

BIKE SHARE TORONTO RIDERSHIP GROWTH OPTIMIZATION



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Forward Banking

InsightOps



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Introduction



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Rapid Growth

Over 9,000 bikes, 8,00+ stations



Mission

Provide convenience, eco-friendly short trips



Development Highlight

4.6 million rides in 2023
80% increase since 2020





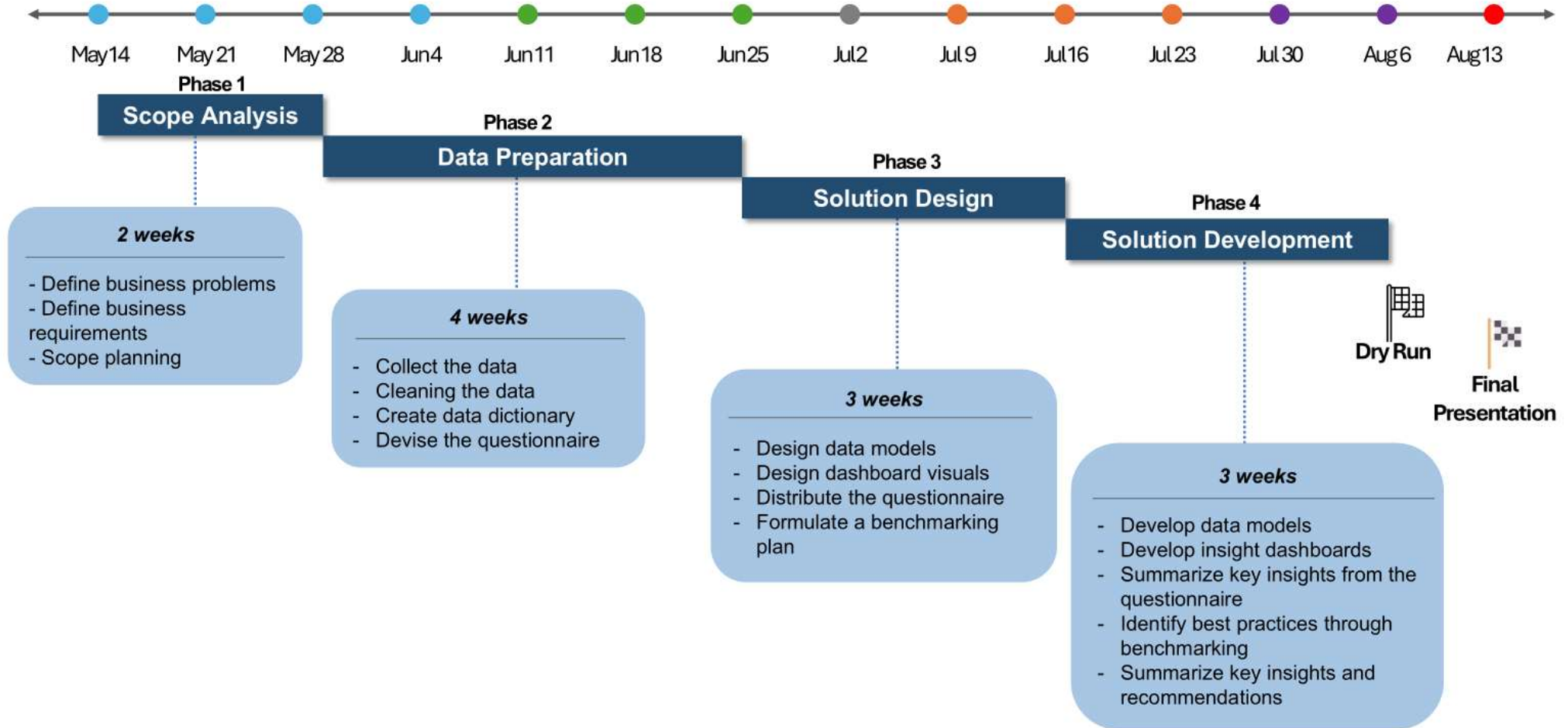
Problem Statement

- Limited user behavior insights (commuting vs. leisure)
- Geospatial mapping & infrastructure correlation challenges
- No global benchmarking framework (Paris, New York)

Objectives

- Visualize trends & demand hotspots
- Assess service equity
- Optimize station placement, pricing, marketing
- Support urban expansion planning

Timeline



Data Introduction



1. Ridership Forecasting Model

Bike Share Toronto's Database



Ridership Data

Station Data

Weather Data

2. Insights Dashboard



Ridership Data

Station Data



Ridership Data



Ridership Data

3. Survey

Distribution Approach



In-person

Online

Social Media



Online Community



4. Benchmarking



Ridership Data

Strategies

Practices



Data Characteristics

1 Data Period

- Cover 2019-2024
- To enable comparisons between
 - Pre-COVID period (2019)
 - COVID period (2020-2023)
 - Post-COVID period (2024)

2 Data Types

x

:Raw data from database

y

: Research-based insights

3 Data from counterparts



(NYC, USA)



(MTL, CA)

BIXI



Bike Share Toronto

Total Trips

24.58M

Trip by Casual

16.03M

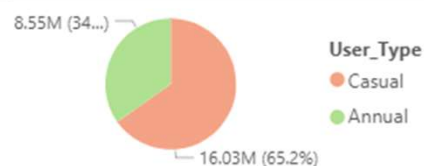
Annual Users

8.55M

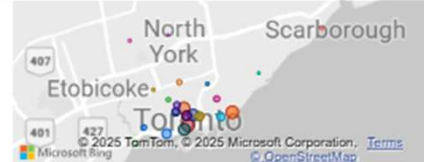
Average-Trip

17.38

Total Trips by User Type



Total Trips by location



Year

All

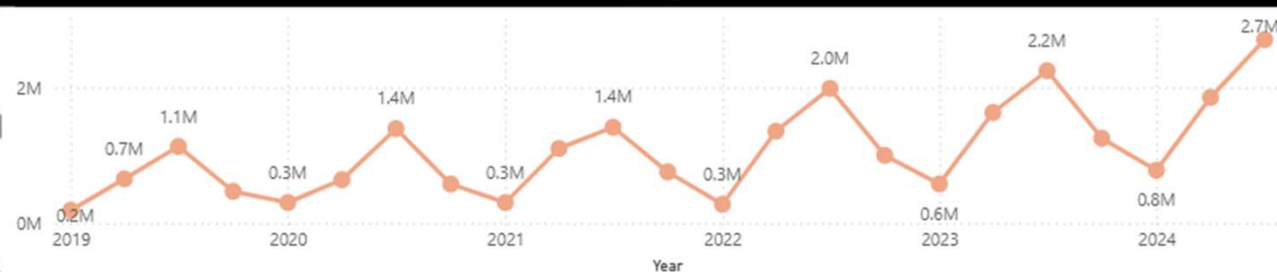
Days

All

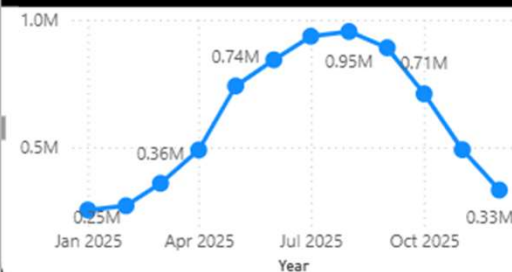
User ...

All

Total Trips by Quater

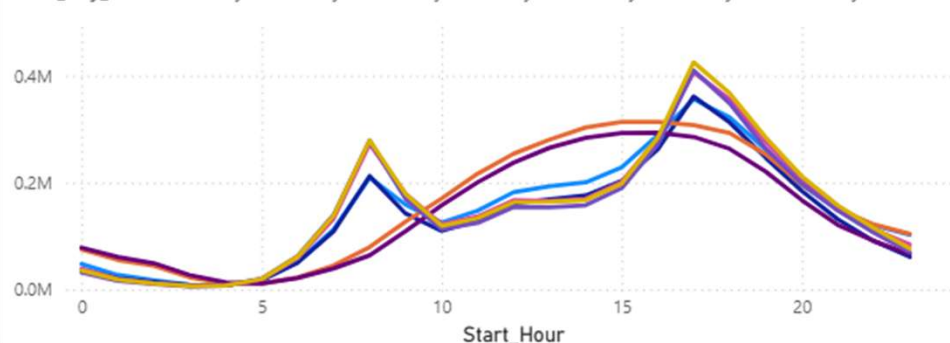


2025 Prediction

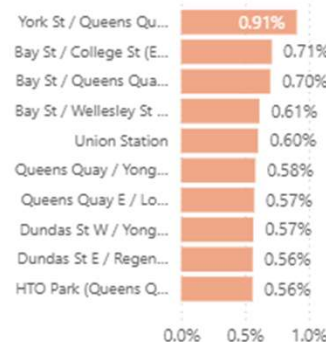


Total Trips by Hours and day of week

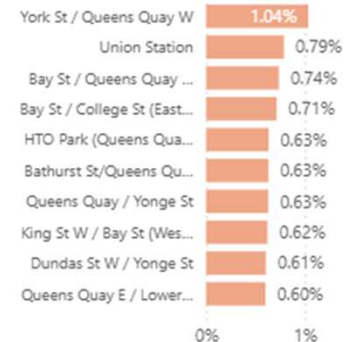
Start_Day_Name Friday Monday Saturday Sunday Thursday Tuesday Wednesday



Trips by Start Station



Trip by End station



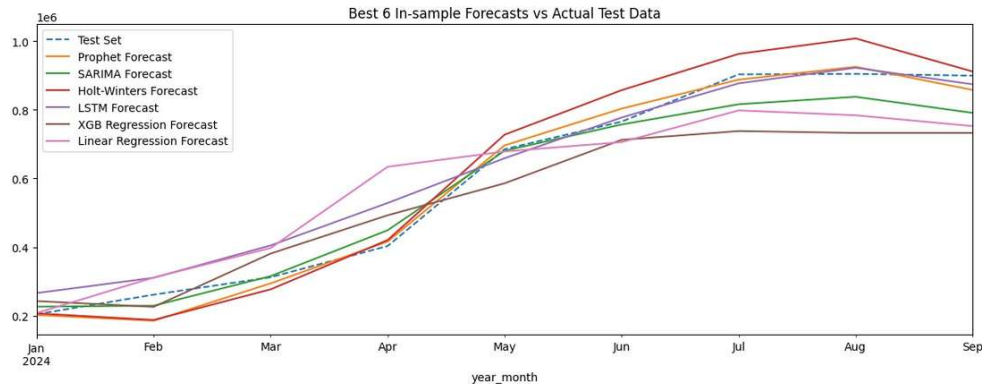


RIDERSHIP OPTIMIZATION

Ridership Data

- Total Trips: 24.58 million trips, 953 locations
- User type: 65% casual, 35% annual
- Station Utilization: Centralized Activity
- Location: Downtown area

Riders Forecasting



Insight

User Demographics

- **Dominance of Casual Users** → Users are tourists or those who use the service infrequently, rather than daily commuters

Trip Trends Over Time

- Growth Trajectory: **an upward trend**, strong growth with **a notable boost during the COVID-19 period**, and Rides peak in the summer months of June to August..
- **Seasonal Fluctuations**: peaks in the summer months (Q3) and drops significantly during the winter months (Q1)

Daily & Hourly Usage Patterns

- Commuting Patterns: 8-9 AM in the morning and 4-6 PM in the late afternoon/early evening.
- Weekend Usage (Sat and Sun) is different → weekend trips are more for leisure and recreation rather than commuting

Most Popular Stations

- Centralized Activity: The majority of bike share activity is heavily concentrated in the downtown core of Toronto

SURVEY IMPLEMENTATION

Questionnaire

Demographics

- What is your age group?
- What is your gender?
- What is your occupation?

User Experience & Preferences

- In the last three months, how often do you use the bike share service from BST?
- What is your overall sentiment regarding the safety, pricing and payment options for BST?

Suggestion & Feedback

- Do you have any recommendations for new equipment?
- Do you have any other suggestions or feedback to help us improve the BST?



Insight

Demographics

- Mostly men (53.3%), young adults aged 25–34 (48%), and full-time workers (52.5%), indicating strong commuting potential

User Experience

- 23% have never used the service; only 6.2% ride daily. Most use it occasionally or a few times a week.

Customer Perception

- 85% find it convenient; 73% are satisfied. Neutral/dissatisfied users (25%) present an improvement opportunity

Improvements

- Top requests: baskets/storage (33.8%), helmets (26.3%), lighting (22.2%). Most-wanted new offerings: scooters/e-bikes (38.9%) and more stations (29.3%).

→ **Target non-users, upgrade equipment to boost retention, and diversify offerings to attract more frequent riders.**



Survey Responses

257

Gender

All

Age group

All

Occupation

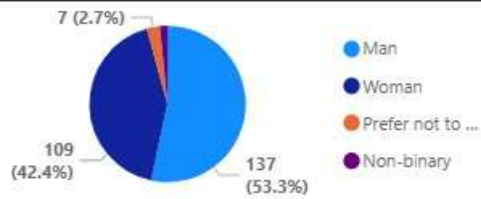
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Postal code

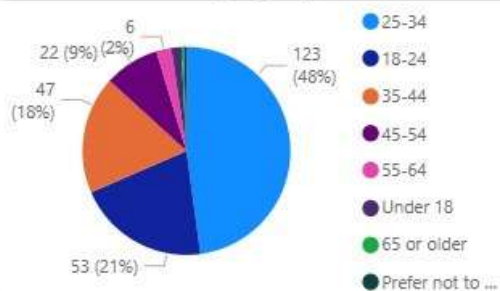
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Bike Share Toronto Engagement Survey

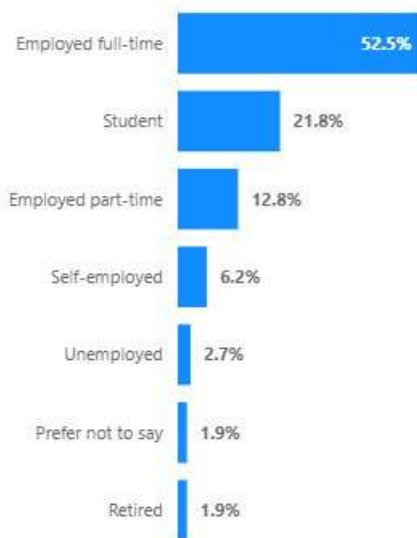
Gender



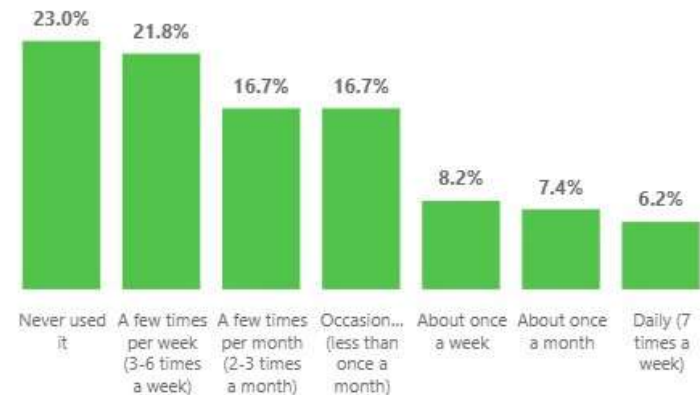
Age group



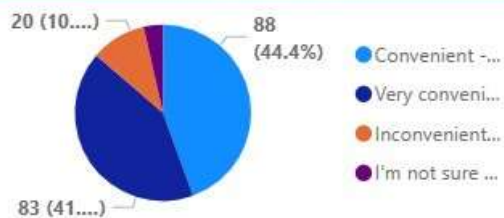
Occupation



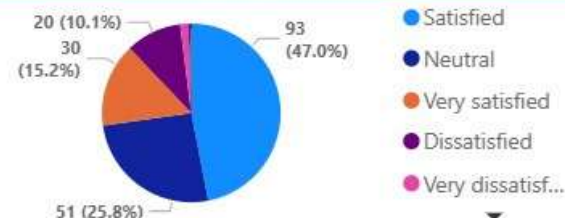
Use frequency



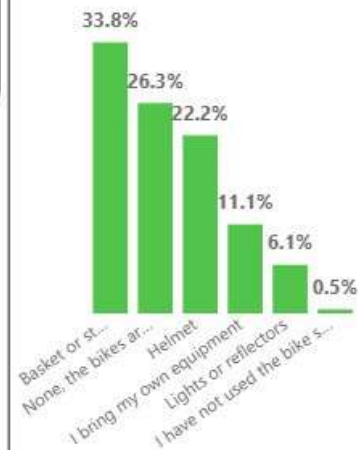
Convenience



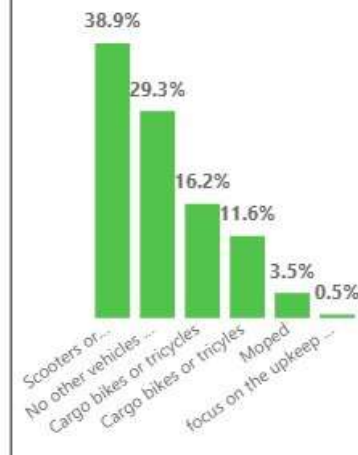
Satisfaction



Additional equipment



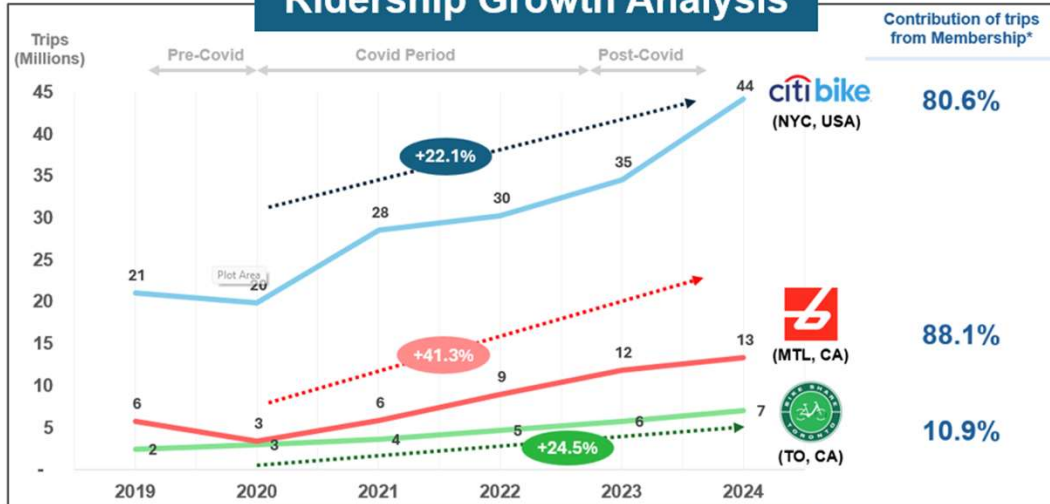
New offerings wanted



Solution: Benchmarking



Ridership Growth Analysis



Bike Utilization Analysis

Trips/year	7 million	13 million	44 million
Number of Bikes	<div> <div></div> <div>9,000</div> <div>22% Regular bike 78% E-bike</div> </div>	<div> <div></div> <div>12,600</div> <div>25% Regular bike 75% E-bike</div> </div>	<div> <div></div> <div>37,700</div> <div>40% Regular bike 60% E-bike</div> </div>
Number of Stations	925	1,080	2,800
Utilization Rate (Trip/bike/day)	2.1	2.9	3.2

Insights

Ridership Growth

- BIXI showed the highest percentage growth in ridership during and after COVID periods.

Membership Contribution

- BIXI and CitiBike demonstrate strong member engagement, with over 80% of rides taken by registered members.

Bike Utilization Rate

- CitiBike shows the strongest utilization at 3.2 trips/bike/day.

Pricing Plan

- BIXI and CitiBike offer monthly plans that help users save on costs.

Equipment

- BIXI offers bike trailers for commuters to rent, making it easier to carry their belongings.

Bike

- BIXI has also modified its bikes for winter use by adding features such as studded tires to improve safety and performance in winter conditions.



“WeBike2Gether” Campaign Plan



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🔧 Issues tackled

- Low User Acquisition & Engagement
- Limited Awareness & Brand Visibility
- Moderate Satisfaction & Unmet Feature Expectations

🕒 Duration: 3 Months

🎯 Campaign Goals

- **100.000 trips** made during the campaign
- **30% → 60%** users using a bike at least 2-3 times a week
- **11% → 40%** contribution to trips from the memberships
- **45% → 80%** users feel Bikeshare services are very satisfying and convenient
- **6.000 → 20.000** Followers in social media platforms.

“WeBike2Gether” Campaign Plan



Key Campaign Components

1. Referral Program

- \$20 Gift Card for Both Sides – Reward both referrer and referee to ride bike together.
- Milestone Rewards – Bonus ride credits or free month memberships when a user reaches 3, 5, or 10 referrals.

2. Influencer Partnerships

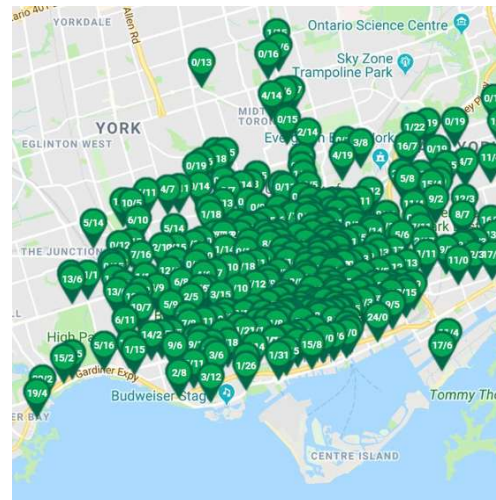
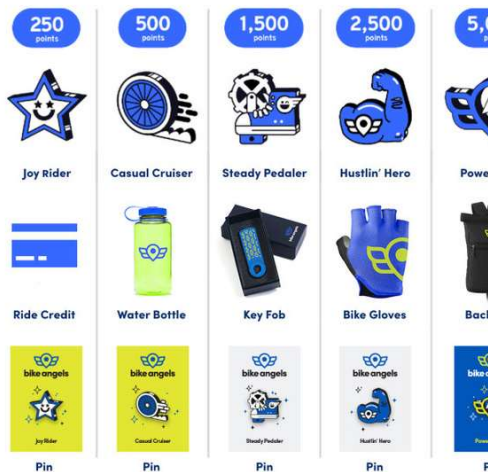
- 200 sustainability, health, lifestyle influencers (5K–200K followers) with reels, ride-alongs, hashtag campaigns
- Influencers share exclusive codes linked to the referral program to track conversions.

3. Social Engagement

- User-Generated Content Contests – Best ride photo or scenic route wins a free membership month.
- Quick Polls & Stories – Ask users about favorite routes, most used stations, or desired features.
- Share posts with hashtags: #WeBike2gether#BikeShareTO

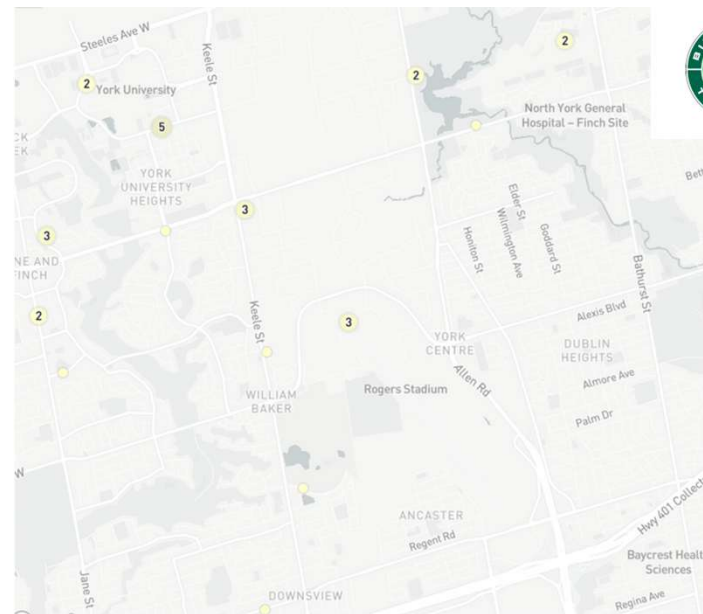
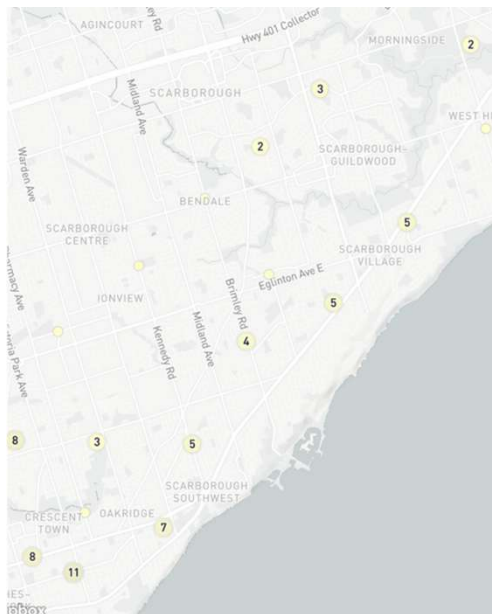
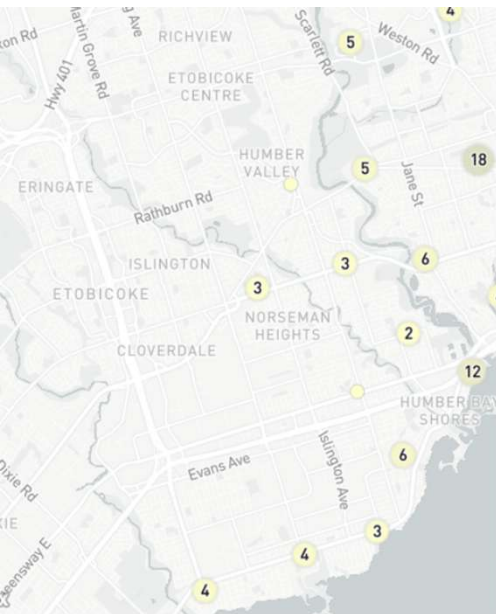
4. Community Pop-Ups

- Weekend events in high-traffic areas like Nathan Phillips Square, Eaton Center, UofT downtown campus
- Free trials, live demos, safety tips
- Local vendor partnerships, local biking communities



BIKE REDISTRIBUTION

- Users are frustrated by bike unavailability and full stations, especially outside the downtown core.
- Use data to expand redistribution efforts to underserved areas, particularly near transit hubs.
- Bike Share's rebalancing efforts are too concentrated in the downtown area and in peak hours.
- Create a user-incentive program, like NYC's Bike Angels, to reward riders for helping rebalance the network.



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MORE BIKES, MORE STATIONS

- User feedback shows a strong demand for more bikes and stations in Etobicoke and North York.
- Key areas for expansion include transit hubs (Line 2, York U, the upcoming Line 5 and 6 LRT), major parks, and hospitals.
- Adding stations near schools, libraries, and grocery stores can reduce car dependence for short, local trips.



Our Challenges & Lessons Learned

- **Integrating External Datasets**

Matching Bike Share data with external sources like bike lane maps, weather, and demographics posed technical difficulties

- **Benchmarking with Other Cities**

Lack of standard metrics across different cities made global comparison and benchmarking

- **Multidisciplinary Thinking is Key**

Combining data science, urban planning, and sustainability insights made the project more comprehensive and impactful

Project Credits & Team Acknowledgement

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Legal Disclaimer: This project involves the use of third-party confidential information and was conducted under a formal Non-Disclosure Agreement (Effective May 6, 2025). This presentation is intended for educational purposes and public academic review.

