

The screenshot displays the Alteryx Designer interface with a complex workflow for analyzing ferry boarding data. The workflow is organized into several tool panels:

- Ferry Panel:** This panel handles the initial data input and processing. It includes a 'y_Riders 305.csv' input, a 'daytime = if [Hour] >= 12 then "morning" Else "evening" endif' filter, a 'Convert-Date From: MM/dd/yyyy' tool, and a 'DateTime_Out Ascending Route - Ascending Hour - Ascending' aggregation tool. It also features a 'made datetime to Vstring for join' tool and a 'Year = DateTimeYear ([DateTime_Out])' tool.
- Time Series Panel:** This panel focuses on time-based analysis. It includes a 'DateTime_Out - Ascending' aggregation tool, a 'boarding number per day per route' tool, and a 'Year = DateTimeYear ([DateTime_Out])' tool.
- descriptive Panel:** This panel provides descriptive statistics and filtering. It includes a 'group stops Sum_Boardings - Descending' aggregation tool, a 'group weekday' tool, a 'group directions Stop - Ascending' tool, and a 'group routes' tool.
- Geo Panel:** This panel handles geographic data. It includes a 'Boarding_Log = [TypeDay] = "Weekend" log ([Sum_Boardings] / 10)' filter, a 'Ferry Stops coordinates.xlsx Query="Sheet1"' tool, and a 'Map_North bond stops' tool.
- join Panel:** This panel is used for joining data from different sources. It includes a 'Join' tool.
- cor Panel:** This panel is used for correlation analysis. It includes a 'Morning = if [daytime] == "morning" then 1 else 0 endif' filter, a 'Weekday = if [TypeDay] == "Weekday" then 1 else 0 endif' filter, and a 'Weekday = 1' filter.

The bottom status bar shows 'Results - Browse (89) - Input' with '9 of 9 Fields', '27 records displayed', and '30 KB'.



NYC Ferry

An analysis by using Alteryx



NYC Ferry is a public network of ferry routes in New York City operated by Hornblower Cruises since May 1st 2017. Over half a million people live within walking distance of an NYC Ferry route! From the [NYC Open Data](#) we can access the historical boarding data from year 2017 to 2023

DATASET

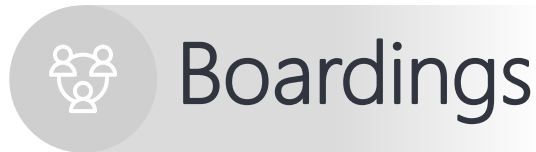
After Data cleaning
Here we have 2,031,036 Records
With 6 columns



2,282 Unique Value
From 2017-07-01 to
2023-10-31




9 Unique Value
Top Value: ER (485,057)
Lest Value: RR (312)



740 Unique Value
Max: 1,334
Min: 0
Lower quartile: 0.099
Upper quartile: 17.072
Standard deviation: 33.68



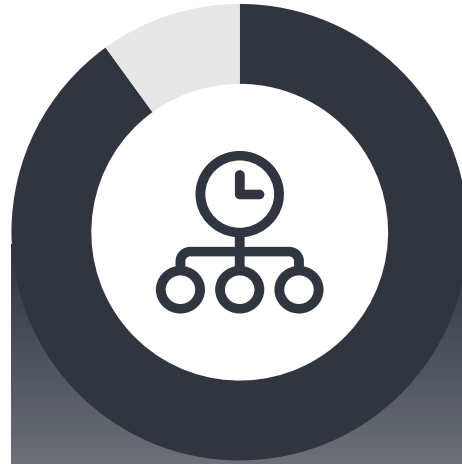
27 Unique Value
Top Value: Wall St/Pier 11
(355,962)
Lest Value: Governors Island
(1,790)



	Date	Hour	Route	Direction	Stop	Boardings	TypeDay
1	07/01/2021	5	RW	NB	Rockaway	20	Weekday
2	07/01/2021	5	RW	NB	Sunset Park/BAT	3	Weekday
3	07/01/2021	5	SV	SB	East 34th Street	1	Weekday
4	07/01/2021	5	SV	SB	East 90th St	0	Weekday
5	07/01/2021	5	SV	SB	Soundview	32	Weekday
6	07/01/2021	6	AS	NB	Brooklyn Navy Yard	7	Weekday
7	07/01/2021	6	AS	NB	East 34th Street	5	Weekday
8	07/01/2021	6	AS	NB	Long Island City	1	Weekday
9	07/01/2021	6	AS	NB	Wall St/Pier 11	0	Weekday
10	07/01/2021	6	AS	SB	Astoria	26	Weekday
11	07/01/2021	6	AS	SB	Brooklyn Navy Yard	3	Weekday
12	07/01/2021	6	AS	SB	East 34th Street	3	Weekday
13	07/01/2021	6	AS	SB	East 90th St	9	Weekday
14	07/01/2021	6	AS	SB	Long Island City	11	Weekday
15	07/01/2021	6	AS	SB	Roosevelt Island	7	Weekday
16	07/01/2021	6	AS	SB	Wall St/Pier 11	0	Weekday
17	07/01/2021	6	ER	NB	Dumbo/BBP Pier 1	1	Weekday
18	07/01/2021	6	ER	NB	Wall St/Pier 11	1	Weekday
19	07/01/2021	6	ER	SB	East 34th Street	0	Weekday
20	07/01/2021	6	ER	SB	Hunters Point South	21	Weekday
21	07/01/2021	6	ER	SB	North Williamsburg	6	Weekday
22	07/01/2021	6	RW	NB	Rockaway	40	Weekday
23	07/01/2021	6	RW	NB	Sunset Park/BAT	8	Weekday

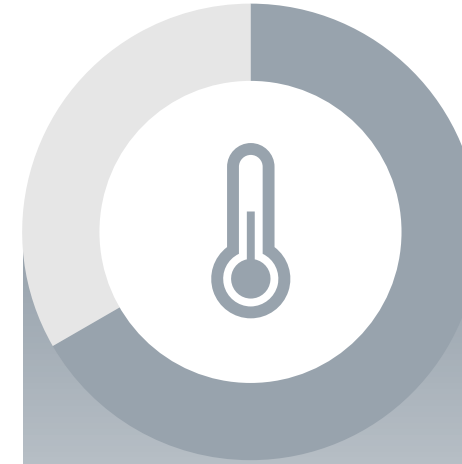
Seeking Real-life Solutions For

How to increase the boarding number



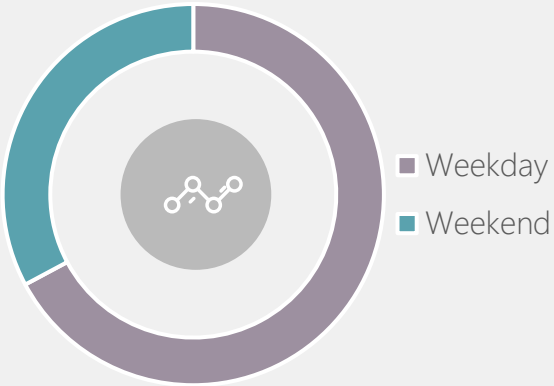
The vessels has 150-350 seats. How to leverage the route and schedule to get the maximum boarding number?

Does weather matters

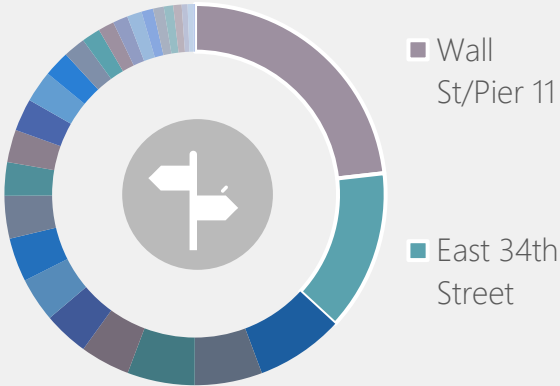


Does the weather effect the boarding number? Which stop is the most effected one?

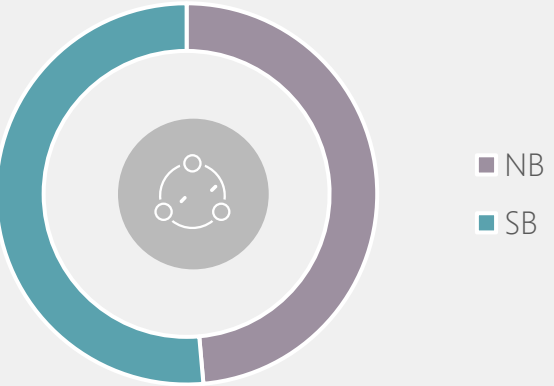
Descriptive statistics – Boarding number



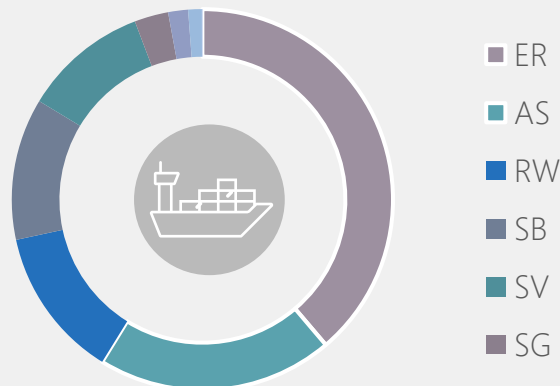
The Total boarding number shows that about 70% of passengers use the Ferry during weekday



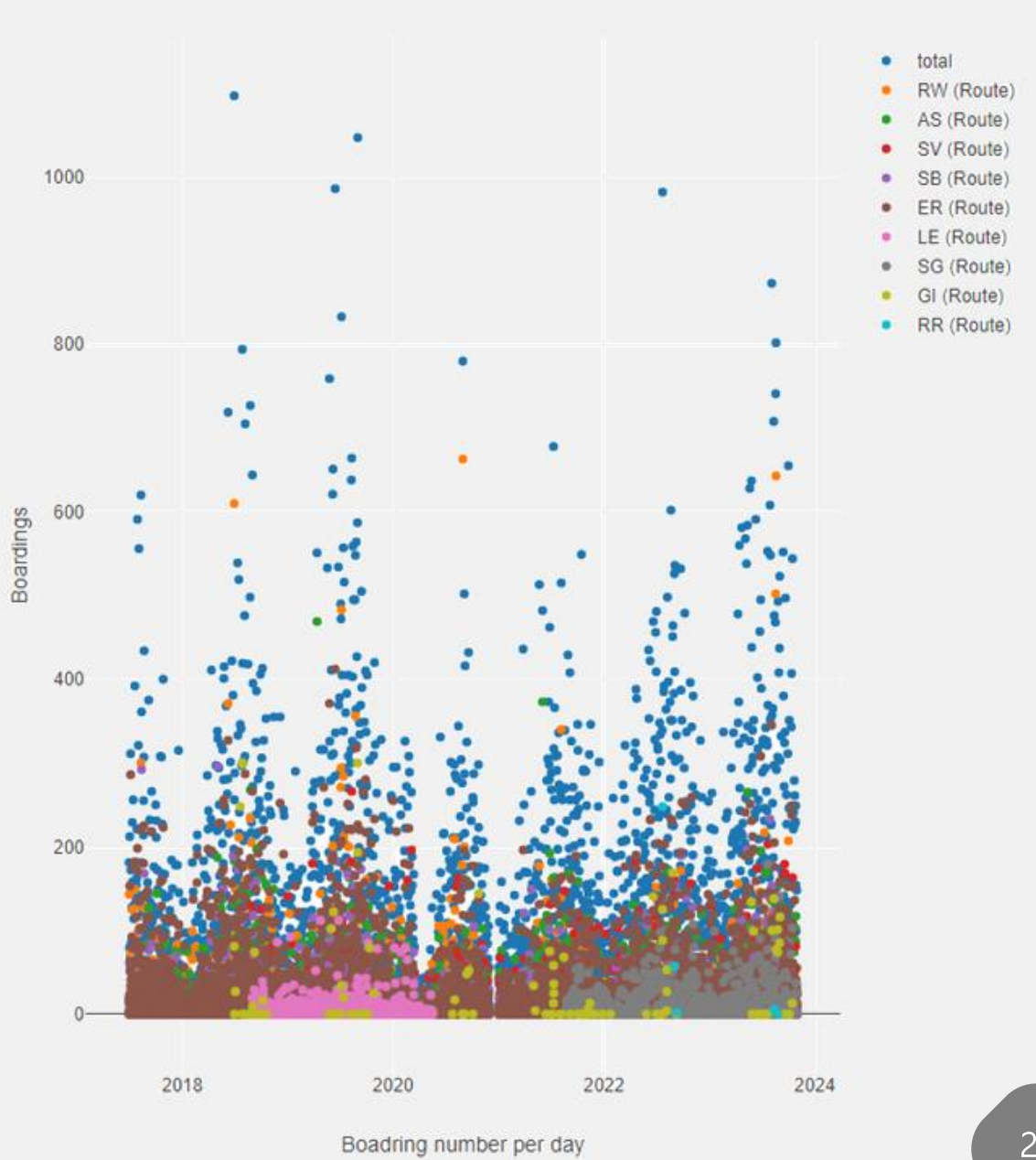
Here are 27 stops. Wall St/Pier 11, East 34th Street and North Williamsburg are the top three stops of boarding numbers



The Total boarding number shows that north bound and south bound are almost the same



Rote ER took the 30% of all the passengers



2017



Boarding Number on Map

The Boarding Numbers of stops from 2017 to 2023 shows:

- Stops number increased from 16 to 27
- Stops extended from Manhattan to Staten Island and Bronx these new stops grow up soon
- Beside Year 2020 the boarding number shrieked a bit due to Covid lock down, rest of the Year have growing trend
- Most of the volumes of the stops shows the

Boarding number in a day

Weekday

Weekend



NYC Ferry operates from around 5 am to 21 pm. The shape of the daily boarding number are quite different between weekday and weekend.

500k

300k

200k

100k

0

5

10

15

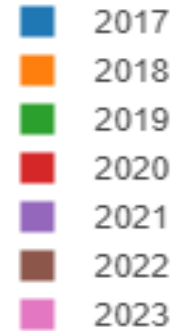
20

5

10

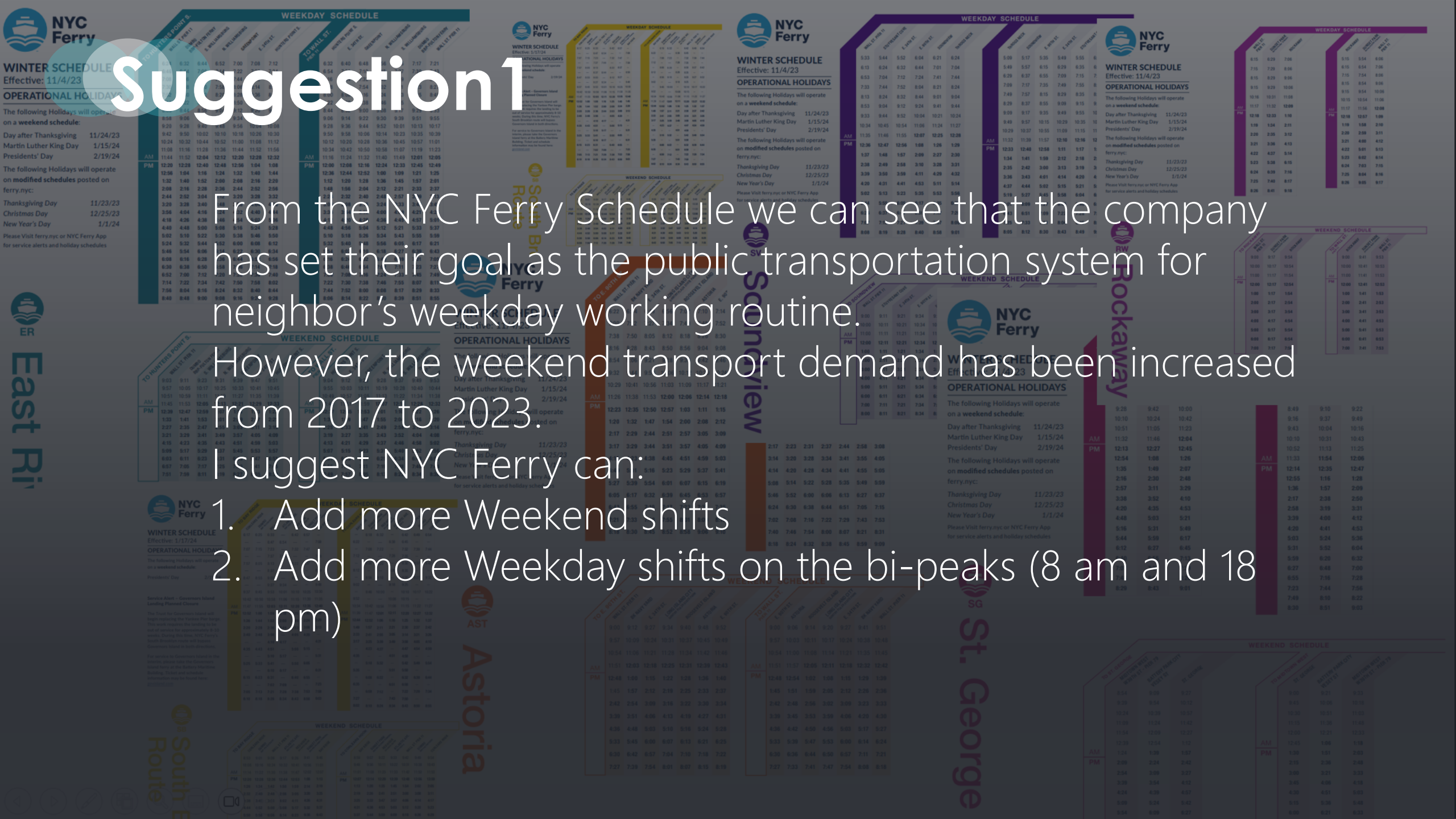
15

20



2023

2017



Suggestion 1

From the NYC Ferry Schedule we can see that the company has set their goal as the public transportation system for neighbor's weekday working routine.

However, the weekend transport demand has been increased from 2017 to 2023.

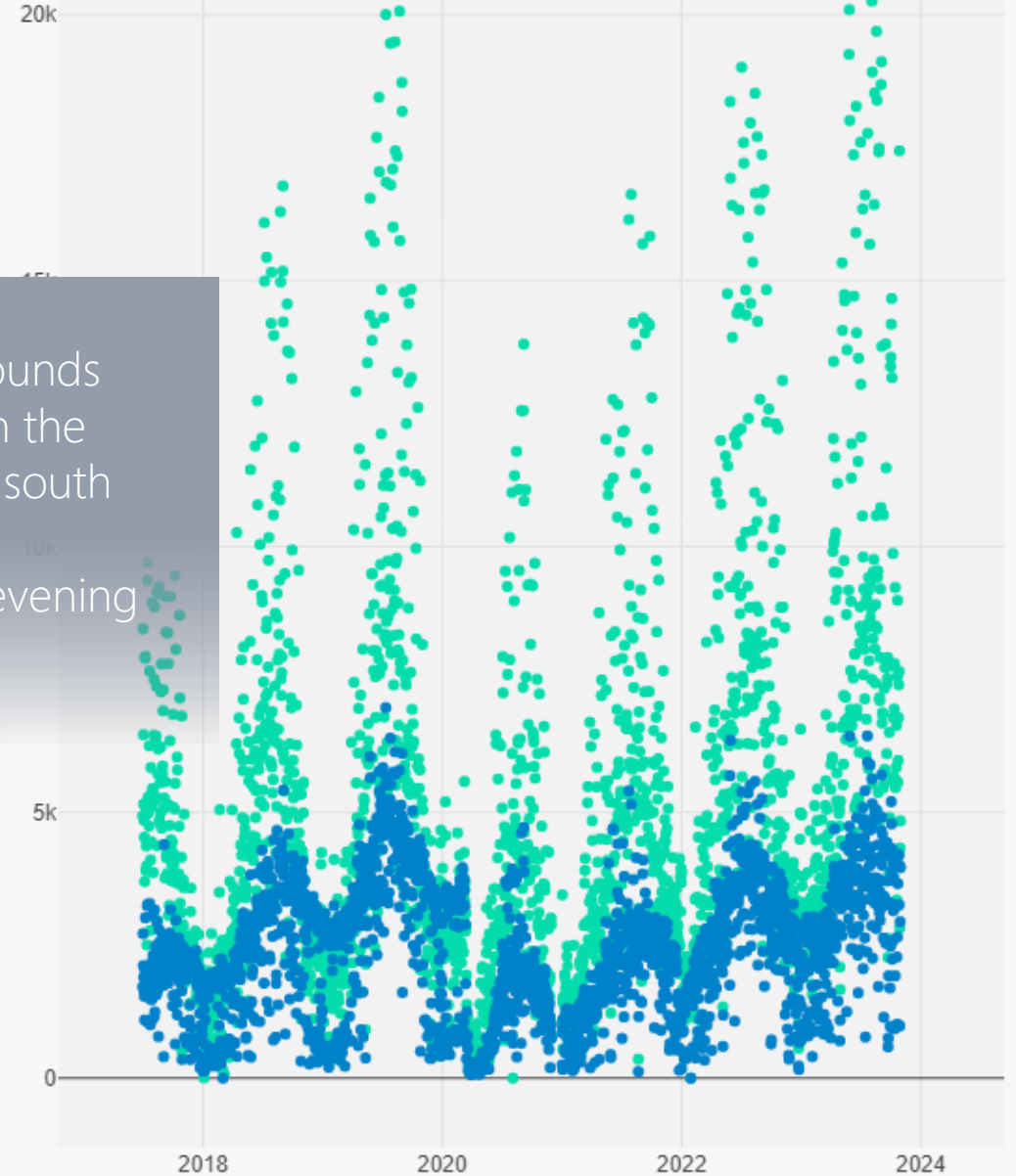
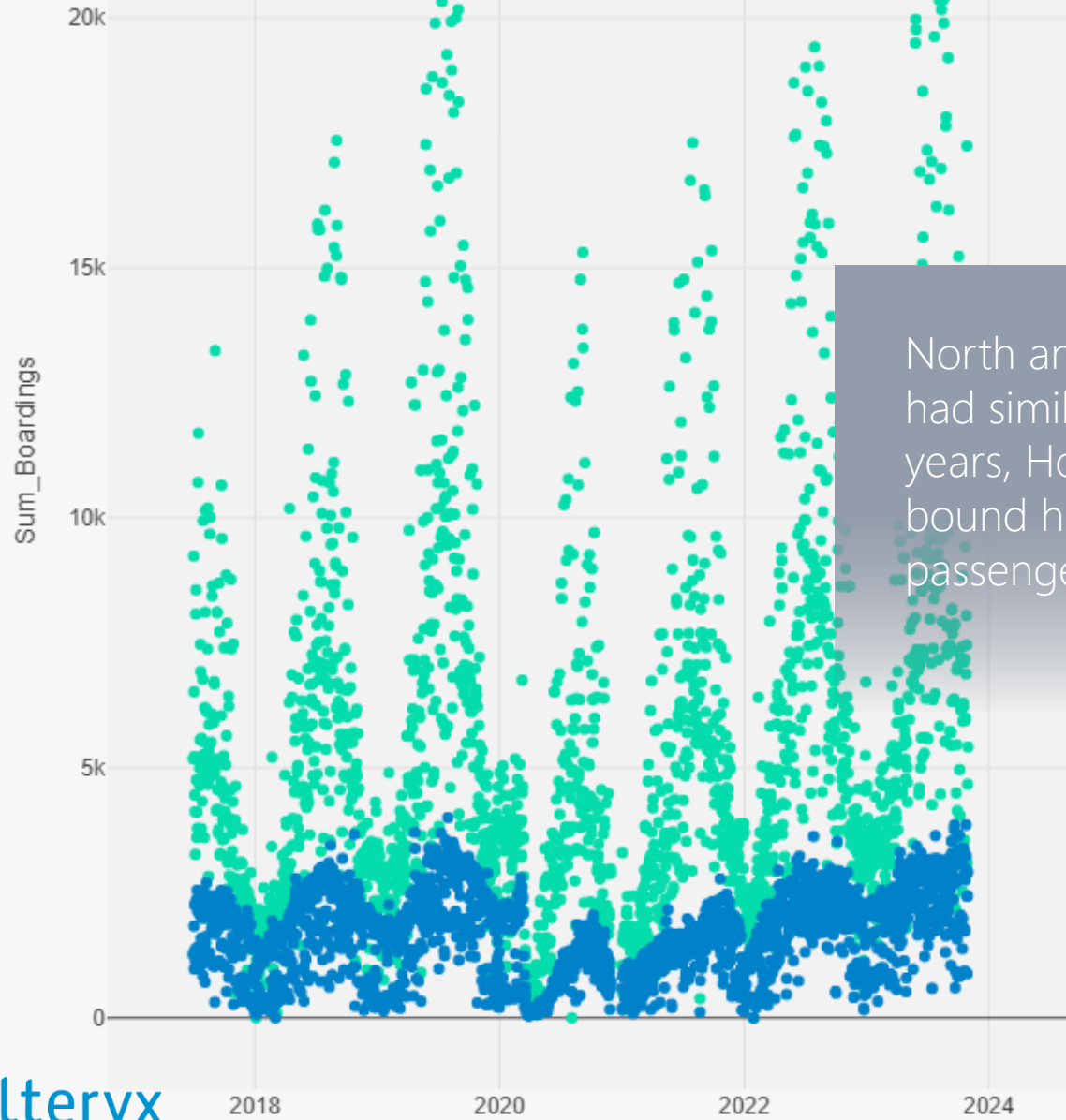
I suggest NYC Ferry can:

1. Add more Weekend shifts
2. Add more Weekday shifts on the bi-peaks (8 am and 18 pm)

The difference between directions

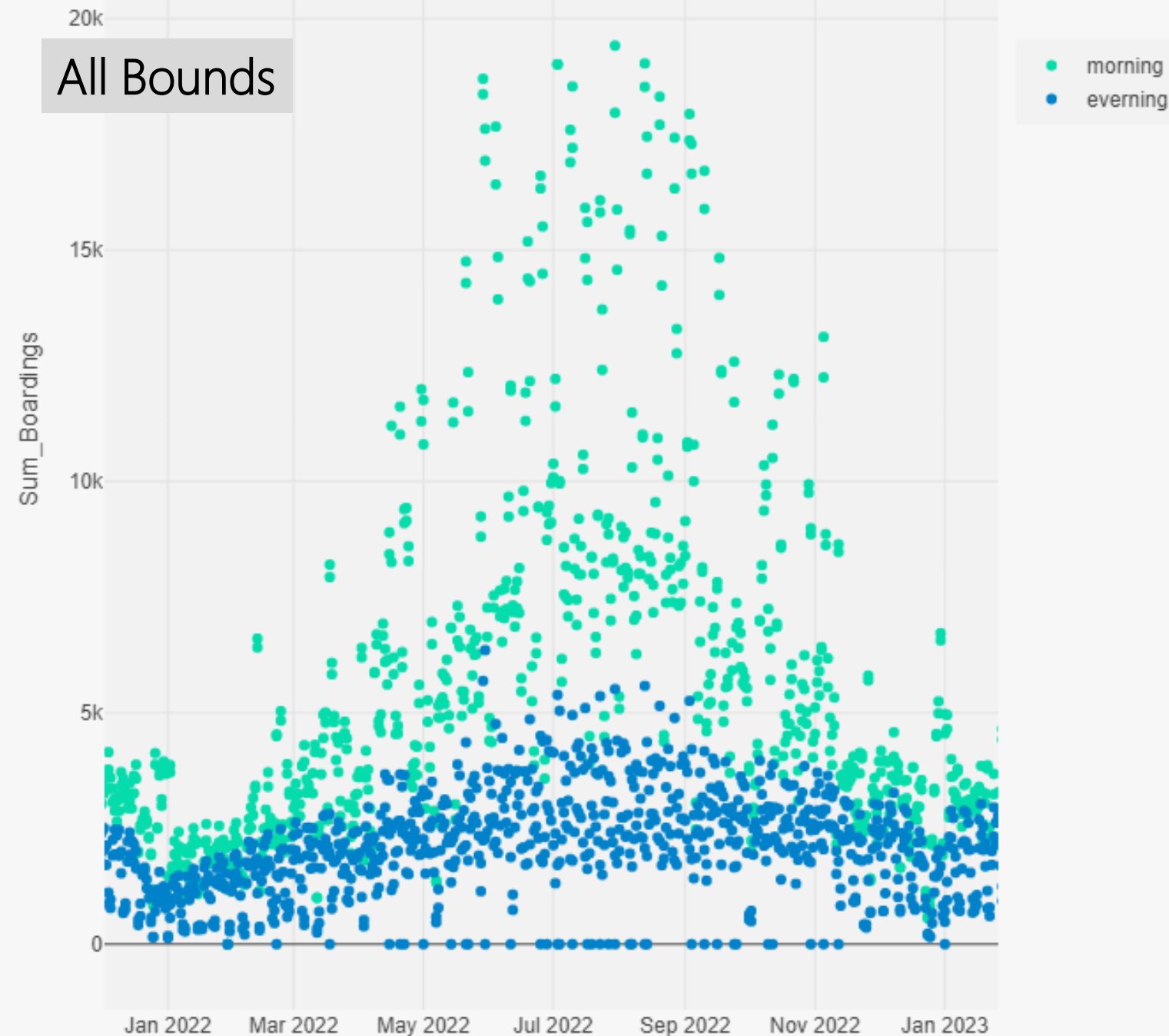
North Bound

South Bound



North and South bounds had similar waves in the years, However, the south bound had more passengers during evening

All Bounds



Year 2022

When I zoom in to the single year 2022. The seasonal variation pops up. During the Spring and Summer time, the boarding number reached to the highest. Especially the morning shifts.

Thus, I think this phenomena might have some correlation between boarding number and temperature.

Temperature Factor



Field	Correlation
Boardings	1
Average_temp	0.184343
Morning	0.0727
Weekday	-0.070048

Total correlation



Field	Correlation
Boardings	1
Average_temp	0.161124
Morning	0.030686

Weekday correlation



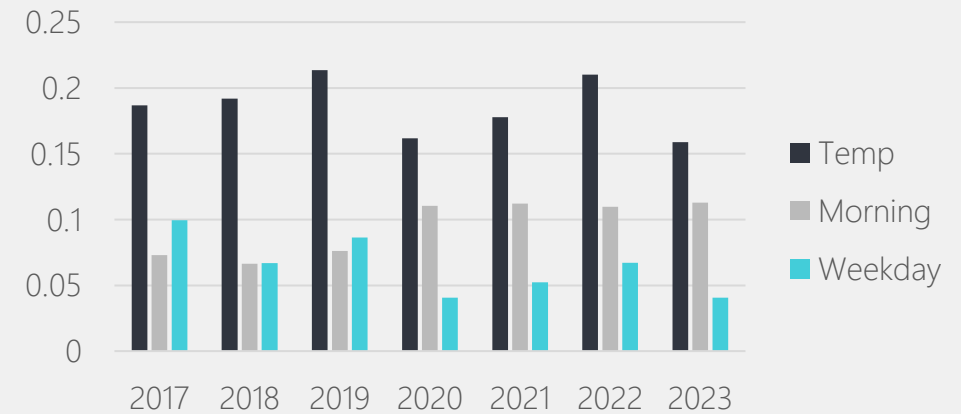
Field	Correlation
Boardings	1
Average_temp	0.233958
Morning	0.15053

Weekend correlation

Pearson Correlation

Combining the daily temperature record of NYC, the correlation between temperature and boarding number could be 0.23 when it's Weekend

0.23





Suggestion2

From last slide we can see the correlation between temperature and boarding number is positive.

The weekend temperature could be even more effective on the boarding number. I believe that's because people tend to use the Ferry for weekend vacation or sightseeing.

There are two tickets types available for purchase, Single-Ride or 10-Trip Pass.

I will suggest NYC Ferry add a weekend pass.



THANK YOU