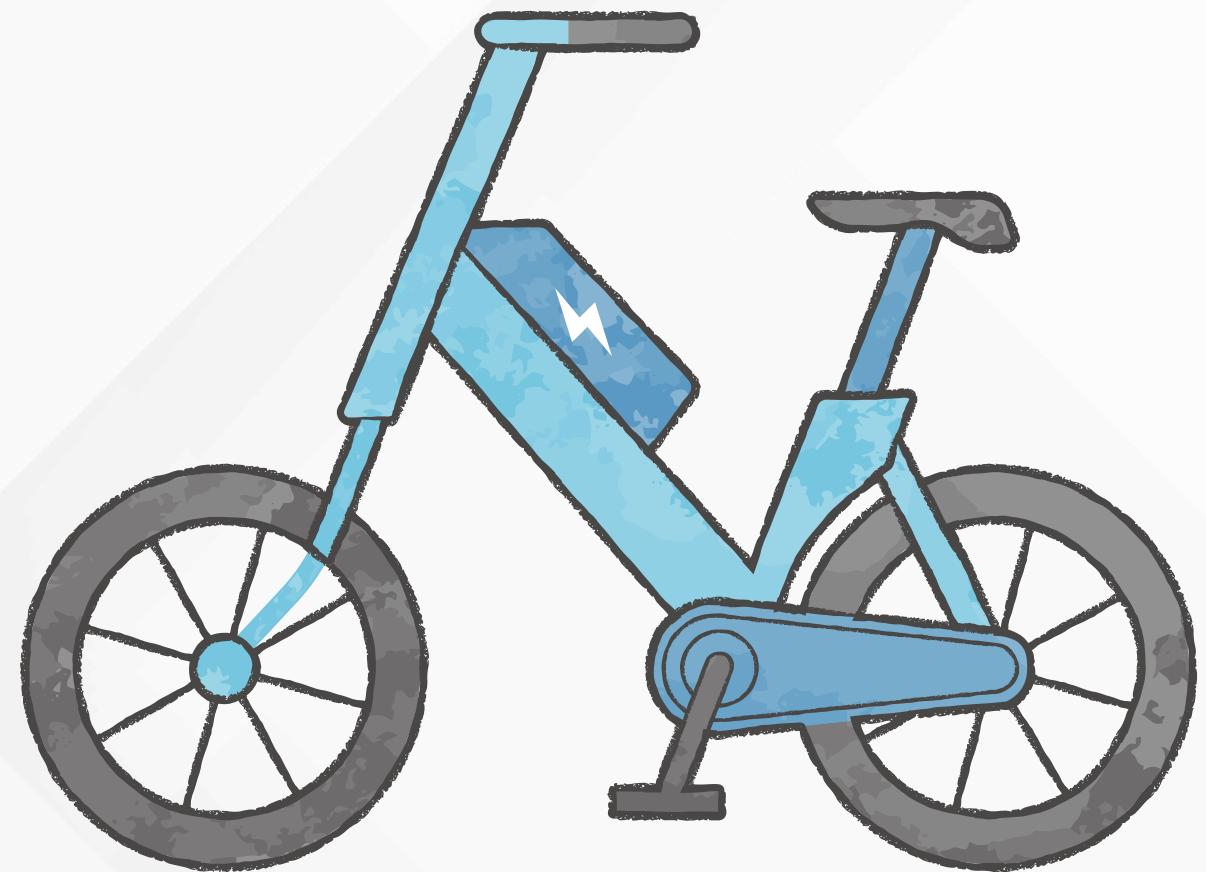
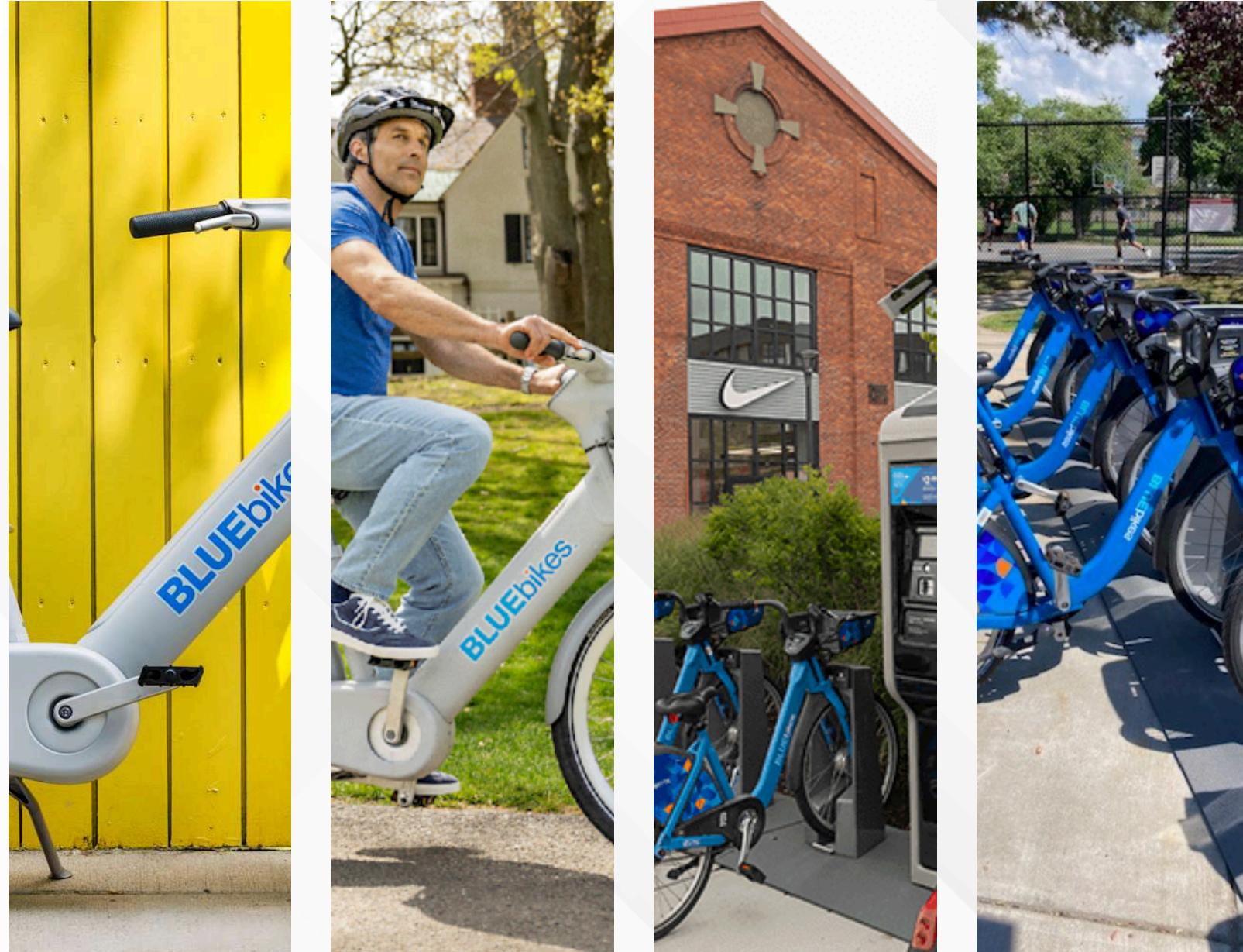


# Demand Analysis for Watertown: Usage, Turnover, and Travel Patterns

By Ashley, Malvina, Rithanya and Shobana





# Agenda

Study Motivation and Purpose

Bluebikes in Watertown

Maps of Watertown bluebike stations

Sub-setting the data

Data Sources and Scope

Data Cleaning and Pre-processing

Initial Findings

Operational Findings

Q&A



# Study Motivation and Purpose

**Watertown is a fast-growing town, with infrastructure and mobility transformation plans in place for safer multimodal travel**

**Housing growth and zoning updates expand the population  
→ higher ridership potential**

**Need to understand patterns of Blue bikes usage**

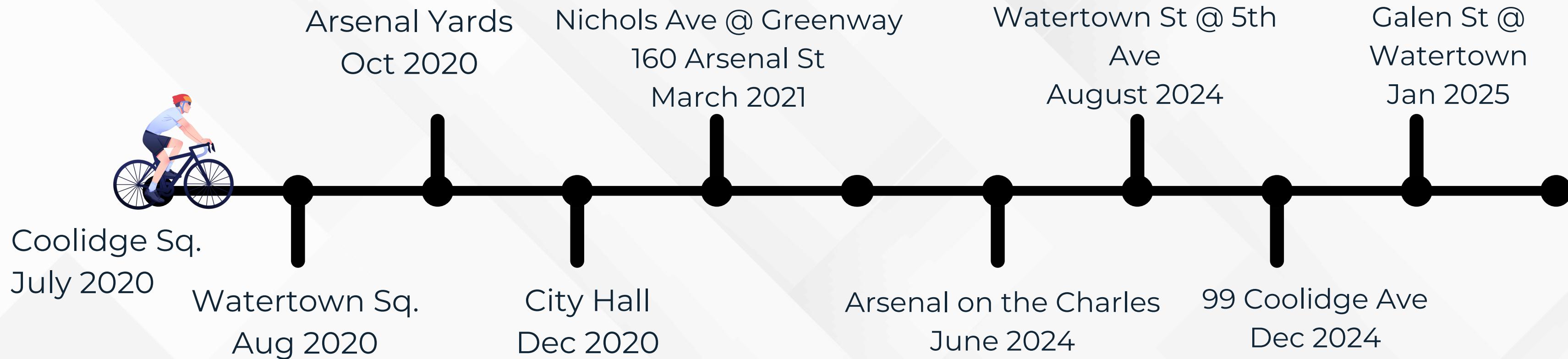
**Support mobility planning, infrastructure decisions, and transit demand modeling**

**Evaluate performance across ten stations in Watertown**

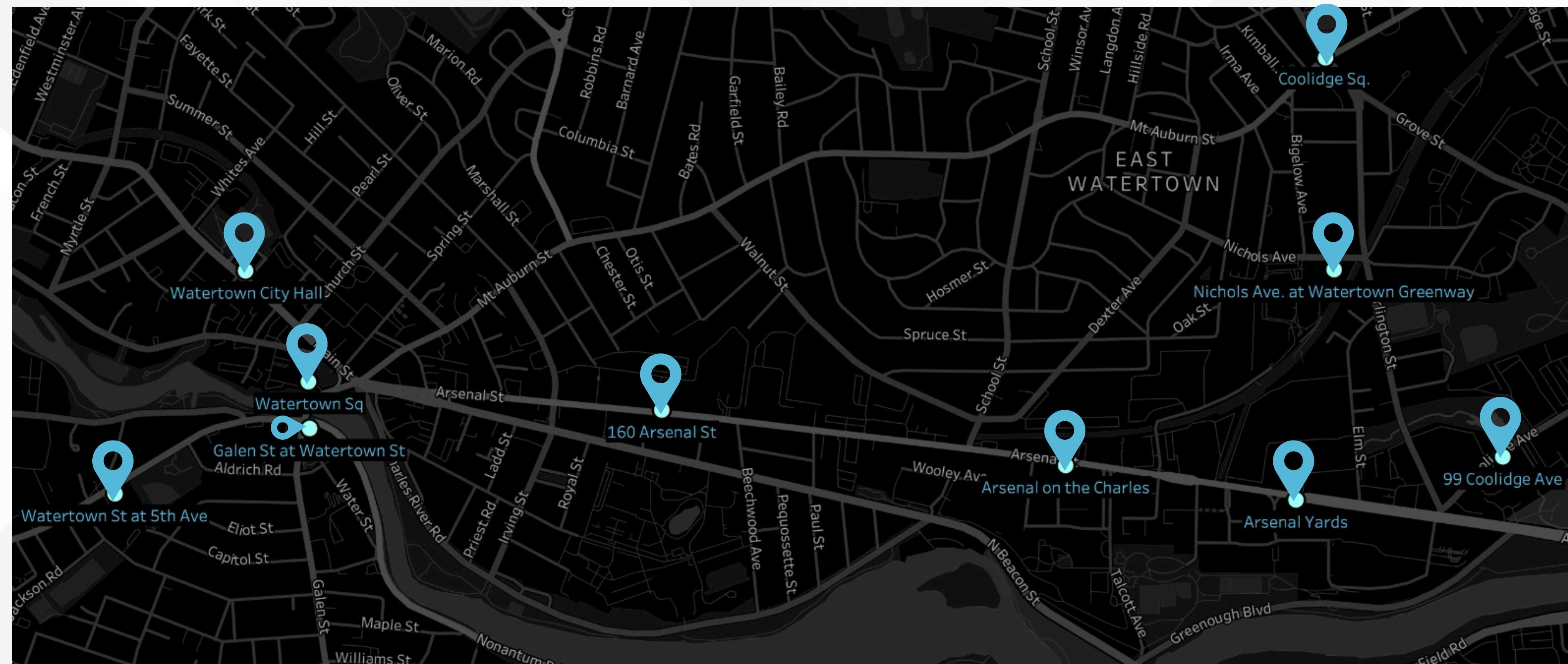
# Bluebikes in Watertown

Across 10 stations, there are 144 docks available

Launched in Watertown July 2020, expanding until its most recent station in 2025



# Map of Watertown Bluebike Stations





# Sub-setting the Data

**Inbound from  
start :**

**73,710**

—

**Outbound from  
start :**

**70,767**

—

**Inbound August  
2024-2025:**

**23,621**

—

**Outbound  
August 2024-  
2025:**

**22,812**

—





# Data Sources and Scope



## Variables used:

- Start at/End at
- Start/End station name
- Start latitude/longitude | End latitude/longitude
- Member vs. Casual

## Limitation:

Didn't have access to historic number of docks

# Watertown Stations Trip Frequency - July 2020 - August 2025

Station Name	Inbound	Outbound
160 Arsenal	7,211	7,275
99 Coolidge Ave	1,043	1,047
Arsenal on the Charles	2,199	2,135
Arsenal Yards	26,188	24,925
Coolidge Sq.	9,137	8,848
Galen St at Watertown St	936	844
Nichols Ave. at Watertown Greenway	11,005	9,939
Watertown City Hall	4336	4315
Watertown Sq	10,874	10,650
Watertown St at 5th Ave	781	789
<b>TOTAL</b>	<b>73,710</b>	<b>70,767</b>



# Data Cleaning and Preprocessing

**Calculated trip duration (time in minutes)**

—

**Calculated distance using Haversine formula**

—

**Harmonized labels:**

- 160 Arsenal St → 160 Arsenal
- Subscriber → Member
- Customer → Casual

—

**Time windows from Start at/ End at**

- Required difficult IF formula

—

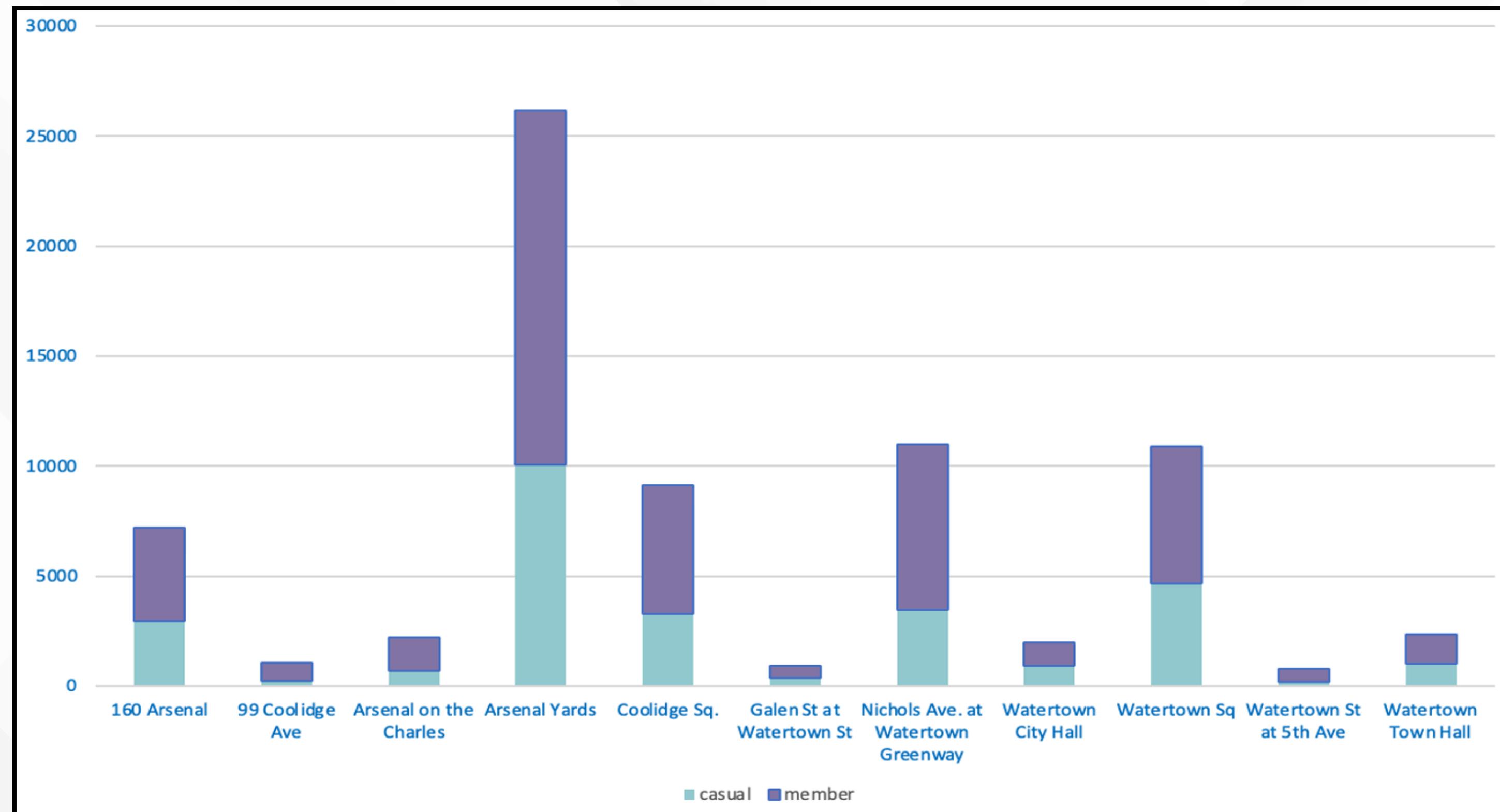
**Created Weekend and Weekday from Start at / End at**

- Day of the week

—

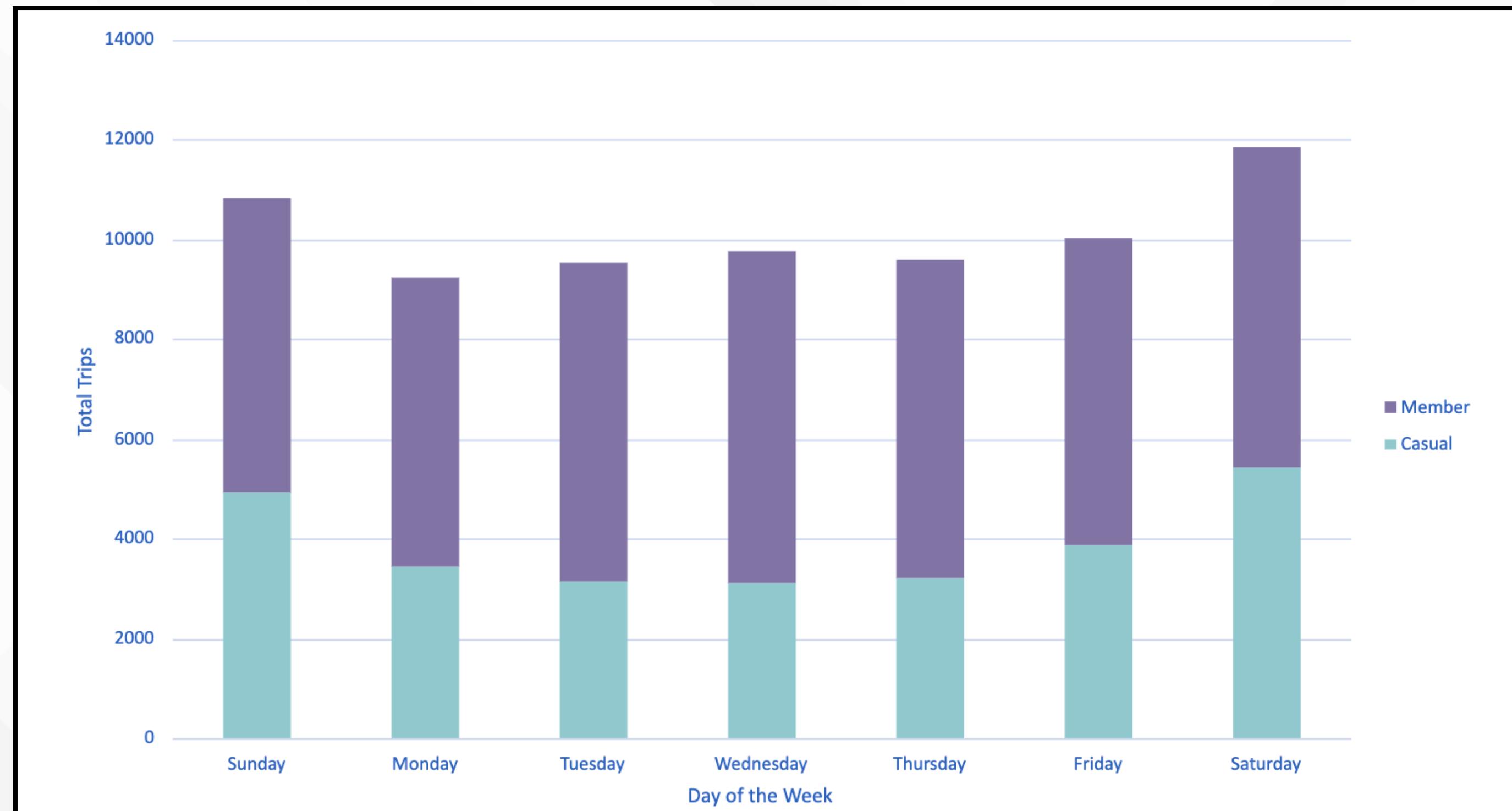
# Watertown Stations Outbound Trips

## July 2020 – August 2025



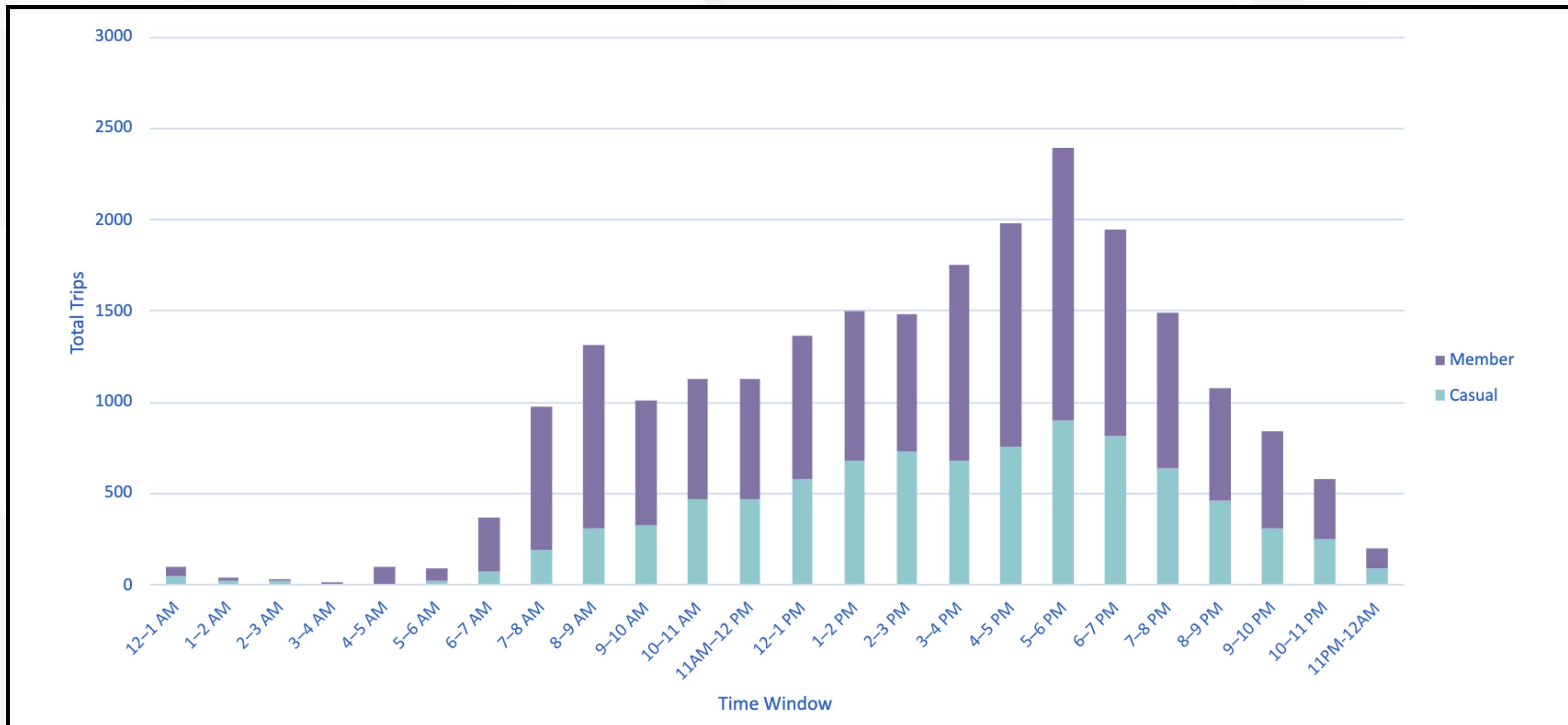
# Watertown Stations Outbound Trips Pattern Behaviors – Day of the Week

## July 2020 – August 2025



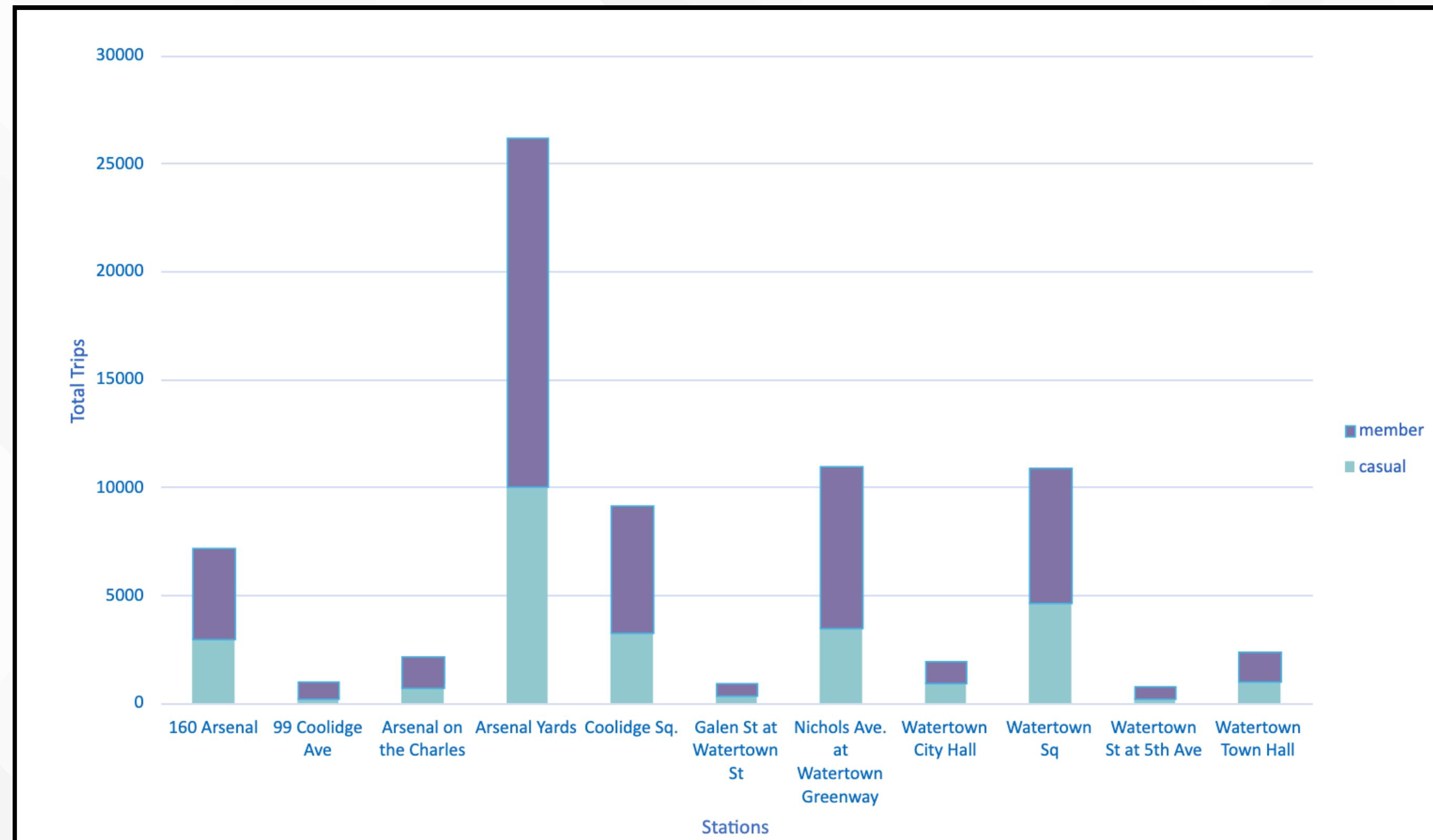
# Watertown Stations Outbound Trips – Time Windows

## July 2020 – August 2025



# Watertown Stations Inbound Trips

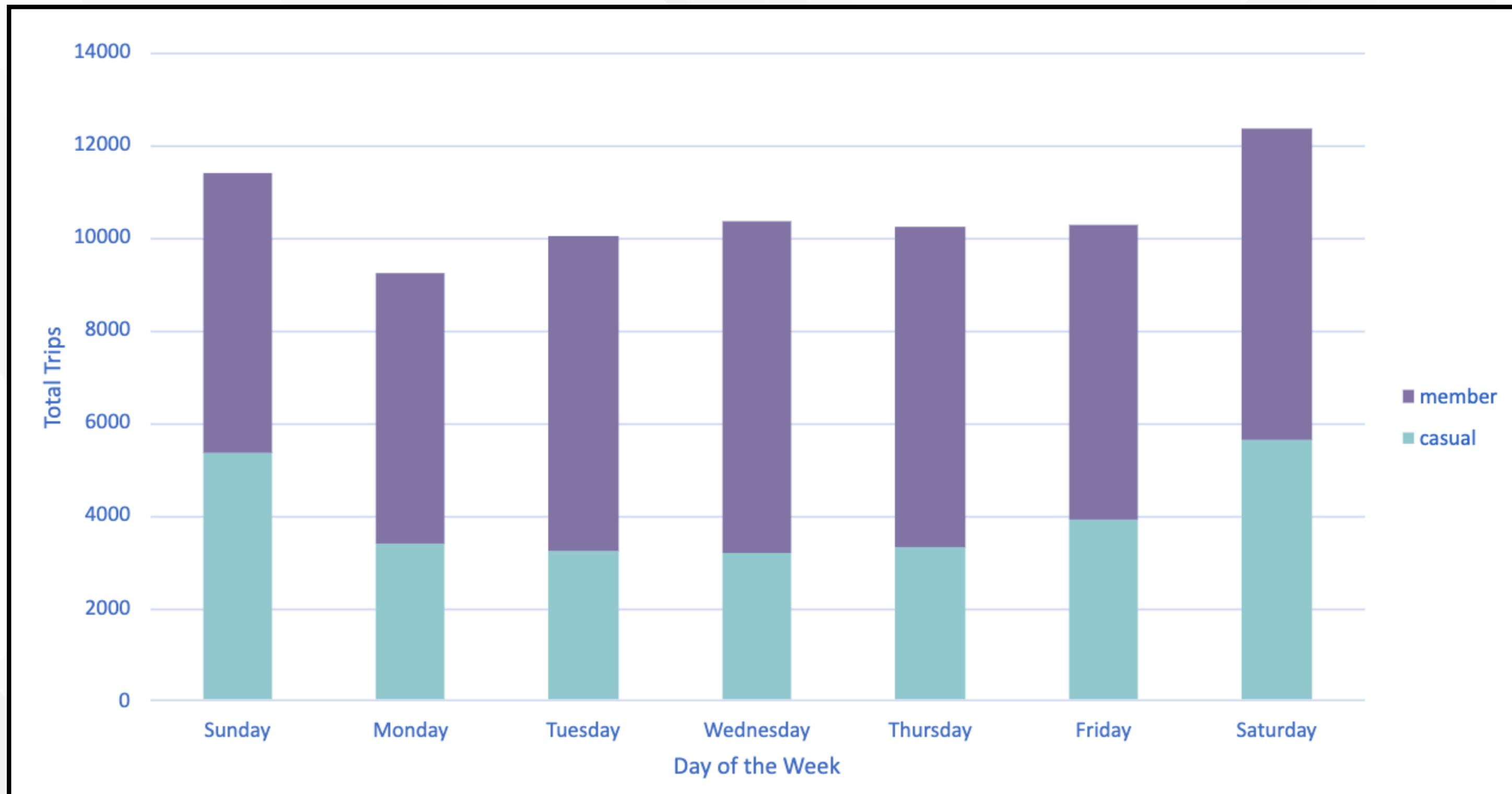
## July 2020 – August 2025



# Watertown Stations Inbound Trips Pattern

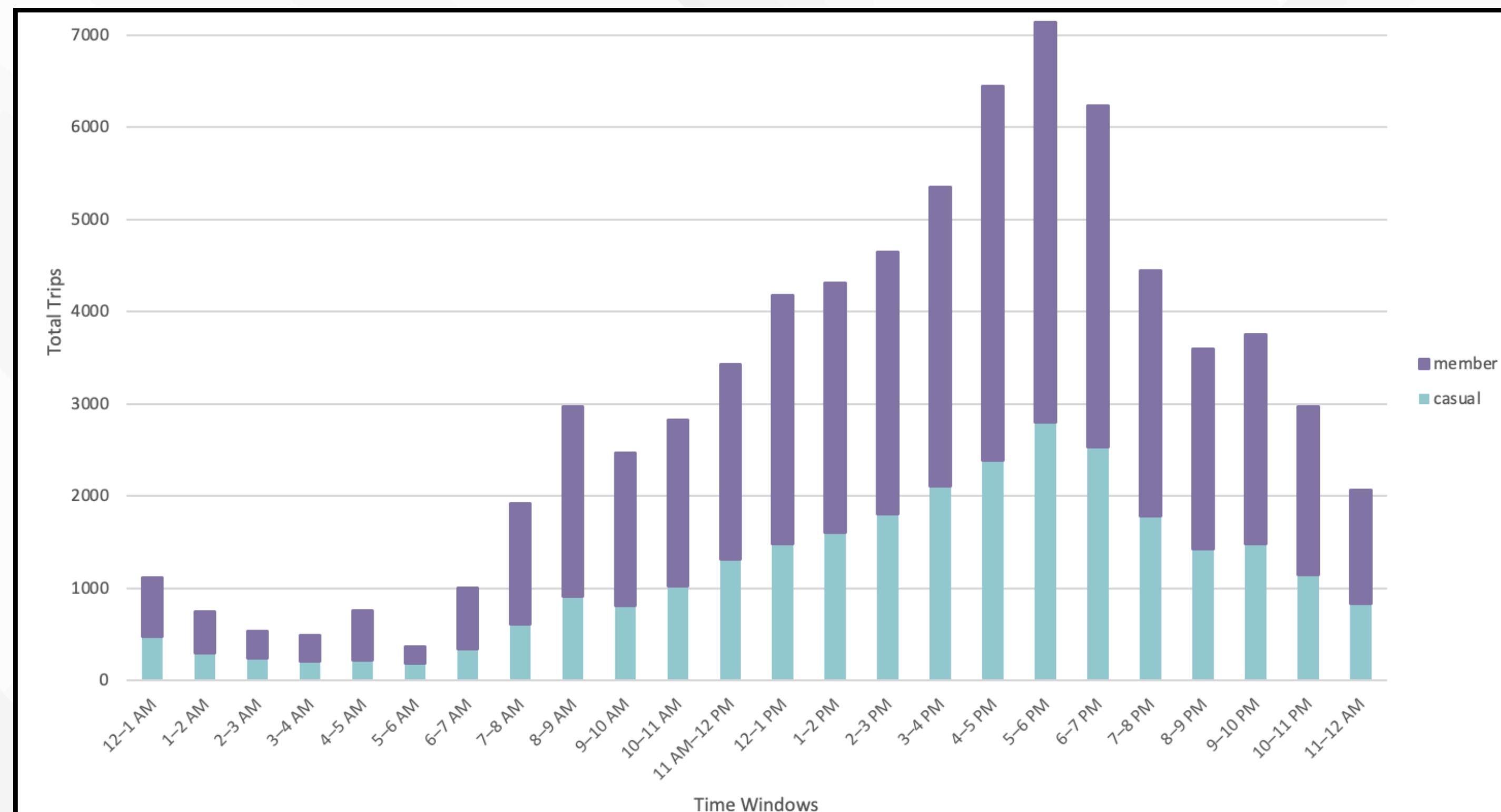
## Behaviors-Day of the Week

### July 2020 – August 2025



# Watertown Stations Inbound Trips – Time Windows

## July 2020 – August 2025





# Overview of Tableau Visualisations

Watertown-Boston Station Flow Analysis

---

Inbound and Outbound by Months

---

Inbound and Outbound by Time Window

---

Casual vs Electric bikes

---

Turnover, Distance and Duration

---

# PROJECT TEAM



Ashley Marquez  
Gonzalez

*Business Analytics and  
Information Systems  
Major; Finance Minor*



Malvina DiMitri

*Marketing and  
Business Analytics  
and Information  
Systems double major*



Rithanya  
Chandran

*Data Analyst,  
MSBA*



Shobana  
Ravi

*Strategy and Ops  
MBA*

