

EXPLANATORY DATA ANALYSIS: NYC SUBWAY FLOOD RISK

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SEPTEMBER 2021: RECENT HISTORIC NYC FLOOD

- Killed at least 13 people
- Damaged subway infrastructure and properties
- More future floods will happen due to global warming
- Which subway stations are at risk?
- Image Source: The Guardian



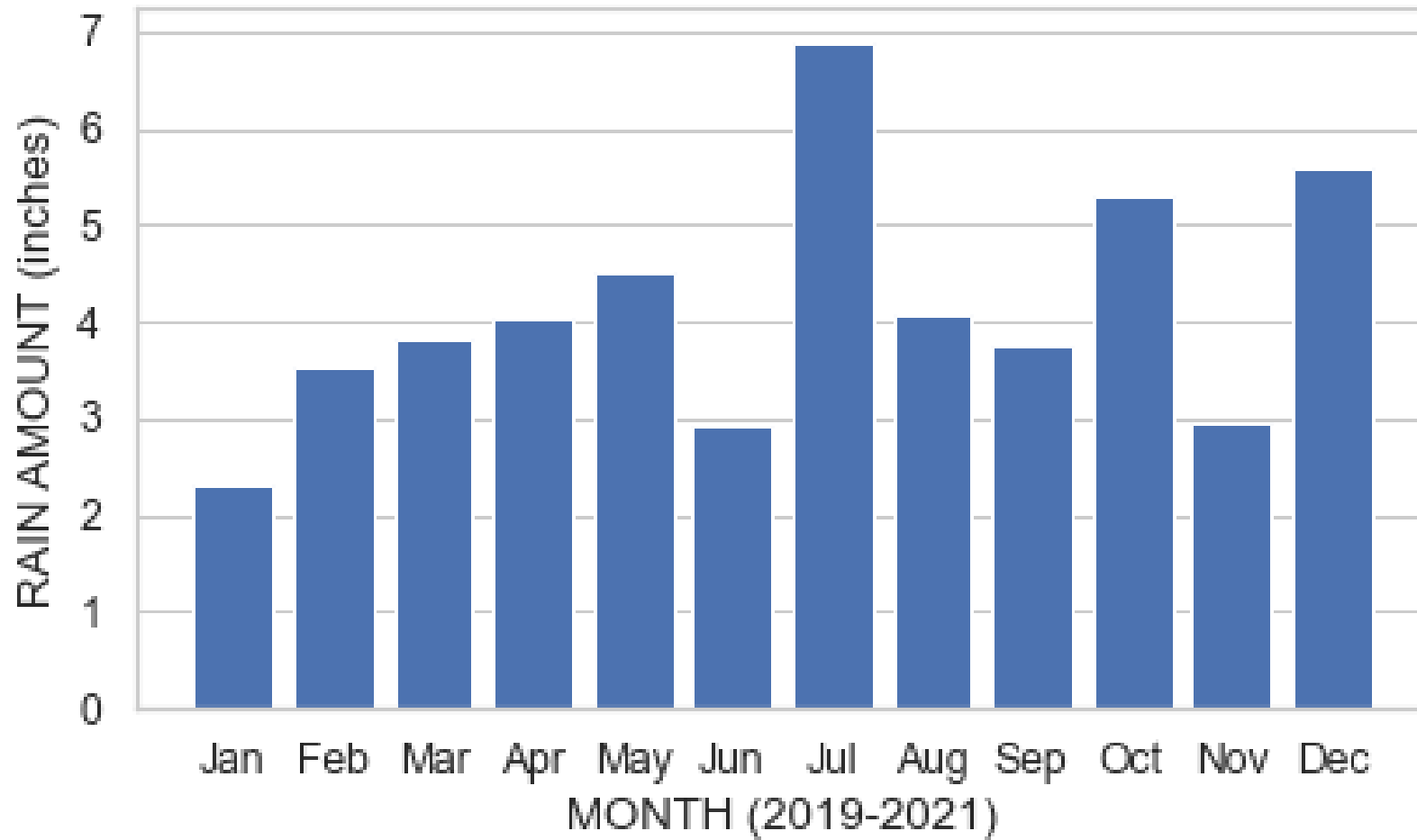
DESIGN

1. Rainiest Month in NYC
2. Top 10 Busiest NYC Stations in Rainiest Month
3. Top 10 Busiest Stations with Most Flood Incidents Reported in Rainiest Month

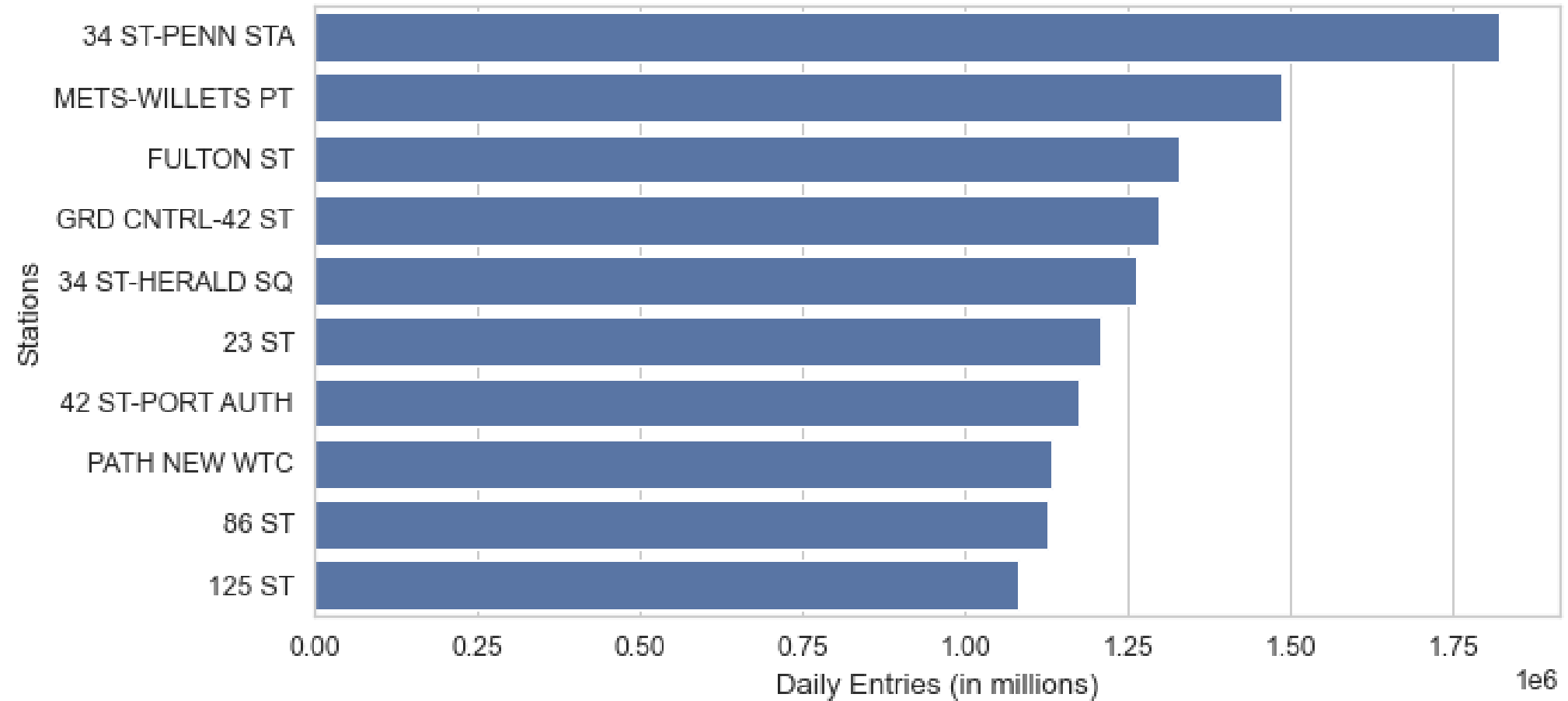
DATA

1. Rain data: 165 data points of precipitation in the last 3 years (2019-2021) across all 5 NYC boroughs. Data from National Oceanic and Atmospheric Administration (NOAA).
2. Subway traffic data: 2,504,395 data points of subway station turnstile data in most recent rainiest months: 7/2020, 7/2021, 9/2021. Data from Metropolitan Transportation Authority (MTA).
3. Flood data: 31,185 data points of reported street flooding incidents from 2010 to 2021. Data from 311 NYC Street Flooding.

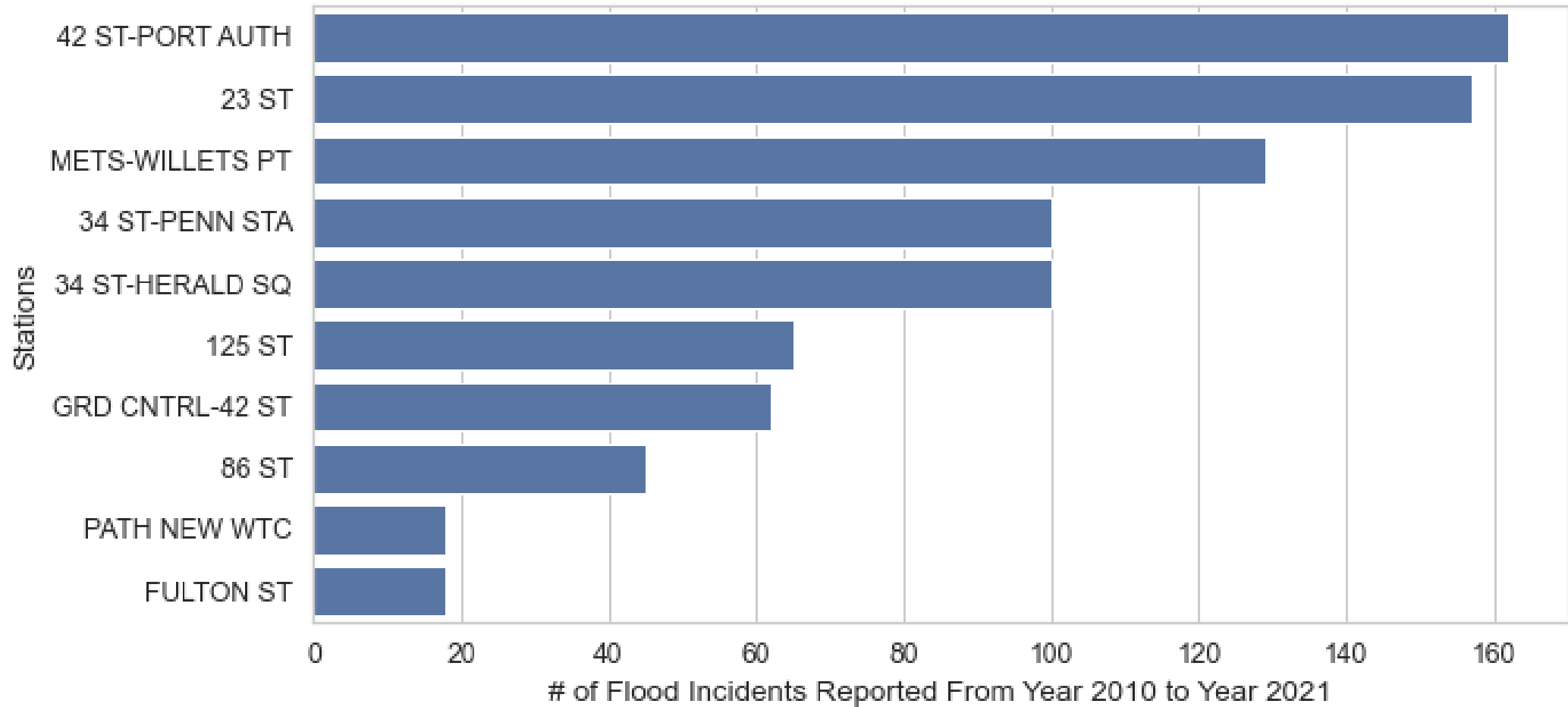
RAINIEST MONTH IN NYC



TOP 10 BUSIEST NYC STATIONS IN RAINIEST MONTH



TOP 10 BUSIEST NYC STATIONS WITH HIGHEST FLOOD RISK



Business Applications

- Allow the MTA maintenance staff to plan ahead to reduce costs and potential loss of life and properties
- Targeted advertising for water-proof or rain apparel such as rainboots, raincoats, umbrellas; or emergency disaster management equipment such as flood rescue equipment like life jackets, inflatable boats, rescue tubes, rescue boats, reaching poles, floating lines, emergency oxygen, etc.
- Allow efficient, fast, and responsive disaster management from NYC government