

Deliverable 1

We have aggregated data on the following: bus stops and locations of each RTA, ridership information for each RTA, and census tract to income level data. After collecting the data, we produced initial visualizations to perform some preliminary analysis. The code for the following can be found in this git repo: <https://github.com/cumason123/transit-equity>.

The strategic question we attempted to answer is: What would the cost be to the MBTA and regional transit authorities for each proposed bus route/ stop/ zones (based on ridership and fare costs)?

We assumed that revenue per bus stops followed a uniform distribution because we have no data to properly calculate individual bus stop revenue, nor data to determine the true underlying distribution. With that assumption, we calculated the average revenue per bus stop below by dividing the total revenue of a RTA by the number of bus stops the RTA supports. We can use these figures to estimate how much the MBTA would lose by removing fares for individual bus stops. The regional transit authorities with the greatest cost for rendering their services free would be the Cape Cod RTA, the Woods Hole, Martha's Vineyard, and Nantucket collective RTA, and the Montachusett Regional Transit Authority.

