2025-45A

Gainesville RTS Zero Emission Transition Plan

January 2025

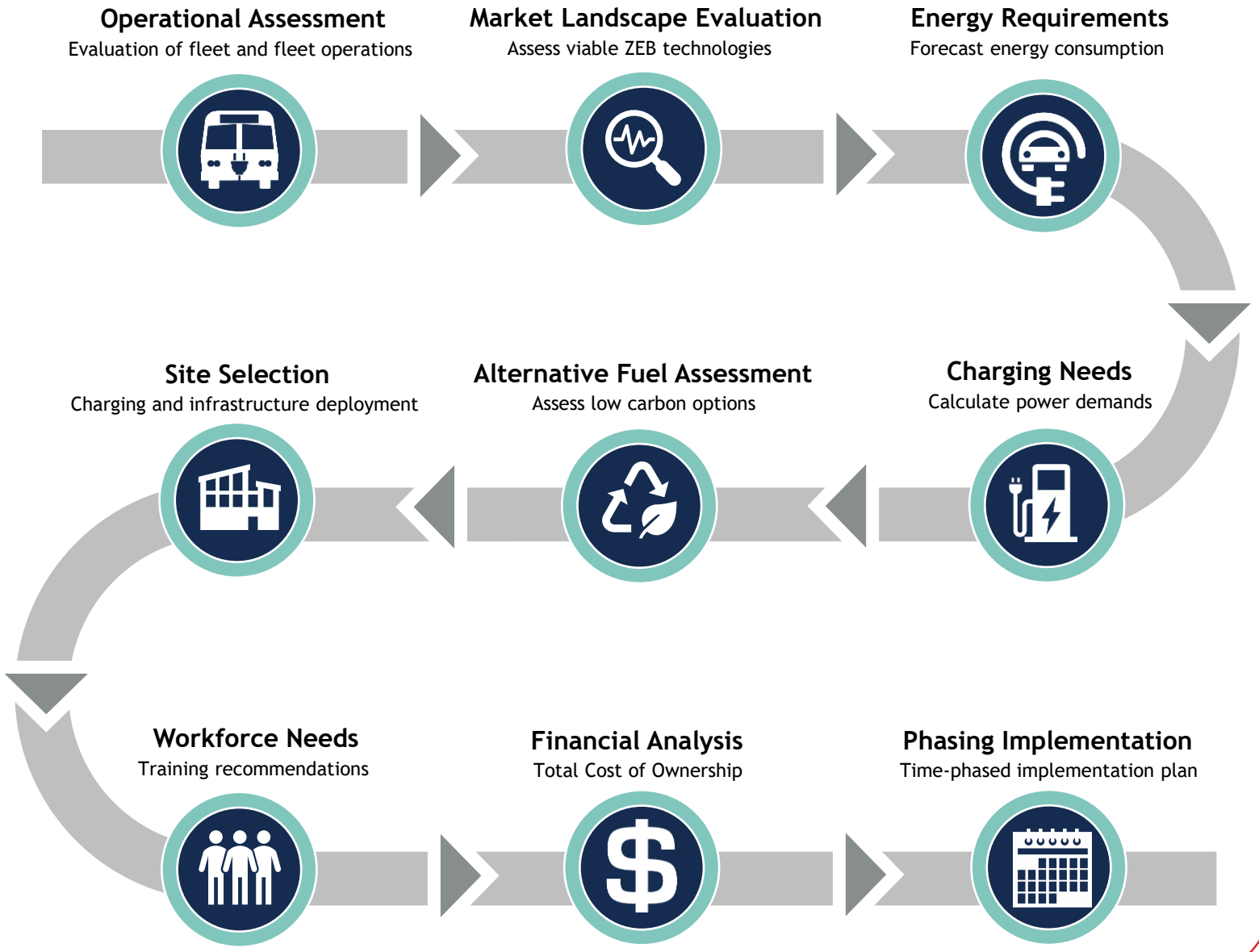
Zero-Emission Transition Plan: Project Roadmap

The Zero Emission Transition Plan was a 28-week project to develop a roadmap for RTS's conversion of 80% of its fixed-route bus fleet to low- and no-emission buses.

The transition plan considers buses already in the procurement pipeline, the anticipated replacement dates of the remaining buses, and the City of Gainesville's 2045 sustainability goals.

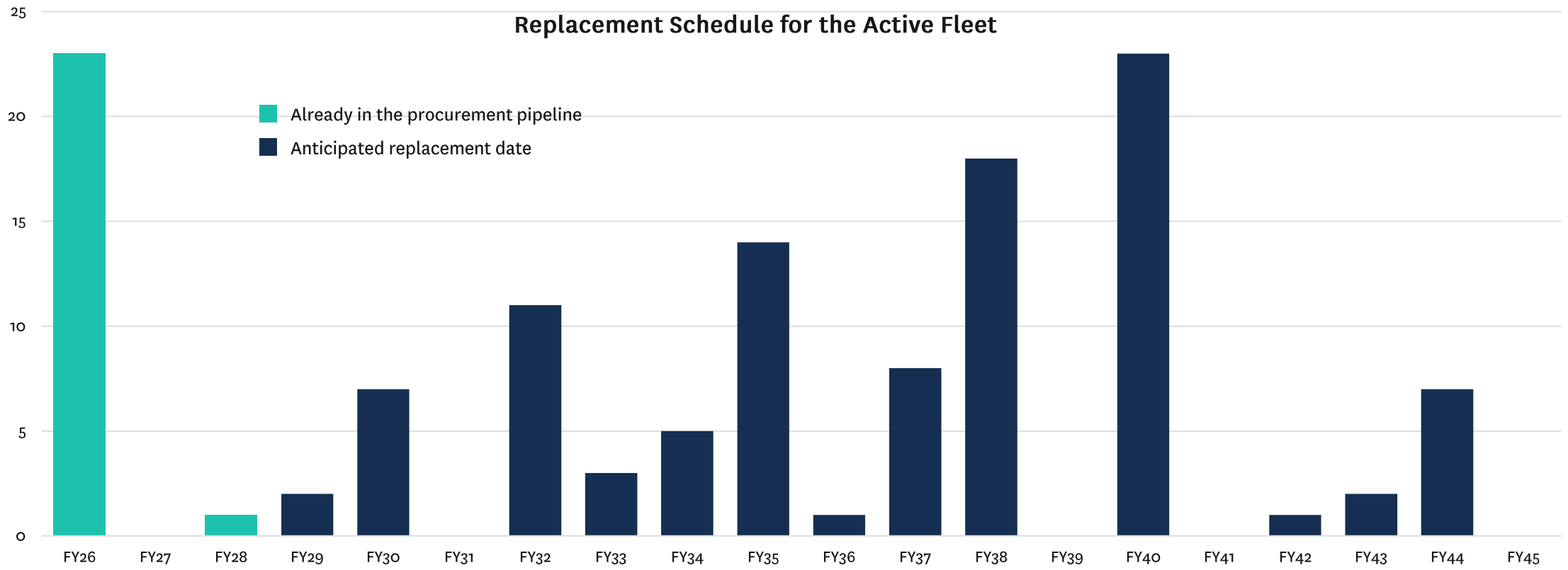
Key Findings

- Energy modeling found that 33 buses are highly electrifiable based on their daily mileage and route duration.
- Diesel-electric hybrids can be used on longer routes that are more difficult to electrify.
- Phase 1 of the transition plan can utilize the existing infrastructure at the RTS Fleet Maintenance facility to support [14] 50kW chargers.
- Grants and incentives are needed to reduce the capital costs of purchasing battery electric buses (BEBs) to improve the total cost of ownership (TCO).



Anticipated Replacement Schedule

Beginning in FY32, the buses replaced will not transition out of the fleet before the 2045 goal is reached. As a result, it is critical that 77% of the buses procured during this timeframe are Low-No models.



Fleet Transition: FY25 to FY45

Budget constraints and OEM production delays can directly impact the transition plan. Long lead times for zero-emission buses will also need to be considered during the procurement process.

Key Milestones

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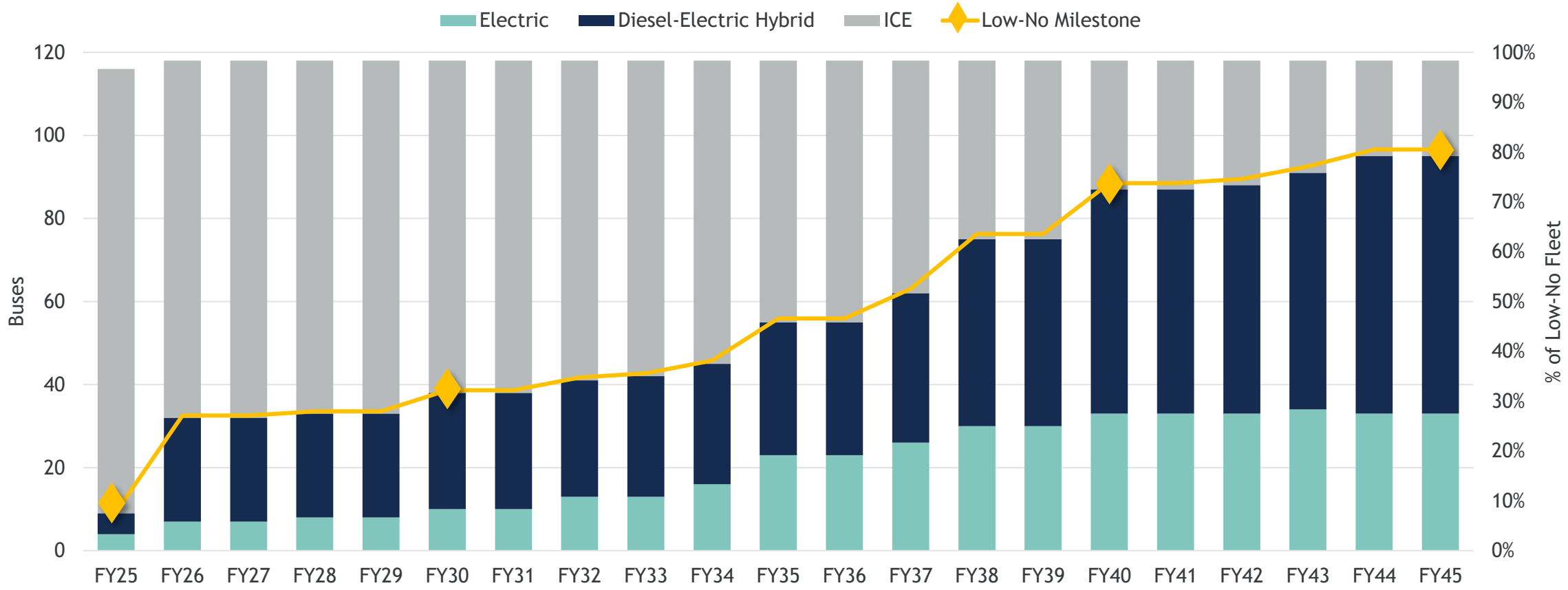
Year	Low-No Goal	Projected Low-No Buses	% of Bus Fleet
2025	8.47%	9	7.76%
2030	15%	38	32%
2040	60%	87	74%
2045	80%	95	81%

Fleet Composition



Site Selection for Charging Infrastructure: RTS Fleet Maintenance Facility

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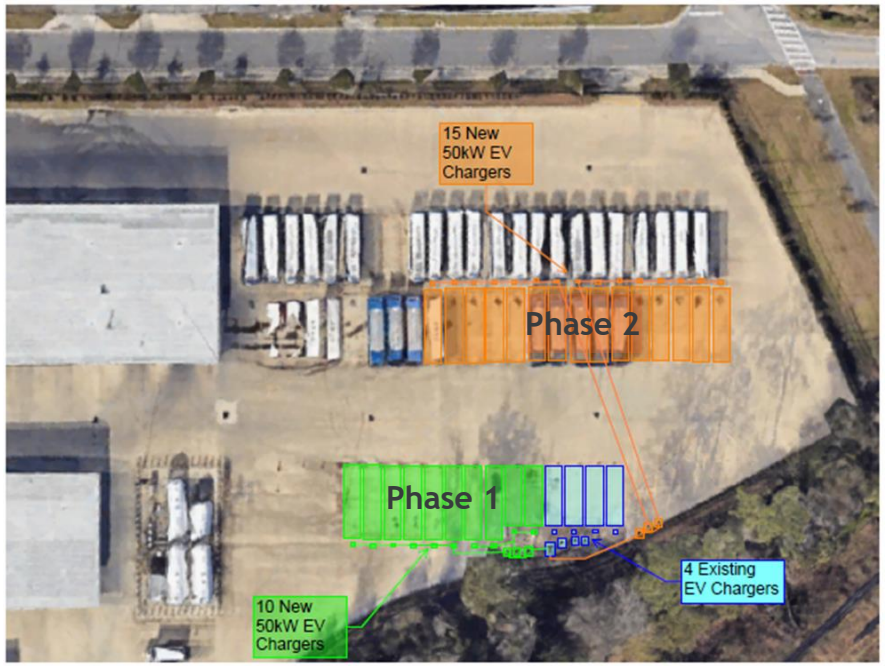
Charging infrastructure at the RTS Fleet Maintenance Facility will support the deployment of 33 BEBs.



Phase 1 will modify the existing infrastructure to expand from [4] 150kW chargers to [14] 50kW chargers

Phase 2 will require infrastructure upgrades to support an additional [15] 50kW chargers.

Total Cost of Ownership (TCO)

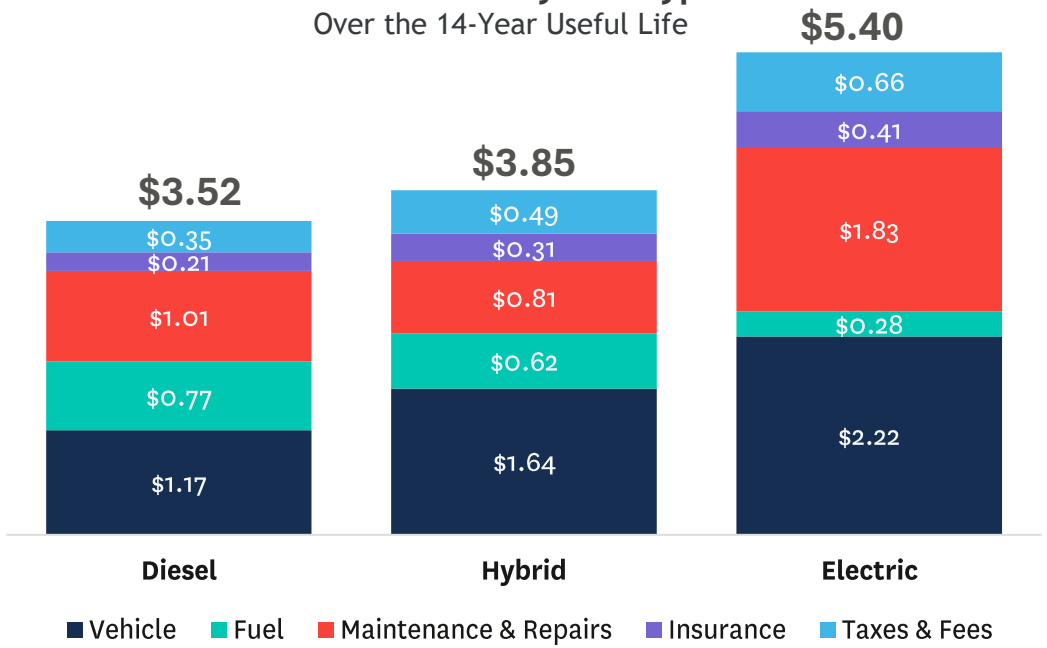
BEBs are significantly more expensive than diesel buses and need the support of grants and incentives to offset the capital costs of purchasing the bus and deploying charging infrastructure. However, the operational savings fleets can realize from the reduction of fuel and maintenance costs can be significant.

The Cost to Own & Operate A Bus Over the14-Year Useful Life*

Cost per Vehicle	Diesel	Hybrid	Electric
Vehicle	$(574,979)	$(801,702)	$(1,088,283)
Fuel	$(379,277)	$(303,421)	$(138,387)
Maintenance & Repairs	$(496,698)	$(395,270)	$(894,872)
Taxes & Fees	$(171,044)	$(238,760)	$(325,036)
Insurance	$(103,116)	$(149,540)	$(201,619)
Per Vehicle Total	**$(1,725,113)**	**$(1,888,692)**	**$(2,648,197)**

Cost Per Mile by Bus Type

Over the 14-Year Useful Life

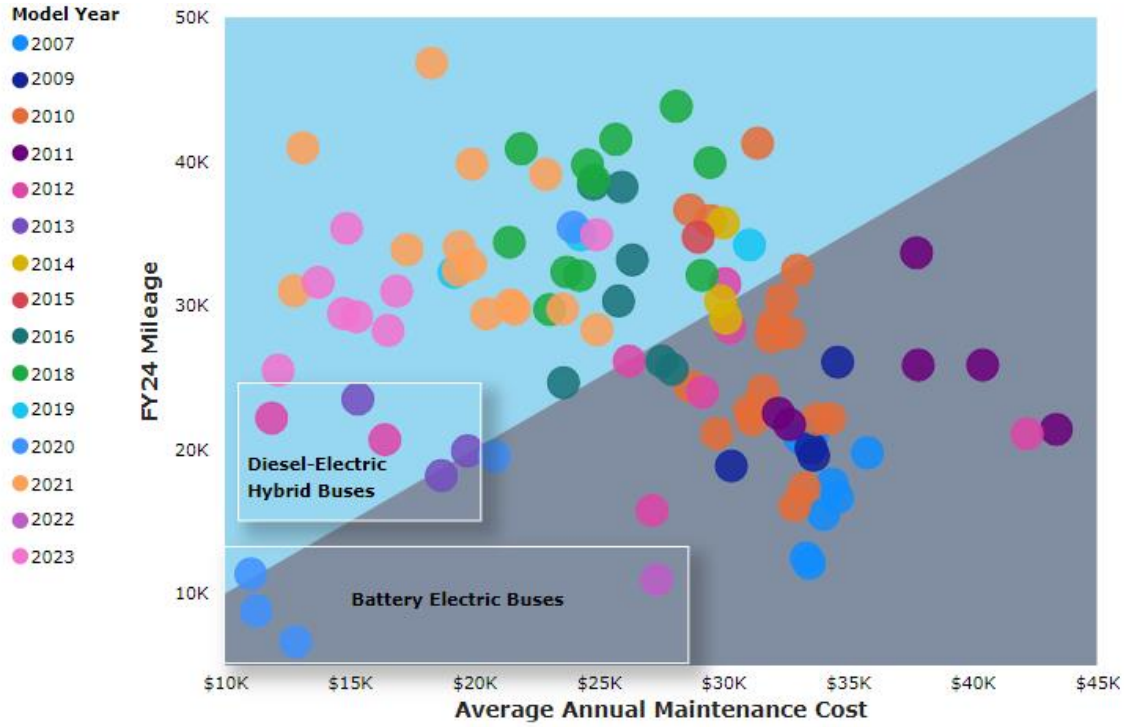


Because of range limitations, the four existing BEBs in the RTS fleet average about 9,400 miles per year. This elevates the maintenance cost per mile and negatively impacts the TCO.

Total Cost of Ownership (TCO)

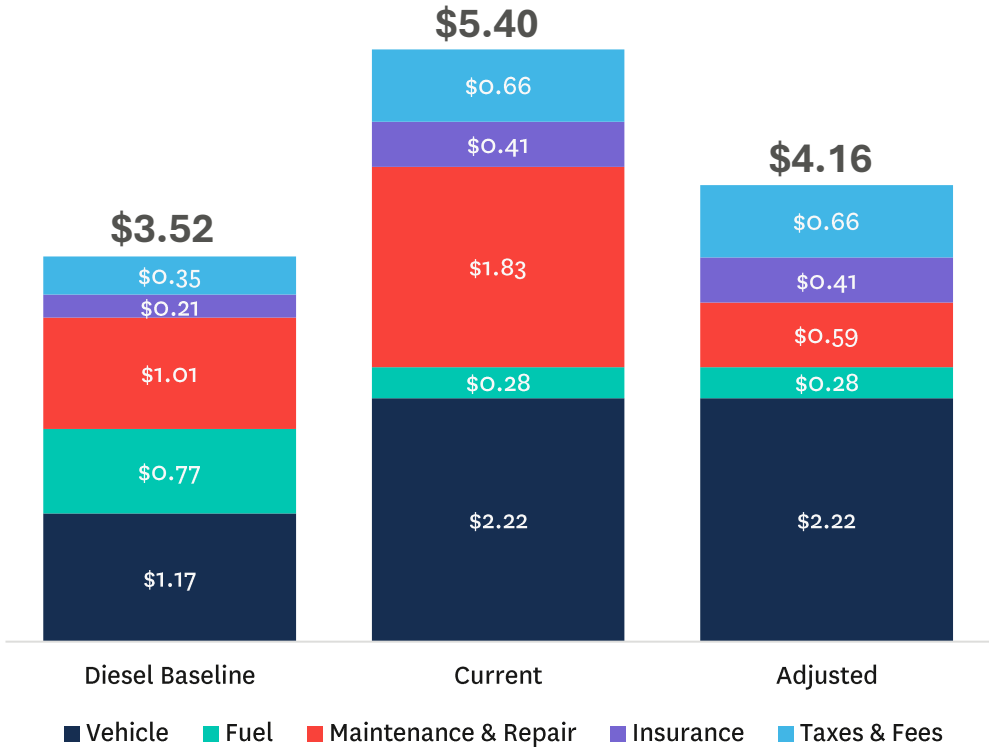
By increasing utilization and improving the BEBs' annual mileage, maintenance costs are spread across more miles, lowering the overall maintenance cost per mile. This brings the savings expected from improved operating costs back into a positive position.

Average Annual Maintenance Cost & FY24 Mileage Comparison



Adjusted Cost Per Mile by Bus Type

Over the 14-Year Useful Life



Recommendations

To achieve the 2045 goal, 1898 & Co., a part of Burns & McDonnell, recommends the following:

- Expand the BEB fleet to 33 buses and the diesel-electric hybrid fleet to 47 buses by 2045, using the cadence outlined in the report.
- Deploy [29] 50kW chargers at the RTS Fleet Maintenance facility to support the recommended buses for electrification. This will require both modifying and upgrading the existing infrastructure across two distinct phases. Charging for the BEBs will occur overnight.
- On-route opportunity charging at the transfer stations is not required for the routes identified for electrification.