Reducing Paid Vehicle Service Congestion at LaGuardia Airport
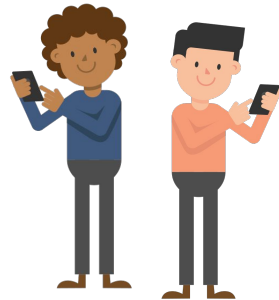
Big Data in Transportation

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Background

Advent of Ridesharing

- Large number of pedestrian vehicles at ports
- Taxicabs have economically suffered
- Strict laws used to regulate ridesharing
- Claims of congestion against ridesharing

Validation + Solution

Looking at arrivals at LaGuardia within a 15 to 30 minute window, compared to pickup times for cars services at the airport.
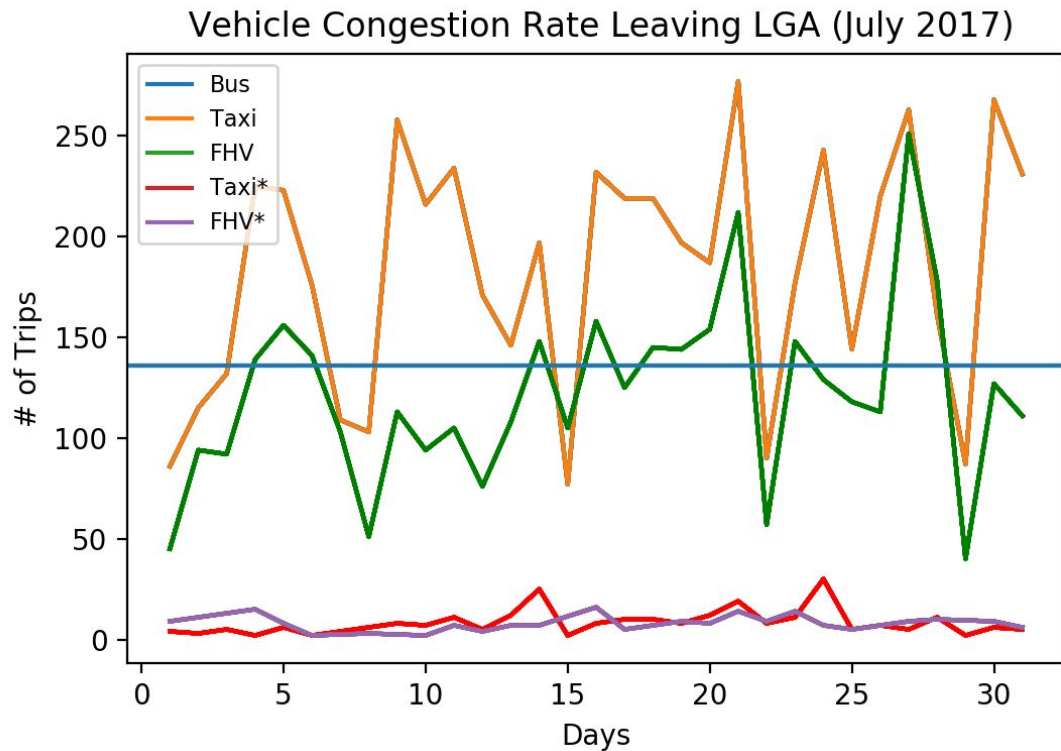
- FHV Data
- Taxicab Data
- Historic Flight Data (at LGA)
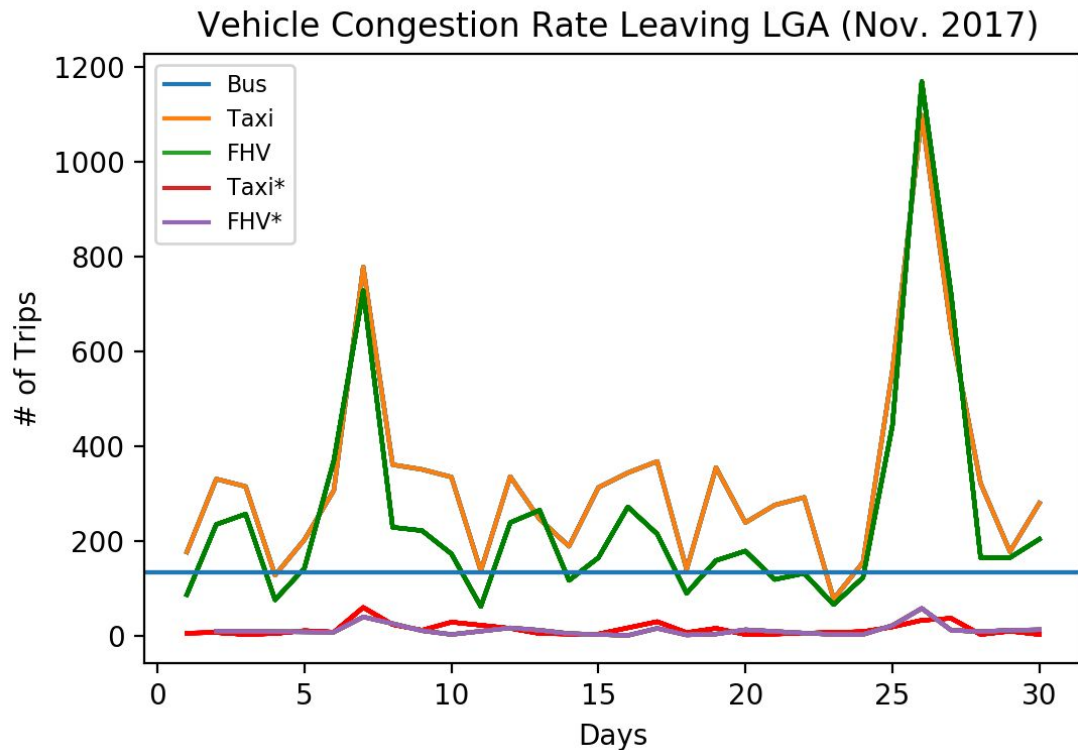
Evaluation Process

We collected and cleaned data on Taxi Cab rides, FHV rides, Flights, and Bus Trips within the LGA neighborhood.

- Note that each yearly data sheets are large datasets
  - We have chosen to evaluate July, November, and December of 2017
  - We believe these months will display congestion behaviors due to holiday activity
- FHV and Taxicab Data
  - Filtered for pickups at LGA
- (Domestic Passenger) Historic Flight Data
  - Filtered for flight arrivals at LGA
  - Flights that are cancelled are removed
  - Passenger Info not available
- MTA M60 SBS Bus
  - Assume daily weekday schedule
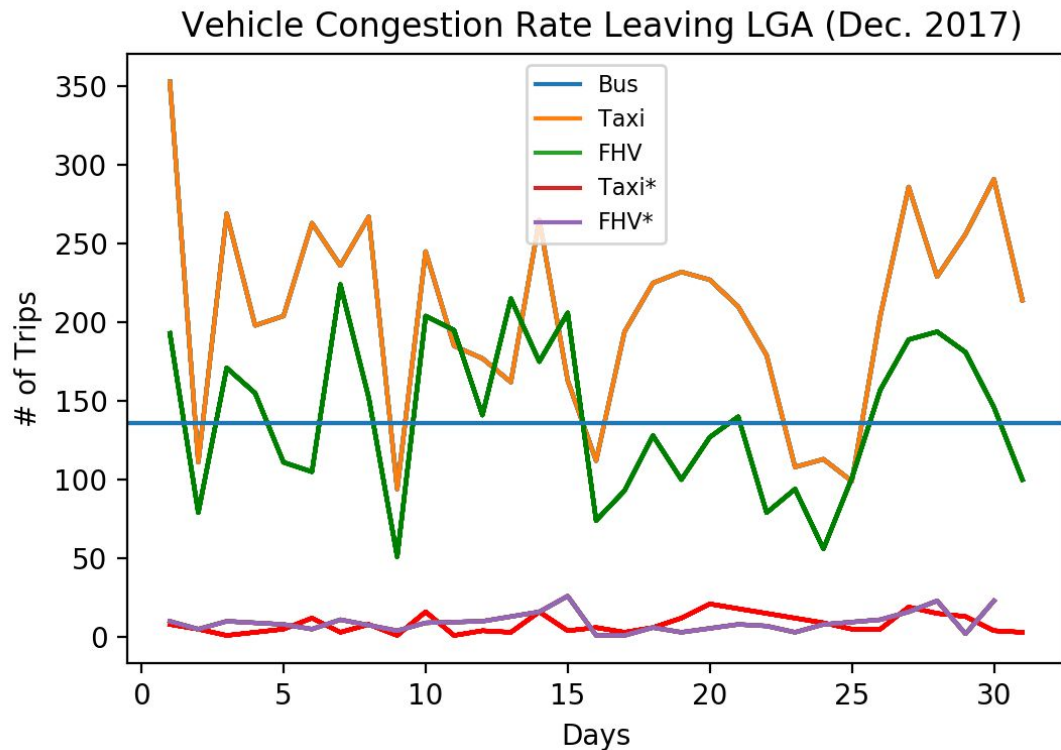 - Convert car passengers to bus passengers to reduce congestion

Evaluation Process

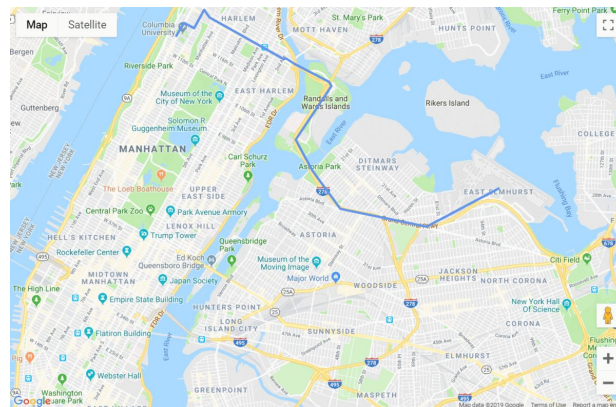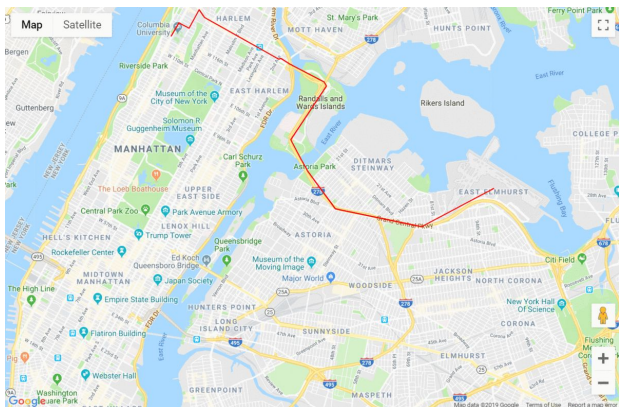Vehicle Congestion Rate Leaving LGA (July 2017)

Evaluation Process

Vehicle Congestion Rate Leaving LGA (Nov. 2017)
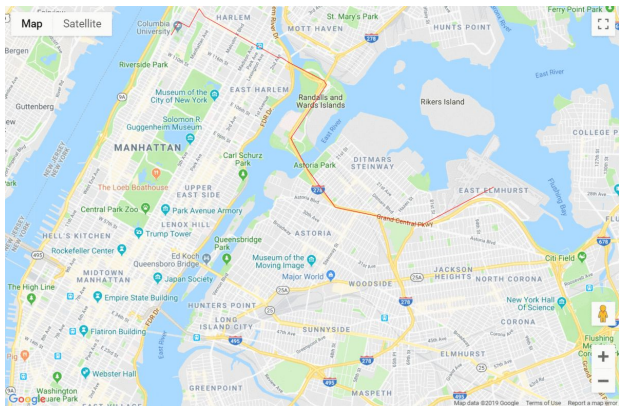
Evaluation Process

Vehicle Congestion Rate Leaving LGA (Dec. 2017)
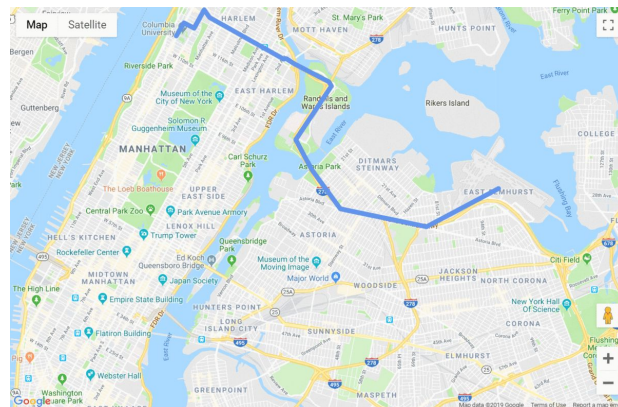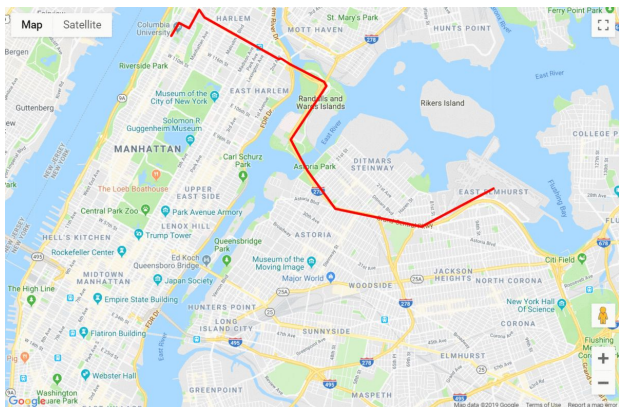
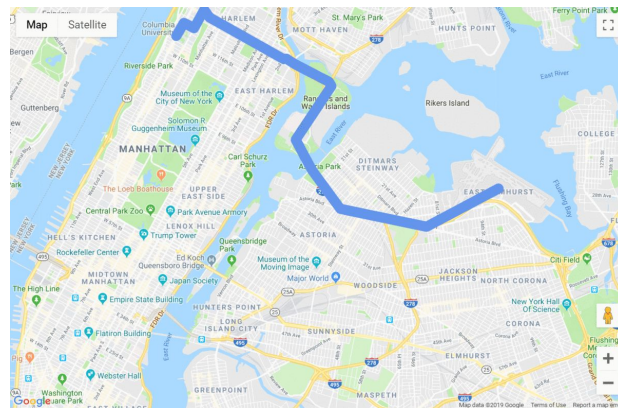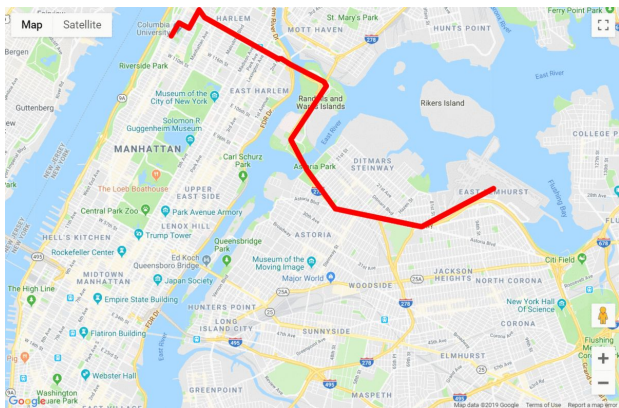# Evaluation Process: July 2017

DAY

1

Evaluation Process: November 2017

DAY

1

Evaluation Process: December 2017

DAY

1

Policy/Validation

- Students and faculty travelling to campus from LGA can take the bus instead of taking a taxi/fhv.
  - Congestion can be reduced to the levels shown prior.
- Incentivize using public transportation and taking more group rides.
  - Discount for Taxi Cabs and FHV's
- Other Considerations
  - Environmental aspect
    - Less fuel being burned and put into the atmosphere
  - Safety aspect
    - Less vehicles on the road reduces possibility of accident

Potential Future Work

- Having passenger count per flight and per car service may lead to more accurate results.
- Looking at Taxi/FHV/Bus routes in other destinations than Columbia University
  - Need real-traffic data for each of the routes
  - Integrate passenger capacity for M60
- Better function or metric for congestion