



# CARSON TRANSPORTATION

STRATEGIC EV ADOPTION

Exhibit No. 2

# STRATEGIC GOAL:

ELECTRIFICATION OF BUS FLEET BY FY 2024/25



NO. 1502

CNG FORD E-450. 18 PASSENGER CAPACITY.





NO. 1507

DIESEL FREIGHTLINER BUS. 35 PASSENGER CAPACITY.



NO. 1503

DIESEL FREIGHTLINER. 35 PASSENGER CAPACITY.





BUS 808

CNG BLUE BIRD. 35 PASSENGER CAPACITY.



# EV ADVANTAGES

- Cleaner air for Carson
- Operational efficiencies
- Defined charging needs

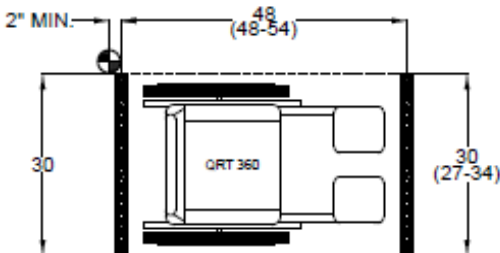
## Pilot EV Bus

- Ford E-450 Chassis
- EV range: 110-150 miles
- Max speed: 58 mph
- Onboard charger: Full charge in 9-13 hours









# ANTICIPATED SAVINGS

	DIESEL	CNG <sub>(DGE)</sub>	EV
Fuel <sup>1</sup>	\$1.20/mile	\$1.04/mile	\$0.10/mile <sup>2</sup>
Maintenance	\$0.88/mile	\$0.94/mile	\$0.64/mile <sup>2</sup>
Annual operating cost <sup>3</sup>	\$66,560	\$63,360	\$23,680

	Avg Savings	Savings over 5 years
Fuel	\$1.02/mile	\$163,200
Maintenance	\$0.27/mile	\$43,200

1. AVG FUEL ECONOMY: DIESEL – 4.33 MI/GALLON; CNG – 3.48 MI/DGE; EV – 2.15 MI/KWH
2. NATIONAL EV BUS AVGS
3. EST. 32,000 MILES PER YEAR; \$5.19/GALLON (DIESEL), \$3.63/DGE (CNG), \$0.15/KWH (EV) \*AS OF FEB 2022

# FUNDING

## EV infrastructure

- Southern CA Edison
  - Level II (9-12 hrs); Level III (4-6 hrs)

## Vehicle purchase

- Hybrid Zero-emission Voucher Incentive Project (HVIP)
  - Month of March (may open again later this FY)
  - \$60,000 per bus
  - Must have PO in-hand to apply for voucher
- AQMD funds
- Undesignated Prop A and C funds





# RECOMMENDATION

Preapproval of purchase order to get HVIP discount:

- (2) EV busses at \$TBD
- plus 5% contingency: \$X

Total less HVIP discounts = \$TBD

Through efforts from Public Works staff, Edison may provide the City with the infrastructure needed to support EV charging at the Corporate Yard. Procurement of charging stations is also underway.

# S U C C E S S I O N   P L A N

- (2) smaller Ford E-450 EV shuttle buses first
  - Serve as primary busses for the Carson Circuit routes
  - Replace the existing (2) diesel busses
  - Cleaner-burning CNG buses will serve as back-up
  
- Consider (1) medium-sized EV bus and (1) large EV bus
  - Grant funding is currently advantageous for larger agencies/orders
  - Additional funding opportunities will be reviewed constantly