



City of Culver City

Staff Report

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Item #: P3

Introduction to the Transportation Department's Electrification Study & Bus

Meeting Date: March 30, 2021

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Fiscal Impact: Yes No **General Fund:** Yes No

Public Hearing: **Action Item:** **Attachments:**

Public Notification: E-Mail) GovDelivery: Meetings and Agendas - Mobility, Traffic & Parking Subcommittee; Notify Me - Construction, Street Maintenance and Closures; Stay Informed - Bicycle & Pedestrian / Culver CityBus / Construction, Street Maintenance and Closures (03/26/2021);

Department Approval: Rolando Cruz, Chief Transportation Officer (03/24/20)

BACKGROUND/DISCUSSION

Culver City has committed to mitigating its environmental impact and reducing carbon emissions by fully electrifying its fleet. The Transportation department is taking the lead to develop a strategic citywide fleet electrification plan. In the interim, the City has adopted a policy to convert all vehicles to electricity as a fuel if the technology is mature and can meet the purposes of the end user.

The Culver City Transportation Department will with guidance and direction from the City Council, transition Culver City's entire bus fleet to a 100% zero emission fleet by 2028, well in advance of California Air Resources Board's (CARB's) Innovative Clean Transit (ICT) 2040 goal and zero emission bus (ZEB) purchasing mandates. To meet this goal, Culver City has established a multi-phased project to develop a ZEB transition plan, design and build charging infrastructure, and replace their current CNG fleet with battery electric buses (BEB) starting in 2021 and achieving a 100% zero emission fleet by 2028.

Moving forward, the City will replace its fleet of transit buses with zero emission vehicles on a one-for-one basis as they reach the end of their useful life. Culver City has moved forward in leveraging California's statewide DGS contract and executed a purchase order with New Flyer of America for the purchase of ten (10) battery electric buses and associated charging infrastructure.

On July 13, 2020, City Council authorized \$4,426,800 to

- Purchase four (4) Battery Electric Buses, and
- Associated equipment.

Council also authorized Staff to negotiate an option with New Flyer for:

- Six additional buses, and
- Nine additional Depot Chargers.

The first four buses are scheduled to be delivered by August 20, 2021, with an in-service date of September 19th, 2021. A temporary ABB plug-in pedestal charger has also been procured and will be installed and commissioned no later than August 1st of 2021.

Staff received authorization from Council on September 14th, 2020 to enter into a Professional Services Agreement with CTE; the Center for Transportation and Environment. The agreement is for Architectural and Engineering Services and the development of a long-term plan for the Transportation Department's BEB and Facility Electrification. CTE is a nationally recognized non-profit organization that develops, promotes, and implements advanced transportation technologies, vehicles, and fuels that reduce environmental pollution and fossil fuel dependency. CTE's project portfolio includes 61 projects with 41 transit properties throughout the country.

This project with CTE will satisfy the CARB ICT requirements (Cal. Code Regs. Tit. 13 § 2023.1(d)) requiring each transit agency to submit a complete Zero-Emission Bus Rollout Plan (Rollout Plan), approved by its governing body, showing how it plans to achieve a full transition to zero-emission buses (ZEBs).

Culver City staff have been working diligently with CTE and its subconsultants on the following analyses:

- **Operational Review/Service Assessment** - This task includes using real-world efficiency data to estimate the performance of the New Flyer BEB on Culver City routes. CTE creates nominal and strenuous efficiency estimates based on real-world data from other New Flyer BEBs in use at agencies around the US. The analysis uses energy, odometer, and temperature data recorded by meters and sensors located on the buses. The data is filtered to exclude values recorded outside the range of Culver City's climate and outside the range of average speeds of CCB's routes. CTE uses statistical analysis on the resulting dataset to create efficiency estimates for nominal and strenuous conditions on CCB routes. The results of this task will provide estimated fuel efficiency, range, and daily energy requirements under various loading and battery degradation scenarios.
- **Fleet Assessment** - The City has provided CTE with a current fleet inventory, bus procurement, and bus disposal schedule. CTE has used this to develop a vehicle replacement schedule, as well as to calculate year on year costs of replacing CNG buses with Battery Electric Buses on a 1:1 basis.
- **Fuel Costs** - CTE has worked to develop a rate model to assess the operational cost of the proposed service. Rate modeling uses the results of the Route Modeling and Charging Equipment Modeling tasks as well as applicable rate schedules of the utilities providing service to Culver City depot and transit centers to determine annual cost of electricity for each charging scenario and rate schedule. Furthermore, an charge management software system will be worked through with SCE and the selected charging station manufacturer to optimize the charging time and ensure the lowest possible costs for fuel is calculated.
- **Maintenance Costs** - Forecasting costs associated with repairing and maintaining buses over the course of their useful life.
- **Facilities Assessment** - The Facilities/Equipment Assessment uses results from the Operational Review and Transition Schedule to define the requirements for charging infrastructure necessary to support transition to a BEB fleet. This includes but is not limited to On-Site Transformer and Conduit Needs, an analysis of the yard layout and charger location.
- **Total Cost of Ownership** - CTE will then aggregate the aforementioned costs to calculate the total cost of ownership of full fleet electrification. CTE will perform and prepare lifecycle cost evaluations for the 10-Bus Initial Project and 44-Bus Full-Scale Project based on a 12-year vehicle life. The lifecycle evaluations utilize the bus capital costs, infrastructure upgrade cost estimates, fueling costs, and maintenance costs to evaluate the total cost of ownership.

Each of these analyses are inputs to Department's final ZEB Electrification Plan, which is the primary output of this project. This plan will serve as a living document that guides the agency's decision-making in regards to every facet of electrification including but not limited to procurement, training, performance evaluation, data collection, facilities and infrastructure. Staff are expected to bring the final version of this plan to City Council for approval in September 2021.

Finally recognizing that we have a capital funding gap for the facility infrastructure, CTE is assisting the Transportation Department with researching, and applying for additional sources of funding. We recently completed an application to the California Energy Commission for the Zero-Emission Transit Fleet Infrastructure Deployment Grant. An additional source of funding that CTE is currently assisting staff with is the Federal Transit Administration's 2021 Low or No Emission (Low-No) Vehicle Program. This competitive grant program provides public transit providers with funds to purchase or lease low or no emissions transit buses, as well as funds for new/updated bus facilities and related workforce development needs. The purpose of the funds is to provide financial support for the transition of the nationwide transit fleet to the least emissions producing and most energy efficient transit bus deployment.

CTE will provide much of the application and project information for the Transportation Department in order to assist with all the technical documentation. CTE will also ensure the Transportation Department's application is aligned with the program specifications, and as competitive as possible. Some major steps in the Low-No grant completion process include confirming a project scope, acquiring letters of commitment to partners, generating cost share commitment documentation, as well as completing a project management plan, timeline, and budget.

FISCAL ANALYSIS

No fiscal impacts exist in association with the discussion of this item.

ATTACHMENTS

None

RECOMMENDED MOTION

That the Mobility, Traffic and Parking Subcommittee:

1. Receive and file a Presentation on the Introduction to Electrification Study & Battery Electric Bus program; and
2. Provide direction to staff as deemed appropriate.