

GENESEE TRANSPORTATION COUNCIL

RESOLUTION

Resolution 23-07 Accepting the *On-Route Charging Feasibility Study* as evidence of completion of UPWP Task 8553

WHEREAS,

1. The *FY 2022-2023 Unified Planning Work Program* includes Task 8553, On-Route Charging Feasibility Study, for the purpose of evaluating the feasibility of on-route charging of electric buses in RGRTA's fixed-route system;
2. Said Task identified thirteen potential on-route charging locations, developed evaluation criteria to score and rank the charging locations, applied the evaluation criteria to each location to identify optimal on-route charging locations, conducted an energy consumption analysis to determine power requirements for each location, verified route and block charging needs, and modeled anticipated charging demand for individual and cumulative routes;
3. Said Task has been completed and has resulted in the *On-Route Charging Feasibility Study*, which provides a strategy for expanding fixed-route electric bus service; and
4. Said System has been reviewed by GTC staff and member agencies through the GTC committee process and has been found to be consistent with the goals, objectives, and recommendations of the Long Range Transportation Plan.

NOW, THEREFORE, BE IT RESOLVED

1. That the Genesee Transportation Council hereby accepts the *On-Route Charging Feasibility Study* as evidence of completion of UPWP Task 8553; and
2. That this resolution takes effect immediately.

CERTIFICATION

The undersigned duly qualified Secretary of the Genesee Transportation Council certifies that the foregoing is a true and correct copy of a resolution adopted at a legally convened meeting of the Genesee Transportation Council held on June 8, 2023.

Date _____

CHRISTOPHER REEVE, Secretary
Genesee Transportation Council

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.