



# Massachusetts Bay Transportation Authority

## *Battery Electric Bus (BEB) / 160 New Flyer 40-foot Enhanced Electric Hybrid (EEH) Bus Update*

▪ March 24, 2022

# Introduction

The MBTA is paving the way to a brighter future with the procurement of new Battery Electric Buses. These buses will be cleaner and quieter than the buses they replace. After Requests For Information (RFI) and specification development the MBTA will be releasing a Request For Proposal (RFP) for the procurement of new Battery Electric Buses in April of 2022.

A contract for the procurement of 160 EEH buses is up for board approval to assist the MBTA with the vision of achieving zero carbon emissions. EEHs provide a bridging technology to the all-electric fleet as BEB facilities are being constructed.

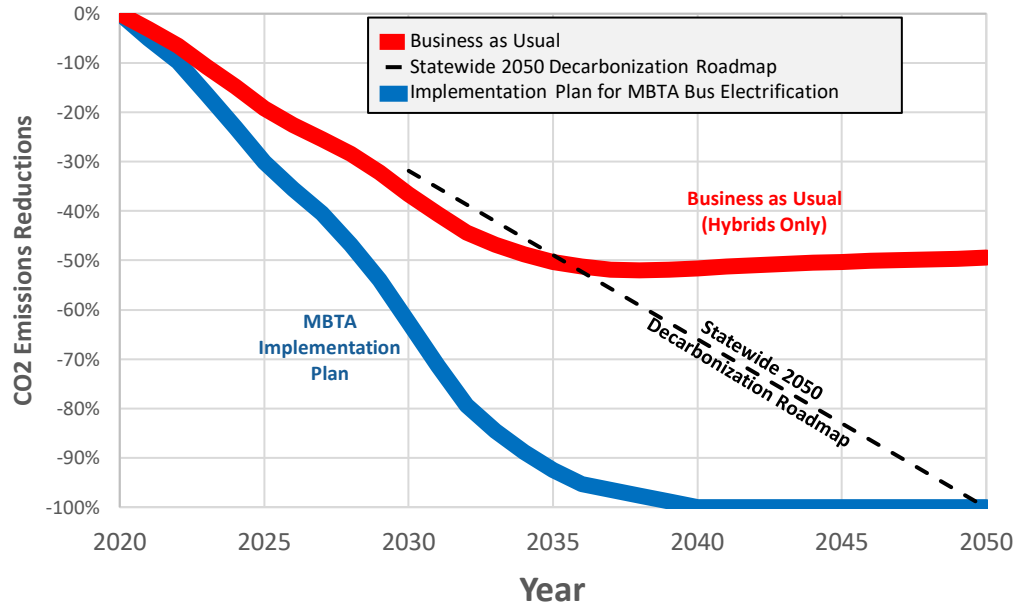


# BEB Fleet Procurement History/Strategy

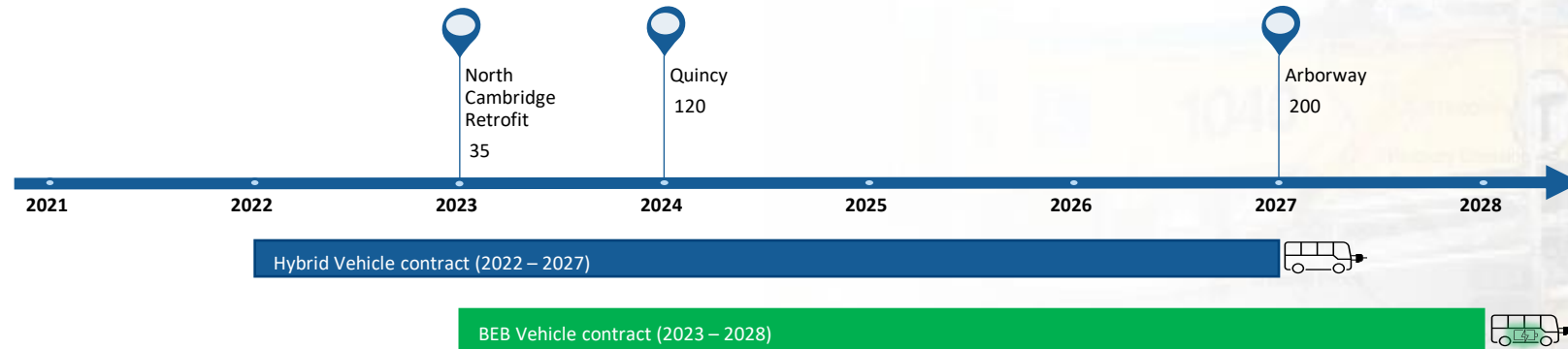
## Path to Electrification:

- RFI 158-19 released July 2019 to *“seek information from interested parties to assist MBTA with best-practice ideas surrounding implementation of BEBs in the demanding MBTA service environment.”*
  - Three responses from bus manufacturers
  - Three responses from BEB charger manufacturers
- Battery Electric Bus Technical Specification development included:
  - Review of RFI responses
  - Stakeholder involvement
  - Analysis of industry trends
  - Route modeling review
- **Battery Electric Bus RFP 1F-22 and Technical Specification VE21-054 to be released April 22, 2022**
  - **Procurement of over 400 BEBs**
  - **Anticipated award fall of 2022**

# Carbon Neutral Strategy and Timeline



- Provide new reliable transportation by replacing our aging fleet - following the path to carbon zero in 2040
- Maintain the lowest average fleet life based on FTA 14-year life expectancy
- **Replace 80 to 100 buses annually** using two FTA approved 5-year contracts staggered to allow us to pivot between hybrid and battery electric buses
- BEB contract allows retrofitted North Cambridge, new Quincy and new Arborway facilities to be filled to capacity with BEBs
- Forecast - 2027 will be the last year the MBTA will need to purchase hybrid buses





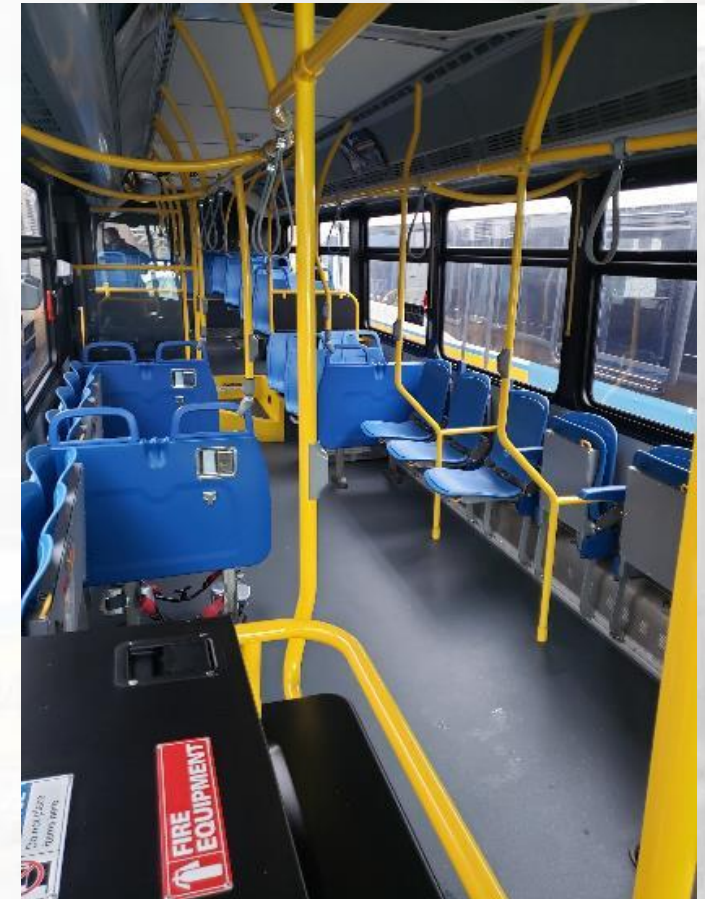
# Background and Strategy of Enhanced Electric Hybrid Buses

The MBTA continues to invest in new vehicle procurements for service needs and replacement of aging fleets with more efficient and reliable buses

- Transition to a battery electric bus fleet
- Predictable bus replacement on an annual timetable
- Improve fleet reliability and decrease maintenance costs
- Initiate fleet replacement starting with the 310 2006-2008 New Flyer 40-foot Emissions Controlled Diesel (ECD) buses
- EEH Procurement Timeline
  - Request for Proposal (RFP) No. 67F-20 was advertised in February of 2021
  - Proposals were submitted and opened in June of 2021
  - A builder selection was made in March of 2022
  - Presentation to the MBTA Board March 24, 2022
- EEH technology is considered a viable bridge technology, pending infrastructure and charging network readiness to support all-electric vehicles

# New Flyer 40-Foot Enhanced Electric Hybrid Bus – Features

- Replace aging fleet with a more efficient, service-proven vehicle design
- Configuration similar to existing fleet, standardizing MBTA-specific driver's area, improved passenger accommodations, and parts / maintenance and operating commonality
- Additional design enhancements include:
  - driver's security barrier,
  - electric-hybrid heating (reduced emissions),
  - meets or exceeds ADA accommodations
  - flip-up seating configuration preferred by passengers who use mobility devices and people using baby carriages
- The following options will be included;
  - Air Filtration & Treatment System
  - ESS Extended Warranty
  - Provision for License Plate Readers



# New Flyer 40-Foot Enhance Electric Hybrid Bus - Benefits

***This fleet will reduce overall fleet emissions and leverage proven “Green Zone” capabilities to significantly increase zero-emissions operation in targeted areas.***

- Replaces oldest diesel buses with newest engine technology significantly reduces criteria pollutants such as diesel particulate matter and NOx, and will reduce GHG emissions
- Seamless fleet integration into existing operations and preventative maintenance programs
- Extended operation with engine-off enables improved fuel efficiency and reduced emissions (up to 50% engine-off, emissions-free operation)
  - **“Start / Stop”** and **“Arrive & Go”** - features turn the engine off if in traffic / traffic signals, as the bus slows to a stop, and in low speeds after a stop
  - **“Green Zones”** are a new feature on MBTA hybrids that allow selective engine-off operation for up to 1 miles per occurrence based on GPS
- 5-year contract allows for a scheduled yearly procurement of 80 to 100 buses



Illustration of Green Zones

# Request of the MBTA Board of Directors

Vehicle Engineering requests that the MBTA Board of Directors authorize the General Manager & CEO, or his designee, to award and execute Formal Contract No. 712-22 to New Flyer of America Inc. to manufacture, furnish and deliver 160 new low floor forty-foot Enhanced Electric Hybrid buses. It is recommended that this procurement include contract Options 2 (ESS Extended Warranty), Option 6 (Provision for Air Filtration & Treatment System), and Option 9 (Provision for License Plate Readers), capital spares, training, training aids, special tools, publications, and communications for a total delivered amount **not to exceed \$157,166,645.28**.