



# Jaunt

Feasibility Study of Alternative Fueled Buses  
*Advisory Committee Meeting 3: November 14, 2022*



# Today's Objectives

Discuss the priority of feasible technology options for implementation.

Discuss recommendations for implementation.

# Agenda

- Project Goals Refresher
- Background and Analysis
  - Project Status to Date
  - Current System and Service Area
  - Comparison of Technologies
- Scenarios and Recommendations
- Questions & Discussion
- Next Steps

# Project Goals

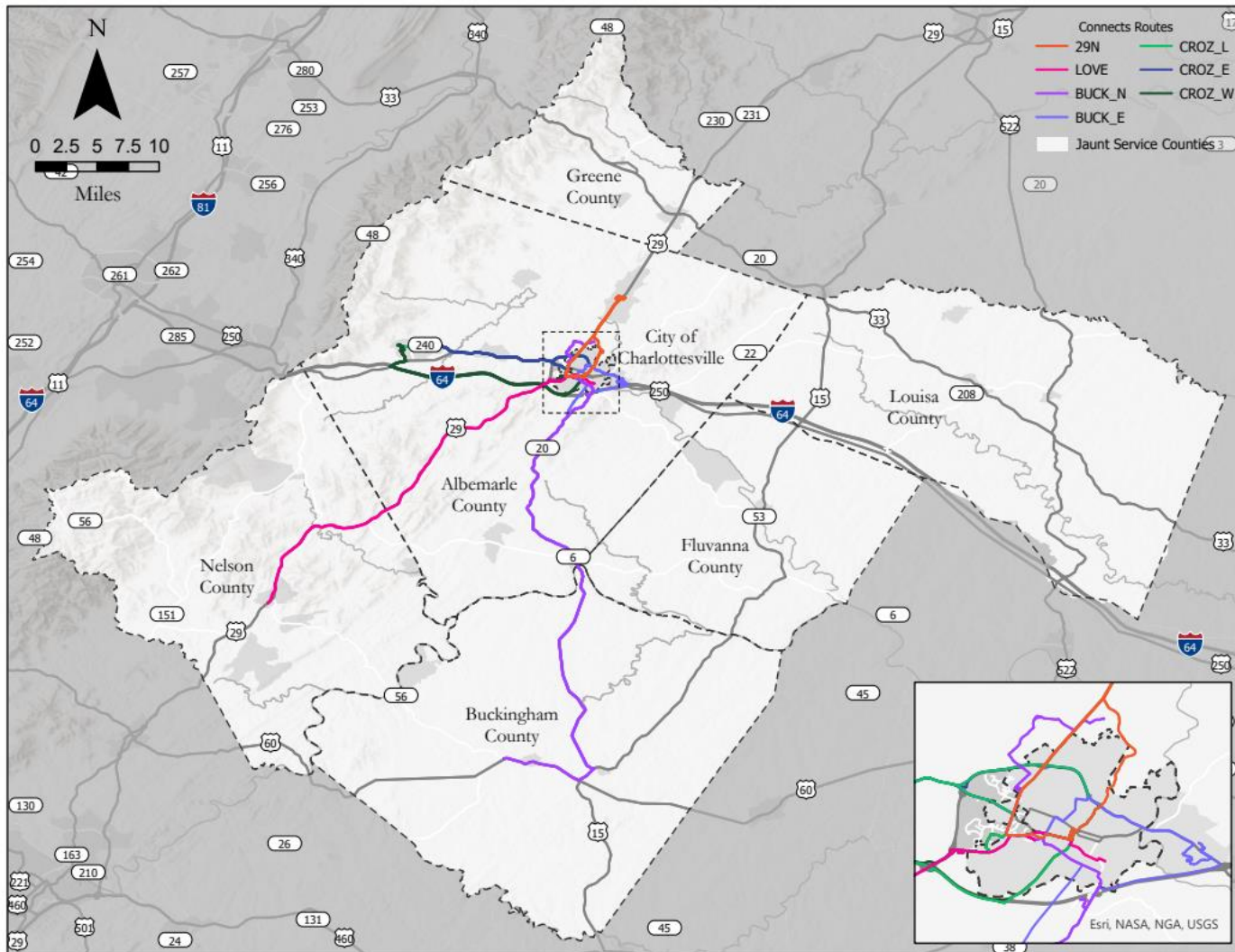
- Achieve **45%** GHG reduction by 2030; net zero by **2050**
- Determine a preferred cleaner fuel type for Jaunt
  - Consider trade-offs including operating and capital cost, emissions impact, and operational viability
  - Balance the current level of service with practicality of low or no emissions vehicles (minimize impact to operations)
  - Consider well-to-wheel impact of propulsion technology on emissions
- Determine high level implementation strategy and timeline of the preferred fuel type

# Background and Study to Date

# Status to Date

- Study is nearly complete
- Coordinated with Electric and gas utility providers
- Developed alternative scenarios
- Completed numerical emissions and cost analysis
- Developed recommendations

# Jaunt's Current System

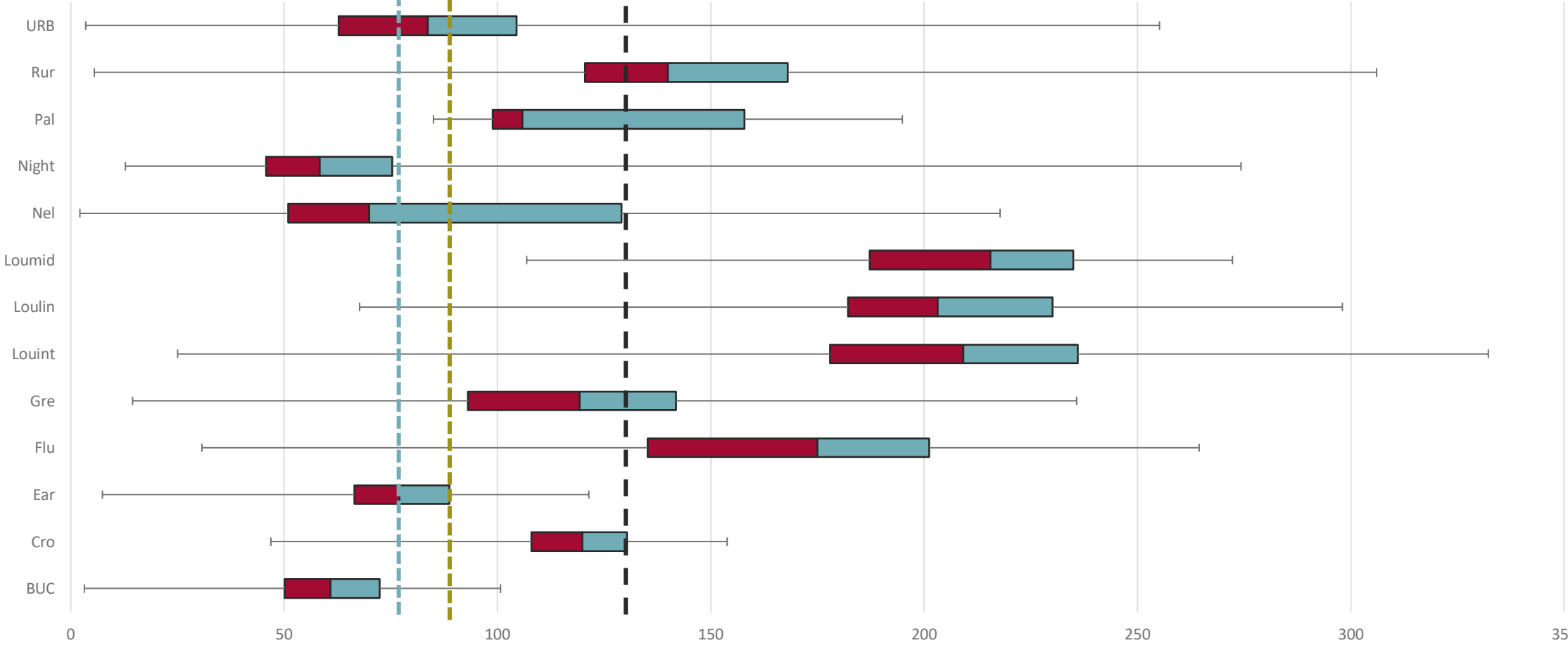


- Serves Charlottesville and six surrounding counties
- 7 fixed-route commuter service lines
- 19 demand response run classes
  - ADA Service
  - Links from the counties to Charlottesville
  - Circulator services within counties

# Demand Response BEV Performance

- Stated Range
- 30% Reduction
- 40% Reduction

130 Miles Stated Range



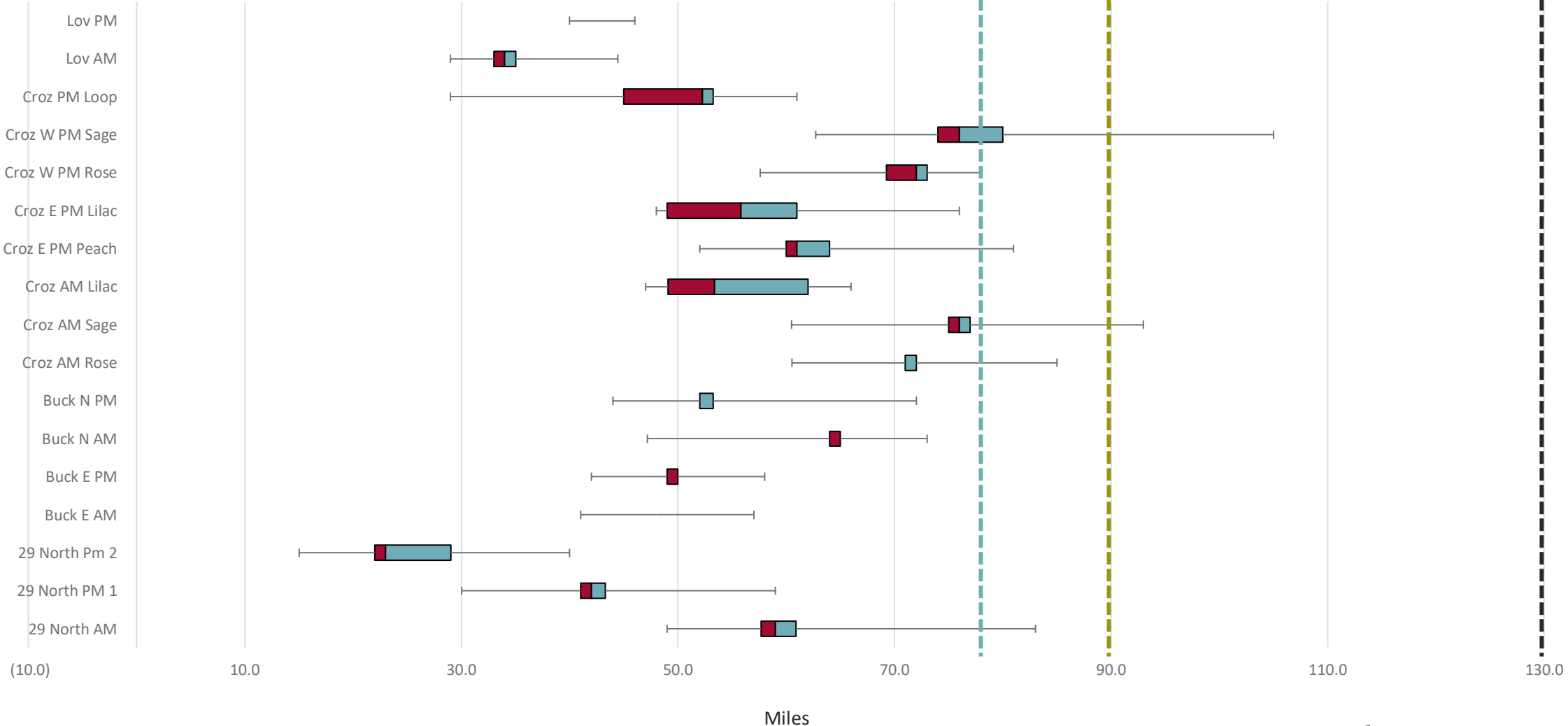
Miles



# Fixed-Route BEV Performance

130 Mile Stated Range

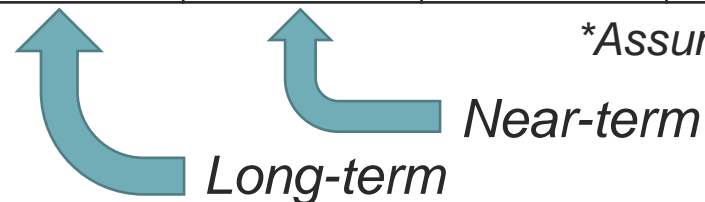
- Stated Range
- 30% Reduction
- 40% Reduction



# Comparison of Technologies



Scenario	Number of Vehicles	Emissions Reduction		Vehicle Costs	Facility Costs	Operational Costs (Fuel+Maintenance)
		Long-term	Near-term			
Current	108	-		\$	-	\$\$
Battery Electric	157	●●●●●	●●●●	\$\$\$\$	\$\$\$\$	\$
Battery Electric w/ Fast Charging	108-114*	●●●●●	●●●●	\$\$\$	\$\$\$\$\$	\$\$
Hydrogen	108	●●●●●	●●●	\$\$\$	\$\$\$	\$\$\$
CNG/RNG	108	●●●●	●●	\$	\$\$	\$\$

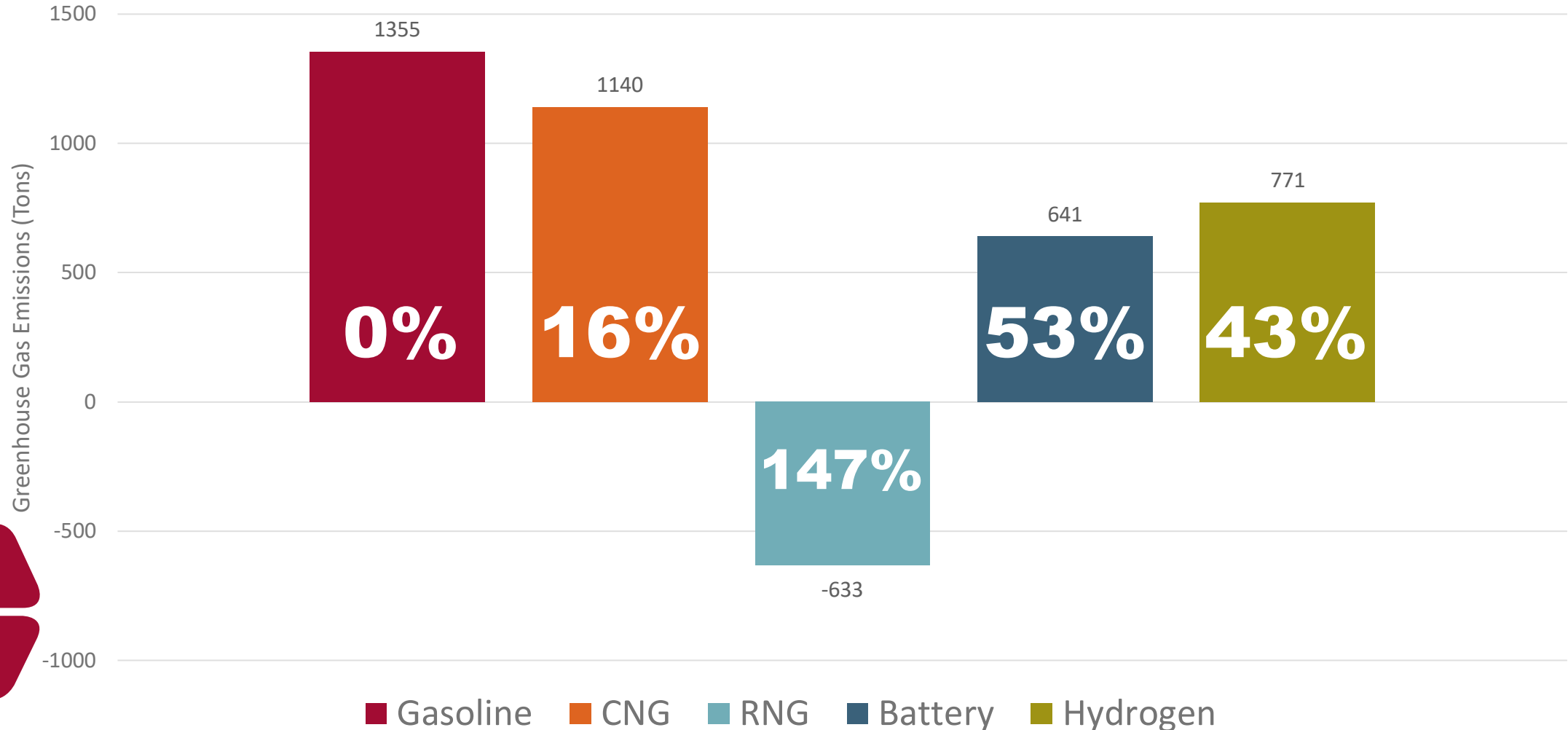


\*Assumes standby vehicle in each County

# Scenarios and Recommendations



# Greenhouse Gas Emissions Reductions

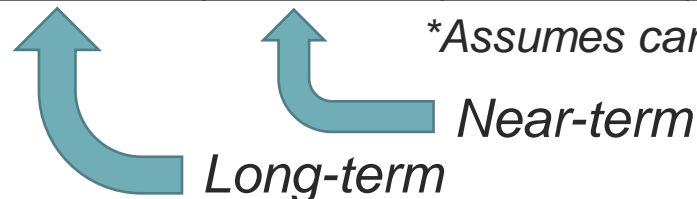


# Comparison of Technologies

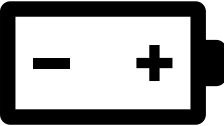


Scenario	Number of Vehicles	Emissions Reduction		Vehicle Costs	Facility Costs	Operational Costs (Fuel+Maintenance)
		Long-term*	Near-term			
Current	108	-		\$6.9 M	n/a	\$813,000
Battery Electric	135	100%	53%	\$16.2 M	\$1.1 M	\$422,400
Battery Electric w/ Fast Charging	108	100%	53%	\$13.0 M	\$4.2 M	\$422,400
Hydrogen	108	100%	43%	\$21.9 M	\$3.5 M	\$1.1 M
CNG/RNG	108	147%	16%	\$8.6 M	\$2.3 M	\$552,000

\*Assumes carbon-neutral electric grid or pure RNG




# Key Considerations and Tradeoffs




**Battery Electric**

Deployable at Small Scale	Large Fleet and Cost
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**CNG/RNG**

Cost Effective	Produces Emissions
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**Fast Charging**

Diffused Charger Network	Requires Extensive Partnership
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**Hydrogen Fuel Cell**

Resilient Operations	High Cost to Deploy
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# Recommendations

1. Implement battery electric vehicles as the initial deployment technology on select run classes.
2. Pursue a small-scale, initial deployment of zero emissions vehicles in fixed-route services.
3. Conduct future evaluation of initial deployment performance.
4. Conduct partnership conversations with government entities, businesses, and utilities.

# Next Steps for Zero Emissions Transition

- Work with Jaunt's board of directors to adopt a preferred alternative fuel technology strategy
- Coordinate with DRPT to identify potential technical and funding assistance
- Complete a time-constrained implementation plan for immediate, near, and long-term alternative fuel vehicle deployment
- Identify funding sources and allocate budget to purchase and install initial zero emissions vehicles
- Conduct initial deployment
- Establish performance metrics to monitor and evaluate initial deployment of battery electric vehicles for performance and scalability



# Questions & Discussion



# Questions for Discussion

- Does the advisory committee agree with consultant recommendations?
- How does timing weigh in on potential phased deployment?

# Next Steps for Feasibility Study

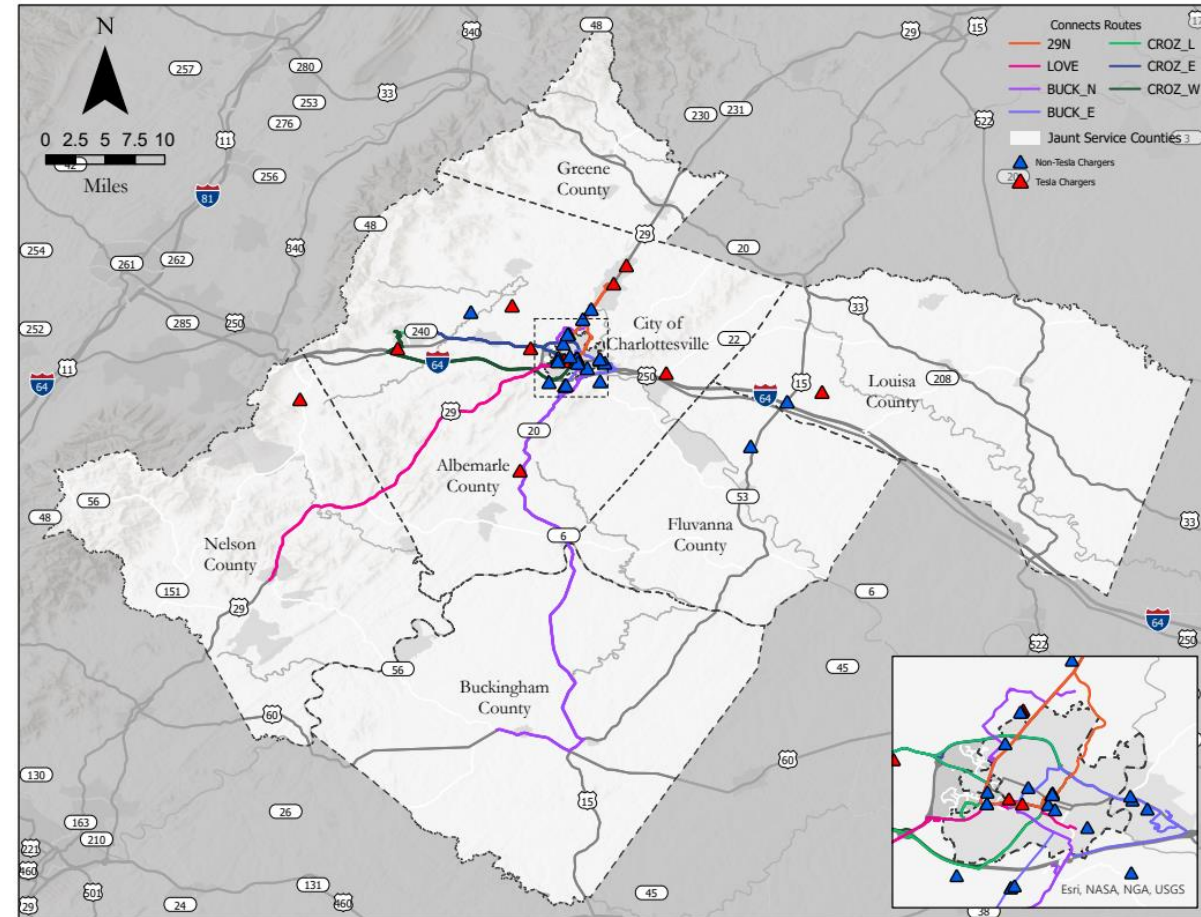
- Finalize the study technical memorandum
- Present recommendations to the Jaunt Board of Directors for consideration

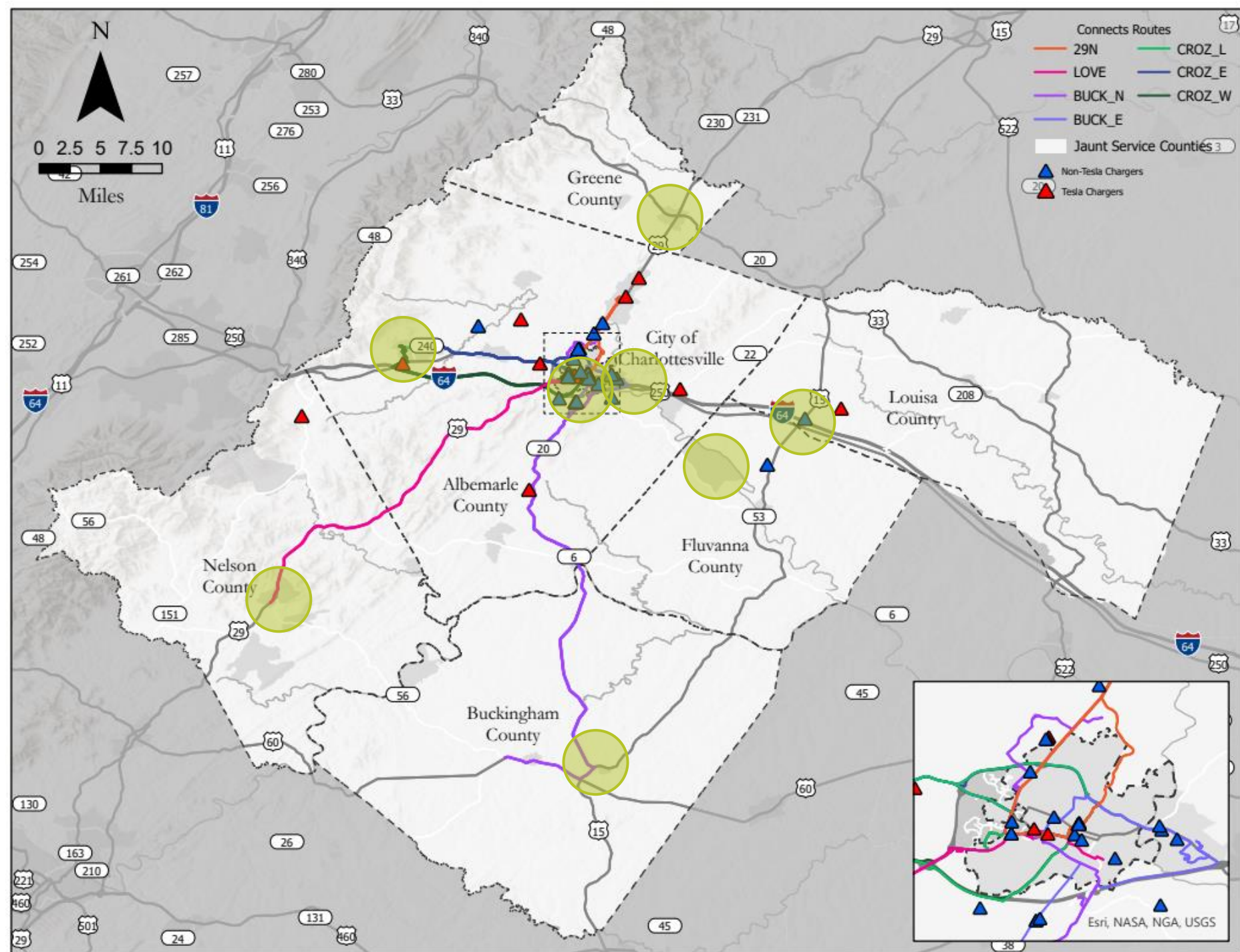


# Data Backup

# Battery Electric Charging Locations

- 28 public, non-Tesla charger locations
  - 64 Total Chargers
    - 5 Level One chargers
    - 40 Level Two chargers
    - 19 DC Fast Chargers
- Centered around the City of Charlottesville
- Most are available 24 hours a day

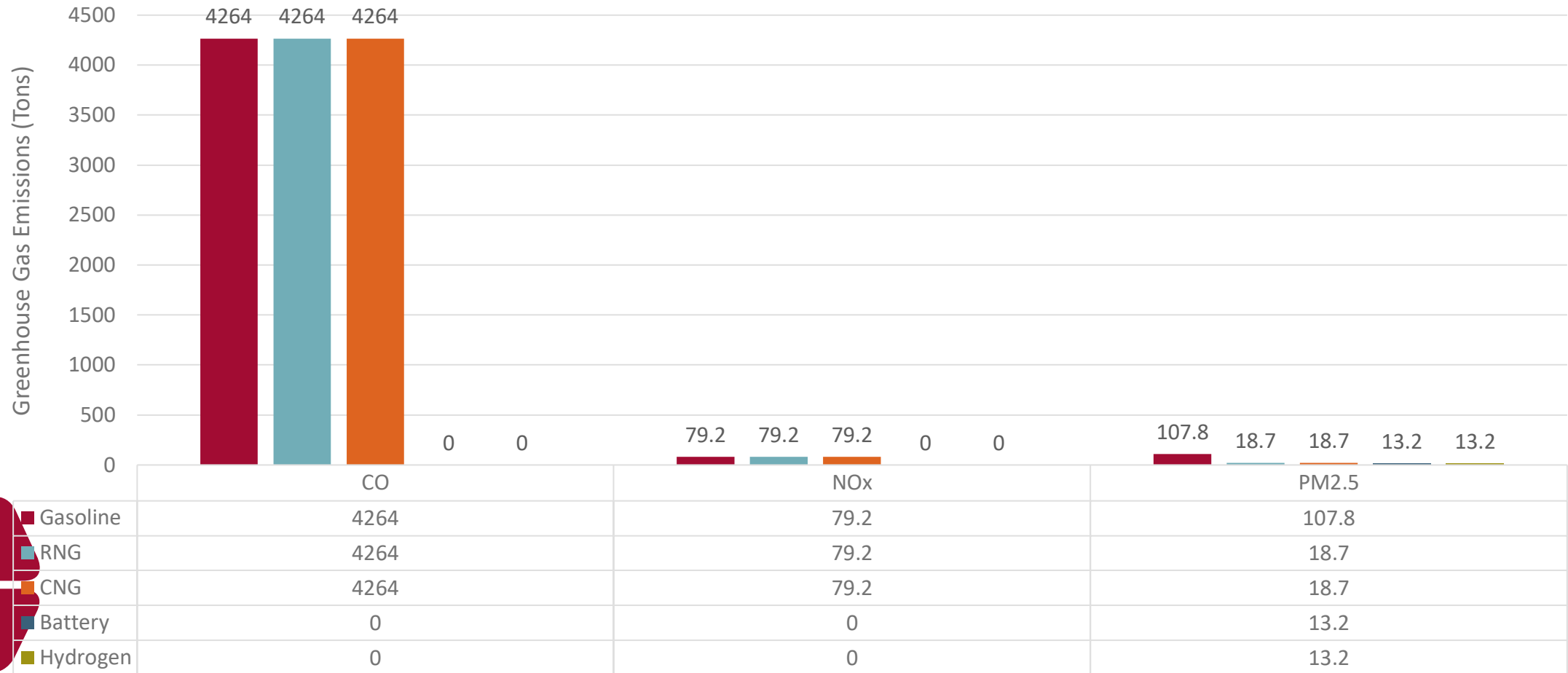




*Potential Charging Locations*

Jaunt County	Community
Albemarle -- west	Crozet
Albemarle -- east	Pantops (west of I-64/US250)
Buckingham	Dillwyn (Highway 20/US15)
Fluvanna	Lake Monticello
Greene	Ruckersville
Louisa	Zion Crossroads (I-64/US15)
Nelson	Lovingston
Charlottesville (City)	Jaunt HQ

# Other Tailpipe Emissions



■ Gasoline ■ RNG ■ CNG ■ Battery ■ Hydrogen