

Executive Summary

The Center for Transportation and the Environment (CTE) was contracted by the Genesee Transportation Council (GTC) to conduct a feasibility assessment for on-route charging operations for the Rochester-Genesee Regional Transportation Authority (RGRTA) Regional Transit Service (RTS) fixed-route system. This report provides a comprehensive analysis of the feasibility of on-route charging as a viable alternative for battery electric bus (BEB) operations in the Zero Emission Master Plan, currently under development with the purpose of providing a strategy for RGRTA to achieve a 25% zero-emission bus (ZEB) fleet by 2025 and 100% by 2035.

This report identifies and evaluates potential on-route charging locations, analyzes the feasibility of current RTS block using those locations, and offers recommendations based on the results of that analysis. The report details the process by which thirteen (13) candidate locations were selected and the criteria upon which they were evaluated and ranked. Ranked locations are provided below. The report also provides an analysis of block energy consumption based on expected bus performance, and from that, determines which blocks need on-route charging.

Site Ranking	Site Location
1	RTS Transit Center
2	Irondequoit Plaza New Location
3	Skyview Mall
4	Hylan Drive
5	Dewey Avenue Walmart
6	Irondequoit Plaza Original Location
7	Chili Walmart
8	Rochester Tech Park
9	Greece Ridge Mall
10	St. John Fisher
11	Eastman Dental
12	Blossom Loop
13	Landing Heights

To address the challenges posed by blocks that require greater energy than is available onboard, the report includes a multistage investigation of on-route charging to determine which of the thirteen locations would best support existing service and how much charging would be needed at those locations. It finds that fourteen (14) chargers are needed at the following locations to ensure complete weekday service of 40' buses: Transit Center (9), Skyview Mall (2), Hylan Drive (1), Irondequoit Plaza (1), and Greece Ridge Mall (1). An additional charger is needed at both the Dewey Avenue Walmart location and the Transit Center to serve 60' buses.

Weekend blocks struggle to be completed with any amount of charging. These results are summarized in the table below.

Scenario	TRANCNTR	SKYVIEW	WLMTHUB	IRNDPLZA	TECHPARK	GRECMALL	DEWYWLMT	Infeasible Blocks
Weekday 40' A	9	2	1	1	0	1	0	0
Weekday 40' B	2	2	1	1	0	1	0	7
Weekday 60'	1	0	0	0	0	0	1	0
Weekend A	Unlimited	Unlimited	Unlimited	Unlimited	Unlimited	Unlimited	0	1
Weekend B	9	2	1	1	0	1	0	13

Further evaluation identifies the relationship between the number of chargers and location of charging and block feasibility. In all models, significant charging build out at the Transit Center is needed to achieve the desired level of service; however, utility limitations prevent three or more chargers from being installed without additional upgrades to the utility service. The Weekday B scenario above shows that limiting charging at the Transit Center results in diminished feasibility. These and other results from the analysis indicate that challenges exist in utilizing on-route charging to bridge the gap between service demands and bus energy storage limitations. This report finds that service feasibility improvements from even moderate build out are significant, but additional interventions like including longer and more numerous layovers or reducing block length would be needed to fully transition to battery electric operations. The report's findings provide a roadmap for RGRTA to grow battery electric service on RTS's routes and make significant progress towards a zero-emission future.