PASADENA
DEPARTMENT OF TRANSPORTATION

Date: May 18, 2026

To: City Council

From: Joaquín T. Siques, Director of Transportation

Subject: **ZERO-EMISSION BUS PROCUREMENT AND GRANT CONSTRAINTS**

Executive Summary

On April 28, 2026, the Municipal Services Committee asked staff to evaluate the impacts of changing the current Zero-Emission Bus (ZEB) procurement from 17 hydrogen fuel-cell electric buses (FCEB) to 17 battery-electric buses (BEB). Based on consultations with granting agencies and the bus manufacturer, staff found that changing propulsion technology at this stage would create substantial financial, funding, and schedule risks.

Key Impacts of Changing the Current Order:

- At least $5 million in non-reimbursable costs for buses already in production.
- Immediate loss of $3.7 million in secured grant funding and another $14.2 million more at risk.
- Minimum two-year delay in bus delivery due to loss of the current production slot.
- Need for new BEB charging infrastructure, which has not been designed or funded.
- Aging bus fleet actively degrades the reliability and quality of existing transit services.

Granting agencies indicated that a propulsion change would require rescoping and re-evaluation, or full re-application, with no guarantee that funding would remain available. The manufacturer confirmed that the production process is too far along to modify the order without significant cost and delay.

Staff recommends proceeding with the current procurement of 17 FCEBs to retain all existing grant funding, avoid non-reimbursable costs, and keep the fleet replacement timeline on track. Staff will undertake a comprehensive update of the Zero-Emission Bus Rollout Plan in 2027, with an emphasis for BEB technology for future purchases. Results of the plan will guide further review and discussion with City Council before the next bus orders planned in 2028.

Background

The City Council adopted the Pasadena Zero Emission Bus Rollout Plan, following a life cycle analysis of the two technologies, FCEB and BEB, in 2023. This plan established a data driven roadmap for transitioning Pasadena Transit to FCEB and Pasadena Dial-A-Ride to BEB. Aligning the various federal, state, and regional funding sources to support this strategy has been a multiyear effort. In August 2025 City Council authorized the City Manager to enter into a contract with New Flyer for the purchase of 17 FCEBs, with the first buses to arrive in Pasadena in October 2026. Following recent deliberations, the Municipal Services Committee directed staff to evaluate the implications of a technology shift from FCEB to BEB for the fixed route fleet. Specifically, the Committee requested information regarding the administrative requirements, the feasibility of fund reallocation, and the potential risks to existing award status.

Consultations with agencies that awarded the City grant funding toward its zero-emission transition were attended by Acting Assistant City Manager Phillip Leclair, with Purchasing Administrator Erika Alvarez also participating in the discussion with the City's contracted bus manufacturer, New Flyer. Staff previously advised the City Council that these secured funds are fundamentally inflexible because they were awarded through competitive applications based on specific infrastructure and project readiness for FCEB technology. Granting agencies have verified that a shift in the bus propulsion type (i.e., FCEB to BEB) would change the essence of the grant-funded projects, risking either defunding or significant reduction of funds.

Should the granting agencies agree to a shift from FCEB to BEB for this current vehicle purchase, the minimum impact to appropriated funding would be an immediate reduction of $3.7 million in grant funding, the risk of a reduction or loss of over $14.2 million in additional grant funding, an additional loss of at least $5million (and up to the entire cost of the FCEB purchase) in production costs not eligible to be paid for with grant funding, a minimum 2-year delay in production (likely longer to account for new grant funding agreements) in the delivery of 17 BEBs that are anticipated to provide half the service of 17 FCEBs. In addition, the charging infrastructure required for BEB operations at this stage has not been developed, nor has funding been pursued or secured for BEB charging infrastructure.

It is important to note that the additional $5 million (at a minimum) in production costs required to cancel or modify the current bus order are not eligible for grant funding and will require a new funding source. These expenses have not been budgeted, meaning alternative local funding sources will need to be identified, to address the shortfall.

Staff recommends maintaining the course approved by City Council in 2023 with the adoption of the ZEB Rollout Plan, in 2025 with the approval of the Alternative Delivery method for the Hydrogen Fueling Station, and in August 2025 with the authorization to enter into a purchase agreement for 17 FCEBs. In addition, staff has committed to

update the ZEB Rollout Plan in 2027 to review upgrades in technology, include a data-driven route energy analysis, a phased fleet replacement schedule, a roadmap for charging and hydrogen infrastructure development, utility grid coordination, financial strategies and resiliency planning. Staff also recognizes the need to prioritize BEBs and will conduct a comprehensive analysis in 2027 before any future bus purchases. Independent consultants will evaluate current assumptions, future technology, and strategies as part of the updated ZEB Rollout Plan for upcoming ZEB acquisitions. The results of this analysis will serve as the basis for further study and discussion with the City Council prior to making decisions on the next round of bus orders in 2028. The update will include:

- **Environmental Performance**: Evaluating lifecycle emissions under real-world operating conditions.
- **Full Lifecycle Cost**: Analyzing total financial exposure, including updated fuel costs and vehicle maintenance cycles.
- **Operational Fit**: Assessing the technology's ability to meet the service standards required for Pasadena's specific route profiles.
- **Risk Analysis**: Modeling market stability, vendor availability, and infrastructure resilience.
- **Alternative Approaches**: Evaluating phased or mixed-fleet strategies based on updated technology performance data.

Constraints and Risks Associated with Grant Agencies and Bus Manufacturers

To address the core questions asked by the Municipal Services Committee regarding the feasibility of fund reallocation from FCEB to BEB for the 17 FCEB currently in production for the fixed route fleet, staff conducted formal consultations with key granting agencies and the manufacturer. These discussions confirmed that while the secured funds allow for some administrative latitude, any shift in technology requires rigorous scope change considerations that do not guarantee the continued availability of funding. A shift to a BEB transition at this stage would require a complete restart of the planning and funding implementation plan, as no equivalent financial roadmap or infrastructure plan currently exists. Furthermore, the manufacturer confirmed a shift would delay fleet delivery until at least 2028 and the City would incur millions in contractual liabilities.

New Flyer (Manufacturer) - $32 Million Total Contract

This consultation, attended by Purchasing Administrator Erika Alvarez and Acting Assistant City Manager Phillip Leclair, focused on the immediate contractual and production obstacles of a change in bus propulsion technology. The manufacturer

emphasized that the procurement has reached a stage where the supply chain is contractually committed and the bill of materials is finalized.

- **Production Scheduling**: Shifting from FCEB to BEB at this stage is not viable within the current production slot. A change in technology would require a new order, resulting in a delivery delay from Winter 2026 until at least 2028.
- **Contractual Liabilities**: Changing the current procurement at this stage of production introduces costs that the City would be held responsible for. Since the bus components have already been purchased by the manufacturer, with components specific to the Pasadena Transit build, the manufacturer cannot swap many components to other bus orders. In addition, based on where the bus purchase is on the production schedule, the City would be liable for the cost of shutting down the factory line for several days while attempting to fill the production line gap with other vehicles. Based on where the City bus purchase is on the production schedule, it is anticipated that the cost burden on the City at this time is approximately $200,000 - $300,000 per bus, resulting in a minimum cost of $3.4million - $5.1million, which would not be reimbursable through grant funds.
- **Repurposing Components for Other Customers:** If an order is changed, New Flyer collaborates with suppliers and manages bus production schedules to reuse parts and components where possible. They do not anticipate that any other customer will take buses built to Pasadena's specifications within the current production timeline.

New Flyer California Clean Truck and Bus Voucher Incentive Project (HVIP) - $720,000

These California Air Resources Board (CARB) incentives act as critical point-of-sale discounts to offset the higher upfront cost of zero-emission buses. HVIP vouchers are associated with New Flyer as the funding is directed to the vendor tied to this specific purchase.

- **Voucher Forfeiture**: A propulsion shift would result in the immediate forfeiture of $720,000 in secured vouchers. These vouchers are specific to the currently contracted FCEB models and do not automatically transfer to different propulsion systems.
- **Re-application Risk**: Relinquishing these funds would require a new application process. The frequent oversubscription of HVIP risks no guarantee of future availability. If successful in securing HVIP again, a shift to BEB would result in a 50% ($360,000) reduction in funding since BEB HVIP vouchers are half the value of FCEB HVIP vouchers.

Volkswagen Mitigation Fund ($6.7 Million)

Phillip Leclair and DOT staff consulted with the granting agency to verify the portability of these funds now that the project has moved from the application phase into a formal contract. Staff previously advised the City Council that these funds lacked functional flexibility while in the application phase. They could not be converted to funding for BEB purchase because the funds required that a bus purchase contract be executed prior to December 2025 and at that time there was no funding identified for the City purchase of BEBs. This status has evolved now that the project has moved into a formal contract, providing the City with the administrative ability to request a shift in technology. While a propulsion technology change is technically permitted, it results in a severe reduction of the award based on the specific funding tiers of the program.

- **Comparison of Funding Tiers**: The current commitment provides $6.72 million. Transitioning from FCEB to BEB would reduce the award to $3.02 million, a reduction in over 50% of the funding.
- **Capital Loss and Finality**: This shift would be an immediate net loss of $3.7 million in secured capital. The City cannot revert to the higher funding tier once this change is processed, as relinquished funding would be redistributed through the competitive program to other agencies, making this decision irreversible.
- **Strict Liquidation Deadline**: The grant carries a strict 2029 liquidation deadline, which creates a narrow window for project completion. Any shift in technology introduces delays that risk the total forfeiture of the award if the 2029 deadline is not met.

Transit Intercity Rail Capital Project ($6.3 Million Vehicle Component)

Phillip Leclair participated in this consultation with DOT staff and the California State Transportation Agency (CalSTA), which highlighted that while possible, any technology shift must remain consistent with the specific project benefits promised in the original state application.

- **Comprehensive Programmatic Evaluation**: Modifying the propulsion system requires a formal evaluation of the entire project scope. This review puts into question the infrastructure and other core components of the grant to determine how a BEB transition compares to the promised benefits of the existing FCEB project.
- **Operational Constraints and Funding Integrity**: The Rollout Plan adopted by the Council identifies that a BEB transition requires a 1.5:1 replacement ratio, in the best case. This reduction in operational efficiency directly contradicts the promised service benefits in the TIRCP application. In the current execution phase, such a fundamental shift in project performance would likely trigger a proportional reduction in total grant funding to align with the diminished benefits.
- **Administrative Approval Delay**: If successful in the evaluation, the process would require a minimum six-month to a year approval process through CalSTA

and the California Transportation Commission. This delay introduces significant uncertainty and likely pushes the procurement timeline into direct conflict with the 2029 Volkswagen Mitigation Fund liquidation deadline.

Metro Zero Emission Bus Call for Projects ($4.5 Million)

During this consultation attended by Phillip Leclair and DOT staff, Metro staff emphasized that this award was secured based on the high project readiness of the specific FCEB strategy. While a change in FCEB to BEB technology is technically not precluded, it would fundamentally change the "essence" of the project during a period of regional budget contraction.

- **Evaluation of Project Benefits:** Shifting to BEB infrastructure requires a comprehensive reevaluation of the project. This process puts the standing of the entire grant into question as it forces a rigorous comparison between the proposed technology and the promised benefits of the existing project. The grant was competitive and oversubscribed. Any deviation from the original application metrics could lead to a defunding of the award.
- **Requirement for Board Approval:** If the internal evaluation is successful, modifying the propulsion technology may require a formal board approval process lasting over six months. This lengthy administrative requirement introduces substantial risk as unspent funds are currently vulnerable to reappropriation if the project timeline stalls or necessitates a planning restart. This delay would also push the procurement timeline into direct conflict with the 2029 Volkswagen Mitigation Fund liquidation date, creating a scenario where the City could lose access to both funding sources simultaneously.

Metro Proposition C Lines 177 and 256 ($4.5 million)

Phillip Leclair and DOT staff participated in a consultation with Metro staff to evaluate the standing of this funding following the fulfillment of the December 2025 milestone. Staff previously advised the City Council that this funding was strictly time-limited due to the urgent obligation deadline. This status has evolved now that the City has successfully met all contractual requirements.

- **Evolution of Administrative Latitude**: The execution of the existing FCEB contract ensures the City is in good standing with Metro and provides a degree of administrative latitude that did not exist during the initial planning phase. This achievement allows for more maneuverability in project discussions, though any shift in technology remains a complex undertaking.
- **Timing Constraints**: The City must submit a final invoice for these funds by 2029 but is eligible for a two-year extension.
- **Contractual Status Uncertainty**: During the consultation, a specific inquiry was raised regarding whether the existing contract would continue if the FCEB contract was dissolved. Information is not currently available to determine if the

current agreement could be modified to accommodate a new contract. This remains a critical unknown that could impact the total project timeline and budget.

Carbon Reduction Program ($2.5 Million)

Staff was unable to secure a consultation with federal grant representatives prior to this update to discuss the standing of these Federal Highway Administration funds. However, an internal review of federal procurement guidelines and grant management protocols indicates that a propulsion shift at this stage is considered a cardinal change. This designation represents a major deviation from the original purpose of the competitive award and typically voids the administrative latitude for project adjustments. Pursuing such a change would likely require the City to terminate the existing vehicle contract and initiate a new solicitation process to avoid the risk of fund defunding and ensure compliance with federal procurement law.

Metro Measure M Multiyear Subregional Program and Local Return Proposition A/C ($7.5 million)

The Measure M Multiyear Subregional Program providing $4.5 million and Local Return funds totaling $3 million dollars represent the components with the highest level of administrative latitude within the project budget. These sources do not identify whether the replacement buses must be BEB or FCEB. This lack of technology detail provides the City with the maneuverability to determine the most appropriate propulsion system without risking the standing of the award. No formal consultations with external agencies were required for these funds as they carry no restrictions and remain under the direct control of the City.