



Board Report

File #: 2024-1073, File Type: Contract

Agenda Number: 12.

**CONSTRUCTION COMMITTEE
MARCH 19, 2025**

SUBJECT: ZERO EMISSION BUS (ZEB) CHARGING INFRASTRUCTURE FOR DIVISIONS 18 & 7

ACTION: APPROVE RECOMMENDATION

RECOMMENDATION

CONSIDER:

- A. FINDING that authorization of the use of alternative delivery methods, including Progressive Design Build Operate Maintain (PDBOM), pursuant to Public Utilities Code Section 130242 (b), will achieve integration of design, project works, and operations and maintenance of charging equipment in an efficient manner for ZEB Charging Infrastructure Projects at Divisions 18 & 7; and
- B. APPROVING a competitive solicitation of a PDBOM contract to achieve the proposed design approach, specific project features and functions, and other project criteria in addition to price, pursuant to Public Utilities Code 130242 (e).

(REQUIRES TWO-THIRDS VOTE OF THE FULL BOARD)

ISSUE

Pursuant to Public Utilities Code Section 130242, staff is requesting Board approval to use an alternative project delivery method prior to the release of a competitive solicitation process that employs other criteria in addition to price and includes operations and maintenance of the charging equipment within the scope for the selection of a PDBOM contractor to provide electric bus charging infrastructure at two Bus Maintenance Facilities (Division 18 located in the City of Gardena and Division 7 located in the City of West Hollywood). Upon determination of the qualified firm, staff will return to the Board with a recommended selection for approval.

BACKGROUND

In 2018, the California Air Resources Board (CARB) proposed the Innovative Clean Transit (ICT) regulation that required all transit agencies in the state to transition to all Zero Emission fleets by 2040. In addition, ICT ZEB purchase requirements for large transit agencies require 25% of bus

purchases to be zero emissions by 2023, 50% by 2026, and 100% by 2029. Metro has met all state-mandated program requirements a decade earlier than the ICT mandate of 2029. In September 2019, Metro awarded its final option for CNG buses and committed to having 100% zero emissions in all future procurements.

In 2021, Metro electrified the G Line, which has accumulated more than five million miles of zero-emission service. The electrification of the J Line is also underway, with both the Harbor Gateway Transit Center completed, and civil construction at Division 9 (El Monte) and the El Monte Transit Center underway. In April 2024, Metro released the largest solicitation for ZEBs in U.S. history, with a base order of 260 battery electric buses (BEBs) and 20 hydrogen fuel cell electric buses (FCEBs), with options to purchase up to 1,160 ZEBs. The option amounts were later increased to 1,980 ZEBs.

In April 2024, the Board approved Motion 31.1 by Directors Yaroslavsky, Bass, Krekorian, Dupont-Walker, and Solis (Attachment A), reaffirmed its commitment to transitioning Metro's bus fleet to zero emission while ensuring availability of operations and maintenance funding to support the full seven million annualized revenue service hours as planned through the NextGen Bus Plan.

In September 2024, staff prepared a more-detailed plan to deliver a 100% zero emission bus fleet no later than 2035. The plan identifies Divisions 18 & 7 as the next two bus divisions to be electrified and to be delivered through a progressive contracting approach. The project will create more than 400 electric bus charging positions between the two divisions. Staff have identified an opportunity to include operations and maintenance of the charging equipment, charge management system (CMS) and energy management systems (EMS) under the project scope and to proceed with a PDBOM alternative project delivery method.

DISCUSSION

The PDBOM approach would select a contractor under a three-phase contract. During Phase I, the contractor advances design, selects the charging equipment and operations and maintenance (O&M) provider, and executes early work packages (i.e. equipment purchase, utility upgrades, etc.). During Phase II, the contractor performs final design and construction. During Phase III, the contractor performs the activities necessary to meet performance requirements as outlined in the O&M scope of services for the charging equipment installed as part of this project.

The scope of work for the project was evaluated to determine the delivery method that is best-suited to meet Metro's needs. The anticipated scope of work includes the following features:

- Design and construction of electrical upgrades and civil infrastructure at bus Divisions 18 & 7
- Specification and procurement of charging equipment, CMS, and EMS
- Utility coordination with Southern California Edison (SCE)
- Operations and maintenance of battery electric bus (BEB) charging equipment, CMS, and EMS to performance standards required by the contract
- Development of a training program to train Metro staff on the operations and maintenance of BEB charging equipment

Staff recommends a PDBOM project delivery method to achieve project goals. A PDBOM approach will provide the following:

- Efficient risk allocation and pricing of risk of emerging technologies
- Competition and selection of a qualified contractor and single point of contact to deliver the full scope across all project phases
- Collaboration between Metro and the contractor to develop a scope of work that delivers a high-quality project throughout the design, construction, and operations and maintenance phases
- Reduced contractor risk premiums and claims over the life of the project as well as reduced probability and impact of risks that are retained by Metro
- Optimized interface management with both other Metro projects and bus service delivery
- Performance-based operations and maintenance phase that includes deductions for failure to meet performance requirements and incentives for meeting or exceeding performance requirements

The PDBOM contractor will be selected through a best value process that factors both qualifications and pricing. During the progression of the design, the contractor will provide Metro with open book detailed cost estimates that will become the basis of negotiations between Metro and the contractor. A contract will be awarded (subject to Board approval) if the final negotiated price is acceptable to Metro. If the price is not acceptable, Metro will have the option to not award a contract and release the design package as a separate solicitation.

Considerations

BEB charging equipment and charge management technologies remain emergent. While original equipment manufacturers (OEMs) continue to develop technologies and approaches to meet the needs of transit agencies transitioning to zero emission, emerging equipment, maintenance resources, and workforce have not yet fully matured. A PDBOM contracting approach will encourage OEMs to establish maintainable designs, provide robust product data and standard operating procedures, and enhance support and troubleshooting. Furthermore, by bundling the design, construction, operations, and maintenance activities under a single PDBOM contract, Metro will receive a turnkey solution that reduces Metro's exposure to technological risk. The contract would establish the PDBOM contractor as the sole entity responsible for all project phases and will ensure seamless execution of the O&M scope beginning with equipment acceptance. It will also reduce contractor interfaces (e.g. between Design Build and O&M contractors), which eliminates finger-pointing, and introduce incentives and deductions that give Metro the leverage necessary to ensure O&M performance requirements are met throughout the life of the contract. The approach also is anticipated to reduce life of project O&M costs, reduce administrative costs and Metro staff administrative level of effort, and introduce opportunities for innovation.

In the long run, a PDBOM approach will prioritize and ensure the reliability, availability, and

maintainability of the BEB charging equipment, as the contractor will be required to meet performance levels that guarantee equipment is working and available to charge buses when Metro needs it. The approach will also establish managed charging plans that ensure buses are charged sufficiently to meet service rollout while minimizing Metro's energy costs.

Metro is coordinating with ATU on the maintenance for BEB charging equipment and, per the Collective Bargaining Agreement, sent a subcontracting protocol letter informing them of project approach prior to release of the solicitation for industry review. The approach is analogous to the arrangement for compressed natural gas (CNG) fueling stations. While the contractor will be responsible for the overall performance of the BEB charging equipment, Metro ATU-represented employees will provide escort to support the activities of the contractor and perform preventative and corrective maintenance activities agreed upon by Metro and the contractor. Metro personnel will be trained by the contractor about safety and emergency procedures. The contractor will also prepare and provide a comprehensive training program for Metro personnel in anticipation of handover to Metro of all O&M activities at the end of the contract. Metro will continue to collaborate with its labor partners to prepare the workforce for and ensure a seamless transition to zero emissions.

DETERMINATION OF SAFETY IMPACT

The recommended Board action will have no detrimental safety impact.

FINANCIAL IMPACT

Approval of the recommendations will allow staff to proceed with a competitive solicitation process for a PDBOM project delivery method. Staff will plan for and use allocated fiscal year budgets to support the solicitation and early phases of the PDBOM process, until such time as an agreed upon price can be reached with the selected contractor. Metro has secured approximately \$272 million federal and state grant and fund allocations for charging equipment at these divisions. Federal sources include the Low or No Emission Grant Program, Carbon Reduction Program, Congestion Mitigation and Air Quality Program, and the Coronavirus response and Relief Supplemental Appropriations Act of 2021. State sources include the Transit and Intercity Rail Capital Program, Senate Bill 125 Zero Emission Transit Capital Program, and State Transportation Improvement Program. Upon completion of design and staff negotiations of an agreed upon price, a Life of Project (LOP) budget will be developed, and staff will seek Board approval of the recommended LOP.

Impact to Budget

The anticipated project development and program planning activities will be funded by their respective projects. The funds will be allocated to Division 18 project 802118, Division 7 project 802107. Staff continue to apply for grants and will apply other applicable funding sources as they become available.

EQUITY PLATFORM

The Zero Emission Bus (ZEB) Charging Infrastructure Projects at Divisions 18 and 7 align with LA Metro's Equity Platform by addressing key considerations related to environmental justice,

community benefits, workforce development, and improved service reliability for historically underserved populations. Transitioning Divisions 18 and 7 to zero-emission infrastructure will contribute to improved air quality in nearby communities, which have historically borne the brunt of transportation-related pollution. Both divisions are located in areas with significant populations of low-income residents and communities of color, aligning the project with Metro's commitment to reducing environmental health disparities. Incorporating clean energy solutions reduces greenhouse gas emissions and mitigates adverse climate change impacts that disproportionately affect vulnerable populations. The integration of advanced charge management and energy systems ensures buses are consistently charged and available for service. This supports the NextGen Bus Plan's goals of providing reliable and frequent service, particularly in neighborhoods where transit dependency is highest. The project expands charging capacity, enabling equitable access to zero-emission buses for all riders, ensuring that communities served by Divisions 18 and 7 benefit from improved mobility options.

The PDBOM approach emphasizes the inclusion of workforce training programs to prepare Metro staff for the operations and maintenance of BEB charging systems. This supports job creation and skill development, particularly for workers in disadvantaged communities. Metro will encourage contractors to adopt inclusive hiring practices, such as partnering with local workforce development organizations and prioritizing small, minority, and disadvantaged business enterprises (DBEs) in procurement. The project team will engage local stakeholders to develop and implement an engagement plan to mitigate construction impacts on neighboring communities. Clear communication strategies and disruption minimization plans will ensure that local residents and businesses are not disproportionately burdened during project implementation. This project exemplifies Metro's commitment to advancing equity and environmental justice by ensuring that underserved communities benefit from the transition to a zero-emission bus fleet. The proposed PDBOM delivery method supports innovation while aligning with Metro's strategic goals to enhance mobility, foster regional collaboration, and lead on sustainability. Through thoughtful planning and execution, the ZEB Charging Infrastructure Projects at Divisions 18 and 7 will deliver meaningful improvements to Metro's service and the communities it serves.

VEHICLE MILES TRAVELED OUTCOME

VMT and VMT per capita in Los Angeles County are lower than national averages, the lowest in the SCAG region, and on the lower end of VMT per capita statewide, with these declining VMT trends due in part to Metro's significant investment in rail and bus transit.* Metro's Board-adopted VMT reduction targets align with California's statewide climate goals, including achieving carbon neutrality by 2045. To ensure continued progress, all Board items are assessed for their potential impact on VMT.

As part of these ongoing efforts, this item is expected to contribute to further reductions in VMT. This item supports Metro's systemwide strategy to reduce VMT through operational activities that will maintain and support transit ridership. By facilitating Metro's transition to a zero-emissions bus fleet, the PDBOM approach recommended here will support the operations and maintenance of emerging charging and vehicle technologies and ensure a high-quality customer experience both during and after this transition. Metro's Board-adopted VMT reduction targets were designed to build on the

success of existing investments, and this item aligns with those objectives.

*Based on population estimates from the United States Census and VMT estimates from Caltrans' Highway Performance Monitoring System (HPMS) data between 2001-2019.

IMPLEMENTATION OF STRATEGIC PLAN GOALS

These recommendations support Strategic Goal #1 to provide high-quality mobility options that enable people to spend less time traveling; Goal #3 to enhance communities and lives through mobility and access to opportunity; and Goal #4 to transform LA County through regional collaboration and national leadership.

ALTERNATIVES CONSIDERED

The Board may direct staff to pursue a traditional project delivery method without operations and maintenance components. This is not recommended because the party performing the O&M scope of work, whether Metro or another contractor, may not be able to take on the risk of guaranteeing charging equipment performance. It would also likely increase the cost of the O&M scope.

NEXT STEPS

Upon approval of the recommendations, staff will release a competitive solicitation to select a PDBOM contractor for the ZEB Charging Infrastructure Projects at Divisions 18 & 7. Staff will return to the Board with a recommendation to award a contract to a qualified proposer and establish a preconstruction budget for Phase I of the contract.

ATTACHMENTS

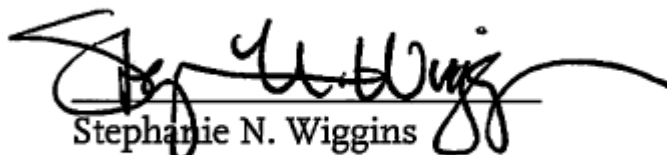
Attachment A - Zero Emission Buses Board Motion 31.1

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**Board Report**

File #: 2024-0275, **File Type:** Motion / Motion Response**Agenda Number:** 31.1

REVISED
REGULAR BOARD MEETING
APRIL 25, 2024

Motion by:**DIRECTORS YAROSLAVSKY, BASS, KREKORIAN, DUPONT-WALKER, SOLIS**

Related to Item 31: Zero-Emission Bus Program Update

As transportation planner, designer, builder, and operator for the country's most populous county, Metro has an important role in the fight against climate change and in meeting global, state and local greenhouse gas reduction targets. A major part of Metro's role in fighting climate change is its Zero Emission Bus program.

The California Air Resources Board (CARB) proposed the Innovative Clean Transit (ICT) regulation in 2018 that required all transit agencies in the state to transition to all Zero Emission fleets by 2040.

In response, LA Metro has created a comprehensive Zero Emission Bus Program Master Plan which outlines the path to a complete transition to zero emission buses by 2030. The Board took action to endorse this aggressive goal, recognizing the need to act urgently against the climate crisis, improve air quality locally, and leverage Metro to advance the Zero Emissions Bus industry nationwide.

The Master Plan, updated in May 2023, builds off of the Metro CARB Innovative Clean Transit rollout plan, which evaluates service schedules, power needs, proposed technological advancements, bus production, and market conditions to determine the best path to a full fleet transition of Metro's fixed-route fleet by 2030.

According to Metro, and despite the significant progress made to date, staff is of the opinion that the Zero Emission Bus industry is evolving slower than previously anticipated and not mature enough to promote full fleet transition by the 2030 goal, particularly due to Zero Emission Bus costs, performance, and utility infrastructure.

Program challenges identified by Metro include costs, performance, grid capacity, supply chain and utilities' lead times, and market availability. As a result, according to Metro, shifting the program implementation from 2030 to no later than 2035 will help mitigate these challenges by allowing grid capacity to develop and technology to mature. There are also concerns about how attaining the 2030 goal would affect the overall Operations budget.

At the same time, the urgency of both the air quality and climate crises continue, which both disproportionately impact the health and well-being of Equity Focused Communities here locally and beyond. Additionally, Metro has substantial control to move more quickly to ensure that charging infrastructure is installed, regardless of the timing of delivery of new battery-electric buses. Changing a target of this significance cannot be undertaken lightly and must be thoroughly examined so a thoughtful public discourse can occur and solutions that can address the obstacles come forward. For these reasons, accepting a 2035 goal is premature at this time.

Metro has the responsibility to lead the region in mobile source GHG reduction - not only in its own fleet but by incentivizing Angelenos to get out of their cars and onto transit. Every dollar invested here will have a triple net benefit. Therefore, Metro should do everything in its power to strive for a 100% ZEB fleet by 2030. Each year that passes delays us in delivering the benefits of a fully zero emission fleet.

SUBJECT: ZERO EMISSION BUSES MOTION

RECOMMENDATION

APPROVE Motion by Yaroslavsky, Bass, Krekorian, Dupont-Walker, and Solis that the Board direct the Chief Executive Officer to:

- A. Report back to the September Operations Committee on a more detailed and updated plan to deliver a 100% Zero Emissions bus fleet as soon as is possible and fiscally responsible; with interim milestones and metrics for both rolling stock and electric vehicle infrastructure installation that reflect an ambitious and actionable schedule; The report back should include a timeline for the submission of relevant service requests to Southern California Edison and Los Angeles Department of Water & Power. The ZEB conversion schedule should ensure Metro's ability to continue providing reliable bus service, including availability of operations and maintenance funding to support the full 7 million annualized revenue service hours as planned through the NextGen Bus Plan.
- B. Provide quarterly reports beginning in January 2025 to the Operations Committee on progress towards accomplishing that plan, including status of grant applications;
- C. Present a list of alternative funding scenarios from what has been presented to date for zero emission bus fueling infrastructure deployment. The alternative scenarios should take into consideration all flexible capital dollars, including from Measures R and M, Propositions A and C, grants and any other revenues. The alternative scenarios should separate funding and timeline considerations between zero emission fueling infrastructure and rolling stock, focusing strictly on infrastructure deployment, and should provide the board options for moving near term funding from other capital projects to ZEB infrastructure projects where near term changes will not affect project delivery timelines for existing projects. It should also include a report back on any relevant Public Private Partnership opportunities, such as "charging as a service", or unsolicited proposals Metro has received thus far that could support lowering costs to Metro for the transition;
- D. ~~Issue a Request for Information to minimize Metro's capital outlay related to zero emission bus~~

~~procurements and infrastructure deployment;~~

- E. Develop a legislative and administrative advocacy strategy that supports increasing Metro's competitiveness in state and federal grant opportunities related to zero emission bus procurement and infrastructure deployment; and

- F. Present additional detail on the hydrogen bus procurement process including safety plans, sourcing strategies that protect public health, and justification for specific and narrow use cases where hydrogen buses are proposed to be deployed.

2024-1073 ZERO EMISSION BUS CHARGING INFRASTRUCTURE FOR DIVISION 18 AND 7



Metro®

DIVISION 18 & 7 ELECTRIFICATION



- RFP to electrify divisions through a Progressive Design Build Operate Maintain (PDBOM) contracting approach:
 - Design and construction of electrical upgrades and civil infrastructure
 - procurement of charging equipment and charge and energy management
 - Utility coordination with SCE
 - O&M of charging equipment to performance standards required by the contract
 - Development of a training program for Metro workforce on O&M of charging equipment
- Buses will be purchased in the open regional bus procurement



Division 18 located in the City of Gardena
Division 7 located in the City of West Hollywood

PROJECT GOALS



- Advance the transition of Metro's bus fleet to **100% zero emissions**
- **Minimize construction impacts** to Metro bus operations during the Project
- Establish an **operations and maintenance** regime to ensure reliable operation and availability of charging infrastructure to Metro
- Optimize bus charging **electricity costs**



Facility concept rendering from ZEB Program Master Plan (2023)

A PDBOM APPROACH WOULD OFFER



- Efficient risk allocation and pricing of risk of emerging technologies
- Competition and selection of a qualified contractor and single point of contact to deliver the full scope across all project phases
- Collaboration between Metro and the contractor to develop a scope of work that delivers a high-quality project throughout the design, construction, and operations and maintenance phases
- Reduced contractor risk premiums and claims over the life of the project as well as reduced probability and impact of risks that are retained by Metro
- Optimized interface management with both other Metro projects and bus service delivery
- Performance-based operations and maintenance phase that includes deductions for failure to meet performance requirements and incentives for meeting or exceeding performance requirements

PROGRESSIVE DESIGN BUILD, OPERATE AND MAINTAIN



PHASE 1 – PRECONSTRUCTION SERVICES | Est. January 2026 – March 2027

1. Project Administration
2. Evaluation of charging equipment and charge management system
3. Design development (30%, 60%, 85%)
4. Opinions of Probable Cost at Design Intervals
5. Utility coordination with Southern California Edison (SCE)

PHASE 2 – FINAL DESIGN & CONSTRUCTION | Est. April 2027 – May 2028

1. Final Design and Construction
2. Long Lead Item Procurement – will commence after Step 2 in Phase 1 above

PHASE 3 – EV CHARGING OPERATIONS AND MAINTENANCE | June 2028

1. 6 Year Base
2. 3 One-Year Options

RECOMMENDATION



1. **CONSIDER** finding that authorization of the use of alternative delivery methods, including Progressive Design Build Operate Maintain (PDBOM), pursuant to Public Utilities Code Section 130242 (b), will achieve integration of design, project works, and operations and maintenance of charging equipment in an efficient manner for ZEB Charging Infrastructure Projects at Divisions 18 & 7.
2. **APPROVE** a competitive solicitation of a PDBOM contract to achieve the proposed design approach, specific project features and functions, and other project criteria in addition to price, pursuant to Public Utilities Code 130242 (e).