citi bike

GROUP C

JOYCE, EDEN, HERBERT, KARTIKEYA, ASTA, GRACE

AGENDA

01 **Problem**

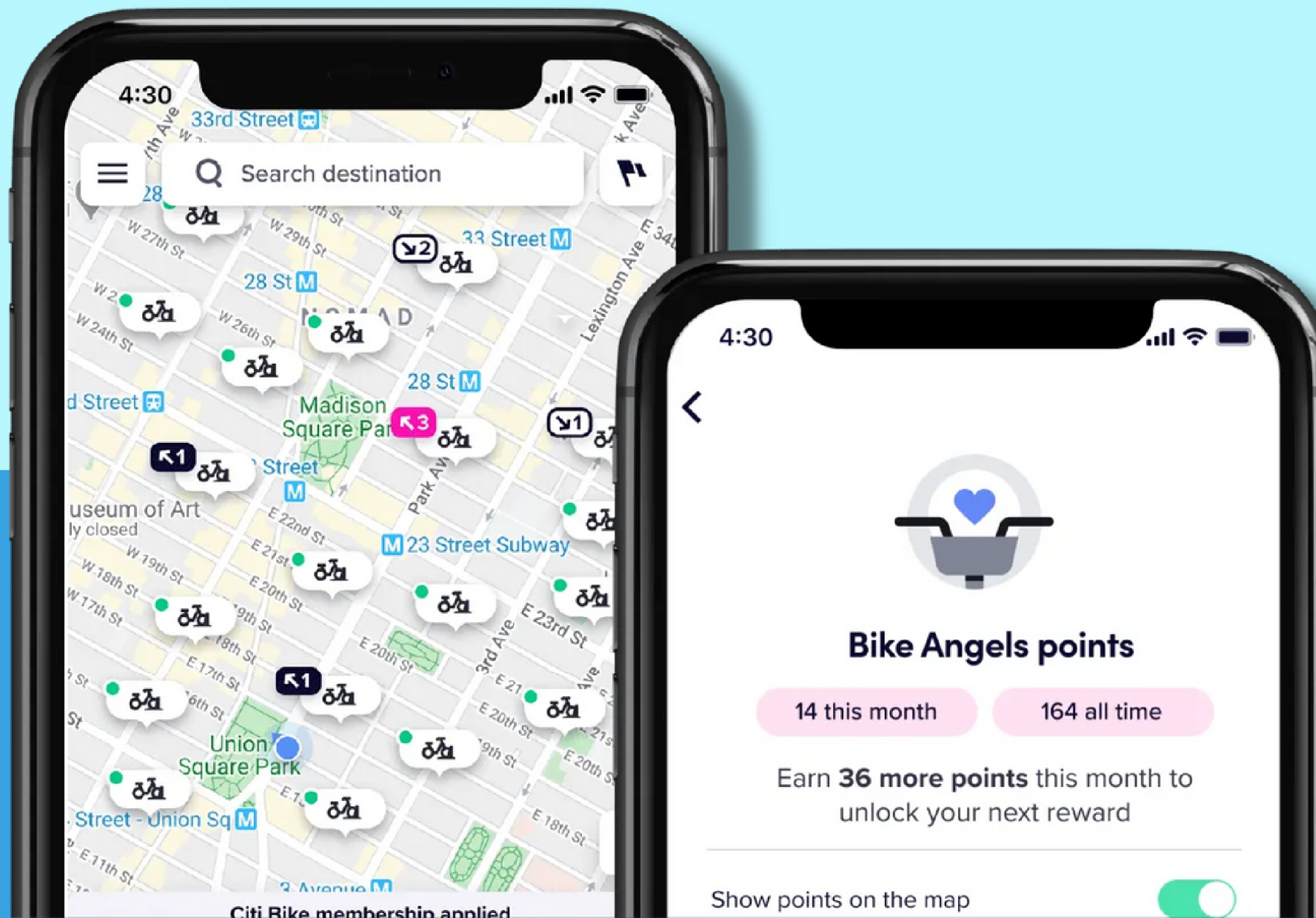**02** **Methodology**

03 **Solution**

04 **Conclusion**

PROBLEM

INTRODUCTION
WHAT ARE BIKE ANGELS?

Bike Angels are Citi Bike users that sign up for the program to improve the availability of bikes around a location in exchange for rewards; points on their Citi Bike account which they can then redeem for "swag".
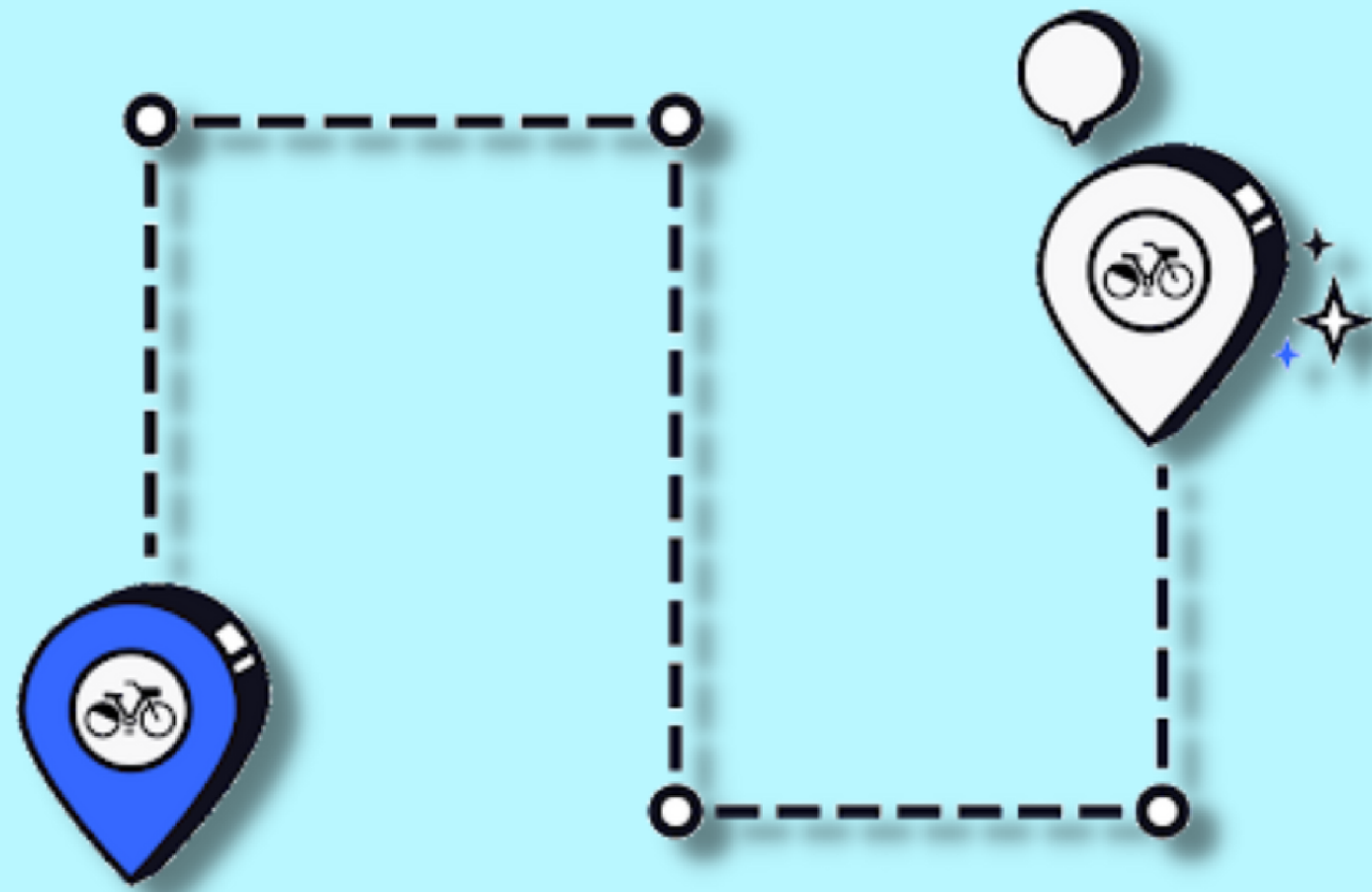
PROBLEM CITIBIKE IS FACING

- App currently optimizes for short distance rebalancing jobs (Trip Chaining)
- Reward for short distance trips are not appealing to Bike Angels
- Rebalancing needs to be in a bigger scale
- Bike Angels cannot plan ahead for longer distance rebalancing trips

CHALLENGE

WHAT ARE WE TRYING TO SOLVE?

How can we optimize the demand forecast of bike rebalancing for Bike Angels to plan their journey ahead of time and allow for longer distances in their trips?
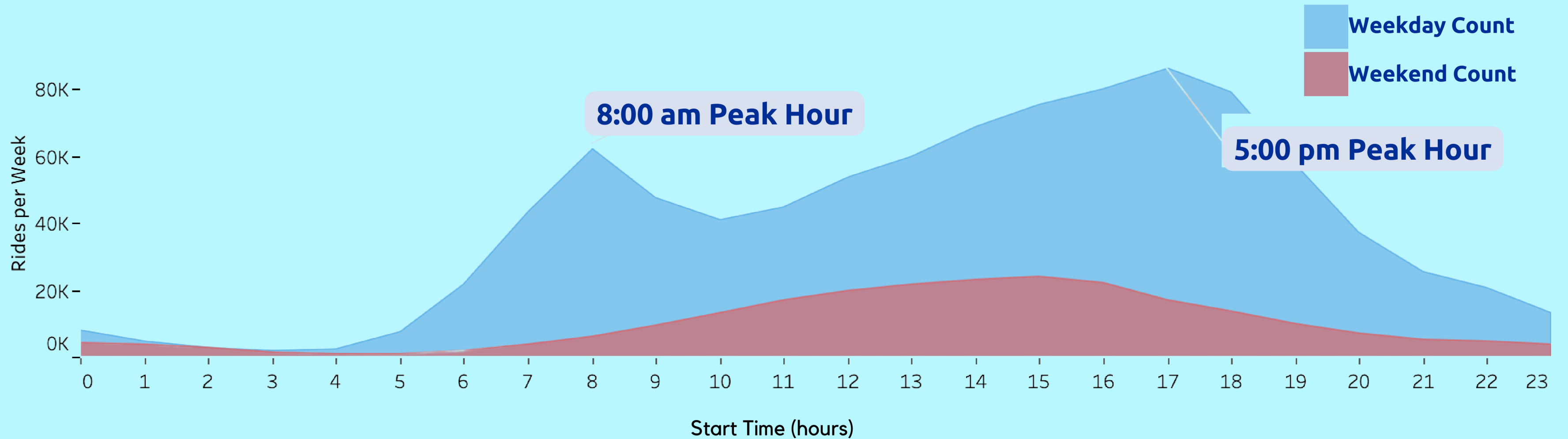
ANALYSIS
WHEN ARE PEAK HOURS?

Weekdays have the most hotspots and peak hours are 8 am and 5 pm

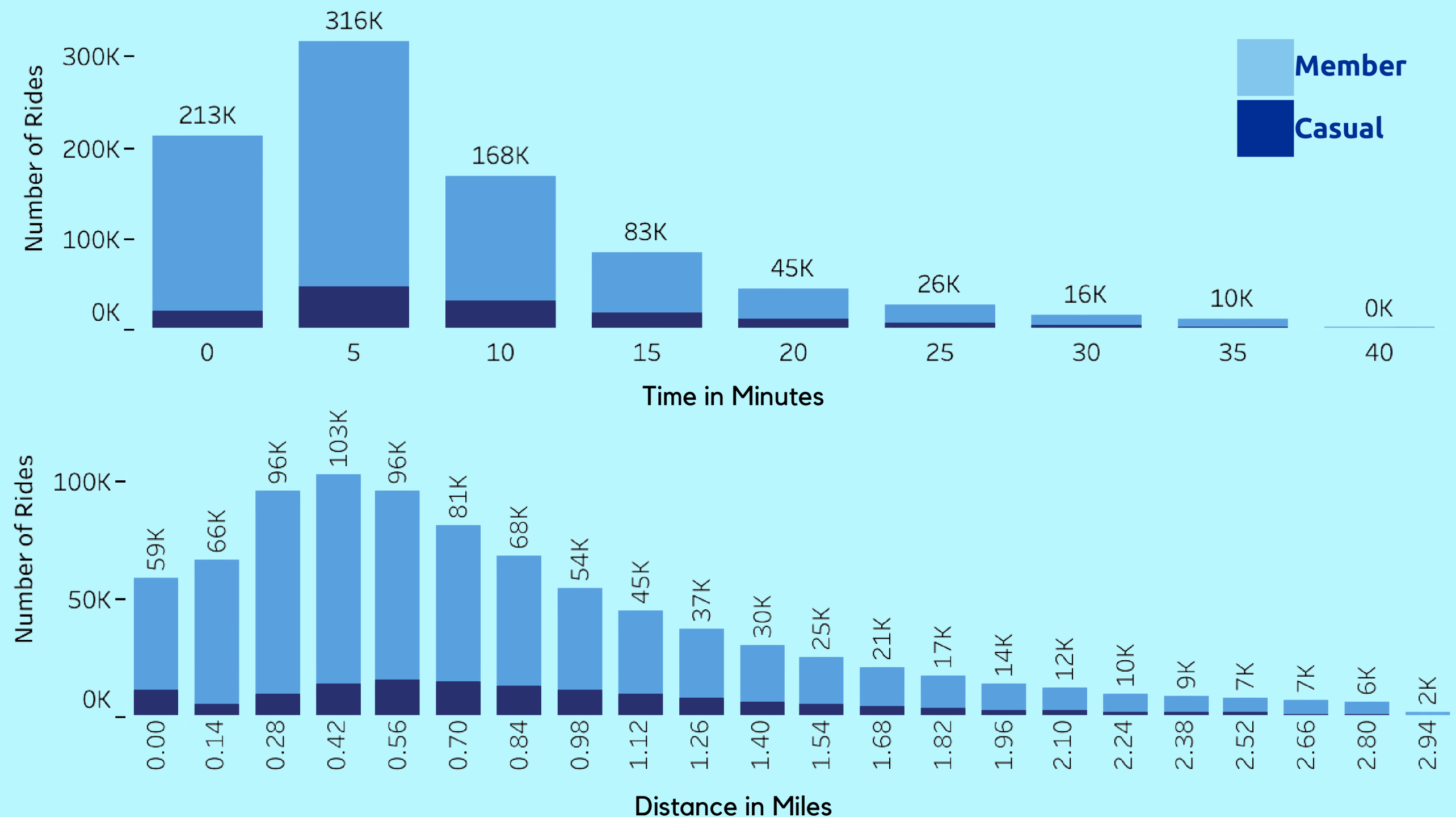### Number of Rides per Hour: Weekday vs. Weekend

Weekday Count
Weekend Count

8:00 am Peak Hour

5:00 pm Peak Hour

Rides per Week

80K
60K
40K
20K
0K

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23

Start Time (hours)

TRAVEL DISTANCE
HOW FAR OR LONG DO RIDERS TRAVEL?

Most common ride distance is 0.5 miles 5 mins duration

Member
Casual

Top chart — Number of Rides vs Time in Minutes:
- 0: 213K
- 5: 316K
- 10: 168K
- 15: 83K
- 20: 45K
- 25: 26K
- 30: 16K
- 35: 10K
- 40: 0K

Bottom chart — Number of Rides vs Distance in Miles:
- 0.00: 59K
- 0.14: 66K
- 0.28: 96K
- 0.42: 103K
- 0.56: 96K
- 0.70: 81K
- 0.84: 68K
- 0.98: 54K
- 1.12: 45K
- 1.26: 37K
- 1.40: 30K
- 1.54: 25K
- 1.68: 21K
- 1.82: 17K
- 1.96: 14K
- 2.10: 12K
- 2.24: 10K
- 2.38: 9K
- 2.52: 7K
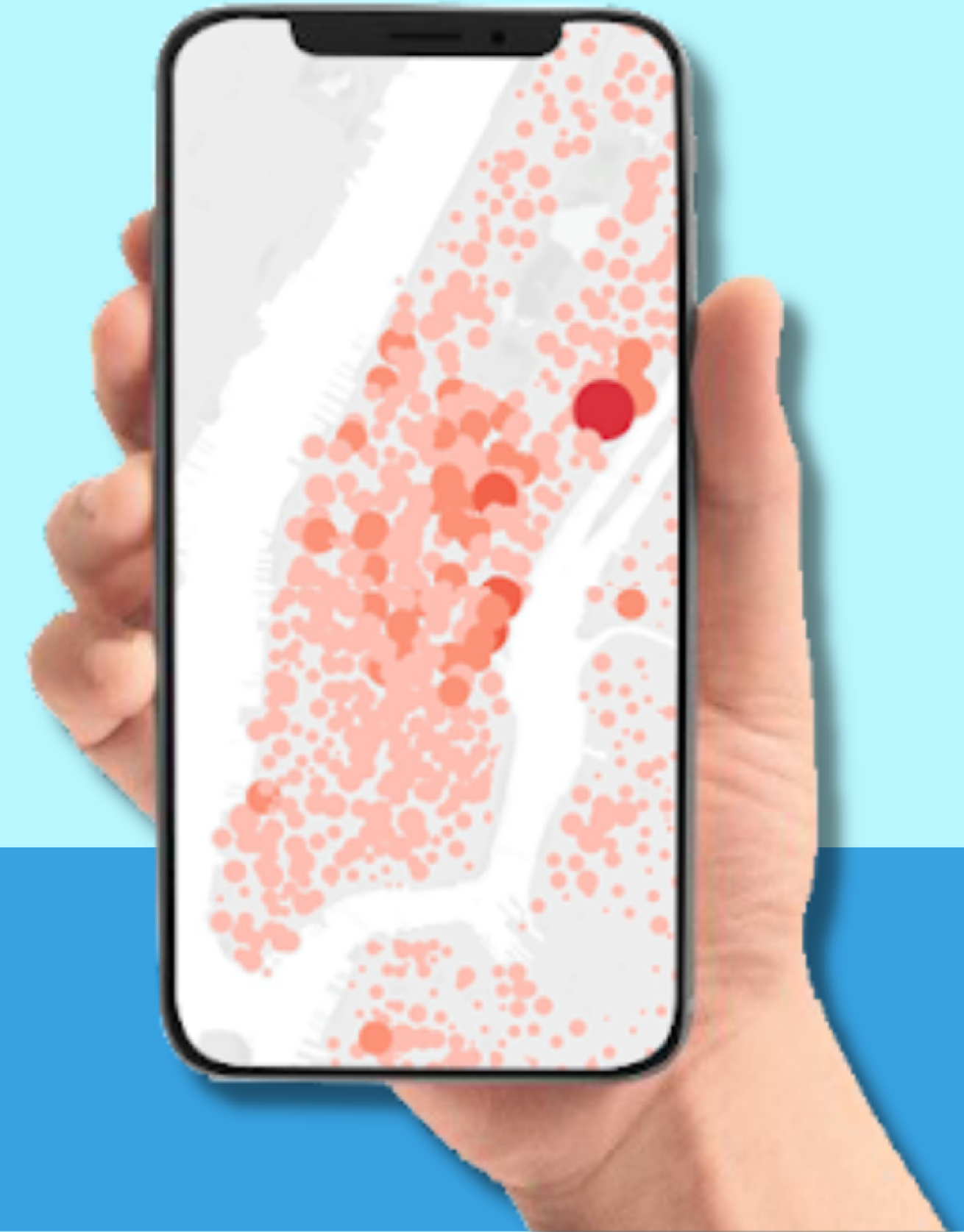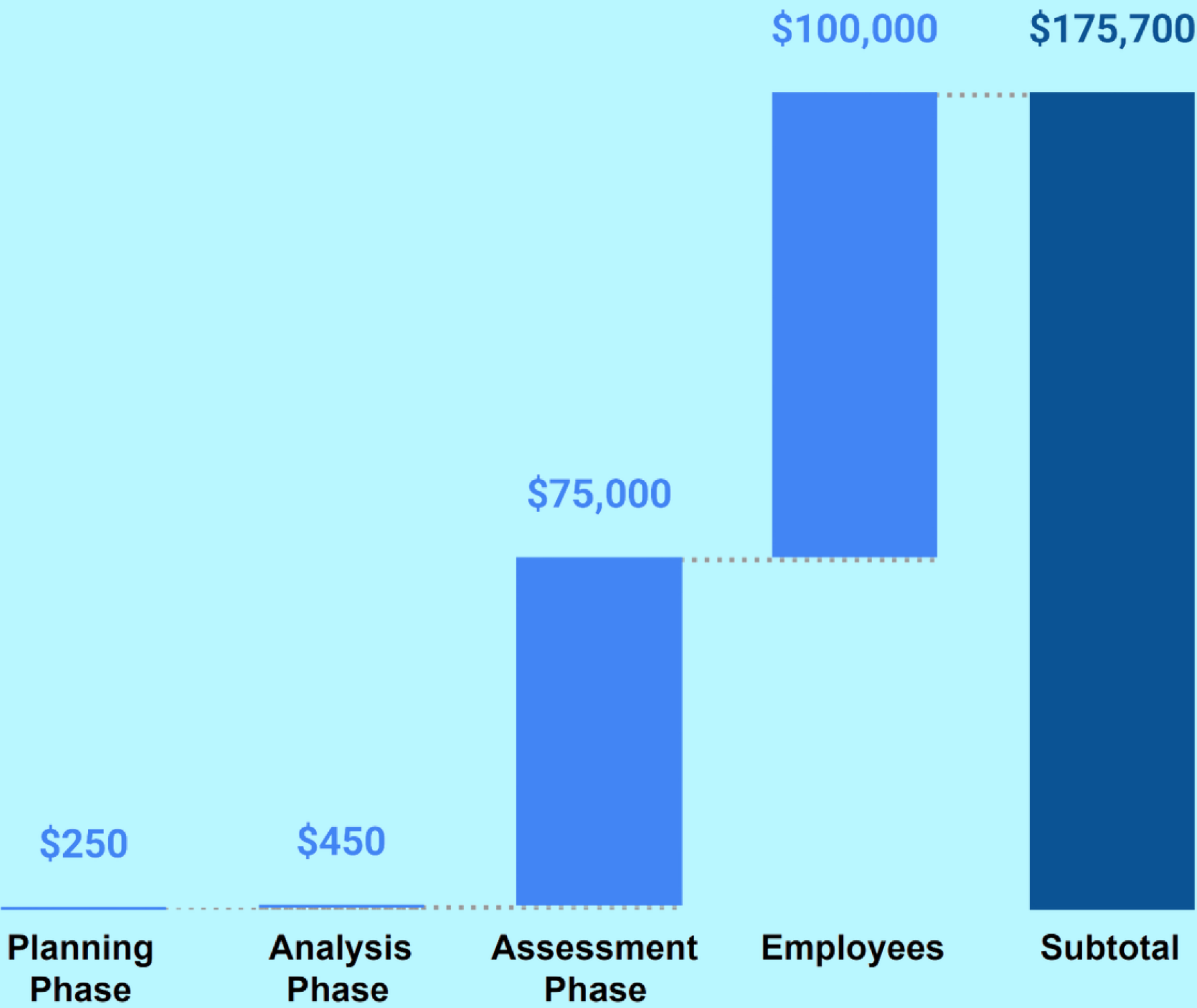- 2.66: 7K
- 2.80: 6K
- 2.94: 2K

METHODOLOGY

RATIONALE

■ Provides users with historical information on the usage trends of CitiBike riders to visualize "hotspots", peak times when bikes are required at specific locations

■ The density of empty CitiBike docks will also be displayed, so Angel riders can also use this information to rebalance bikes

COST BREAKDOWN

$100,000 $175,700

$75,000

$250 $450

Planning Phase   Analysis Phase   Assessment Phase   Employees   Subtotal

Planning Phase

Analysis of bike angel's program and identification of program benefits

Analysis Phase

Analysis of app's efficacy, relevance & identifying operational imbalance

Assessment Phase

Application of poposed changes

Employees

Wages and Equipment

RETURN ON INVESTMENT

70,000   x   3%   =   2,100

Current Riders   **Additional Riders**

2,100   x $3.99   = $251,370

Average Cost   **Monthly Revenue Increase**

ASSESSMENT

HOW ARE WE GOING TO MEASURE OUR SUCCESS?

Bike Angel Participation

Record the number of the bikes that are returned by bike angels on a daily, weekly, and monthly basis. Do more bike angels get involved?

User Satisfaction

Do people feel it is easier to find a bike during the rush hour, and are there empty docks at the destination for return?

Cost of Operation & Revenue

Has the cost of bike-rebalancing reduced? Has the usage of bike stations been maximized? Has the revenue increased?

SOLUTION

OPPORTUNITY
BIKE ANGELS
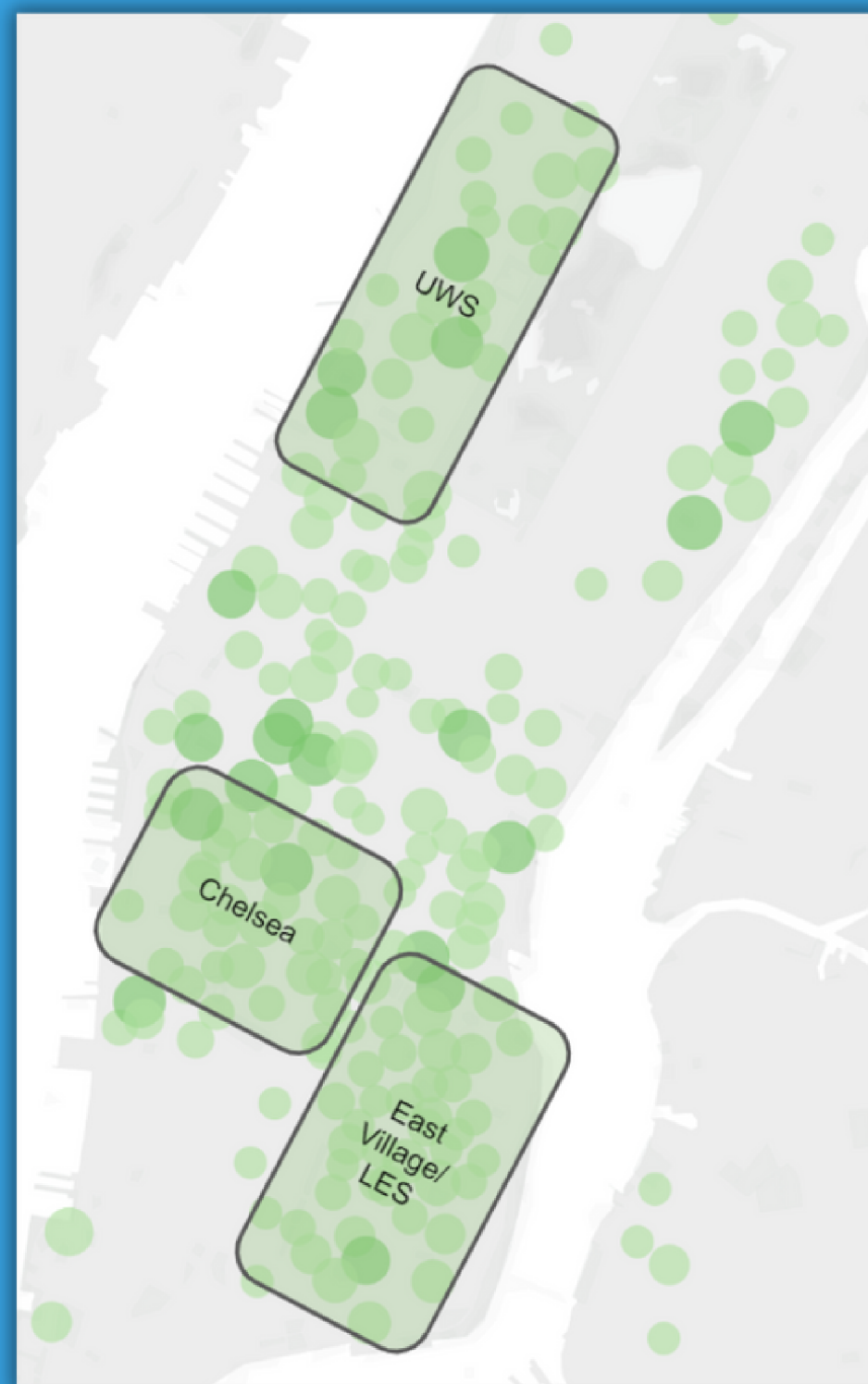## REBALANCING

8:00 am Peak Hour

Rider Trends:
- **UWS to Midtown**
- **Downtown to Midtown/UES**
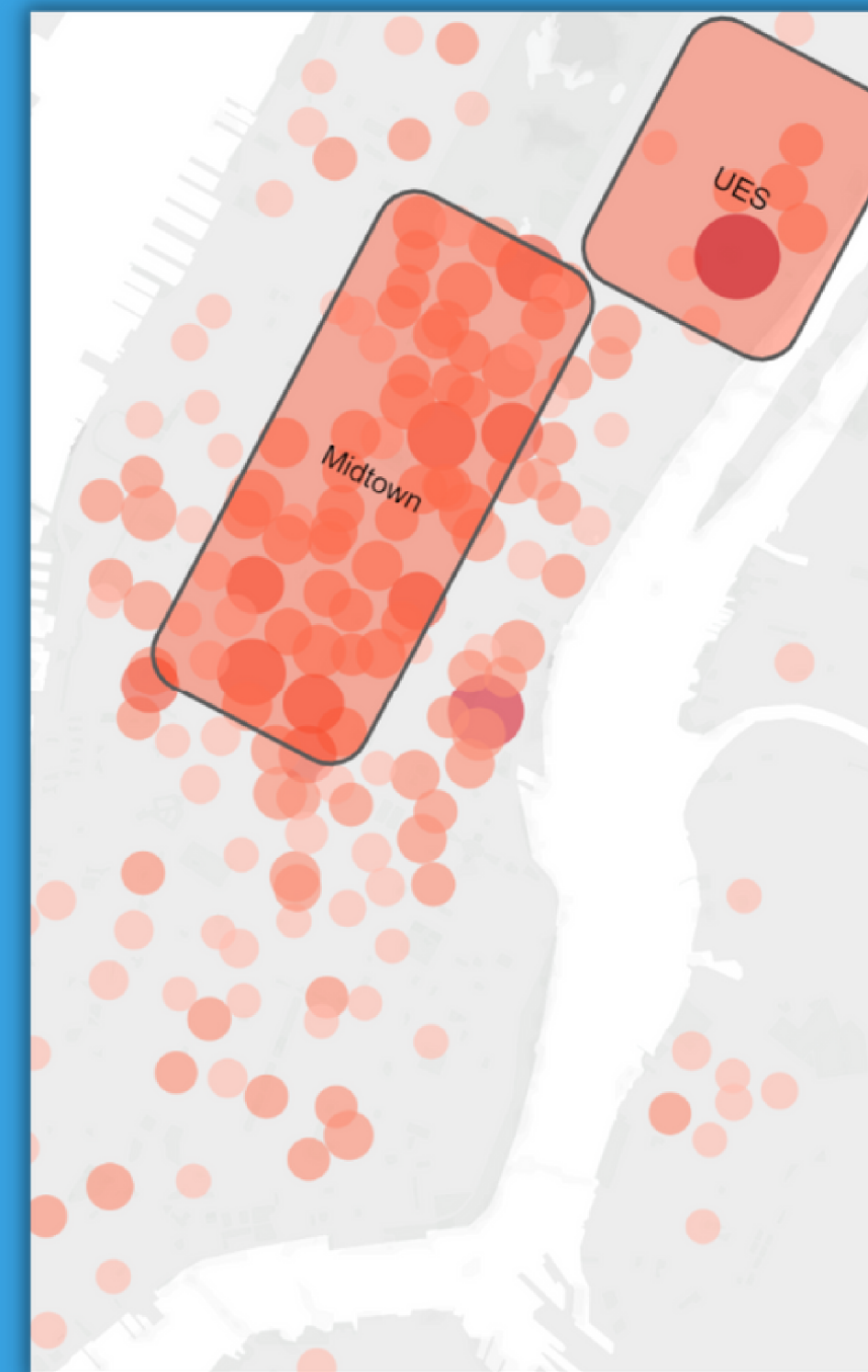
Opportunity for Angels Rebalancing from:
- **Midtown to Downtown**
- **UES to Downtown**

*Filtered view of stations with >= 100 dockings

Starting Stations

Ending Stations

OPPORTUNITY
BIKE ANGELS
REBALANCING

5:00 pm Peak Hour
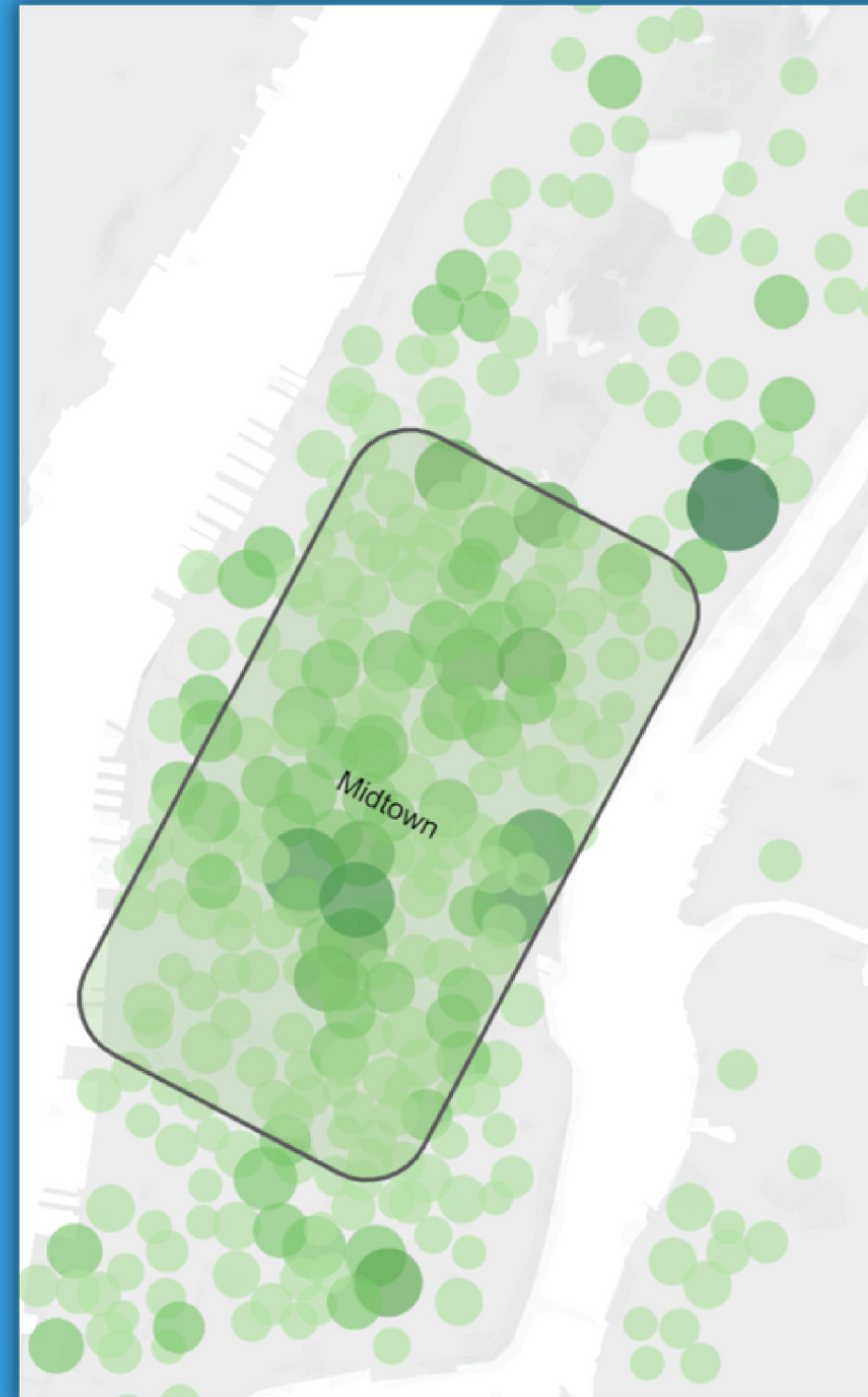
Rider Trends:
- **Midtown to East side and West side**
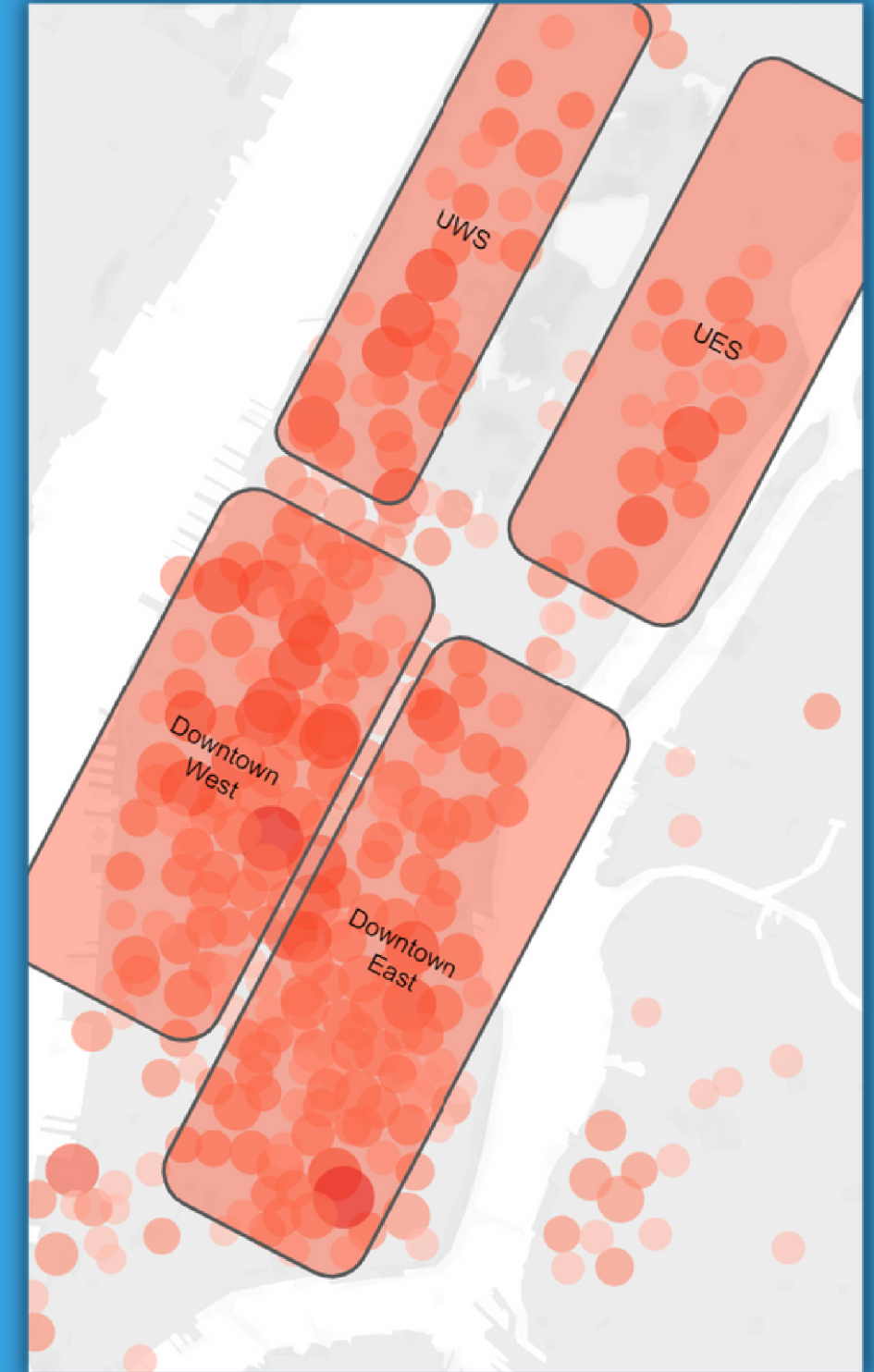
Opportunity for Bike Angels to rebalance from:
- **East to Midtown**
- **West to Midtown**

*Filtered view of stations with >= 100 dockings

Starting Stations

Midtown

Ending Stations

UWS

UES

Downtown West

Downtown East

CONCLUSION

CONCLUSION

There is a clear trend of hotspots that do not have visualizations today

Bike Angels can rebalance from far regions (E.g Midtown to UES) rather than shorter distance rebalancing jobs

With these clear trends visualized, Bike Angels can plan ahead in today's hectic world.

Increases Bike Angels' incentives to complete more rebalancing jobs.