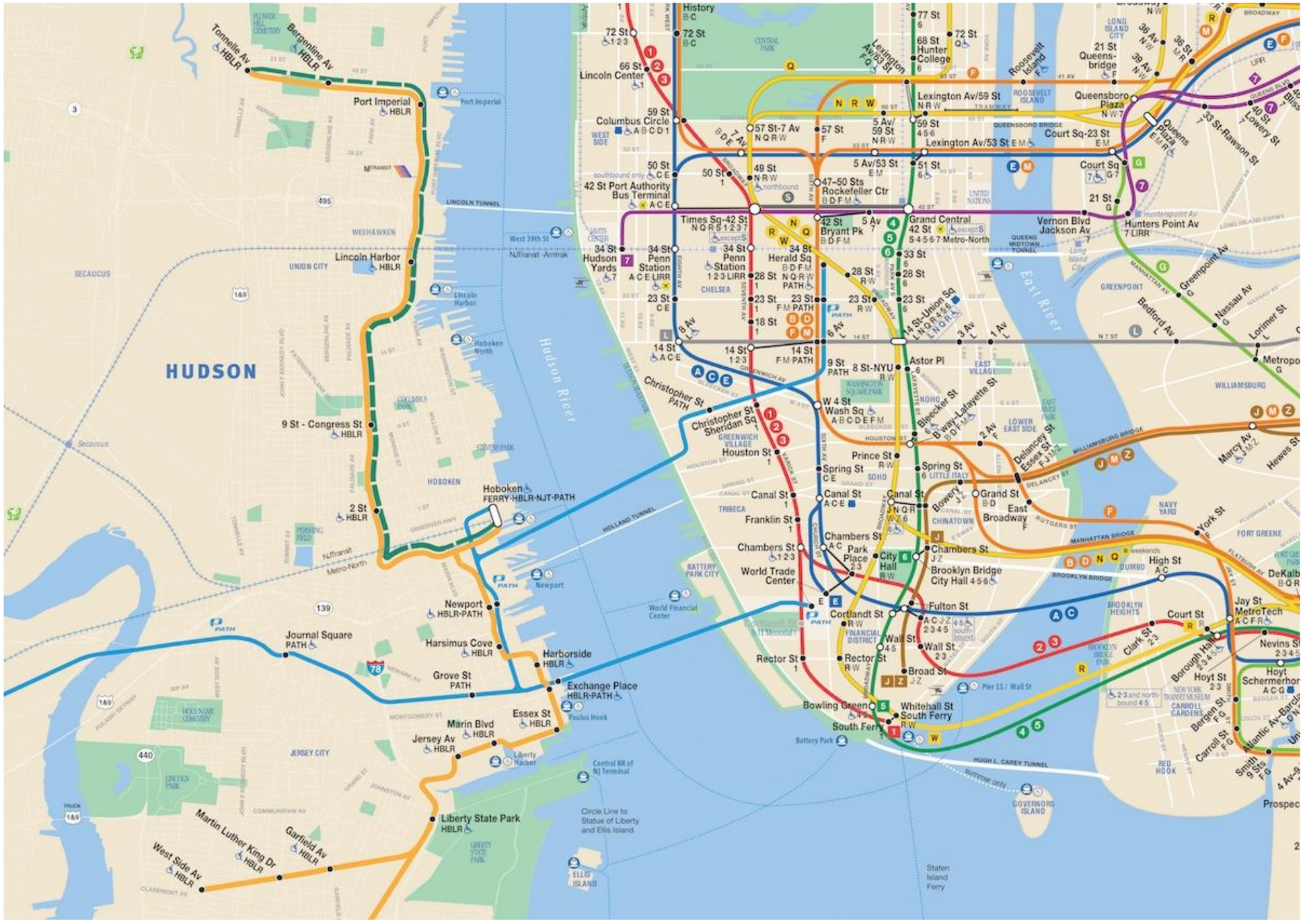
Analysing MTA Traffic Data From Summer 2021

Milad Afrasiabi
September 2021


HUDSON
Hudson River
East River
Tonnelle Av HBLR
Bergenline Av HBLR
Port Imperial HBLR
Lincoln Harbor HBLR
9 St - Congress St HBLR
2 St HBLR
Hoboken FERRY·HBLR·NJT·PATH
Newport HBLR·PATH
Harsimus Cove HBLR
Harborside HBLR
Exchange Place HBLR·PATH
Essex St HBLR
Marin Blvd HBLR
Jersey Av HBLR
Liberty State Park HBLR
Martin Luther King Dr HBLR
Garfield Av HBLR
West Side Av HBLR
Journal Square PATH
Grove St PATH
Christopher St PATH
Lincoln Center
Columbus Circle
42 St Port Authority Bus Terminal
Times Sq-42 St
34 St Hudson Yards
34 St Penn Station
34 St Herald Sq
28 St
23 St
18 St
14 St
8 Av
6 Av
Christopher St Sheridan Sq
Houston St
W 4 St Wash Sq
9 St PATH
8 St-NYU
Astor Pl
Prince St
Spring St
Canal St
Franklin St
Chambers St
World Trade Center
Park Place
City Hall
Cortlandt St
Rector St
Wall St
Broad St
Bowling Green
Whitehall St South Ferry
Fulton St
Brooklyn Bridge City Hall
47–50 Sts Rockefeller Ctr
Grand Central 42 St
Lexington Av/59 St
5 Av/59 St
57 St-7 Av
59 St Columbus Circle
68 St Hunter College
77 St
72 St
66 St Lincoln Center
Roosevelt Island
Queensboro Plaza
Court Sq-23 St
Queens Plaza
21 St Queensbridge
Court Sq
21 St
Hunters Point Av
Vernon Blvd Jackson Av
51 St
33 St
Lexington Av/53 St
5 Av/53 St
49 St
50 St
Bryant Pk
Greenpoint Av
Nassau Av
Bedford Av
Lorimer St
Metropolitan Av
Marcy Av
Hewes St
Delancey St Essex St
Bleecker St
Broadway-Lafayette St
2 Av
1 Av
3 Av
14 St-Union Sq
23 St
28 St
Grand St
East Broadway
Chinatown
Tribeca
Soho
Little Italy
Noho
East Village
Lower East Side
Williamsburg
Greenpoint
Navy Yard
Fort Greene
Brooklyn Heights
DUMBO
High St
Jay St MetroTech
Court St
Borough Hall
Clark St
Hoyt St
Nevins St
Hoyt Schermerhorn
Bergen St
Carroll St
Smith 9 Sts
Atlantic Av–Barclays Ctr
Prospect
Lexington Av/63 St
Roosevelt Island
Queensboro Plaza
Court Sq-23 St
Queens Plaza
21 St Queensbridge
Hunters Point Av
Vernon Blvd Jackson Av
Greenpoint Av
Nassau Av
Bedford Av
Lorimer St
Metropolitan Av
Marcy Av
Hewes St
Delancey St Essex St
Bleecker St
Broadway-Lafayette St
2 Av
1 Av
3 Av
14 St-Union Sq
Astor Pl

Question:

Where is the right place?

And when is the right time?

Dataset:

- 13 weeks of weekly recorded cumulative entry and exit data recorded at 5030 individual turnstiles across 478 stations

- From June 5 to September 4, 2021

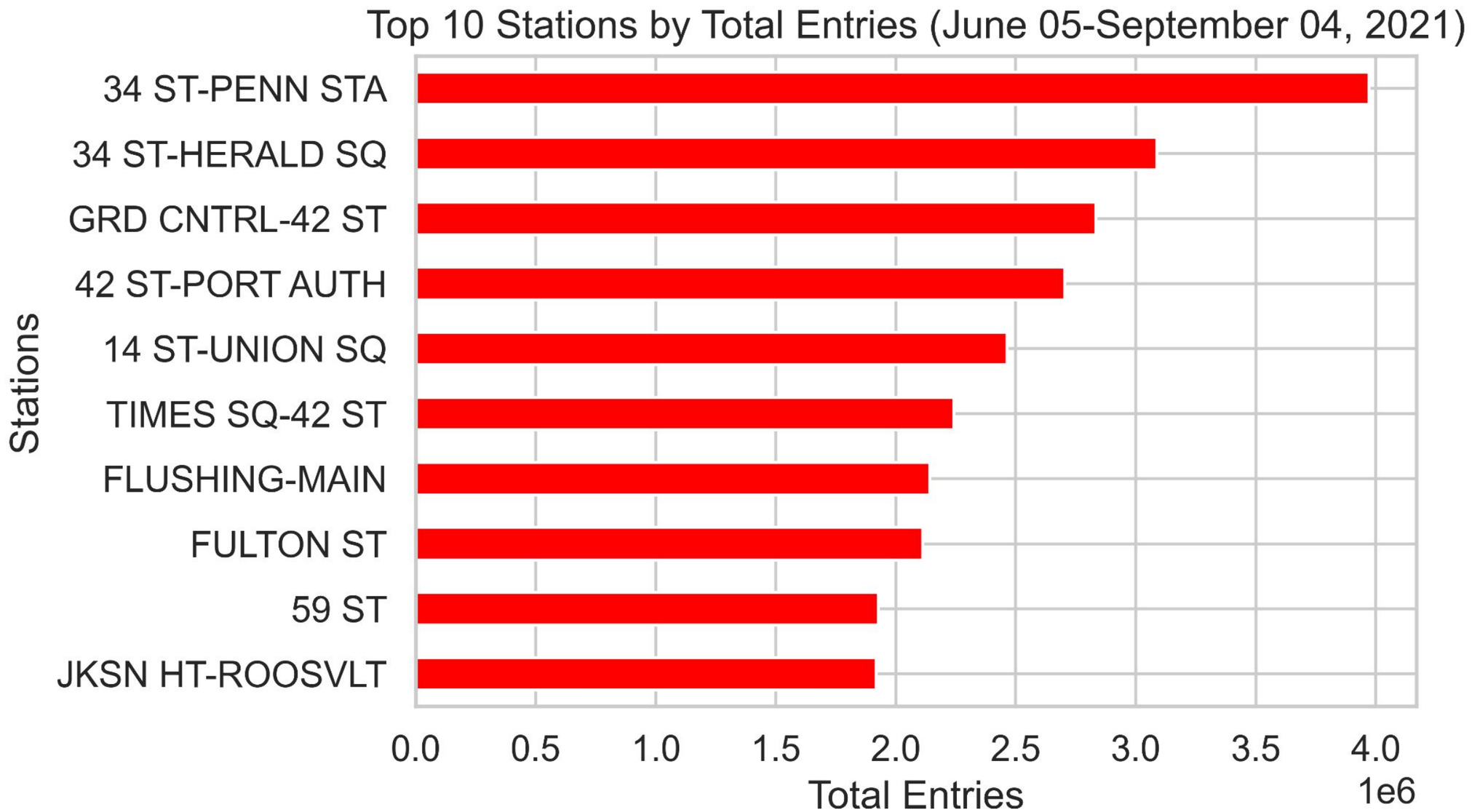
- Public data available at http://web.mta.info/developers/turnstile.html

Methodology:

Using python Pandas package and data visualisation packages Matplotlib and Seaborn, the data has been comprehensively:

- Cleaned
- Unsampled
- Interpolated
- Resampled
- Aggregated
- Analysed
- Plotted

Results:


Top 10 Stations by Total Entries (June 05-September 04, 2021)
34 ST-PENN STA
34 ST-HERALD SQ
GRD CNTRL-42 ST
42 ST-PORT AUTH
14 ST-UNION SQ
TIMES SQ-42 ST
FLUSHING-MAIN
FULTON ST
59 ST
JKSN HT-ROOSVLT
Sta
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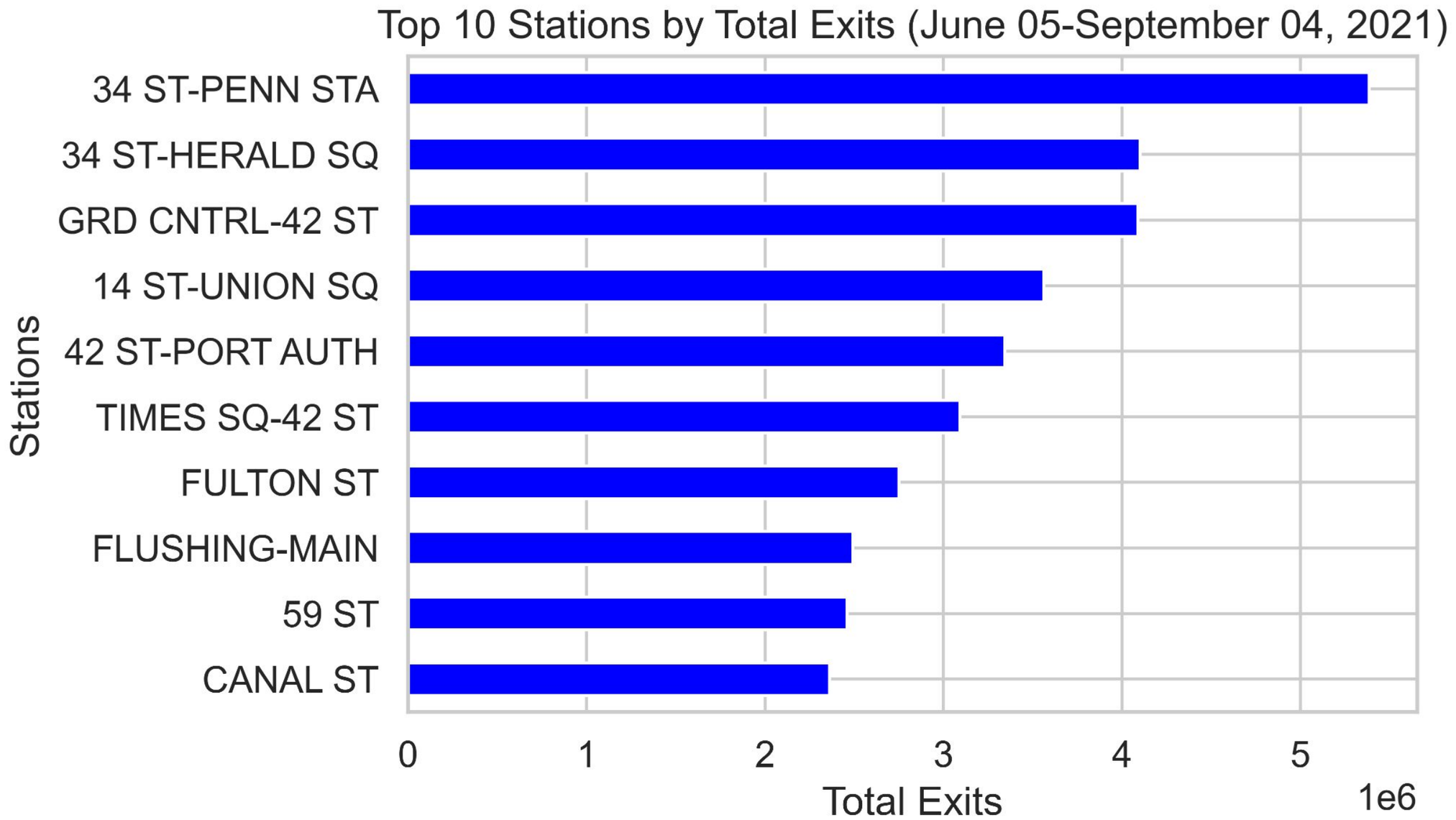
2.0
2.5
3.0
3.5
4.0
1e6
Total Entries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GRD CNTRL-42 ST
14 ST-UNION SQ
42 ST-PORT AUTH
TIMES SQ-42 ST
FULTON ST
FLUSHING-MAIN
59 ST
CANAL ST
Sta
0
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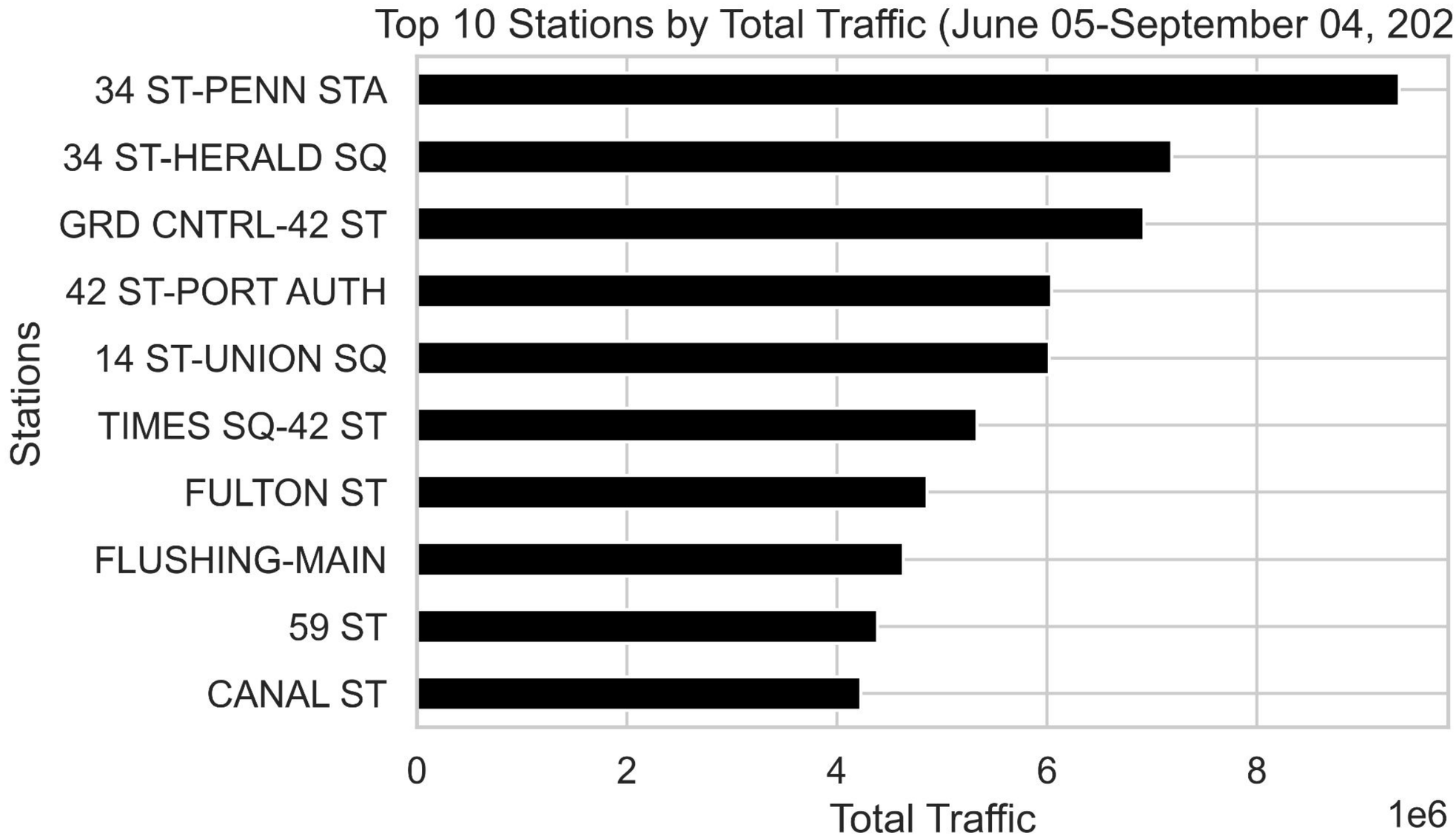
2
3
4
5
Total Exits
1e6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14 ST-UNION SQ
TIMES SQ-42 ST
FULTON ST
FLUSHING-MAIN
59 ST
CANAL ST
Sta
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2
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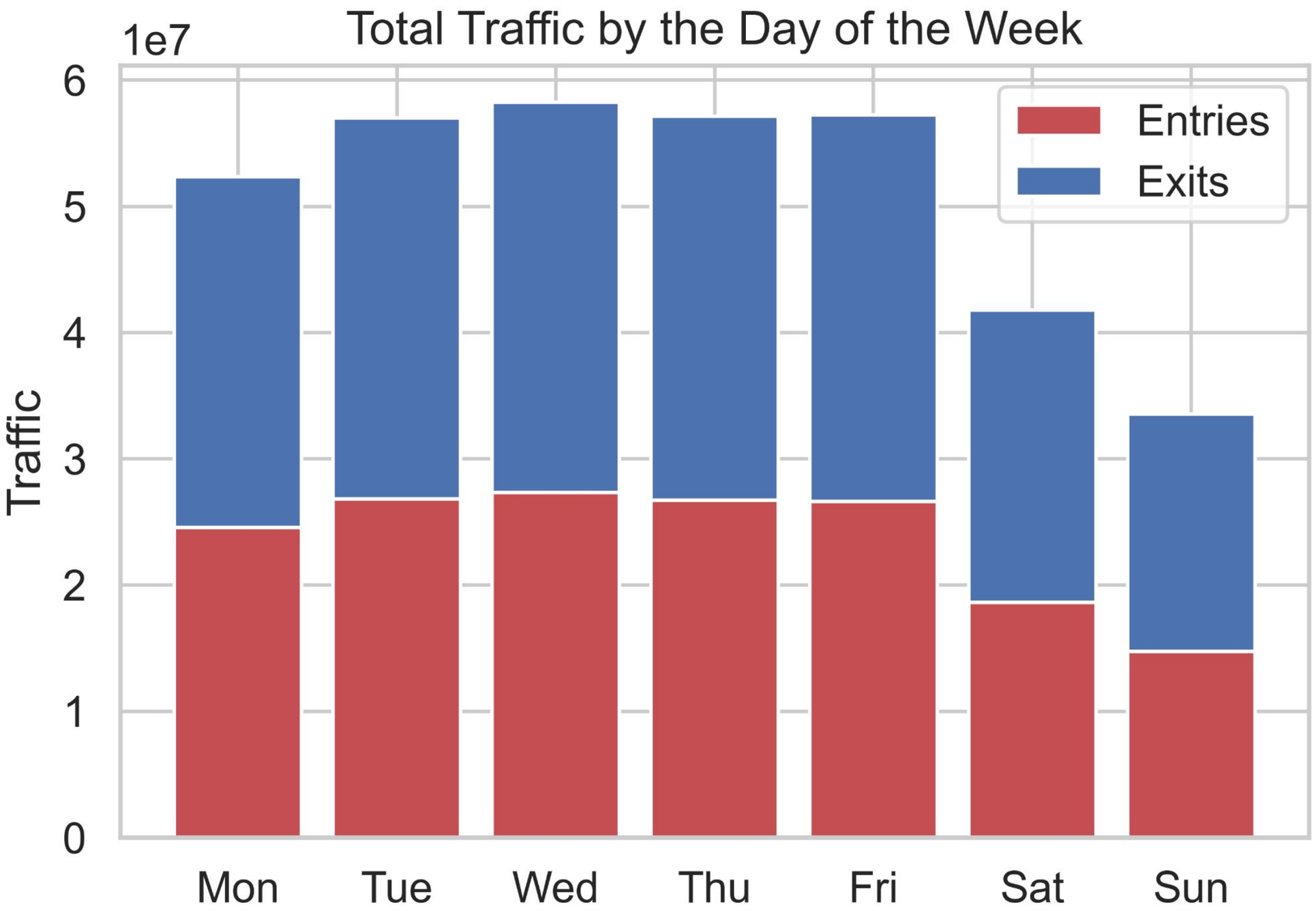
6
8
Total Traffic
1e6


Total Traffic by the Day of the Week
1e7
6
5
4
3
2
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0
Traffic
Entries
Exits
Mon
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Entries: 34 ST-PENN STA

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Exits: 34 ST-PENN STA

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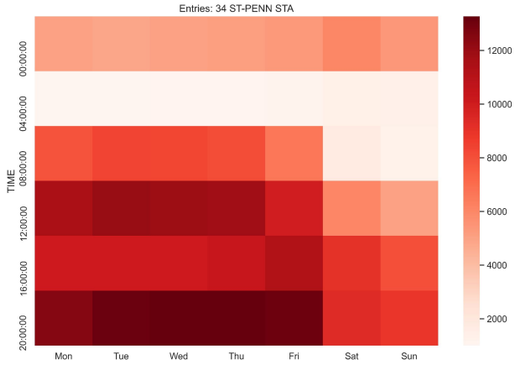
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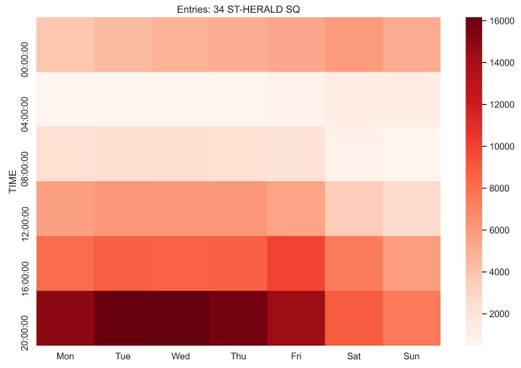
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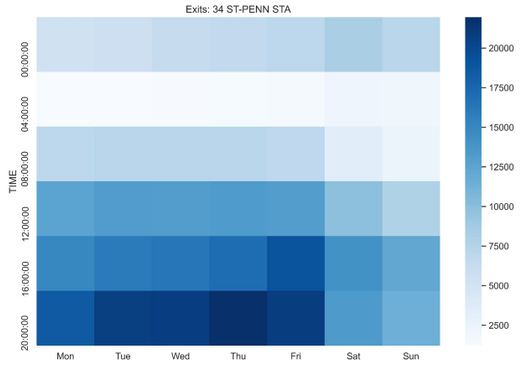
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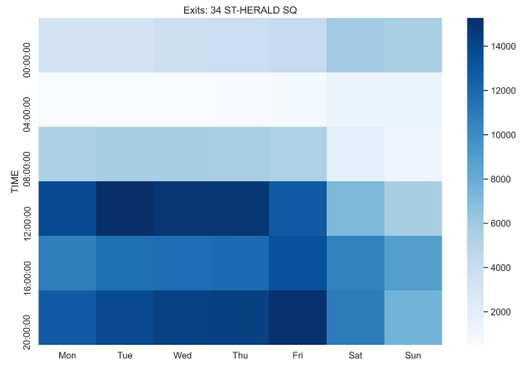
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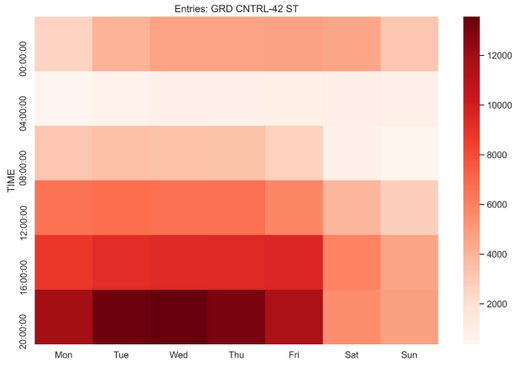
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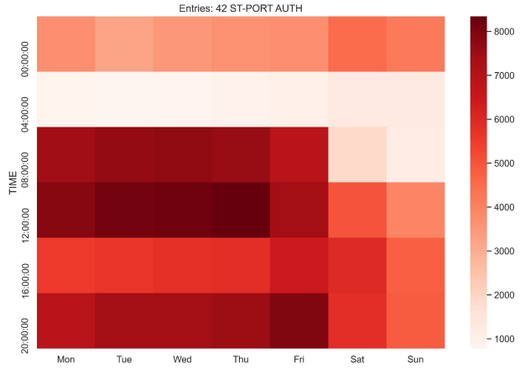
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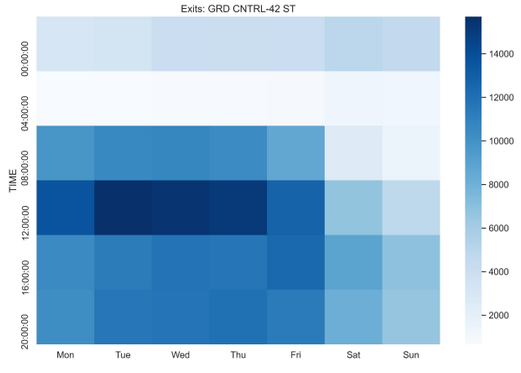
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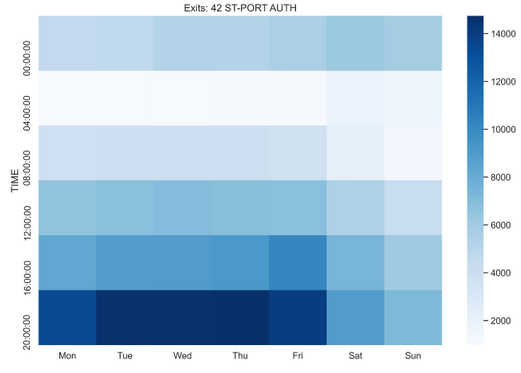
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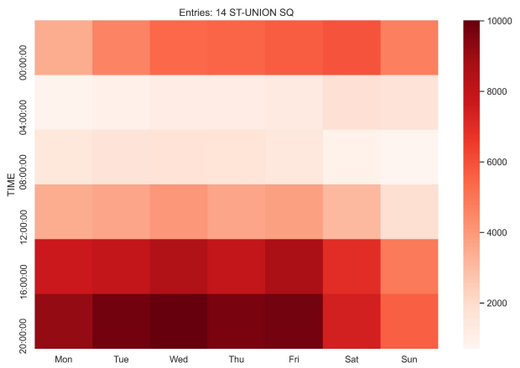
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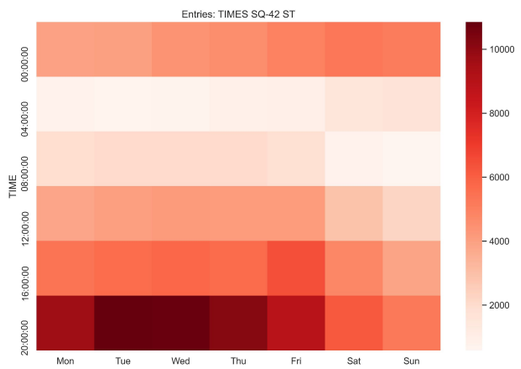
Entries: TIMES SQ-42 ST
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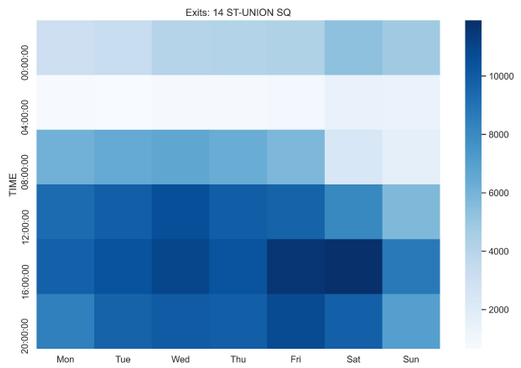
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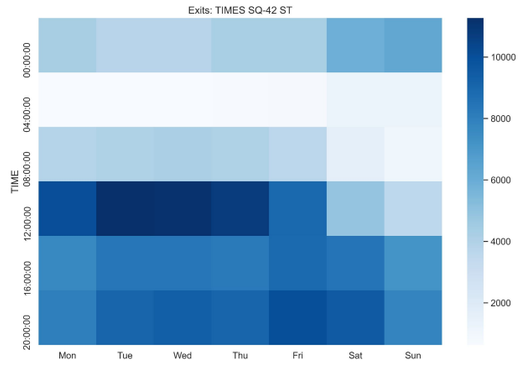
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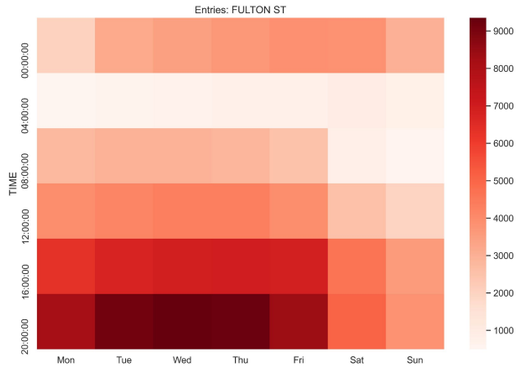
Entries: FULTON ST
TIME
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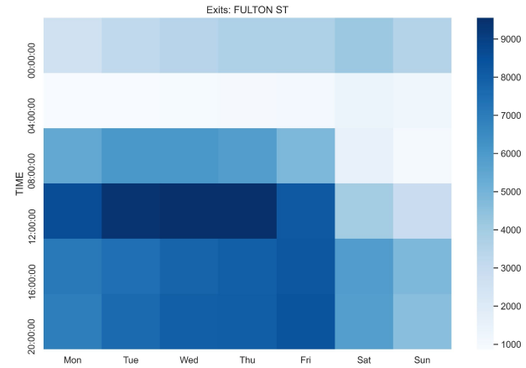
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Back to our main question:

Where:

Top 10 stations: Union Sq. and Fulton, Flushing and Canal

When:

Mid-week days: Tuesday, Wednesday and Thursday

Morning: Above all Penn Station and Port Authority

Mid-day: Union Sq.

Evening: Port Authority and Grand Central

Late evening: Union Sq., Port Authority, Penn Station