

# Battery Electric Bus Purchases

*September 27, 2021*

*Board of Directors Meeting*

# Battery Electric Bus Purchases

## Benefits of Electrification



Powered by  
Clean Energy



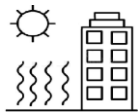
Reduced  
Greenhouse  
Gases



Reduced  
Fuel Costs



Reduced  
Air Pollution



Reduced  
Heat



Noise Level  
Reduction



# Battery Electric Bus Purchases

## Background

- FY19 announced transition to zero emission
- FY20 constructed electric bus charging facility at North Ops and launched 12 electric bus fleet
- FY22 – FY26 Fleet Plan\* includes
  - 136 fixed route fleet electric buses
  - 65 MetroRapid electric buses
- Charging strategy under analysis and will include both depot charging and on-route
- Long Range Fleet Transition Plan under development and will roadmap through 2035



# Battery Electric Bus Purchases

## Electric Fleet Performance

Vehicle Size	Driven [miles]	Efficiency [kWh/mi]	Average Trip [miles]	Average Max [miles]
40-foot	208,500	2.14	114	185
60-foot	28,100	3.44	95	139

Beneficial Reductions	Savings
Diesel fuel	62,500 gallons
Carbon Dioxide (CO2)	700 tons
Oxides of Nitrogen (NOx)	2,300 lbs.
Particulate Matter (PM)	58 lbs.

Accomplishments
240 Drivers Trained
Demonstrated Charger Interoperability
Assisted in Texas A&M Charger Commissioning

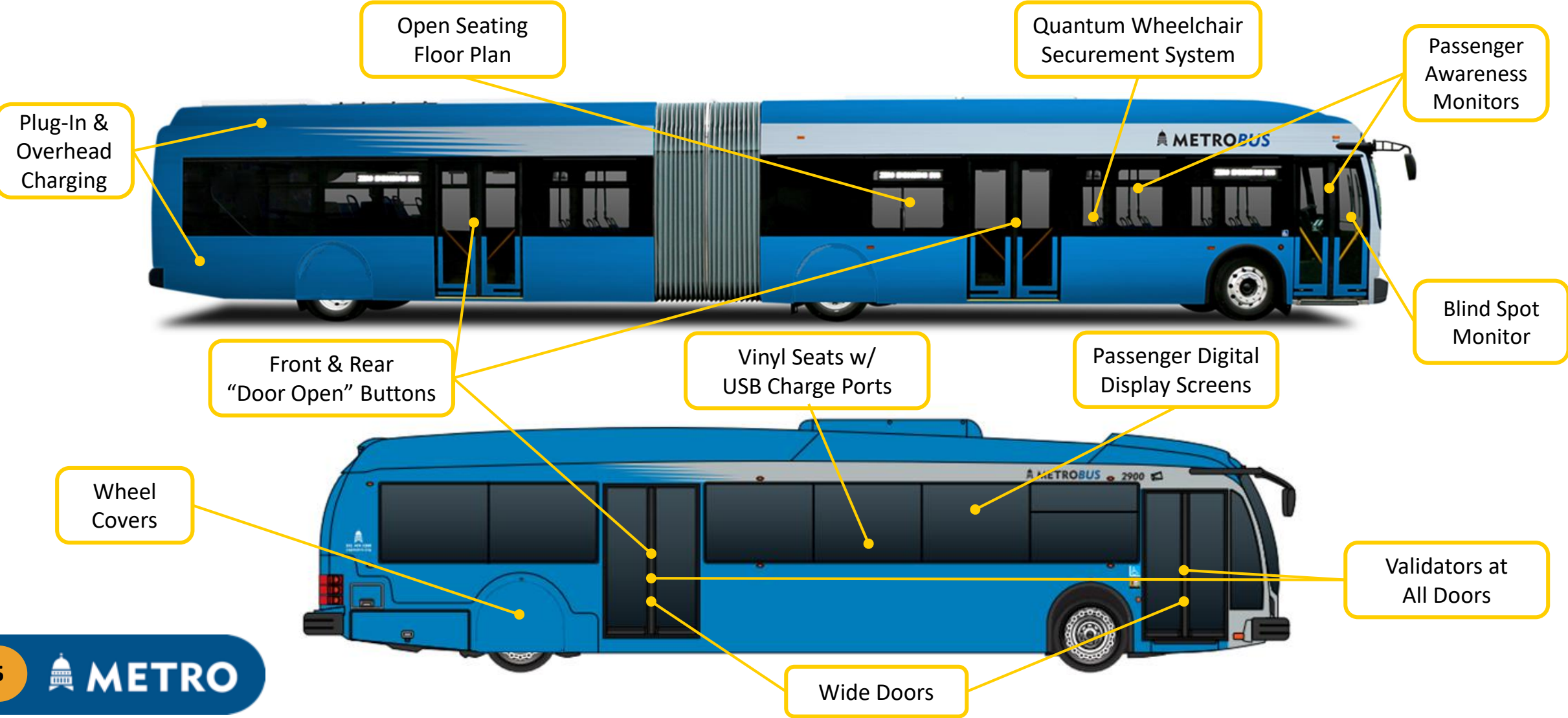
Challenges
Day to Day Logistics Assigning Blocks * Handling State of Charge * Altering Overnight Routine
Innovative Propulsion Technologies Battery Pack Imbalance * Traction Motor Shaft
Innovative Auxiliary Systems Electric Doors * Electric A/C * Electric Steering

\*Data shown since beginning of electric bus fleet deployment, given conservative deployment



# Battery Electric Bus Purchases

## Vehicle Features



# Battery Electric Bus Purchases

## Contract Vehicles

By Size	Quantity
40-foot Electric Bus	178
60-foot Electric Bus	19
Total	197

By Service	Fixed Route Replacement	MetroRapid Expansion
40-foot Electric Bus	118	60
60-foot Electric Bus	14	5
Total	132	65

Base & Options	Base Award	Option 1	Option 2	Option 3	Option 4	Option 5	Option 6
40-foot Electric Bus	52	40	11	52	--	18	5
60-foot Electric Bus	4	--	--	2	8	--	5

+ **Options:** Chargers, staff training and warranties

# Battery Electric Bus Purchases

## Board Action

Contract Category	SOG	PC Expansion	Contract
Base Award	\$ 19,192,497	\$ 33,850,149	\$ 53,042,646
Vehicle Options	<u>\$ 108,157,200</u>	<u>\$ 27,932,700</u>	\$ <u>136,089,900</u>
<b>Subtotal – Vehicles</b>	\$ 127,349,697	\$ 61,782,849	\$ 189,132,546
Chargers, staff training, warranties			<u>\$65,851,544</u>
<b>Total Contract</b>			<b>\$254,984,090</b>

- The contracts exceed current CIP budget in order to allow flexibility for future charger purchases
- Allows flexibility to provide both depot and overhead chargers
- Options will not be exercised unless funding is included in Board-approved budget

*\*Vehicle pricing shown is for base vehicle. Additional budget is allocated for final configuration changes, such as fare equipment, Wi-Fi routers, etc.*



**METRO**

**THANK YOU!**