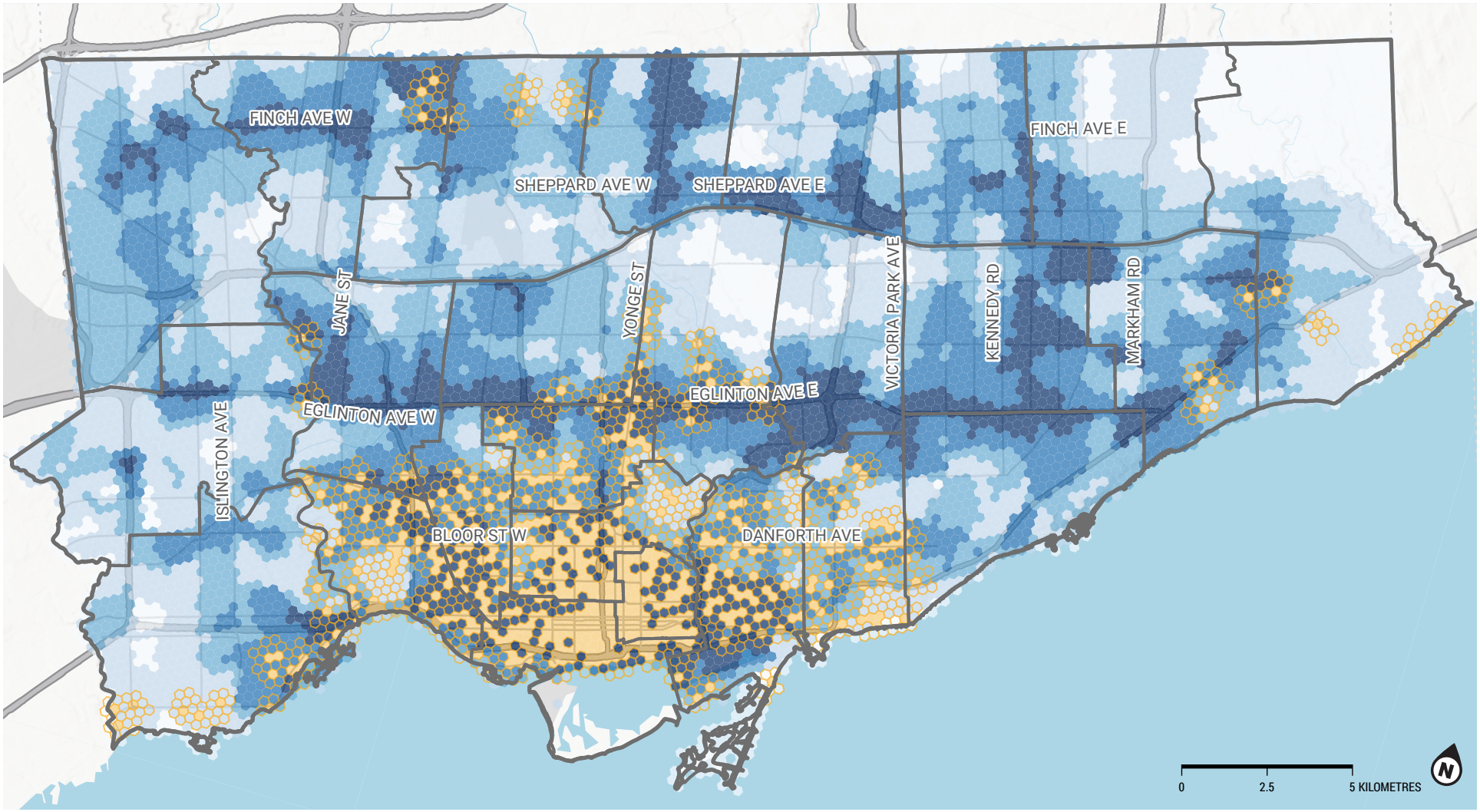
Map 4. Future Alignment Priority Input Layer

Part 3 of 4



Future Alignment Priority Input

Bike Share Toronto
Four-year Growth Plan

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Future Growth (Percent Rank)

- Higher Priority
- Lower Priority
- Current Bike Share Station
- Current Bike Share Service Area
- Wards

Equally weighting population growth, employment growth, future bike, and future transit facilities. The current bike share service area extends 300 m from existing stations.

Interactive Origin and Destination Map

Bike Share Toronto ridership data from 2019 and 2021 was mapped in an **interactive web map** that allows the user to explore the origin and destination of bike share trips over the course of a day. The map visualizes the number of trips being made between areas, as well as the balance between incoming and outgoing trips from stations. Users can toggle visualizing the data between the year, member type, and the time of day. This map enabled a comparison of how the system was used before and during the COVID-19 pandemic and insights into travel behaviour across the system.

2.3 Scenario Allocation Tool

The scenario allocation process identifies areas of the city where the installation of new bike share stations should be prioritized for expansion. A custom scenario allocation tool was developed for this project. The tool incorporates the priority input layers and calculates a total priority score for each hex. The tool then allocates a defined number of stations (375) based on hexes with the highest priority scores, allocating at least one station to each of the City's 25 wards. As the tool allocates stations, it decreases the priority score of all hexes within a user-defined radius to prevent placing stations too close together and duplicating coverage. For this project, 300 m was used as the radius distance because that is a standard station spacing distance used by Bike Share Toronto.

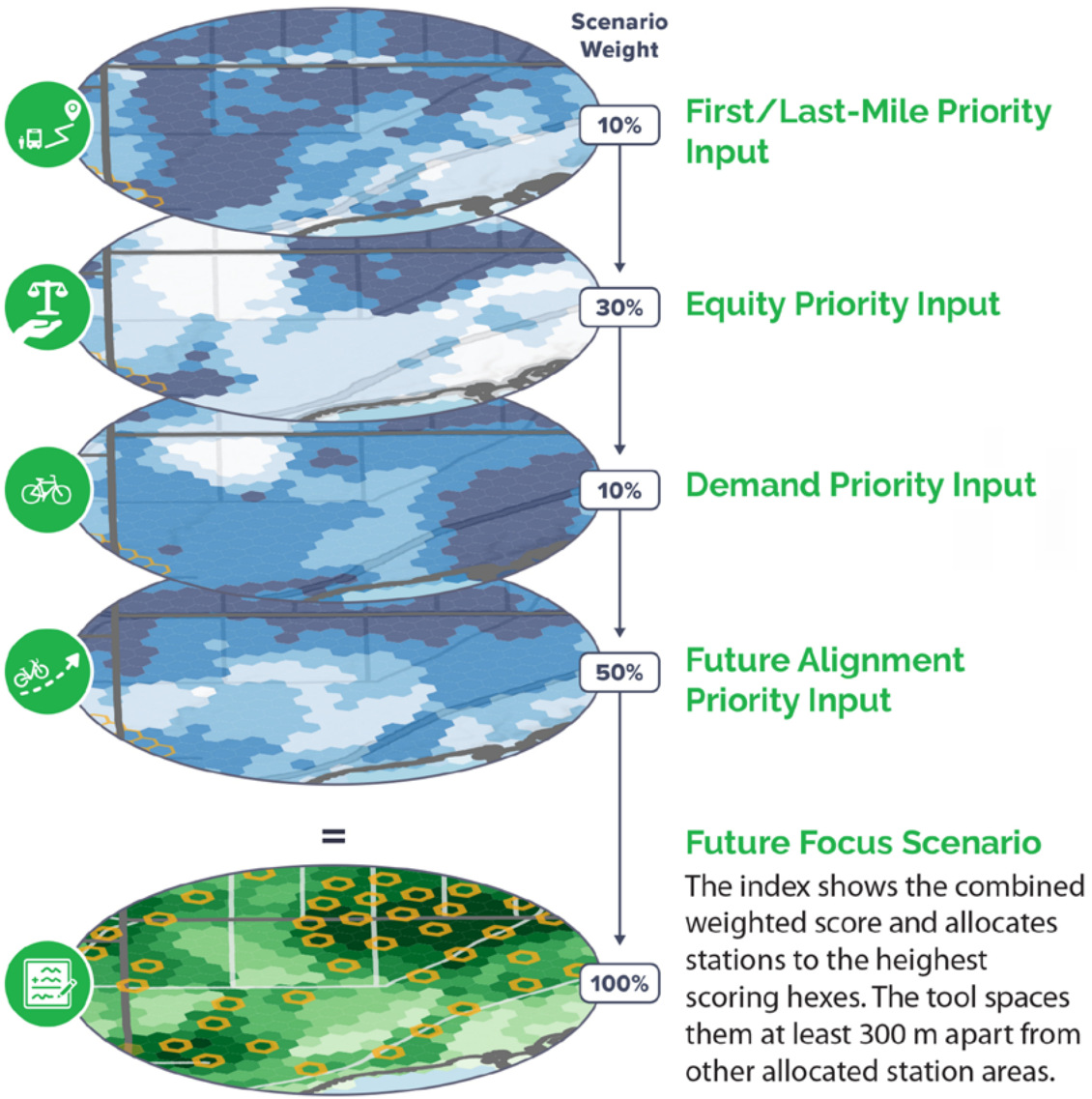


Figure 11. Graphic of scenario allocation tool

Scenario Weighting

The tool calculates the priority score by weighting the priority input layers. This enables the creation of multiple unique scenarios where the priority input layers are weighted differently, affecting the allocation and spatial distribution of stations across the city. Creating multiple scenarios is helpful because comparing scenario outputs strengthens our understanding of how competing priorities can impact station distribution.

Five distinct scenarios were formulated for bike share expansion, as shown in **Table 1**. Each scenario has a theme that corresponds with the weighting of the priority input layers for that scenario, and reflects the priorities of Bike Share Toronto.

Table 1. Weighting of Priority Input Layers for Each Scenario

Scenario Name	Equity	Demand	First/Last-Mile	Future Alignment
Balanced	25%	25%	25%	25%
Access and Revenue	40%	40%	10%	10%
Equity First	50%	15%	20%	15%
High Utilization	10%	50%	20%	20%
Future Focus	30%	10%	10%	50%

Scenario Evaluation

The distribution of stations in each scenario was evaluated manually by the project team to consider opportunities and threats associated with implementing and operating the proposed stations. Reviewing the scenario maps allowed for the project team to understand and consider different options for where stations could go as part of this expansion. **Table 2** summarizes the evaluation of the different scenarios. The evaluation criteria considered the tension between having larger system coverage and better access to the service.

- Limited islands refer to the scenario having few isolated station areas which aren't connected to the rest of the system
- Station density relates to the distances between allocated station areas in the scenario. Historically bike share has strove towards placing stations 300 m apart to maintain walking distance between stations
- Geographic spread evaluates how much coverage the scenario achieves and how it is spread between areas of the city
- Strategic expansion criteria considers alignment with new cycling corridors, transit expansion, and how new stations connect the existing satellite areas with the core network

Following the review of scenarios, a preferred scenario was selected and shared with stakeholders during the second round of workshops. Stakeholder feedback on the preferred scenario was used to help guide manual revisions as part of the scenario refinement process.

The scenario maps are included in **Appendix B: Scenario Maps**

Key Consideration for the Scenarios

The scenarios assumed the system to expand by 375 stations over a four-year period (2022-2025) to achieve a system size of 1,000 stations

At least one station is allocated in every ward but the addition of 375 stations will not enable the bike share system to service every community in Toronto. Future expansions beyond this plan will be required to extend the system into all communities, if desired

The **Future Focus scenario** was selected as the preferred scenario because:

- It provides better continuous service along corridors than the other scenarios
- It creates and expands a service area with sufficient station density in key areas of interest, including those with higher equity priority
- It provides good first/last-mile connections to Line 5 and Line 6 along Eglinton Avenue and Finch Avenue West, respectively
- Realistic expansion to all 25 wards with station frequency that facilitates bike share trips
- Minimal “islands” (or isolated clusters) of bike share stations

The Future Focus scenario map is shown on **Map 5**.

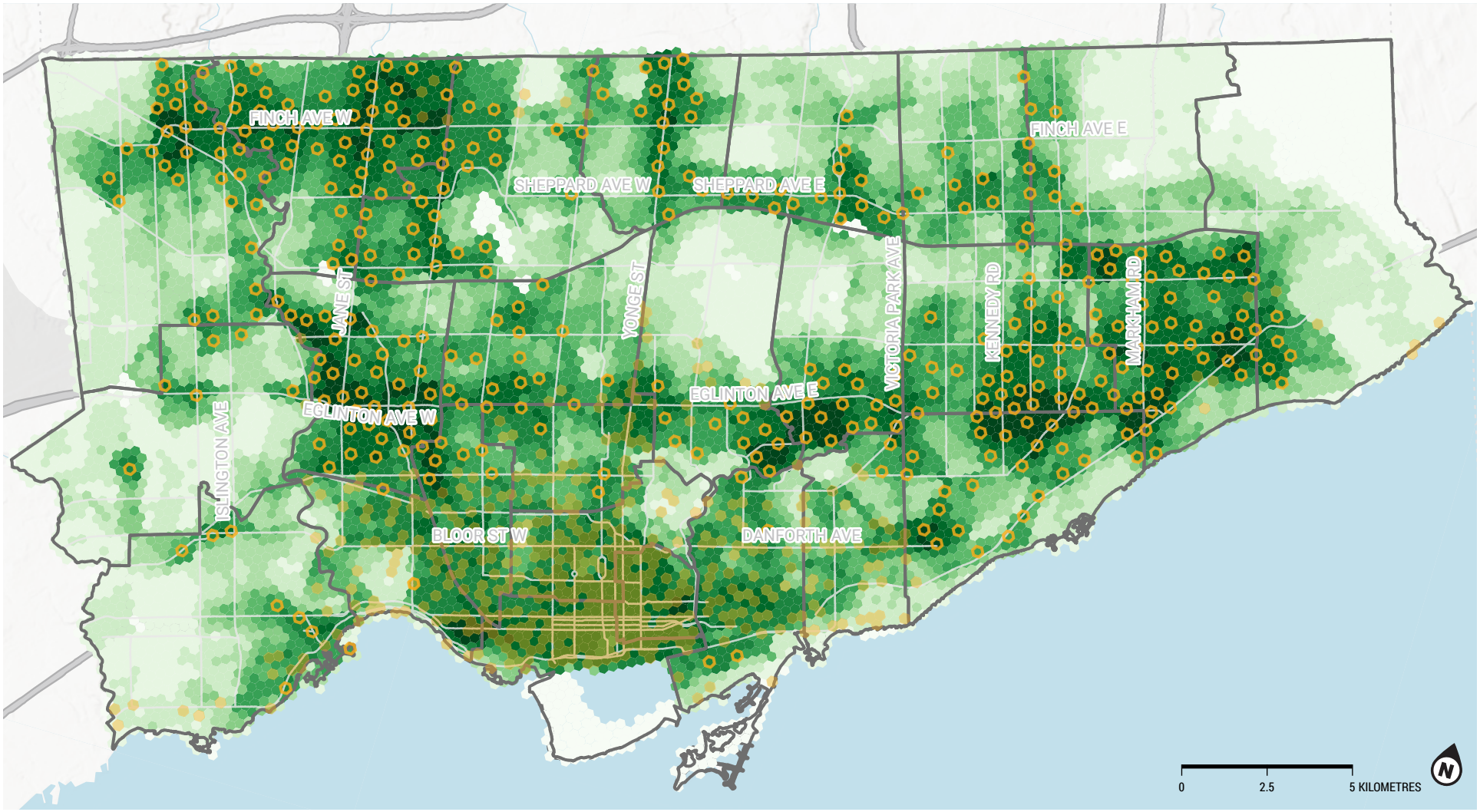
Table 2. Scenario Evaluation Matrix

Scenario Name	Limited Islands	Station Density	Geographic Spread	Strategic Expansion
Balanced	○	○	◐	◐
Access and Revenue	○	◐	◐	○
Equity First	◐	●	○	◐
High Utilization	○	○	◐	○
Future Focus	●	●	●	●

○ Did not meet criteria
◐ Somewhat met criteria
● Met criteria

Map 5. Future Focus Scenario

Part 3 of 4



Future Focus Scenario

Bike Share Toronto
Four-year Growth Plan

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Scenario Priority Index

- Higher Priority
- Lower Priority
- Current Bike Share Station
- Proposed Bike Share Station Area
- Wards

The Scenario Priority Index represents the prioritization index score represented by the combination of weights and chosen metrics for the scenario. Proposed Station Areas are allocated based on the highest scoring areas based on the scenario.

The Future Focus scenario prioritizes the future alignment and equity priority inputs as the key inputs to allocate stations. The station areas in the scenario are the output of the tool and are not the final recommendations.

2.4 Scenario Refinement

While the scenario allocation tool located 375 stations using the weighted priority input layers, manual refinement to the proposed station locations were necessary to address outliers in the scenario and contextual considerations that could not be addressed through the automated scenario allocation process. Refinements to the preferred Future Focus scenario were identified using feedback from the TPA, City of Toronto staff, and other stakeholders engaged on the project during the second round of stakeholder workshops. The refinements can be generalized into the following themes:

- Relocating stations that were isolated "islands" to the larger service area (i.e., relocating stations that were beyond 600m from the nearest station)
- Improving station density and addressing gaps between stations in the existing service area
- Creating corridors of connected stations to improve connectivity between segmented zones of the existing and proposed bike share service area
- Aligning stations with opportunities based on feedback, such as upcoming cycling infrastructure, transit, and property development projects where stations could be installed in coordination with other divisions and organizations
- Locations where bike share users have previously requested stations since the last expansion (i.e. bike share user requests received after the 2020 expansion)

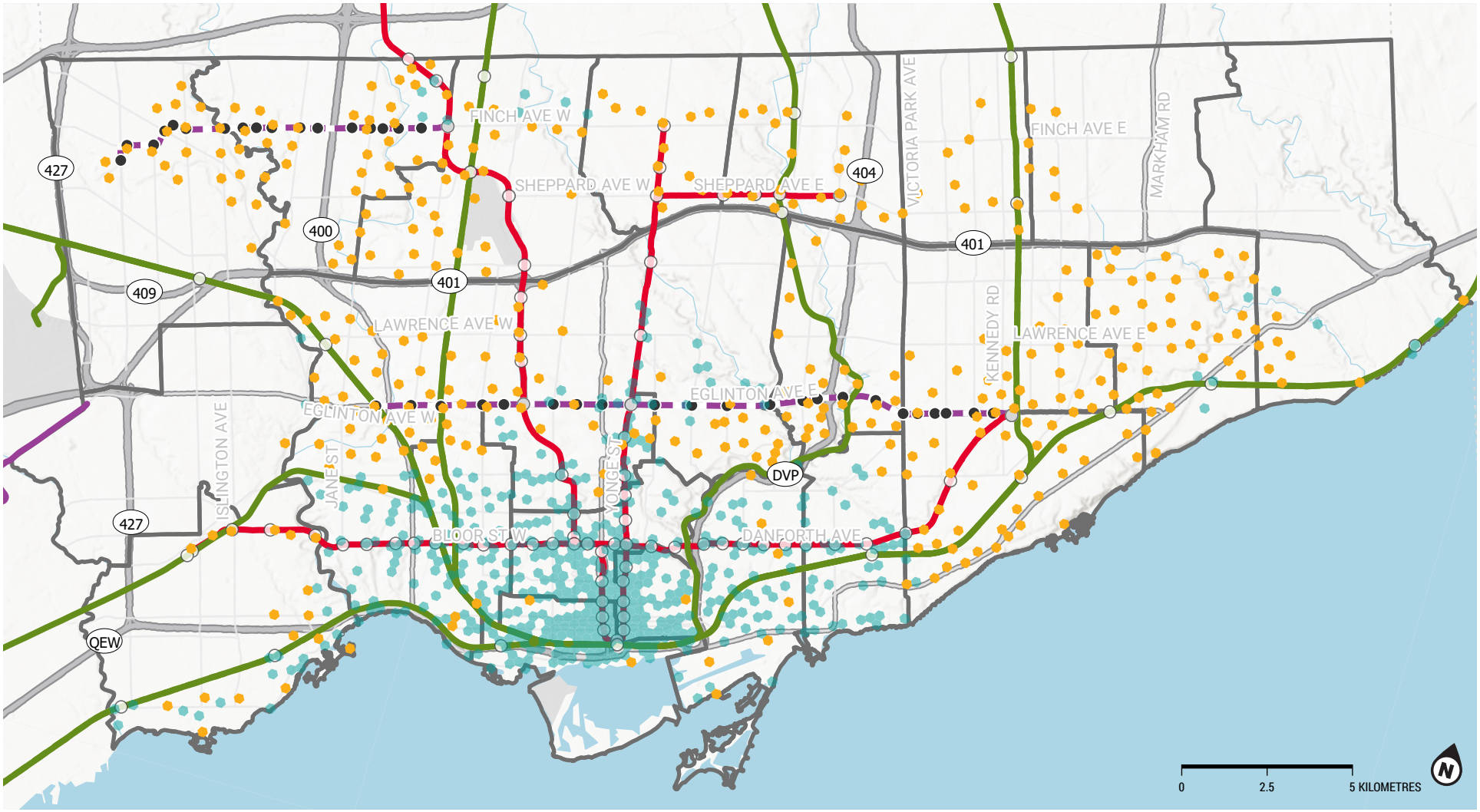
Map 6 shows the modified Future Focus scenario following TPA and stakeholder refinement. It reflects the final iteration of the Four-year Growth Plan that will guide the bike share station expansion from 2022 to 2025. It accounts for 375 new stations over the four-year implementation period.

The Four-year Growth Plan will see the system expand through Weston, up the Humber River Trail, and into Rexdale, Jane and Finch, Humber College in the city's northwest area. The expansion will add more stations around York University, along the Finch Hydro Corridor, and expand service in North York. The system will expand through midtown around Eglinton Avenue. The system will also expand to serve Thorncliffe Park and Flemingdon Park neighbourhoods, as well as throughout many areas in Scarborough.

The schedule of station implementation may be impacted by supply chain issues or other considerations such as major transportation infrastructure projects, right-of-way constraints, or other station site planning limitations. Section **3.1 Implementation Schedule** discusses where stations will be implemented each year over the course of the four years.

Map 6. Refined Station Allocation

Part 3 of 4



Refined Station Allocation

Bike Share Toronto
Four-year Growth Plan

Bike Share Stations
- Allocated Station Area
- Current Bike Share Station

Exist | Future
- Cycling Network
- Transit Station
- GO Rail
- LRT/BRT
- Subway

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Scenario Refinement Outcomes and Planning Objectives

The refined network addresses Bike Share Toronto's planning objectives in the following ways:

Ridership

The proposed expansion supports ridership by expanding where the system operates, enabling more trips to be taken by bike share. Popular destinations and trails are included in this expansion that will attract ridership, including along the Waterfront, Humber, Don, Finch, and Meadoway Trails.

Equity

The proposed expansion supports equity by prioritizing equity-deserving and low-income areas. Only 13 NIAs are currently served by the system, many with one or two stations. The expansion will result in 30 of the 31 NIAs in the City of Toronto being served by the system. Overall, 211 of the 375 stations proposed in this plan are allocated within a NIA.

Revenue

The proposed expansion supports revenue by expanding service along trails where casual members commonly use the system. Revenue is also being considered by expanding and improving service coverage in areas with high ridership demand.

First/Last-mile

The proposed expansion supports first/last-mile mobility by expanding the bike share system to 47 more TTC subway/LRT stations and 8 more GO stations. This brings Bike Share Toronto closer to achieving its 2030 TransformTO objective by reaching 101/138 of all higher-order transit stations (subway, LRT, and GO stations) in the City of Toronto. By 2025, a bike share station will be located at or near every TTC subway station along Line 2.

Accessibility

The proposed expansion supports accessibility by minimizing geographic and topographic barriers to use the system. This includes connecting the existing satellite areas to the main system service area. The expansion focuses on using separated crossings via the Humber and Don Trails to connect the system across Highway 401. Aligning expansion with new bikeway projects will also help to improve access and comfort for riders on major roads that can be considered barriers. Stations have been identified with consideration to where there are crossings to cross rivers and streams. Expanding the availability of e-bikes will help people overcome steep hills.

3 Next Steps

3.1 Implementation Schedule

The implementation schedule provides guidance on how the planned stations should be phased annually from 2022 to 2025. The schedule has been developed to align with key infrastructure projects being completed within the four-year horizon, such as new bikeways and transit projects. The implementation schedule also considers the following goals and strategies:

- Installing at least one station in all of the city's 25 wards by 2024
- Prioritizing the connection of existing satellite areas in Scarborough and North York with the main service area
- Establishing a series of connected stations to cross Highway 401 along safe cycling corridors where feasible
- Filling gaps in the existing service area
- Mitigating the creation of isolated 'islands' of stations from the main service area

Map 7 shows the proposed implementation schedule for the expansion by identifying station areas to be installed each year. **Table 3** summarizes the number of new stations planned for implementation each year of the Four-year Growth Plan.

The expansions in 2022 and 2023 will be focused at expanding from the edges of the existing service area, with a particular focus around Eglinton and Finch Avenues to align with the opening of the Eglinton Crosstown and Finch Avenue West LRT projects in 2023. Stations will also be implemented to connect the existing Scarborough satellite service area. Stations implemented along the Humber River Trail route will connect the York University and North York satellite service area with the main service area. It will also establish a crossing of Highway 401.

Table 3. Planned Station Implementation by Year

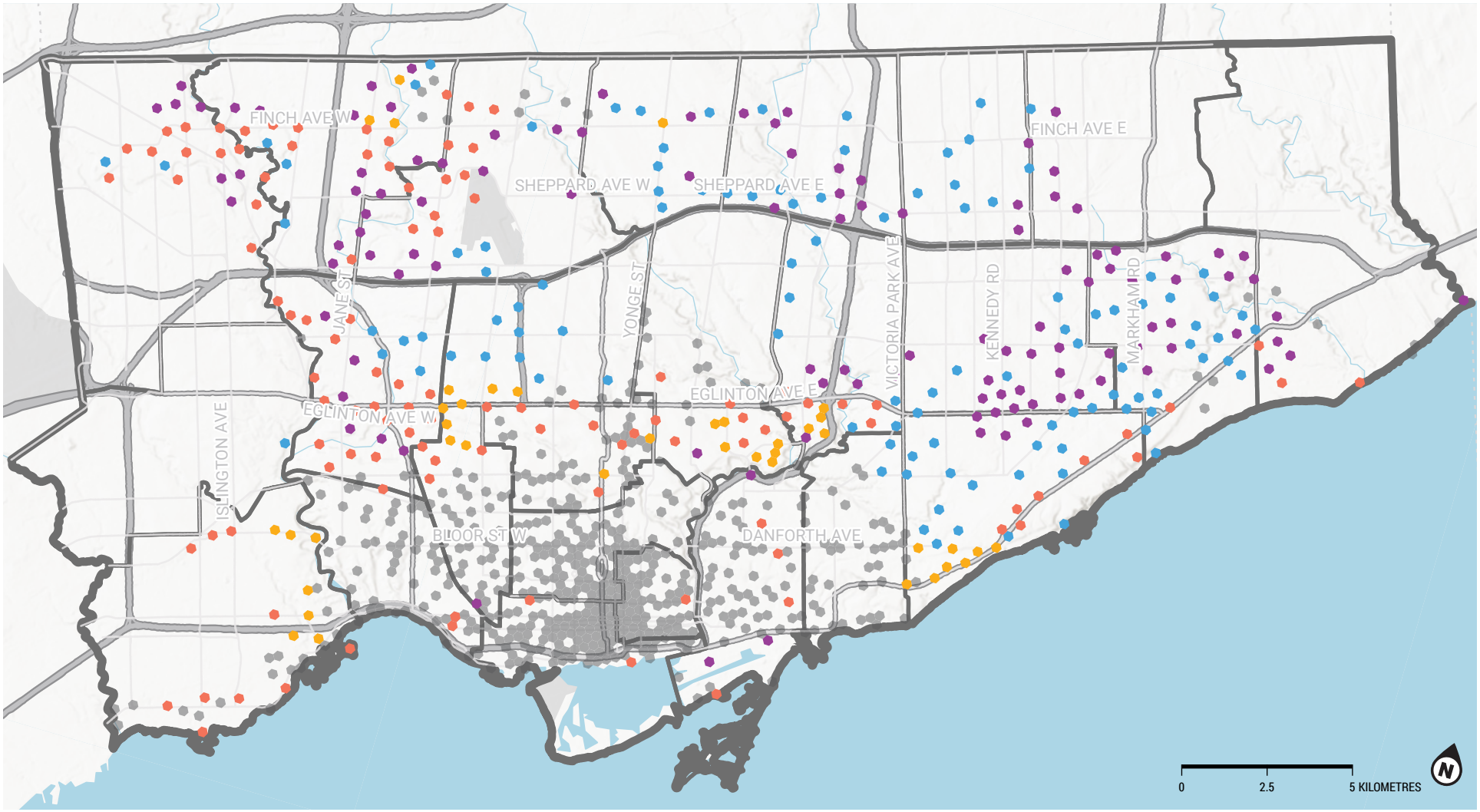
Year	New Stations
2022	40
2023	110
2024	110
2025	115

The expansion in 2024 and 2025 will be focused on extending service across densely populated regions of North York and expanding the system to regions of Scarborough north and south of Highway 401.

As with existing stations in the system, Bike Share Toronto will be monitoring the use of stations in the expansion over time. Stations may be relocated if they do not achieve expected ridership targets. Relocation may also occur due to other site-specific considerations or user feedback

Map 7. Implementation Schedule

Part 3 of 4



Implementation Schedule

Bike Share Toronto
Four-year Growth Plan

Implementation Schedule
- 2022
- 2023
- 2024
- 2025
- Current Bike Share Station

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3.2 Recommendations

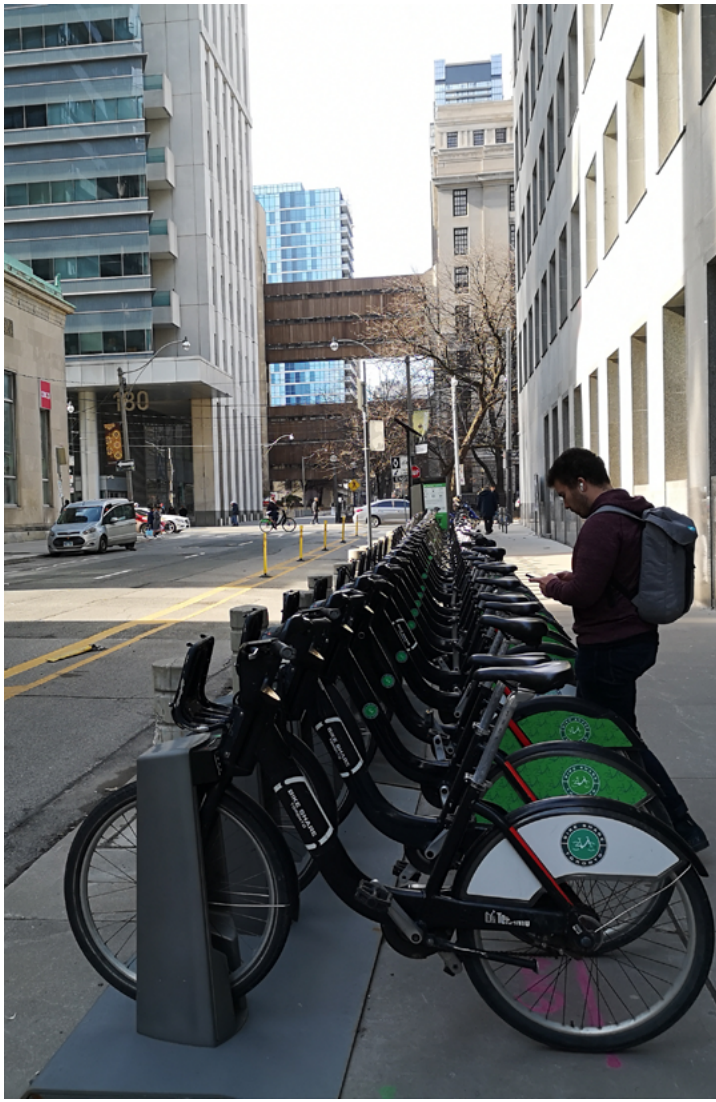
Implementation of the Four-year Growth Plan will require support and partnerships with stakeholders to establish permanent homes for new stations on public or private properties. Implementing stations requires coordination, agreements, and approvals from multiple parties external to the TPA. For example, TPA already works with City planners to identify opportunities for bike share stations in development proposals. Where e-stations are feasible, the process is complicated due to the civil construction works necessary to establish an electrical connection to the e-station site.

The two rounds of stakeholder workshops that were completed as part of this planning initiative were excellent opportunities to connect relevant staff of departments, agencies, and organizations with the TPA.

Stakeholder feedback on successes and barriers to station implementation were collected to identify opportunities to improve station implementation moving forward.

Bike share user feedback collected through the engagement survey and workshops highlighted the value of public feedback on station siting, which will be explored by the TPA in future expansions.

The following recommendations support the Four-year Growth Plan objectives of ridership, revenue, equity, accessibility, and first/last-mile.



1) Work with City Planning to establish parameters for when Bike Share Toronto (TPA) should be circulated on development applications

Create a bike share station guideline document that includes standard station configurations, sizes, and site requirements. This will support stakeholders who are interested in planning for a bike share station on their existing or planned property. The document should address:

- Typical station components
- Standard station configurations and dimensions for both e-stations and solar-powered stations
- Site spacing requirements from other features (e.g., pedestrian clearway, fire hydrants, TTC bus stops)
- E-station power requirements
- Steps to request a station on-site and contact information

2) Develop an interactive online tool to solicit public input for station expansions

Providing an opportunity for bike share users to offer unmatched local knowledge to inform station siting. An online tool can solicit the following information, preferably in an interactive map format:

- Identification of areas for potential new stations
- Requests for revisiting the siting of an existing station
- Operational challenges at existing locations associated with the frequency of bike and dock unavailability
- Identification of upcoming large events that may require bike rebalancing or valets

3) Build ridership around new stations and service areas

Developing a communications campaign can help potential new riders get familiar with the system and could include:

- Mailers to nearby businesses and homes
- Working with local newcomer settlement agencies to identify material translation needs
- Collaboration with the TTC and Metrolinx for promotion of stations near transit
- Education and communications on how to use the service
- Consider innovative approaches such as a youth ambassador program to engage with communities
- Explore new strategies to market and communicate bike share expansion in new communities where the system has never operated

4) Incorporate the updated Toronto Strong Neighbourhoods Strategy (when available) for future station expansions

The Toronto Strong Neighbourhoods Strategy, which identifies the Neighbourhood Improvement Areas used to inform the equity priority input layer, is in the process of being updated. The updated strategy was not available during the planning process of the Four-year Growth Plan. When the strategy is released, the TPA should review it and identify opportunities for future system expansion that ensures equity-deserving populations have access to the system

5) Develop an Operations Strategy to Support the System Expansion

Ensure new and existing stations are effectively rebalanced throughout the day to minimize full and empty stations. Operational improvements should also be considered to maximize the availability of e-bikes across the system.

6) Analyze Ridership to Ensure Station Dock Supply Reflects Demand

Annually assess all bike share stations to determine if the dock supply should be increased or reduced to reflect the local demand. Using this information, the TPA can reallocate bike share station equipment to maximize use and meet system-wide objectives.

7) Explore Implementing Permanent Station Designs

Identify and assess opportunities to pilot stations with docks and kiosks integrated directly into the streetscape (i.e. no aluminum base plates, wired connections are housed below grade).

- Develop standards for this station design
- Seek public or private partners interested in piloting this station design

3.3 Planning Beyond 2025

During the development of the Four-year Growth Plan, opportunities were identified for bike share expansion beyond the 2022-2025 implementation timeframe. The Toronto Parking Authority should continue to work with relevant stakeholders to ensure that space is protected during the site planning and design processes for these long-term projects, particularly where projects are located at or near transit stations.

Future Transit Opportunities

Given the long planning and development process for transit station planning, it is vital that the Toronto Parking Authority participate as a stakeholder in the review of station planning projects. Together with Metrolinx and the TTC, the Toronto Parking Authority should identify opportunities in the design of new transit stations or redesigns of existing transit stations for bike share stations. Particular attention should be made toward identifying opportunities to connect power to bike share stations at or near transit to support e-stations. The Toronto Parking Authority should continue conversations with Metrolinx on the potential to include bike share in their bike parking design standards for station access planning and hold similar conversations with TTC.

Specific transit projects where the Toronto Parking Authority should have a role are outlined below.

LRTs and Subways – Early Stages

- Eglinton Crosstown West Extension (from Mount Dennis to Renforth)
- Eglinton East LRT (from Kennedy Station to Malvern)
- Ontario Line
- Waterfront East LRT

GO Expansion and Smart Track Stations

- Finch-Kennedy, St. Clair-Old Weston, Bloor-Lansdowne, King-Liberty, East Harbour Smart Track Stations
- GO Expansion will improve service on Lakeshore East, Lakeshore West, Kitchener, Barrie, and Stouffville GO Rail corridors with many stations seeing significant service increases to 15 minutes, two-way all-day in future

Other Transit Projects

- RapidTO bus priority corridors

Major Development Projects

Similar to transit opportunities, some large-scale development projects will require bike share to be accommodated significantly in advance of construction. Major projects where Bike Share Toronto should ensure integration include:

- Port Lands (Waterfront Toronto)
- Golden Mile (Daniels Corporation)
- Malvern Mall Town Center
- Projects as identified by Toronto City Planning staff

Stakeholder Desired Areas Beyond This Expansion

During the stakeholder workshops, some opportunities were identified with stakeholders that were not able to be included as part of this growth plan. The following are these locations that may be considered as strategic expansion opportunities or priorities for a future growth plan.

- Toronto Zoo
- Morningside Industrial Park

3.4 Conclusion

The Four-year Growth Plan provides a strategic, comprehensive roadmap for where 375 new stations should be allocated to best achieve a balance of Bike Share Toronto's planning objectives of ridership, revenue, equity, accessibility, and first/last-mile connectivity. The plan has been developed through a comprehensive spatial analysis process. It has been refined and informed through stakeholder and public feedback. The plan will guide the expansion of the Bike Share Toronto system over the next four years (to 2025). The following are some key considerations moving forward as Bike Share Toronto adopts and begins to implement this plan.

- This plan does not provide site specific recommendations for station locations. Future planning and site-specific investigations will be required to confirm specific placement of new bike share stations
- Should there be additional opportunities beyond the 375 stations, Bike Share Toronto will investigate these where appropriate, in alignment with the Four-year Growth Plan
- This plan is not the final plan for the system's expansion. There will be future plans that continue to guide the expansion of the bike share system

Part 3 of 4

Engagement Summary Report

A

Part 3 of 4

Bike Share Toronto Four-year Growth Plan

Appendix A - Engagement Summary

September 2022

Prepared by:
Access Planning Ltd.
Alta Planning + Design

Table of Contents

List of Attachments

- Attachment A.1 – Materials from Stakeholder Engagement #1
- Attachment A.2 – Materials from Stakeholder Engagement #2
- Attachment A.3 – User Survey Results
- Attachment A.4 – User Workshop MURAL Snapshots
- Attachment A.5 – Public Information Session Presentation

1.0 Overview of Engagement

The Bike Share Toronto Four-year Growth Plan is informed by input collected from municipal partners, stakeholders and members of the public through a number of engagement events. This document provides a summary of the engagement events that were undertaken with stakeholders and the public, as well as the feedback that was collected at each session. An overview of the stakeholders (both external and the public) that were consulted as part of the development for the Four-year Growth Plan are outlined in **Figure 1** with touchpoints identified in **Table 1**.

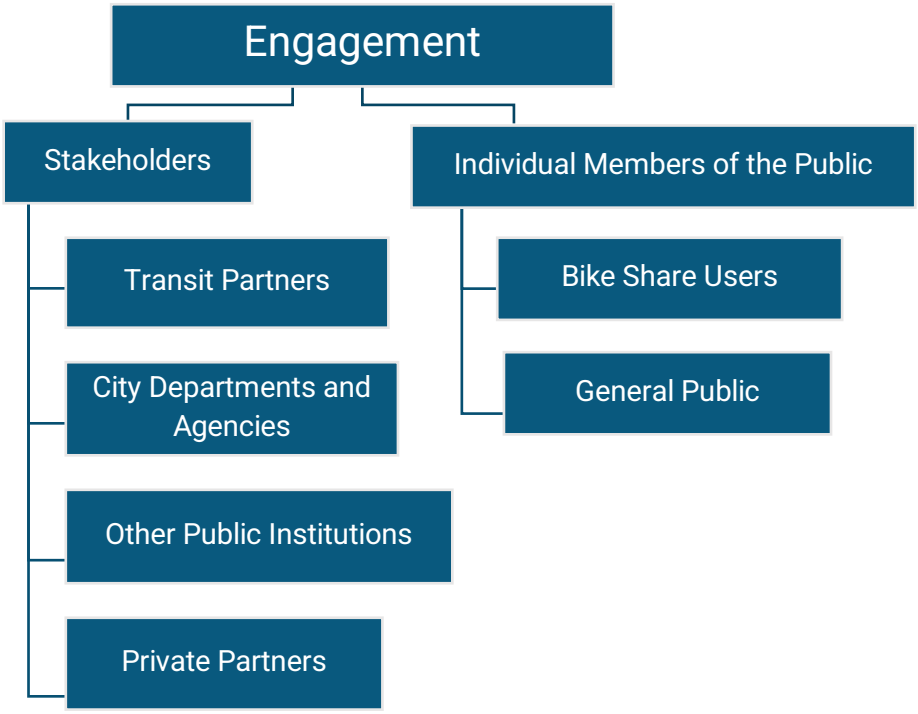


Figure 1. Stakeholder Map

Feedback from stakeholder and public engagement was used to refine outputs from the spatial analysis including proposed areas for system expansion and the implementation schedule over the next four year. The feedback was also used to better understand challenges and opportunities that could impact implementation of the Four-Year Growth Plan as well as other long-term projects beyond the horizon of this plan. A key outcome of the engagement process that was deployed for the Four-year Growth Plan was the development of relationships between Bike Share Toronto staff and various stakeholder groups. The engagement touchpoints were an opportunity for stakeholders to develop a better understanding of Bike Share Toronto's plans and efficiencies for working together.

Stakeholder Type	Group	Touchpoint(s) (2022)
Organizations	Transit Partners	Engagement #1 April 13 Engagement #2 July 13
	City Departments and Agencies	Engagement #1 April 13 Engagement #2 July 11
	Other Public Institutions	Engagement #1 May 2 Engagement #2 July 14
	Private Partners	Engagement #1 May 5 Engagement #2 July 15
Individual Members of the Public	Bike Share Users	User Survey – May – June User Workshops (2) – July 25 and 26
	General Public	Public Information Session – August 8

Table 1. Summary of Engagement Touchpoints

2.0 Engagement by the Numbers

8 stakeholder meetings

177 user survey responses

4 stakeholder groups

2 user workshops

22+ user workshop attendees

50+ stakeholders invited

80+ public information session attendees

3.0 What We Heard

Stakeholder and public feedback shaped the Four-year Growth Plan by validating the output of the spatial analysis and identifying gaps or missed opportunities for system expansions. Findings are grouped thematically below, with further detail found in **section 4.0.**

Understanding that the scope of the Four-year Growth Plan is related to the expansion of bike share over the next four years, findings outside of the scope (i.e., beyond 2025 or feedback on bike share operations) are still presented here to inform future policy, operational, and strategic work. The bullet points below summarize what was heard during the full engagement program for the Four-year Growth Plan.

Spatial Implementation of Bike Share Stations

- There is opportunity for alignment of expansion planning with other ongoing City and TTC initiatives:
    - Toronto Poverty Reduction 2023-2025 Action Plan
    - Cycling Network Plan (2022-2024) and further long-term planning (particularly as it relates to safe or protected Highway 401 crossings)
    - RapidTO Corridor Implementation (such as Jane Street)
    - State-of-good repair roadworks (opportunity to assess potential hydro connections)
    - The TTC's top 20 intersections for boardings are targeted for customer experience improvements; potential to align bike share stations expansion to better support these intersections
- North York General Hospital, Downsview Park, Centennial College (Ashtonbee Campus connection to the Eglinton Crosstown), and Humber College (north campus) can see immediate benefit from bike share implementation. York University's pilot can be supported through greater expansion to nearby amenities, such as grocery stores.
- Existing and upcoming trail networks (such as the Meadoway in Scarborough) can be places to introduce and socialize bike share in areas that have a lower cycling-for-transportation mode share.
- Stations should be placed to support recreational rides in places like Tommy Thompson Park and on the Beltline Trail.
- Continue to reach out to and push for collaboration with Toronto Hydro in support of e-station allocation.
- When placing stations to support access to transit, consider strategic placement to relieve pressure on TTC feeder buses to subways (i.e., placing a station 1-2km from a subway and one at the subway station to give riders who would otherwise take an at-capacity bus another option).

Map of Stakeholder Input

Stakeholders provided input regarding opportunities for siting bike share stations in both rounds of stakeholder engagement. These opportunities are summarized in **Figure 2** and have been used to inform the final recommended areas for expansion in the Four-year Growth Plan.

Site Planning and Design

- The complexities of transit station planning, design, and procurement require consistent and open communication between the relevant project teams and Bike Share Toronto. In the immediate future, SmartTrack stations should have input from Bike Share Toronto via Metrolinx. A guidelines document that outlines exact spatial needs of bike share stations can be developed and provided as a tool for transit station planners and designers across TTC and Metrolinx.
- Although major developments like the Golden Mile will not be completed within the timeframe of this expansion plan, site plan work is underway now and the window of opportunity for bike share input is closing. Consider allocating resources for reviewing site plans and discussing station requirements for large scale developments that are further out to ensure space is preserved.
- The TTC reviews site plans and works closely with developers building near stations; there is an opportunity for a continued collaboration between Bike Share Toronto and TTC so bike share requirements can be integrated in TTC conversations. Similarly, bike share can provide an alternative to some GO-TTC double-fare trips, such as York University students who arrive at Pioneer Village station via GO and need to pay a full TTC fare to get to campus on the subway.

Operations and Communications

- Consider developing a culturally and context-sensitive promotional campaign for bike share when expansion comes to new areas of the City. Consider working with local community groups and newcomer organizations to identify translation needs and critical questions from the community.
- Stations near the edge of the existing service area are frequently full/empty (i.e., not useable for ending/starting a trip, respectively). Consider usability of edge stations during expansion planning.
- Consider ease-of-use for tourists and others who are new to the system; scanning the QR code on a bike with a phone camera could link users to a “how to sign up for Bike Share” page vs. an showing an error.
- When procuring bikes, consider greater cargo capacity and bikes that are more accessible to shorter and taller riders.

Pricing and Memberships

- Consider pricing options that support more recreational use. Users, private partners, and public partners, particularly those located in areas outside the existing bike share service area, all re-iterated how longer pricing windows could support longer and less stressful trips for recreation. Consider that 45 minutes is not as easy to mentally calculate as a 60 minute pass; therefore ease of use may increase if the maximum time limit is changed.
- An individual hour-long pass would be useful for recreational rides with friends (i.e., a short-term pass, not an annual one).
- There is potential to encourage post-secondary students to use bike share as a commute option, however the restrictive policies for under-18 riders will need to be revisited.
- For riders using short-term passes (i.e., not annual members), paying “double fare” when using bike share to connect to TTC is not an affordable option. Consider continuing conversations on integration of fares or payment technology with the TTC and PRESTO.
- The overage fees don’t have a grace period and can be off-putting to first-time riders. Consider a grace period for new riders.