ALEXANDRIA TRANSIT COMPANY

ZERO EMISSIONS
ELECTRIC BUS PROGRAM
ZEB PROGRAM GOALS

- **Environmental:**
  - Eco-City Alexandria: 2040 goals of 50% emissions reduction by 2030 and 100% reduction by 2050
  - Non-attainment zone, highly polluted region of the US
  - Significant regional and local support for zero emission vehicles
  - Purchase only Zero Emissions Buses by 2027
  - Full fleet transition to 100% Zero Emissions Buses by 2035

- **Fiscal:**
  - Desire to reduce operating cost, recognition of unpredictable fuel costs
  - Excessive expense of maintaining clean diesel technology/unreliability
  - Operating environment is low mileage stop and go, ideal for Electric
STUDIES AND RESEARCH

- ZEB Feasibility Study (Completed 2019) – CTE
- ZEB Implementation Study Phase 1 (Completed 2021) - WSP
- ZEB Implementation Study Phase 2 (In Progress)
- Future studies to evaluate performance of vehicles, driver habits, and other metrics from the fleet
SUCCESES & CHALLENGES

SUCCESES

• Early buses showing more reliable than diesel counterparts
• In good weather/operating conditions, range has been adequate
• Drivers and Passengers happy with vehicles
• Initial observations (Maintenance cost per Mile)
  • Electric: $.33-.47/mi
  • Diesel: $1.00-1.20/mi

CHALLENGES

• Early adopter challenges: quality, range expectations, build process.
• Heating significantly reduces range.
• Despite standards, interoperability between buses and chargers continue to be an issue.
• Timeframes:
  • Bus build: 9 – 20 months
  • Revenue service: 2-3 months after delivery
  • Chargers can take even longer
FACILITY PROGRAM

DESIGN & ENGINEERING

CHARGING STRATEGIES
NEXT STEPS

• Service design that elevates ZEB productivity
• Sustainable contract sources and joint procurements
• Ongoing training for rapidly changing ZEB technologies
• Data collection and analysis
• Pursuing ongoing technical assistance
• Identifying sustainable funding sources for fleet electrification
• Seeking alternative sources of electricity (i.e. solar/renewable sources)
• Driving partnerships with utility providers
Zero-Emission Bus Symposium

- **50 Participants** including jurisdictional and regional partner staff members
- Provided a platform to highlight, learn, and discuss zero-emission bus planning, implementation and procurement
- Designed to better understand regional zero-emission bus vision and goals
- Increased regional expertise through collaborative discussion

**First look: What we learned**

- Start early and strategize for long-term: engage leaders, partner with utilities, and identify funding
- Plan for bus performance and range, charging infrastructure and strategy
- Workforce, procurement, and resiliency planning is key
- Focus on regional coordination with local flexibility
# Regional Partner Status

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<th>Zero-Emission Bus</th>
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<th>Testing</th>
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<th>Future Implementation Partners</th>
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<td>[Image: Federal Transit Administration]</td>
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Options for NVTC’s Role in Zero/Low-Emission Buses

- **Continue to engage with transit providers** in NoVA and DC area regarding plans to transition to zero/low-emission buses

- **Identify resources to support and coordinate** planning and implementation of zero/low-emission buses in NoVA
  - Ex. DRPT Technical Assistance Grant (FY 2023) for a *Northern Virginia Zero/Low-Emission Bus Strategic Plan*

- **Provide regular updates** to Committees and Commission

- **Identify changes** to Commuter Choice program at the appropriate time