Uber Case Study

Airport Route Problem

Strategy and Business Objectives

Business Objective

- Identify the Root Cause for Airport Route issues, namely:-
  - Driver Cancellation
  - Cab Unavailability

Strategy

- Maximize the Airport route trips as a failed trip due to either reason is an effective loss.

Constraints

- Any Emotion behind cancellation is not captured in the data like a driver having a personal emergency.

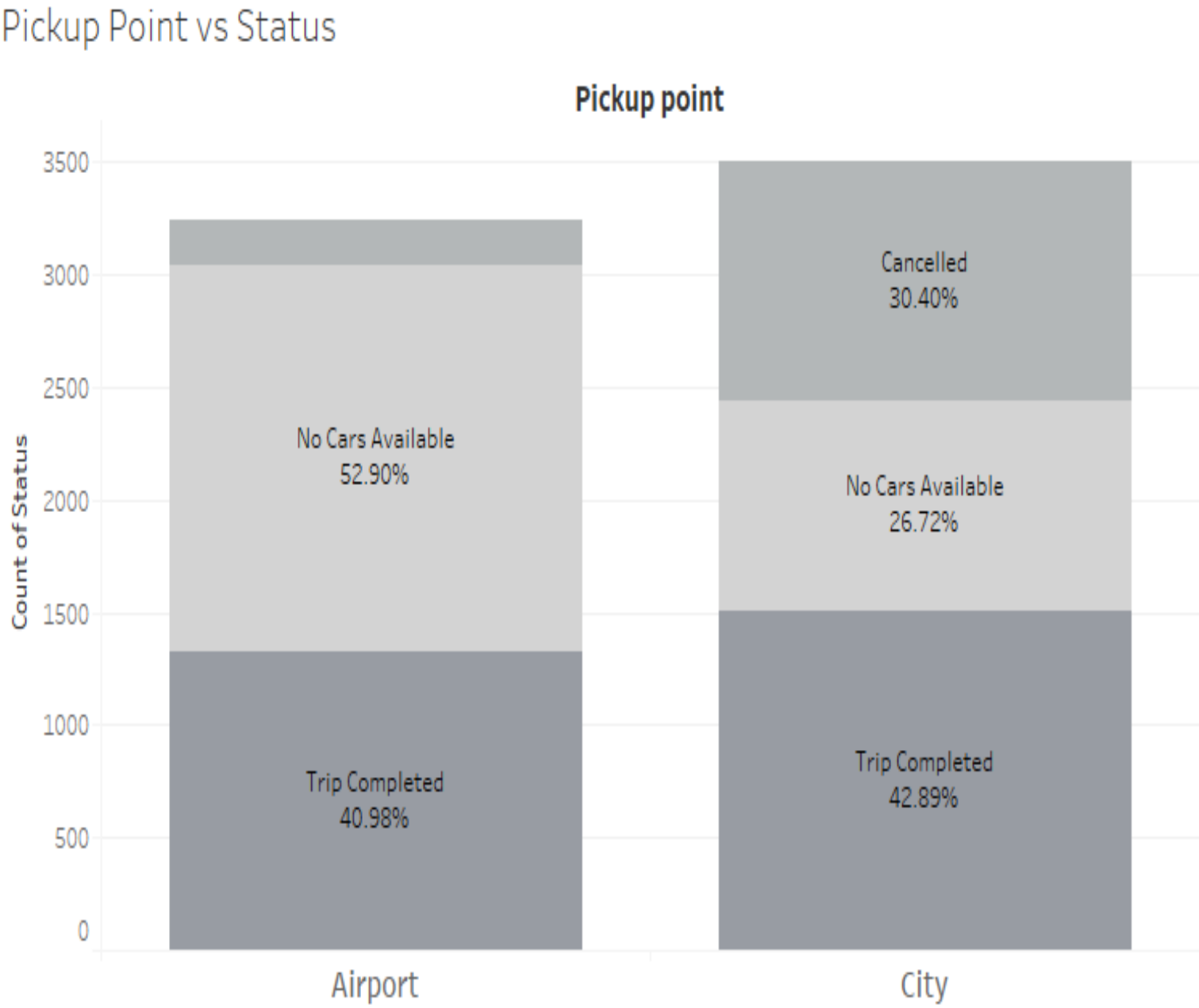
Data - 6745 Trips to-and-fro Airport over 5 days

- 6745 trip over five days (11July 2017 – 15July 2017 (late trip ending on next day i.e. 16July 2017))
- Details
  - Completion Status
    - 'Completed' : 2831
    - 'Cancelled' : 1264
    - 'No Cars Available' : 2650
  - Start date & time of trip
  - End date & Time of trip (for completed trips)
  - Pickup Location (city(to) & Airport(fro)) : Data is limited to trips from and to airport.

Pickup Location, Hour of request and Trip Status

The analysis was divided into various components:

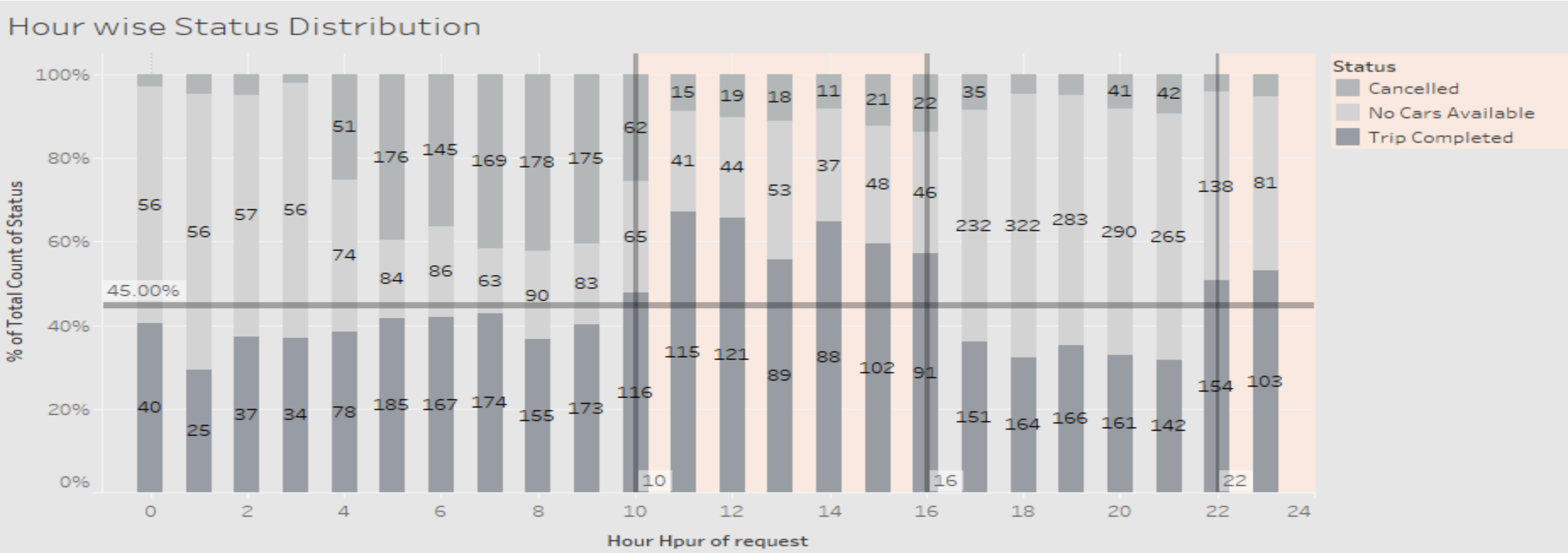
- Impact of individual attributes affecting the overall success rate; for example
  - how status(trip success) is impacted by the Pickup location is show in the figure.
    - airport seems to have a lot of 'No Cars Available', greater than trip completed
    - city have good mix of all
- How a mix of these attribute is resulting into the cancellation or unavailability



Count of Status for each Pickup point. Color shows details about Status. The marks are labeled by Status and % of Total Count of Status fact.

Gravity of the Situation – Demand & Supply Gap

- Except for 10-16 & 22-23 Hour ranges all other ranges have less than 45% success ratio.
- It implies that for remaining 15 hours (62.5%) we just make 45 out of the possible 100 trips.
- If we had even distribution of trips across the hours, It would imply 34% of total trips more than a third for this Route.
- Our Problem Space is divided into two spaces related to the To & Fro movement; we will explore them separately.



The plot of % of Total Count of Status for Hour of request. Color shows details about Status. The marks are labeled by count of Status.

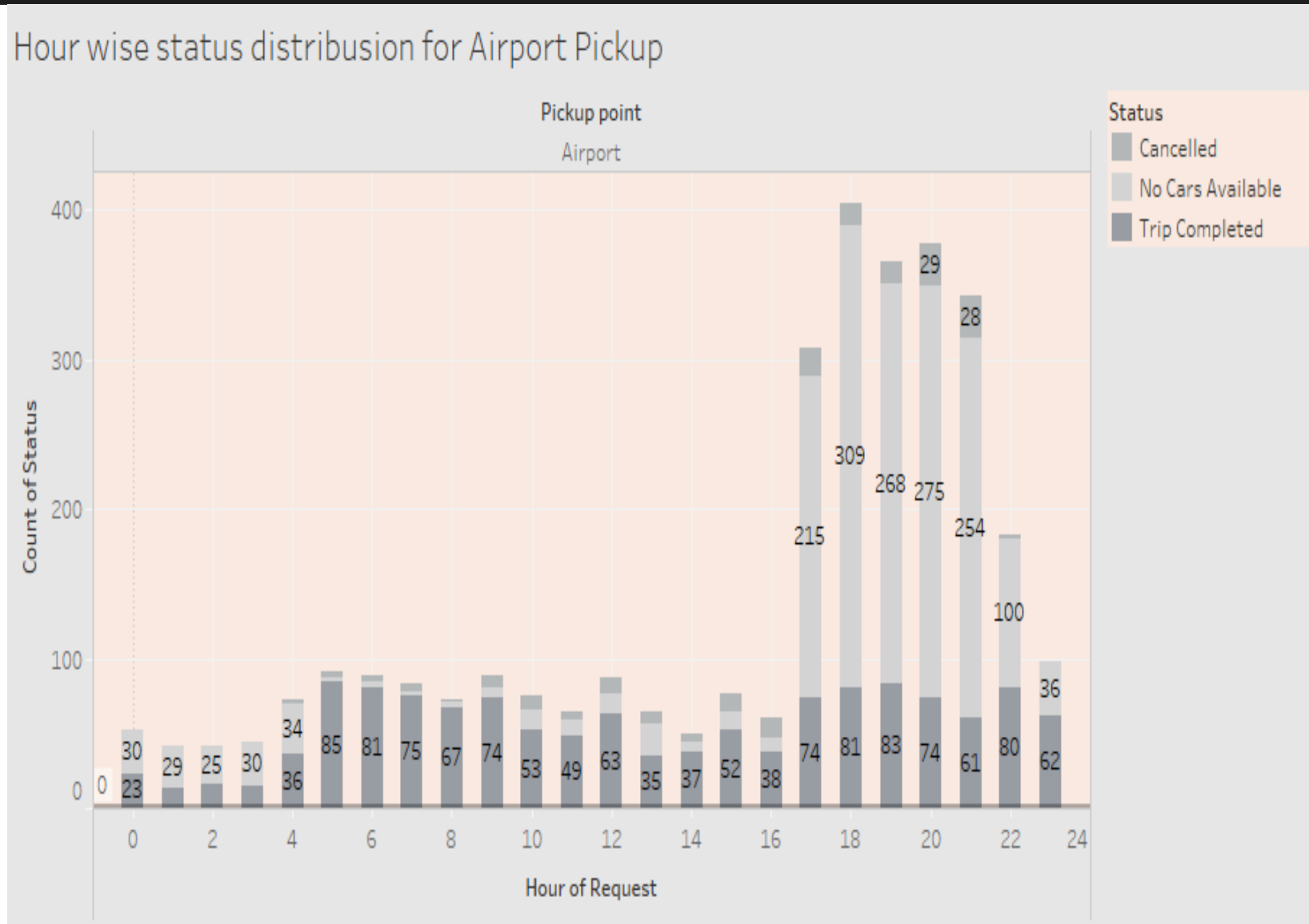
Pickup : Airport

We will analyze data related to each pickup point starting with Airport

- **17-22 hours have really high % of no cars available with number of requests being high too.**
- Evidently demand is very high as compared to supply.
- Demand being high signify that flights/passengers are inbound at large.
- We don’t have enough cabs at the airport for met this surge in demand.

- **00(Midnight)-04 have very few requests but around 50% end up as no cars available.**
- Few request result in higher wait time for the driver which is another deterrent in generating enough supply.

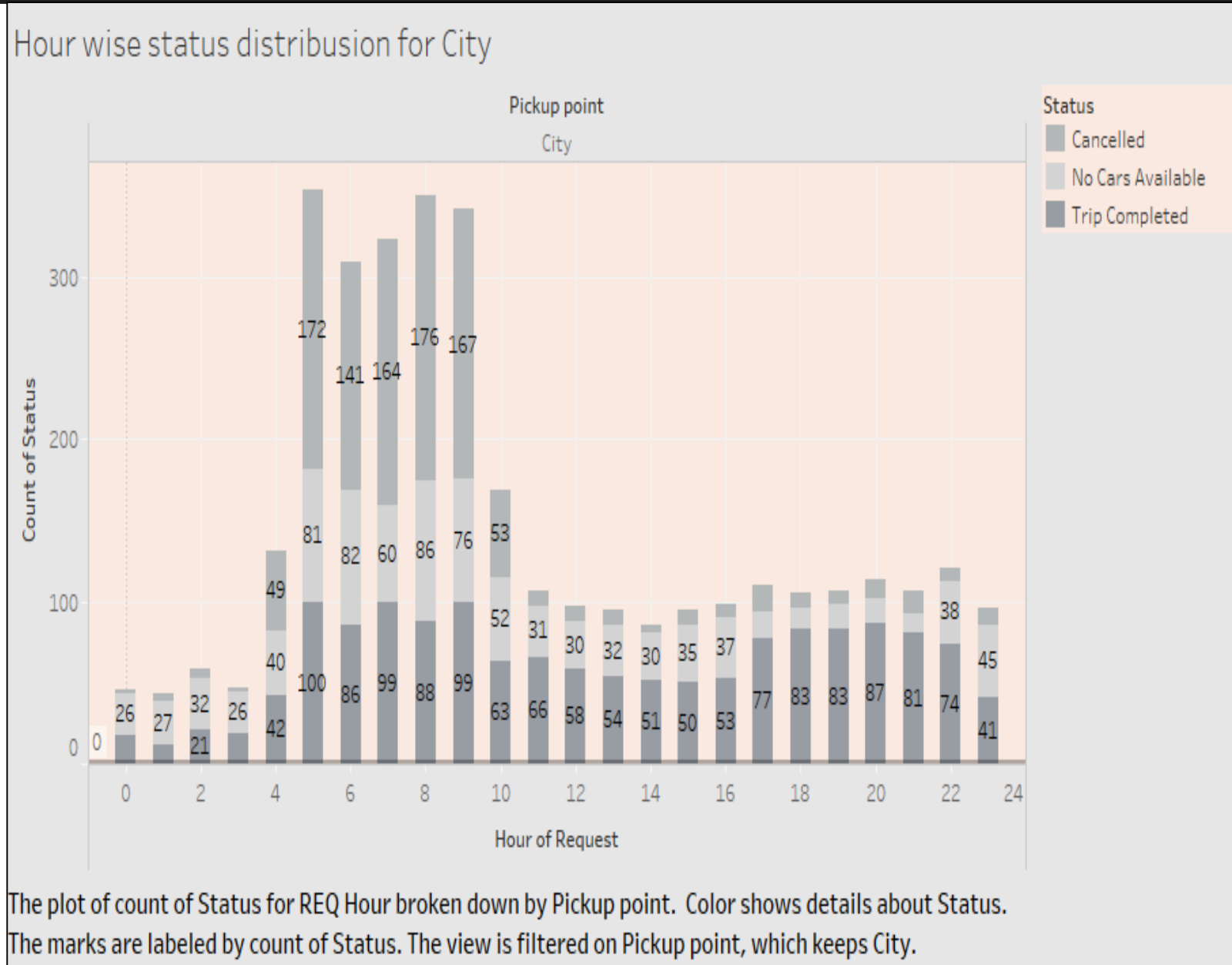
- We need to make sure we close this gap.



The plot of count of Status for REQ Hour broken down by Pickup point. Color shows details about Status. The marks are labeled by count of Status. The view is filtered on Pickup point, which keeps Airport.

Pickup : City

- Hours(5-9) their seems to be a lot of cancellation during this time.
- 6,8,9 hrs there are a lot of cars waiting at airport although the wait time is not high.
- Drivers don't want to go to airport during these hours as by the time day reach ; they know they will have to wait their for a while.
- High demand at city and waiting at airport would mean that their less inbound flights and more outbound flights.
- We need to motivates driver to still take these trips while managing their wait time.
- Alternatively allowing them to come back from airport without incurring gas cost.



Solution Proposal for Pickup at Airport

- To motivate Driver to be at Airport during those hours:-
  - Offer default surges for those hours(17-22 & 00-04) for pickup from airport
  - To cancel out wait time offer concession in the uber commission proportional to wait time may be with a maximum cap(we don’t want losses)
  - Specific Uber Station at airport (Like in Pune, India) would encourage the driver
    - As he would not have to pay parking
    - Neither wait outside and get back in the queue to enter airport whenever he gets the new trip

Solution Proposal for Pickup at City(Fro)

- To motivate Driver to accept Airport trips from city during those hours:-
  - Offer default surges for those hours(5-9 am) for Airport Drops
  - Have a default charge for Airport drop that compensate for wait time/gas mileage for empty return.
  - Concession in the Uber commission would be an option too.
  - Bonuses for most to and fro airport trips over a week/month for drivers ;
    - Although further analysis w.r.t trip charges and other routes need to be analysed before deciding bonus specifications.