revisions, Metro should strive for fixed and stable project definitions; enhance its estimating basis and analysis across the project life cycle; accept conservative risk analyses and encourage early and comprehensive site investigation to avoid subsurface conflicts and/or unanticipated extra work.

1. Of the 17 projects reviewed, 4 had no revision to the original Board approved LOP budget, 4 had 1 revision, and 9 had 2-3 revisions. Some of these projects are still open so additional increases to the LOP budget may occur in the future.
2. Substantial LOP budget increases are typically due to changing the definition of the project to add new work or combine work from a separate project, which is the case for PLE-1 and PLE-3. But end-of-project claims for delay-related and change impact costs also contributes to exceeding LOP budgets (which may be the case for Crenshaw/LAX).
3. Comparing the allocation of hard costs to soft costs across projects from the original LOP budget to the revised LOP budget shows that the allocation changes from hard costs are close to 67% of the overall LOP budget, on average. Understanding the reason for “outliers” from the average would require an audit of each project. The OIG speculates, however, that management may be increasing reserves based on claims risk – giving the appearance of increased “soft costs” until the reserves are used for approved change orders.

Change Orders - We reviewed data on change order activity across the 29 construction contracts to identify “challenge” areas and trends. For all construction projects, large or small, transit or non-transit, the number and value of change orders can reveal both challenges and opportunities to be addressed by planners and implementers of design and construction projects.

1. The 29 construction contracts reviewed had a total of 2,261 change orders. These change orders resulted in an average 13% increase to the original value of the contracts. However, over half the construction contracts we reviewed are still open and may have pending or future claims that may result in additional change orders to the contract.

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2. The three most common reasons for change orders (based on total value) is: 1) extra work at \$520m, 2) owner design changes at \$228m, and 3) differing site conditions at \$157m.
3. Design - build (DB) method projects experience a higher level of cost increase due to change order activity (whether open or closed) than design – bid – build (dbb) method projects (DB 14% vs dbb 10%).
4. Change orders over \$500,000 constitute 90% of change order costs yet equate to only 14% of overall 2,261 change orders. The average change order value in this category is over \$3 million. Nine of the 29 construction contracts are responsible for 53% of the total change order value over \$500,000.
5. Change Order basis coding broadly describes the reason for a contractor receiving an equitable adjustment to the contract but fails to provide internal visibility to the “true” cause of the change. Enhancements are needed for this data to be utilized for lessons learned purposes. In place of vague descriptors from the contractor’s point of view, the Change Order basis coding should inform management of the nature of the additional work and whether the cost was “avoidable” versus “unavoidable,” to improve Metro’s control and decision-making tools over budget, timing, pre-construction investigation, and the delivery method strategy.
6. Projects started in the last several years may not produce measurable data for some years in the future. The Metro Program Management Group (PMG) presented April 2023 the 18 Strategic initiatives for enhancements to construction management best practices. A few of their initiatives include: a revised LOP budget process, comprehensively applied risk management oversight, reviewing project soft costs, and continued efforts by the Early Intervention Team. As these initiatives are implemented, measurable data should become available for PMG to compare back to this baseline report.

B. SCHEDULE

Limited data was provided for 13 of the 17 projects, e.g., planned versus revised data schedules. For 7 of the 13 projects, PMG also provided the “award date” which was treated as the start date for the project for the purposes of this report. The OIG used this data to determine schedule variances across the 7 projects.

1. Schedule variance exceeded 40% on 3 of the 7 projects; 2 projects experienced variances between 17% and 22%; and for the remaining 2 projects the schedules showed 0% change. For open projects, there is no assurance the current variances will not change.
2. Correlating schedule variances to LOP variances (looking only at the 7 sample projects), the OIG identified that for Crenshaw/LAX, Regional Connector and PLE-1 cost and delay variance had some correlation which could change based on future change orders. For Patsaouras Plaza, the LOP variance greatly exceeded the delay percentage which may be due to the conservative initial LOP budget and/or the high costs incurred for delay (the project was placed on hold for archeological investigation for about a year). For the Willowbrook Rosa Parks project, schedule variance did not result in a correspondingly high LOP budget variance which may relate to the delay being non-compensable.

Review of Metro Quantitative Data on Construction Projects

The limited nature of reason coding for the schedule changes affected the OIG's ability to engage in complex analysis of a costs to schedule nexus. The OIG recommends enhanced reasons coding for change orders awarding time extensions whether compensable or not.

C. CONSTRUCTION SAFETY MANAGEMENT

The OIG selected data from four (4) projects to review and found:

1. Contractors universally cooperate in preparing certain required submittals including the Safety Plan for the project and providing pro forma monthly reports on general statistics about work hours, injuries, restricted employees, other matters. Contractors make excuses for not fully participating in safety investigations, root cause analysis and corrective action reports for "liability reasons."
2. Contractors may vary in how proactively they implement a best practices safety culture on the worksite. The Regional Connector sets a high standard for the contractor self-correcting safety non-compliances and working collaboratively with Metro's Safety Team. The OIG observes that this project's Incident Log contained the highest amount of administrative enforcement/engagement entries that demonstrates consequences for safety issues were imposed and reduced serious injuries.
3. Metro's success in overseeing contractor safety compliance depends on Metro hiring contractors with a robust safety culture. That is typically demonstrated by low "experience modification rates" less than 1.0. A rate under 1.0 shows a contractor is lower risk with less insurance claim history; above 1.0 demonstrates a risky contractor not focused on a safety culture and has multiple insurance claims (work site accidents) history.
4. The success of Metro's safety management program clearly depends on identification, of a contractor's willingness to be collaborative and engaged concerning work site safety, throughout the project implementation. Post-award Metro would benefit from receiving from the contractor its documentation required by Cal/OSHA and by increasing periodic training on safety requirements from the Safety Manual that are connected to its contract with Metro.

ENDING COMMENTS

Although the outcome of implementing best practices could not definitively be quantified or measured to cost/budget, schedule, and safety at this time, by comparing similarly situated pre-2016 projects to post 2016 projects, (year references the OIG 2016 Construction Best Practices proposed 109 recommendations) the controls Metro has recently put in place are perceived anecdotally if not quantitatively to have an overall positive impact on the lifecycle of Metro's construction projects. Staff has stated that the Metro construction culture is continuing to improve, such as by the enhanced readiness reviews being performed. Thus, Metro should continue to identify and implement best practices. In this regard, the data presented in this report should be used as an initial baseline for PMG to conduct subsequent studies, identify trends in cost/budget, schedule, and safety, and to improve their management of construction projects.

RECOMMENDATIONS

The OIG has made 13 recommendations to improve cost through controls and oversight of LOP budgets (including construction change orders), schedule, and construction safety.

“COST/BUDGET” Recommendations:

1. PMG should enhance LOP budget revision tracking by implementing coding to capture reasons for revisions to the LOP budget so management and the Board can readily identify why the increase is requested.
2. PMG should separately track and report project soft costs versus hard costs (construction) to enhance LOP budget usage and report in the Annual Program Evaluation presented to the Board.
3. PMG should expand the Revised Change Base Coding for “Extra Work” to specifically identify the nature of the change (from 5 to 10 codes max) and allow differentiation between field changes. All project staff and V/CM must be trained in the new codes to appropriately choose the correct base coding. This extra identification will provide transparency to the public regarding the reasons for post-award change orders to contractors.
4. PMG should determine if adding an identification of “avoidable” for coding of change orders would enhance future reporting and better allocate resources where needed.
5. PMG should determine if it would benefit Metro and the public to: Identifiably track change orders that have been resolved following Dispute Resolution Board and/or partnering efforts.
6. PMG should determine if it would be helpful to track Document Control smaller projects the same as larger, because smaller projects still involve many millions of taxpayer dollars.

“SCHEDULE” Recommendations:

7. PMG should enhance Metro’s LOP schedule reporting by providing visibility to specific project delay at the project level and at the construction contract level. In Part A, COSTS/BUDGET, the OIG provided recommendation(s) pertaining to enhanced change order reasons coding. A new separate coding basis should be considered at the project level to distinguish between construction contract-related delay. e.g., if funding is delayed.

“SAFETY” Recommendations

8. PMG should work with Procurement to enhance the contract language by requiring bidder’s response to include information reflecting the strength of the contractors Safety Culture such as: (a) OSHA industry incidence rates for Injury, Illness, and Fatalities and

Review of Metro Quantitative Data on Construction Projects

(b) bidder's Worker's Compensation experience modification rates demonstrating low injury rates.

9. PMG should work with Procurement to enhance the contract language requiring contractors to submit documentation to Metro on Recordable Injuries documentation submitted to Cal/OSHA during project construction (Forms 300, 300A, and 301).
10. Metro's Safety Team should work with Procurement and PMG to arrange a training session at the beginning of the contract to review the safety and security manual in detail with the prime contractor, subcontractors, and staff. Additionally, hold periodic refresher training to take place during the performance of the project enhanced by project lessons learned.
11. Metro should consider joining with other governmental agencies to lobby to change the law to permit random drug and alcohol testing for safety sensitive heavy civil construction work.
12. Metro's Safety Team should establish a consistent and universal practice across all projects for logging incidents into a computer data base that will allow for accessible and transparent data analysis.
13. Metro should leverage QMO's audit of PLE-2 safety practices (C1120 Management System Audit Report – Worksite Safety Audit for PLE-2) to identify and remediate gaps in: 1) contract requirements, 2) Metro's Safety Manual, and 3) data reporting practices.

ATTACHMENTS

ATTACHMENT A: Contract Change Basis Coding

ATTACHMENT B: Recommendations and Responses

ATTACHMENT A:

CHANGE BASIS CODING

CONTRACT CHANGE BASIS CODING SYSTEM

DEFINITIONS AND USAGE GUIDELINES

BASIS CODE STRUCTURE:

- 100 WORK SCOPE CHANGES
 - 110 Extra Work
 - 120 Deletion of Work
 - 130 Contract Scope Deletion (added on 9/13)
- 200 SCHEDULE CHANGES
 - 210 Delay of Work (Compensable)
 - 220 Acceleration of Work
 - 230 Milestone Revisions (Non-compensable)
- 300 DIFFERING/UNFORESEEN CONDITIONS
 - 310 Differing Site Conditions
 - 320 Hazardous Materials
 - 330 Safety Conditions
- 400 ADMINISTRATIVE CHANGES
 - 410 Terms and Conditions - Owner Originated
 - 430 Editorial Clarifications/Document Maintenance
 - 440 Quantity Adjustment
- 500 DESIGN CHANGES
 - 510 Owner Originated
 - 530 Corrections to Plans/Specs
 - 540 Value Engineering
- 600 MANAGEMENT ISSUES/CLAIMS
 - 610 Disruption/Inefficiency Claim
 - 620 Comprehensive Claim
- 700 OUTSIDE AGENCY REQUESTS
 - 710 Work Scope Changes
 - 720 Design Changes
 - 730 Terms and Conditions
- 800 CONTRACT OPTIONS, EXERCISE OF
- 900 OTHER

COST RECOVERY CODES: In conjunction with the basis codes provided above, changes may be identified as having cost recovery potential:

BK = Backcharge to another construction/procurement contract

BT = Betterment for an outside agency or third party

EO = Consultant Error or Omission (use the FROM field to identify the responsible consultant)

LL = Lessons Learned (Future savings from improved design)

BASIS CODE USAGE GUIDELINES

100 WORK SCOPE CHANGES

110 EXTRA WORK (within general contract scope)

Use to identify work not specifically identified in the "as-awarded" contract documents but required to complete the original intent of the original contract scope. Extra work not covered by existing bid price items or combination of existing bid price items. ¹

¹ Extra work as defined by CALTRANS standard specifications.

CONTRACT CHANGE/CLAIM BASIS CODING SYSTEM

DEFINITIONS AND USAGE GUIDELINES

!!NOTE: For changes in design approach, alteration, or correction of existing design elements (including dimension and quantity changes) see 500 series codes, "Design Changes".)

!!NOTE: For additional work arising from a differing site condition or interference (including work related to hazardous materials) use 310, "Differing Site Conditions".

120 DELETION OF WORK

Use to identify work and/or technical requirements that are deleted from the contract entirely, rather than revised. Includes reduction of quantities. Almost always credit or no-cost changes.

130 CONTRACT SCOPE DELETION

Use to identify when scope item is deleted, i.e. entire Bid Item No. and when the cost is not to be credited to the CMA

200 SCHEDULE CHANGES

210 DELAY OF WORK (COMPENSABLE)

Use for changes which grant compensable extension of the milestones or completion date due to acknowledged delays in the work.

220 ACCELERATION OF WORK

Use for changes specifically allowing acceleration of work, overtime, increased shifts, etc.

230 MILESTONE REVISIONS (NON-COMPENSABLE)

Use for non-compensable milestone, delivery date, or completion date changes not caused by either owner or contractor delays. Generally "force majeure" changes, or changes to improve coordination.

300 CHANGED/UNFORESEEN CONDITIONS

310 DIFFERING SITE CONDITIONS

Use for all* changes arising from acknowledged differing site conditions. Generally subsurface or latent physical conditions *pre-existing contract award* which were not identified in the contract documents. E.G., Obstructions, utility interferences, etc.).

*Use code "320" if hazardous materials are involved.

320 HAZARDOUS MATERIAL

Use for all changes arising from acknowledged differing site conditions involving hazardous or toxic materials. E.G., Gaseous conditions, contaminated soils, asbestos, etc.)

330 SAFETY CONDITIONS

Use to identify changes which primarily correct safety conditions associated with unforeseen site conditions.

CONTRACT CHANGE/CLAIM BASIS CODING SYSTEM
DEFINITIONS AND USAGE GUIDELINES

400 ADMINISTRATIVE CHANGES (NON-TECHNICAL)

410 TERMS AND CONDITIONS (OWNER ORIGINATED)

Use to identify owner originated changes affecting the terms and conditions of the contract identified in the non-technical sections of the contract. Generally changes to the General or Special Conditions (other than schedule changes which should be coded under the **200** series and exercise of contract options which should be coded as **800**).

Examples: Revisions to Insurance Requirements
Revisions to Safety Requirements

430 EDITORIAL CLARIFICATIONS/DOCUMENT MAINTENANCE

Use for no-cost editorial and non-substantive corrections to contract language, including no-cost corrective amendments to change orders. (E.G., Amended Change Order correcting listing of revised drawings). Use also for routine updating of other baseline documents like the Project Management Plan, Contract Unit Descriptions, etc.

440 QUANTITY ADJUSTMENTS

Increases or decreases in the quantity of a Unit, as identified in the SCHEDULE OF QUANTITIES AND PRICES.

500 DESIGN CHANGES: Covers design changes, enhancements, and corrections to existing work covered by existing contract bid items only. All design provided for work not covered under existing bid items should be coded under the 100 series - work scope changes. *Use of a design change code is not synonymous with a potential errors or omissions identification. Errors or omissions by a consultant should be identified by a cost recovery code.*

510 DESIGN CHANGES/ENHANCEMENTS: OWNER ORIGINATED

Use for METRO initiated changes involving major re-design or change in design approach for work identified in "as-awarded" design approach originated by the owner or owner's agent (i.e., owner's consultant). Revised (rather than new) drawings and/or specifications are generally required. Change titles/descriptions generally contain the terms "revise", "modify", "relocate", "extend", etc.

Includes:

Owner directed Lessons Learned design changes*
Owner originated enhancements and technological upgrades
Owner directed realignments, etc.

*NOTE: Lessons Learned changes should also be identified by the COST RECOVERY code "LL".

530 CORRECTIONS TO PLANS AND SPECIFICATIONS

Use for changes issued to clarify and/or correct defective, unclear or insufficient design definition in the contract drawings and specifications (including discrepancies between documents, minor dimensional changes, etc.). Often originate with a "Request for Information". If minor, changes may be made "as-built".

CONTRACT CHANGE/CLAIM BASIS CODING SYSTEM

DEFINITIONS AND USAGE GUIDELINES

540 VALUE ENGINEERING CHANGES (CONTRACTOR PROPOSED DESIGN CHANGES)

Use for changes implemented as a result of a contractor's formal Value Engineering proposal. Always a credit change.

600 MANAGEMENT ISSUES (Generally arising from "comprehensive" contractor claims): Use the codes below to identify individual changes allowing for costs related to numerous events which may arise from numerous "technical" causes. Do not use for changes or claims which can be attributed to any other basis code.

620 COMPREHENSIVE CLAIMS

Use to identify individual changes which grant costs for comprehensive "end-of-contract" claims for which a single major cause cannot otherwise be identified.

700 **OUTSIDE AGENCY OR THIRD PARTY REQUESTS**

710 WORK SCOPE CHANGE - OUTSIDE AGENCY REQUEST/REQUIREMENT

Use to identify additional or extra work requested or required by an outside agency or third party to the project. (Use 720 for design changes required by a outside agency/third party to work covered by existing bid items and within the original intent of the contract scope).

EXAMPLES: Street preparation for L.A. Marathon
Noise Control Investigation
Sound Wall Installation

!!Note: Generally used in conjunction with the "BT" or betterment cost recovery code.

720 DESIGN CHANGES - OUTSIDE AGENCY/THIRD PARTY

Alteration to the "as-awarded" design of the contract however the alteration was initiated or requested by an outside agency (Federal, State, or Local). Use also for design changes due to changes in legislation, or local, state or federal codes or standards.

EXAMPLE: Americans with Disability Action related Changes

730 TERMS AND CONDITIONS CHANGES - OUTSIDE AGENCY ORIGINATED

Changes in the administrative terms and conditions of the contract originated or required by an outside agency (Federal, State, or Local).

Example: Revisions to EEO Reporting Requirements
Revisions to Insurance Coverage requirements

800 **EXERCISE OF CONTRACT OPTIONS**

Use to identify changes which specifically exercise options identified in the original contract documents.

900 **OTHER**

Use for unusual changes/claims which do not fit any of the above categories. **Use of the "OTHER" category is to be avoided whenever possible.**

ATTACHMENT B:

RECOMMENDATIONS

AND

RESPONSES

QUANTITATIVE DATA RECOMMENDATIONS / RESPONSES

A: COSTS/BUDGET

2023 Rec No.	2023 Recommendation	2023 Metro Management's Response
1.0	PMG should enhance LOP budget revision tracking by implementing coding to capture reasons for revisions to the LOP budget so management and the Board can readily identify why the increase is requested.	Completed: PC02 Budget, PC05 Cost Forecasting, and PC16 Contingency Drawdown procedures were recently updated and require coding of budget changes and board communication protocols. PMG will use the existing coding system to provide explanations in future Board Reports requesting LOP budget increases. Completed December 2021.
2.0	PMG should separately track and report project soft costs versus hard costs (construction) to enhance LOP budget usage and report in the Annual Program Evaluation presented to the Board.	Current Practice. Soft cost reporting monitored and reported monthly, submitted to Chief quarterly and Board annually as part of Annual Program Evaluation and Strategic Initiatives. Estimated completion April 2024.
3.0	PMG should expand the Revised Change Base Coding for "Extra Work" to specifically identify the nature of the change (from 5 to 10 codes max) and allow differentiation between field changes. All project staff and V/CM must be trained in the new codes to appropriately choose the correct base coding. This extra identification will provide transparency to the public regarding the reasons for post-award change orders to contractors.	In Process. PMG in process of expanding change basis coding to expand from 5 to 10 codes and allow further differentiation of contract changes. Project team training will be provided to train staff in accurate change basis coding. Estimated completion by June 2024.
4.0	PMG should determine if adding an identification of "avoidable" for coding of change orders would enhance future reporting and better allocate resources where needed.	Current Practice. Unifier already has functionality for coding potential cost recovery of changes or avoidance and reporting already exists. Additionally, PMG will use the risk assessment process to guide the extent of geotechnical investigations to mitigate avoidable changes on future projects.

Review of Metro Quantitative Data on Construction Projects

5.0	PMG should determine if it would benefit Metro and the public to: Identifiably track change orders that have been resolved following Dispute Resolution Board and/or partnering efforts	Current Practice. Unifier change basis coding already exists for claim resolution.
6.0	PMG should determine if it would be helpful to include and track Document Control for smaller projects the same as larger, because smaller projects still involve many millions of taxpayer dollars.	Will Consider: PMG will evaluate resources and business need to expand use of PMIS for all capital projects. Estimated completion by June 2024.

B: SCHEDULE

2023 REC. NO.	2023 Recommendation	2023 Metro Management's Response
7.0	PMG should enhance Metro's LOP schedule reporting by providing visibility to specific project delay at the project level and at the construction contract level. In Part A, COSTS/BUDGET, the OIG provided recommendation(s) pertaining to enhanced change order reasons coding. A new separate coding basis should be considered at the project level to distinguish between construction contract-related delay, e.g., if funding is delayed.	Completed: PC09 Schedule Development was recently updated and requires managing and monitoring four levels of schedule including program, project, and contract. Total float analysis including schedule erosion or improvement is evaluated monthly including any associated mitigation measures. Completed December 2021.

C: SAFETY

2023 REC. NO.	2023 Recommendation	2023 Metro Management's Response
8.0	PMG should work with Procurement to enhance the contract language by requiring bidder's response to include information reflecting the strength of the contractors Safety Culture such as: (a) OSHA industry incidence rates for Injury, Illness, and Fatalities and (b) bidder's Worker's Compensation experience modification rates demonstrating low injury rates.	Completed: PMG, VCM, and County Counsel have developed new evaluation criteria for future construction RFPs based on each proposer's Experience Modification Rating (EMR). Any contractor with an EMR greater than 1.0 will be considered non-responsive. Completed July 2023.
9.0	PMG should work with Procurement to enhance the contract language requiring contractors to submit documentation to Metro on Recordable Injuries documentation submitted to Cal/OSHA during project construction (Forms 300, 300A, and 301).	Agree: Corporate Safety, PMG, and VCM will consult with County Counsel about requiring contractors on future Capital Projects to submit redacted copies of the referenced forms, omitting personal information. PMG and VCM will reach out to the Association of General Contractors (AGC) for feedback prior to implementation. Target date for completion: July 2024

Review of Metro Quantitative Data on Construction Projects

10.0	<p>Metro's Safety Team should work with Procurement and PMG to arrange a training session at the beginning of the contract to review the safety and security manual in detail with the prime contractor, subcontractors, and staff. Additionally, hold periodic refresher training to take place during the performance of the project enhanced by project lessons learned.</p>	<p>Agree: Future contracts will require the contractor's attendance at a meeting at the beginning of the Contract to review the Construction Safety and Security Manual (CSSM) before any construction work starts. Requirements for periodic meetings to discuss CSSM requirements will also be included in future contracts.</p>
11.0	<p>Metro should consider joining with other governmental agencies to lobby to change the law to permit random drug and alcohol testing for safety sensitive heavy civil construction work.</p>	<p>Will consider: PMG and Safety will convene a meeting with VCM, DEOD (labor relations), and Government Relations to consider the steps required to change the law. Anticipated completion Oct 2023.</p>
12.0	<p>Metro's Safety Team should establish a consistent and universal practice across all projects for logging incidents into a computer data base that will allow for accessible and transparent data analysis.</p>	<p>Agree: Metro's Safety Team will establish a log for tracking incidents and create a secured system on Metro's Corporate Safety's Drive with appropriate controls. Target date for completion: September 2023</p>
13.0	<p>Metro should leverage QMO's audit of PLE-2 safety practices (C1120 Management System Audit Report – Worksite Safety Audit for PLE-2) to identify and remediate gaps in: 1) contract requirements, 2) Metro's Safety Manual, and 3) data reporting practices.</p>	<p>Agree: PMG (Quality) and Metro Safety will engage the QMO consultant when warranted to perform similar audits on other construction projects. Process to begin Oct 2023.</p>

QUANTITATIVE DATA RECOMMENDATIONS / RESPONSES

A: COSTS/BUDGET

2023 Rec No.	2023 Recommendation	2023 Metro Management's Response	Affected Departments
1.0	PMG should enhance LOP budget revision tracking by implementing coding to capture reasons for revisions to the LOP budget so management and the Board can readily identify why the increase is requested.	Completed: PC02 Budget, PC05 Cost Forecasting, and PC16 Contingency Drawdown procedures were recently updated and require coding of budget changes and board communication protocols. PMG will use the existing coding system to provide explanations in future Board Reports requesting LOP budget increases. Completed December 2021.	Program Management
2.0	PMG should separately track and report project soft costs versus hard costs (construction) to enhance LOP budget usage and report in the Annual Program Evaluation presented to the Board.	Partially Agree: Soft cost reporting is already monitored and reported monthly, submitted to Chief quarterly. PMG will begin reporting program-wide soft costs to the Board annually as part of Annual Program Evaluation in line with Strategic Initiatives. Estimated completion April 2024.	Program Management
3.0	PMG should expand the Revised Change Base Coding for "Extra Work" to specifically identify the nature of the change (from 5 to 10 codes max) and allow differentiation between field changes. All project staff and V/CM must be trained in the new codes to appropriately choose the correct base coding. This extra identification will provide transparency to the public regarding the reasons for post-award change orders to contractors.	In Process: PMG in process of expanding change basis coding to expand from 5 to 10 codes and allow further differentiation of contract changes. Project team training will be provided to train staff in accurate change basis coding. Estimated completion by March 2024.	Program Management
4.0	PMG should determine if adding an identification of "avoidable" for coding of change orders would enhance future reporting and better allocate resources where needed.	Current Practice: PMG has reviewed this and the Lessons Learned process accomplishes the objective of the recommendation.	Program Management
5.0	PMG should determine if it would benefit Metro and the public to: Identifiably track change orders that have been resolved following Alternative Dispute Resolutions and/or Partnering efforts	Current Practice: Unifier change basis coding already exists for claim resolution.	Program Management
6.0	PMG should determine if it would be helpful to include and track Document Control for smaller projects the same as larger, because smaller projects still involve many millions of taxpayer dollars.	Will Consider: PMG will evaluate resources and business need to expand use of PMIS for all capital projects. Estimated completion by June 2024.	Program Management

B: SCHEDULE			
2023 REC. NO.	2023 Recommendation	2023 Metro Management's Response	Affected Departments
7.0	PMG should enhance Metro's LOP schedule reporting by providing visibility to specific project delay at the project level and at the construction contract level. In Part A, COSTS/BUDGET, the OIG provided recommendation(s) pertaining to enhanced change order reasons coding. A new separate coding basis should be considered at the project level to distinguish between construction contract-related delay. e.g., if funding is delayed.	Completed: PC09 Schedule Development was recently updated and requires managing and monitoring four levels of schedule including program, project, and contract. Total float analysis including schedule erosion or improvement is evaluated monthly including any associated mitigation measures. Completed December 2021.	Program Management
C: SAFETY			
2023 REC. NO.	2023 Recommendation	2023 Metro Management's Response	Affected Departments
8.0	PMG should work with Procurement to enhance the contract language by requiring bidder's response to include information reflecting the strength of the contractors Safety Culture such as: (a) OSHA industry incidence rates for Injury, Illness, and Fatalities and (b) bidder's Worker's Compensation experience modification rates demonstrating low injury rates.	Completed: PMG, VCM, and County Counsel have developed new evaluation criteria for future construction RFPs based on each proposer's Experience Modification Rating (EMR). Any contractor with an EMR greater than 1.0 will be considered non-responsive. Completed July 2023.	Program Management, Safety, VCM, County Counsel
9.0	PMG should work with Procurement to enhance the contract language requiring contractors to submit documentation to Metro on Recordable Injuries documentation submitted to Cal/OSHA during project construction (Forms 300, 300A, and 301).	Will Consider: Corporate Safety, PMG, and VCM will consult with County Counsel about requiring contractors on future Capital Projects to submit redacted copies of the referenced forms, omitting personal information. PMG and VCM will reach out to the Association of General Contractors (AGC) for feedback prior to implementation. Target date for completion: July 2024	Safety, VCM, Program Management, County Counsel
10.0	Metro's Safety Team should work with Procurement and PMG to arrange a training session at the beginning of the contract to review the safety and security manual in detail with the prime contractor, subcontractors, and staff. Additionally, hold periodic refresher training to take place during the performance of the project enhanced by project lessons learned.	Current Practice: Metro's existing contracts require contractors to develop their own project specific safety plan and to provide training for their workforce. Metro's Safety department provides safety oversight. Metro's System Security and Law Enforcement department needs to be involved in the review of the safety and/or security manuals developed by the contractor as well as coordinate any periodic reviews and discussion on refresher training.	Safety, Program Management, County Counsel
11.0	Metro should consider joining with other governmental agencies to lobby to change the law to permit random drug and alcohol testing for safety sensitive heavy civil construction work.	Will consider: PMG and Safety will convene a meeting with County Counsel, VCM, DEOD (labor relations), and Government Relations to consider the steps that would be required to change the law. Anticipated completion November 2023.	Safety, PMG, VCM (DEOD), Government Relations

12.0	Metro's Safety Team should establish a consistent and universal practice across all projects for logging incidents into a computer data base that will allow for accessible and transparent data analysis.	Agree: Metro's Safety Team will establish a log for tracking incidents and create a secured system on Metro's Corporate Safety's Drive with appropriate controls. Target date for completion: September 2023	Safety
13.0	Metro should leverage QMO's audit of PLE-2 safety practices (C1120 Management System Audit Report – Worksite Safety Audit for PLE-2) to identify and remediate gaps in: 1) contract requirements, 2) Metro's Safety Manual, and 3) data reporting practices.	Agree: PMG and Metro Safety will conduct similar oversight audits of other contractors, when warranted, to confirm compliance with each contractor's safety plan. As applicable, information identified in audits will be incorporated into the Lessons Learned program.	PMG, Safety

Office Of Inspector General

Review of Metro

Construction Projects

Quantitative Data

Presented By

Karen Gorman
Inspector General

October 2023

Construction Committee

Los Angeles County Metropolitan Transportation Authority



LOP Budget Data:

- 17 Projects reviewed
- Original LOP: \$14.7B
- Variance: \$ 1.6B
- Top 5 Projects: 86% Variance

Hard vs Soft Costs:

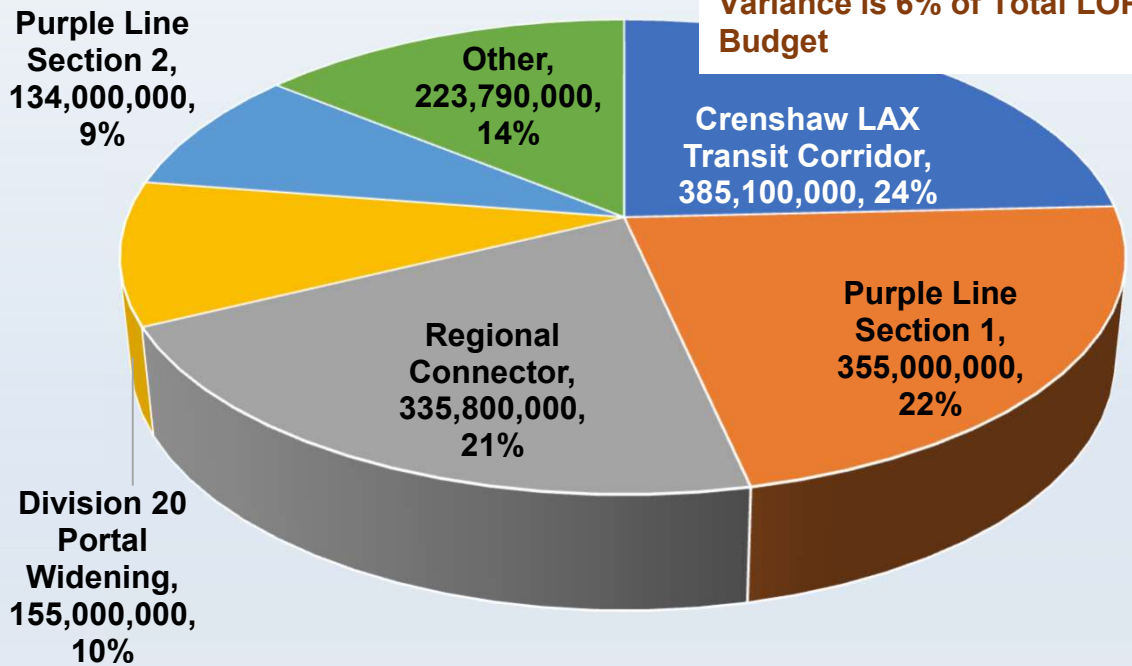
- Hard=Construction + 15% vs
Soft = Other Costs
- Hard 66% vs Soft 34%
- Change Orders drive up

↑ Hard Costs

LOP Budget/Cost Recommendations:

- Enhanced change basis coding
- Track and report (separately) variances to hard versus soft costs

17 Projects: Top 5 Percentage of Overall LOP
Budget Variance
"Other" Represents 12 of 17 Projects



Crenshaw/LAX:
Pre-Award: 24% of Total LOP Budget
Post-Award: \$90,000,000
Variance is 6% of Total LOP Budget

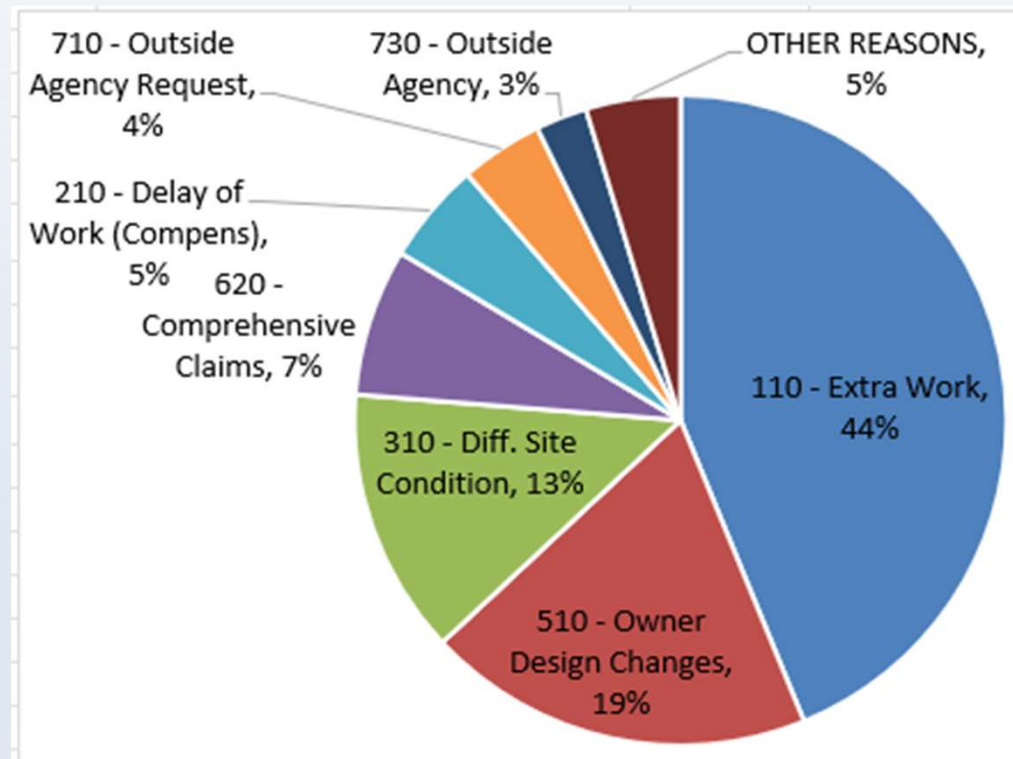
Change Order Analysis:

- 2,261 COs, Total Value \$1.2B
- 29 contracts, 13% avg CO Variance
- Top 5 Projects: 86% of Total Variance
- CO's over \$10M: 53% of Total Variance
- Design-Bid-Build: 10% avg CO Variance
- Design-Build: 14% avg CO Variance

Reason for Change Orders:

- Top CO Reasons for Change
 - Extra Work (Design-Bid-Build #1)
 - Design Changes (Design-Build #1)
 - Differing Site Condition

Top 7 "1994 Reasons" by % for Change Orders



CO Recommendations:

- Enhanced change basis coding with visibility as to (potentially) "avoidable" causes
- Identify change orders that result from alternative dispute resolution

October 2023

Construction Committee

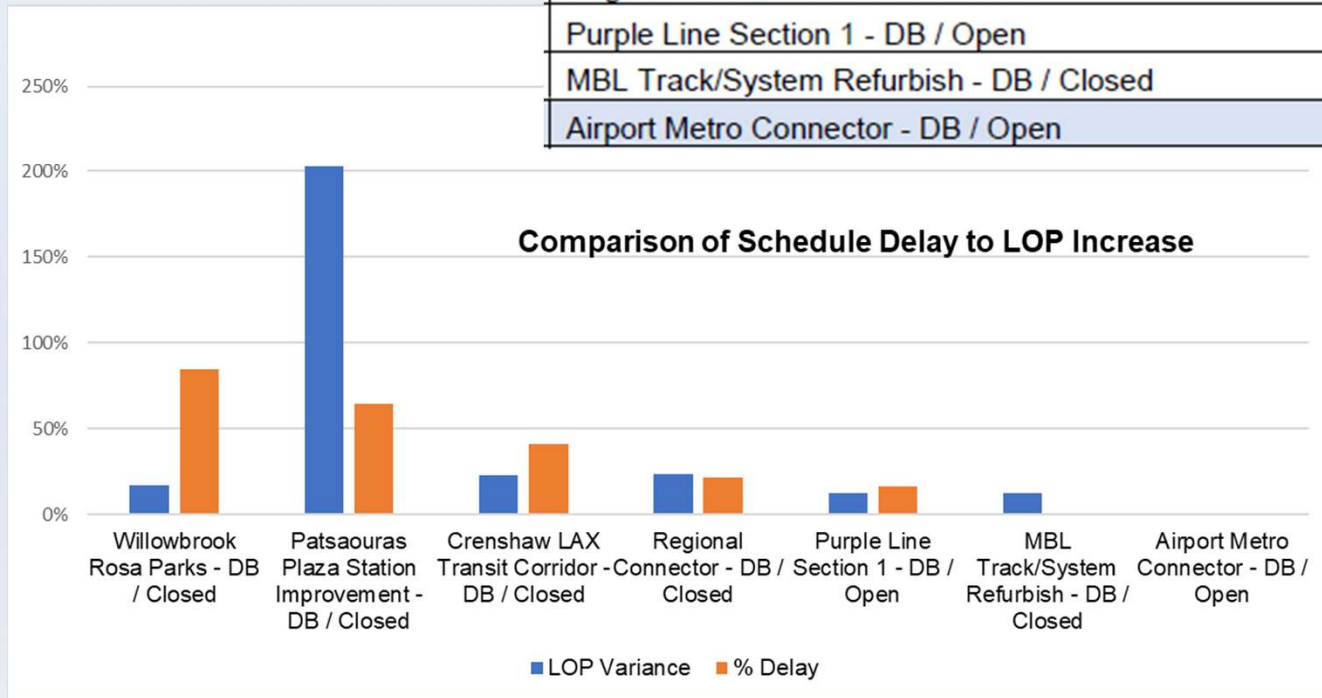
Los Angeles County Metropolitan Transportation Authority



Correlation Between LOP Budget and Schedule Variances

- Patsaourus Plaza:
Compensable delay
- Willowbrook:
Added Work

Project	LOP Variance	Schedule Variance
Willowbrook Rosa Parks - DB / Closed	17%	85%
Patsaouras Plaza Station Improvement - DB / Closed	203%	64%
Crenshaw LAX Transit Corridor - DB / Closed	23%	41%
Regional Connector - DB / Closed	24%	22%
Purple Line Section 1 - DB / Open	13%	17%
MBL Track/System Refurbish - DB / Closed	13%	0%
Airport Metro Connector - DB / Open	0%	0%



Schedule Recommendation:

Track and report change basis for delays to schedule.

October 2023

Construction Committee

Los Angeles County Metropolitan Transportation Authority



Contractor Delegated Safety Duties: Protection of Employees, Third Parties & Property

- Plan & Implement Safety
- Report Incidents
- Implement Corrective Actions

(A) SAFETY /Employee Health	Regional Connector		% per 200k Work	Crenshaw / LAX		% per 200k Work	PLE-1 ¹⁸		% per 200k Work Hours	PLE-2		% per 200k Work Hours
Types of Safety Incidents	7,886,846 Work Hours			12,059,920 Work Hours			8,636,811			3,390,250		
Recordable	28	25%	0.71	85	22%	1.41	41	41%	0.95	51	28%	3.01
First Aid	30	27%	0.76	213	56%	3.53	45	45%	1.04	99	55%	5.84
Other	1	1%	0.03	1	0%	0.02	1	1%	0.02	2	1%	0.12
Near Miss	20	18%	0.51	52	14%	0.86	8	8%	0.19	23	13%	1.38
Wobblers (Recordable Not First Aid?)	0	0%	0.00	11	3%	0.18	2	2%	0.05	5	3%	0.29
Administrative & OSHA Inspections	28	25%	0.71	17	4%	0.28	2	2%	0.05	1	1%	0.08
Substance Abuse	3	3%	0.08	4	1%	0.07	0	0%	0.00	0	0%	0.00
Total	110	100%	2.79	383	100%	6.35	99	100%	2.29	181	100%	10.88

Recommendation:

- “Weight” Contractor’s Safety Culture indicators higher in “Responsible” Bidder Review
 - ❖ Seek Experience Modification Rating (“EMR”) ≤ 1.0 for Recordable Injuries
- Require adherence to Metro’s Safety Manual pre-bid and training post-award
- Revise contract to require Contractor to submit project Cal/OSHA forms to Metro

October 2023

Construction Committee

Los Angeles County Metropolitan Transportation Authority



NEXT STEPS

File #
2023-0178

The Review of Metro Construction Projects Quantitative Data includes 13 recommendations to further enhance Metro’s performance and reporting on cost/budget, schedule and safety metrics.

The list of OIG recommendations is an attachment to this OIG report (Attachment B).

Additionally, concurrently with this quantitative report, the OIG submits a report entitled “2023 OIG Construction Best Practices Report” (Legistar Report No. 2023-0178.) That summarizes the OIG’s findings regarding the Program Management Group’s compliance with 109 recommendations made in the OIG’s 2016 Construction Best Practices Report.

October 2023

Construction Committee

Los Angeles County Metropolitan Transportation Authority





Board Report

File #: 2023-0586, **File Type:** Informational Report

Agenda Number: 23.

CONSTRUCTION COMMITTEE OCTOBER 19, 2023

SUBJECT: PROGRAM MANAGEMENT QUARTERLY CHANGE REPORT

ACTION: RECEIVE AND FILE

RECOMMENDATION

RECEIVE AND FILE Quarterly Status Report on Program Management change orders.

ISSUE

This board report provides a quarterly update from Program Management on change orders related to our capital program which are greater than \$500,000. Greater detail is provided in Attachment A - Quarterly Change Orders Log for Reporting Period of June 1, 2023 - August 31, 2023.

BACKGROUND

In January 2017, the MTA Board approved a one-year pilot to delegate the CEO the authority to execute project agreements up to the Life-of-Project (LOP) budget for the Crenshaw/LAX, Regional Connector, and Purple Line Extension Section 1 & 2 projects. The purpose of the pilot was to save time and minimize disruption due to the typical contract change administration approval process.

The pilot program was effective, generated cost savings and avoided costly construction delays. At the January 26, 2018 Board meeting, the Board approved the continuation and expansion of the delegation of authority within Life of Project (LOP) budget management on all Transit and Regional Rail Capital Projects. Staff was directed to provide quarterly reports to the Board on change orders and modifications that are above \$500,000. CEO Board delegated authority of changes is very beneficial to expedite contract changes and avoid costly construction delays. Since inception of the program up to 2,438 concurrent workdays or concurrent 9.4 years, aggregated across the program, have been saved. (For more information, refer to Attachment B entitled OIG Construction Change Order Spot Checks CEO Delegated Authority Total Delays Avoided).

DISCUSSION

The change activities for the reporting period between June 1, 2023 - August 31, 2023 are included in Attachment A.

FINANCIAL IMPACT

The changes included in this report are included in the approved life-of-project budget for each project.

EQUITY PLATFORM

Crenshaw/LAX	Equity - 8 of 8 stations (100%) are within or adjacent to Equity Focus
Westside Purple Line Ext 1	Equity - This project is not located within or adjacent to Equity Focus Communities
Westside Purple Line Ext 2	Equity - This project is not located within or adjacent to Equity Focus Communities
Westside Purple Line Ext 3	Equity - 1 of 2 stations (50%) are within or adjacent to Equity Focus Communities
Division 20	Equity - 100% of the project is within or adjacent to Equity Focus Communities
Metro Center Project (ESOC)	Equity - This project is not located within or adjacent to Equity Focus Communities

IMPLEMENTATION OF STRATEGIC PLAN GOALS

The recommendation supports strategic plan goal # 5 to provide responsive, accountable, and trustworthy governance within the Metro organization by keeping the Board informed of the Projects’ change orders and modifications via submitting the Change Order log on a quarterly basis.

NEXT STEPS

The next Change Order Log will cover the period of September 1, 2023 through November 30, 2023 and will be presented to the January 2024 Construction Committee.

ATTACHMENTS

Attachment A - Quarterly Change Orders Log for Reporting Period of June 1, 2023 - August 31, 2023

Attachment B - OIG Construction Change Order Spot Checks CEO Delegated Authority Delays Avoided

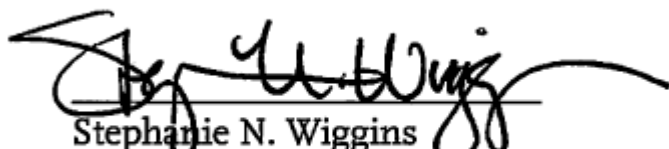
- **Crenshaw/LAX** - Sameh Ghaly, Deputy Chief Program Management Officer, (213) 418-3369
- **Westside Purple Line Ext 1** - James Cohen, Senior Executive Officer, Projects Engineering (Interim), (323) 900-2114
- **Westside Purple Line Ext 2** - Michael McKenna, Senior Executive Officer, Projects Engineering (Interim), (424) 551-4447
- **Westside Purple Line Ext 3** - Kimberly Ong, Senior Executive Officer, Projects Engineering

(Interim), (424) 551-4501

- **Division 20 Portal** - Albert Soliz, Deputy Executive Officer, Project Management, (213) 922-4002
- **Soundwall Package 10** - Tim Lindholm, Deputy Chief Program Management Officer, (213) 922-7297
- **Metro Center Project** - Albert Soliz, Deputy Executive Officer, Project Management, (213) 922-4002
- **Gold Line Foothill 2B** - Tim Lindholm, Deputy Chief Program Management Officer, (213) 922-7297
- **Metro G Line Improvements** - Tim Lindholm, Deputy Chief Program Management Officer, (213) 922-7297
- **1-105 Express Lanes** - Tim Lindholm, Deputy Chief Program Management Officer, (213) 922-7297
- **Report** - Julie Owen, Senior Executive Officer, Program Control, (213) 922-7313

Reviewed by:

Darcy Buryniuk, Chief Program Management Officer (213) 922-2250



Stephanie N. Wiggins
Chief Executive Officer

CRENSHAW/LAX TRANSIT PROJECT

I. APPROVED MODIFICATIONS/CHANGES GREATER THAN \$500K IN THIS REPORTING PERIOD (June 1, 2023 - August 31, 2023)

Change Types:
 1 - Betterment 2 - Third Party 3 - Differing Site Conditions 4 - Regulatory Requirements 5 - Scope 6 - Value Engineering 7 - Safety

A. DESIGN BUILD CONTRACT - Contract No. C0988 - WALSH SHEA CORRIDOR CONSTRUCTORS

MOD/CHANGE #	DESCRIPTION (if the change is a unilateral, explain in BOLD fonts)	Change Type	Submission Date	Approval Date	Contractor's Proposed Amount	Approved Amount
	None					

B. PROFESSIONAL SERVICES CONTRACTS

	None					
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C. CONSTRUCTION MANAGEMENT SUPPORT SERVICES CONTRACTS

MC069-CWO16-MOD-0025	Extend the period of performance through December 2023. The additional funds are for continued support the activities through the construction close out process.	5	5/16/2023	6/30/2023	\$838,944.89 \$1,123,356.38	\$1,001,183.06
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II. PENDING MODIFICATIONS/CHANGES GREATER THAN \$500K (June 1, 2023 - August 31, 2023)

A) DESIGN BUILD CONTRACT - Contract No. C0988 - WALSH SHEA CORRIDOR CONSTRUCTORS

CHANGE NOTICE/ORDER #	DESCRIPTION	Change Type	Rough Order of Magnitude Cost
None			

B) PROFESSIONAL SERVICES CONTRACTS

None			
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C) CONSTRUCTION MANAGEMENT SUPPORT SERVICES CONTRACTS

None			
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CRENSHAW/LAX CLOSE OUT PROJECT

I. APPROVED MODIFICATIONS/CHANGES GREATER THAN \$500K IN THIS REPORTING PERIOD (June 1, 2023 - August 31, 2023)

Change Types:

1 - Betterment 2 - Third Party 3 - Differing Site Conditions 4 - Regulatory Requirements 5 - Scope 6 - Value Engineering 7 - Safety

A. DESIGN BUILD CONTRACT - Contract No. C1217 - GRIFFITH COMPANY

MOD/CHANGE #	DESCRIPTION (if the change is a unilateral, explain in BOLD fonts)	Change Type	Submission Date	Approval Date	Contractor's Proposed Amount	Approved Amount
	None					

B. PROFESSIONAL SERVICES CONTRACTS

E0117-MOD-00057	Vendor Mott MacDonald: FY23/24 Funding and Extend Period of Performance for C/LAX Catch All Support – Budget award for the design support services related to the scope of the K-Line Paving and Improvement Project. This contract is part of the catch-all portion Crenshaw/LAX to complete work that was deleted from the mainline project.	5	03/06/23	6/14/2023	\$731,377.29	\$639,012.48
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C. CONSTRUCTION MANAGEMENT SUPPORT SERVICES CONTRACTS

MC069-32-MOD-00003	Metro requires Construction Management Support Services (CMSS) Consultant to provide a Resident Engineer, Assistant Resident Engineer, Inspector, and Document Control for construction support of the Crenshaw/LAX Catch-All Project	5	5/5/2023	7/18/2023	\$823,634.93	\$823,634.93
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II. PENDING MODIFICATIONS/CHANGES GREATER THAN \$500K (June 1, 2023 - August 31, 2023)

A) DESIGN BUILD CONTRACT - Contract No. C1217 - GRIFFITH COMPANY

CHANGE NOTICE/ORDER #	DESCRIPTION	Change Type	Rough Order of Magnitude Cost
None			

B) PROFESSIONAL SERVICES CONTRACTS

None			
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C) CONSTRUCTION MANAGEMENT SUPPORT SERVICES CONTRACTS

None			
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WESTSIDE PURPLE LINE EXTENSION SECTION 1

I. APPROVED MODIFICATIONS/CHANGES GREATER THAN \$500K IN THIS REPORTING PERIOD (June 1, 2023 - August 31, 2023)

Change Types:
 1 - Betterment 2 - Third Party 3 - Differing Site Conditions 4 - Regulatory Requirements 5 - Scope 6 - Value Engineering 7 - Safety

A. DESIGN BUILD CONTRACT - CONTRACT NO. C1045 - SKANSKA-TRAYLOR-SHEA, A JOINT VENTURE

MOD/CHANGE #	DESCRIPTION (if the change is a unilateral, explain in BOLD fonts)	Change Type	Submission Date	Approval Date	Contractor's Proposed Amount	Approved Amount
CO-34	Cutterhead Removal Impacts due to Section 2: This change compensates the C1045 contractor for the standby time during the BL tunnel cutterhead removal. Due to safety reasons, the WPLE Section 1 cutterhead removal crew was placed on standby during the WPLE Section 2 TBM mining operation in the same area.	5	6/27/2023	6/22/2023	\$1,048,664	\$945,269
CO-36	TBM Stand-by at Wilshire/Fairfax Station: This change compensates the contractor for TBM standby time during Reach 3 (Wilshire/Fairfax to Wilshire/La Cienega) soil vapor extraction. To mitigate potential gas migration during Reach 3 tunneling, Metro issued Contract Modification 95 for soil vapor extraction. Both TBMs were constructively held at Wilshire/Fairfax Station until the soil vapor extraction zone mitigation work was complete.	3	6/30/2023	6/29/2023	\$4,689,107	\$4,689,107
CO 12.1	Construction Equipment Access Hatch Shaft Temporary Supports at SOE – ALL 3 STATIONS: Preliminary Design Contract drawings and Los Angeles Department of Power (LADWP) prior approval indicated an LADWP equipment hatch that would be completely waterproofed, sealed and buried five feet under the roadway and used only in case of emergencies. After reviewing the contract drawings for final approval prior to energization, LADWP management indicated that a permanent engineered emergency hatch direct to the road surface would be required. This change compensates the contractor for LADWP's new direction.	2	7/10/2023	7/7/2023	\$872,044	\$837,299
CO-38	Tunnel Boring Machine (TBM) Storage and Double Handling: The base scope of work called for delivery of the TBMs to the Wilshire/La Brea Station Yard. The Wilshire/La Brea Yard was not ready to accept delivery of the TBMs due to ongoing Station excavation operations. The TBMs were shipped and stored at the contractor's Riverside Yard. This change compensates the contractor for the double handling of the TBM and its components. The initial TBM shipment was put on hold in Germany for over 4 months. This storage prior to shipment was not billed to the Project.	3	8/3/2023	8/2/2023	\$1,669,406	\$1,072,668

A. DESIGN BUILD CONTRACT - CONTRACT NO. C1078 - CLARK CONSTRUCTION GROUP

None						
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B. PROFESSIONAL SERVICES CONTRACTS

MOD-00085	Westside Purple Line Extension Section 1 Project - Engineering Support Services During Construction and Other Tasks: to continue to provide engineering management support services through June 30, 2025.	5			\$12,075,538.00	
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C. CONSTRUCTION MANAGEMENT SUPPORT SERVICES CONTRACTS

MOD-0008	To continue to provide construction management support services for an additional 24 months to June 30, 2025.	5			\$21,179,089.00	
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II. PENDING MODIFICATIONS/CHANGES GREATER THAN \$500K (June 1, 2023 - August 31, 2023)

A) DESIGN BUILD CONTRACT - CONTRACT NO. C1045 - SKANSKA-TRAYLOR-SHEA, A JOINT VENTURE

CHANGE NOTICE/ORDER #	DESCRIPTION	Change Type	Rough Order of Magnitude Cost
CN-00189	<u>COBH Street Restoration, Bus Pad Reconstruction and Curb/Gutter Replacement</u> : As required by the City of Beverly Hills (COBH) and agreed upon by Metro, Metro is to complete extensive street restoration in accordance with COBH standards as part of the Wilshire/ La Cienega Station construction (Not a betterment).	2	Between \$500K and less than \$1M
CO-13.2	<u>San Vicente Anomaly Impacts</u> : to compensate the Design-Builder for the cost and schedule impacts for the San Vicente Differing Site Condition discovered at the intersection of San Vicente Blvd. and Wilshire Blvd., also known as the San Vicente Anomaly (SVA).	3	More than \$15M

A) CONTRACT NO. C1078 - CLARK CONSTRUCTION GROUP

	None		
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B) PROFESSIONAL SERVICES CONTRACTS

	None		
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C) CONSTRUCTION MANAGEMENT SUPPORT SERVICES CONTRACTS

	None		
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WESTSIDE PURPLE LINE EXTENSION SECTION 2

I. APPROVED MODIFICATIONS/CHANGES GREATER THAN \$500K IN THIS REPORTING PERIOD (June 1, 2023 - August 31, 2023)

Change Types:

1 - Betterment 2 - Third Party 3 - Differing Site Conditions 4 - Regulatory Requirements 5 - Scope 6 - Value Engineering 7 - Safety

A. DESIGN BUILD CONTRACT - C1120 - Tutor Perini / O&G, A Joint Venture

MOD/CHANGE #	DESCRIPTION (if the change is a unilateral, explain in BOLD fonts)	Change Type	Submission Date	Approval Date	Contractor's Proposed Amount	Approved Amount
CO-00055.3	MOA Impacts to Work Activities during 2022 Holiday Moratorium: This Change Order (CO) revision increases the Not-to-Exceed (NTE) value from \$872,000 to a revised total NTE of \$1,357,000. This change is to compensate the Contractor for impacts to the Wilshire/Rodeo station construction activities from work restrictions imposed by the City of Beverly Hills (COBH) Memorandum of Agreement (MOA) from November 24, 2022 to January 1, 2023. The Change Order revision was necessary to keep the Work moving while negotiations for a bilateral Modification continue.	2	N/A	8/15/2023	N/A	\$1,357,000.00

B. PROFESSIONAL SERVICES CONTRACTS

None						
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C. CONSTRUCTION MANAGEMENT SUPPORT SERVICES CONTRACTS

None						
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II. PENDING MODIFICATIONS/CHANGES GREATER THAN \$500K (June 1, 2023 - August 31, 2023)

A. DESIGN BUILD CONTRACT - C1120 - Tutor Perini / O&G, A Joint Venture

CHANGE NOTICE/ORDER #	DESCRIPTION	Change Type	Rough Order of Magnitude Cost
None			

B) PROFESSIONAL SERVICES CONTRACTS

None			
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C) CONSTRUCTION MANAGEMENT SUPPORT SERVICES CONTRACTS

None			
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WESTSIDE PURPLE LINE EXTENSION SECTION 3

I. APPROVED MODIFICATIONS/CHANGES GREATER THAN \$500K IN THIS REPORTING PERIOD (June 1, 2023 - August 31, 2023)

Change Types:

1 - Betterment 2 - Third Party 3 - Differing Site Conditions 4 - Regulatory Requirements 5 - Scope 6 - Value Engineering 7 - Safety

A. DESIGN BUILD CONTRACT - C1151 (FKTP)

MOD/CHANGE #	DESCRIPTION (if the change is a unilateral, explain in BOLD fonts)	Change Type	Submission Date	Approval Date	Contractor's Proposed Amount	Approved Amount
C1151-CO-00011	Extension of Time and Resequencing of Contract Work - <i>Resequencing of C1151 construction work in accordance with approved PLE3 Integrated Schedule to mitigate the overall PLE3 project schedule.</i>	5	7/10/2023	7/13/2023	\$17,230,578	\$4,000,000

A. DESIGN BUILD CONTRACT - C1152 (TPOG)

C1152-MOD-00100	UCLA Sta and VA Hospital Sta - Embedded Non-Pressurized Pipe Material (Design/Build) - <i>Metro approved use of Class B (cast-iron) pipes, in lieu of Class H (PVC), for buried and embedded non-pressurized pipe because it is more durable and improve serviceability.</i>	5	8/23/2023	8/31/2023	\$1,175,587	\$1,048,751
C1152-CO-00035.3	VA Steam Tunnel Size Increase and Redundancy – Construction Only - <i>The base Contract requires relocation of the existing VA steam line/tunnel; however, the Veterans Affairs (VA) Department is requiring an enlarged steam tunnel built to current VA design criteria due to the VA hospital reliance on this Mission critical utility. Metro executed a Memorandum of Understanding (MOU) with the Veterans Affairs (VA) Department in March 2019 as part of the process to acquire easement rights to construct and operate the Westwood/VA Hospital Station. The MOU included requirements for an enlarged steam line tunnel to accommodate the relocated steam line and associated existing utilities and provide accommodations for a future expansion of the steam equipment to meet VA requirements.</i>	2	6/12/2023	7/5/2023	\$12,322,790	\$11,585,029
C1152-CO-00109	Extension of Time - <i>Substantial Completion Delay of Contract C1151 prevented the tunnel hand over and access to C1152 contractor from proceeding with critical path of project, which included support of excavation work at Westwood/VA station and Westwood/UCLA Station.</i>	5	7/3/2023	7/13/2023	N/A	\$3,864,000
C1152-CO-00110	Acceleration and Resequencing of Contract Work - <i>Resequencing of Contract work is necessary to mitigate and recover the overall PLE3 project schedule due to impacts caused by C1151 contract and acceleration will mitigate delay due to the VA Steam Tunnel.</i>	5	7/11/2023	7/20/2023	N/A	\$6,000,000

B. PROFESSIONAL SERVICES CONTRACTS

PSS8665-007-MOD-00005	WPLE3 – Construction Claims Support Services (FY23 - FY24) - <i>Continue PLE 3 Construction Claims Support Services through FY24.</i>	5	5/30/2023	6/9/2023	\$578,587	\$548,570
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C. CONSTRUCTION MANAGEMENT SUPPORT SERVICES CONTRACTS

	None					
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II. PENDING MODIFICATIONS/CHANGES GREATER THAN \$500K (June 1, 2023 - August 31, 2023)

A. DESIGN BUILD CONTRACT - C1151 (FKTP)			
CHANGE NOTICE/ORDER #	DESCRIPTION	Change Type	Rough Order of Magnitude Cost
	None		
A. DESIGN BUILD CONTRACT - C1152 (TPOG)			
C1152-MOD-00099	UCLA Sta – Additional Adjacent Development Analysis on SOE - DESIGN ONLY - A new adjacent development at Wilshire Blvd and Gayley Avenue, which is close to the Metro Station and Entrance at Lot 36, may be constructed during the duration of the Purple Line Extension Section 3 project. The schedule of the adjacent development and design details were not known at the time when the C1152 bid documents were prepared, and therefore, specific requirements to consider the development are not included in the Contract. Given the potential for the development to take place during the construction of the Westwood/UCLA Station, it is necessary for the C1152 contractor to determine if any impacts on the station and entrance structures and support of excavation would result if the adjacent development were constructed concurrently with the station.	5	Between \$500K and less than \$1M
B) PROFESSIONAL SERVICES CONTRACTS			
	None		
C) CONSTRUCTION MANAGEMENT SUPPORT SERVICES CONTRACTS			
	None		

DIVISION 20 PORTAL PROJECT

I. APPROVED MODIFICATIONS/CHANGES GREATER THAN \$500K IN THIS REPORTING PERIOD (June 1, 2023 - August 31, 2023)

Change Types:

1 - Betterment 2 - Third Party 3 - Differing Site Conditions 4 - Regulatory Requirements 5 - Scope 6 - Value Engineering 7 - Safety

A. DESIGN BUILD CONTRACT - CONTRACT NO.1136 (TUTOR PERINI CORP)

MOD/CHANGE #	DESCRIPTION (if the change is a unilateral, explain in BOLD fonts)	Change Type	Submission Date	Approval Date	Contractor's Proposed Amount	Approved Amount
MOD-00082	North Yard Contact Rail Jumper Conduit Stub Up Locations: Contractor to re-construct the contact rail conduit stub ups in the N. Yard up or down station in accordance	5	4/26/2023	6/27/2023	\$1,562,785.37	\$1,370,847.00
MOD-00086	PBR Laydown Area: Labor, material, and equipment needed to verify parcels are suitable for storage. Fencing, swing gates for truck access, and maintenance is part of this modification.	5	5/9/2023	6/27/2023	\$2,191,005.64	\$1,832,627.00
MOD-00087	Temporary Communications Cutovers - Telephone Cables: Contractor to purchase, install, test, and commission a temporary cutover as well as permanent copper cable	5	5/9/2023	6/27/2023	\$1,597,968.71	\$1,270,993.00
MOD-00088	Various Communications Change Orders (CO-00022 Communication Pull Boxes and Yard Tower Room 279 UPS Layout - scope includes construction of pull boxes, hand holes, and conduit for the CCTV and Public Address systems per the provided drawings; CO-00037 Add Power Distribution Units to Communication Interface Cabinets - scope includes the installation of power distribution units per revised specifications; CO-00041 Room 303 Communications Equipment - this change provides cabinet locations and cabling connections layout)	5	5/15/2023	6/14/2023	\$2,017,460.64	\$1,617,719.00
MOD-00089	Collected MOD - CO-00011.3 1st Street Viaduct - Crack and Spall Repair; CO-00028.1 1st Street Bridge - Crack and Spall Repairs Supplemental Work	5	5/17/2023	6/14/2023	\$3,328,206.72	\$3,068,002.00
CO-00178	Running Rail Connections: Furnish and install cross bonds on the mainline and in the north/south storage yard as depicted in the drawings; Incorporate the yard and mainline negative return and cross bonding connections; Incorporate the running rail and impedance bond connections	5	5/30/2023	6/26/2023	\$937,218.41	\$750,000.00
MOD-00090	Differing Site Conditions - Connections to Existing Ductbanks and Unknown Utilities: Contractor to make revisions to existing ductbanks to avoid unmarked existing or unknown utilities in the yard	3	5/30/2023	7/11/2023	\$2,640,684.16	\$2,481,539.00
MOD-00092	Bumping Post Specification: Procurement of bumping posts for the project that meet the revised specifications for impact speed and train weight	5	6/1/2023	7/10/2023	\$654,996.90	\$546,027.00
MOD-00093	Rebar for Contact Rail Encasement: Labor, equipment, and material necessary to install rebar within the contact rail ductbanks per the Typical Concrete Ductbank Reinforcement detail	5	6/2/2023	7/11/2023	\$1,756,579.42	\$1,756,579.00
MOD-00098	Ductbank Between Manhole D4 and D7: Construct additional ductbanks and install an additional manhole in accordance with the drawings and specifications provided.	5	7/5/2023	8/16/2023	\$1,329,268.11	\$1,034,100.00
MOD-00099	Installation of Disconnect Switches - East Union Station: Temporary disconnect switches in order to simplify power down and ground during construction for track work that will take place	5	7/5/2023	8/16/2023	\$2,205,301.25	\$1,680,084.00
CO-00234	Room 279 UPS (Uninterruptible Power Supply) Configuration: Procure, install and test various equipment needed for Room 279. This includes air conditioning units, structural beams, panels, transformers, etc.	5	7/26/2023	8/16/2023	\$116,573.91	\$894,000.00

A. DESIGN BUILD CONTRACT - CONTRACT NO. 1184 (C3M POWER SYSTEMS, LLC)

MOD-00013	TPSS and EBPS Building Structural Calculations (TIA 2): This MOD incorporates and resolves all time related impacts and adjusted costs. The equitable adjustment to contract price includes compensation for all subcontractors and suppliers for the interruption of schedules, extended overhead costs, and delays.	5	12/27/22	6/14/2023	\$2,414,408.00	\$2,101,007.00
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B. PROFESSIONAL SERVICES CONTRACTS

None						
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C. CONSTRUCTION MANAGEMENT SUPPORT SERVICES CONTRACTS

None						
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II. PENDING MODIFICATIONS/CHANGES GREATER THAN \$500K (June 1, 2023 - August 31, 2023)

A. DESIGN BUILD CONTRACT - CONTRACT NO.1136 (TUTOR PERINI CORP)

CHANGE NOTICE/ORDER #	DESCRIPTION	Change Type	Rough Order of Magnitude Cost
MOD-00108	Portal Sump Pump Modifications: Contractor is authorized to purchase and install a specific sump pump in lieu of the alternative at the tunnel portal; Installation to occur in accordance with the provided revised drawings which includes additional conduits and electrical load changes; Contractor to provide flow meter with extra cable length to accommodate the distance between the panel and sensor	5	Between \$500K and less than \$1M
MOD-00109	Lighting Various Civil and Electrical Changes: Modified and additional light poles and fixtures, duct bank locations, alignments and elevations	5	Between \$1M and \$5M
MOD-00115	Reduce Third Rail Gap Lengths: Contractor shall provide additional contact rail as indicated along with additional consequential changes to roadway plans	5	Between \$1M and \$5M

A. DESIGN BUILD CONTRACT - CONTRACT NO. 1184 (C3M POWER SYSTEMS, LLC)

	None		
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B) PROFESSIONAL SERVICES CONTRACTS

CWO-001	PS89856000-CWO-001 PROGRAM CONTROL SUPPORT SERVICES (PCSS) FOR DIVISION 20 PWT PROJECT – FUNDING FOR FY2024 (KTJV)	5	Between \$1M and \$5M
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C) CONSTRUCTION MANAGEMENT SUPPORT SERVICES CONTRACTS

	None		
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SOUNDWALL PACKAGE 10

I. APPROVED MODIFICATIONS/CHANGES GREATER THAN \$500K IN THIS REPORTING PERIOD (June 1, 2023 - August 31, 2023)

Change Types:

1 - Betterment 2 - Third Party 3 - Differing Site Conditions 4 - Regulatory Requirements 5 - Scope 6 - Value Engineering 7 - Safety

A. DESIGN BUILD CONTRACT - C1218 Soundwall Package 10 - C.A. RASMUSSEN, INC

MOD/CHANGE #	DESCRIPTION (if the change is a unilateral, explain in BOLD fonts)	Change Type	Submission Date	Approval Date	Contractor's Proposed Amount	Approved Amount
	None					

B. PROFESSIONAL SERVICES CONTRACTS

	None					
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C. CONSTRUCTION MANAGEMENT SUPPORT SERVICES CONTRACTS

	None					
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D. THIRD PARTY AGREEMENTS

TPAF816460323000	CALTRANS Work Order and PO: TPAF816460323000 for Design Support During Construction	5	8/9/2023	7/13/2023	500,000	500,000
TPAF850460313000 Line 2 (460323)	CALTRANS - COZEPP Line 2 of TPAF850460313000	5	7/1/2023	7/20/2023	500,000	500,000

II. PENDING MODIFICATIONS/CHANGES GREATER THAN \$500K (June 1, 2023 - August 31, 2023)

A. DESIGN BUILD CONTRACT - C1218 Soundwall Package 10 - C.A. RASMUSSEN, INC

CHANGE NOTICE/ORDER #	DESCRIPTION	Change Type	Rough Order of Magnitude Cost
None			

B) PROFESSIONAL SERVICES CONTRACTS

None			
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C) CONSTRUCTION MANAGEMENT SUPPORT SERVICES CONTRACTS

None			
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METRO CENTER PROJECT

I. APPROVED MODIFICATIONS/CHANGES GREATER THAN \$500K IN THIS REPORTING PERIOD (June 1, 2023 - August 31, 2023)

Change Types:
 1 - Betterment 2 - Third Party 3 - Differing Site Conditions 4 - Regulatory Requirements 5 - Scope 6 - Value Engineering 7 - Safety

A. DESIGN, BID BUILD CONTRACT - CONTRACT NO. C77307C1210						
MOD/CHANGE #	DESCRIPTION (if the change is a unilateral, explain in BOLD fonts)	Change Type	Submission Date	Approval Date	Contractor's Proposed Amount	Approved Amount
	None					
B. PROFESSIONAL SERVICES CONTRACTS						
	None					
C. CONSTRUCTION MANAGEMENT SUPPORT SERVICES CONTRACTS						
	None					

II. PENDING MODIFICATIONS/CHANGES GREATER THAN \$500K (June 1, 2023 - August 31, 2023)

A) DESIGN BUILD CONTRACT - CONTRACT NO. C52151C1169-2

CHANGE NOTICE/ORDER #	DESCRIPTION	Change Type	Rough Order of Magnitude Cost
None			

B) PROFESSIONAL SERVICES CONTRACTS

None			
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C) CONSTRUCTION MANAGEMENT SUPPORT SERVICES CONTRACTS

212121-PS66100MC076-MOD-00013	Additional level of effort to continue Construction Support Services through May 2024 including to support the Commissioning of major electrical equipment (UPS, Generator, ATS). Per the Amoroso Design Build's construction schedule as of Mar 2023, project substantial completion date is extended to early Jan 2024, however, there is possibility that a few equipment will be delivered late which will need extended services from CSSC. Therefore, the additional level of effort required from CSSC services will be expected to May 2024.	5	Between \$1M and \$5M
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GOLD LINE FOOTHILL EXTENSION PHASE 2B PROJECT

I. APPROVED MODIFICATIONS/CHANGES GREATER THAN \$500K IN THIS REPORTING PERIOD (June 1, 2023 - August 31, 2023)

Change Types:
 1 - Betterment 2 - Third Party 3 - Differing Site Conditions 4 - Regulatory Requirements 5 - Scope 6 - Value Engineering 7 - Safety

A. DESIGN BUILD CONTRACT - CONTRACT NO.							
MOD/CHANGE #	DESCRIPTION (if the change is a unilateral, explain in BOLD fonts)	Change Type	Submission Date	Approval Date	Contractor's Proposed Amount	Approved Amount	
	None						
B. PROFESSIONAL SERVICES CONTRACTS							
	None						
C. CONSTRUCTION MANAGEMENT SUPPORT SERVICES CONTRACTS							
	None						

II. PENDING MODIFICATIONS/CHANGES GREATER THAN \$500K (June 1, 2023 - August 31, 2023)**A) DESIGN BUILD CONTRACT - CONTRACT NO.**

CHANGE NOTICE/ORDER #	DESCRIPTION	Change Type	Rough Order of Magnitude Cost
CN282	OP02461010 UNIVERSAL FARE SYSTEM (TAP) CONTRACT MODIFICATION - Gold Line Foothill Extension Phase 2B fare collection equipment	5	Between \$5M and \$10M

B) PROFESSIONAL SERVICES CONTRACTS

None			
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C) CONSTRUCTION MANAGEMENT SUPPORT SERVICES CONTRACTS

None			
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METRO G LINE BRT IMPROVEMENTS

I. APPROVED MODIFICATIONS/CHANGES GREATER THAN \$500K IN THIS REPORTING PERIOD (June 1, 2023 - August 31, 2023)

Change Types:

1 - Betterment 2 - Third Party 3 - Differing Site Conditions 4 - Regulatory Requirements 5 - Scope 6 - Value Engineering 7 - Safety

A. DESIGN BUILD CONTRACT - CONTRACT NO.

MOD/CHANGE #	DESCRIPTION <small>(if the change is a unilateral, explain in BOLD fonts)</small>	Change Type	Submission Date	Approval Date	Contractor's Proposed Amount	Approved Amount
None						

B. PROFESSIONAL SERVICES CONTRACTS

None						
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C. CONSTRUCTION MANAGEMENT SUPPORT SERVICES CONTRACTS

None						
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II. PENDING MODIFICATIONS/CHANGES GREATER THAN \$500K (June 1, 2023 - August 31, 2023)

A) DESIGN BUILD CONTRACT - CONTRACT NO. PS85661000 - Valley Transit Partners (Progressive Design Build Contract - Phase 1)			
CHANGE NOTICE/ORDER #	DESCRIPTION	Change Type	Rough Order of Magnitude Cost
CN-02/CO-01	Value Engineering Concept - Alternative Bridge Type Selection	6	Between \$1M and \$5M
B) PROFESSIONAL SERVICES CONTRACTS			
	None		
C) CONSTRUCTION MANAGEMENT SUPPORT SERVICES CONTRACTS			
	None		

I-105 EXPRESS LANES PROJECT

I. APPROVED MODIFICATIONS/CHANGES GREATER THAN \$500K IN THIS REPORTING PERIOD (June 1, 2023 - August 31, 2023)

Change Types:

1 - Betterment 2 - Third Party 3 - Differing Site Conditions 4 - Regulatory Requirements 5 - Scope 6 - Value Engineering 7 - Safety

A. CMGC CONTRACT - CONTRACT NO. PS84667000

MOD/CHANGE #	DESCRIPTION (if the change is a unilateral, explain in BOLD fonts)	Change Type	Submission Date	Approval Date	Contractor's Proposed Amount	Approved Amount
	None					

B. PROFESSIONAL SERVICES CONTRACTS (WSP, Segment 1, Contract # AE275020011497-T08)

Mod 2	Mod 2 is to update all Plans, Specifications, and Estimating (PS&E) items to the 2022 Caltrans Standards released in October 2022, at which time the 95% PS&E was substantially complete. Also, to update geometrics to shift the profile grade/sawcut line for the mainline widening to the existing edge of traveled way to remove new rumble strips installed by Caltrans in 2022. Moreover, the mod includes additional design work and permit support to the existing Task Order 8.	5	03/30/23	5/31/2023	\$1,054,536.00	\$1,054,536.00
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C. CONSTRUCTION MANAGEMENT SUPPORT SERVICES CONTRACTS

	None					
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II. PENDING MODIFICATIONS/CHANGES GREATER THAN \$500K (June 1, 2023 - August 31, 2023)**A. CMGC CONTRACT - CONTRACT NO. PS84667000**

CHANGE NOTICE/ORDER #	DESCRIPTION	Change Type	Rough Order of Magnitude Cost
None			

B. PROFESSIONAL SERVICES CONTRACTS (WSP, Segment 1, Contract # AE275020011497-TO8)

None			
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C) CONSTRUCTION MANAGEMENT SUPPORT SERVICES CONTRACTS

None			
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Attachment B - OIG Spot Check CEO Delegated Authority Delays Avoided

Project Name	Total Work Days Saved	Years Saved
Crenshaw/LAX	336	1.3
Regional Connector	463	1.8
Purple Line Section 1	729	2.8
Purple Line Section 2	461	1.8
Purple Line Section 3	342	1.3
Division 20	107	0.4
Airport Metro Connector	17	0.1
Total Savings	2438	9.4



Board Report

File #: 2023-0553, File Type: Informational Report

Agenda Number: 24.

CONSTRUCTION COMMITTEE October 19, 2023

**SUBJECT: OFFICE OF THE INSPECTOR GENERAL
CONSTRUCTION CHANGE ORDER SPOT CHECKS**

ACTION: RECEIVE AND FILE

RECOMMENDATION

RECEIVE AND FILE Office of the Inspector General Construction Change Order Spot Check Report for the period June 1 to August 31, 2023.

ISSUE

On January 25, 2018, the Metro Board directed the Office of the Inspector General (“OIG”) to conduct random spot checks on change orders for the construction projects listed in the Quarterly Program Management report to ensure that the CEO Delegation of Authority to approve Construction Change Orders Policy is performing in the manner desired by the Board of Directors.

BACKGROUND

The OIG’s Construction Change Order Spot Check Program (“Spot Checks”) focuses on approved change orders and modifications that exceed \$500,000. The four change orders in this report were selected from the Program Management Quarterly Major Project Status, Legistar 2023-0586. The OIG gathers the data, reviews all the change orders over \$500,000 and selects change orders from the major projects. The information for the Spot Checks was collected from the Program Management Information System (PMIS) which is the department’s database system. Also, virtual meetings and telephonic interviews were conducted with Metro Program Management, Project Control, and Procurement staff as necessary involved in each change order.

For each Spot Check, we summarize:

- Description of the change order,
- Change order detail,
- Scope of Work,
- Budget,
- Schedule (Time to execute the change order),
- Safety, and
- Recommendations and Lessons Learned.

Metro's Program Control department has provided informal responses to this report before its issuance and are asked to provide written responses to the recommendations in this OIG Spot Checks Report within 30 days after this Report is issued. Included with this Report is a spreadsheet on the status of responses concerning former OIG Spot Check Report recommendations (Attachment B).

DISCUSSION

Spot Checks Performed in this Quarter

Spot Check #1 - Division 20 Portal Widening Turnback Project

This OIG Spot Check report concerns the Division 20 Portal Widening Turnback Project (Contract C1136 MOD 0093), Rebar for Contact Rail Encasement.

Change Order Detail

See Attachment A Spot Check #1 table.

Summary #1

Scope - This change order is to complete work linked to the previous change order ("CO") CO-93, which first began in 2021 when Metro Engineering requested the encasement around the ductbanks to have rebar added to strengthen and protect the ductbanks. The electrical rail conduit runs through the ductbanks to supply power to the 3rd rail.

Typical ductbanks are laid directly in a trench and covered with ballast rock and soil with asphalt, or concrete placed above. Where there is a load on top, the ductbanks are required to be encased in concrete pursuant to City standards. Metro's rail cars create excess static and dynamic loading requiring additional rebar reinforcement in the concrete that is poured around the ductbank to resist these forces.

In December 2021, a limited stop work notice to the contractor was issued in order to evaluate the heavy rail load on top of the ductbanks. Four days later, the limited stop work notice was lifted after Metro Engineers confirmed the heavy load required rebar to strengthen and protect the ductbanks from damage.

This work was out of scope because rebar was not shown in the original contract documents (developed by Metro's design consultants) and thus was not added to the contractor's proposal. In February 2022, the contractor submitted a proposal and Metro issued a Not to Exceed ("NTE") change to order materials. The independent cost estimate ("ICE") was based on materials only. The full work, now completed under this modification, supersedes the original NTE of \$333,050.

Budget - This change order, previously CO-93, is now negotiated as MOD-93 for the amount of \$1,756,579. The Contractor's proposal was \$1,756,579. The negotiated price and the Contractor's proposal are equal in price. The ICE at \$402,323 was developed in January 2022 for the CO-93 which was an NTE to order materials. An updated ICE was not created for the increased amount from the NTE amount of \$333,050 to \$1,756,579 to include labor. Staff stated that funds for this change order are within the Life-of-Project budget.

Schedule - The CEO Delegation of Authority process was utilized for this change order. The Contractor and Metro agreed on the Scope of Work on May 30, 2023. The modification was awarded on July 11, 2023 and it took staff 39 workdays to complete all signature approvals. Under the prior Board approval method for change orders, assuming an August Board meeting date, it would have taken a total of 86 workdays to complete the transaction. July was a dark month.

Safety - The Division 20 Portal Widening Turnback Project has 847,468 project hours through August 2023; the Recordable Injury Rate was 2.6 (the Bureau of Labor Statistics National Average is 2.4) and the Days Away Rate (DART) was 1.40 (the Bureau of Labor Statistics National Average is 1.5).

Recommendation/Lessons Learned - The OIG recommends an updated ICE reflecting the complete work that should have been requested to aid in the negotiations with the contractor for final settlement.

A lessons learned is to evaluate ductbanks in trenches for compliance with applicable city standards and loading requirements for static and dynamic loading demands when installing these. Future design plans should include this as a requirement to check.

SPOT CHECK #2, #3, and #4

The next three spot checks involve Purple Line Extension Section 3 which has two (2) Design-Build contracts, the Tunnels contract (C1151) and the Stations contract (C1152) that will be referenced in CO-011, CO-109, and CO-110. Frontier-Kemper/Tutor Perini is a joint venture responsible for the building tunnels under Tunnels Contract C1151. The Tunnels scope is primarily tunnels and cross passage mining. Tutor Perini/O&G Industries, joint venture (TPOG) is responsible for the constructing the stations under the Stations Contract C1152. The Stations scope includes stations, trackwork, utilities, and the mechanical electrical plumbing systems.

Spot Check #2 - Purple Line Extension Section 3 Transit Project

This OIG Spot Check report concerns the Purple Line Extension Section 3 (Tunnels Contract C1151, CO-011), Extension of Time and Re-sequencing of Contract Work.

Change Order Detail

See Attachment A Spot Check #2 table.

CO-011 from the Tunnels contract is the root cause associated with CO-109 and CO-110 to the Stations contract.

Summary #2

Scope -This change order modifies the Tunnels contract by adding a 2-year extension to the contract and then re-sequences the base work to fit the new extended schedule.

During the mining process both tunnel boring machines (“TBM”) had difficulty keeping on schedule with the project milestones. Each week, the production was much slower than expected which resulted in becoming 161 days behind schedule. The tunnel boring is now complete and the Stations

contractor is behind schedule. Both contractors cannot simultaneously work in the same location until the full station box hole is completely dug because of potentially serious safety implications. Therefore, there will be a suspension of work to the tunnels, stopping further work on the cross passages for the next 2 years, while station work is proceeding. Once the station box skeleton is built, the Tunnels contractor can then resume excavation of the cross passages and laying of track.

As the projects major milestones are put on hold, resequencing of work is necessary. The Tunnels contractor submitted an integrated schedule on June 28, 2023 which requested 757 calendar days under the general conditions contract (GC-29) for an extension of time. The original contract period for the work is 1,640 calendar days, and it is now extended to 2,397 calendar days.

Program Management realizes this time extension is using up much of the schedule buffer that existed and creates a concern about meeting the established deadlines for this project. They are working with both joint venture contractors to further negotiate this change order and, CO-109, CO-110 from the stations contract and accelerate work.

Budget - Results of the contractor's non-mitigation of the slow TBM boring is costing Metro \$4 million for this NTE change order alone (\$4M is for resequencing effort only- not time delay charges). The Tunnels contractor submitted an Integrated schedule in June 2023 giving both the Tunnels and the Stations contractor an extension time only and does not include a proposal for costs, and therefore an NTE CO has been issued. The ICE cannot be disclosed at this time until all parties come to an agreement on the time and scope of work. Staff continues to work with the Tunnels contractor reach a final settlement. Staff stated that funds for this change order are within the Life-of-Project budget.

Schedule - The CEO Delegation of Authority process was utilized for this change order. The Contractor and Metro have not come to a full agreement on the Scope of Work; however, both parties realize a change order was necessary and proceeded forward with an NTE value so the work could continue. A resequencing schedule was provided by the contractor on June 28, 2023 and the project team had all the documentation signed for award on July 13, 2023, which was completed in 11 workdays. Under the prior Board approval method for change orders, a September Board meeting date (August is now the 'dark' no meeting month), it would have taken an additional 53 workdays to complete the transaction for a total of 64 workdays.

Safety - The Purple Line Extension Section 3 Project has 2,827,845 project hours through August 2023; the Recordable Injury Rate was 1.41 (the Bureau of Labor Statistics National Average is 2.4) and the Days Away Rate (DART) was 0.35 (the Bureau of Labor Statistics National Average is 1.5).

Recommendation/Lessons Learned -The Tunnels contractor's inability to mitigate the slow tunnel boring production has resulted in 161 days of delay so far. The 161 days delay approval is also being sought by the Stations contractor for compensation under schedule D of Quantities and Prices, delay compensation at \$24,000 per day (as shown in spot check #3). Additionally, the Tunnels contractor is requesting compensation for re-sequencing of work for this change order to return 2 years later to complete the work, in order for the Stations contractor to begin work now. Consequently, the Stations contractor is also requesting additional funds for re-sequencing their contract work. So far, this these 3 change orders yields almost \$14 million in costs and Senior

Program Management staff are in negotiations for scheduling work.

The OIG recommends that a determination be made whether the Tunnels contractor can be held liable for any costs incurred from the Station contractor, and vice versa, when delays occur that are the responsibility of a contractor and further study potential project recovery time.

Spot Check #3 - Purple Line Extension Section 3 Transit Project

This OIG Spot Check report concerns the Purple Line Extension Section 3 (Stations Contract C1152, CO-109), Extension of Time.

Change Order Detail

See Attachment A Spot Check #3 table.

CO-109 is related to the root cause from CO-011.

Summary #3

Scope - This change order is to extend the life of the Stations contract to perform the original construction work as stated in the contract.

The Stations contract (C1152) is receiving a time extension to construct the stations. This is necessary because the Tunnels contractor took an additional 161 days longer than the contract schedule. The Stations contractor has been delayed from starting excavation on the station box and is now over 5½ months behind schedule. This change order allows the contract modification to extend Milestone 1, which is Substantial Completion from 2,520 to 2,681 calendar days and extend Milestone 4, which is Demobilization from 2,707 to 2,868 calendar days. This is 7.85 years in the future 2029-2030, well past the 2028 Olympics.

The Purple Line Extension Section 3 contract states, in schedule D of Quantities and Prices, that Metro will pay the contractor delay compensation at \$24,000 per day. This delay as previously stated is 161 days.

Budget - This Unilateral change order is for \$3,864,000. The contract rate for extension of time is at \$24,000 per day. The extension will be for 161 calendar days. The ICE was calculated at \$24,000 per day multiplied by 161 days. Staff stated that funds for this change are within the approved Life-of-Project budget.

Schedule - The CEO Delegation of Authority process was utilized for this change order. The project team had all the documentation signed for award on July 13, 2023, since the resequencing schedule was provided on June 28, 2023 (which determined the extension of 161 day was needed) the project team was able to complete all signature approvals in 11 workdays. Under the prior Board approval method for change orders, assuming a September Board meeting date, it would have taken an additional 53 workdays to complete the transaction for a total of 64 workdays.

Safety - The Purple Line Extension Section 3 Project has 2,827,845 project hours through August 2023; the Recordable Injury Rate was 1.41 (the Bureau of Labor Statistics National Average is 2.4) and the Days Away Rate (DART) was 0.35 (the Bureau of Labor Statistics National Average is 1.5).

Recommendation/Lessons Learned - Lessons Learned from previous contracts was to state a daily delay compensation rate. This action was included in this contract (delay compensation rate of \$24,000/day) and eliminates future disagreements and litigation.

Spot Check #4 - Purple Line Extension Section 3 Transit Project

This OIG Spot Check report concerns the Purple Line Extension Section 3 (Stations Contract C1152, CO-110), Acceleration and Re-sequencing of Contract Work.

Change Order Detail

See Attachment A Spot Check #4 table.

CO-110 is in conjunction with the root cause from CO-011.

Summary #4

Scope - This change order is to both accelerate the construction work at the stations and to re-sequence work to accommodate the acceleration.

The Stations contract schedule had to be reviewed. Metro requested the Station contractor accelerate the construction by working additional shifts to catch up and recover time on the project schedule. The Contractor submitted an acceleration work proposal in April 2023 to achieve a time savings up to 90 days. This initial acceleration proposal was accepted by Metro; however, the agreement on price is to be negotiated. Construction items to be accelerated include 1) bracing for support of excavation and 2) concrete placement at both the Veterans Hospital and the UCLA stations. Further negotiations on accelerating the construction work for the project to meet the timeline are currently taking place because the scheduling reserves will be used for the project completion. Both re-sequencing and work acceleration is necessary to mitigate the overall PLE-3 project schedule.

Budget - This NTE Change Order (CO-110) is for the amount of \$6,000,000 for labor, materials, and equipment charges. The Stations contractor has submitted a resequencing schedule but not a proposal of costs; therefore, an NTE change order has been issued. The ICE cannot be disclosed at this time until both the Stations contractor and Metro come to an agreement on the time and scope of work. Staff continues to work with the Stations contractor so a final settlement can be reached. Staff stated that funds for this change order are within the Life-of-Project budget.

Schedule - The CEO Delegation of Authority process was utilized for this change order. The Stations contractor and Metro have not come to a full agreement on the scope of work and an NTE change order is being issued so the work could continue. A resequencing schedule was provided by the Tunnels contractor on June 28, 2023 and this change order was complete with signature approval on July 20, 2023, which took staff 16 workdays. Under the prior Board approval method for change orders, a September Board meeting date (August is a dark month), it would have taken an additional

49 workdays to complete the transaction for a total of 65 workdays.

Safety - The Purple Line Extension Section 3 Project has 2,827,845 project hours through August 2023; the Recordable Injury Rate was 1.41 (the Bureau of Labor Statistics National Average is 2.4) and the Days Away Rate (DART) was 0.35 (the Bureau of Labor Statistics National Average is 1.5).

Recommendation/Lessons Learned - The OIG recommends Metro evaluate these three change orders in order to reduce the time impact to the schedule and increase work acceleration.

FINANCIAL IMPACT

This report does not have a financial impact on the Agency.

For all of the construction change orders reviewed, Metro states the funds are within the approved budget and will utilize the contingency funds to cover the costs from the Life of Project budget.

Spot Check #1)	\$1,354,256	Division 20 Tunnel Widening Turnback Project
Spot Check #2)	\$4,000,000	Purple Line Extension Section 3 Project
Spot Check #3)	\$3,864,000	Purple Line Extension Section 3 Project
Spot Check #4)	\$6,000,000	Purple Line Extension Section 3 Project

EQUITY PLATFORM

In the opinion of the OIG, we considered whether these change orders presented any equity related issues on their face. The OIG did not receive any data concerning community impacts. There is a low-income equity-based community near the Veteran's Hospital on Wilshire Blvd. The completion of Extension 3 will benefit veterans by transporting them to and from the Metro Station at the VA Hospital. The OIG observed no obvious disparate impacts created by these change orders on small businesses, low-income persons, or by the performance of the work in a manner that impacted a disadvantaged community beyond what is typical and usual when conducting any construction.

IMPLEMENTATION OF STRATEGIC PLAN GOALS

The Office of Inspector General reviews large change orders over a calendar quarter and makes recommendations as appropriate to support Metro's Strategic Plan Goal #5: Provide responsive, accountable, and trustworthy governance within the Metro organization and CEO goals to exercise fiscal discipline to ensure financial stability. The OIG mission includes reviewing expenditures for fraud, waste, and abuse in Metro programs, operations, and resources. For each selected change order reviewed, the OIG evaluates whether there are red flags of fraud, waste, or abuse taking place. We report the details of the significant change orders and make recommendations consistent with the OIG's Construction Best Practices report dated February 29, 2016, more particularly focusing on lessons learned, improving efficiencies, and prudent spending.

NEXT STEPS

The OIG shall provide every quarter, an ongoing spreadsheet of recommendations to Program Control and Program Management. Program Control and Program Management agrees to respond to the recommendations of the OIG within 30 days. The OIG continues to meet periodically to discuss reports, recommendations, and the status of implementation of the recommendations with Project Management, and receive updates. The list of OIG recommendations and Metro management responses is an attachment to this OIG report (Attachment B).

ATTACHMENTS

Attachment A - Change Order Details for Spot Checks in this report

Attachment B - OIG Recommendations and Responses Tracking Sheet

Prepared by: Prepared by: Suzanna Sterling, Construction Specialist Investigator (213) 244-7368

Reviewed by: Karen Gorman, Inspector General (213) 922-2975



Karen Gorman
Inspector General

Spot Check #1 - Division 20 Portal Widening Turnback Project - Contract C1136
Change Order Detail

<u>Description of Modification or Change Order - MOD-0093</u> Rebar for Contact Rail Encasement	
<u>Change Order Dates:</u>	
Scope of Work approved	May 30, 2023
Modification Executed	July 11, 2023
<u>Elapsed Time for Executing Change Order:</u>	
Using new delegated process	39 workdays
Estimate using former Board approval process Agenda for the August Board	86 workdays
<u>Cost of Change Order:</u>	
Metro independent cost estimate (ICE)	\$402,323
Contractor's proposed cost	\$1,756,579
Negotiated amount	\$1,756,579
Percentage of negotiated amount <i>OVER ICE</i>	336.6%
Amount negotiated less than the Contractor's proposal	\$0

Spot Check #2 - Purple Line Section 3 Transit Project – Tunnels Contract C1151

Change Order Detail

<u>Description of Modification or Change Order – CO-0011</u> Extension of Time and Re-sequencing of Contract Work	
<u>Change Order Dates:</u>	
Scope of Work approved	none
Not to Exceed (NTE) issued No Modification Executed	July 13, 2023
<u>Elapsed Time for Executing Change Order:</u>	
Using new delegated process,	11 workdays
Estimate using former Board approval process Agenda for the August Board	64 workdays
<u>Cost of Change Order:</u>	
Metro independent cost estimate (ICE)	N/A
Contractor's proposed cost	N/A
NTE amount	\$4,000,000
Percentage of negotiated amount <i>OVER ICE</i>	N/A
Amount negotiated less than the Contractor's proposal	N/A

Spot Check #3 - Purple Line Section 3 Transit Project – Stations Contract C1152**Change Order Detail**

<u>Description of Modification or Change Order – CO-109</u>	
Extension of Time	
<u>Change Order Dates:</u>	
Scope of Work approved	none
Unilateral Executed	July 13, 2023
<u>Elapsed Time for Executing Change Order:</u>	
Using new delegated process	11 workdays
Estimate using former Board approval process Agenda for the August Board	64 workdays
<u>Cost of Change Order:</u>	
Metro independent cost estimate (ICE)	\$3,864,000
Contractor's proposed cost	N/A
Unilateral amount	\$3,864,000
Percentage of negotiated amount <i>OVER ICE</i>	0%
Amount negotiated less than the Contractor's proposal	N/A

Spot Check# 4 - Purple Line Section 3 Transit Project – Stations Contract C1152**Change Order Detail**

<u>Description of Modification or Change Order – CO-110</u>	
Acceleration and Re-sequencing of Contract Work	
<u>Change Order Dates:</u>	
Scope of Work approved	none
Not to Exceed (NTE) issued No Modification Executed	July 20, 2023
<u>Elapsed Time for Executing Change Order:</u>	
Using new delegated process	16 workdays
Estimate using former Board approval process Agenda for the August Board	65 workdays
<u>Cost of Change Order</u>	
Metro independent cost estimate (ICE)	N/A
Contractor's proposed cost	N/A
NTE amount	\$6,000,000
Percentage of negotiated amount <i>OVER ICE</i>	N/A
Amount negotiated less than the Contractor's proposal	N/A

ATTACHMENT B (OCTOBER 2023)

OIG REPORT/ SPOT CHECK # MOD #	RECOMMENDATIONS	MANAGEMENT'S RESPONSES	COMPLETION DATE
<p>#1 Contract C1136: Division 20 Portal Widening Turnback Project MOD-0093: Rebar for Contact Rail Encasement</p>	<p>The OIG recommends an updated ICE reflecting the complete work that should have been requested to aid in the negotiations with the contractor for final settlement. Lessons Learned is to evaluate ductbanks in trenches for compliance with applicable city standards and loading requirements for static and dynamic loading demands when installing these. Future design plans should include this as a requirement to check.</p>		
<p>#2 Contract C1151: TUNNELS Purple Line Ext. Section 3 CO-011: Extension of Time and Re-sequencing of Contract Work</p>	<p>The OIG recommends that a determination be made whether the Tunnels contractor can be held liable for any costs incurred from the Station contractor, and vice versa, when delays occur that are the responsibility of a contractor and further study potential project recovery time.</p>		
<p>#3 Contract C1152: STATIONS Purple Line Ext. Section 3 CO-0109: Extension of Time</p>	<p>Lessons Learned from previous contracts was to state a delay compensation rate. This action was included in this contract (delay compensation rate of \$24,000/day) and eliminates future disagreements and litigation.</p>		
<p>#4 Contract C1152: STATIONS Purple Line Ext. Section 3 CO-0109: Acceleration and Re- sequencing of Contract Work</p>	<p>The OIG recommends Metro evaluate these three change orders in order to reduce the time impact to the schedule and increase work acceleration.</p>		

ATTACHMENT B (JULY 2023)

OIG REPORT/ SPOT CHECK # MOD #	RECOMMENDATIONS	MANAGEMENT'S RESPONSES	COMPLETION DATE
July 2023 #1 Contract C1197 Airport Metro Connector MOD-0245: Bulletin 28 – Onsite DWP & Bus Charging	The OIG recommends Metro review all construction plans for satisfaction of the zero-emissions bus fleet objective to add as appropriate electric charging capability.	Confirmed. Project has been in consistent coordination with the Bus Operations Group since 2019. Initial coordination landed on 3 chargers which were included in the original construction bid contract. Additional coordination after release of original contract documents introduced the 2020 Layover Charging Analysis, which has lead to four (4) additional chargers and an entire new LADWP Yard being placed into the project for seven (7) bus charging stations total. This final number and layout of bus chargers has been coordinated and confirmed with Metro Bus Operations.	Fall 2024 is the current estimated schedule
#2 Contract C1045 Purple Line Ext. Section 1 CO-0028: Expedite Cutterhead Removal at Tail Track	The lessons learned from this change order is to add to the initial Contract details on the tunnel boring machine interplay between the two projects and the cutterhead removal and scheduling.	Accept	
#3 Contract C1120 Purple Line Ext. Section 2 CO-0179: Provisions for WRS North Secondary Entrance	The OIG recommends continual monitoring of the City of Beverly Hill design plans as they near construction as to avoid any construction impacts, safety concerns and complications at the knockout panel.	The Project agrees with this recommendation and will continue to monitor the City's design. Currently, the City has paused the design to reassess its project budget.	
#4 Tunnel Contract C1151 Purple Line Ext. Section 3 MOD-0024: Claim-04 Gravel Seam Impact BR Tunnel Rings 399-486	The OIG recommends more geotechnical exploration in the development of the Geotechnical Baseline Report as to better identify the correct soil characteristics.	Extensive ground investigations were performed to provide data to support writing of the C1151 Geotechnical Baseline Report (GBR). Additional investigations help, but costly, they are not a panacea, as the alluvial soils of the Los Angeles Basin are heterogeneous (highly variable), so additional boreholes would not identify every change in the ground. The considered baseline using experience as well as borehole information presents the expected changes in the GBR. This enables pricing of risks that are within the control of the Contractor and not to transferring this ground conditions risk to the contractor. Metro Rail Design Criteria (MRDC) Section 5 GBR requirements are being revised <Metro Chief Engineer to confirm> to control use of 2022 ASCE GBR suggested guidelines, including ground investigation requirements, to better define baseline soil characteristics.	September 2023 <Metro Chief Engineer to confirm when the MRDC revisions will be completed>

ATTACHMENT B (APRIL 2023)

OIG REPORT/ SPOT CHECK # MOD #	RECOMMENDATIONS	MANAGEMENT'S RESPONSES	COMPLETION DATE
April 2023 #1 Contract C0980 Regional Connector MOD-0245: 10-Inch Sanitary Sewer Relocation & Upsize existing 8-Inch Sewer to 12- Inch	The OIG recommends to Work with the City where construction is going to occur at the earliest possible time to determine their requirements so that those requirements can be negotiated, included in the bidding documents when released with correct information and requirements, and if the requirement change is caused by Metro's increased utilization of the utility or if it amounts to a betterment for which a sharing/contribution should be made.	Agreed. Projects should do their best to identify utility conflicts ahead of time, but depending on the area and available documentation that is not always possible. This work was impacted by both surrounding facilities and modified work sequencing in the intersection when the project changed the plan after realizing the utility impacts of the terminated AUR contract.	
#2 Contract C1045 Purple Line Ext.Sect.1 CO-0022 Fully Guarded Double Crossovers	The OIG recommends consulting with Operations on the desired headway speeds at the design phase so that these requirements can be added at the earliest possible times. This may be added to the Construction Departments Lessons Learned data base to have fully guarded double crossover rail to keep the minimum headway and protect rail cars to avoid possible derailment in the future in the initial design and specifications and avoid future change orders.	Concur that the Project's required crossover speeds need to be finalized during the design phase and those needed speeds, combined with the available station box crossover length and width, will determine if a fully guarded crossover is required and if it will be required to be included as part of the Project's design.	
#3 Contract C1120 Purple Line Ext.Sect.2 CO-0058:Project and Construction Site Delay Impacts	<p align="center">None</p>		
April 2023 #4 Stations Contract C1152 CO-0090.1 & MOD-0089 Purple Line Extension Section 3 UCLA Station - Additional LADWP Temporary Power Conduits	The OIG recommends: 1.For the Project to submit to the Lessons Learned data base, run by the Quality Assurance group, the events regarding coordination with LADWP (or another third-party utility) which required the increase in size of conduits and forced relocation of the ductbanks. By submitting information of these changes to the Lessons Learned data base, future projects will be warned that there might be an update to the electrical requirements applicable to their project. 2.The Metro Rail Design Criteria (MRDC) should get periodic updates to include new standards by agencies that review and approve Metro construction so that when future RFPs are issued they comply with those mandatory standards. This will not foreclose Metro seeking a waiver or amendment in the future from that entity on an individual project that might reduce the cost and that will not require a costly change order. Additionally, the MRDC should be updated to encourage early coordination with the third-party utilities to obtain their written agreement to the specifications for a project prior to the RFP issuance.	1. Agreement in sharing the LADWP standards (that were not previously made available to the project by LADWP) to be available for other Metro projects. 2. Third Party standards are maintained by the respective Third Parties and provided to Metro during the design phase for each project. Early coordination occurs with Third Parties; however, disclosing the current and applicable standards has at times not been consistent by the Third Parties. Metro is currently working with LADWP to establish a new Utility Cooperative agreement. Agreement terms: to include language where standards will be memorialized at the time of RFP issuance, language accommodating early involvement, language to establish a design freeze, language to define betterments, as well as other terms to minimize risks on projects. Similar agreements are also being pursued with other utility owners. It should also be noted that Metro is closely coordinating with all applicable City's and utility owners from an early engagement standpoint while the Projects are still in the planning phases. The following actions are currently being taken; Establishing and execution of Master agreements and Utility Cooperative Agreements with applicable City's and utility owners prior to the start of Preliminary Engineering and prior to the release of RFP's. Other general actions being taken include establishing more robust potholing and subservice investigations early on and engagement with utility owners early on to identify fatal flaws and pitfalls with alternatives. Pitfalls such as unavailability of power in the area to accommodate TBM's, addressing heavy relocations, identifying schedule challenges with relocations should they be required. The MRDC is a live document and goes through review and updates on a regular basis and usually before award of a major contract. MRDC is currently undergoing a major review and update. We have and will continue to share our MRDC with City of Los Angeles. The MRDC mainly refers to the Green Book for roadway and utility related items which is what almost all the Cities use as well. With the current efforts to engage the third parties prior to the release of the RFPs, we should be able to catch any third party requirement that would be outside the Green Book and MRDC.	

ATTACHMENT B (January 2023)

OIG REPORT/ SPOT CHECK # MOD #	RECOMMENDATIONS	MANAGEMENT'S RESPONSES	COMPLETION DATE
January 2023 #1 Contract C1136 CO-0121.1 Division 20 Portal Widening and Turnback Project - Site Improvements for Garfield Yard to Store New Special Trackwork	As was recommended in the prior quarterly construction change orders spot check report, the OIG recommends the issue of liability for sub-contractors bonds and insurance be resolved, and further change orders follow the standard Metro construction practices and procedures.	Recommendation is noted. VCM is seeking a resolution to the sub-contractor bond and insurance for change orders.	
January 2023 #2 Contract C1045 CO-0015 Purple Line Extension Section 1 Station Artwork Architectural Glass	The OIG recommends that a final scope of work and agreed upon total costs be determined as soon as possible.	Metro acknowledges the OIG's recommendations and will work toward resolution of scope & cost disagreements involving the Architectural Art Glass. Negotiations are pending the contractors confirmation on available dates for these negotiations. To avoid these potential impacts for future projects, WPLE 1 is working with the Metro Art department on a lessons learned session to help implement a change in the development of the artwork scope in future contracts. This will impact the contractual and procurement requirements for the artwork (timing, line item allowances, contingency) so that there is less cost discrepancy for the artwork between the time overall Construction Contract is developed and when the artwork is procured.	
January 2023 #3 Contract C1120 CO-0023.2 Purple Line Extension Section 2 Relocated UPE Plenum at Westfield Mall	None.		
January 2023 #4 Tunnels Contract C1151 MOD-0007.2 Purple Line Extension Section 3 Revisions to Southern California Edison (SCE) Power Connection	The OIG recommends that in all future contracts where it is possible to consolidate planned multiple street utility construction works, that a single trench be dug and both temporary and permanent power conduits be installed in the same trench at the same time as to reduce costs and minimize impacts to the neighborhood. The OIG further recommends, that when the Metro management authorize work and exercise their authority under this Delegation Policy, there should be a maximum period after that action that it must be reported in the quarterly program management report, and not wait 3 years to negotiate the modification and report an action to the Board.	PM and V/CM have committed to working together as necessary to analyze the issue and seek resolution. As part of that process, the two departments will work with the Office of the IG to close out the action.	

ATTACHMENT B (October 2022)

OIG REPORT/ SPOT CHECK # MOD #	RECOMMENDATIONS	MANAGEMENT'S RESPONSES	COMPLETION DATE
<p>October 2022 #1 Contract C0980 MOD-0239 Regional Connector Transit Corridor Project - Additional AT&T Duct bank Installations at 2nd Street – Construction</p>	<p>The OIG acknowledges the unknown underground site condition of numerous conflicting underground utilities, but the existing AT&T communication vaults that were both too small and in poor condition were known prior to the beginning of contract. It should be noted that AT&T did not initially provide design or informational requests for new vaults and now Metro must create a change order and pay the contractor for an oversight on the utility's behalf.</p> <p>The OIG recommends, as a Lesson Learned, that in project planning for Metro to ask the utility company to acknowledgement that all vaults, duct banks, and utility lines conform to current specifications and are in satisfactory condition. It is prudent for Metro to be aware of the utilities condition before entering into a construction contract.</p>	<p>Agreed. The AT&T infrastructure was not in a condition that could be hung in place safely resulting in the construction of a new system. It would be best to understand the condition of all utilities to the best possible extent prior to start of construction but not always possible.</p>	
<p>October 2022 #2 Contract C1136 CO-0017.4/MOD 0037 Division 20 Portal Widening and Turnback Project - 1st Street Bridge Continuous Monitoring</p>	<p>As was recommended in the prior quarterly construction change orders spot check report, the OIG recommends the issue of liability for sub-contractors claims and bonds be resolved so that it is not necessary to use NTE change order methods, and further change orders follow the standard Metro construction practices and procedures.</p>	<p align="center">Agreed</p>	
<p>October 2022 #3 Contract C1197 MOD-009 Airport Metro Connector Transit Station Bulletin 16 – Light Rail Transit (LRT) Fence Updates</p>	<p>The OIG recommends Metro consider updating Metro's design criteria and necessary specifications to reflect current 2022 California Seismic standards in the MRDC and future requests for proposals to build better and be prepared for future earthquakes. This may be considered a lesson learned.</p>	<p>The OIG recommendation may not completely reflect the issue. The contract MOD for bulletin 16th was the result of design change during the construction. In reviewing of the contractor's submittal, two things became apparent. First, the picket members were very heavy and disproportionate to the size of the horizontal members carrying them which created a structural concern. The second issue was a quality/constructability concern as the design shown on the contract drawings and the shop drawings required each picket to be field welded in place. All welds are required by the original Contract Documents to be ground smooth. The design change addressed both issues. For the structural issue, the thickness of the 4" o.c. pickets were reduced although the depth of the horizontal members was increased. For the constructability issue, the pickets were panelized so that they could be shop fabricated and craned into place. The panels were attached to the horizontals with bolts rather than welds, speeding up the installation time which would reduce crane use and reduce field welding and grinding. None of these issues were related to Metro's design criteria or technical spec.</p>	
<p>October 2022 #4 Contract C1045 MOD 0159 Purple Line Ext. Sect. 1 Track Level Access Openings at Wilshire/Western, Wilshire/La Brea and Wilshire/ La Cienega</p>	<p>None</p>		

ATTACHMENT B (August 2022)

OIG REPORT/ SPOT CHECK # MOD #	RECOMMENDATIONS	MANAGEMENT'S RESPONSES	COMPLETION DATE
August 2022 #1 Contract C1136 MOD-0029 Division 20 Portal Widening and Turnback Project - Time Extension for MOD-20 Addl Scope and Addl Requirements for DIV 20	The OIG recommends, that all future construction contracts include a capped amount per day to pay the contractor when Metro stops critical path construction work or contractor incurs significant delays due to unforeseen causes.	Agreed	
August 2022 #2 Contract C1136 CO-0011.3 Division 20 Portal Widening and Turnback Project - 1st Street Viaduct - Crack and Spall Repair	1) The OIG recommends that the scope of work should be agreed upon as soon as possible. 2) The OIG recommends the issue of liability for sub-contractors claims and bonds be resolved, and further change orders follow the standard Metro construction practices and procedures. We further recommend that the language concerning bonds and sub-contractors in the Metro standard forms for modification/change orders be moved to the Metro standard contract terms and conditions.	Agreed	
August 2022 #3 Contract C1120 CO-0041 Purple Line Ext. Sect. 2 Tunneling Suspension Associated with Abandonment of Oil Wells	The OIG recommends Metro consider implementing Unilateral change orders when the contractor is claiming compensation for delays greater than the contract cap permits.	Agreed	
August 2022 #4 Stations Contract C1152 CO-0035.1 Purple Line Ext. Sect. 3 VA Steam Tunnel Size Increase and Redundancy	Now that the cost schedule proposal (CSP) has been received, the OIG recommends that the Contractor's CSP be thoroughly evaluated to finalize the change order to enter into an agreed upon modification to replace working on a NTE basis as soon as possible.	The Contractor has split the CSP into two parts. Part 1 is the heavy civil work. Part 2 is the Mechanical / Electrical / Plumbing work. Metro has finalized their analysis of Part 1 of the Contractor's CSP of the change and should finalize a value with the contractor imminently. Metro has performed an initial round of fact finding and analysis of Part 2 and is engaging in further meetings with the Contractor to resolve the differences.	

ATTACHMENT B (April 2022)

OIG REPORT/ SPOT CHECK # MOD #	RECOMMENDATIONS	MANAGEMENT'S RESPONSES	COMPLETION DATE
April 2022 #1 Contract C0988 MOD-0551 Crenshaw/LAX Transit Corridor Project Landscape Changes – Park Mesa	none		
April 2022 #2 Contract C0980 MOD-00230 Regional Connector - Transit Corridor Project Alameda Emergency Stair Exit (ES2)	The OIG recommends in-house plan review be as fully completed as possible before Metro groups sign off on the design plans.	The project team agrees with OIG and does have both project staff and Metro staff provide reviews for all plans. This change originated with the change in FLS requirements within the Wye which was identified after award of contract.	
April 2022 #3 Contract C1045 MOD-0144 Purple Line Extension Sect. 1 Construction LaCienega Station During Mining	none		
April 2022 #4 Contract C1045 MOD-0147 Purple Line Extension Sect. 1 Vapor Extraction Street Restoration	none		

ATTACHMENT B (January 2022)

OIG REPORT/ SPOT CHECK # MOD #	RECOMMENDATIONS	MANAGEMENT'S RESPONSES	COMPLETION DATE
January 2022 #1 Contract C0980 MOD-00218 Regional Connector - Transit Corridor Project Metro Eastside Access Improvement Project "Segment 2" Esplanade and other improvements along Alameda Street – Construction Only	none		
January 2022 #2 Contract C1136 CO-00020.2 Division 20 Portal Widening and Turnback Project Differing Site Conditions - Connections to Existing Ductbanks and Unknown Utilities Impacts	The OIG recommends that Metro continue to track the time and materials used by the contractor while negotiating the Contractor's cost and schedule proposal and to bring this change order to a final award amount.	Final award amount for CO-00020.2 has been reached. Negotiations with the Contractor (TPC) consisted of multiple workshops to reach agreement on rates of production, activity duration, labor, materials and equipment required, complexity of the work. Since agreement on these items was challenging, Metro made a business decision to start with the contractor's estimate and deduct items that were not allowed in the contract. A final settlement for CO 20 was reached at \$43.3M, approximately \$10M under the contractor's original estimate. A time delay for changes related to CO 20 in the amount of \$6M, or 6 months at \$1M per month, has also been agreed upon for these changes.	Substantial Completion and commissioning of the turnback track is scheduled for late Fall of 2024 to coincide with Revenue Operations of PLE1. Final project completion could be as much as a year later.
January 2022 #3 Contract C1120 CO-00034 Purple Line Extension Sect. 2 Century City Constellation Station Storm Drain and Sanitary Sewer Relocation Construction of MOD 70 Design	none		
January 2022 #4 Contract C1152 MOD-0007 Purple Line Extension Sect. 3 Replacement Parking at VA Hospital Lot 42 During Station Construction	The OIG recommends that the Contractor be instructed to timely submit cost proposals, enter negotiations, and sign agreements before work is performed so Metro can process the work order close in time to work being performed, not only to pay the contractor but to help ensure the sub-contractors are paid timely.	No comments	

ATTACHMENT B (October 2021)

OIG REPORT/ SPOT CHECK # MOD #	RECOMMENDATIONS	MANAGEMENT'S RESPONSES	COMPLETION DATE
<p>October 2021 #1 Contract C0980 MOD-00206 Regional Connector - Transit Corridor Project Add Wye Junction Fan Plant - Construction</p>	<p>Since the Board approved of a budget for this item in 2015 at \$12 mil., the cost has increased to a total of \$21,186,000 (a 77% increase). This Fan System cost has been reported in pieces, as parts were completed, but not as a whole to indicate the cost creep overall over time. We recommend that when LOP information is being periodically provided to the Board that it includes a summary, per project, to show historical cost information over the life of each project. That summary should indicate if they anticipate completing the project within the current LOP and how many LOP increases have occurred so far.</p>	<p>The initial board item in 2015 for the fan plant was an ROM at the time and had yet to be fully designed and estimated for a complete change. As the project progressed the design and went into construction, the team worked through the negotiations for the full scope of the fan plant. As of now, there has only been one LOP increase and the project has anticipated that the project would fall within the LOP to date. Project team will work with Program Management leadership on how information is reported and follow Program Management's direction for any changes on how LOP is reported.</p>	
<p>October 2021 #2 Contract C1136 MOD-00020 Division 20 Portal Widening and Turnback Project Additional Scope and Additional Requirements for the Division 20 Portal Widening and Turnback Project</p>	<p>The OIG recommends: 1. When Metro needs to expedite a project, include Operations in the initial planning phase early, prior to and during design so they can provide constant input during the design. 2. Explore with Operations if they need additional resources to dedicate full time to assist in the intense design, planning, and implementation pre-opening phases of Metro's rail infrastructure/capital projects, or other ways in which Program Management and Operations can work together to approach these projects to maximize cooperation, communication, and assistance. 3. Have the Legal Department review our designer contracts to determine if they are adequate to hold contractors accountable, enforceable, and require use of bonds and proof of adequate insurance to cover errors of this type and resulting in cost of this magnitude.</p>	<p>1. Project alignments were revised during planning phase to accommodate additional storage capacity and technical requirements required for turnback headways. As design progressed, Operations participated in frequent design review meetings. 2. Additional Operations resources during design phases would be beneficial and help produce more comprehensive reviews. 3. Project team is coordinating with County Counsel on review of designer contracts.</p>	
<p>October 2021 #3 Contract C1045 MOD-0 137 Purple Line Extension Sect. 1 Increased Well Maintenance at Western Shaft due to Groundwater Chemistry Impacts</p>	<p>see #4 for recommendation</p>		
<p>October 2021 #4 Contract C1045 MOD-00138 Purple Line Extension Sect. 1 Additional Dewatering Treatment and Discharge Impacts at Western</p>	<p>The OIG recommends that all dewatering change orders for this project should be evaluated or audited. The Geotechnical Baseline Report issued by the consultant to Metro was not accurate for the soil type, ground water, and hydrogen sulfide levels for each segment of Purple Line Section 1 and the consultant might be held liable for some of the costs of differing site conditions not correctly determined by the consultant. Unplanned dewatering site conditions also cost Metro \$15.8 mil. at the La Brea Station and \$16.8 mil. at the La Cienega Station in 2020 and 2019 respectively.</p>	<p>The dewatering MODs for WPLE-1 have been already been evaluated as part of the CN process. In order to minimize the potential for future DSCs on other Projects, consideration should be undertaken to expend more resources during Preliminary Engineering (PE) to more accurately project the actual conditions encountered. The costs of additional PE should be weighed against the increased base bid prices, or future Change Order costs if no additional PE efforts are undertaken. Valid additional costs to Metro, via the base bid or Change Order, will be incurred either way. It is premature at this time to hold the PE Consultant liable for all or a portion of the costs of this MOD.</p>	

ATTACHMENT B (July 2021)

OIG REPORT/ SPOT CHECK # MOD #	RECOMMENDATIONS	MANAGEMENT'S RESPONSES	COMPLETION DATE
July 2021 #1 Contract C0980 MOD-00196 Regional Connector - Transit Corridor Project Construct the 2nd & Broadway Station Overbuild Load Transfer System	none		
July 2021 #2 Contract C0980 MOD-00202 Regional Connector - Transit Corridor Project Revise Communications Radio System Scope of Work- Construction	The OIG recommends that after installation of the new radio system that interface with Los Angeles fire, police and sheriff departments be tested and verified for their signal strength and connectivity.	Agreed, all radio systems will be fully tested and verified for signal strength and connectivity	
July 2021 #3 Contract C1045 MOD-0131 Purple Line Extension Sect. 1 Wilshire/Fairfax Station Subgrade Differing Site Conditions	The OIG recommends that after a DRB issues its recommendations that favor the contractor, Metro act swiftly to move forward with a change notice to the contractor and not delay payment to the contractor, less any credits owed to Metro. We understand in this particular case the contractor assigned a lower priority for processing this change notice over many others.	In this case there was no requirement for Metro to issue a Change Notice due to the DRB ruling. The Contractor (STS) chose to delay providing Metro with a cost proposal associated with the DRB ruling due to other higher Contractor priorities. After the eventual receipt of the DRB ruling proposal from the Contractor, the costs were negotiated, and a MOD issued (w/o any Change Notice being created). It should be noted that whether a Change Notice is issued or not, the Contractor has the right to submit a proposal whenever and for whatever they perceive as changed work (via a Request for Change). Section 1 has and continues to issue Change Notices in a timely manner when Metro recognizes merited changed scope of work.	
July 2021 #4 Contract C1152 MOD-0014 Purple Line Extension Sect. 3 Revisions to Westwood/UCLA Station Entrances – Design Only	none		

ATTACHMENT B (April 2021)

OIG REPORT/ SPOT CHECK # MOD #	RECOMMENDATIONS	MANAGEMENT'S RESPONSES	COMPLETION DATE
<p>April 2021 #1 Contract C0988 MOD-00253.3 Crenshaw/LAX Transit Corridor Project Landscape Changes – Park Mesa</p>	<p>The OIG recommends that we identify quickly the differences in cost between the new scope of work from the contract and finalize plans and the cost with the prime Contractor.</p>	<p>-Agree and recommendation will be incorporated into C/LAX Project Lessons Learned. -C0988 Contract Team has started to identify the differences in cost between the new scope of work from the contract. Additionally, new scope of work will only be processed if it is a safety related change.</p>	
<p>April 2021 #2 Contract C0980 MOD-00188 Regional Connector - Transit Corridor Project 2nd/Hope Pedestrian Bridge - Construction</p>	<p>no recommendation concerning this change order</p>		
<p>April 2021 #3 Contract C1120 MOD-0095 Purple Line Extension Sect. 2 Station and Bicycle Parking, Architectural Features Design and Construction Changes at Wilshire/Rodeo & Century City Constellation Stations</p>	<p>The OIG recommends that Purple Line, Section 3, be immediately evaluated to determine if the MRDC architectural updates and the Metro bike hub system changes have been incorporated into the Purple Line Extension Section 3 Transit project. This will ensure consistency, compliance with the MRDC, and cost assessments to be determined and negotiated at the earliest possible time.</p>	<p>Purple Line Sect #2 response: Noted. Purple Line Sect #3 response: The WPLE3 contract included the latest MRDC requirements for bike hubs at both stations at time of bid, which minimized changes to the WPLE3 contract.</p>	
<p>April 2021 #4 Contract C1120 MOD-0095 0100 Purple Line Extension Sect. 2 Century City Constellation Main Entrance - Construction</p>	<p>The large cost disparities between the ICE and a Contactor's proposal on high dollar transactions should continue to prompt further technical and commercial evaluation in order to arrive at a fair and reasonable price. The OIG recommends that the ICE be evaluated by the Estimating department to further evaluate the significant differences between the Contractor's proposal and their independent estimate utilizing both technical and commercial evaluation.</p>	<p>ESTIMATING response: Metro Estimating will review the ICE and CSP and work with V/CM and Project Management staff to evaluate the differences. Purple Line Sect #2 response: Project staff will continue to involve Estimating staff in scoping discussions to ensure that they have a full understanding of the scope of work for all Change Work.</p>	

ATTACHMENT B (January 2021)

OIG REPORT/ SPOT CHECK # MOD #	RECOMMENDATIONS	MANAGEMENT'S RESPONSES	COMPLETION DATE
<p>January 2021 #1 Contract C0980 MOD-00184 Regional Connector - Transit Corridor Project Expanded Duco Yard and Temple Street Sanitary Sewer Work</p>	<p>The OIG recommends that future contracts with the designer should include verification of sewers identified as abandoned, and to document the verification on the construction drawings if the cost of such verification is minor and the consequences of reliance on erroneous information is significant. Additionally, the OIG recommends that the as-built record drawings at the City be updated.</p>	<p>Planning and engineering need to rely on as-built records for much of their work. However, where key utilities are involved, it is best that their condition and status be validated during the preliminary design phase. This investigation is often expensive and not easily performed without site investigation. The engineer must use his/her judgement to determine which utilities require physical investigation and inspection. Project budget contingency should be set aside for utility discrepancies that may be discovered during construction. Agree that even minor utilities, improperly documented, can have a significant cost and/or schedule impact to a project and should be investigated early, to the extent possible. The City is the best entity to ensure that underground maps are complete.</p>	<p>No further action from Regioinal Connector as project design has already been completed. However, efforts are continually made to perform potholing investigations for verification prior to construction so as to avoid impacts to schedule should discrepancies be found.</p>
<p>January 2021 #2 Contract C1045 MOD-00121 Purple Line Extension Sect. 1 Alternate Soil Disposal</p>	<p>California laws, including Senate Bill 1383 of 2016 set mandatory targets to reduce waste going to landfills. Metro developed a recycling policy (GEN 51) in response to State recycling goals and to support Metro's sustainability goals. The Conditional Use Permit for the Chiquita Canyon Landfill was set to expire and the Landfill operator sought a new permit, which was granted in July, 2017. The new permit requirements limits the rate of tonnage of dumping allowed, hours of operation, and the county set other multiple requirements that Chiquita Canyon must adhere. The OIG recommends:</p> <ol style="list-style-type: none"> 1. Construction waste disposal options are utilized to minimize project costs and to help achieve the reduction goal of a 75% reduction in waste by 2025; 2. Project teams work very closely with the Metro Sustainability Department, State, Los Angeles County, other regulators, landfill owners, and contractor's personnel, to determine options consistent with GEN 51 for the reuse of soils and construction debris in the current or other construction sites; 3. When a Board member has a matter come before them at their respective municipalities that can potentially effect Metro projects, if they would give notice to Metro of the matter, Metro can determine how its projects will be impacted and possibly address the matter with the municipality or 3rd party prior to the matter being approved including possibly negotiate that the terms of a permit not allow price increases or other impacts on Metro projects where contractual commitments have previously been negotiated in reliance on previous conditions; 4. LA Metro evaluate how other LA Metro projects for which a contract was entered may be impacted by the newly imposed landfill mitigations and higher fees. 	<p>Metro acknowledges the recommendations listed and provides the following responses below:</p> <ol style="list-style-type: none"> 1. Per contract, the project must divert/recycle 75% of waste. Purple Line Section 1 has diverted 100% of excavated clean material on the project to be reused as beneficial cover or fill at offsite projects. 2. The Purple Line Section 1 project has a member of the Metro Environmental Compliance and Sustainability Department (ECSD) on staff. This team member updates project management and contractors on opportunities to reduce waste impacts as they become available across the county. 3. Acknowledged 4. ECSD management will review awarded projects and available facilities and make recommendations on where to make changes to disposal practices as needed. 	
<p>January 2021 #3 Contract C1120 MOD-0091 Purple Line Extension Sect. 2 Increase UPS Spare Capacity at Wilshire Rodeo and Century City Constellation Stations</p>	<p>The OIG recommends that immediately prior to sending out an RFP, Metro should insure that the most current MRDC is used.</p>	<p>In this case, the updated MRDC Section 8 was added to the RFP near the end of the solicitation period, but conflicts with other contract documents were not identified because of the late issuance of the update. Staff agree that all future changes to the MRDC should be coordinated by Metro Engineering and issued before future RFPs are released.</p>	

ATTACHMENT B (January 2021)

OIG REPORT/ SPOT CHECK # MOD #	RECOMMENDATIONS	MANAGEMENT'S RESPONSES	COMPLETION DATE
January 2021 #4 Contract C1152 CO-0005.1 Purple Line Extension Sect. 3 VA Hospital Replacement Parking for Lot 42 During Station Construction Phase	The OIG recommends that the Project office and Real Estate continue to work closely and aggressively to come to a full resolution with the VA hospital and the contractor on the modified costs.	Agree	

ATTACHMENT B (October 2020)

OIG REPORT/ SPOT CHECK # MOD #	RECOMMENDATIONS	MANAGEMENT'S RESPONSES	COMPLETION DATE
<p>October 2020 #1 Contract C0988 MOD-00485 Crenshaw/LAX Transit Corridor Project Case 5 Bedding Required by LABOE</p>	<p>Since the 'Green book' states the support and materials for sewer and storm drain pipe are to be encased in concrete, the OIG recommends that the LA Metro rail standard drawing US-014, be updated to reflect the required City standard and Metro may negotiate with the LABOE to adopt a different standard for specific projects as warranted.</p> <p>We further recommend, as discussed in previous reports, that Metro study the large discrepancies between the Metro ICE and the award amounts to determine if there is a method by which those discrepancies can be narrowed. This recommendation applies to many of the Spot Checks reviewed in this Report, and is based also on a Metro audit completed by the Management Audit Services Department that noted significant discrepancies in these amounts to be a frequent occurrence.</p>	<p>Recommendation will be incorporated into C/LAX project Lessons Learned.</p>	
<p>October 2020 #2 Contract C1045 MOD-00111 Purple Line Extension Sect. 1 Fairfax Paleo Zone Modified Limits</p>	<p>The OIG recommends future GBR's include a more comprehensive underground site assessment to determine a better approximation of the marine and paleo geological layers. In this instance, a robust underground assessment would have avoided the costly change order. However, the additional excavation costs would have been included in the higher base bid value.</p>	<p>Recommendation will be incorporated into PLE1 project Lessons Learned.</p>	
<p>October 2020 #3 Contract C1120 MOD-00080 Purple Line Extension Sect. 2 Demobilization and Remobilization due to COBH Moratorium</p>	<p>The MOA between Metro and COBH imposes additional restrictions on Metro and adds costly change orders to the original contract.</p> <p>The OIG recommends Metro adopts a standardized MOA for use in negotiations with all jurisdictions within Los Angeles County and utilizes this agreement for every construction project going forward in each respective jurisdiction and that budget estimates for projects should be revised as necessary to take into consideration MOAs entered into.</p>	<p>Agreed.</p>	
<p>October 2020 #4 Contract C1151 MOD-0004.1 Purple Line Extension Sect. 3 Increase Ground Water Treatment Plant Capacity at Tail Track Exit Shaft</p>	<p>It is the OIG's understanding that water pump tests and water quality tests were performed, but they were performed at the original location, the Army Reserve site, which is no longer the correct shaft location. Now the site is at the Veterans Administration property. A change in location can greatly affect both the levels and quality of the groundwater, thus increasing the revised dewatering process.</p> <p>It is critical that the Real Estate Department be included at the earliest possible time in negotiating the property requirements for a project. Having to change location plans after a contract award can have significant scheduling and expense consequences.</p>	<p>The location of the Tail Track Exit Shaft had to move from an environmentally cleared site occupied by the Army reserve site to the US Department of Veterans Affairs West Los Angeles campus when it became evident that the US Army Reserve was unwilling to allow the use of this location for either construction laydown or a permanent Metro Facility. Metro Real Estate and Project staff successfully negotiated with the Department of Veterans Affairs to enable relocation of this construction laydown area and permanent facility to their West Los Angeles Campus.</p>	

ATTACHMENT B (October 2020)

OIG REPORT/ SPOT CHECK # MOD #	RECOMMENDATIONS	MANAGEMENT'S RESPONSES	COMPLETION DATE
<p>October 2020 #5 Contract C1151 MOD-0005 Purple Line Extension Sect. 3 Addition of Sepulveda Staging Area to Compensate VA Site Reduction</p>	<p>The Purple Line Extension 3 was a 'next decade project' and was accelerated to be completed in the next 5 years with many project processes that had to be compressed to meet the schedule. We also understand that the real estate acquisition process is contingent on the funding being in place.</p> <p>The real estate acquisition process and all other real estate arrangements must be negotiated as early as possible and negotiate those property rights strategically to ensure we have our real estate needs met at the earliest and least expensive manner possible.</p>	<p>The space available for staging at the Tail Track Exit Shaft on the Department of Veterans Affairs Campus is limited; being located in a nationally designated historic district. Metro Real Estate and Project Staff have and are working closely together, in a timely manner to ensure real estate acquisitions are coordinated with project need dates to minimize overall risk and cost to Metro in delivering the project.</p>	

ATTACHMENT B (August 2020)

OIG REPORT/ SPOT CHECK # MOD #	RECOMMENDATIONS	MANAGEMENT'S RESPONSES	COMPLETION DATE
August 2020 #1 Contract C1045 MOD-00095 Purple Line Extension Sect. 1 Transit Project: Phase 5 Golder EOR Mitigation Plan Implementation	<p>The OIG is in agreement with applying extra safety precautions that the Metro project office has put forward. Where conditions are relatively unique to the tunneling industry, more prescriptive specifications for means and methods in these zones is warranted.</p> <p>Since the Contractor, Golder Gas, performed the entire mitigation plan including removal and mitigation, the OIG recommends that LA Metro ensure that Golder Gas is held contractually, jointly, and severally liability for any future incident involving gas in the area where the soil vapor extraction wells and the monitoring wells are installed and abandoned. This is the common practice in environmental cases where a "consulting expert" is hired to monitor and mitigate a hazardous substance issue.</p>	<p>The Section 1 Project will review the indemnification text issued to Golder that was required by STS in order for Golder to proceed with the work. This indemnification will determine what Golder's future obligations are.</p>	
August 2020 #2 Contract C1045 MOD-00106 Purple Line Extension Sect. 1 Center Muck Shaft at La Brea (ECI-03)	<p>The OIG recognizes that this type of shaft at the La Brea station can serve a legitimate purpose and that the OIG recommends that use of such methods should be considered and contemplated in future project specifications and a reserve for same should be made when the savings in time, expense, and safety outweigh the cost of such a shaft.</p>	<p>OIG comment received will be included in the lessons learned.</p>	
August 2020 #3 Contract C1045 MOD-00107 Purple Line Extension Sect. 1 Center Muck Shaft at La Brea (ECI-03)	<p>The OIG is concerned that a bid of 40% over an ICE, when you are in a noncompetitive circumstance, may not be a good faith offer or bad communication on specifications. Such behaviors can have the effect of damaging a relationship during an early phase of construction and create distrust that can harm project collaboration in the future. We appreciate a contractor's willingness to proceed on work even without a commitment from Metro in some cases for the payment for that work, but recommend the contractor exercise greater care in formulating its proposals and that Metro be clear and fair but diligent and firm in its ICE calculations and negotiations stance.</p>	<p>OIG comment received. Contractor will be reminded to have appropriate personell attend the fact finding and provide timely complete CSP in order to resolve issues in a collaborative manner.</p>	

ATTACHMENT B (August 2020)

OIG REPORT/ SPOT CHECK # MOD #	RECOMMENDATIONS	MANAGEMENT'S RESPONSES	COMPLETION DATE
<p>August 2020 #4 Contract C1120 MOD-00073 Purple Line Extension Sect. 2 Century City Constellation Station Track work Extension</p>	<p>1. The OIG is concerned that a bid is almost 3 times over the ICE, when you are in a noncompetitive circumstance, may not be a good faith offer or bad communication on specifications. Such behaviors can have the effect of damaging a relationship during an early phase of construction and create distrust that can harm project collaboration in the future. We appreciate a contractor's willingness to proceed on work even without a commitment from Metro in some cases for the payment for that work, but recommend the contractor exercise greater care in formulating its proposals and that Metro be clear and fair but diligent and firm in its ICE calculations and negotiations stance.</p> <p>LA Metro is having to absorb the cost of track extension change orders that arose due to errors and omissions on the part of the engineering consultant WSP. The OIG was informed that WSP miscalculated the braking distance in the initial project definition drawings that were supplied to the construction contractor. Metro will have to cover this expense with the contractor, but should look to the design engineering firm for reimbursement to Metro of the costs it would not have had to otherwise incur less amounts saved or mitigations.</p> <p>2. The OIG additionally recommends that Metro review the current Metro Rail Design Criteria (MRDC) compared to the newly released FRA track design standards for accommodating a train entering a stub-end to determine if any modification or update to our MRDC is warranted.</p>	<p>1. If a Cost and Schedule Proposal (CSP) is significantly higher than the Independent Cost Estimate (ICE), Metro's Contract Administrator and the Project Team engages in further meetings with the Contractor to clarify scope in order to determine the source of the discrepancies between the two estimates. These meetings are professional in nature, and often result in favorable resolution on a price that is somewhere between the ICE and the revised CSP. This process ultimately leads to the execution of mutually agreed upon Contract Modifications, and avoids costly disputes related to Changed Work.</p> <p>Related to the cost of the change, if WSP had calculated the braking distance correctly, the Contractor's proposal price would have included the cost for the trackwork that was recently added by Contract Modification. As a result, the awarded contract value would have been slightly higher, and the project contingency slightly lower at Notice to Proceed. The only additional cost that this error by WSP may have created is a theoretical premium for paying for added trackwork in a non-competitive environment, which would be difficult to prove. It should be noted that the difference between the executed Contract Modification price and the ICE was about 17%, or \$171,000. As a result, it is likely that it would be difficult for Metro to determine if it paid a non-competitive premium. That said, the recommendation will be discussed with senior executive management in VCM and Program Management to determine if any action against WSP will take place.</p> <p>2. This recommendation will be referred to Metro Engineering for consideration.</p>	

ATTACHMENT B (April 2020)

OIG REPORT/ SPOT CHECK # MOD #	RECOMMENDATIONS	MANAGEMENT'S RESPONSES	COMPLETION DATE
<p>April 2020 #1 C0980 MOD-00161 Regional Connector - Procure Medium Attenuation Fasteners in Lieu of Standard Direct Fixation Rail Fasteners for the 2nd & Broadway Crossover</p>	<p>Regional Connector project is very unique because of all the existing historical buildings above the construction. Noise pollution has become a major concern for urban transit dwellers and authorities. The rule of thumb is a 10decibel technical increase in noise is heard by the human ear as "doubled" in loudness. When constructing underground for tunnels and stations the Environmental Impact Report must remember to always mitigate sound and vibration to protect the potentially impacted fragile surface buildings.</p> <p>The OIG recommends this scenario be written into the Lessons Learned file for future similar situations when constructing under historic or special case existing buildings.</p>	<p>The Regional Connector Project has extensive vibration mitigation elements included in the design where the operating guidway passes nearby sensitive receptors including recording studios, music venues and hotels. The project also requires that noise and vibration monitoring be performed during construction near sensitive facilities.</p> <p>The lesson learned and responded to in the referenced Contract Modification, is that information gathered during construction monitoring should be used to adjust the designed mitigations where field conditions indicate they are necessary.</p>	<p>Completed with issuance of subject contract modification. Equipment to be installed 3rd quarter 2020</p>
<p>April 2020 #2 C1045 MOD-00098 Purple Line Sect. 1 Additional Air Scrubbers at Fairfax Station</p>	<p>The OIG recommends further questioning to Southern California AQMD to determine why on a previous Metro construction contract (at the same location) they set the emission limit at 50 parts per billion, and the published standards are set at an emission limit of 30 parts per billion. On this contract the limits are set at 15 parts per billion. The inconsistency of the emissions limit should be taken under consideration and request in writing from AQMD why the standard emission limit could not be applied to this permit.</p> <p>The OIG further recommends in future construction pre-bid meetings, disclose to all potential contractors that the AQMD permit values necessary for the technical specification, "Temporary Construction Ventilation for Scrubber Units" has varied in the recent past and to verify the amount with an AQMD representative. If possible a commitment needs to be obtained from AQMD by the contractor at the time of submission of a bid amount, that the standard is firm for a defined period.</p>	<p>The emissions limit for equipment was set at the time the Contractor submitted the specific ventilation plan to SCAQMD for permit.</p> <p>The SCAQMD does not have a set standard for hydrogen sulfide, but the states standard is 30 parts per billion. SCAQMD develops their requirements based on specific site conditions. Our EIR states Metro and its contractors will set and maintain work equipment and standards to meet SCAQMD standards.</p> <p>A letter will be sent to SCAQMD for clarification on how SCAQMD can consistently apply emissions regulations for hydrogen sulfide for Metro's future projects.</p>	
<p>April 2020 #3 C1120 MOD-00064 Purple Line Sect. 2 Geotechnical Instrumentation Installation and Monitoring AT&T and Beverly Hills High School</p>	<p>The OIG recommends that the independent estimator visit the field location concerning where the work for this change order will occur. The construction manager should walk the estimator through the scope of the changes for which they are developing a cost estimate. The independent estimate was a 126.7% lower than the negotiated price. Where such significant discrepancies in price estimates exist, either the estimator for Metro, or the estimator for the contractor needs to re-evaluate the scope of the change order.</p>	<p>Agreed. Moving forward the estimating group will endeavor to work even more closely with available subject matter experts to assure a thorough understanding of scope and of the engineering and construction processes involved.</p>	
<p>April 2020 #4 C1151 MOD-00001 Purple Line Sect. 3 Revise the Tail Track Exit Shaft Location from US Army Reserv to Veterans Affairs Property</p>	<p>If the Army Reserve location had been negotiated prior to the contract award, these amounts might have been included in the original bid, although the price then and now might have been the same for this different location.</p> <p>The OIG recommends Real estate arrangements should be negotiated as early as possible.</p>	<p>Metro agrees with the OIG's comment regarding the price of the change. The cost would roughly be the same whether it was negotiated prior to contract award or after award. We agree that real estate arrangements (agreements) should be negotiated as early as possible. The project initiated contact with the property owner for the Exit Shaft property acquisition after the project was identified to be accelerated from the original 2035 Revenue Service Date. Metro did engage in talks with the VA early in the Project but obtaining VA approval to access their property has not been without a few challenges that Metro was able to overcome.</p>	

ATTACHMENT B (January 2020)

OIG REPORT/ SPOT CHECK # MOD #	RECOMMENDATIONS	MANAGEMENT'S RESPONSES	COMPLETION DATE
Jan 2020 / #1 C0988-MOD-00437 Crenshaw/LAX UG1 (H2S) Ventilation Fans - Construction	none		
January 2020 #2 C0980 MOD-00154 Regional Connector - Acoustical Treatments for Areas Not on Finish Schedule	none		
January 2020 #3 C1045 MOD-00089 Purple Line Sect. 1 Development and On Site Validation of the Selected Gas Mitigation Option for M13	<p>While the soil at every site is unique, it is possible to create a standard for testing soils for gasses. There is no current rule or technical specification within Metro criteria for extraction of CH₄ or H₂S from the soil.</p> <p>The OIG recommends after the final report is submitted by the contractor, that a technical specification for testing be developed and written into the MDRC to use in the future.</p>	<p>PLE1 Final M13 Mitigation Report will be forwarded to Metro Geotechnical Department for their review and further processing.</p>	
January 2020 #4 C1045 MOD-00090 Purple Line Sect. 1 Oil Well Investigation In Lieu of TBM Probe Ahead	<p>The implementation of the drilling and magnetometer survey from Section 1 has been incorporated into Purple Line Extension Section 2 and 3 contracts.</p> <p>The OIG recommends that the procedures implemented for locating tanks, pipes and other abandoned waste be added to the Lessons Learned database.</p> <p>The OIG further recommends that Metro evaluates whether to pursue recovery for waste removal costs under CERCLA (Comprehensive Environmental Response, Compensation, and Liability Act, also known as Superfund. Passed in 1980). The OIG recommends that Metro's Engineering Program Management provide information on this matter to Metro's Legal department to assist in making this determination and potentially pursuing this recovery.</p>	<p>PLE1 implemented methodologies for locating known tanks, pipes and other abandoned waste will be added to the Lessons Learned database. PLE1 notes that the hazardous waste removal is relatively small/negligible compared with the overall volume of soil removed. After reviewing the potential ROI on pursuing legal actions against any potential responsible parties for cost recovery the current determination based on the available data is that it is not worth the effort and cost at this time. However, it was decided that Metro County Counsel would provide a preliminary review on the issue and it would be revisited in the future.</p>	

ATTACHMENT B (Oct 2019)

OIG REPORT/ SPOT CHECK # MOD #	RECOMMENDATIONS	MANAGEMENT'S RESPONSES	COMPLETION DATE
<p>Oct. 2019 / #1 C0988-MOD-00432 Crenshaw/LAX - Update Station Customer Signage, Construction</p>	<p>The Metro RDC was updated with 2010 ADA Standards for Accessible Design later, and after the release and execution of the Crenshaw contract. When new standards are issued all request for proposal specifications pending after that date should be reviewed for correction before release when possible.</p> <p>For request for proposals released between 2010 and 2014,(when we changed the specification and Metro RDC) the OIG recommends immediate evaluation to determine if they were also awarded based on the old pre 2010 standards to determine whether their projects might be similarly impacted.</p>	<p>Agreed</p>	
<p>Oct. 2019 / #3 C1078 MOD-00083 Purple Line Sect. 1 - La Cienega Dewatering DSC</p>	<p>The Geotechnical Baseline Report stated that the ground conditions would permit drainage of water. The OIG questions if the consultant who developed the Geotechnical Baseline Report properly interpreted the boring data. Investigation is warranted to determine if the report accurately reflects the data.</p> <p>The OIG recommends recovering part of the cost, if the investigation demonstrates that the report was erroneous. The OIG further recommends future Geotechnical Baseline Reports should include interpretation of the borings to determine within a 95% confidence level the nature of the underlying soil and the location of the water table.</p>	<p>Project reviewed the GBR and actual field data and concludes this is a DSC. There is no error and omission on the part of the consultant.</p>	
<p>Oct. 2019 / #4 C1078 MOD-00085 Purple Line Sect. 1 - Geotechnical Instrumentation: Revise Geotechnical Contingency Plan and Reporting</p>	<p>The OIG recommends if Metro believes this change order is a betterment, then Metro should complete the new "Potential Notice of Betterment" form, submit a copy to LABOE and retain a copy for negotiations at the end of the contract if not sooner. This means Metro would move forward at LABOE expense. Going forward, this "Potential Notice of Betterment" form should be completed when applicable and submitted to the LABOE prior to agreeing to move forward, thus allowing the LABOE to make the decision if the betterment is truly necessary.</p>	<p>Project concurs and will develop a Potential Notice of Betterment for LABOE.</p>	

ATTACHMENT B (July 2019)

OIG REPORT/ SPOT CHECK # MOD #	RECOMMENDATIONS	MANAGEMENT'S RESPONSES	COMPLETION DATE
<p>July 2019 / #1 C0988-MOD-00426 Crenshaw/LAX - Irrigation Water Meters, Park Mesa Medians</p>	<p>The OIG recommends this disagreement between the City of Los Angeles Public Works and LA Metro about the responsibility for the changes should be discussed and resolved.</p>	<p>This item is tied to the tree permit that included adding pavement in areas beyond the project limits, increasing the number of replacement of trees for those cut down, adding landscaped medians (which require the subject irrigation). All of the items above were discussed with City and the two parties agreed to an MOU for which the City would be paid 3.5 million to pave the street (work valued at 7.0 million plus) and that this agreement resolved the other issues mentioned above with Metro installing at its cost (medians, trees...etc)</p>	
<p>July 2019 / #2 C0980 MOD-00141.2 Regional Connector - Impacts to Support of Excavation: Decking, Utilities and Temporary Drainage</p>	<p>The OIG recognizes the age of the buildings at the site and errors of definitive drawings. The OIG recommends to research on the front end, even drawings to confirm accuracy, to preclude issuing an expensive change order after construction has commenced.</p>	<p>There are definitely some lessons to be applied to future projects based on Regional Connector's experience with utilities. The most significant finding is the need to conduct utility condition assessments in areas where cut-and-cover construction is planned. This could be accomplished by a combination of potholing, inspection of maintenance holes/vaults and research with the utility owner. The documented age of the utility and the presence of large masonry vaults/maintenance holes, should serve as guides in the determination of whether facilities should be replaced.</p>	<p>No further action by Regional Connector</p>
<p>July 2019 / #3 C1078 MOD-00025 Purple Line Sect. 1 - Revised Low Impact Development (LID)</p>	<p>The OIG recommends that all upcoming sites where known industrial and railway activity occurred, that a full investigation of soils occurs and is stated in the Environmental Impact Statement. Performing such investigation early may result in additional early costs, but these circumstances will then become known costs of the project and may be prepared with less delay and less costs than waiting.</p>	<p>Site investigation and soil remediation was completed prior to the construction of the site. However, the original plan for the DTSC directed site cleanup was the previous owners responsibility. Due to the nature in how this property was eventually acquired in order to meet the construction schedule (imminent domain) there was no time to cleanup the groundwater issues prior to LID designs. and assess any data gaps that may have existed. Orders from the DTSC to continue remediation efforts of the groundwater, beyond Metro's planned clean up phase, pushed the environmental effort beyond a clear end date which in effect conflicted with the LID design since it would be predicted to pushing an identified contaminated groundwater plume during rain events once completed. In the future, if Metro can anticipate action to be required from outside entities (that can take significant time to develop and execute) beyond the initial environmental phase, it will request contractor to change the design prior to 60% completion to avoid major changes</p>	
<p>July 2019 / #4 MC1120 MOD-00037 Purple Line Sect. 2 - Revision to Avg Depth of Seismic Borings along Wilshire Blvd. on Tunnel Reach 5</p>	<p>The OIG commends the Engineering department for taking supplementary steps to determine additional the location of seismic fault line in relation to the track alignment for improved safety and long term structural integrity.</p>	<p>Noted</p>	<p>N/A</p>

ATTACHMENT B (April 2019)

OIG REPORT/ SPOT CHECK # MOD #	RECOMMENDATIONS	MANAGEMENT'S RESPONSES	COMPLETION DATE
<p>April 2019 / #1 C0988 MOD-00402 Crenshaw/LAX - Provisional Payments - Pending Dispute Resolution Fire Rated Cable (multiple) Change Orders</p>	<p>1. The OIG recommends that Metro expeditiously and fairly resolve the litigation with the Contractor. 2. The OIG further recommends that a review team monitor the billings of the Contractor to validate the efficacy of the incentive program as this may become a tool for improving future performance on other projects.</p>	<p>1. Agree, different mechanisms to achieve this being considered. 2. Agree, already being implemented.</p>	<p>1. December 2019 2. Closed</p>
<p>April 2019 / #3 C1045 MOD-00071 Purple Line Sect. 1 - Golder Gas Investigation and Report</p>	<p>The Independent Cost Estimate was not an accurate representation of work stated in the agreed upon scope of work. The OIG recommends that Metro continue to follow through on the plan for mitigation of gas migration utilizing the Contractor's new report of procedures where known high concentrations of hydrogen sulfide and methane gases exist.</p>	<p>Metro is following thru on the plan. Installation of wells for field testing began in 3/19. The mitigation options draft memo, based on the field testing observations, was received 6/25. Design of a selected gas migration mitigation option, i.e. increasing the number of soil vapor extraction wells, is ongoing.</p>	<p>Completion of mitigation recommendation and implementation, is tentatively scheduled for December 31, 2019.</p>
<p>April 2019 / #4 C1045 MOD-00072 Purple Line Sect. 1 - Reach 3 Additional Gas Testing and Assessment</p>	<p>The OIG recommends: 1. In following the new Contractor's report, Work Plan for Exploratory Program to Assess Mitigations for Potential Gas Migration, a. Record all steps that were successful and those that need modification. b. Have information formatted and add to Technical Specifications. c. Have steps and procedures added into Lessons Learned d. Incorporate these finding and procedures into any future bid process where potential gas migration and tunnel boring may occur. 2. Note under Lessons Learned where known high concentrations of hydrogen sulfide and methane gases exist, prior study and geotechnical investigation be completed and included in the bid documents.</p>	<p>1. Metro has the following comments: a. Plan to record this. Modifications to the testing program in field to be made as appropriate b. This is likely a unique area. A Full report on the program and recommendations is included in the work. Pending the outcome, Technical Specifications would be developed for the Project c. Agree, also see b above d. We note that investigation is in progress now to study gas migrations. Pending outcome, future bid process would include results, including incorporation in Geotechnical Investigation and Technical Requirements 2. Agree. In this instance the area was studied and fully identified/described in the bid documents. Also see 'b' above.</p>	<p>12/31/2019</p>

ATTACHMENT B (April 2019)

OIG REPORT/ SPOT CHECK # MOD #	RECOMMENDATIONS	MANAGEMENT'S RESPONSES	COMPLETION DATE
<p>April 2019 / #5 C1045 MOD-00074 Purple Line Sect. 1 - Additional Instrumentation (Project Wide) as requested by LABOE and STS EOR</p>	<p>The OIG recommends that instrumentation bought for this project become property of LA Metro, so that future projects (remainder of the Purple Line Extension 2 and 3) will have instrumentation on hand to immediately install when Support of Excavation for those projects begin.</p>	<p>Metro has made several attempts in the past for Purple Line and Regional to salvage and reuse geotechnical instrumentation. However, passing the instruments between projects offer a number of challenges. These include the following:</p> <ul style="list-style-type: none"> • The Design life of instrumentation equipment is limited given the temporary nature of the work. • Given the diminished value of the used instrumentation equipment it is often abandoned in place. An effort to salvage the equipment may result in increased costs. • The means, methods and performance of shoring, instrumentation and monitoring are left with the Design-builder. Dictating the used instruments would interfere with the selection of means and methods and make Metro responsible for warranting the equipment for the life of the project. • The technology associated with the equipment continues to evolve. Metro may then be obligating the contractor to use obsolete equipment. • Timing and turnover of instrumentation. The contract schedules for Regional, Crenshaw and Purple Line Sections 1, 2 and 3 all overlap. As such, the instrumentation for each project is needed at the same time. • Metro would need to inventory and temporary store the instrumentation equipment. There is a risk that Metro may be storing the equipment permanently or Metro may need to make efforts for their disposal. 	<p>Closed</p>

ATTACHMENT B (Jan. 2019)

OIG REPORT/ SPOT CHECK # MOD #	RECOMMENDATIONS	MANAGEMENT'S RESPONSES	COMPLETION DATE
Jan 2019 / #1 C0988 MOD 00335.1 Crenshaw - Cable Transmission System Update - Construction	"The OIG recommends: The schedule negotiations with the contractor be expeditiously concluded so the schedule impacts are minimized."	Not sure what this means. CO's were issued prior to MOD that obligated the contract to commence work - this mitigated schedule impacts. Response could stay as-is I suppose (with edits) as it is relatively benign in nature	Closed
Jan 2019 / #3 C1120 MOD-00026 Purple Line Sect. 2 - Santa Monica Blvd. Bus Layover Design and Construction Changes	The OIG recommends: That Operations and LADOT be provided the scope of work after requests are submitted or "no comments" are received to confirm their requests have been added into the scope prior to the release of the RFP.	Because the OIG's recommendation is for actions to be taken prior to the release of RFPs, it has been passed on to Metro Engineering for consideration in revising Policy DSGN01 DB for future projects.	Metro Engineering (Androush Danielians/ Edwardo Cervantes) have been notified. They provided the below comment: A process will be set in place that will be included in future Specs and contract language for the PE Consultant. The process will require the consultant to submit plans to all applicable agencies (including Metro). Upon receiving comments, the Consultant shall address each comment as to the disposition in a matrix/spreadsheet. The spreadsheet / matrix will then be submitted to each of the commenting agencies. That agency will then be requested to accept the project disposition (via an initial). If the agency is not in acceptance of the disposition, the Consultant via the Project shall work with each agency until that comment disposition is accepted. The final signed off matrix shall then be included in the RFP for the DB (contractor) to complete the path forward based on the agreed upon disposition.

ATTACHMENT B (Oct. 2018)

OIG REPORT/ SPOT CHECK # MOD #	RECOMMENDATIONS	MANAGEMENT'S RESPONSES	COMPLETION DATE
Oct 2018 / #1 C0988-MOD-00347.2 Crenshaw - UG1 Center Walkway Lighted Handrail	The OIG recommends: Management should note the steps and procedures in Lessons Learned and follow up during management group discussions, on ways to expedite and coordinate future situations involving evaluation of numerous options to quickly reach a best alternative.	Agree noted - this was a unique and complex issue needing evaluation and testing of different option prior to selection and moving forward. Process used now accounts for this.	Closed - Will incorporate the suggested comment into lessons learned to be used in future projects.
Oct 2018 / #2 C1045 MOD-00060 Purple Line Sect. 1 - Accommodate COBH Memorandum of Agreement	The OIG recommends: To start future MOA processes with cities during the planning stages of the Environmental Assessment and identify the concerns/matters relating to the MOA in the Risk Registry.	Agree	Per the PM's comments Planning needs to close this item. Planning (Manjeet Ranu) was informed on 04/05/19 and is supposed to provide comments by the end of April 2019.
Oct 2018 / #3 C1045 MOD-00061 Purple Line Sect. 1 - Addl. SOE design work for LaBrea Station due to deviation request for bldg settlement	The OIG recommends: This matter concerning dewatering and SOE be added to the Lessons Learned files and the separation of dewatering and SOE be updated in the Metro Design Criteria as a special case.	Agree	Closed - Per the PM's comments Project responded to the concern, but Gateway Engineering needs to close this issue. Engineering (Androush Danielians) has been notified and responded that the related MRDC has been previously revised.
Oct 2018 / #4 C1045 MOD-00058 Purple Line Sect. 1 - LaBrea Additional Instrumentation	The Independent Cost Estimate was not an accurate representation of work stated in the agreed upon scope of work. The OIG recommends: The project manager or knowledgeable person from the project team, establishes a coordination meeting both in the field and office for the estimator to see and hear each detail of new scope of work. Hearing and visualization of the scope changes will assist the estimator in preparing a more accurate Independent Cost Estimate.	Agree, The Estimator will continue to be invited to the Fact Finding with the Contractor as identified in CF-14"	Closed - Staff is being invited as stated in the response.
Oct 2018 / #5 C1120-MOD-00015 Purple Line Sect. 2 - Century City Constellation Station Main Entrance Final Design	The OIG understands the real estate transaction between the developer and Metro is not a signed agreement as of the time of this report. The OIG recommends: Metro management and Metro real estate staff work expeditiously with the developer to finalize cost estimates and complete the real estate transaction to minimize the likelihood of additional costs associated with further modifications to the design of the station entrance.	Agree	Closed - Ongoing Process.

ATTACHMENT B (July 2018)

OIG REPORT/ SPOT CHECK # MOD #	RECOMMENDATIONS	MANAGEMENT'S RESPONSES	COMPLETION DATE
July 2018 / #1 C0988-MOD-00173.4 Crenshaw - Fire rated conduit and cable for tunnel emergency lighting	The OIG recommendation is to: 1) update the Metro Specifications to list the change in the standards and to include the list of approved alternatives from Metro Fire Life and Safety group 2) continue to follow appropriate process to resolve the Change Order dispute.	1- Agree as appropriate 2- Agree	1- Closed - was updated in next project, Regional Connector. 2- Closed
July 2018 / #2 C0988-CO-00209.1 Crenshaw - Preliminary 45 day acceleration	The OIG recommends Metro continue to explore with the contractor opportunities to accomplish schedule recovery.	Agree	Closed
July 2018 / #3 C0988-MOD-00354 Crenshaw - COLA request to replace concrete street light & signal poles w/steel poles- MLK area	This modification might be considered a 'Betterment' and recommend that consideration of a similar value be negotiated with the City to offset this cost in connection with this project.	Agree - Under consideration	Closed
July 2018 / #5 C0980-MOD-00119 Regional Connector - Addl Special conditions CAL/OSHA Tunnel classification	OIG recommends that during coordination meetings, between project management of Regional Connector and of Westside Purple Line Extensions 1, 2 & 3, communicate Lessons Learned concerning gas emissions monitoring when tunneling in this region to ensure timely notification and coordination with Cal/OSHA once a notifiable event occurs.	Agree - Regional Connector will share lesson learned with respect to gas detection and OSHA notification protocol with Purple Line Projects 1,2 & 3.	Closed - Discussed with Project Managers in the meeting held on Nov 13, 2018.

ATTACHMENT B (July 2018)

OIG REPORT/ SPOT CHECK # MOD #	RECOMMENDATIONS	MANAGEMENT'S RESPONSES	COMPLETION DATE
<p>July 2018 / #6 C1120-MOD-00011 Purple Line sect. 2 - Temp K-rail Noise Barrier</p>	<p>1) The OIG recommends for work activities along an open city street (center of roadway) to add the option into future Scopes of Work to consider use of plywood barrier panels set into K-Rail when noise and working hours are extraordinary factors versus chain link fence with screens and sound blankets.</p> <p>2) Plywood panels set into K-Rail enable longer working hours as compared to the standard traffic cones. This form of traffic control can also be set up and left in place during long work periods. The OIG recommends writing into Metro's Standard Specifications, for long duration activities, the option of utilizing plywood barriers set into K-Rail for traffic control plans to maximize the work hours and assist in traffic control.</p> <p>3) The OIG further recommends that, this form of barrier be recorded in Lessons Learned and considered for the Westside Purple Line Extension Section 3. Program Management may consider it in meetings between Section 2 and Section 3 to share Lessons Learned.</p>	<p>(1) The use of traffic control measures is governed by the municipality in which work is occurring. Both K-rail with plywood and chain link fence with screening are already contractually allowed, and considered appropriate installations in the proper application. Future projects will consider the use of each barrier system on a case by case basis, considering actual traffic impacts and the proximity to commercial and residential properties.</p> <p>(2) Work hours in streets are governed by the municipality in which the work is occurring (and often time by the City Councilmember representing the district where the work is being performed). For future applications with long duration activities, and when approved by the municipality having jurisdiction, K-rail with plywood will be considered to maximize work hours.</p> <p>(3) Lessons learned from AUR work on the WPLE2 project will be documented for consideration by future projects. The WPLE3 project considered the use of k-rail barriers for AUR work, but because of the significant traffic during daytime hours, AUR work has been limited to nighttime hours by LADOT (municipal agency having jurisdiction), with a requirement to fully restore travel lanes during daytime hours. A k-rail barrier system cannot be feasibly moved on the street at the start of a shift and removed at the end. Therefore, it was not practical to utilize k-rail barriers.</p>	<p>Lessons learned from AUR work on the WPLE2 project will be documented for consideration by future projects by the end of FY19 .</p>

ATTACHMENT B (July 2018)

OIG REPORT/ SPOT CHECK # MOD #	RECOMMENDATIONS	MANAGEMENT'S RESPONSES	COMPLETION DATE
<p>July 2018 / #7 C1120-MOD-00012 Purple Line Sect. 2 - Oil Abatement at launch box CCC Station</p>	<p>This is a potential CERCLA (Comprehensive Environmental Response, Compensation, and Liability Act, also known as Superfund. Passed in 1980) remediation that Metro should evaluate and pursue if appropriate to recover funds from the previous property owners. Metro may be entitled to proceed against the previous line of owners and recover damages for the clean-up of the abandoned oil pipelines that are asbestos lined causing the pollution. The OIG recommends that Metro's Engineering Program Management provide information on this matter to allow Metro's Legal department to assist in making this determination.</p>	<p>The Project is actively coordinating with Kathleen Dougherty from County counsel to determine if Superfund legislation provisions can be used to pursue cost reimbursement for the extra work.</p>	<p>The Project is actively coordinating with Kathleen Dougherty from County counsel to determine if Superfund legislation provisions can be used to pursue cost reimbursement for the extra work.</p>

ATTACHMENT B (May 2018)

OIG REPORT/ SPOT CHECK # MOD # Description	RECOMMENDATIONS	MANAGEMENT'S RESPONSES	COMPLETION DATE
<p>May 2018 / #1 C0988-MOD-00345 Crenshaw - Oil Water Separator at UG Stations</p>	<p>The Metro rail design criteria (MRDC) was updated on October 31, 2017, to reflect the addition of the elevator, escalator pit drain and underground station track drains to be processed through a clarifier to remove oil, grease, and sand. Metro management should:</p> <ol style="list-style-type: none"> 1. Update the "Lessons Learned" files regarding the OWS change to the MRDC and communicate the lesson to other Project Managers working major transit construction projects (This is consistent with recommendation 51 and 89p in the OIG's Construction Management Best Practices Study.). 2. Investigate this change to determine: <ol style="list-style-type: none"> a) If the scope of work of other major transit construction projects require this design update for the OWS. b) If the Regional Connector and the Westside Purple Line Extension sections 1, 2, and 3 should be amended for the same OWS omission to reduce additional change orders and costs. c) When should have the City been provided this information and reviewed construction plans prior to the cement being poured to avoid redesign costs? 	<p>the primary driver to the change is that the Metro criteria does not stipulate the percentage level of contaminants that should be expected to design the OWS system. Since none was provided then the contractor assumed the minimum and therefore designed a system that did not require OWS. since the percentage of contaminants were of the level to need and OWS then this triggered there was a need for a redesign...etc.</p>	<p>Closed - Will incorporate the suggested comments into lessons learned to be used in future projects.</p>
<p>May 2018 / #3 C1078-MOD-00011 Purple Sect 1 - Schdl Impacts from Arcadis Work/change to accommodate const schdl extension from site impacts</p>	<p>All Environmental Site Assessments were performed prior to excavation. No record of underground tanks or buried reinforced concrete slabs were found by the Department of Conservation and Division of Oil, Gas, and Geothermal Resources (DOGGR). However, based on lessons learned from this site, Metro management should:</p> <ol style="list-style-type: none"> 1. Conduct Ultrasonic Soil Examinations at future questionable sites to attempt to avoid unidentified hazards. This is consistent with recommendations (88b, 88c, and 88d) in the OIG's report on Capital Project Construction Management Best Practices Study (February 29, 2016). 2. Perform research to determine who could have installed the tanks and buried reinforced concrete slabs, and provide this information to the LA Metro Legal department for consideration of possible legal action to recover the cost of remediation under the Comprehensive Environmental Response, Compensations and Liability Act of 1980 (CERCLA). 3. Perform an assessment of the schedule to determine if any recovery of time is possible. 	<p>Agree, but please note that as with all major capital construction projects, every effort is made to exercise due diligence and to ensure consistent and comprehensive investigations in identifying underground issues by use of Phase I ESAs, Phase II ESA (if recommended) under the guidance and direction of Metro's Environmental Staff and the use of Ground Penetrating Radar (GPR) in order to attempt to identify these conditions prior to bid. An exhaustive investigation is not cost or schedule prohibitive, however further effort on identifying the existing Oil and Gas Wells through DOGGR may be warranted. Also, to note: COLA does not have design drawings of all underground tanks. There are no as built drawings for the various Tar Collection Sumps located on the Westside of LA.</p>	<p>Closed - Lessons learned are to apply more resources to upfront identification of potential unforeseen underground issues such as DOGGR wells, USTS identified in the initial Phase I ad II, GBR and EDR Reports.</p>

ATTACHMENT B (May 2018)

OIG REPORT/ SPOT CHECK # MOD # Description	RECOMMENDATIONS	MANAGEMENT'S RESPONSES	COMPLETION DATE
<p>May 2018 / #4 C1120-MOD-00002 Purple Sect 2 - Worksite Traffic Control for AUR</p>	<p>Metro management should:</p> <ol style="list-style-type: none"> 1. Establish a single party to serve as a “clearinghouse” for all utilities relocations during construction. The “clearinghouse” could be assumed by the Metro group, Third Party Administration. (This is consistent with recommendations 80, 88, 89, 89j, 89n, and 89v in the OIG’s report on Capital Project Construction Management Best Practices Study.) 2. Utilize the “clearinghouse” process to improve the Advance Utility Relocations. (Consistent with recommendations 79, 83, 87, 89b, 89c, 89d, 89g, 89h, 89s, and 89t in the Best Practices Study.) 3. Create “Lessons Learned” for the establishment of a single clearinghouse in the initial scope of work for the Design Build Contractor to avoid future costly change orders. (This is consistent with recommendation 89p in the Best Practices Study.) 	<p>Point of clarification: 'Worksite Traffic Control for AUR' was CO No. 2, not MOD-002. The unilateral change order was later negotiated and issued as MOD 10 .</p> <p>Response: consistent with OIG's " Capital Project Construction Management Best Practices Study", the WPLE Project established and utilized a single point of contact for advanced utility relocations outside of the scope of the DB contracts. This group is lead by Metro Third Party coordinators, engineering resources, and construction management consultants.</p> <p>Program Management agrees with the recommendations in the Best Practices Study, however this MOD was specific to a project decision on how to handle the implementation of traffic control for two third party utilities that the Project needed to work simultaneously to mitigate a delay caused by the Beverly Hills City Council delaying the start of construction.</p> <p>This Modification to the C-1120 contract is not extra work to the Project. This work was budgeted and originally expected to be performed by the individual AUR companies and reimbursed by the Project. The Project moved this work into the C1120 contract, by Modification, in order to expedite the AUR construction work which was successful. This work was necessary regardless of which entity performed it. Compensating the DB for this work eliminated compensation to the AUR companies for this work, and allowed SCE and the Gas Company to work simultaneously.</p>	<p>Closed</p> <p>Creation of Clearinghouse was already completed for WPLE2. Future projects will address this matter during Preliminary Engineering.</p> <p>Lessons learned from AUR work on the WPLE2 project will be documented for consideration by future projects by the end of FY19 .</p>

Office Of Inspector General Construction Change Order Spot Check Report

Presented By
Karen Gorman
Inspector General

October 2023

Construction Committee

Los Angeles County Metropolitan Transportation Authority



Spot Checks 1 & 2

1 – Division 20 Portal Widening Turnback Project : Rebar for Contact Rail Encasement

Recommendation:

Award: **\$1,756,579**

The OIG recommends an updated ICE reflecting the complete work that should have been requested to aid in the negotiations with the contractor for final settlement.

Lessons Learned is to evaluate ductbanks in trenches for compliance with applicable city standards and loading requirements for static and dynamic loading demands when installing these. Future design plans should include this as a requirement to check.

2 - Purple Line Extension Sect. 3 -

TUNNELS: Extension of Time and Re-sequencing of Contract Work

Recommendation:

Award: **\$4,000,000 NTE**

The OIG recommends that a determination be made whether the Tunnels contractor can be held liable for any costs incurred from the Station contractor, and vice versa, when delays occur that are the responsibility of a contractor and further study potential project recovery time.

Spot Check 3 & 4

3 - Purple Line Extension Sect. 3 - STATIONS : Extension of Time

Lessons Learned:

Award: \$3,864,000 Unilateral

Lessons Learned from previous contracts was to state a daily delay compensation rate. This action was included in this contract (delay compensation rate of \$24,000/day) and eliminates future disagreements and litigation.

4 - Purple Line Extension Sect. 3 –

STATIONS : Acceleration and Re-sequencing of Contract Work

Recommendation:

Award: \$6,000,000 NTE

The OIG recommends Metro evaluate these three change orders in order to reduce the time impact to the schedule and increase work acceleration.

Spot Check Schedule Comparison

File #
2023-0553

Schedule Comparison: New Delegated Authority process vs. former Board Approval

PROJECT	Title of Change Order	Time Saved Executed date to Board Mtg.	NEW Delegated Process final SOW to Executed date	Former Board Approval Process
Division 20 Portal Widening Turnback Project	Rebar for Contact Rail Encasement	47	39	86
WESTSIDE PURPLE LINE EXT. SECT 3	TUNNELS : Extension of Time and Re-sequencing of Contract Work	53	11	64
WESTSIDE PURPLE LINE EXT. SECT 3	STATIONS : Extension of Time	53	11	64
WESTSIDE PURPLE LINE EXT. SECT 3	STATIONS: Acceleration and Re-sequencing of Contract Work	49	16	65

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