Analysis of New York City Motor Collision (2012 – 2022)

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APPROACH FOR ANALYSIS

01

UNDERSTANDING THE DATA

It is important to understand our data and our problem statement i.e., how to decrease the number of injuries and deaths in New York City.

02

PREPARING THE DATA

After understanding our dataset, it is essential to prepare the data. We have used GCP Big Query to remove null values and duplicate entries.

03

PERFORM ANALYSIS

We have carried out a Time-series analysis and made dashboards to understand more about the factors and causes of Motor collisions in New York City.

04

GET INSIGHTS

We generated interactive tableau dashboards to support our findings and get insights from the data.

05

GIVE RECOMMENDATIONS

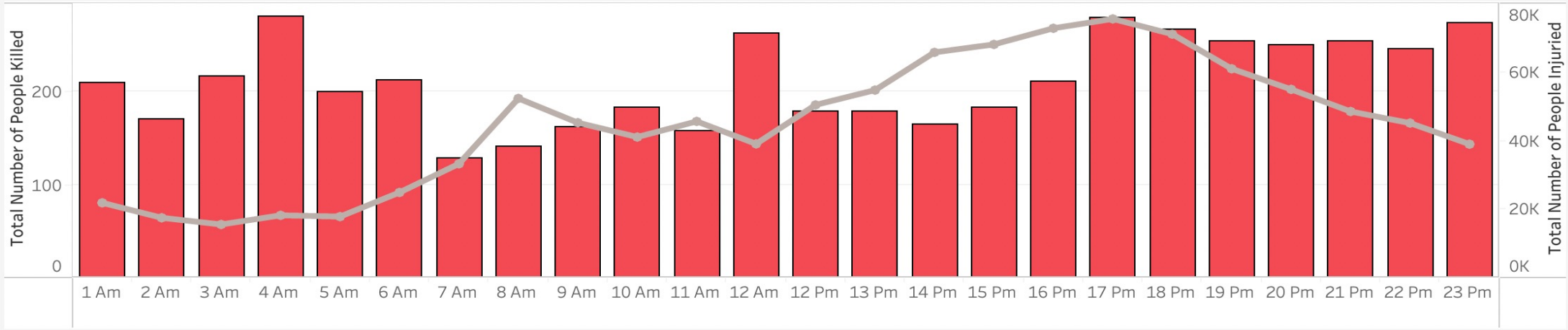
Based on our analysis, we will provide recommendations to decrease the number of Motor collisions.

SUMMARY

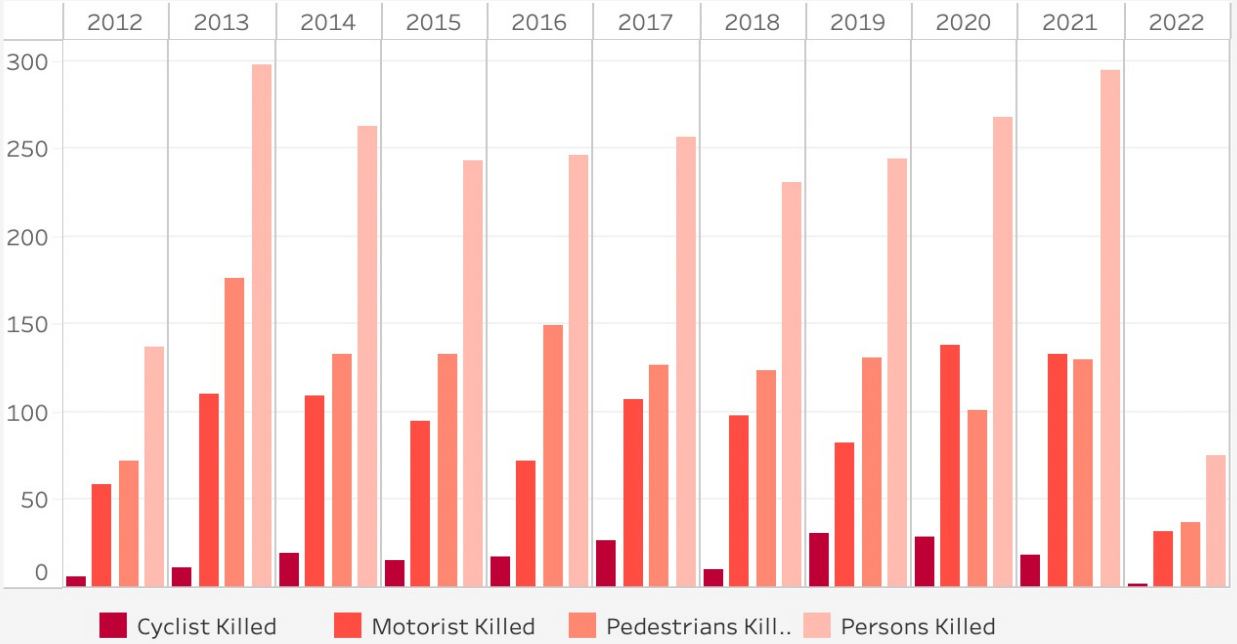
- The NYPD began publishing a data set of every recorded vehicle collision in the city in July of 2012.
- This project aims to analyze the Brooklyn Traffic Collision dataset and present visually identifiable patterns that would enable city planners, traffic management, and commuters to make informed choices and reduce the risk of collisions.
- From 2012 to 2022, there were approximately **1,888,284 collisions** and **5,088 deaths** in New York City.
- The majority of crashes happened between **4 Pm - 5 Pm,** with 281 people killed and 75.539 people injured.

Time Series Analysis of Motor Vehicle Collision

Total Number of Injuries v/s Total Number of Person Killed



Which type of Road users were killed more often?



1. From the above bar chart we can interpret that the majority number of crashes (281 people killed and 75,539 people injured) happened during rush hour (**4 Pm – 5 Pm**). We also see a lot of people in the early hours of the day.

2. **Pedestrians** were the most vulnerable road users from 2012 - 2022 among all other type of road users.

3. The maximum number of people getting injured is at peak from **1 pm - 5 pm.**

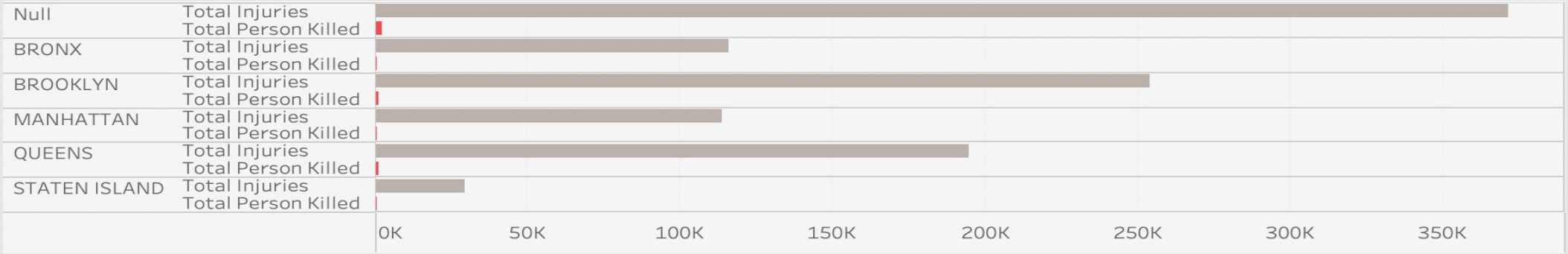
Detecting Collision-Prone Areas

5,088 Deaths	1,078,848 Injuries	1,888,284 Collisions

Zip Codes With Highest Number of Deaths

Zip Code	Persons Killed	Pedestrians Killed	Motorist Killed	Cyclist Killed
11236	42.00	15.00	25.00	1.00
11207	33.00	17.00	14.00	2.00
11234	27.00	10.00	17.00	0.00
11385	19.00	12.00	7.00	0.00
11101	17.00	8.00	5.00	4.00
11203	15.00	4.00	10.00	1.00
10019	8.00	4.00	2.00	2.00

Number of People Injured and Killed in Each Borough



Number of People Killed in each Borough By Month

Borough	December	August	July	June	September	January	October	May	November	February	April	March
BROOKLYN	116.0	101.0	100.0	94.0	90.0	88.0	84.0	82.0	78.0	78.0	71.0	68.0
QUEENS	76.0	80.0	107.0	58.0	102.0	74.0	72.0	74.0	88.0	68.0	56.0	54.0
MANHATTAN	50.0	48.0	54.0	50.0	56.0	52.0	53.0	40.0	56.0	40.0	40.0	24.0
BRONX	23.0	52.0	30.0	54.0	44.0	37.0	49.0	26.0	40.0	13.0	24.0	31.0
STATEN ISLA..	22.0	16.0	12.0	12.0	6.0	18.0	16.0	7.0	10.0	12.0	16.0	10.0

INSIGHTS

- Between **4 pm to 5 pm** was the peak time of the day when the maximum number of people got injured.
- The number of people getting injured was rising from **2012** and was at its peak in **2018** with a value of **123,859 injuries**.
- In 2018, the total number of injured people decreased **to 29,604 injuries** in 2022.
- The highest number of deaths and injuries were majorly caused by a lack of **"Driver's attention."** The other factors also point toward the Driver's lack of driving skills.
- Most of the accidents were caused by **Sports utility/Station wagon** vehicles, followed by Sedan and Passenger vehicles.
- Also, **4 - wheeled** vehicles were more prone to accidents than **2 - wheeled vehicles**.

RECOMMENDATIONS

- Increase the number of Traffic Officers between **4 pm and 6 pm** on days with the highest accident rates.
- Raise the availability of ambulances between **1 pm to 5 pm** in collision-prone areas.
- Provide a more robust and efficient Public transit system to encourage usage by commuters.
- Focus on high collision-prone areas such as **11236, 11207, and 11234** in prioritizing new projects like traffic lights or street signs.
- **Increase the frequency of driver re-training** and more **strict fines** for repeat offenders.
- Increase the awareness about the **use of public transport the commuters** instead of walking or using personal vehicles to reduce accidents.
- Among all the boroughs, BROOKLYN and QUEENS had the highest number of deaths in New York City.