

NYCDOT Green Bus Lines Route Analysis

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New York City Department of Transportation (NYCDOT) subsidizes several franchise bus operators in Queens and Brooklyn. The franchise operators, which started operating in the first half of the Twentieth Century, have made few changes to their routes in the past several decades despite the changes in the neighborhoods that their routes serve; for example, new shopping areas developing, neighborhoods that gentrify or degenerate, exodus of industry.

To add to these typical changes, Metrocard was implemented in 1997. The free transfers between bus and subway have led to major increases in ridership and probable shifts in origins and destinations to take advantage of the free transfer. At the same time, the fareboxes installed to handle Metrocard were supposed to provide detailed ridership counts and fare revenue information. However, the computer outputs from the fareboxes have obvious errors, for example, 16,000 passengers on one run.

The lack of reliability of the data prevented analysis of the routes through the computer data. NYCDOT contracted to have UTRC take a closer look at franchise routes and ridership; in order to keep the project manageable, they decided to concentrate on one of the franchise operators, Green Bus.

The objectives of the project were: 1) to study Green Bus routes and to make recommendations for changes and 2) to develop a method to verify ridership.



The first objective was addressed in several ways. A student built a GIS map of the routes overlying demographic data on income, auto ownership, density of school age children (Green Bus carries more school children to and from school than any other non-school bus system), and other relevant characteristics. Students rode several of the routes, recording where passengers got on and off. These data were used to create load profiles of the routes. Also the route map was studied in detail, noting major traffic attractors and convoluted paths.

The second objective was met by developing a counting procedure based on the FTA recommended procedure, using a sampling pattern adapted to verifying the farebox counts. In order to estimate the standard deviation (for determining minimum sample size), on-off counts for New York City Transit routes in the same area of Queens were obtained and analyzed.

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