RIDING THROUGH NYC: INSIGHTS FROM 2024

Presented by: Rabeea Ali

THE PROBLEM

How can we use New York City’s millions of yearly yellow-taxi trip records to uncover meaningful patterns in demand, pickup hotspots, rider behavior, and pricing, so that planners and transportation authorities can better understand city movement and make data-driven decisions around mobility and congestion?

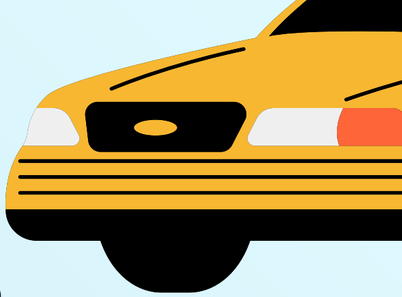
THE GOAL

- Analyze how yellow-taxi demand changes by hour, day, and month to understand when New York is busiest.
- Identify which pickup zones, vendors, and payment methods influence trip patterns, fares, and tips.
- Examine how external factors, like rush hours, weekends, and airport travel impact overall ride behavior and revenue.

THE AUDIENCE

- City planners and transportation authorities who need insights to improve mobility and manage congestion.
- Government and policy teams who rely on travel patterns to guide infrastructure and transportation decisions.
- Taxi operators, mobility companies, and urban analysts who depend on understanding rider behavior, pricing, and demand.

NYC YELLOW TAXI TRIPS — 2024 SNAPSHOT



Total Trips:
41.7 Million

Total Revenue:
$929.46 Million

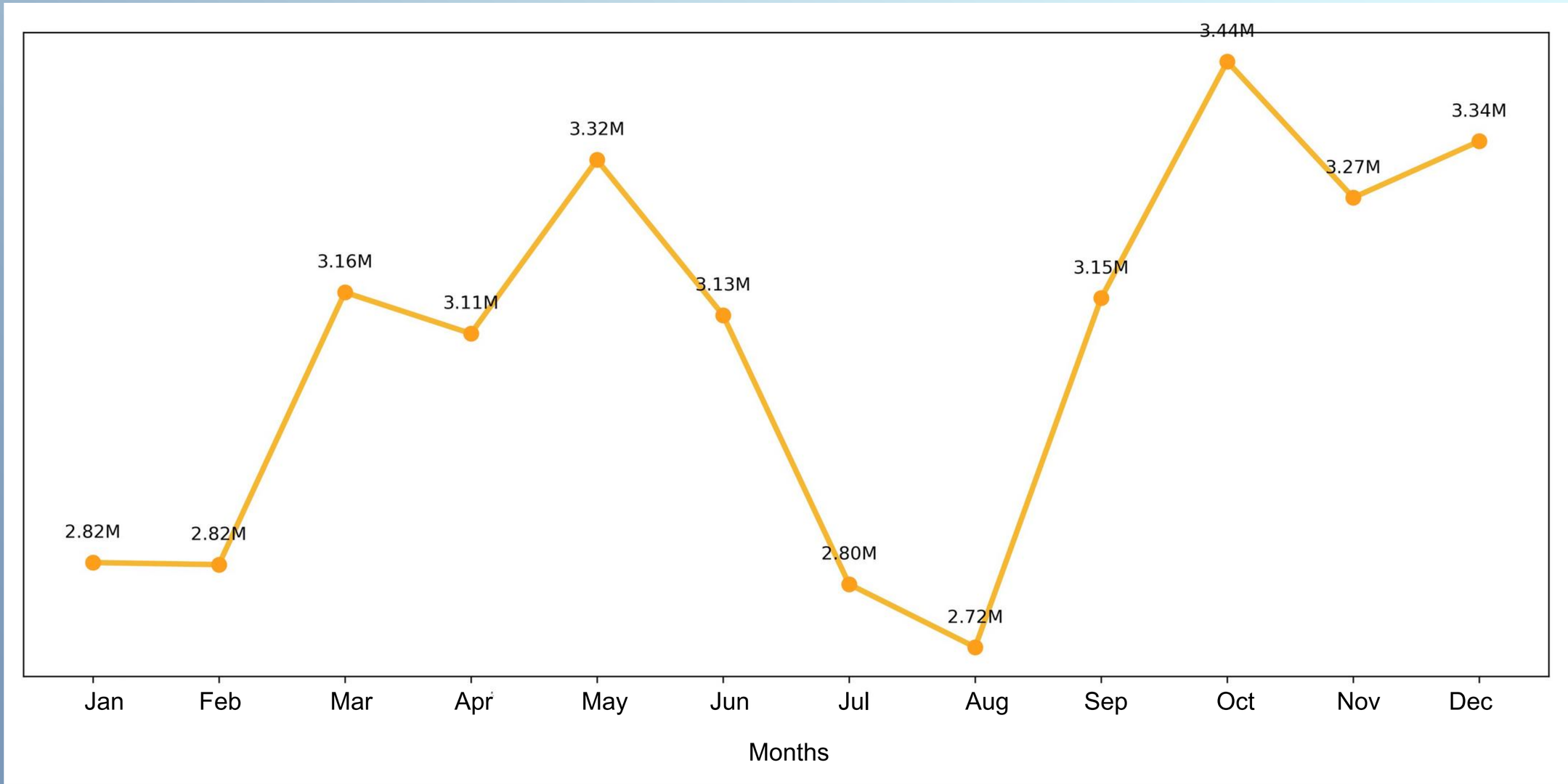
Avg Fare per Mile:
$12.38

Airport Trips:
3.2 Million

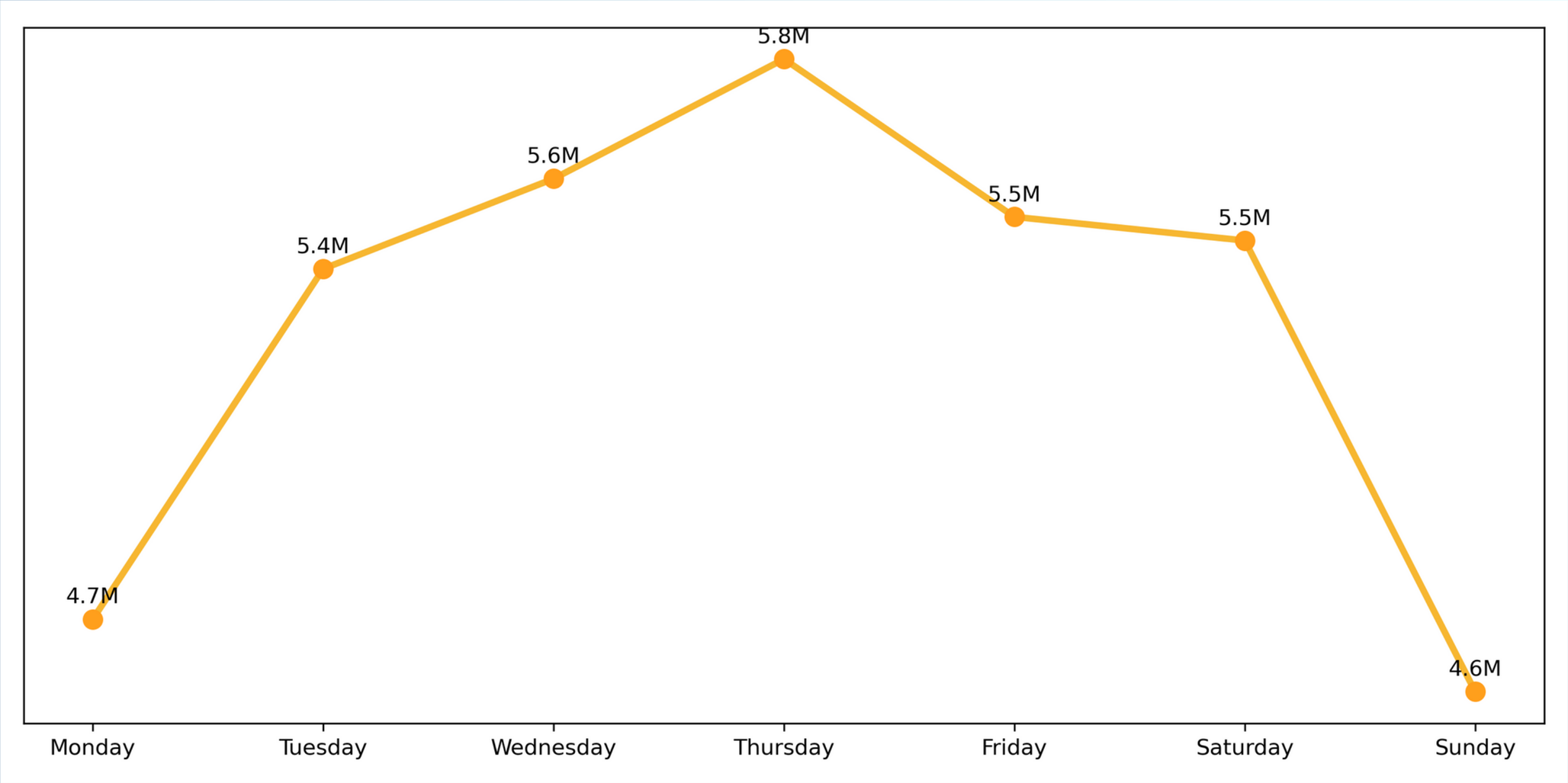
Avg Trip Duration:
17 mins

Total disputed Trips: 0.79 Million

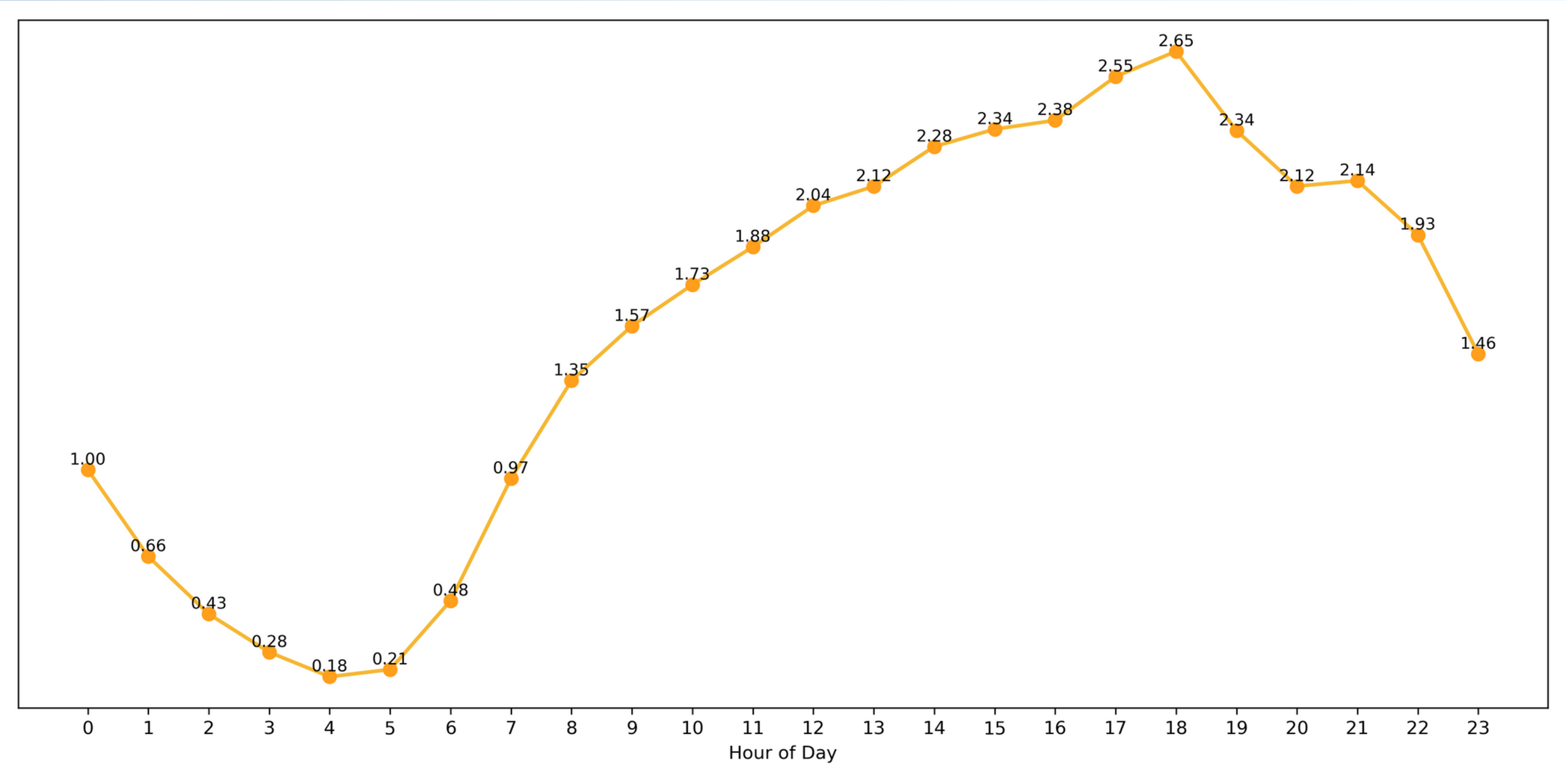
Busiest Month for Taxi Trips



Daily Ride Demand in NYC

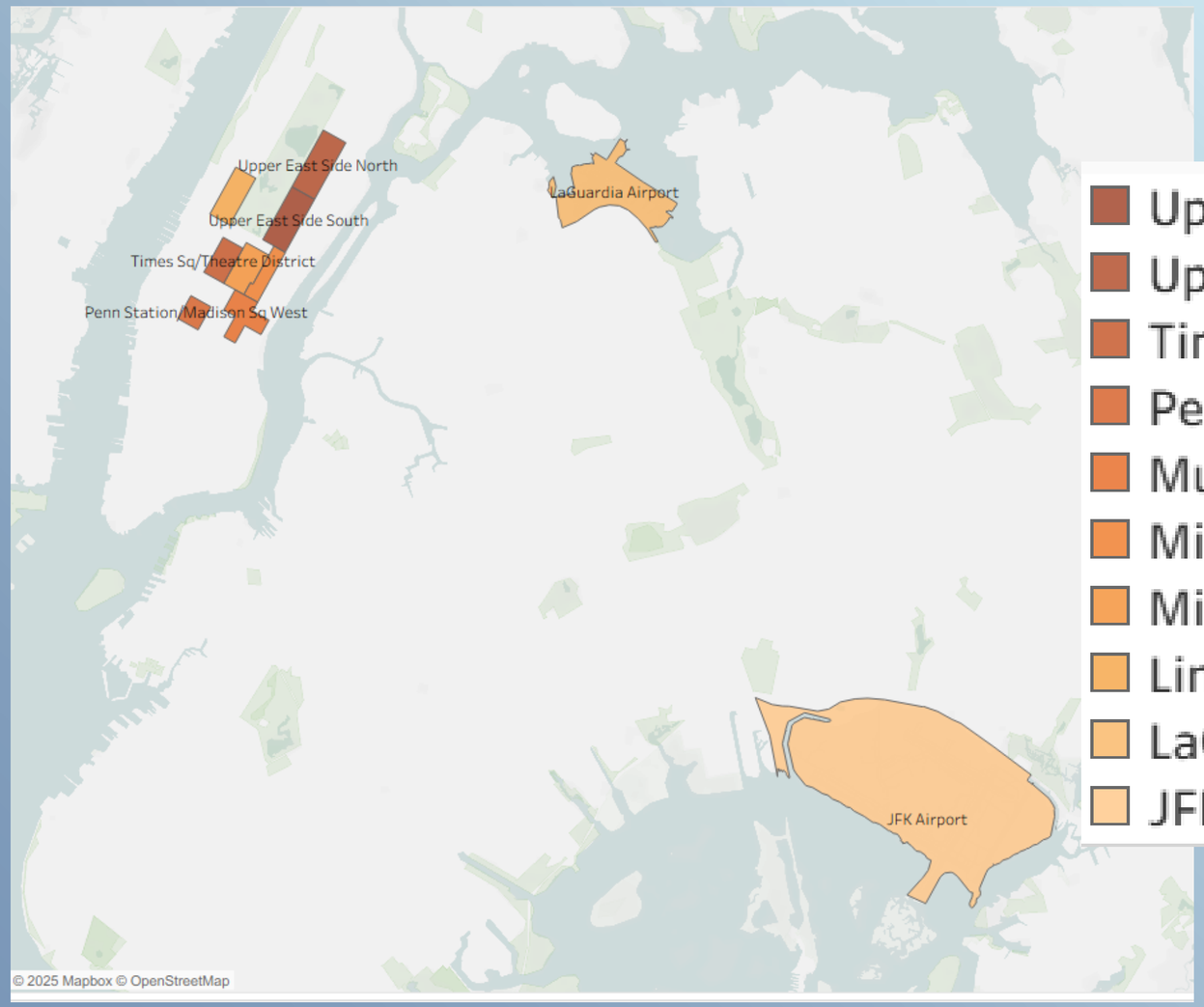


Hourly Ride Patterns Across the City



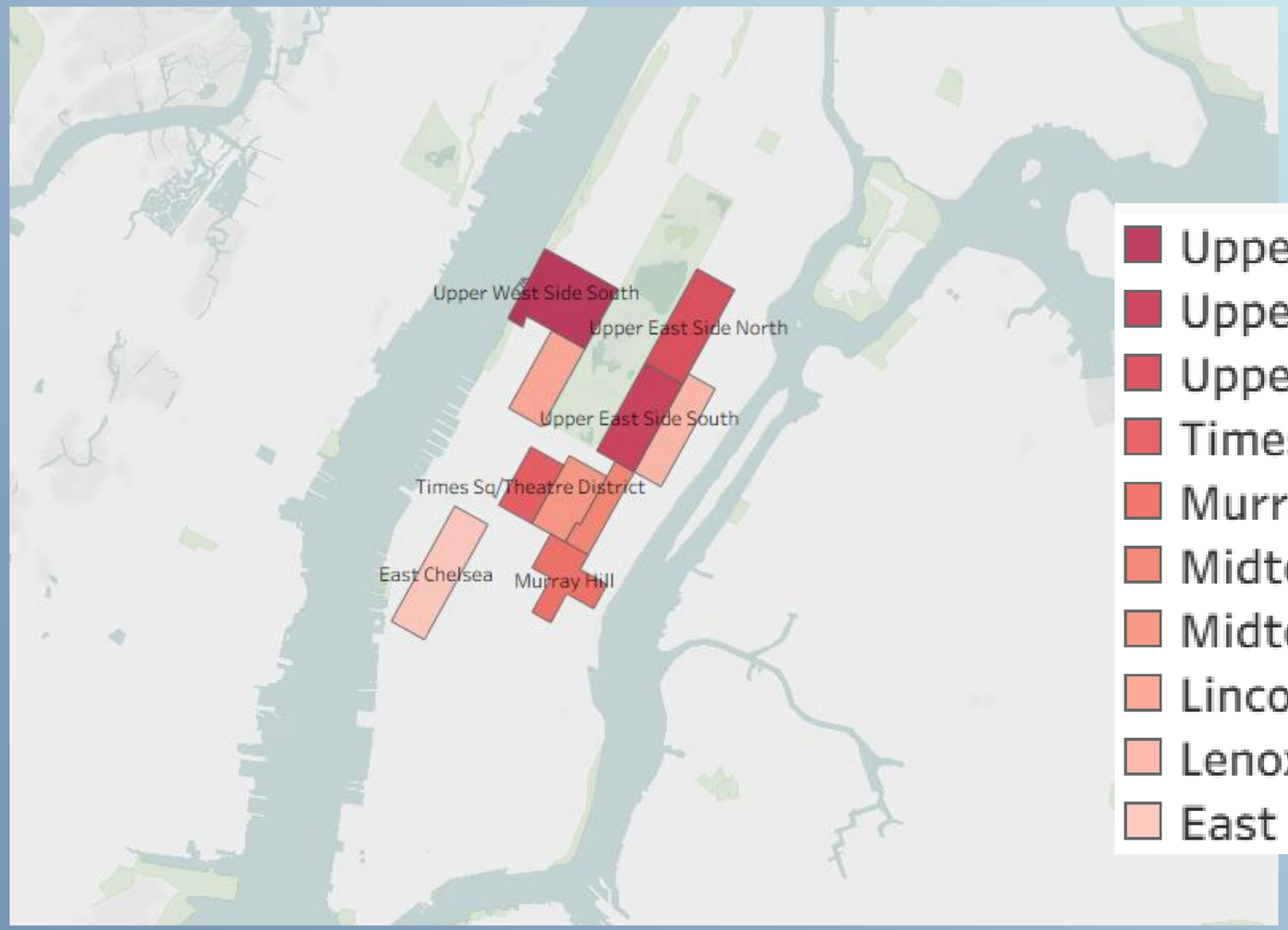
Where is everyone going?

Top Pickup Locations



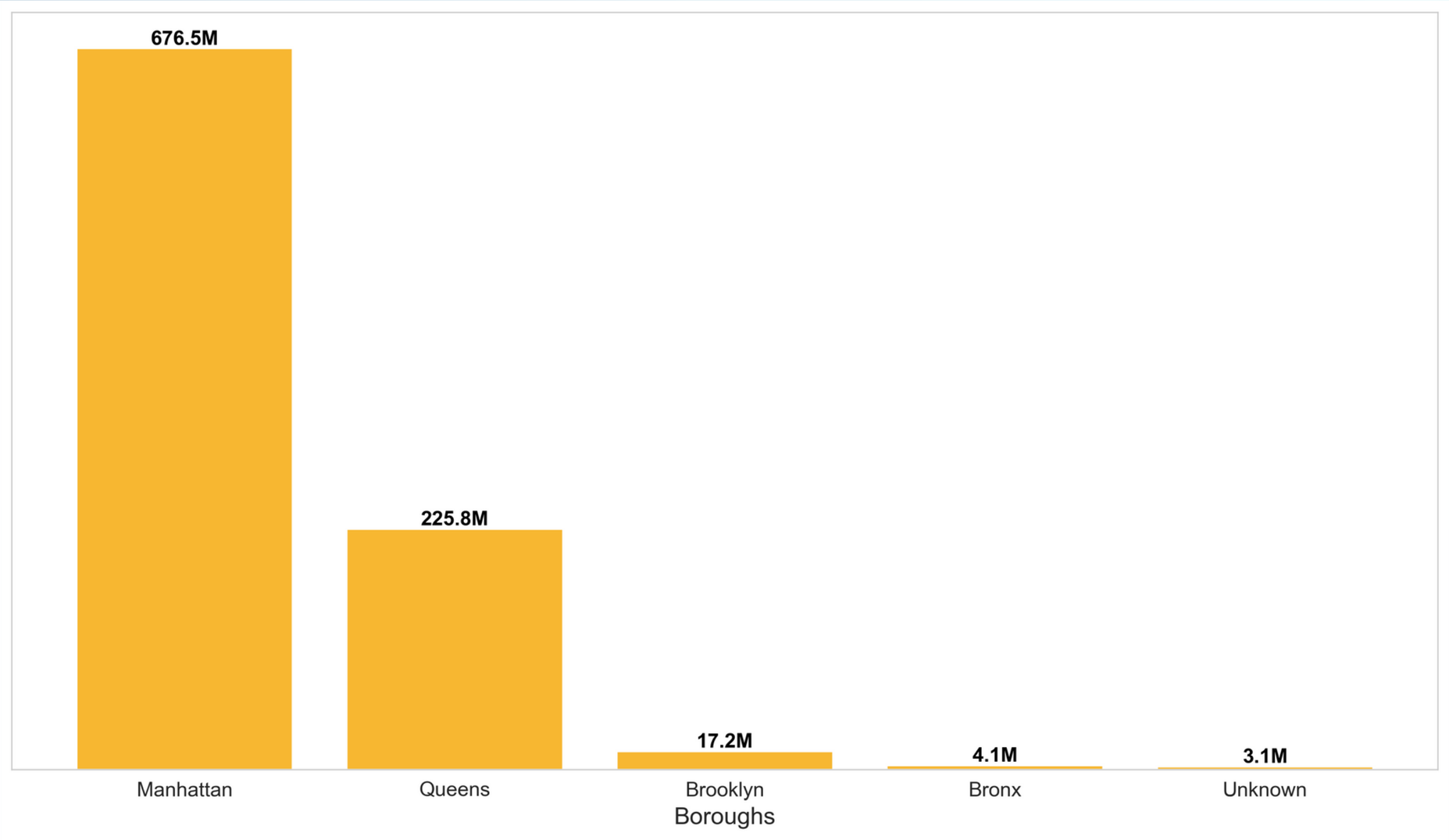
- Upper East Side South
- Upper East Side North
- Times Sq/Theatre District
- Penn Station/Madison Sq West
- Murray Hill
- Midtown East
- Midtown Center
- Lincoln Square East
- LaGuardia Airport
- JFK Airport

Top Dropoff Locations

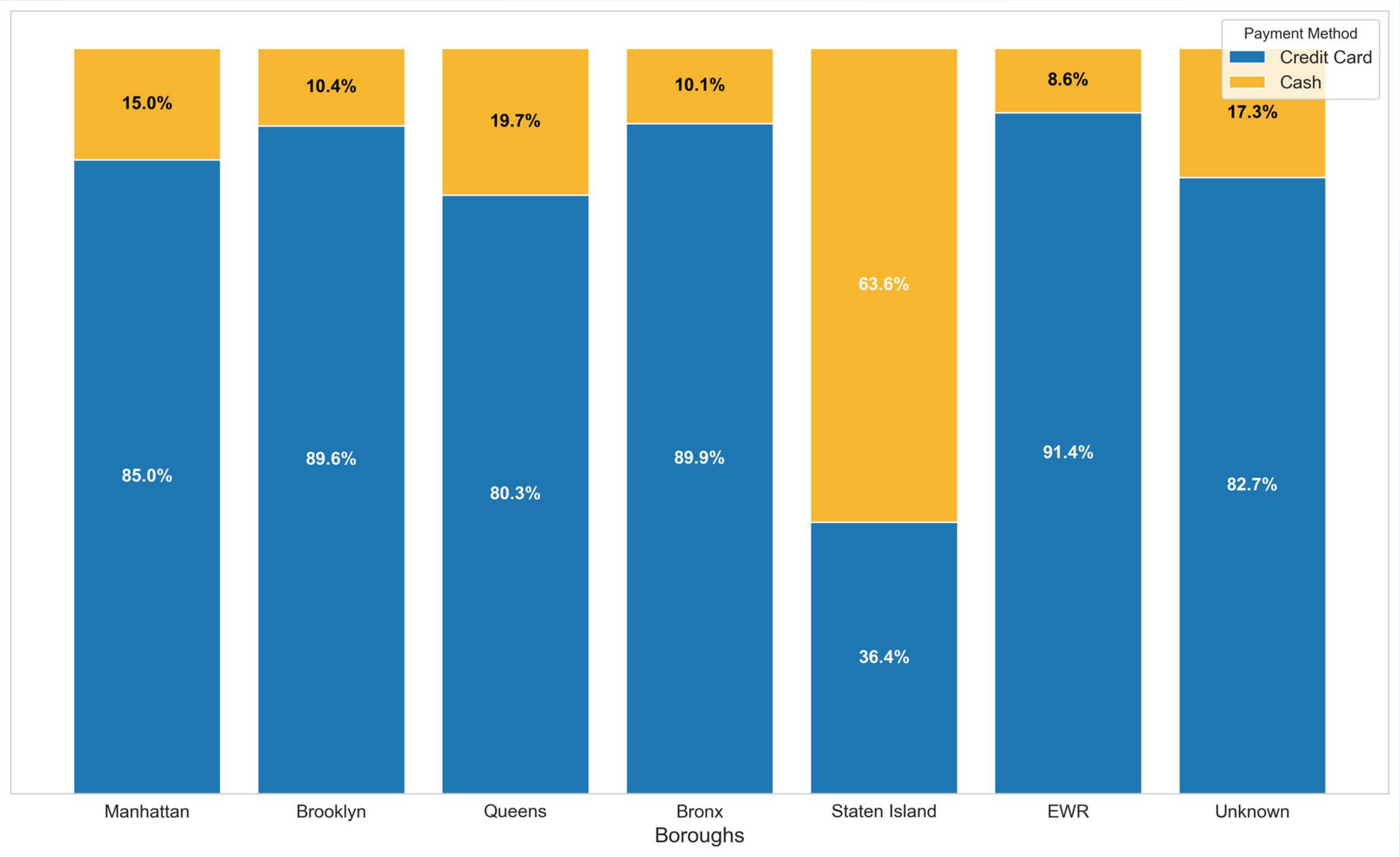


- Upper West Side South
- Upper East Side South
- Upper East Side North
- Times Sq/Theatre District
- Murray Hill
- Midtown East
- Midtown Center
- Lincoln Square East
- Lenox Hill West
- East Chelsea

Taxi Usage Across NYC Boroughs

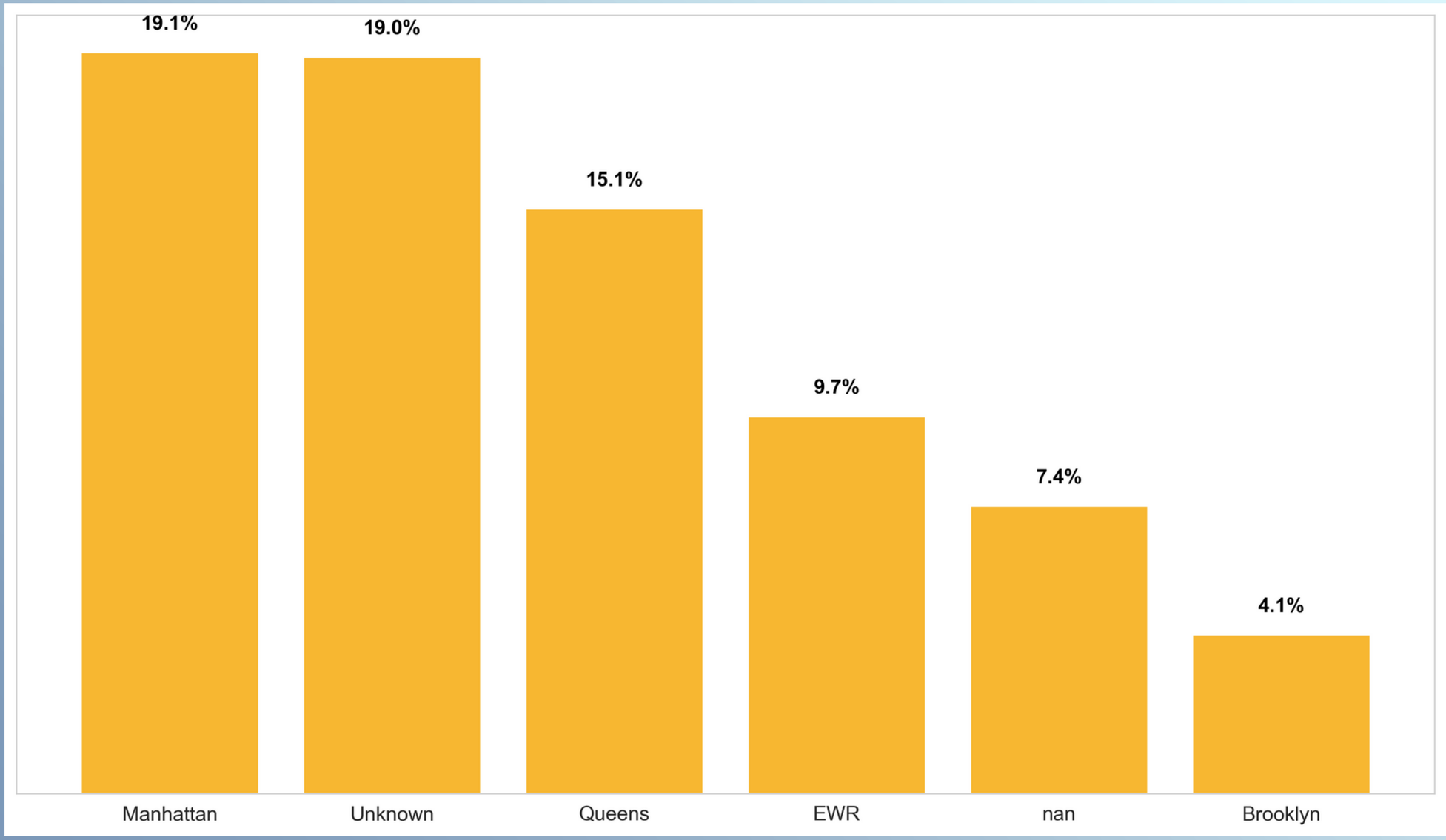


Neighborhood Payment Preferences

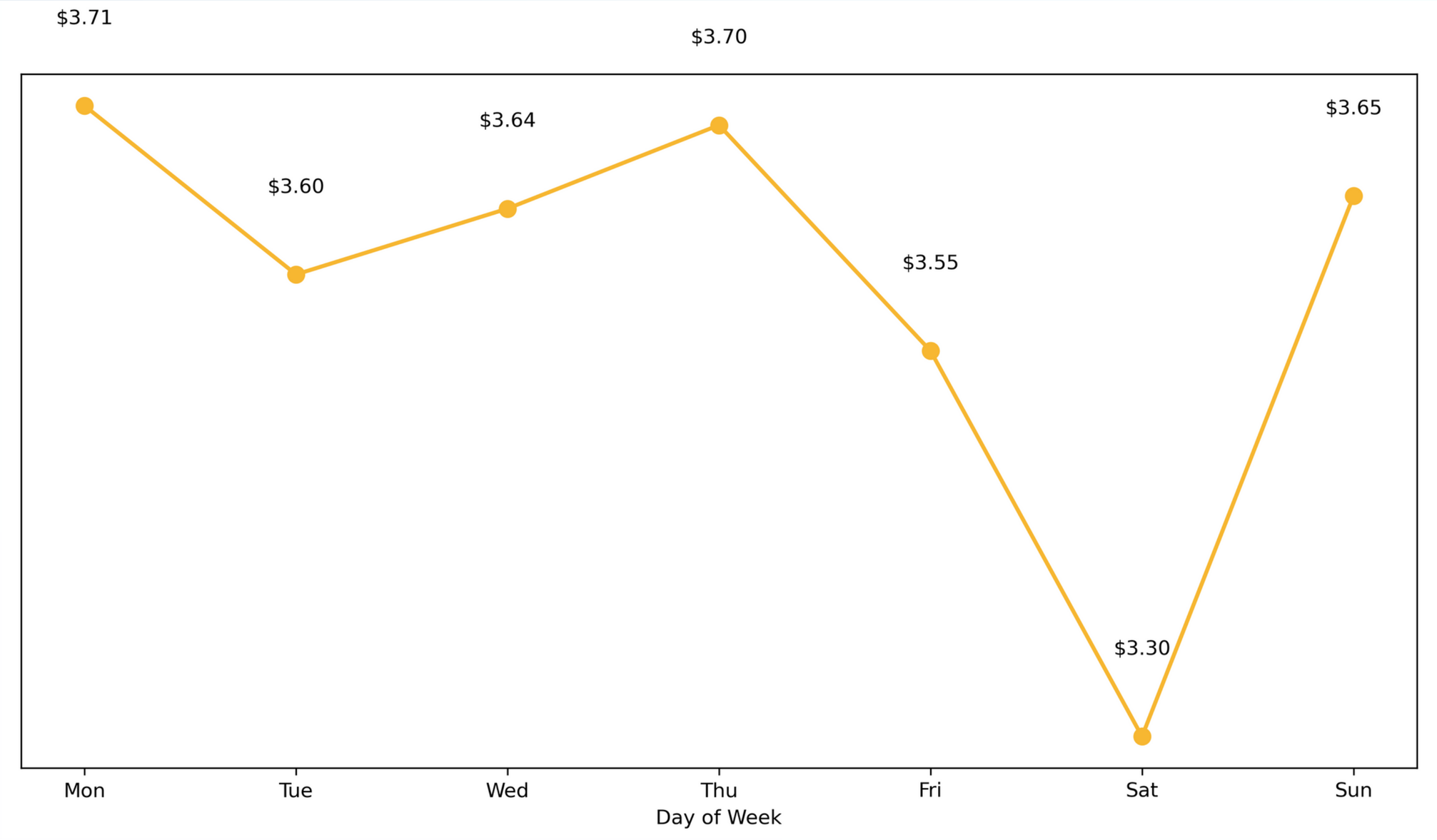


How New Yorkers spend on taxi rides ?

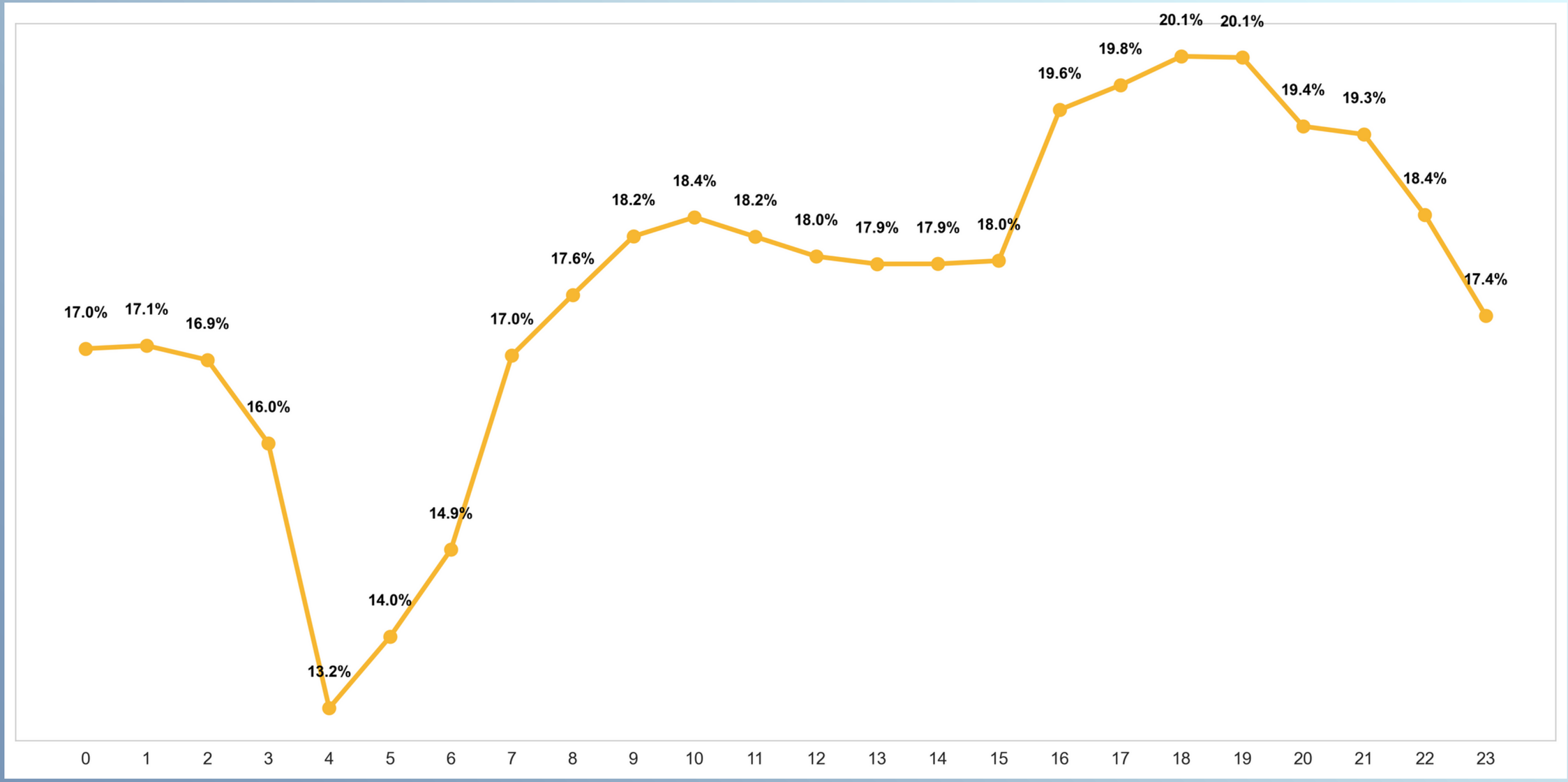
Tipping Behavior by Borough



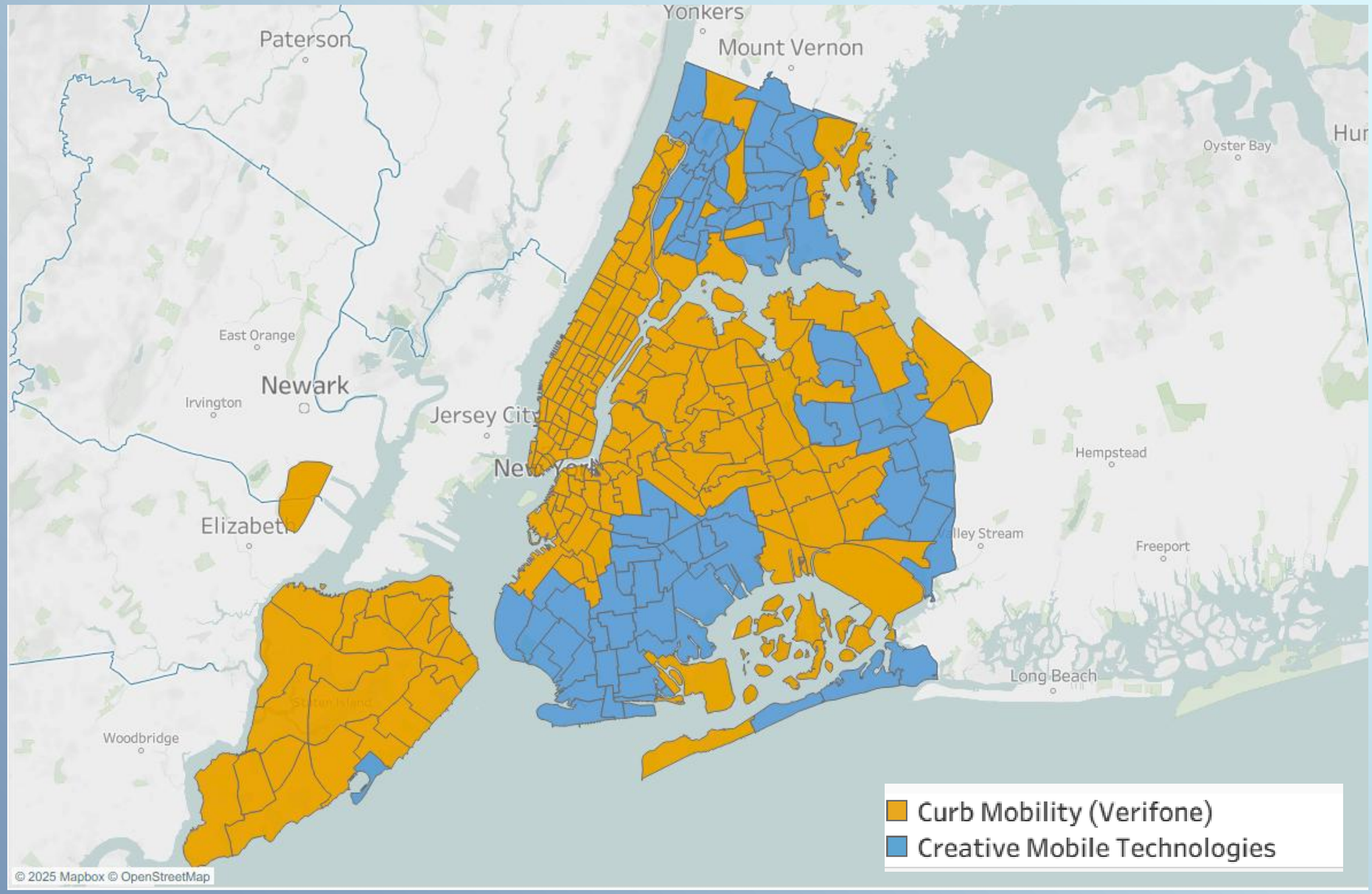
Tipping changes throughout the week



Tipping rate changes by hour

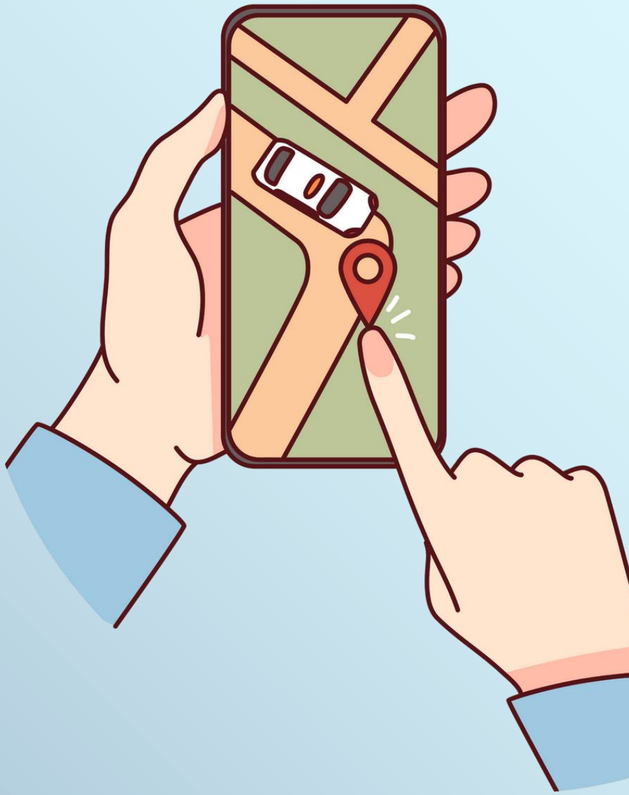


Vendor Performance in NYC



RECOMMENDATIONS

- **Optimize traffic** flow in high-demand zones during peak hours.
- **Allocate transportation resources** based on borough-level taxi usage.
- **Adjust fleet distribution** to match hourly and monthly demand patterns.
- **Enhance forecasting models** by combining taxi data with weather, events, and flight information.



LIMITATIONS

- The dataset includes only yellow taxis, not Uber, Lyft, or green cabs so it **doesn’t represent all NYC transportation.**
- **Pickup and drop-off zones are broad areas,** not precise GPS locations, limiting location accuracy.
- **The dataset doesn’t include external factors** like weather, events, or holidays that strongly affect taxi demand.
- **Payment and tipping behavior** can be misleading.

THANK YOU