



Fairfax Connector Electric Bus Pilot Program

Board Transportation Committee Meeting
June 14, 2022

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Fairfax County Department of Transportation

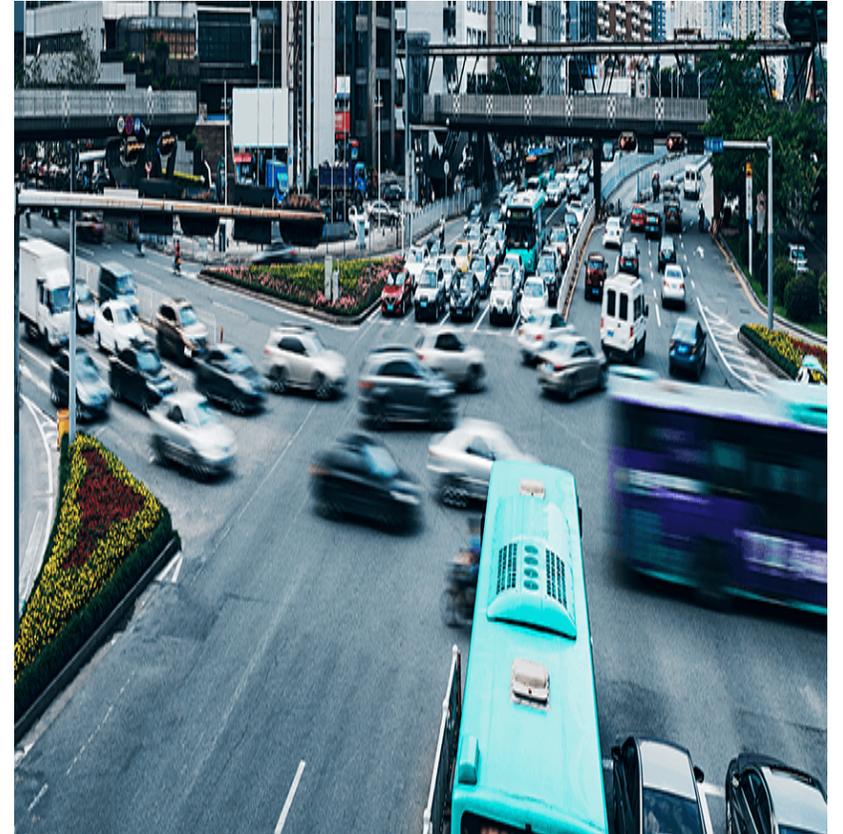
Zero Emission Bus (ZEB) Program Goals

- Support the Board's goal of carbon neutral by 2040
- Fleet transition to 100% zero emission buses by 2035
- Board discussion for diesel bus purchases after FY2024
- Promote greater equity in transportation systems
- Achieve long term sustainability
- Ensure no reduction in Connector service levels



Industry Challenges/Transition Concerns

- Vehicles may not provide 1:1 ratio for replacement (Range)
- Infrastructure and design may be limited by facility constraints
- Bus manufacturer's capacity to meet growing demand for Zero Emission Buses
- Global supply chain concerns; raw materials for batteries are facing increased competition
- Electric utility's ability to meet large energy requirements from the electrical grid
- Electric grid reliability/resiliency
- Workforce development

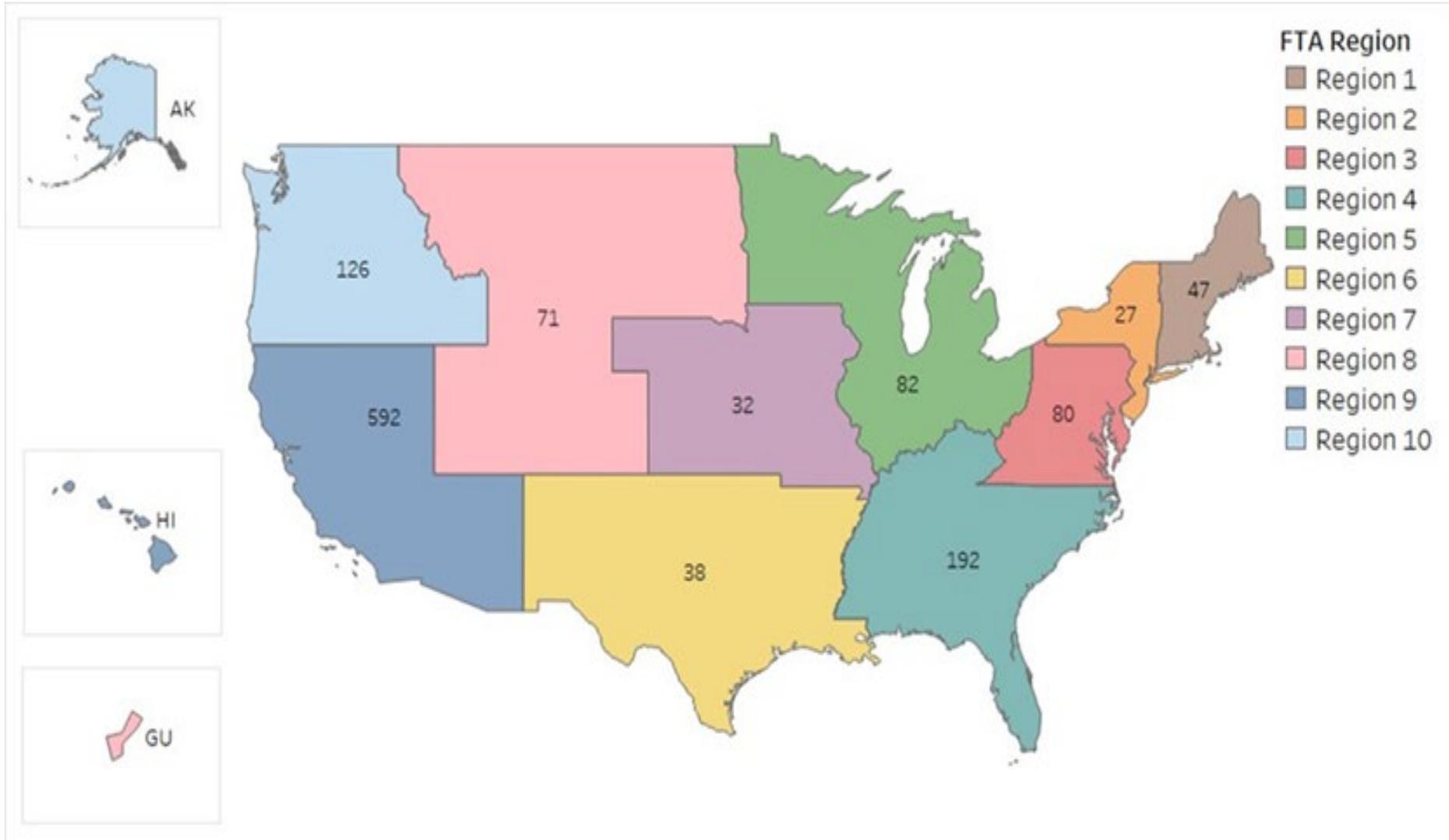


Necessary Steps for Zero Emission Bus (ZEB) Transition

- Transition to Zero Emission Technology requires significant planning
- Extensive engineering required to develop a transition plan
- Development of construction and phasing plans (Existing Operations)
- Coordination with electric utility
- Develop estimated life cycle costs
- Identify capital funding sources (Fleet and Infrastructure)
- Pilot test/analyze bus performance



Zero Emission Buses Deployed (Sept 2021)



- VA has 17 ZEB's
- Less than 3% of U.S. Transit Fleets
- Majority of agencies have less than 10 buses
- Most Northern VA transit agencies are in the early planning stages

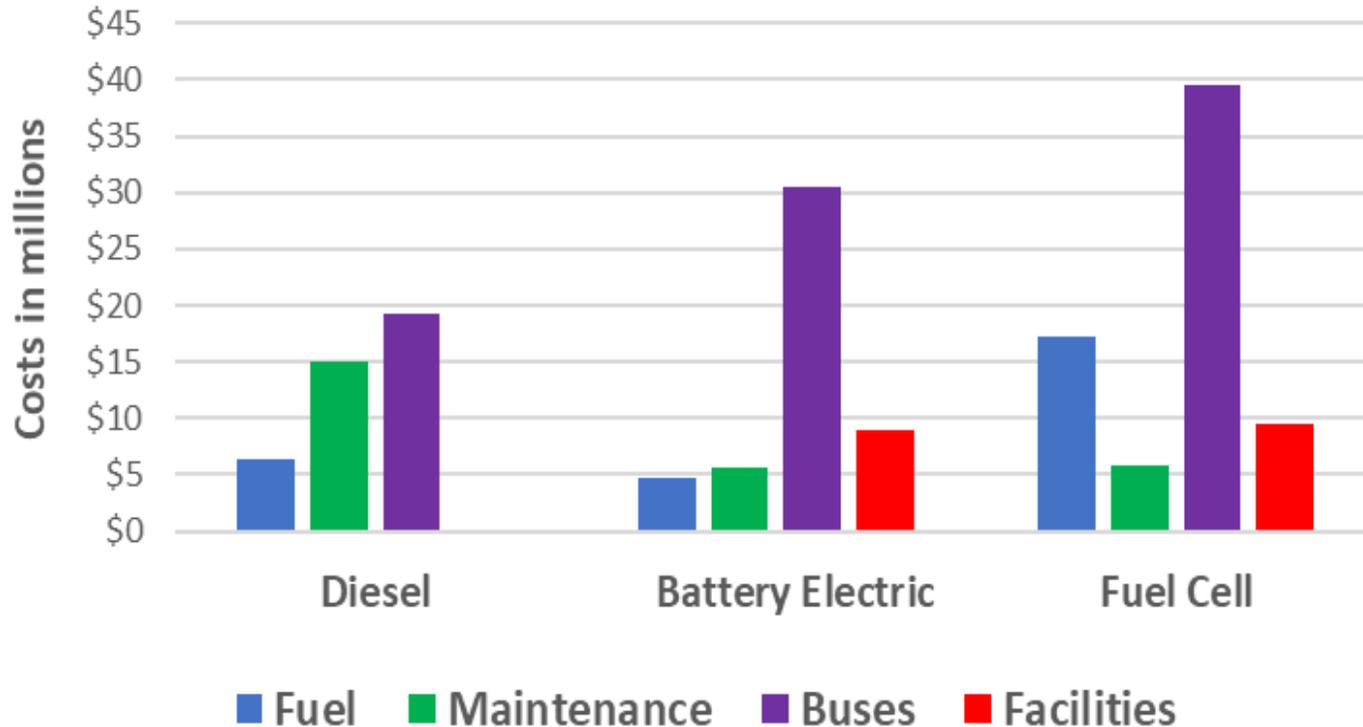
Current/Future ZEB Program Activities

- Attending ZEB training and participating in various committees including with the American Public Transportation Association
- Participating in the International Transportation Learning Center; Developing ZEB training program
- Working with the Northern Virginia Transportation Commission on Regional ZEB Planning
- Ongoing dialogue with ZEB manufacturers
- Completed study on zero emission options for Richmond Highway BRT (RHBRT)
- Developed and initiated Transition Plan Study for Connector
- Preparing for ZEB bus pilot

ZEB Analysis – Richmond Highway Bus Rapid Transit

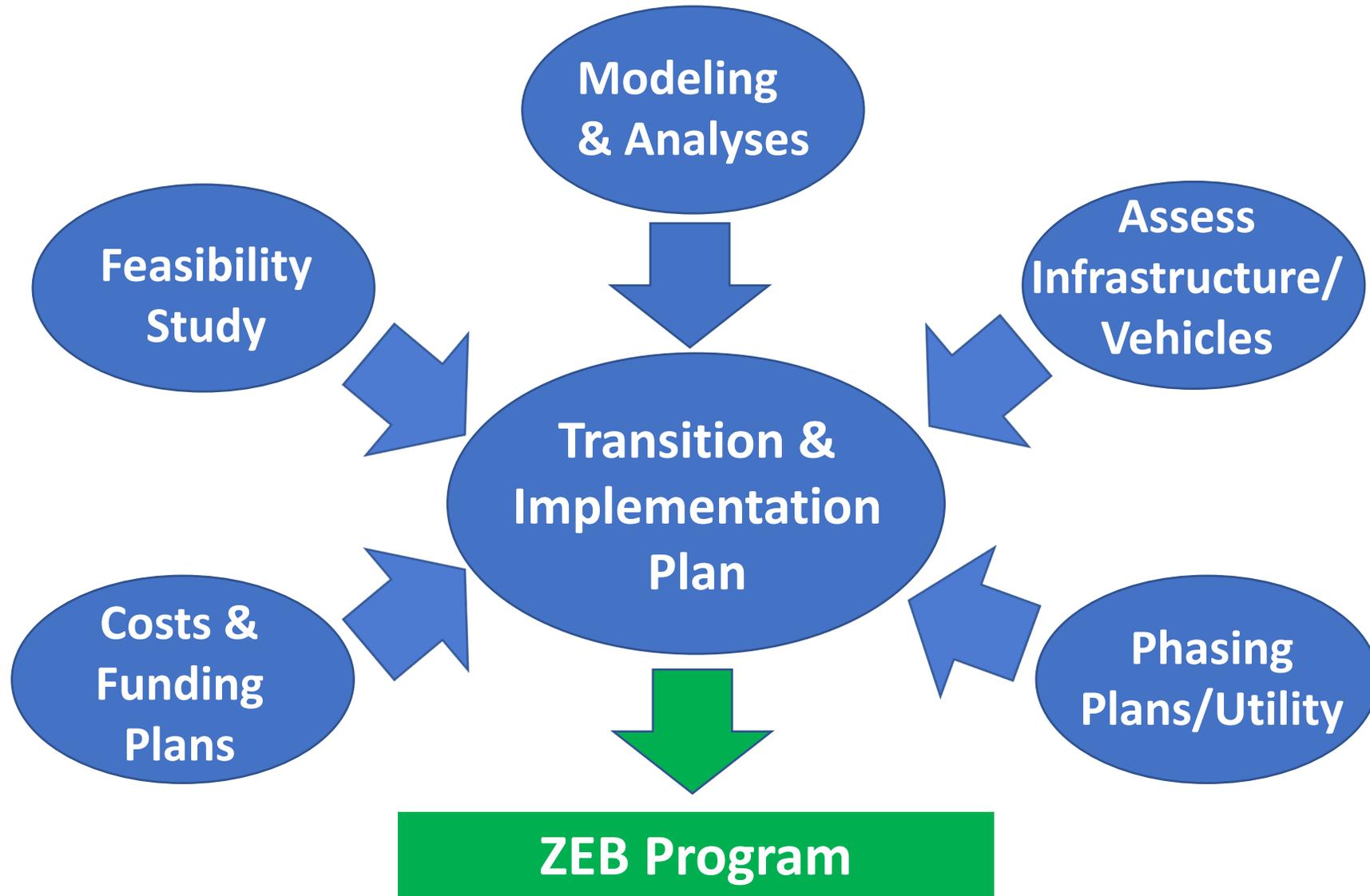


12 Year Cost Breakout by Category



- BRT Study components:
 - Feasibility Analysis
 - Route/Range Modeling
 - Infrastructure Analysis
 - Cost Analysis
- Battery Electric vs. Diesel
 - 25% Fuel savings
 - 60% Maintenance savings
 - 105% Higher capital costs
 - Requires field charging
 - No added facilities costs for diesel operation
- Fuel Cell - Highest Operating/Capital Costs

Connector Transition Plan Development



Major Milestones for Electric Bus Pilot

April 2022: Chargers and Transformers on site



June 2022: Facility modification in process;
Charger and transformer installation



Late July 2022: Bus manufacturer starts
production of electric buses



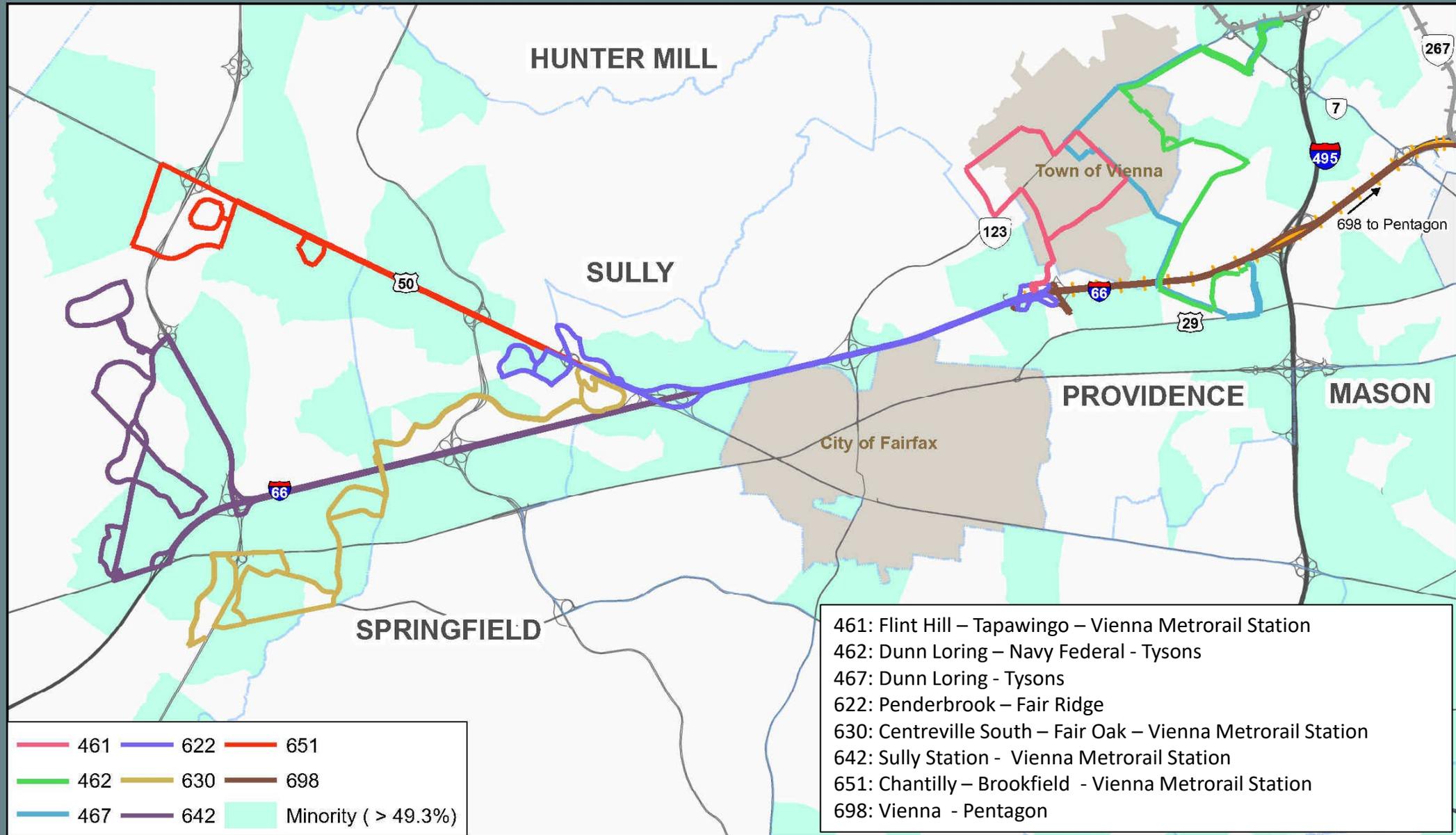
October 2022: Electric bus deliveries begin;
Operator training/Maintenance Support



December 2022: Final electric bus delivered;
ZEB Pilot begins



Fairfax Connector Electric Bus Pilot Routes





Strategies and Options for Accelerating Implementation

- Continue to explore used bus purchases
 - 10 2017 New Flyer buses
 - 12 Hybrid buses (WMATA)
- Consider mixed fleet procurements
- Explore additional funding opportunities (Federal funds eligibility for Connector)
- Expedite pilot phases (to extent possible)
- Replace buses sooner if funding and infrastructure aligns



Questions/Discussion

What strategies are the Board members most interested in?

