

Divvy Trips 2019

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Healthcare Operations

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Objective



What are we talking about?

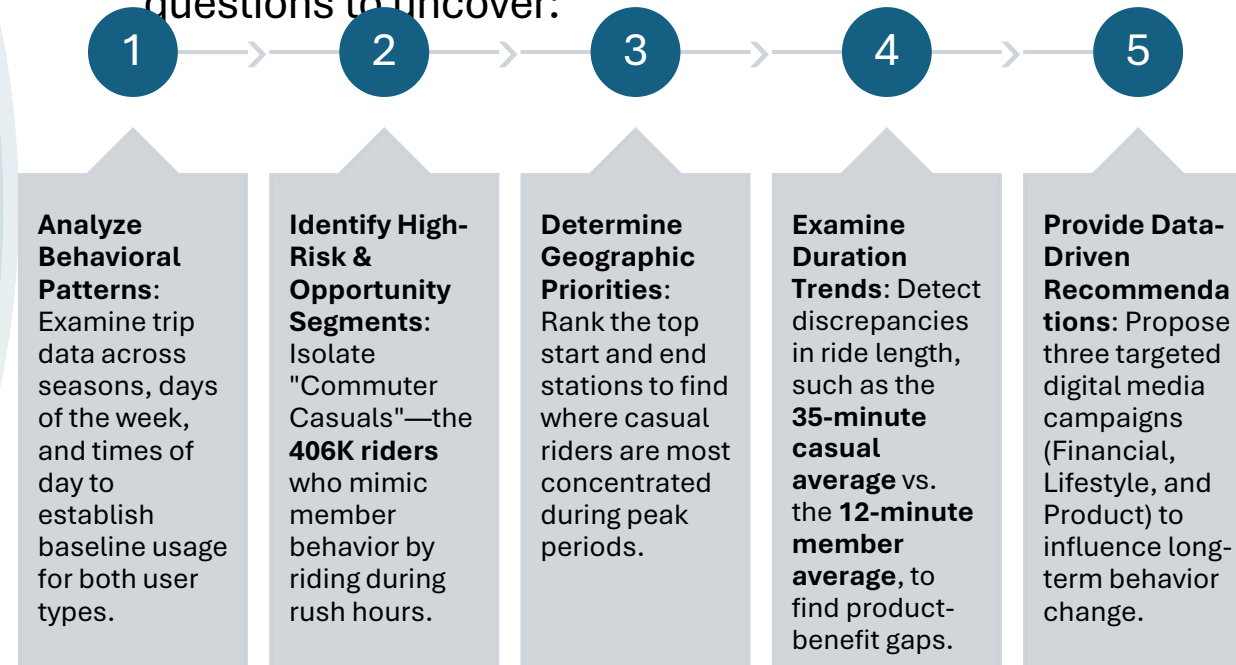
To analyze and visualize **Cyclistic bike-share data** to identify the key differences in how **Annual Members** and **Casual Riders** use the service. By identifying high-potential conversion segments, like the **406,000 casual commuters**, we can design data-driven digital media campaigns to influence casual riders to become long-term members.

Business Task

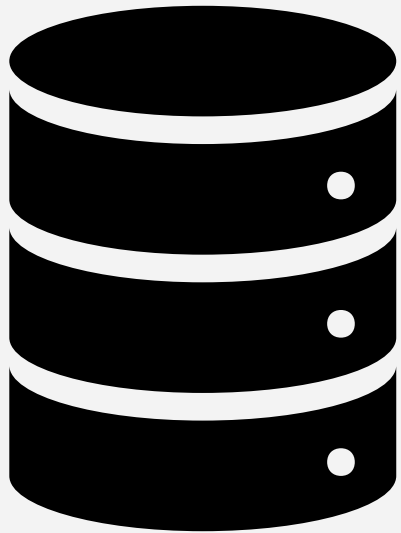


The marketing director aims to analyze Cyclistic historical trip data to identify how annual members and casual riders use the service differently. The analysis focuses on uncovering actionable insights to drive a new marketing strategy centered on member conversion.

The analysis focuses on answering key business questions to uncover:



Data source



Data set

- The dataset used in this analysis comes from the [Divvy Trips 2019\[Q1-Q4\]](#) — available on [Kaggle](#)

License: Open dataset provided for educational and analytical purposes.
The data has been used strictly for **learning and non-commercial analysis**.

- **Data License:**
© Motivate International Inc. | Public data used for educational purposes only.

Data cleaning summary



Data cleaning

✓ **Removed duplicates & Nulls:**

- ✓ Identified and removed duplicate trip IDs and handled missing values in station names to prevent skewed counts.

✓ **Date/Time Formatting:**

- ✓ Converted ride start and end times into standard formats to extract **Day of Week**, **Month**, and **Time of Day** for behavioral analysis.

✓ **Outlier Filtering:**

- ✓ Excluded "false starts" (trips under 60 seconds) and maintenance rides (unusually long durations) that do not represent actual customer behavior.



Data cleaning

✓ Field Engineering:

- ✓ Created new calculated columns, such as **Ride Length (Minutes)** and **Rush Hour Flags**, to identify the "Commuter" vs. "Leisure" segments.

✓ Validation & Consistency:

- ✓ Cross-referenced totals (e.g., verifying the **3M Member trips**) against baseline reports to ensure 100% data accuracy before visualization.



Result:

Clean and structured dataset ready for identifying no-show drivers and creating the Operational Efficiency dashboard..

The story with Data



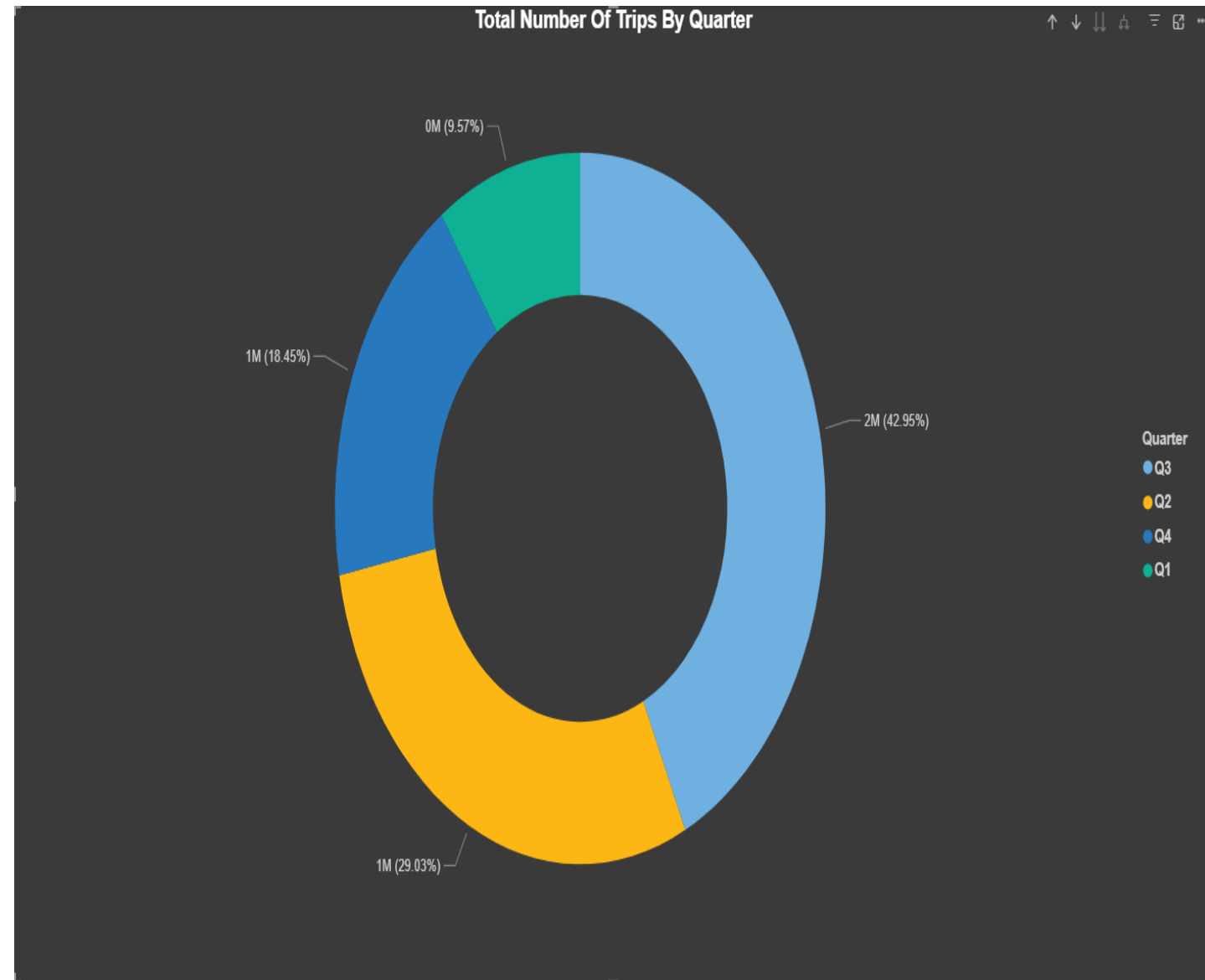
Cyclistic 2019 Annual Performance Report.



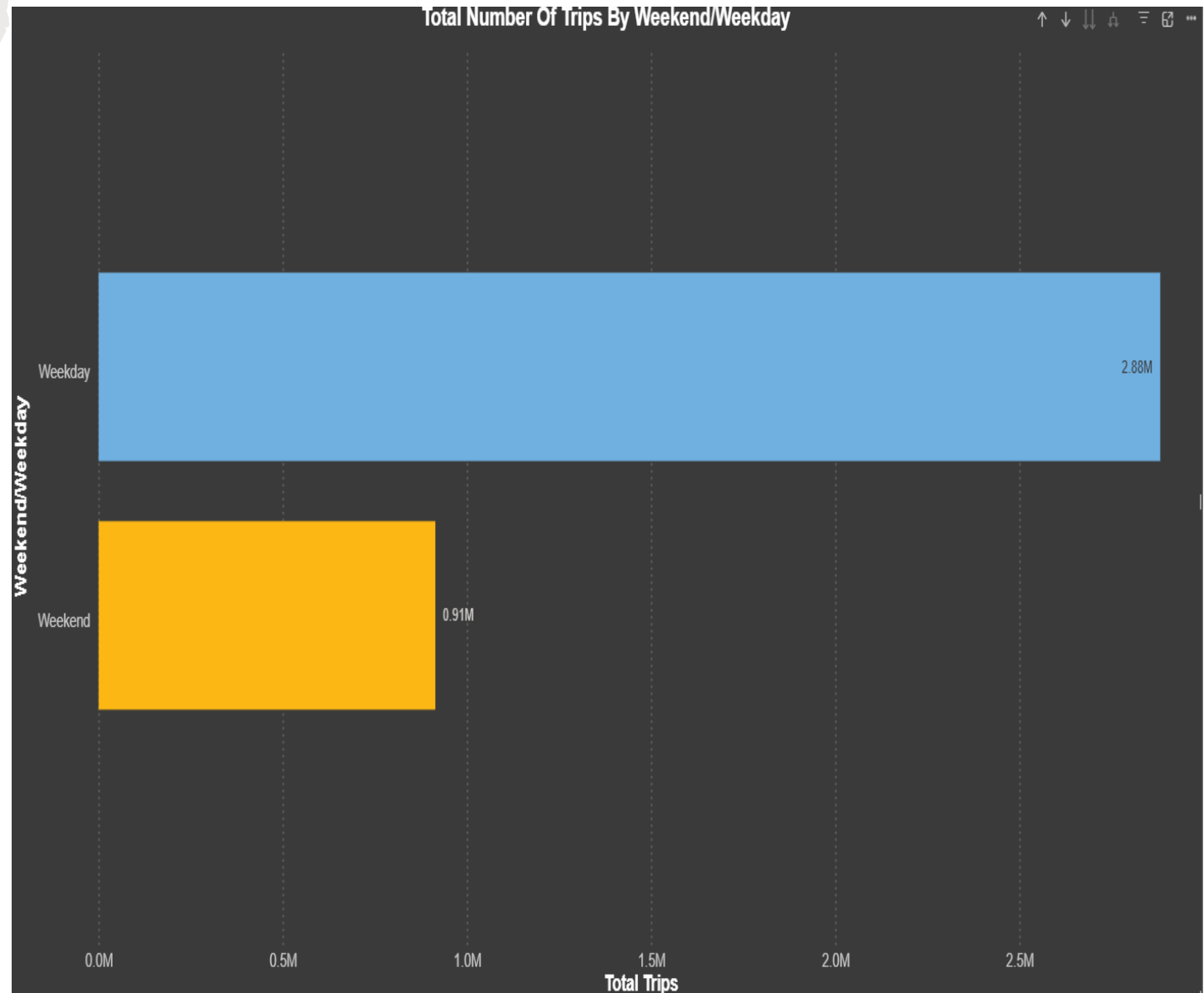
Total Number of Trips	Total Ride Hours	Avg Trip Duration (Mins)	Avg Age	Rate Trips By Weekday
4M	1.12M	17.76	29.95	75.92%

- In 2019, Cyclistic recorded **4 million total trips**, with a strong **75.92% weekday utility rate**, primarily driven by annual members who maintain a consistent year-round riding habit."

The **3rd Quarter (Q3)** stands as the highest performance period with **1,640,718 trips**, representing nearly **43%** of the annual total and highlighting a major seasonal peak in rider activity.



While weekday volume remains the backbone of the service with **2.9M trips**, the **0.9M weekend trips** show a significantly higher average duration, identifying a distinct 'leisure' user profile that currently favors casual passes.



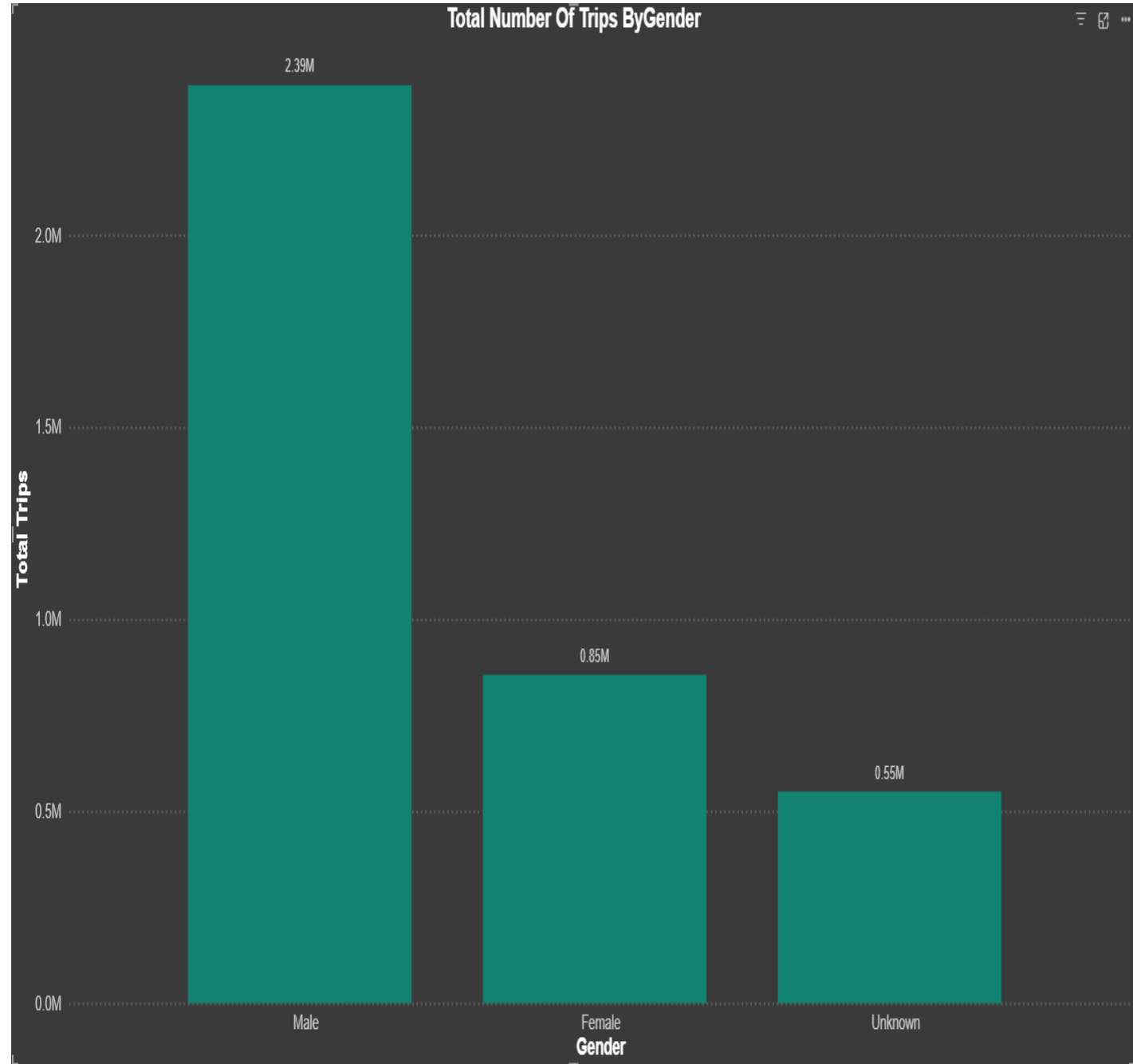


**How Do Annual Members And
Casual Riders Use Cyclistic
Bikes Differently?**

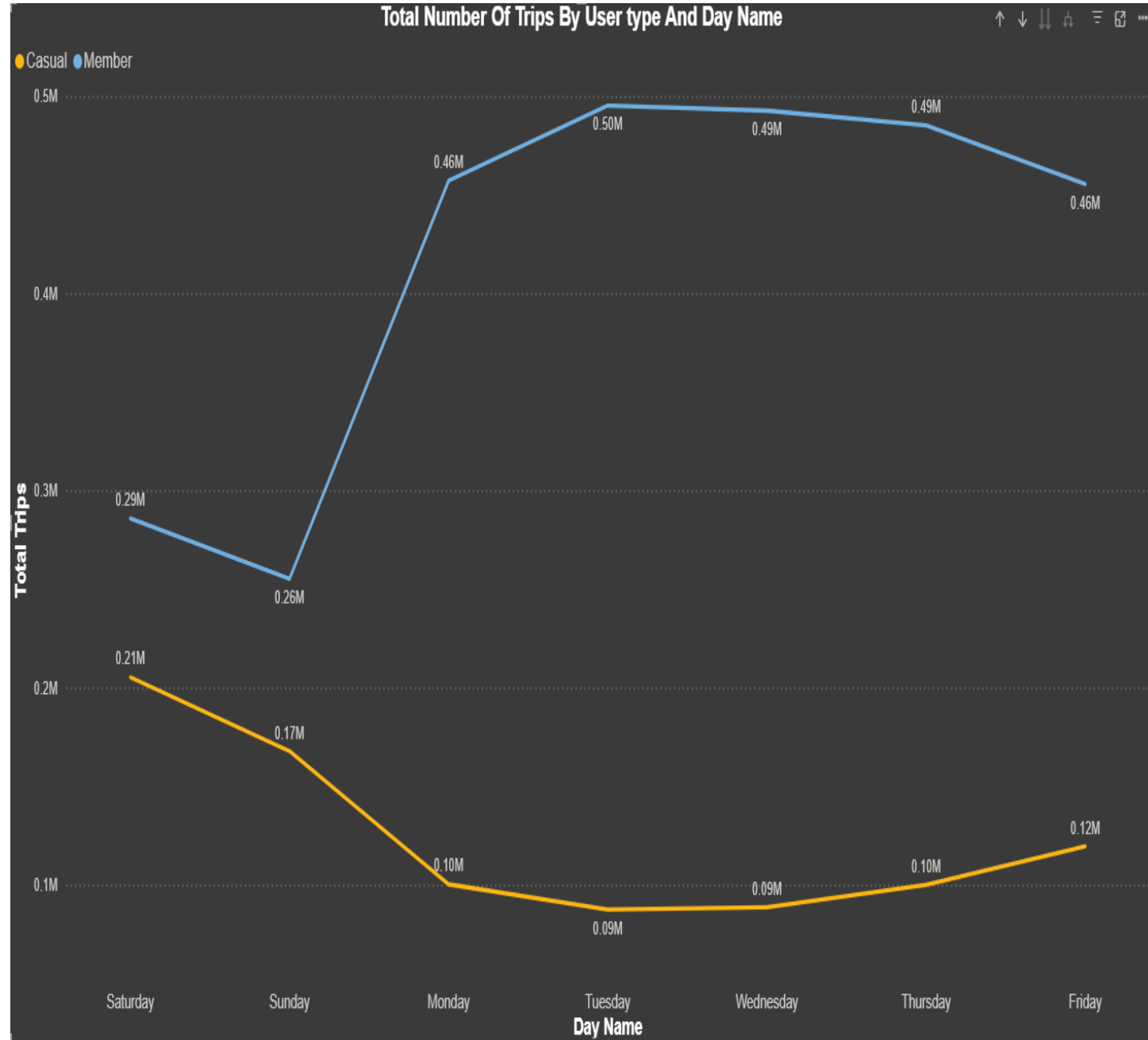
Total Number of Trips (Member)	Total Number of Trips (Casual)	Average Ride Length (Member)	Average Ride Length (Casual)
3M	869K	12.55	35.29

A significant behavioral gap exists between user types: Annual Members complete **3M trips** with a focus on efficiency (**12.55 min average**), while Casual Riders complete **869K trips** with a focus on leisure (**35.29 min average**).

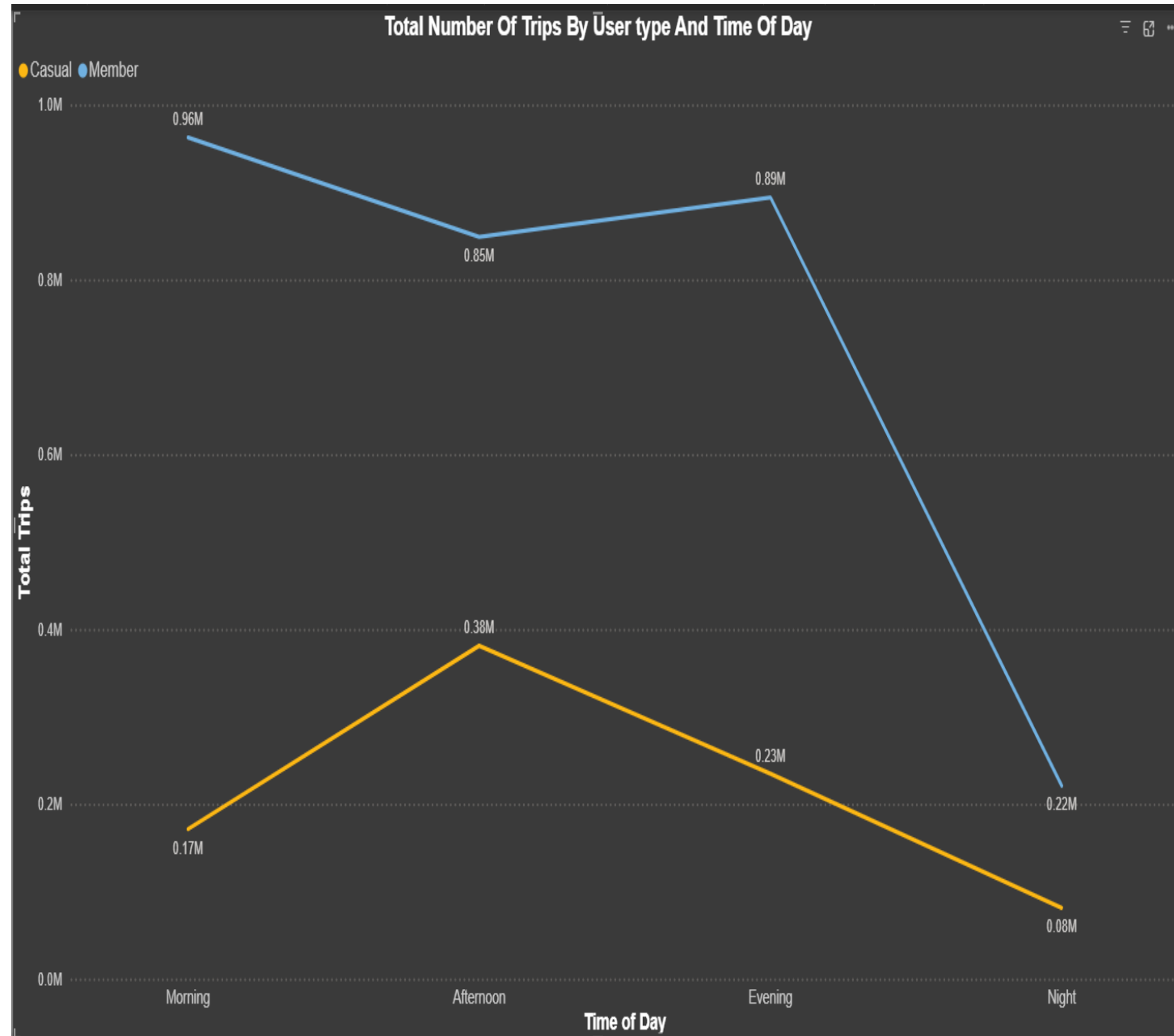
User distribution is heavily weighted toward **Male riders at 2.2M trips**, nearly double the **Female segment at 0.8M**, identifying a key demographic growth opportunity for targeted marketing outreach.




Weekday trips peak consistently from **Monday through Friday** for Members, while Casual ridership shows a contrary trend, rising steadily toward a **weekend peak**.



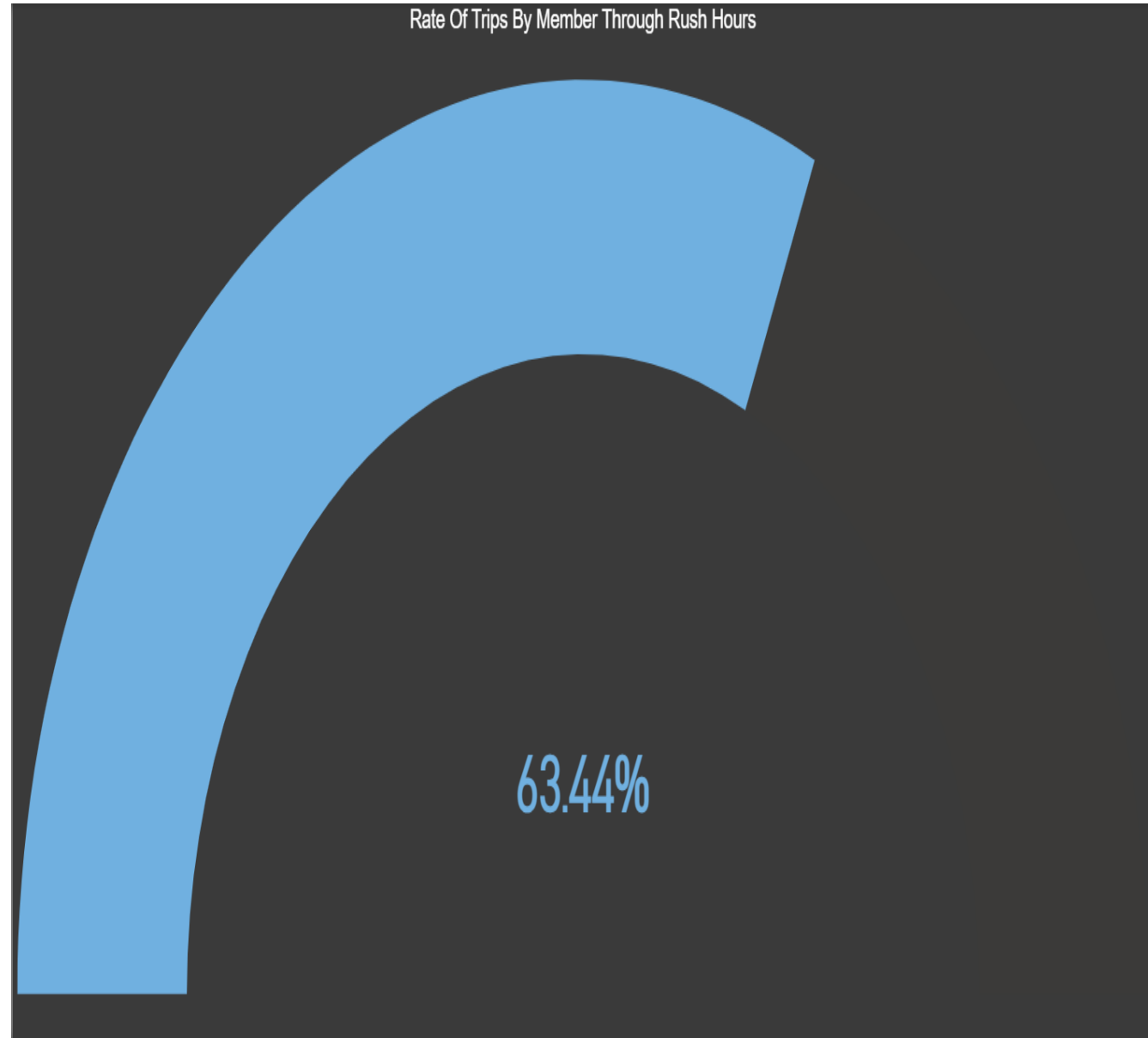
Member trips are concentrated around routine commute times, while Casual riders reach their highest volume during the **afternoon hours**, peaking between morning and evening transit windows.





What Are **Member Behaviors So
They Bought Cyclistic Annual
Memberships?**

Annual Members demonstrate a robust **63.44% rate of trips during rush hours**, setting the utility benchmark we aim to reach with high-potential casual riders.

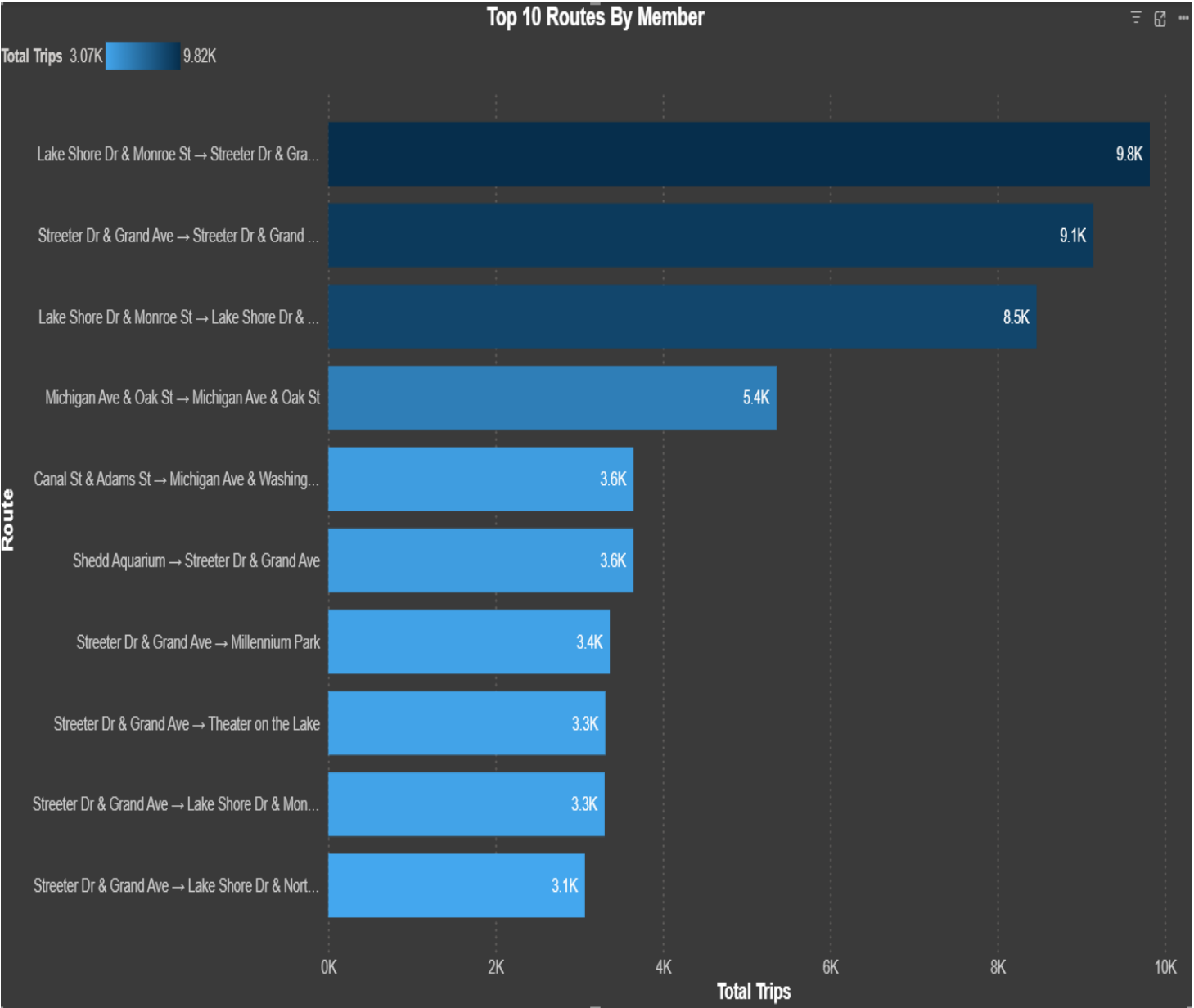


Heatmap analysis shows Member demand remains consistently strong throughout the week, with **Tuesday and Wednesday mornings** seeing the highest concentration of routine utility trips.

Total Number Of Trips By Day & Time Of Day By Member

Day Name	Morning	Afternoon	Evening	Night	Total
▲					
Saturday	128,517	212,502	101,230	48,910	491,159
Sunday	97,400	190,182	96,901	38,459	422,942
Monday	171,338	159,039	190,237	36,881	557,495
Tuesday	189,126	153,592	198,253	41,815	582,786
Wednesday	185,518	158,276	194,667	42,872	581,333
Thursday	180,533	163,020	193,866	47,757	585,176
Friday	181,905	193,697	153,646	45,838	575,086
Total	1,134,337	1,230,308	1,128,800	302,532	3,795,977

The most heavily trafficked route for Members is **Lake Shore Dr & Monroe St to Streeter Dr & Grand Ave**, recording over **9.8K total trips**.



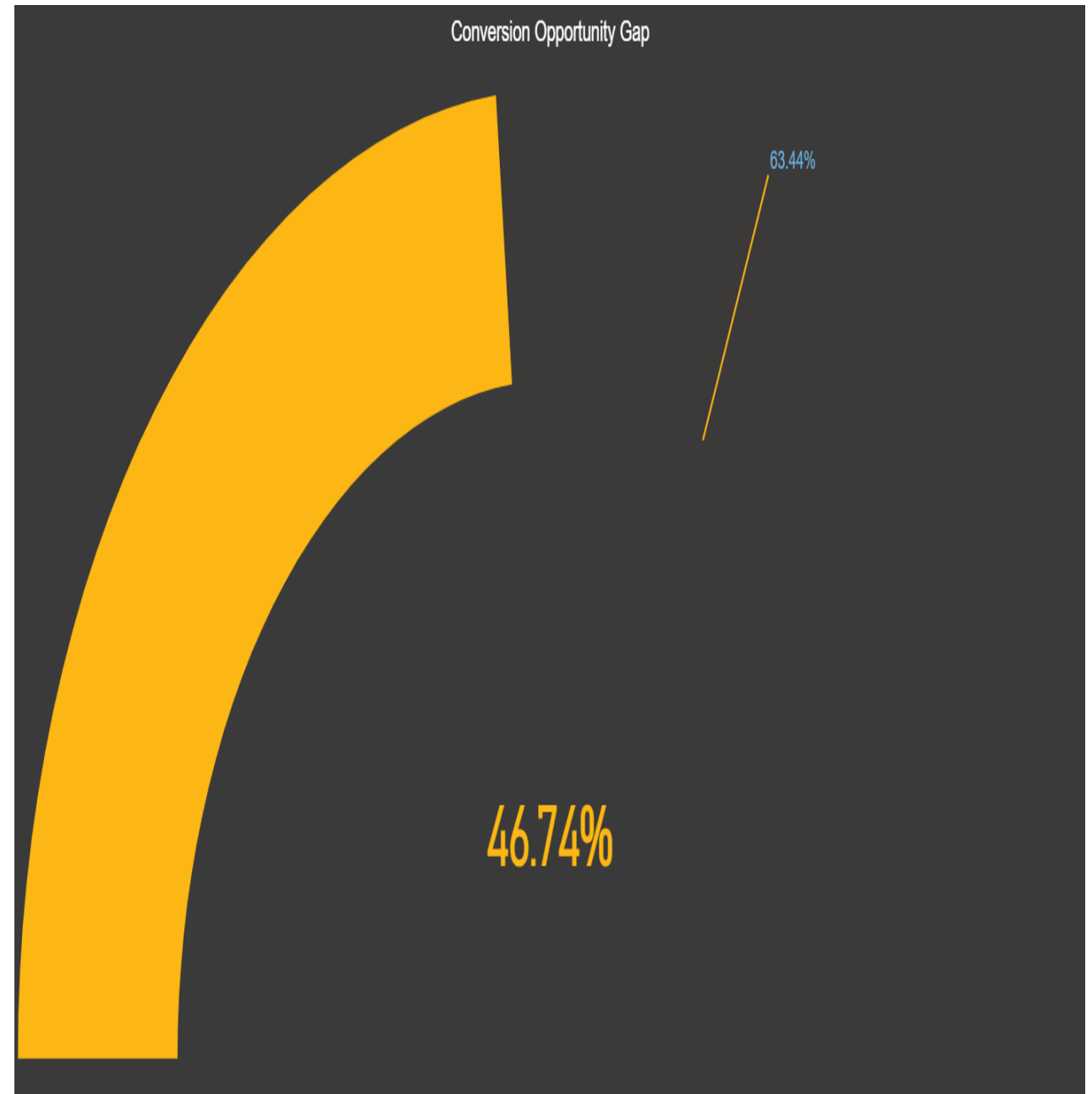


**Strategy: How To Turn Casual
Riders To Become Members?**

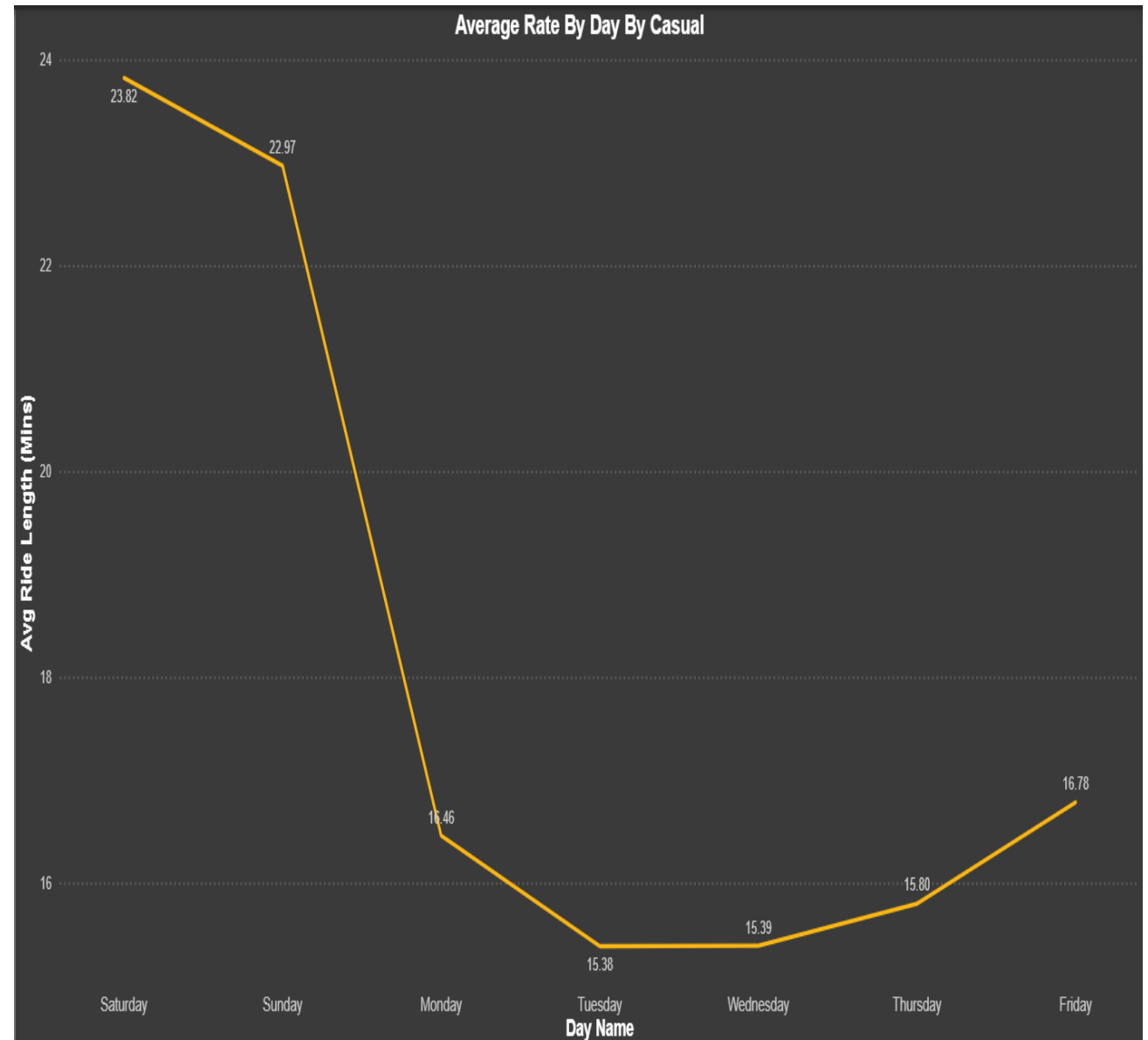
Total Number of Trips	Average Ride Length	High-Potential Casuals
869K	35.29	406K

- Within the **869K casual trips**, we have identified a high-potential segment of **406K regular riders** who exhibit commute-like behaviors.

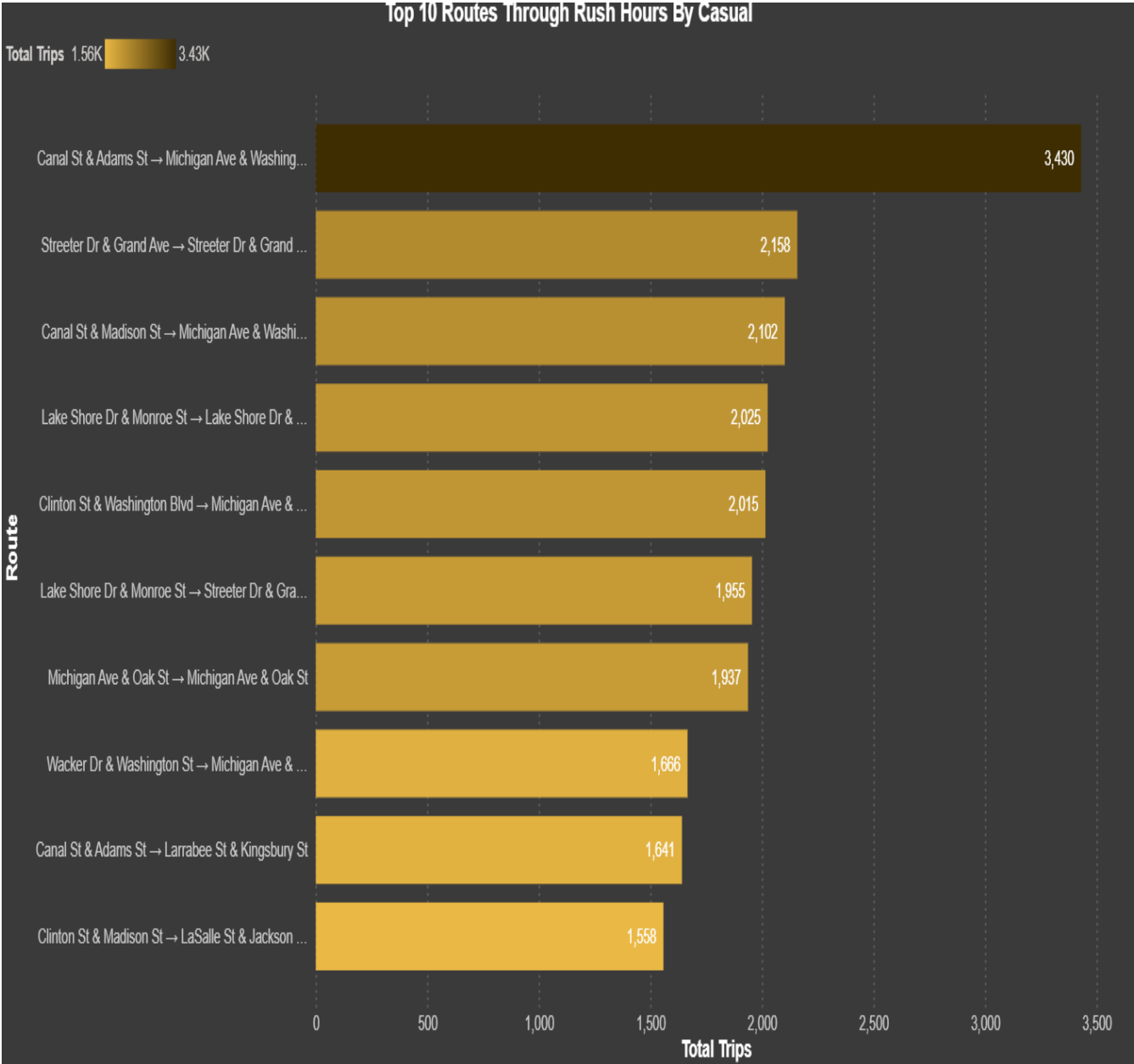
While Members maintain a **63.44% rush hour rate**, Casual riders are currently at **46.74%**, representing a significant opportunity for targeted annual membership growth.



Casual ride durations for non-members peak significantly during the weekend, reaching a high of **23.82 minutes on Saturdays** before declining to a weekly low of **15.38 minutes on Tuesdays** as user behavior shifts from leisure to utility.



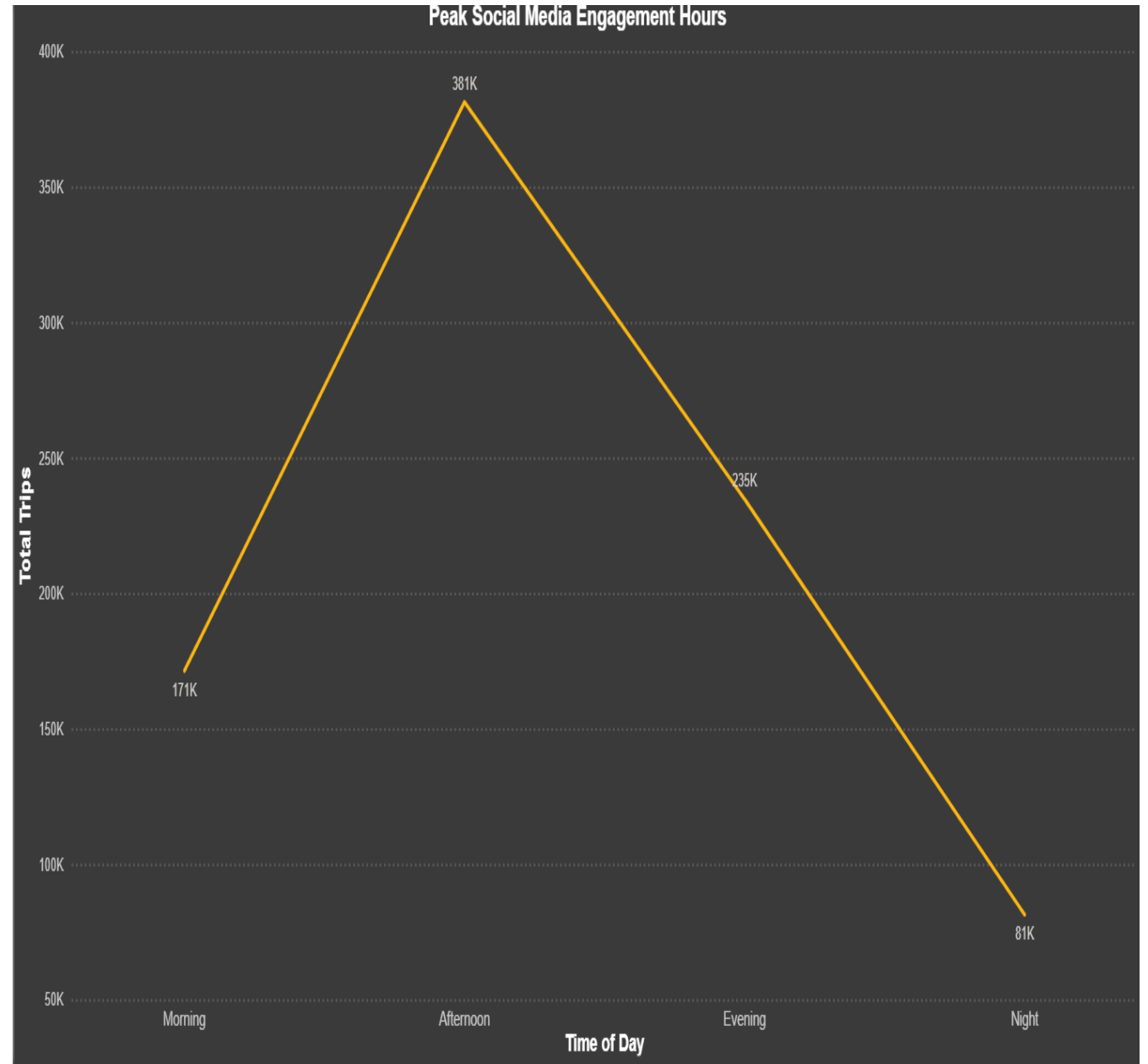
During peak rush hours, the corridor from **Canal St & Adams St to Michigan Ave & Washington** serves as the most utilized route for casual riders with **3,430 total trips**, significantly outpacing the next highest-volume route by over **1,200 trips**.



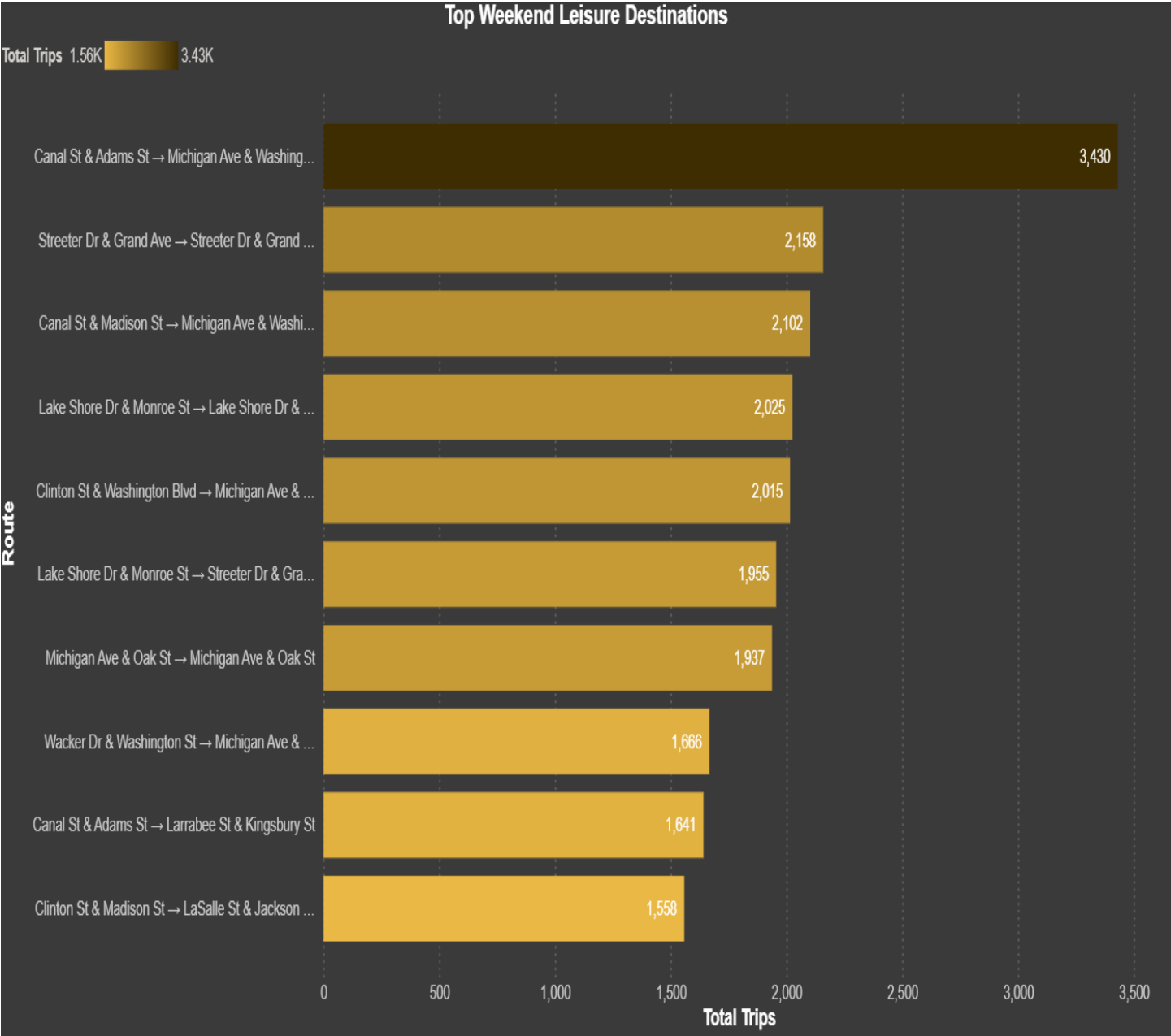


How To Use Digital Media To Influence **Casual Riders** To Become **Members**?

Social media engagement reaches its daily peak during the **afternoon with 391,000 total trips**, representing a high-traffic window that is more than double the volume of morning engagement.



The route from **Canal St & Adams St to Michigan Ave & Washington** is the primary weekend leisure destination, recording **3,430 total trips** and significantly outperforming all other popular routes in the network.



Conclusion

Strategic Insights.

1

The "Commuter Gap" [High Priority]: Casual riders currently only have a **46.74% rush hour usage rate** compared to **63.44% for members**. Closing this gap represents a prime opportunity to convert casuals who already use the service for work.

2

Weekend Peak Engagement [Quick Win]: Casual ridership peaks dramatically on **Saturday and Sunday afternoons**, with a single high-volume spike of **184K trips at 1:00 PM**. This is the optimal window for digital ad spend and influencer marketing.

3

The "Duration Discrepancy" [Strategic Adjustment]: Casual riders average **35.29 to 37.28 minutes per ride**, nearly 3x longer than the **12.55-minute member average**. Marketing the membership as a way to avoid "overage fees" for long rides is a key incentive.

Strategic Insights.

4

Leisure Hotspot Concentration [High Priority]: Top routes like **Streeter Dr & Grand Ave** (with 1,991 trips) are heavily dominated by casual riders during leisure hours. Physical branding at these "Instagrammable" locations will increase member visibility.

5

The "406K Segment" [Quick Win]: We have identified a specific audience of **406,000 casual riders** who exhibit "Member-like" behavior by riding during weekday rush hours. This is the most cost-effective segment to target for immediate conversion

6

Seasonal Falloff [Strategic Adjustment]: Casual riding is highly seasonal compared to the steady year-round utility of members. Implementing "Spring Conversion" discounts can help secure annual commitments before the peak summer season begins.

Recommendations

Recommendations Summary

1

**"Commute for Less"
Campaign [High Priority]:**

Launch targeted digital advertisements at the **Top 10 commuter stations**. These ads should specifically highlight the cost-savings of an annual membership for the **406,000 casual riders** identified as regular weekday commuters.

2

**Weekend "Lifestyle"
Membership [Quick Win]:**

Introduce a "Weekend-Only" or "Lifestyle" tier promoted by social media influencers at **weekend hotspots like Streeter Dr & Grand Ave.** Target the peak engagement window of **Saturday at 1:00 PM** to maximize reach.

3

**Benefit Education:
"Experience More" [Strategic Adjustment]:** Leverage the fact that casual riders already average **35–37 minutes per ride**. Market the member benefit of **longer inclusive ride times** (45 mins) to show them how to avoid current coverage fees.

Recommendations Summary

4

Physical Branding at Hotspots [High Priority]: Install physical signage and QR code "Instant Sign-up" stations at high-volume leisure locations like **Streeter Dr & Grand Ave** (which sees 1,991 casual trips). This captures riders exactly when they are most active.

5

Seasonal Conversion Incentives [Quick Win]: Use the lower trip volume in **Q1 (Winter)** to offer "Early Bird" annual membership discounts. This locks in casual riders before the summer peak, ensuring consistent revenue year-round.

6

Targeted Group/Corporate Tiers [Strategic Adjustment]: Since **63.44% of members** ride during rush hours, partner with local businesses near transit hubs to offer corporate memberships. This targets the "Commuter" demographic directly at the source.

Thank You!

Omer Metwally | Aspiring Data Analyst



- Tools Used:
 - Excel
 - SQL
 - Big Data Management
 - Advanced Filtering
 - Performance Optimization
 - Power Bi
 - Power Query
 - DAX
 - AI-Powered Visuals, Interactive Reporting Tools

Last Updated: 14.th January 2026