Data Visualization and Storytelling

Waze Dataset using Tableau

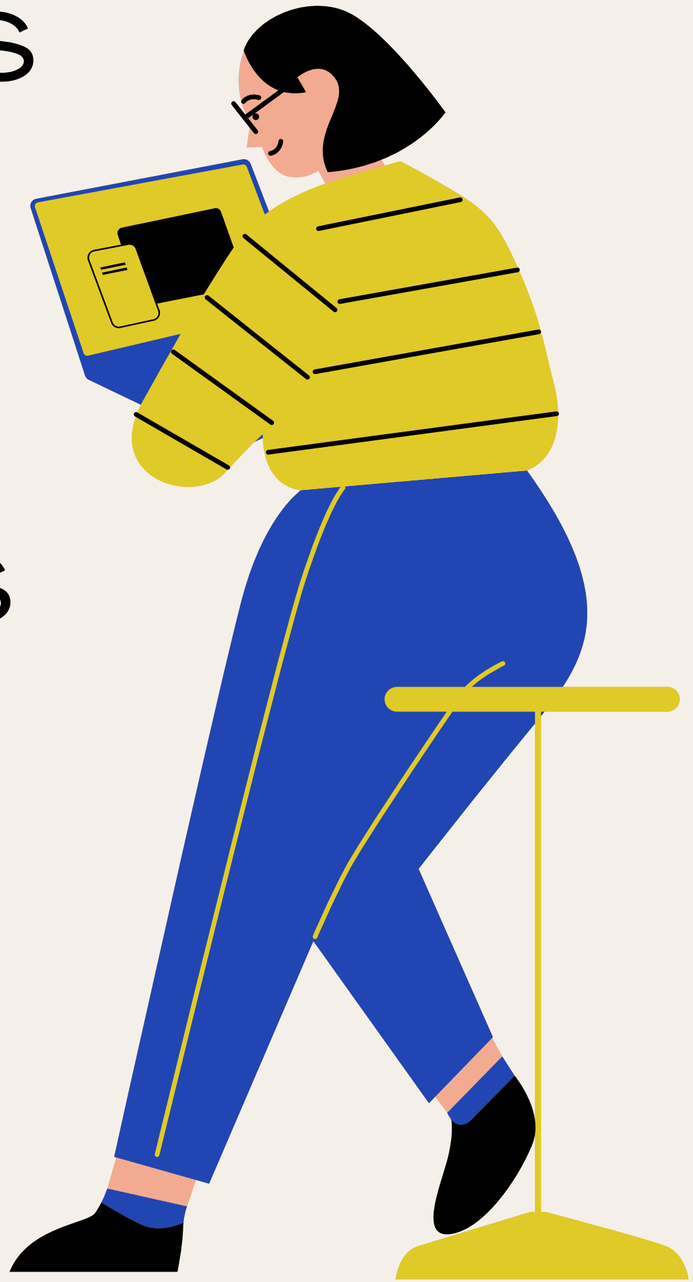
Aganan | Alegado | Dela Peña | Ilagan | Jamco | Leonin | Lirit | Macarubbo | Montemayor | Oblea | Sanchez | Sas

01 - Case and Objectives

02 - Problems

03 - Analysis and Insights

04 - Recommendation



01 - Case and Objectives

Image source: https://primer.com.ph/feature/wp-content/uploads/sites/15/2019/04/BGC-map-Philippine-Primer-1-1024x902.png

02 - Problems

1. Traffic Congestion Identification and Hotspot Analysis

a. Which road segments or areas experience the highest levels of traffic congestion according to type of alert?

b. What are the characteristics of these congested areas in terms of level, road type, delay, and length?

2. Peak Hour Analysis

a. What are the peak hours of traffic congestion in Bonifacio Global City?

b. How do congestion levels vary during different times of the day or week?

02 - Problems

3. Traffic Incident Analysis

a. What are the common subtypes of traffic incidents reported in the dataset?

b. How frequently do these incidents occur, and what is their impact on traffic flow?

4. User-Generated Report Reliability and Engagement

a. How reliable are the user-generated reports in terms of user level and reaction?

b. What is the level of user engagement and participation in reporting incidents and providing feedback?

Data Acquisition

Identify Problem Areas

Data Cleaning

Data Exploration

Data Analysis

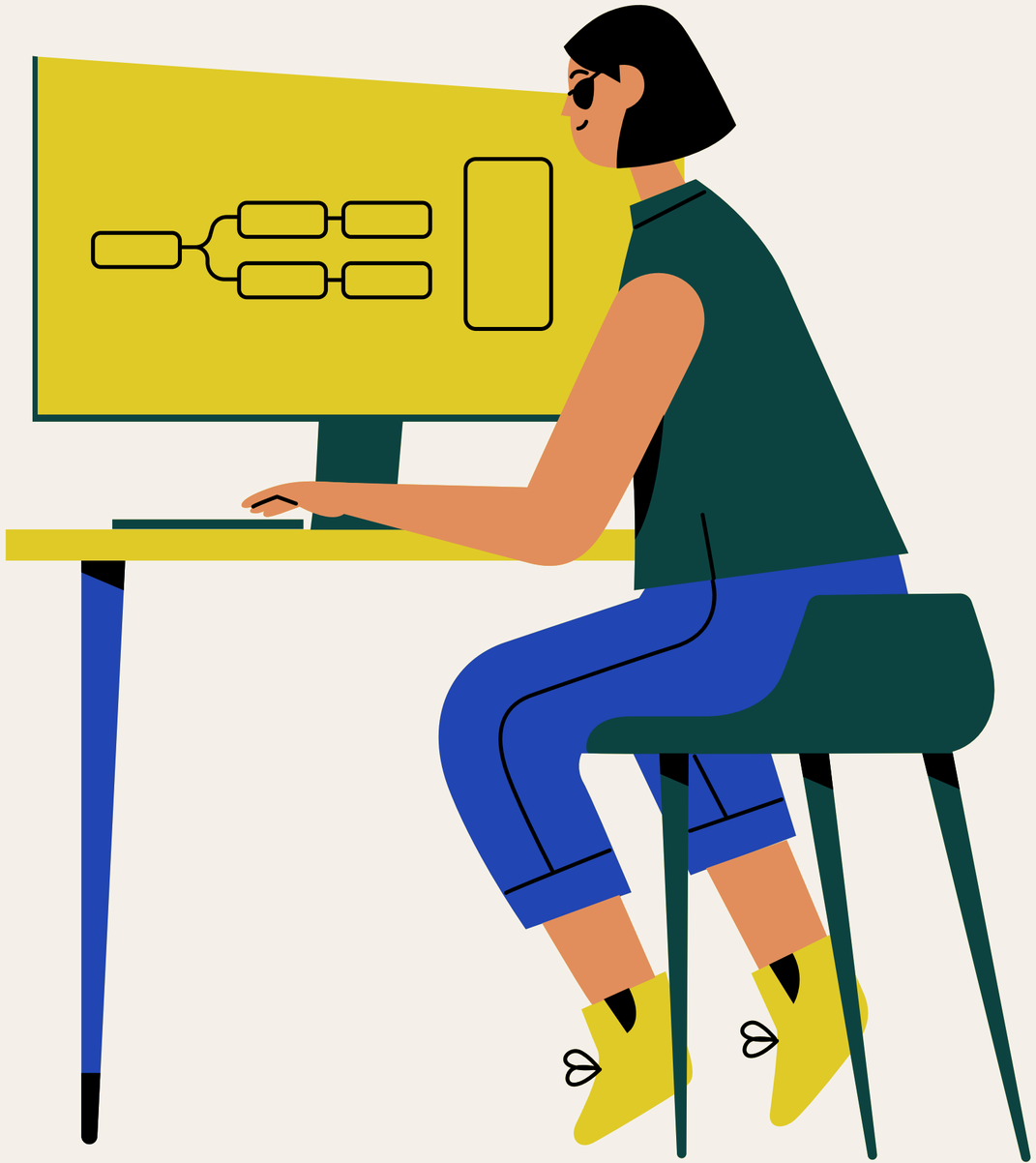
Visualization

Insights and Findings

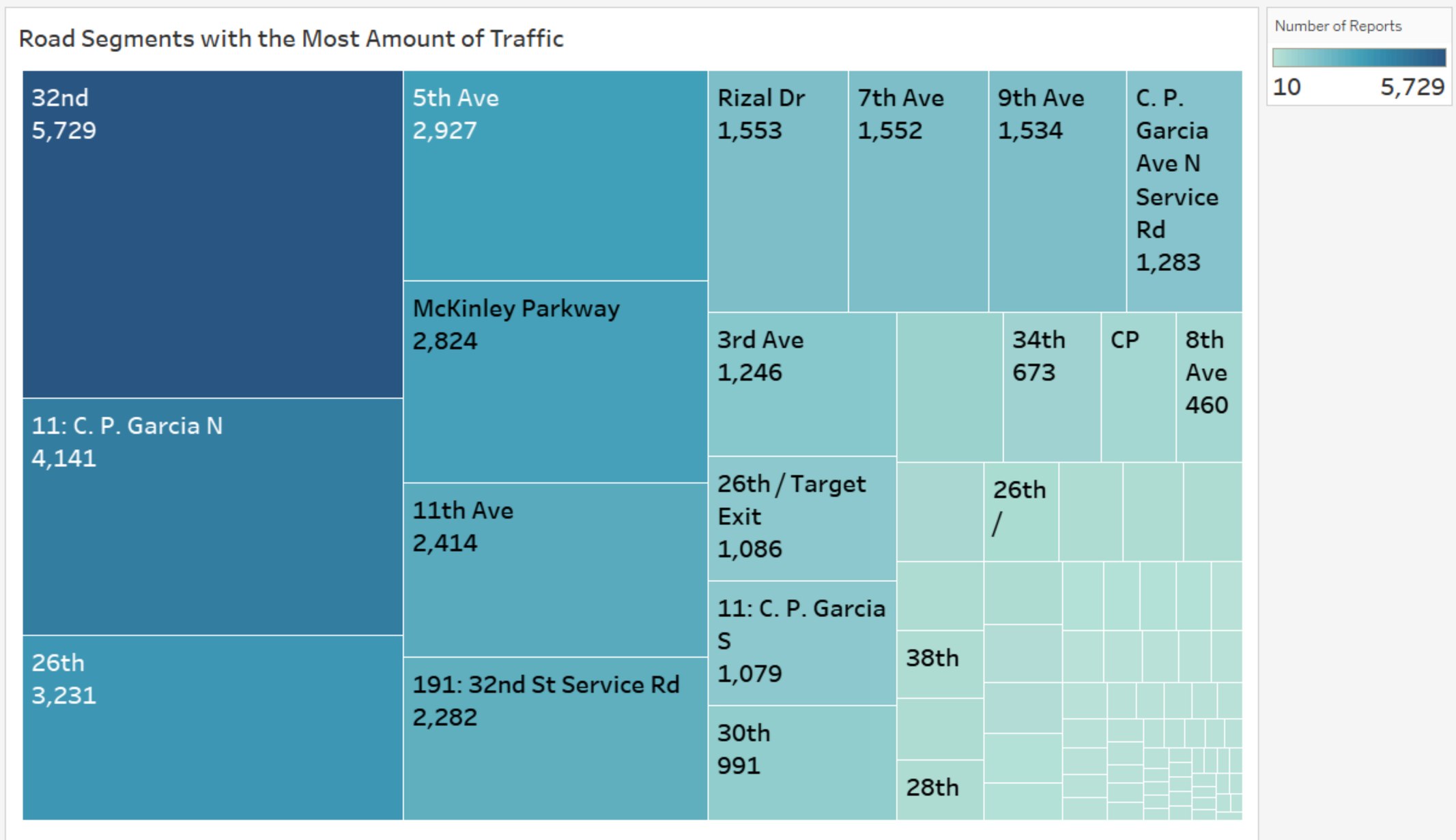
Recom-mendations

03 - Methodology

03 - Analysis & Insights

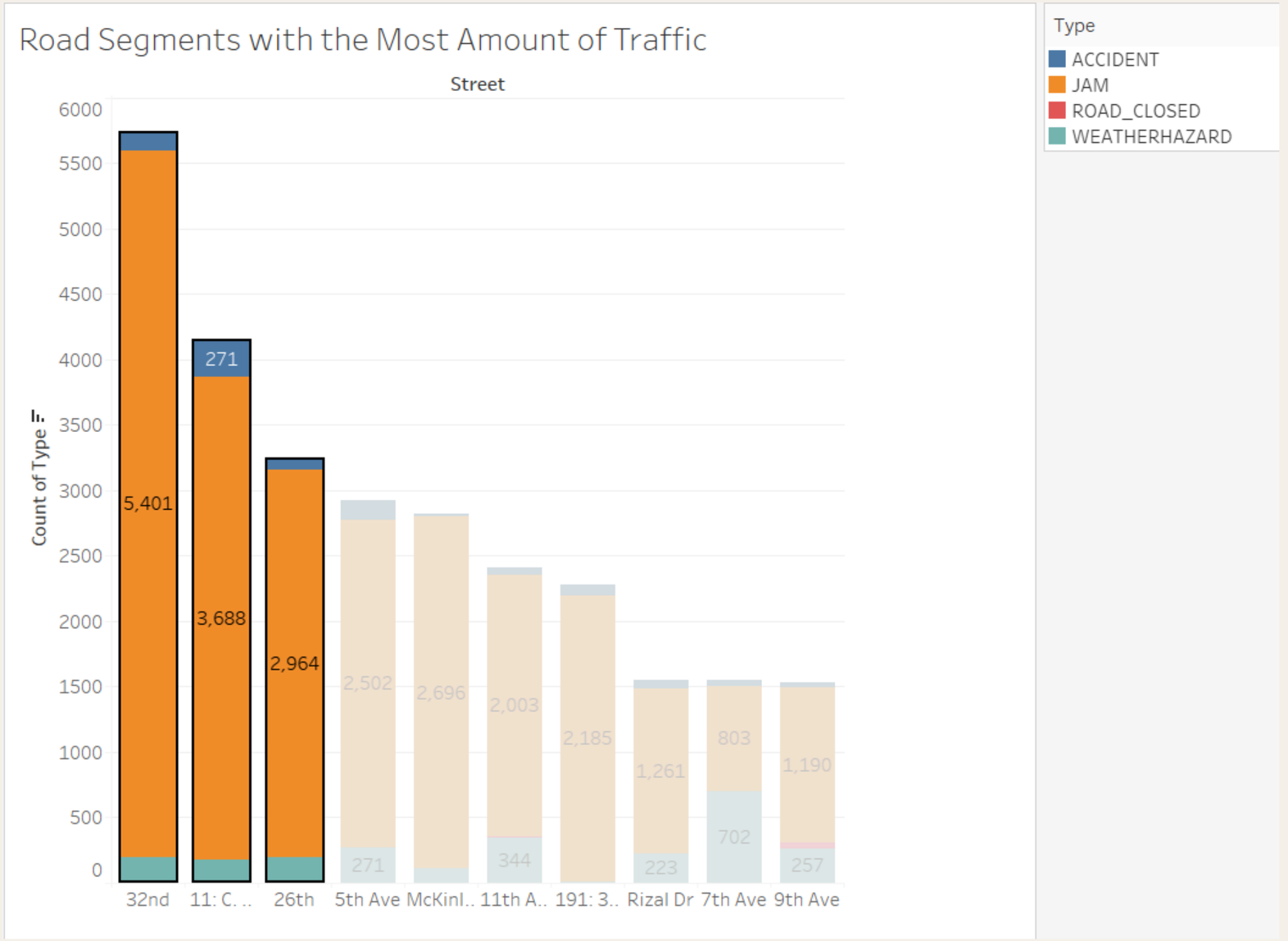


Data Visualization



Analysis

1. Traffic Congestion Identification and Hotspot



Insights

1. Traffic Congestion Identification and Hotspot

Road Segments with the Most Amount of Traffic:

Cause

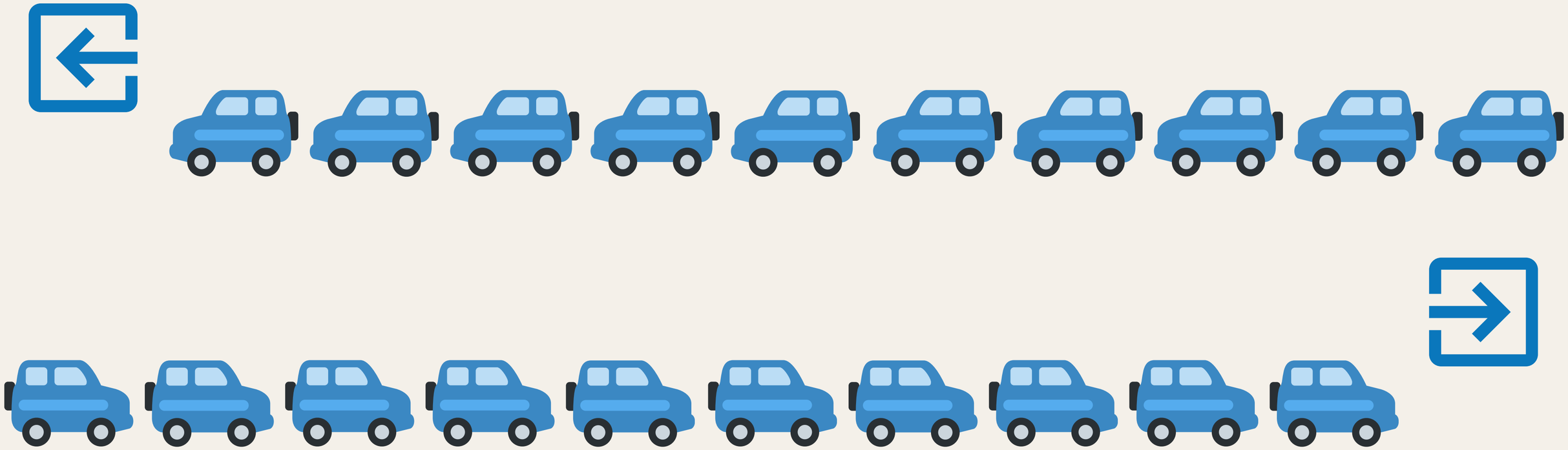
Effect

Analysis

1. Traffic Congestion Identification and Hotspot

Road Segments with the Least Amount of Traffic:

SM Aura/ C5 S



Insights

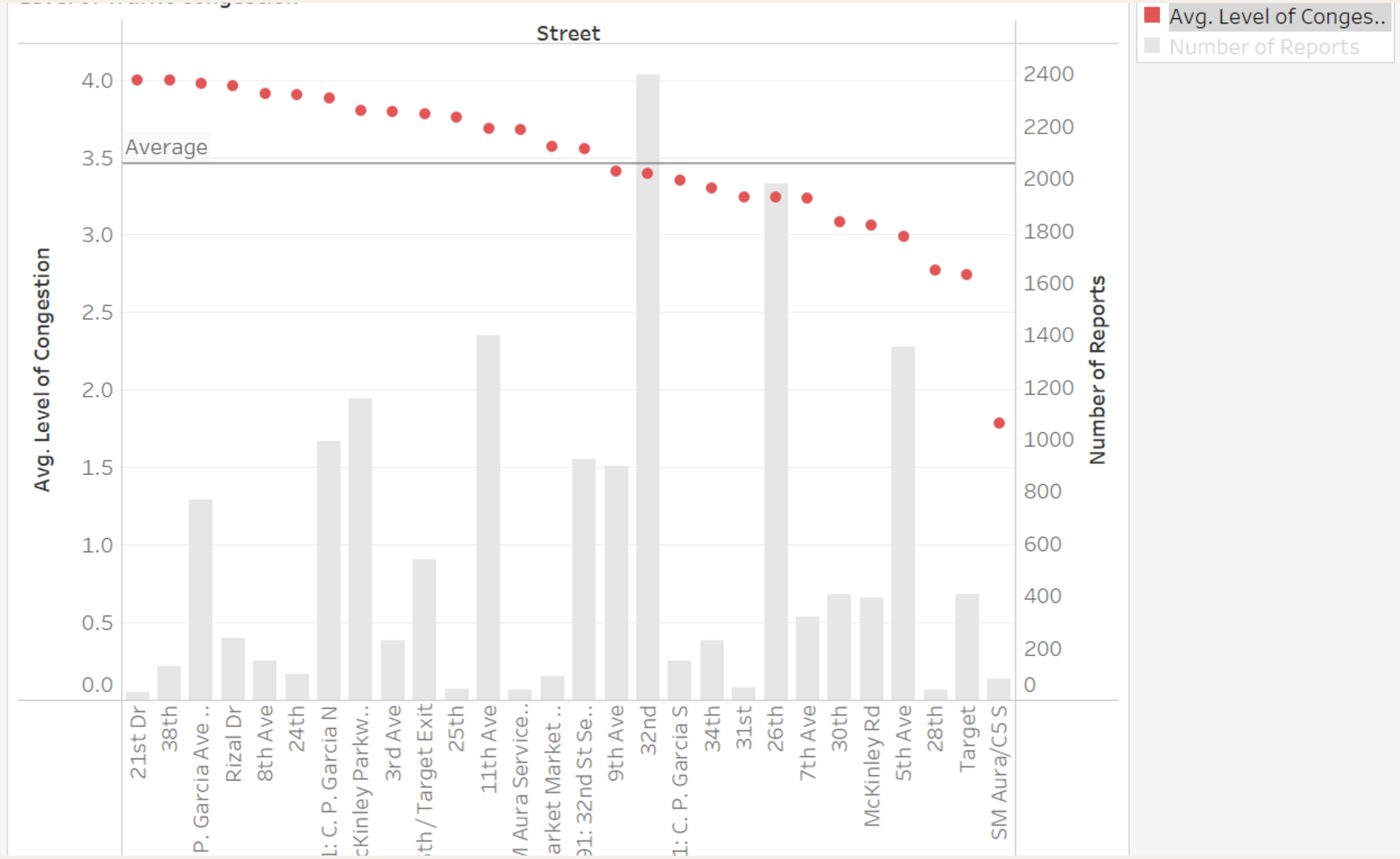
1. Traffic Congestion Identification and Hotspot

Road Segments with the Least Amount of Traffic:

- The minimal traffic volume suggests that these areas have a **relatively lower demand for vehicular movement**.
- The **presence of dedicated parking spaces and alternative entrances/exits** in SM Aura **may contribute to the low traffic volume** in these specific road segments.

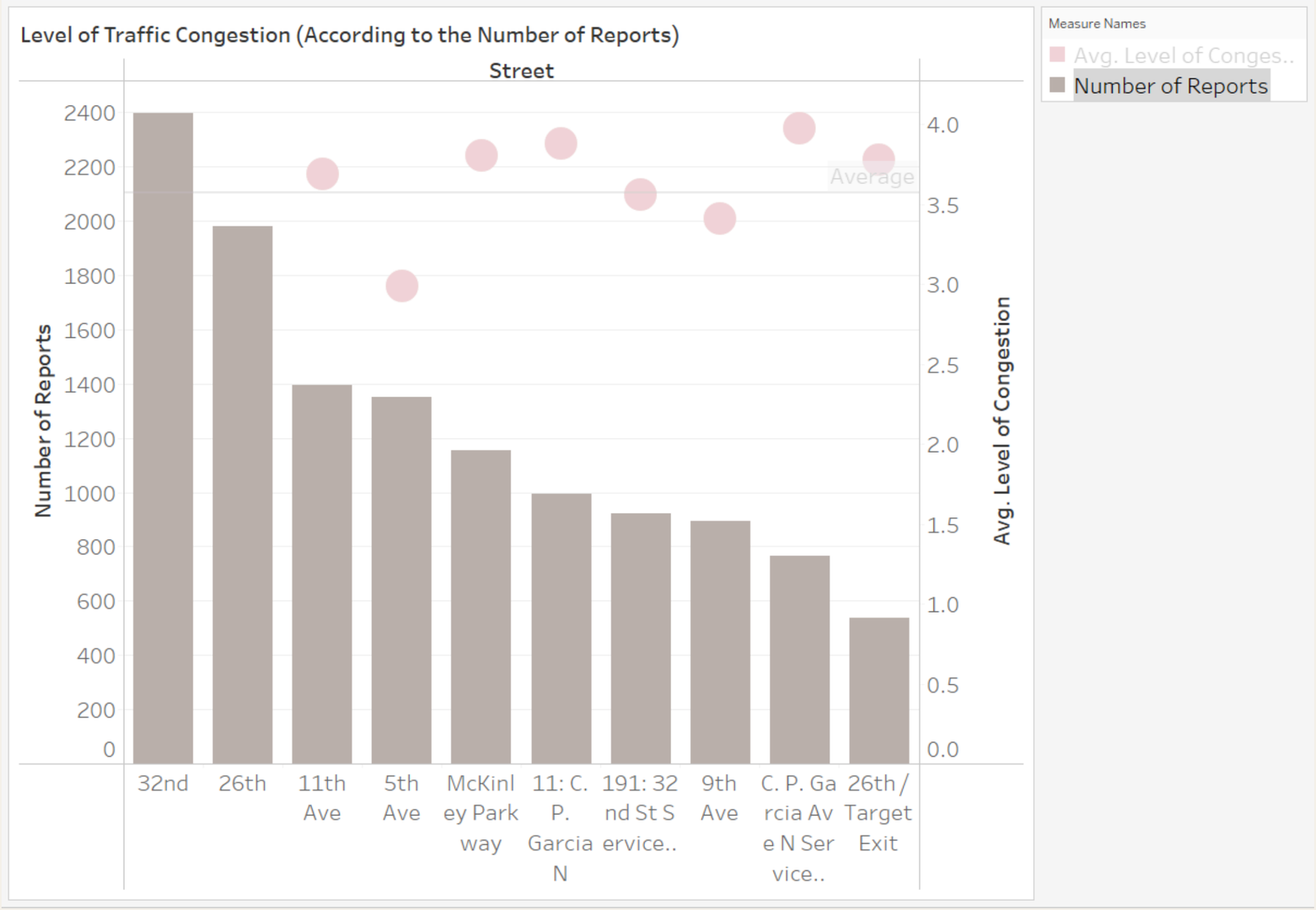
Data Visualization

1. Traffic Congestion Identification and Hotspot



Analysis

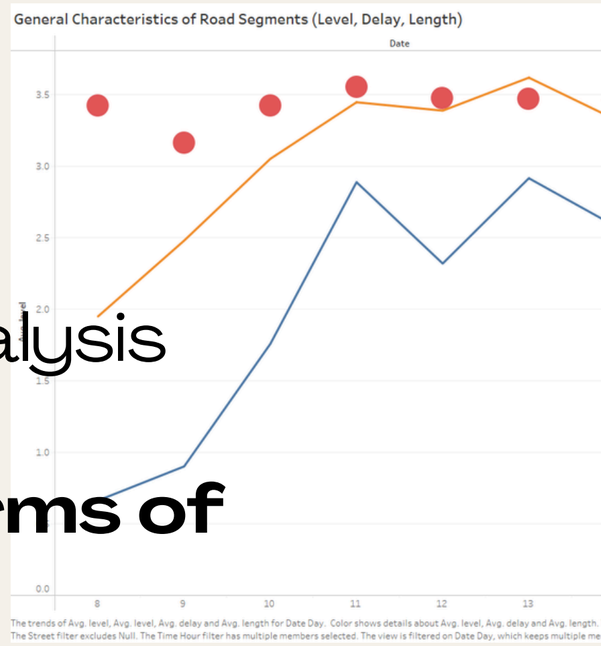
1. Traffic Congestion Identification and Hotspot

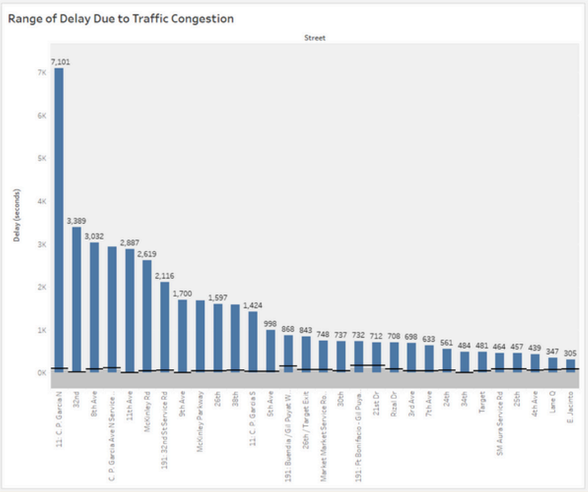


04 - Analysis & Insights

1. Traffic Congestion Identification and Hotspot Analysis

Characteristics of the Congested Areas in Terms of Level, Delay, and Length:



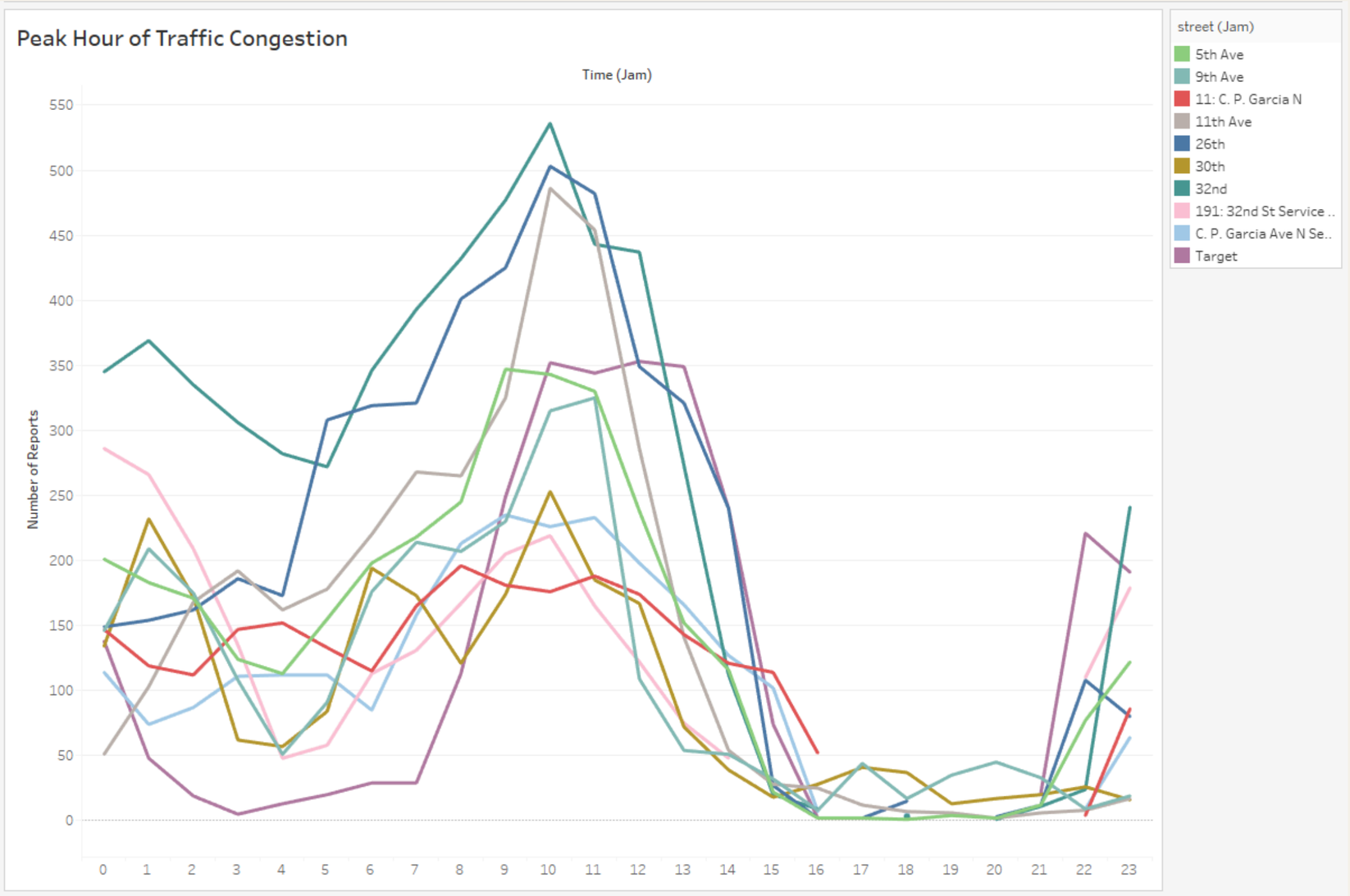


Highest Level of Congestion Area: 21st DR

- Average congestion level: 4
- Average delay: 429 sec
- Average length: 359 meters

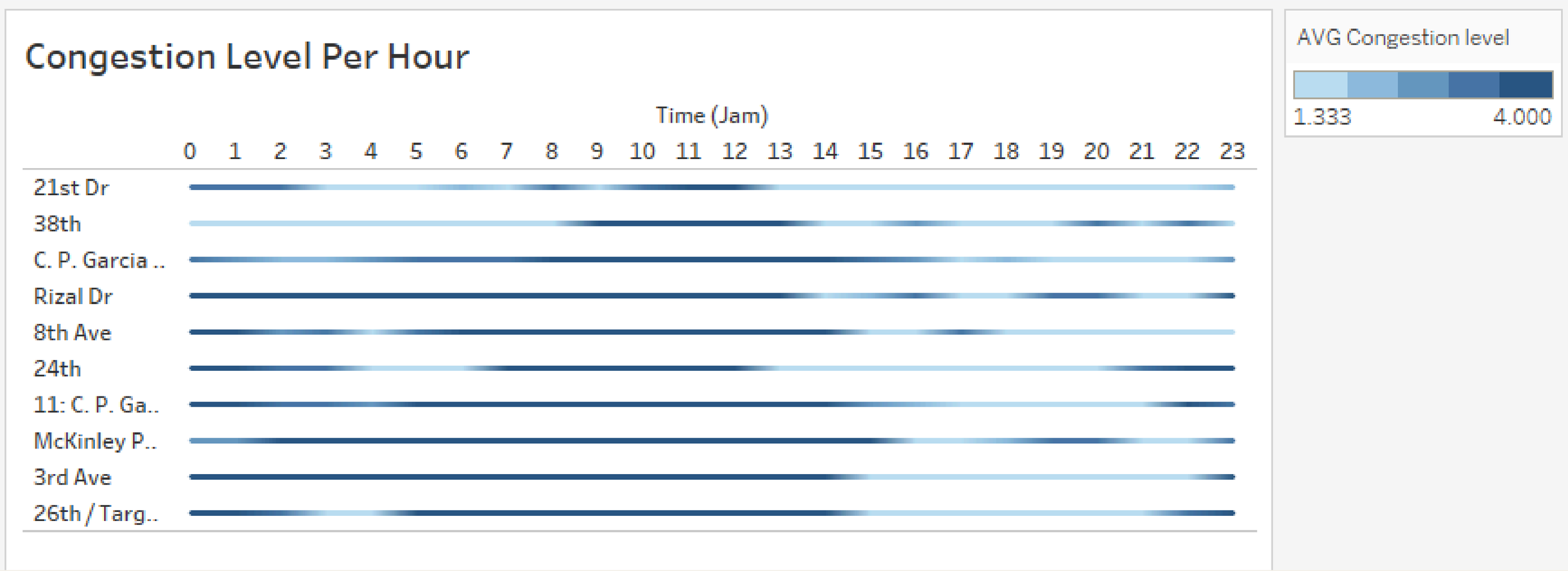
Analysis

Data Visualization



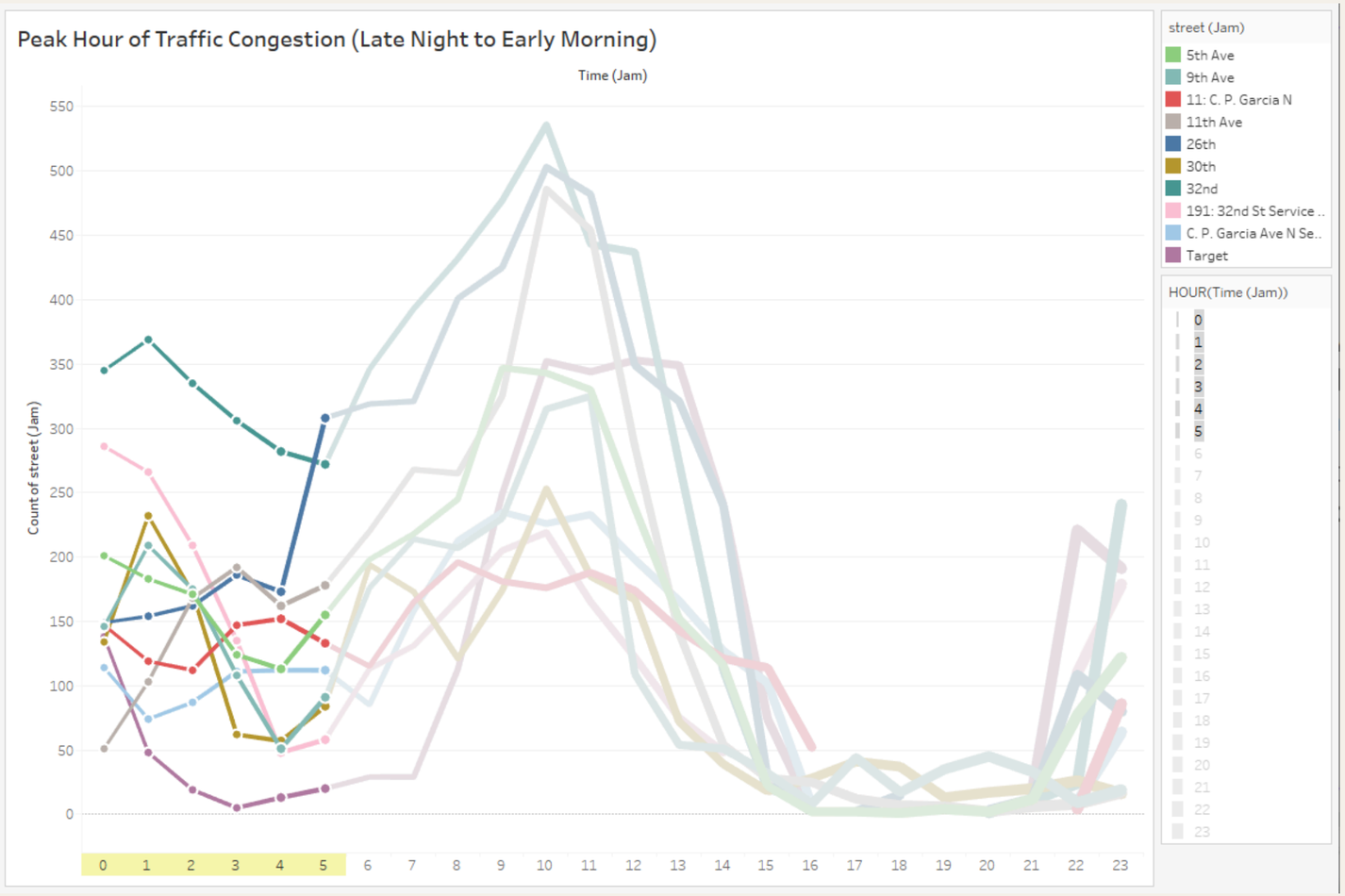
Data Visualization

2. Peak Hour Analysis



Analysis

2. Peak Hour Analysis

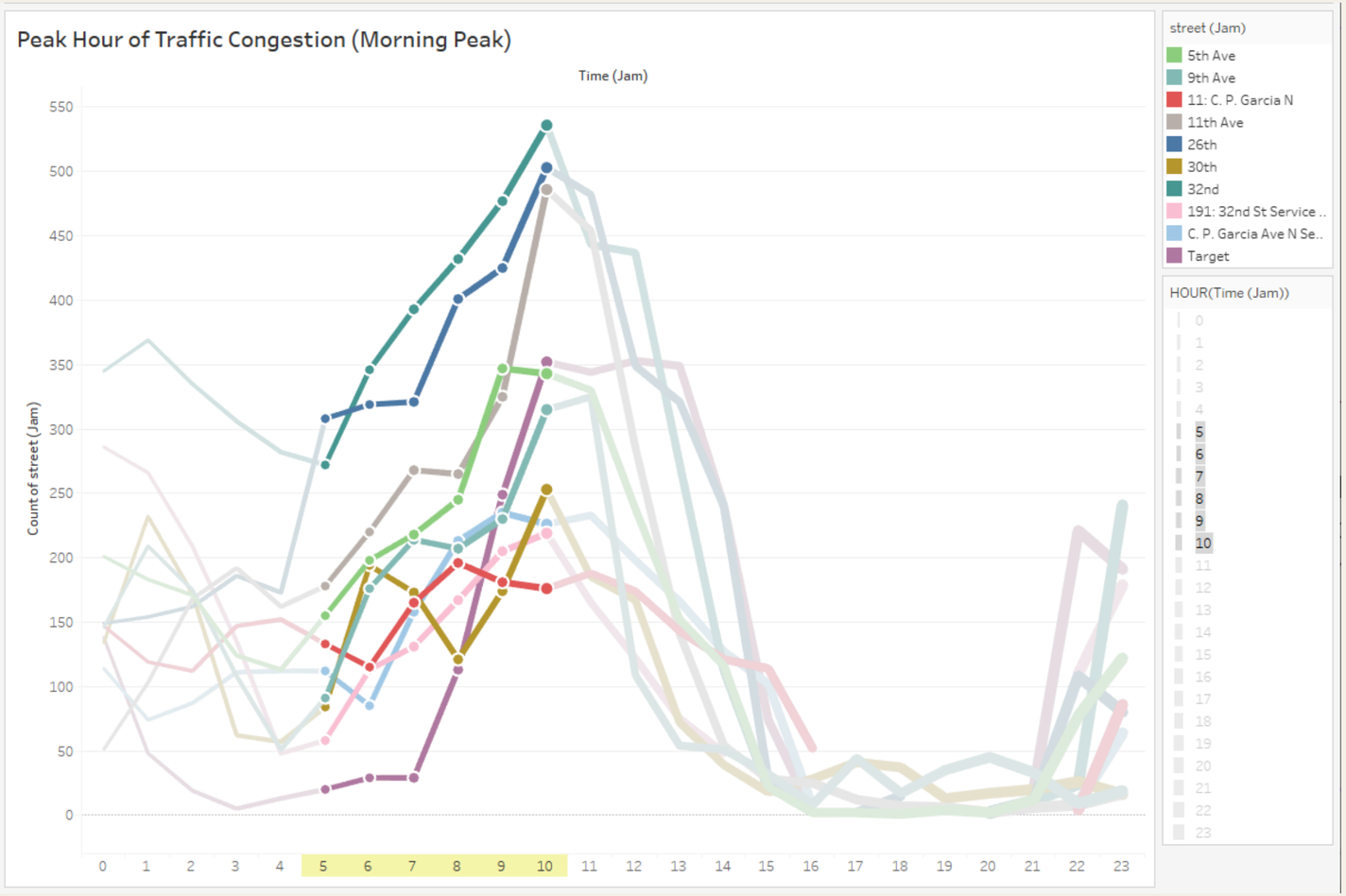


Late Night to Early Morning :

- 1 am = **relatively higher** total traffic volume in BGC
- From 2 am onwards, traffic volume **starts to decline and continues to slow down** until around 5 am

Analysis

2. Peak Hour Analysis

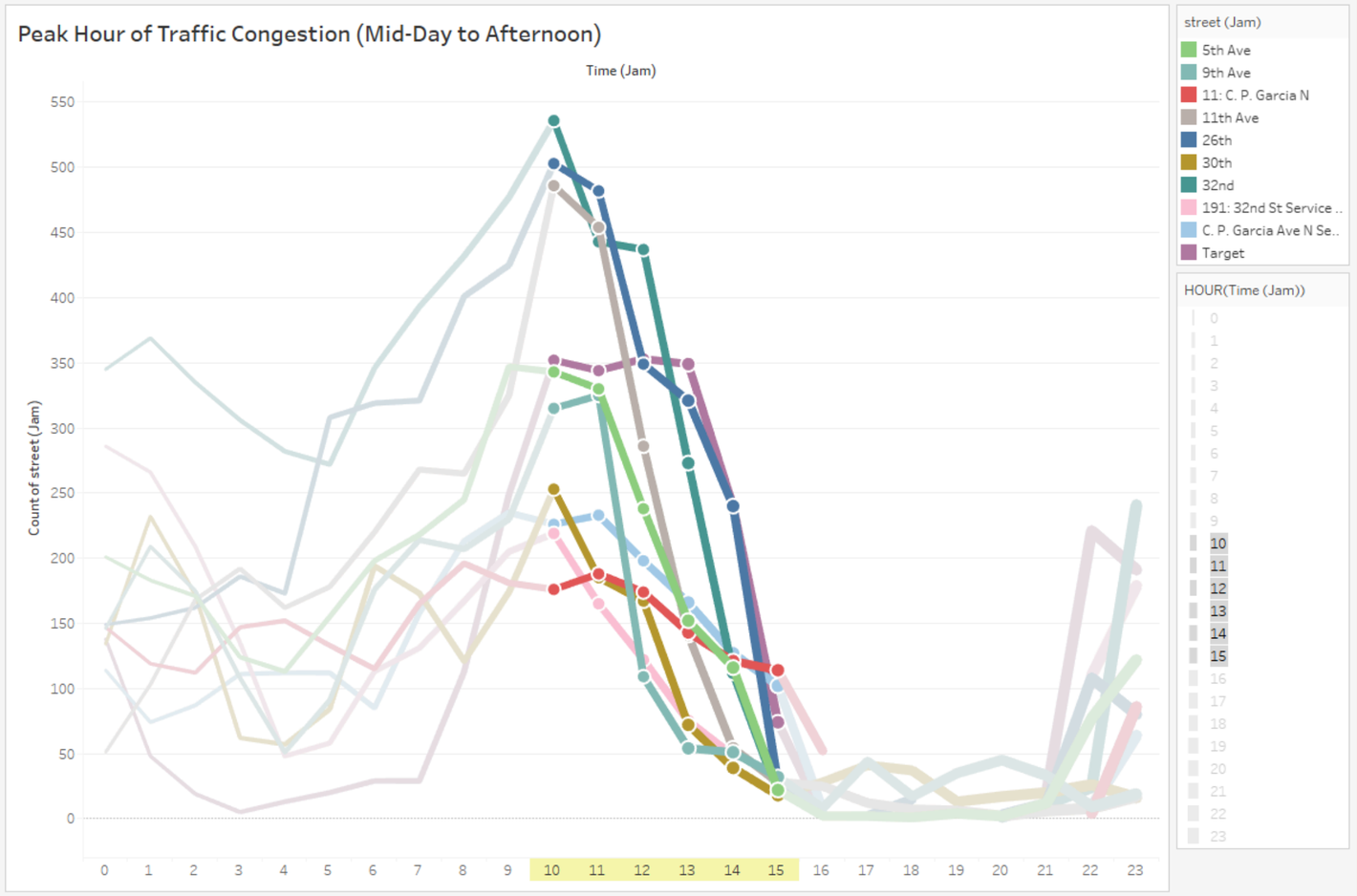


Morning Peak:

- Traffic volume starts to **increase from 5 am** and reaches its **peak at 11 am**, with 10 am being the most congested hour.

Analysis

2. Peak Hour Analysis

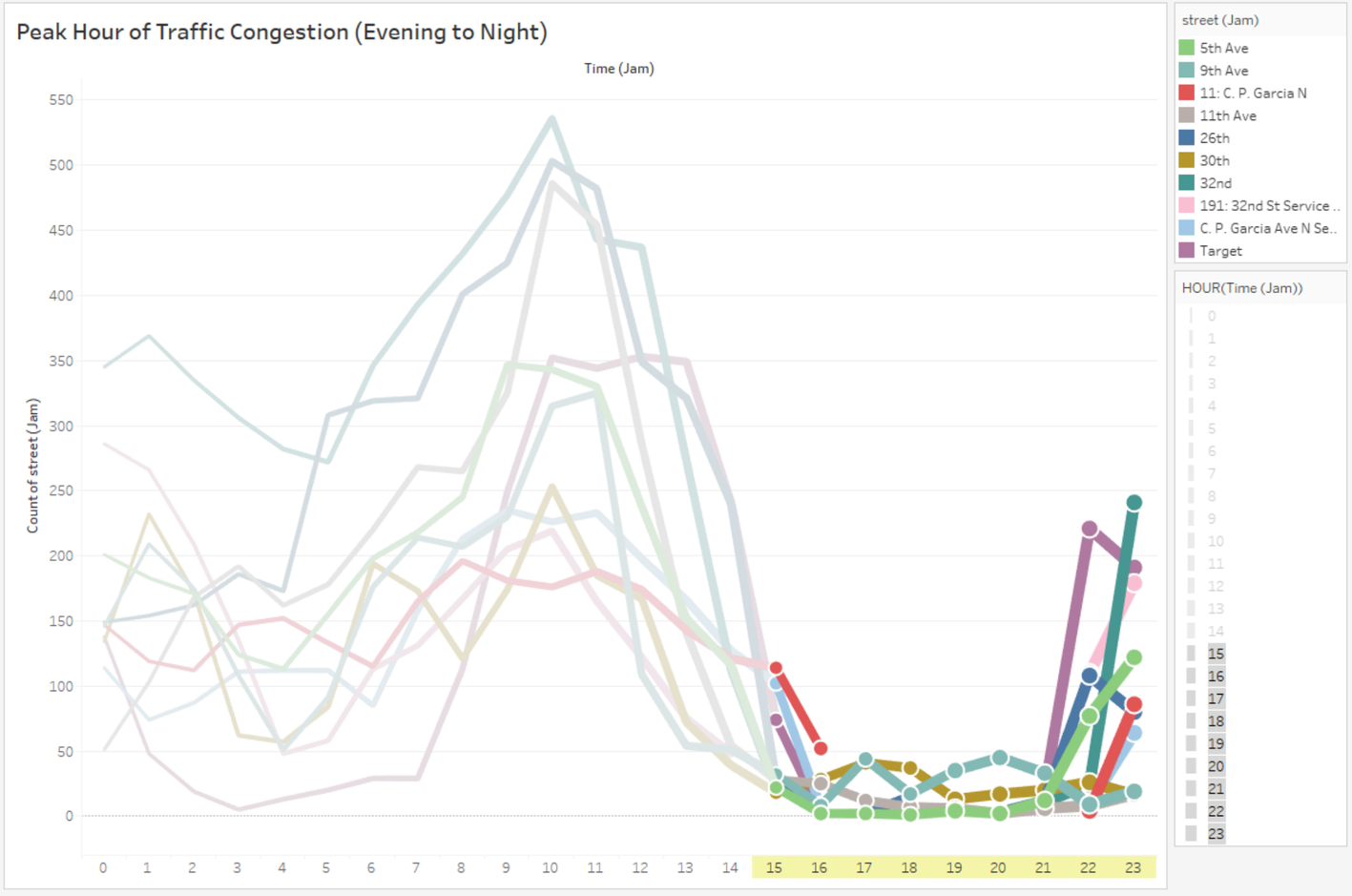


Mid-Day to Afternoon:

- Although traffic volume is still relatively high at 11 am, it **starts to slow down** from 11 am to 3 pm.

Analysis

2. Peak Hour Analysis



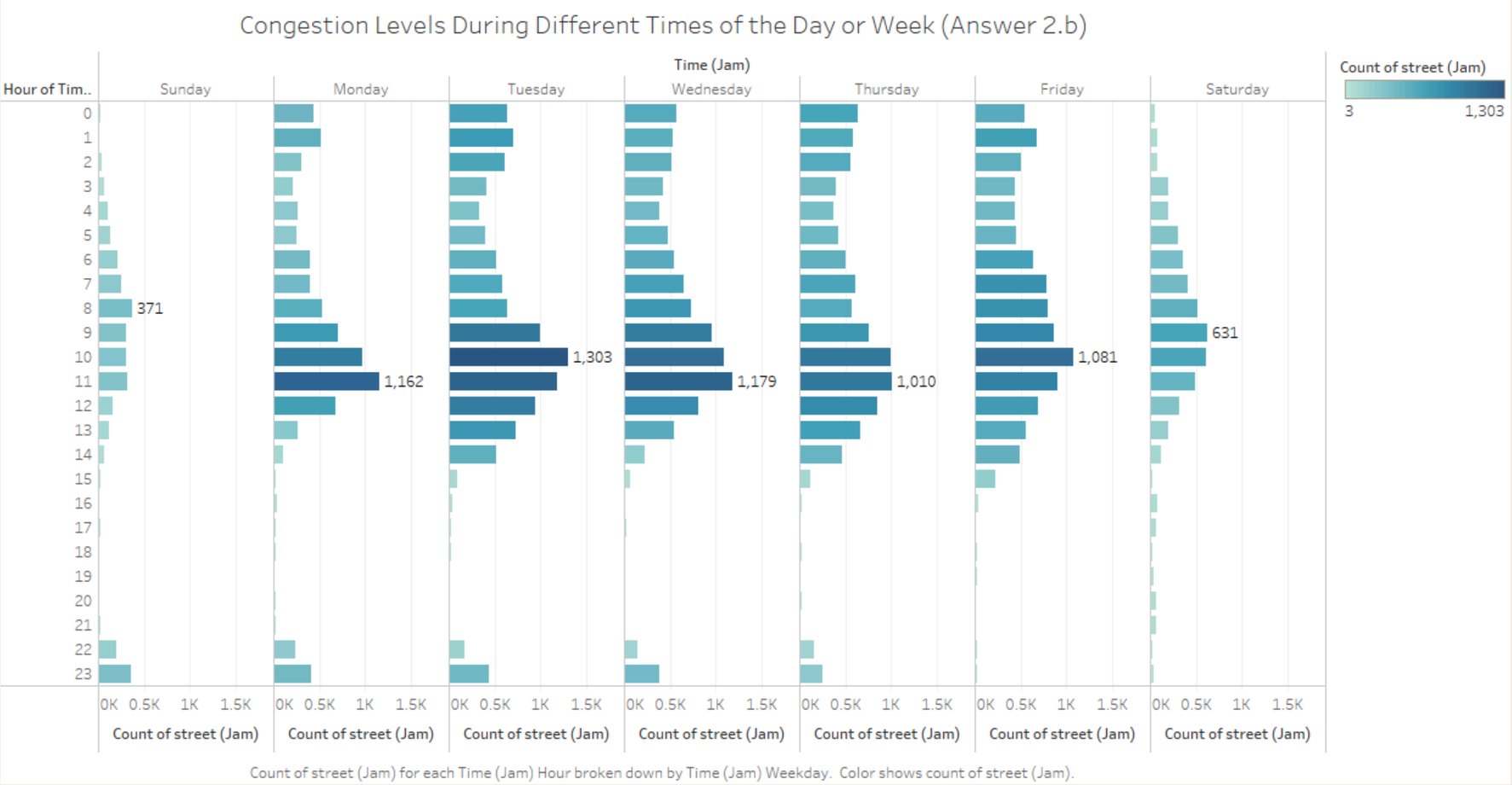
Evening to Night:

- Total traffic volume remains **relatively low from 4 pm to 8 pm**. However, traffic volume **starts to increase again at 9 pm**.

Analysis

2. Peak Hour Analysis

b. How do congestion levels vary during different times of the day or week?



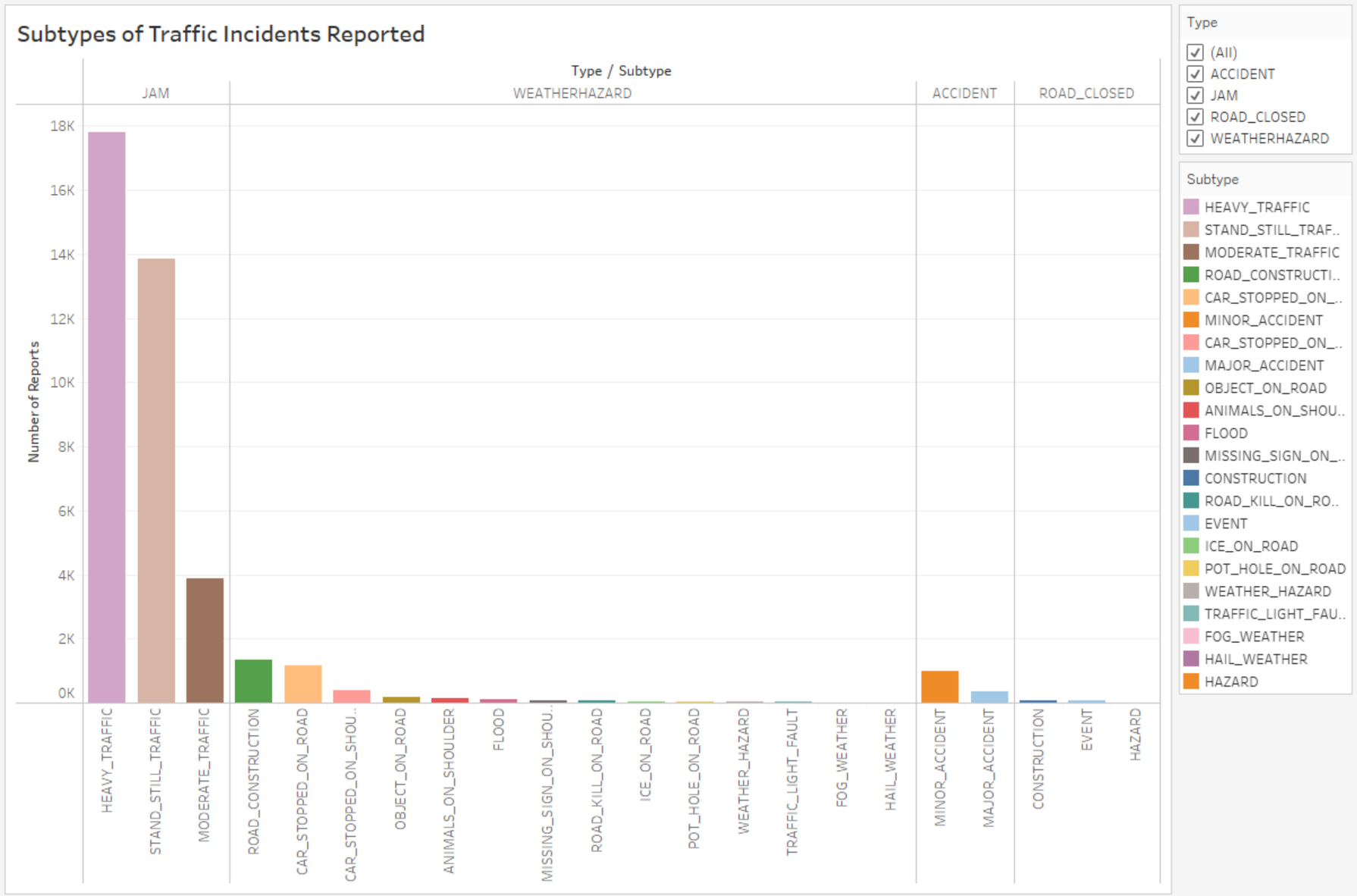
04 - Analysis & Insights

- The **highest** congestion level occurs from **9 am to 11 am**, aligning with the morning peak hours of heavy traffic volume.

- From **4 pm to 9 pm**, the congestion level is **least**, indicating a relatively smoother flow of traffic during these hours.

Analysis

Data Visualization

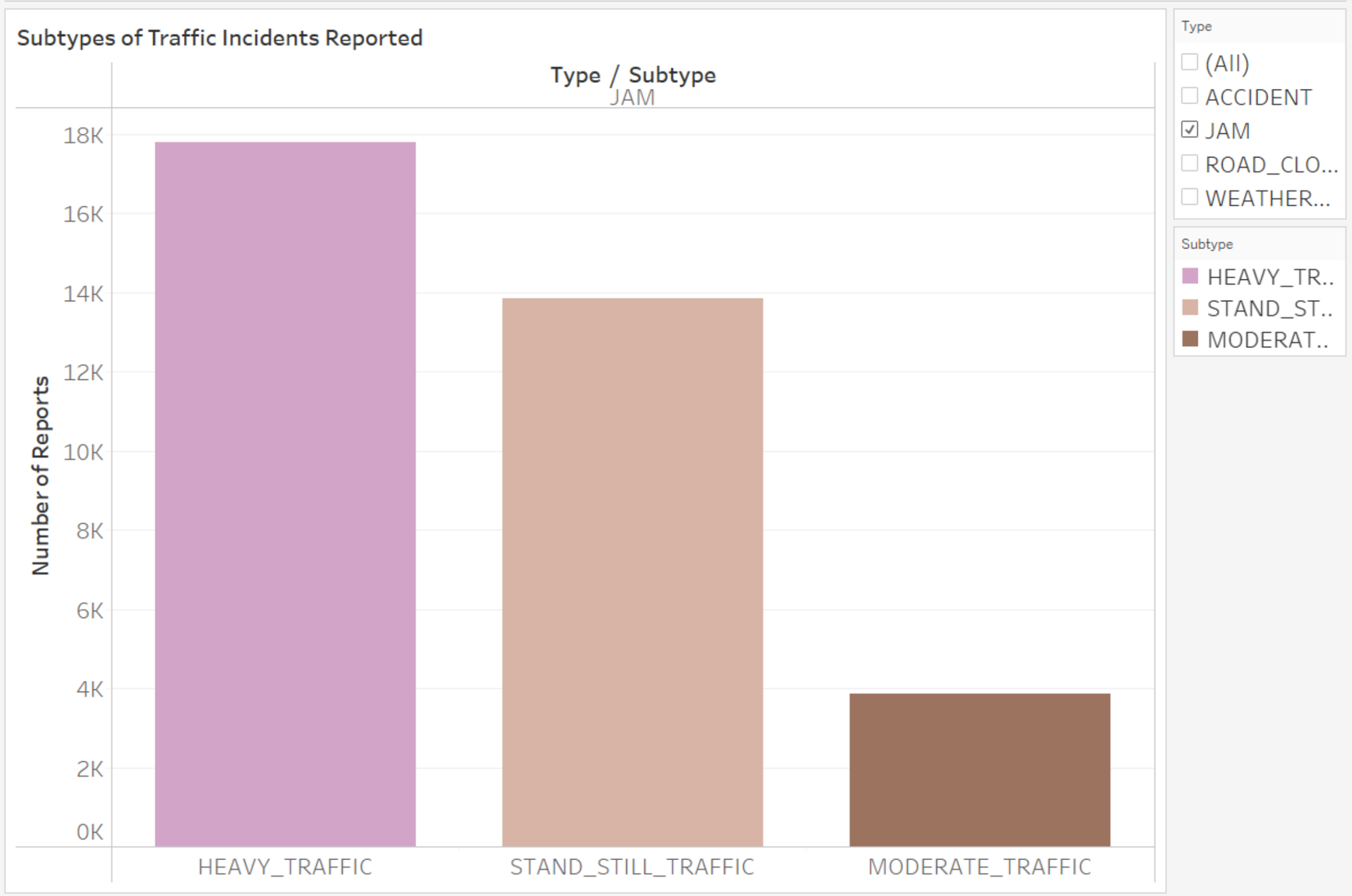


Count of Type for each Subtype broken down by Type. Color shows details about Subtype. The data is filtered on Street, which excludes Null. The view is filtered on Type and Subtype. The Type filter keeps ACCIDENT, ROAD_CLOSED and WEATHERHAZARD. The Subtype filter excludes Null.

Data Visualization

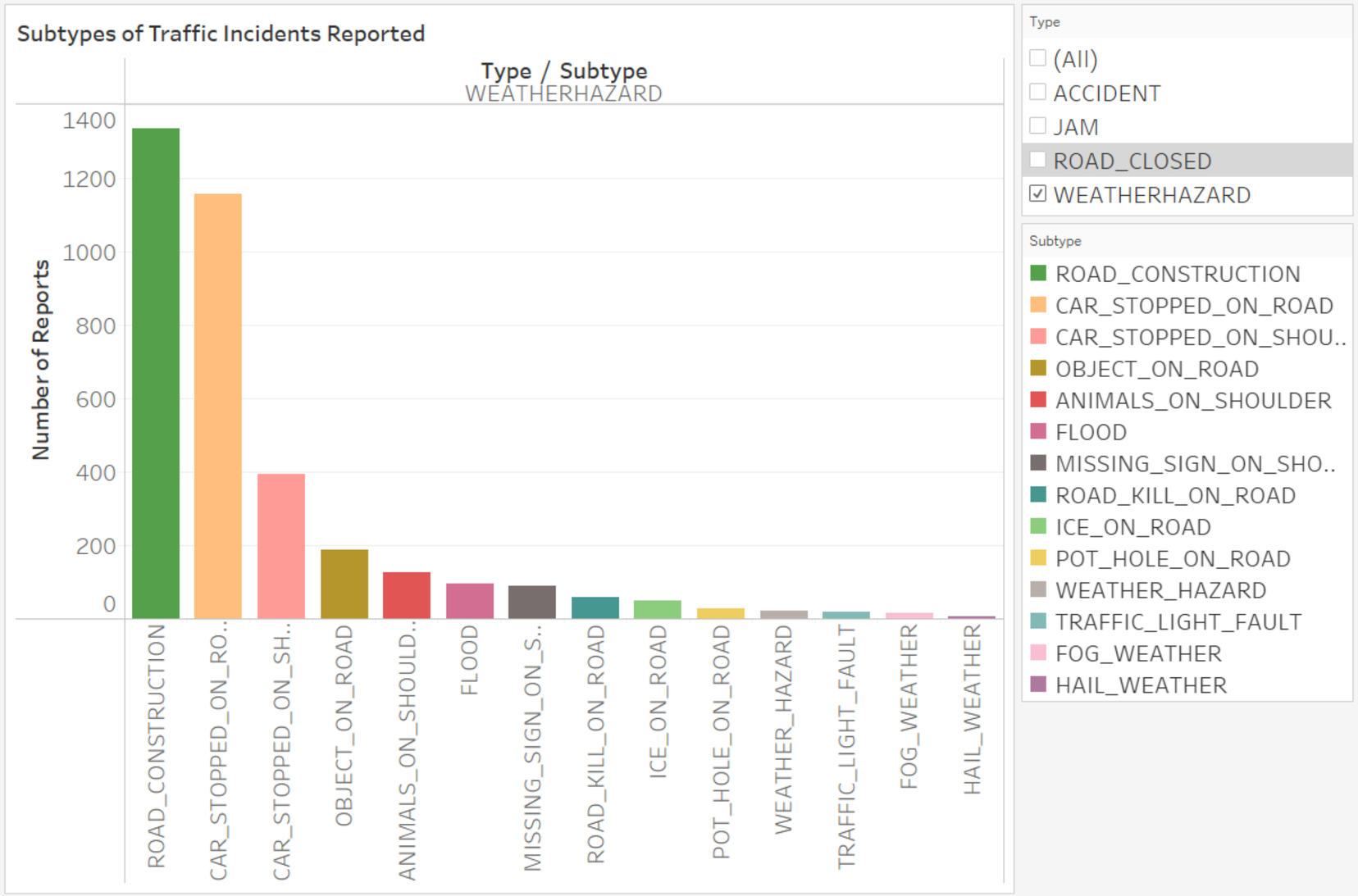
3. Traffic Incident Analysis

17, 791 incidents



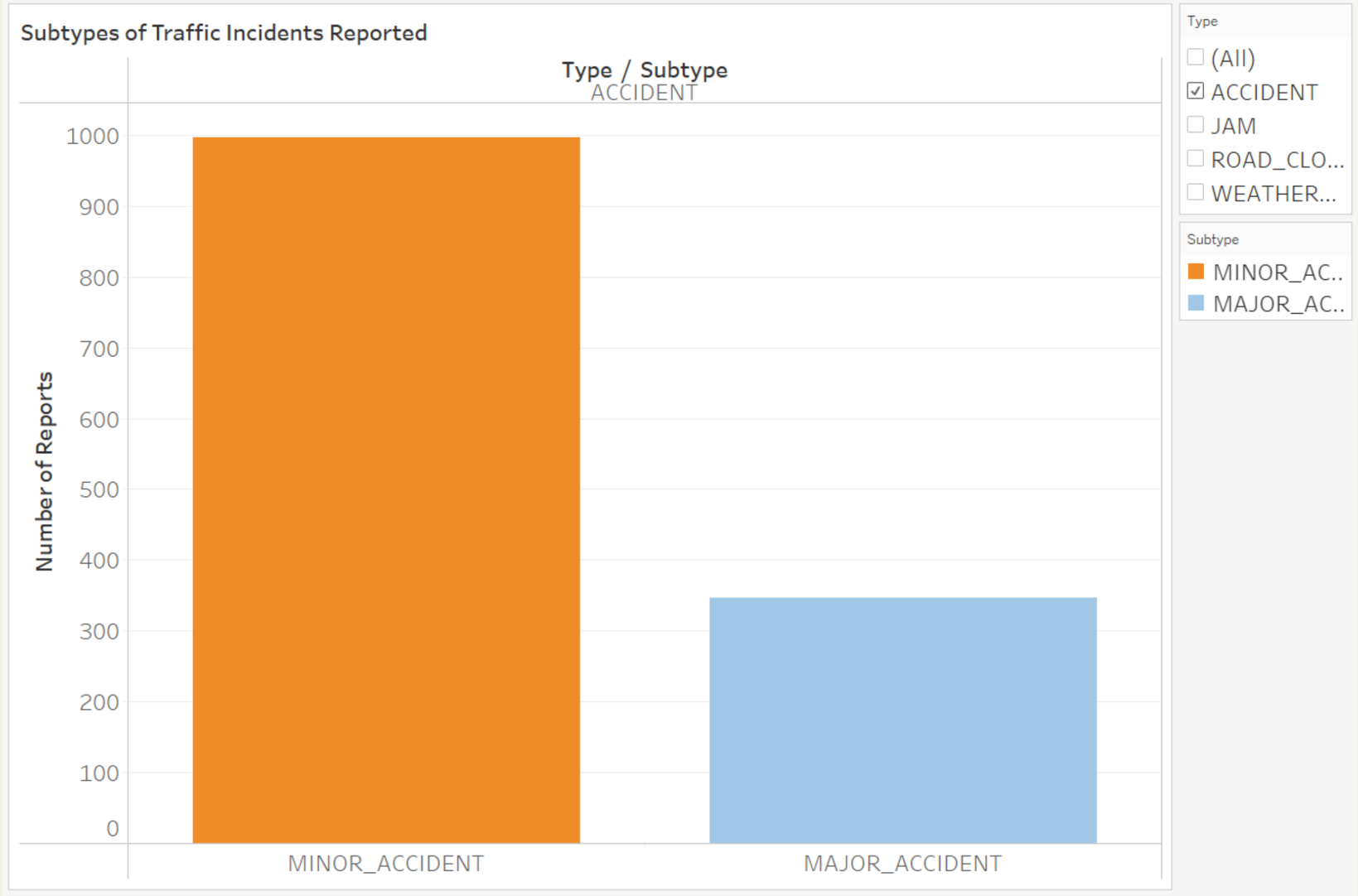
Data Visualization

1,337 incidents



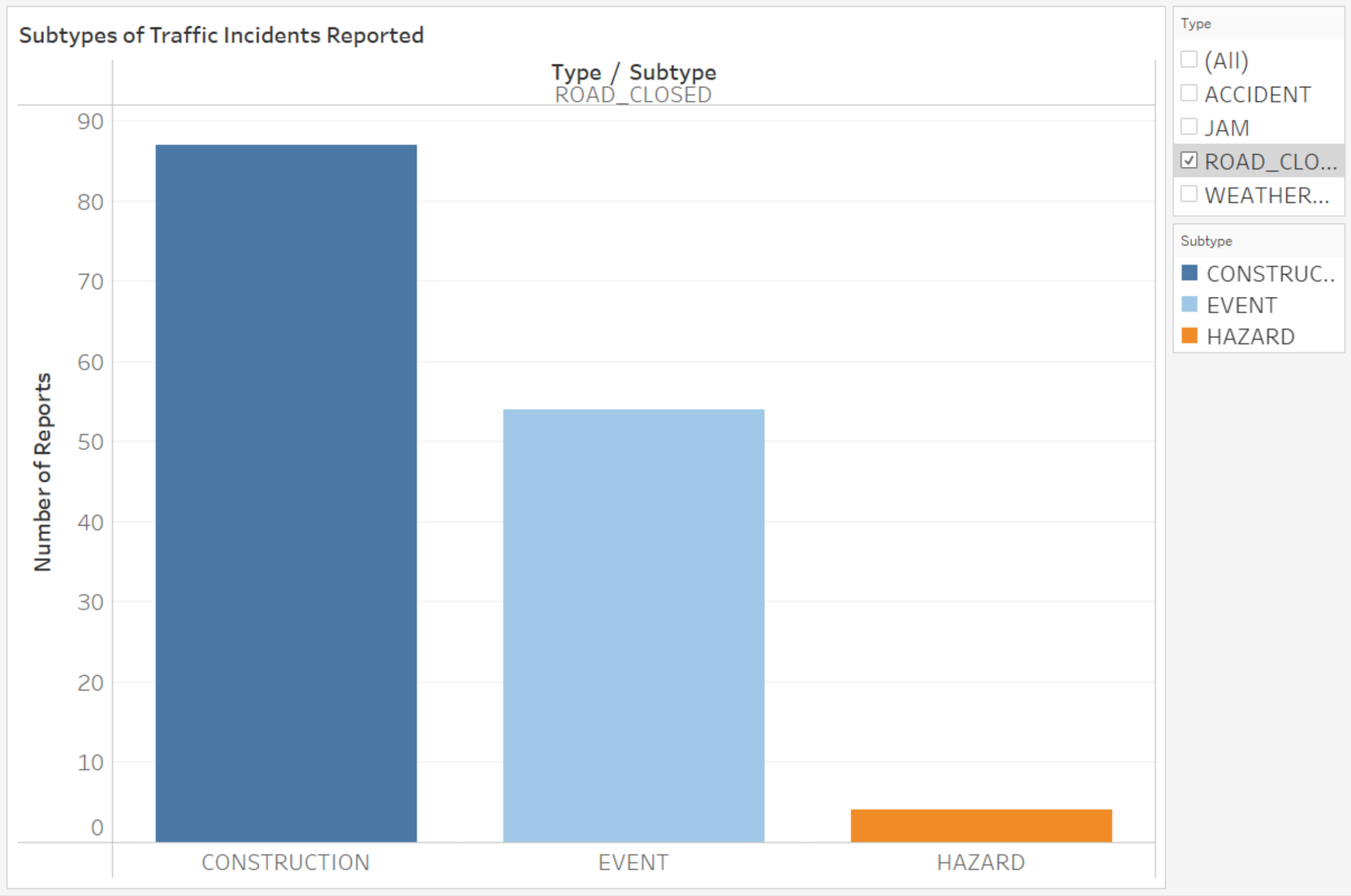
Data Visualization

996 incidents



Data Visualization

87 incidents



Analysis & Insights

3. Traffic Incident Analysis

Frequency of Traffic Incidents:

A. Hazard on Road Construction:

- Dates occurred: 8 to 15
  - It indicates that road construction activities were taking place during this period, potentially leading to lane closures, reduced road capacity, and increased congestion in the affected area.

Analysis & Insights

3. Traffic Incident Analysis

Frequency of Traffic Incidents:

B. Hazard on Road Car Stopped

- Dates occurred: 10 to 15
  - It suggests that there were instances where vehicles stopped on the road, either due to breakdowns, accidents, or other issues.

Analysis & Insights

3. Traffic Incident Analysis

Frequency of Traffic Incidents:

C. Minor Accident

- Dates occurred: 9 to 15
  - These incidents typically involve collisions between vehicles, resulting in relatively minor damage and no severe injuries.

Analysis & Insights

3. Traffic Incident Analysis

Impact on Traffic Flow:

- **Lane closures, reduced road capacity, and changes in traffic patterns** were common during road construction.
- When a **vehicle comes to a halt on the road**, it can obstruct the flow of traffic, **causing slowdowns or even complete standstills**. This impact was particularly pronounced in high-traffic areas or during peak hours when congestion levels were already high.

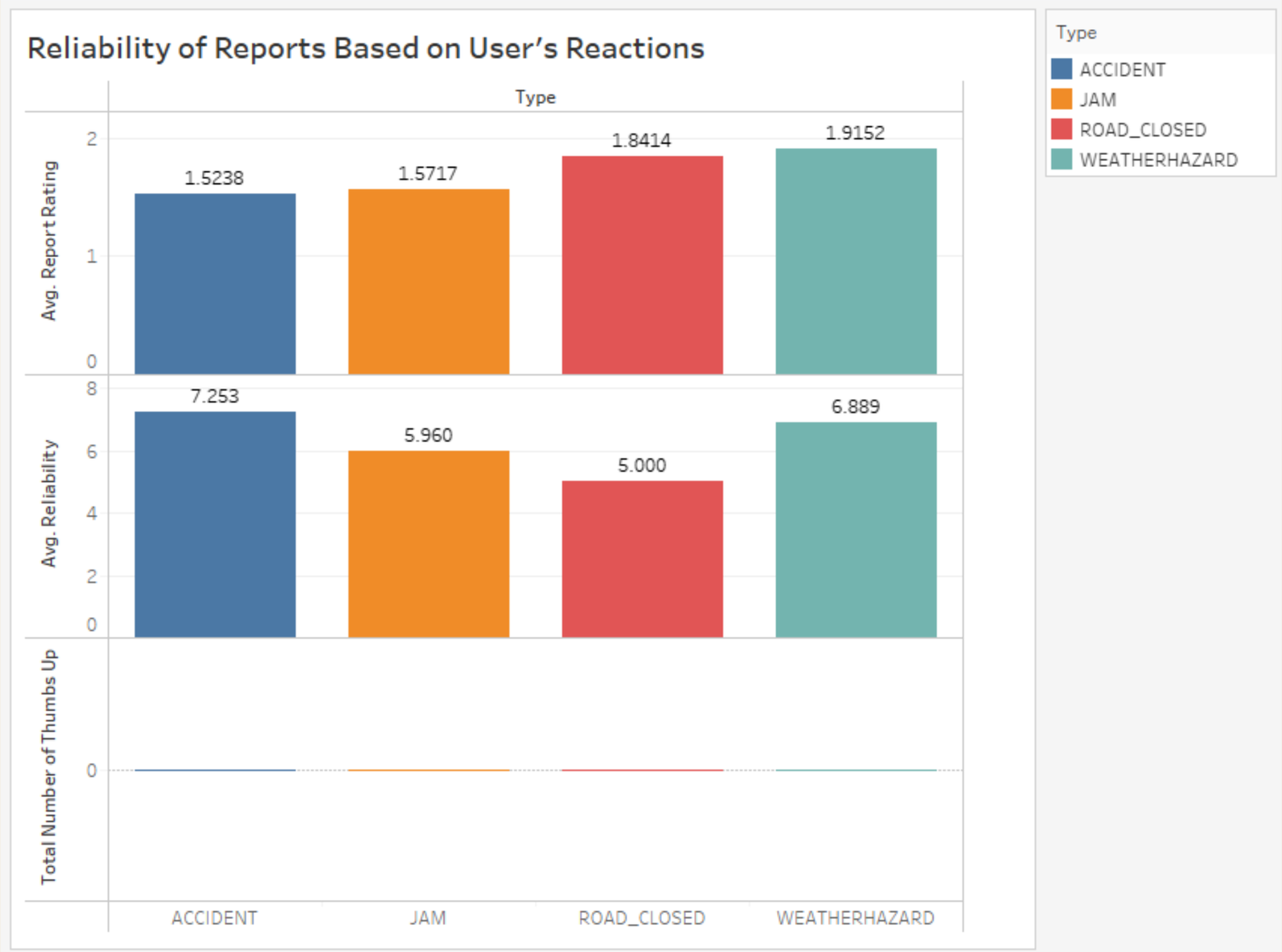
Analysis & Insights

3. Traffic Incident Analysis

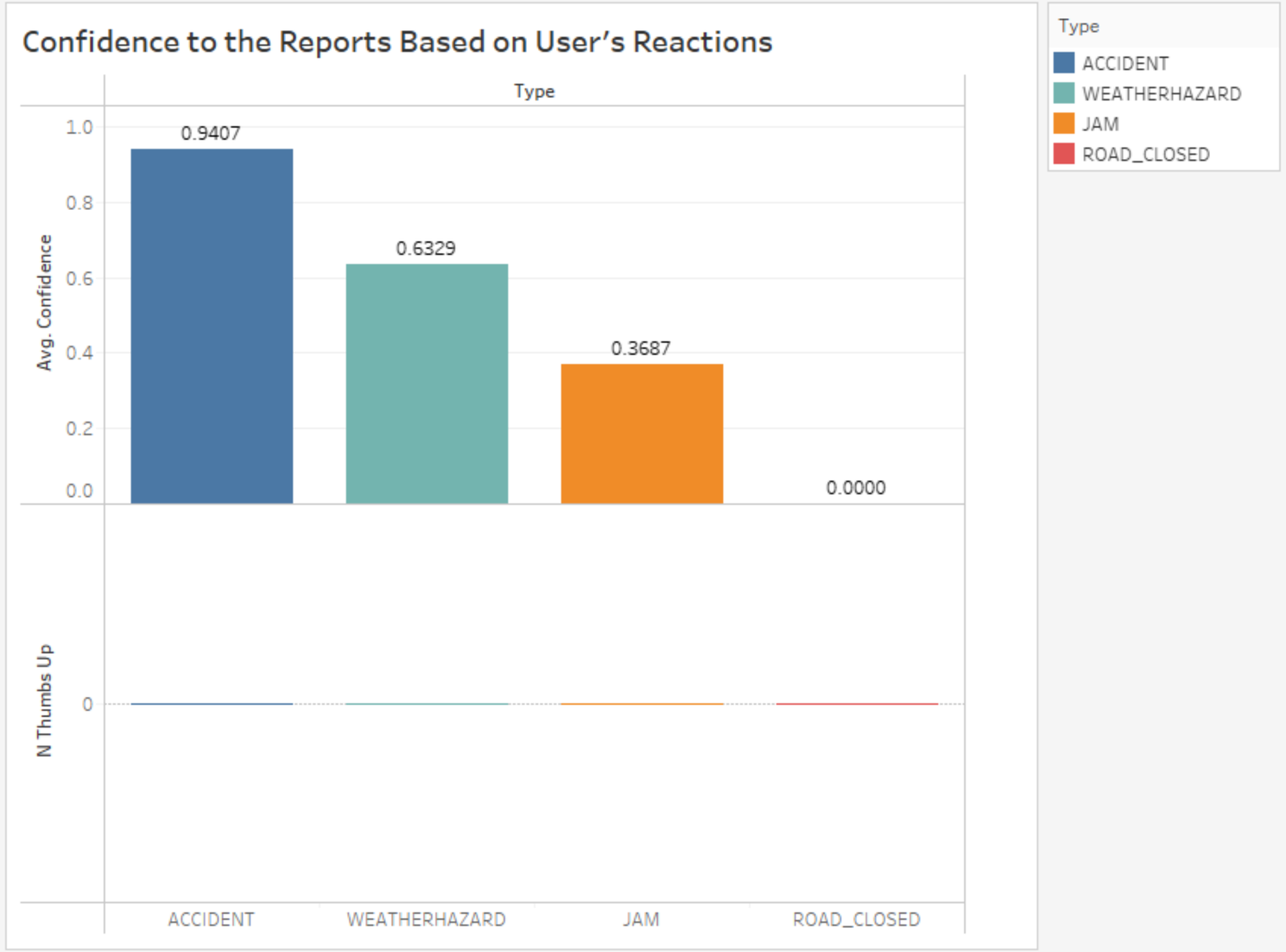
Impact on Traffic Flow:

- **Lane closures, temporary road blockages, and the arrival of emergency services** were common consequences of minor accidents.

4. User-Generated Report Reliability and Engagement



4. User-Generated Report Reliability and Engagement



Analysis & Insights

4. User-Generated Report Reliability and Engagement

Accident Reports:

- **Users generally perceive Accident reports to be reliable**, with a higher level of trust in the accuracy of these reports.

Analysis & Insights

4. User-Generated Report Reliability and Engagement

Jam Reports:

- The reliability rating for **Jam reports is slightly lower compared to Accident reports**. This indicates that users may perceive Jam reports to be somewhat **less reliable** than Accident reports.

Analysis & Insights

4. User-Generated Report Reliability and Engagement

Road Closed Reports:

- Users consider **Road Closed reports to be less reliable compared to Accident and Jam reports**, with a lower level of trust in the accuracy of these reports.

Analysis & Insights

4. User-Generated Report Reliability and Engagement

Weather Hazard Reports:

- Users perceive **Weather Hazard reports to be relatively reliable**, indicating a moderate level of trust in the accuracy of these reports.

04 - Recommendations

Road segments

Enhance emergency response capabilities

Peak hours patterns

Strengthen enforcement and public awareness

Collaborate with relevant stakeholders

Traffic signal timings

Monitor and manage traffic flow

Thank you!

Aganan | Alegado | Dela Peña | Ilagan | Jamco | Leonin | Lirit | Macarubbo | Montemayor | Oblea | Sanchez | Sas