ATTACHMENT A

FY23 New Capital Projects

Table of Contents

Project Page
New Flyer/El Dorado Bus Midlife1
Advanced Transportation Management System II (ATMS)1
Metro C (Green) Line Substation Replacement2
Metro B (Red) Line Vital Processor Upgrade2
P3010 Fleet Component Overhaul2
Environmental Compliance Capital Project (FY23 - FY27)
Closed-Circuit Television (CCTV) System Upgrade
NextGen Cloud-Based Transit Signal Priority (TSP)4
FY23 Non-Revenue Vehicle and Equipment Replacement4
Core Server and Ticket Vending Machine Upgrade5
Light Rail Protective Relay5
Union Station Gateway (USG) Building Complex Drainage Pipe Replacement
Metro A Line (Blue) Train Control Non-Vital Relay Replacement
A650 Low Voltage Power Supply and Friction Brake Overhaul
Countywide Transit Signal Priority (TSP) Upgrade and Expansion
Rail Communication System UPS and Battery Replacement7
Emergency Power Replacement
Division 1 Street Closure
Metro L (Pasadena Gold) Line Weight Poles and Air Brakes
Metro B (Red) Line SEG-3 Supervisory Control and Data Acquisition (SCADA) System
Equipment Replacement
LA Union Station Electrical System Upgrade9
Maintenance of Way (MOW) Vehicles and Equipment - Replacement & Expansion9
Metro G (Orange) Line Communication Transmission System (CTS) Nodes
Replacement9
Metro L (Gold) Line ElectroCode 5/Vital Harmon Logic Processor Upgrade10
Beverly Hills North Portal10
Regional Connector Catch-All11

FY23 New Capital Projects

Capital Improvement Program (CIP)

PROJECT: New Flyer/El Dorado Bus Midlife

PROJECT OWNER: Operations - Bus Maintenance

LOP: \$205,000,000

Budget Request: \$37,842,100

SCOPE: The Bus Midlife Program provides preventive midlife maintenance service to Metro buses. The maintenance services provided include: engine package change-out, suspension and steering system rebuild, wheelchair securement and lift system retrofit, body repair, painting, interior refurbishment, and graffiti abatement.

JUSTIFICATION: The Bus Midlife Program improves the safety, performance, and reliability of Metro buses. The buses in the Midlife program should be midlifed by the 7th or 8th year of service. The improved overall condition of the program's vehicles also helps to reduce ongoing maintenance costs and the amount of maintenance work performed at the Metro Bus Operating divisions. The program promotes the efficient use of Metro and Central Maintenance resources by having each bus series go through a planned production process in which labor, material and facilities are scheduled, versus reacting to unplanned problems as they arise. The planned maintenance program also enables Central Maintenance to manage demand for heavy bus repairs.

ELIGIBLE FUNDING SOURCE: \$17.3M Sec 5339 Bus and Bus Facilities Formula Grants. \$20.8M TDA 4

2 PROJECT: Advanced Transportation Management System II (ATMS)

PROJECT OWNER: Operations - Bus Maintenance

LOP: \$117,000,000

Budget Request: \$2,605,500

SCOPE: Improvement and modernization to the Advanced Transportation Management System (ATMS) program. The ATMS II program will deploy Metro's second generation ATMS using computer-aided dispatch (CAD) and automatic vehicle location (AVL) technologies to manage its fixed-route bus, light rail vehicle (LRV), and heavy rail vehicle (HRV) operations. ATMS II shall be fully integrated with Metro's IT and network environment.

JUSTIFICATION: Metro's ATMS Bus Fleet Management system is over 20 years old and in need of replacement. The current hardware is obsolete and cannot be upgraded to meet current technology and fleet demands.

ELIGIBLE FUNDING SOURCE: TDA Article 4

3 PROJECT: Metro C (Green) Line Substation Replacement

PROJECT OWNER: Operations - Rail Maintenance

LOP: \$98,500,000

Budget Request: \$350,000

SCOPE: Replacement of C (Green) Line Traction Power Substations that have exceeded their useful life.

JUSTIFICATION: The traction power substations are starting to age which is starting to create a challenge for Maintenance of Way (MOW) to keep them operational and maintain them in a state of good repair. New technology is reaching the market place making maintenance of the new traction power substations easier and more efficient.

ELIGIBLE FUNDING SOURCE: Prop A 35% Bond Proceed

4 PROJECT: Metro B (Red) Line Vital Processor Upgrade

PROJECT OWNER: Operations - Rail Maintenance

LOP: \$50,100,000

Budget Request: \$300,000

SCOPE: Metro B (Red) Line Train Control Vital Processor Replacement and Track Module Upgrade.

JUSTIFICATION: The Train Control Vital Processor and Track Modules are aging and starting to create a challenge for maintenance of way (MOW) to keep operational and in a state of good repair. The manufacturer notified Metro that some of the circuit boards will no longer be manufactured by the end of 2022 and others will be obsolete in the near future.

ELIGIBLE FUNDING SOURCE: Prop A 35% Bond Proceed

5 PROJECT: P3010 Fleet Component Overhaul

PROJECT OWNER: Operations - Rail Vehicle Maintenance

LOP: \$36,000,000

Budget Request: \$520,000

SCOPE: Component Overhaul of the P3010 light rail vehicles as recommended by the manufacturer (Kinkyshario) to ensure safe and reliable operation of the rail vehicles. The manufacturer's component overhaul recommendations have been reviewed by the Rail Fleet Service Component Overhaul Project Team, Rail Fleet Services, Rail Vehicle Engineering and Consultants to determine the viability of this project.

JUSTIFICATION: Component Overhaul of noted vehicle systems is recommended by the vehicle manufacturer (Kinkyshario) at the 600,000 mile interval. This project is in accordance with Metro's state of good repair principles and regulatory mandates to keep the fleet in a safe operating condition with good reliability.

ELIGIBLE FUNDING SOURCE: PA 35% Cash

6 PROJET: Environmental Compliance Capital Project (FY23 - FY27)

PROJECT OWNER: Program Management

LOP: \$35,000,000

LOP: \$15,630,000

Budget Request: \$5,698,400

SCOPE: Effectuate upgrades to under/above ground storage tanks and other systems as identified by the State Water Board per the Consent Decree. Upgrade Meto operations systems as necessary to comply with various environmental regulatory bodies such as Air Quality Management District, State and Regional Water Resource Board and California Air Resources Board. Upgrade all Veeder Root systems with INCON monitoring systems.

JUSTIFICATION: This is the next five-year segment of the capital investment to effectuate the environmental compliance as Metro operates its transit services. This project keeps Metro's storage tanks and appurtenances, HVAC systems, storm and waste water drainage systems, and other regulatory related equipment and/or systems in a state of good repair.

ELIGIBLE FUNDING SOURCE: TDA Article 4, Green Fund 20%

7 PROJECT: Closed-Circuit Television (CCTV) System Upgrade

PROJECT OWNER: Operations - Rail Maintenance

Budget Request: \$500,000

SCOPE: Replacement of current CCTV (Closed-Circuit Television) System with a new Video Management System and replacement of local station video recorders and video cameras.

JUSTIFICATION: This project will replace obsolete analog cameras, video recorders and network devices installed on rail lines, and the G (Orange) Line. There is a high failure rate on the obsolete analog cameras, video recorders, and related network devices. There are no replacement parts available for those obsolete parts. This project will replace CCTV system components (cameras, video recorders), selected network devices, and cables/wiring to build a more efficient and effective system. This system will meet current Federal and State safety and security requirements for public transit, and will provide improved real time visibility of the stations and wayside facilities for the Rail Operations staff and Rail Operations Control (ROC).

8 PROJECT: NextGen Cloud-Based Transit Signal Priority (TSP)

PROJECT OWNER: Operations

LOP: \$15,000,000

Budget Request: \$1,901,900

SCOPE: Replacement of the existing Transit Signal Priority (TSP) system which uses loopbased technology with transponders on the Metro Rapid arterial network. Metro in partnership with LADOT will replace the loop-based technology with implementation of a wireless cloudbased TSP system within the City of Los Angeles to support the NextGen Transit First Bus Plan. This project includes the development and implementation of an upgraded Wireless Cloud-Based Transit Signal Priority system, and the addition of 200 traffic signals to the wireless system on the NextGen Tier one Corridors in the City of Los Angeles. Upgraded software on over 2,000 Transit Metro buses, allowing them to communicate with the wireless cloud-based TSP systems along the NextGen Tier 1 Corridors within the City of Los Angeles.

JUSTIFICATION: LADOT's existing transit signal priority (TSP) system uses loop-based technology with transponders on the previous Metro Rapid arterial network. Metro in partnership with LADOT will replace the loop-based technology with the implementation of a wireless cloud-based TSP system within the City of Los Angeles. This project will develop a new cloud-based software, install a software upgrade on over 2,000 Metro buses to allow real-time bus locations to the cloud service and install ethernet communication equipment at 200 traffic signals and communication hubs. This project will enable the TSP function with a resilient traffic control communication system, improving the speed and schedule adherence of Tier One bus service.

ELIGIBLE FUNDING SOURCE: TDA Article 4

9 PROJECT: FY23 Non-Revenue Vehicle and Equipment Replacement

PROJECT OWNER: Operations - Central Maintenance

LOP: \$13,700,000

Budget Request: \$500,000

SCOPE: This includes: trucks, vans, sedans, carts, forklifts, generators, hi-rail support vehicles, rail bound support vehicles, floor scrubbers, compressors, tractors, trailers, tow motors and other vehicles and equipment. This effort is agency-wide and includes all department vehicles and equipment. The vehicles and equipment being replaced have reached their useful life.

JUSTIFICATION: The vehicles identified for replacement have exceeded their useful life in age and mileage. They are in poor operating condition and are now scheduled for retirement. Further, the cost of repairs, downtime, safety, and the impact to support department's ability to respond to repair/service activities reduces operational effectiveness.

ELIGIBLE FUNDING SOURCE: TDA Article 4

10 PROJECT: Core Server and Ticket Vending Machine Upgrade

PROJECT OWNER: Strategic Financial Management

LOP: \$13,300,000

Budget Request: \$2,000,000

SCOPE: Update the current version of software and equipment of the Univeral Fare System (UFS), remediate the TAP systems software versions reaching end of life as well as addressing PCI Compliance requirements.

JUSTIFICATION: The current equipment and software for the UFS are at end of life and are no longer supported by vendors. The project is to update the current version of software and equipment, refresh and introduce major new components such as a new version of the certified payment gateway, a new Merchant Acquirer. Other components to upgrade include various software, the single board computer on TVMS, PIN pads on Ticket Vending Machines (TVMs), the DIP reader, Windows OS for TMVs and security and monitoring systems. Failing to update the equipment and software may render the system unable to perform transactions at an acceptable rate, impact Metro's ability to process payment via credit and debit cards, and to remain PCI compliant.

ELIGIBLE FUNDING SOURCE: TDA Article 4 and PC 40%

11 PROJECT: Light Rail Protective Relay

PROJECT OWNER: Operations - Rail Maintenance

LOP: \$12,600,000

Budget Request: \$294,100

SCOPE: Upgrade and replacement of light rail substation protective relays.

JUSTIFICATION: The existing protective relays are 10 to 20 years old. Spare parts for some of the oldest relays are no longer available. These protective relays are safety sensitive devices required for safe and reliable service.

ELIGIBLE FUNDING SOURCE: Prop A 35 Bond proceed

12 PROJECT: Union Station Gateway (USG) Building Complex Drainage Pipe Replacement

PROJECT OWNER: Facilities Maintenance

LOP: \$11,260,000

Budget Request: \$340,000

SCOPE: Replacement of all Union Station Gateway (USG) building complex's drainage piping (Plaza Level 4 - 28th floor) including sewer, storm and overflow piping positioned horizontally or vertically.

JUSTIFICATION: The sewer, storm & overflow drainage piping throughout the USG complex are original to the facility and in the last few years have needed emergency repairs due to cracks and breakage which have resulted in substantial costs and loss of operating time. This piping replacement will help ensure many additional years of uninterruptible operation. This will also avoid periodic down time and it will mitigate breakdowns and emergency repair costs.

ELIGIBLE FUNDING SOURCE: PC 40% Cash

13 PROJECT: Metro A Line (Blue) Train Control Non-Vital Relay Replacement

PROJECT OWNER: Operations - Rail Maintenance

LOP: \$11,100,000

Budget Request: \$200,000

SCOPE: This project will obtain an outside consultant to evaluate the existing non-vital relay systems used throughout the transit agency. The consultant will generate a biddable scope of work to implement required or recommended changes to the existing non-vital system. Once the biddable package is complete, this project will go out for bid and a contract will be awarded. After the contract is awarded, the project manager will execute and implement the contract.

JUSTIFICATION: The non-vital relays associated with the train control system are starting to age and are beginning to reach obsolescence. Some components are no longer supported by the original equipment manufacturer. This project will keep the non-vital relay system current with the latest technologies related to non-vital relay systems. Failure of existing parts will cause delays and may impact service reliability, passenger safety, and comfort.

ELIGIBLE FUNDING SOURCE: Prop A 35% Bond Proceed

14 PROJECT: A650 Low Voltage Power Supply and Friction Brake Overhaul

PROJECT OWNER: Operations - Rail Vehicle Maintenance

LOP: \$11,000,000

Budget Request: \$1,500,000

SCOPE: Component overhaul program for the heavy rail A650 fleet addressing next cycle overhauls of the following systems: coupler, friction brake, gearbox, and includes procurement of new static converter equipment.

JUSTIFICATION: The friction brake/air compressor and coupler overhauls are replaced on a time based (5 year) interval as mandated by the car builder and California Public Utilities Commission (CPUC) regulations. The gearbox overhaul is mileage based targeting replacement at 600,000 miles. The static converters cannot be repaired due to parts obsolescence.

15 PROJECT: Countywide Transit Signal Priority (TSP) Upgrade and Expansion

PROJECT OWNER: Operations

LOP: \$10,620,000

Budget Request: \$4,114,896

SCOPE: Countywide Wireless Transit Signal Priority Improvement and Expansion Project to install, replace and improve the existing wireless transit signal priority infrastructure at 367 intersections in the Los Angeles County area outside of the City of Los Angeles.

JUSTIFICATION: This is a NextGen project to improve the speed and reliability of Metro services. Metro and other municipalities have installed a wireless transit signal priority system on select corridors outside of the City of Los Angeles. The NextGen Transit First Service Plan introduces an expanded number of high-frequency bus corridors that will require transit signal priority at additional intersections to achieve increased service speeds. Increasing the number of intersections with transit signal priority on high-frequency corridors will reduce travel time for buses as they significantly reduce dwell times for buses at signalized intersections. This project will allow Metro and municipal bus operators to operate faster and more efficient service.

ELIGIBLE FUNDING SOURCE: TDA Article 4

16 PROJECT: Rail Communication System UPS and Battery Replacement

PROJECT OWNER: Operations - Rail Maintenance

LOP: \$10,300,000

Budget Request: \$1,100,000

SCOPE: Replace obsolete Uninterrupted Power Supply (UPS) units and batteries on Metro rail communications system facilities (rooms, cabinets, buildings) system-wide.

JUSTIFICATION: The replacement of UPS units and batteries for the Metro rail system is necessary to maintain the system in a state of good repair. The battery chargers for the Metro rail system are at the end of their useful life. Replacement of batteries/battery charger units and UPS units ensure trains will remain fully operational without interruption to rail service.

ELIGIBLE FUNDING SOURCE: Prop A 35% Bond Proceed

17 PROJECT: Emergency Power Replacement

PROJECT OWNER: Operations - Rail Maintenance

LOP: \$10,100,000

Budget Request: \$450,000

SCOPE: Improve and replace emergency power and lighting at light rail stations.

JUSTIFICATION: The existing emergency systems consists of emergency lights & Uninterrupted Power Supplies (UPS). These emergency lights are 10 to 20 years old, not reliable, and require intensive maintenance for proper functioning.

18 PROJECT: Division 1 Street Closure

PROJECT OWNER: Program Management

LOP: \$9,500,000

Budget Request: \$1,169,500

SCOPE: Remove the existing street and sidewalk currently bi-secting Division 1 Bus Facility. Relocate utilities and replace the street to match existing Division 1 hardscape.

JUSTIFICATION: The proposed action addresses both an operational necessity and a legal obligation pursuant to the Public Streets, Highways and Service Easements Vacation Law. The City of Los Angeles has completed its review of Metro's application for the Industrial Street Vacation between Alameda Street and Central Avenue (within the Division 1 Bus Facility). In July 2021, the City of LA proposed that for Metro paying the bike/ATP improvements from Alameda to Kohler Street, the City of Los Angeles would waive BOE Report Conditions 5, 6, 12, and 13 as Metro acquires Industrial Street as private driveway. Those conditions were part of the permit the City granted Metro to close Industrial Street. The permit is good for two years and one year has passed since Metro received the permit.

This project increases efficiency by combining Division 1 Bus Facility parcels that are physically separated by Industrial Street. This increases efficiency at the division and provides safe movement for staff, buses and equipment between two separate parcels on either side of the city street.

ELIGIBLE FUNDING SOURCE: TDA Article 4, PC 25%

19 PROJECT: Metro L (Pasadena Gold) Line Weight Poles and Air Brakes

PROJECT OWNER: Operations - Rail Maintenance

LOP: \$9,200,000

Budget Request: \$960,000

SCOPE: Replacement of Overhead Catenary Systems (OCS) parts/materials - weight stacks with spring tension unit and air brakes with section insulators.

JUSTIFICATION: The existing L (Pasadena Gold) Line Overhead Catenary Systems (OCS) poles are short and cannot maintain proper tension on OCS contact wires during hot weather, causing trains to slow down, mitigating pantograph entanglement. These weight stacks need to change to spring tension units, enabling them to handle hot weather. Additionally, air brake system contact cables are sagging during high temperatures and require new section insulators to improve safety and reliability.

ELIGIBLE FUNDING SOURCE: Prop A 35% Bond Proceed

20 PROJECT: Metro B (Red) Line SEG-3 Supervisory Control and Data Acquisition (SCADA) System Equipment Replacement

PROJECT OWNER: Operations - Rail Maintenance

LOP: \$8,300,000

Budget Request: \$100,000

SCOPE: Replacement of Metro Rail SCADA systems including Fire/Emergency Management (FEM) Programmable Logic Controllers (PLC) and Local Emergency Management Panels (EMP).

JUSTIFICATION: The majority of the Metro B (Red) Line Segment 3 equipment is obsolete and spare parts are no longer available. Equipment is Fire/Life/Safety critical and must be replaced.

ELIGIBLE FUNDING SOURCE: Prop A 35% Bond Proceed

21 PROJECT: LA Union Station Electrical System Upgrade

PROJECT OWNER: Planning

LOP: \$6,325,000

Budget Request: \$725,000

SCOPE: Construct a new Vault 5 to step down existing 5Kv power to lower voltage to increase accessibility to adequate power for future development such as Forecourt/Esplanade, Link US and tenants/events, upgrade existing 25 year old Electrical Vaults 1-4 switchgear, fuse disconnects, and downstream equipment. These improvements will increase equipment life expectancy and mitigate the risk of station-wide power system

failure. JUSTIFICATION: High risk mitigation and to prevent potentially catastrophic power failures. ELIGIBLE FUNDING SOURCE: PC 40% Cash

PROJECT: Maintenance of Way (MOW) Vehicles and Equipment - Replacement & Expansion

PROJECT OWNER: Operations - Rail Maintenance

LOP: \$6,100,000

Budget Request: \$100,000

SCOPE: This project is for the expansion and replacement of MOW non-revenue vehicles and equipment. This project includes vehicles and equipment for the Track Maintenance, Signals, Rail Communications and Signals Departments.

JUSTIFICATION: These Maintenance of Way vehicles and equipment have exceeded their useful life in age and mileage, or are in poor operating condition and are now scheduled for retirement. Replacement and expansion vehicles/equipment are critically needed to efficiently address any MOW activities on the various Metro rail lines.

ELIGIBLE FUNDING SOURCE: Prop A 35% Bond Proceed

PROJECT: Metro G (Orange) Line Communication Transmission System (CTS) Nodes Replacement

PROJECT OWNER: Operations - Rail Maintenance

LOP: \$5,650,000

Budget Request: \$1,100,000

SCOPE: Replacement of the Metro G (Orange) Line Communication Transmission System (CTS) Nodes including UPS upgrades, cabling, wiring installation, HVAC cooling, and integration with the Rail CTS Network.

JUSTIFICATION: Existing CTS nodes are no longer supported by the vendor and there are no spare parts or technical support available. Replacing with standard Fujitsu CTS nodes similar to one used in rail communications system. Unification will reduce spare parts cost, maintenance cost, and training costs.

24 PROJECT: Metro L (Gold) Line ElectroCode 5/Vital Harmon Logic Processor Upgrade PROJECT OWNER: Operations - Rail Maintenance

LOP: \$5,580,000

Budget Request: \$150,000

SCOPE: Replacement of vital processors and track circuit equipment that control the gate grade crossing and interlocking of the switch machine on Metro L (Gold) Line with like equipment.

JUSTIFICATION: The ElectroCode 5/ Vital Harmon Logic Control (EC5/VHLC) equipment is at the end of its useful life. The replacement of equipment is required for continued rail operations processes. VHLC controls grade crossing gates and interlocking switch machines.

ELIGIBLE FUNDING SOURCE: Prop A 35% Bond Proceed

Transportation Infrastructure Development (TID)

1 PROJECT: Beverly Hills North Portal

PROJECT OWNER: Program Management - Purple Line Extension Section 2

LOP: \$29,250,000

Budget Request: \$0

SCOPE: This project will provide the funding necessary to assist the City of Beverly Hills in designing and constructing a new half-portal at the future Wilshire Rodeo Station of the Purple (D Line) Extension Section 2 Project. Upon completion, this new half-portal will consist of stairs, one "up" escalator, and two elevators located on the west side of North Beverly Drive in the City of Beverly Hills, within the existing street and sidewalk right-of-way, north of Wilshire Boulevard. The footprint will be approximately 9,200 square feet and extend from Wilshire Boulevard approximately 165 feet north up North Beverly Drive. The adjacent sidewalk on the west side of Beverly Drive will be widened.

JUSTIFICATION: This project satisfies the terms and conditions set forth in a Settlement Agreement executed by and between LA Metro and City of Beverly Hillson November 10, 2020. The Agreement requires Metro to assist the City in designing and constructing a new half portal to the future Wilshire/Rodeo Station (One of the Stations on Metro's Purple "D" Line Extension) on the north side of Wilshire Boulevard, also known as the "City's Project", and contributing up to 50% of the Agreement's total not to exceed \$78,500,000 inclusive of all inkind services and funding contributions. (FY23 cashflow, if required, will be addressed through WPLE Section 2; LOP required for multiyear encumbrance transactions.)

ELIGIBLE FUNDING SOURCE: MR 35% Transit

2 PROJECT: Regional Connector Catch-All

PROJECT OWNER: Program Management

LOP: \$10,000,000

Budget Request: \$10,000,000

SCOPE: Claims management and smaller scale task orders and efforts to wrap up the main project.

JUSTIFICATION: As the main Regional Connector project reaches substantial completion, smaller task orders become apparent to neatly wrap up the project. Rather than engaging the original contractor to provide the task order work, Metro can benefit from having a different contractor engaged in smaller work orders.

ELIGIBLE FUNDING SOURCE: MR 35% Transit