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REPORT

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Date:
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OTTAWA-GATINEAU BIKE SHARE FEASIBILITY STUDY
Final Report, July 2025

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1. EXECUTIVE SUMMARY

Bike share systems provide affordable, easy access to a fleet of bikes, on a pay-per-use basis. Across North America, data shows that 74% of users of shared bikes and scooters use these devices to connect to transit. In the National Capital Region, bike share is a key missing piece of the region's transportation network. Bike share can offer a practical, on-demand, low-cost, and low-carbon mode of transportation that extends and enhances the transit system, connecting residents and visitors to key destinations. Though Ottawa-Gatineau's cycling infrastructure is strong and growing, other barriers to cycling still exist, including access to bikes, limited quality of bike parking at destinations, ongoing bike theft, and the convenience of one-way and intermodal trips.

Between October 2024 and May 2025, the City of Ottawa, Ville de Gatineau, National Capital Commission, Société de transport de l'Outaouais, OC Transpo, EnviroCentre, MOBI-O, and the Ottawa Climate Action Fund came together to assess the feasibility and many benefits that bike share would bring to the region. Led by Mobycon, the core partner team developed a vision and objectives, evaluated an initial service area, discussed governance models and financing, and an implementation plan. The study, led by EnviroCentre and Mobycon, included benchmarking and interviews with peer bike share systems, mapping and travel modelling, and financial analysis to demonstrate the value of bike share in the National Capital Region.

This report maps out a bold and practical plan to bring bike share back to the region!

The partners established the primary objectives for the system that guided the development of this plan. They agreed on the following goals and objectives for a regional bike share system:

Support a **multimodal transportation system** that **complements public transit**, helps grow transit ridership, and gives people **more options** to get around without a car.

Provide a **reliable service** that is available on demand and is designed to **last.**

Supports the people who need mobility options most by locating in **equity**-deserving areas and offering **affordable** pricing.

Reduce car trips in the region, **reducing congestion** and lowering the region's transportation-related carbon **emissions**.

Key Findings

The goal of this feasibility study was to assess the optimal launch scenario, including the system size, station density, and types of bikes that would be required for a regional, interconnected system. Governance models for the system were reviewed, with three options discussed for further consideration. The process included modelling scenarios leveraging existing data from the Canadian census, the 2022 origin-destination survey, weather data, and historical ridership from bike share systems in Montréal and Toronto.

Mapping was used to visualize predicted demand across the region, and four lenses (equity, trip conversion potential, popular destinations, and future growth) were developed to establish and refine an **initial service area** for the system. The size of the proposed area and fleet is based on benchmarking with peer systems, the region-specific goals and objectives for the system.

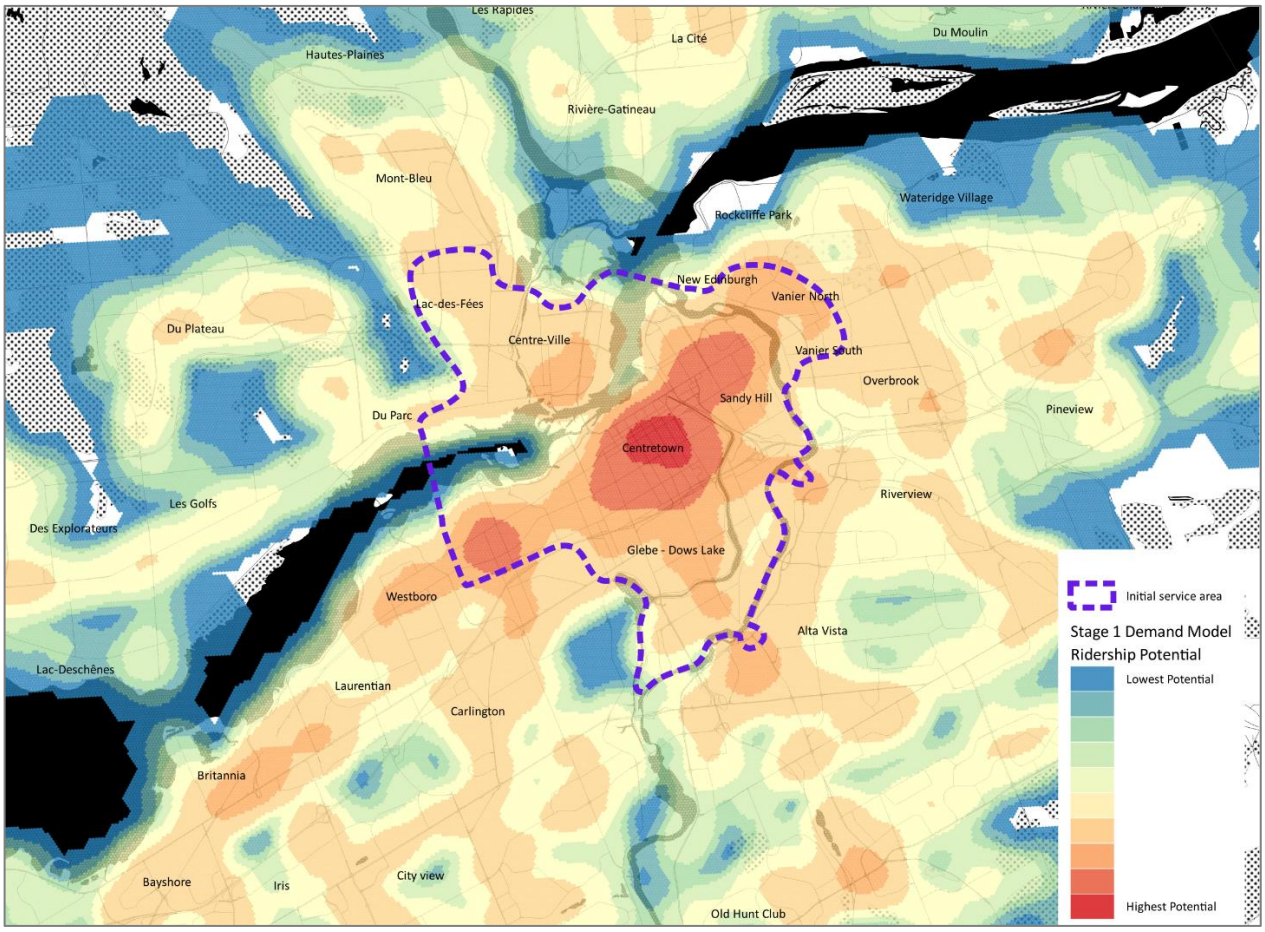

Figure 1: Proposed initial service area overlaid on ridership potential

The proposed size for the launch of the system is 1,200 bikes and 115 stations. Ottawa would launch with 900 bikes and 90 stations, and Gatineau with 300 bikes and 25 stations, serving an area of 30 km^2. This initial service area encompasses major employment areas and tourism destinations, four universities, 16 rapid transit stations, and six interprovincial bridges (including one exclusively for pedestrians and cyclists).

Within this network size, two launch scenarios were considered further:

- **Scenario 1:** launch with a fully non-electric fleet of bikes
- **Scenario 2:** launch with 20% of the bikes and stations electrified

Many other factors were considered and are discussed in detail in this report and summarized in Table 1. Financial estimates of costs and revenues were developed by benchmarking against other bike share providers and considering factors such as market uncertainty and inflation. The estimated total, regional ridership, and financial

cost for a mature, eight-month service is summarized in Table 1. It is important to note that the estimates for ridership are valid for a "mature" bike share system, which is defined as having achieved the status of being a well-established and trusted component of the transportation network. These estimates apply to the entire region, with costs allocated among jurisdictions. In this report, total costs are distributed with 25% assigned to Gatineau and 75% to Ottawa.

Table 1: Summary of bike share factors considered

Year-round operation	• Benefits: consistent and reliable mobility for users year-round • Challenges: costs, lower average ridership, reduced performance of e-bikes • Peer systems: Hamilton and Toronto have operated year-round since inception; Québec City's system is currently a six-month service and BIXI Montréal has an ongoing winter operation pilot with a reduced system size. • Year-round operations should be explored as part of the system design and/or expansion, in collaboration with system operators.
E-bikes	• Benefits: popular, provide access for more people • Challenges: additional costs and implementation complexities • Peer systems: Toronto, Montreal, and Washington have added e-bikes to their fleet, Québec City's fleet is entirely e-bikes, and Hamilton expects to add e-bikes in 2025. • E-bikes are explored as an option for the system launch. Even if e-bikes are not included in launch, they should be added soon afterwards.
Equity	• Benefits: provides affordable transportation in locations and at times (such as late at night) that may be under-served by other modes. • Peer systems: Hamilton Bike Share's "Everyone Rides" initiative operates as a separate non-profit organization offering highly subsidized bike share memberships, access to adaptive cycles, and cycling education. • Equity was one of four lenses used to determine the initial service area and should be considered in system planning (for example, reduced price memberships such as OC Transpo EquiPass and STO ECHO Pass and provide adaptive bicycles).
Mobility Choice	• Benefits: bike share extends the mobility ecosystem giving people more transportation choices, increasing transit access, and reducing car dependency. • Other systems: according to the North American Bikeshare and Scootershare Association (NABSA), as of 2024, 111 North American cities have concurrent bike share and shared e-scooter programs and 74% of riders reported using shared micromobility to connect with transit. • The study examines how bike share can be integrated with other modes such as by co-locating bike share stations at transit stations and near car-share services.
Expansion of the system	• Benefits: an expanded system will provide bike share access and benefits to more residents. • Peer systems: Toronto has gradually expanded bike share such that it now reaches every ward of the city and BIXI Montréal is now expanding to surrounding municipalities. • The study examines the size necessary to establish a successful system while remaining manageable for initial operations. A key recommendation of this study is the development of an Expansion Plan after launch that creates a roadmap for future growth of the system.

Table 2: Estimated ridership and financial cost

		Scenario 1: Fully non-electric fleet	Scenario 2: 20% electric fleet
Estimated mature annual ridership		451,000	462,000
Daily ridership		1,400 to 2,200	
Equipment purchases and one-time launch costs		$11.7 M	$13.4 M
Average annual operating cost (first five years)		$3.0 M	$3.4 M
Annual public investment	**Best case:**	$0.45 M	$0.51 M
	Worst case:	$2.0 M	$2.2 M
Estimated five-year net present cost		$18.6 M	$21.0 M

While the ridership estimate for Scenario 2 was based on the demand modelling work, the methodology used had limitations in its ability to adequately predict e-bike demand. To balance this, a sensitivity test was performed on Scenario 2, applying an assumption that each e-bike in the fleet will be used for twice as many trips as each non-electric bike (based on experience of peer cities). This sensitivity test yields a ridership estimate of 541,000 and an estimated five-year net present cost of $19.4 M.

Action Plan

In establishing the target system size, initial service area, and estimated financial needs, this study provides the necessary information **to progress the project.** The immediate next steps for making bike share a reality in Ottawa-Gatineau are listed in Table 3.

Table 3: Action plan for implementing bike share in Ottawa-Gatineau

Category	What was explored	Next steps
Governance and Procurement	• **Three possible governance models** were identified based on the peer systems reviewed: (1) Collaborative Model, (2) Third-Party Model, (3) Vendor Managed Model. • **Two main contracts** are typically required (logistics operator and equipment supplier), but the contractual relationships differ based on the governance model.	• **Gatineau, Ottawa, and NCC should determine the governance model** they wish to pursue, which may include gathering further information from potential operators. • Gatineau, Ottawa, and NCC should **collaborate on developing procurement requirements** and documents and use the process to gather **refined costs of different system configurations** such as e-bike composition or winter operation, as well as gather information on fare payment systems. • Gatineau, Ottawa, and NCC should review the **regulatory considerations** presented in this report with their respective legal and risk management staff.

Financial considerations	• Successful bike share systems have a **mixed revenue model** that includes grants, sponsorship, revenue from users, and ongoing public investment.	• Secure internal **capital and operating budgets.** • Identify and apply for **grants** to offset capital and/or operating costs. • Explore and secure **sponsorships.**
Station placement and permitting	• Successful bike share systems have clear processes for delivering stations on public and private property and are **supported by their local jurisdictions** and bylaws. • A **station placement exercise** was conducted to validate the proposed number of stations (115).	• Develop a **clear, simple, and free process** for permitting bike share stations in the public right-of-way in each jurisdiction. • Initiate conversations with **third parties** for bike share stations outside of the public right-of-way (e.g., post-secondary campuses). • Work with **OC Transpo and STO** to permit bike share stations on transit property and develop cross-promotional initiatives.
Partnerships	• Successful bike share systems engage with the public to build a system that **aligns with community interests and needs.** • Partnering with large associations (student associations, cycling clubs, etc.) or major employers (federal governments, municipalities, school boards or health care services) provides bike share systems with a **stable source of revenue** with recurrent memberships.	• Engage **the public**; for example, to gauge interest in aspects of the system such as station placement, e-bike composition, and year-round operation. • Work with **Hydro Ottawa and Hydro-Québec** to outline procedures for station electrification. • Work with **major institutions and employers** to offer corporate bike share memberships or annual passes (e.g., student associations). • Seek **third parties** for sponsorships, special event partnerships, and other promotional opportunities.

In conclusion, this study finds that a publicly supported bike share system serving the National Capital Region:

- Closely aligns with policy objectives of the City of Ottawa, the City of Gatineau, and the NCC to reduce transport-related emissions and **increase the use of sustainable travel modes**
- Can be procured, launched in Spring 2027, and operated for the first five years for a **net present cost of $19-21M**
- Will **strengthen local transit services** and interprovincial travel, by offering seamless connections with transit stations and across interprovincial bridges
- Will serve as a key tool for **urban and downtown revitalization,** offering an efficient and enjoyable option to reach businesses and major events without sitting in traffic and searching for parking
- Can gradually expand to **outer urban and suburban areas**, ultimately serving residents across the region

2. ABOUT THIS REPORT

This report presents the findings of the Ottawa-Gatineau Bike Share Feasibility Study. It lays out a bold and practical plan to deliver an additional option for travelling within Ottawa-Gatineau that will benefit all residents of the region. The report is presented as follows:

- **Section 2** introduces the report and its established purpose
- **Section 3** explains the methodology used to develop this report including consultation with staff, benchmarking with other bike share systems, financial analysis, and spatial modelling to estimate demand
- **Section 4** establishes the foundations for the project, introducing the region's experience with bike share, current policies that are supportive of a publicly funded bike share, and a discussion of the needs bike share fills and where it fits within the larger multimodal network of the region
- **Section 5** presents the findings of the benchmarking review conducted with peer bike share systems
- **Section 6** provides a review of the regulatory framework in which bike share would need to operate across all jurisdictions
- **Section 7** presents the proposed design of the system, including the bike share technology to be used, the fleet size, and the coverage for the initial service area
- **Section 8** presents the predicted ridership for the system along with estimated costs and revenues based on the system design
- **Section 9** identifies the environmental, social, and economic benefits of a bike share system
- **Section 10** provides detailed recommendations for the design and delivery of bike share, including regulatory, permitting, safety, multimodal integration, equity, pricing, and marketing; and discusses options for system governance
- **Section 11** provides a brief assessment of the risks associated with bike share as well as the risks associated with doing nothing
- **Section 12** concludes with a summary of the findings of the report, next steps for the Core Partner Team, and considerations for future phases of expansion

2.1 Purpose of Feasibility Study

The primary purpose of the feasibility study is to **understand the operational and financial requirements for a regional bike share system in the National Capital Region** and to determine the best approach for its implementation. The return of a bike share system in the region aims to support an efficient, convenient, and equitable transportation system, providing affordable, zero-carbon micro-mobility options for various trip purposes and linking to the growing transit system. Recognizing that two previous bike share systems in the region were not sustainable, this study represents an important step in bringing together the City of Ottawa, the City of Gatineau, and the National Capital Commission (NCC) to collaboratively determine the way forward. Ultimately, the study seeks to provide detailed information and implementation recommendations to facilitate informed decision-making by the core partners.

The overarching goals of the feasibility study include identifying best practices and evaluating options for implementing a bike share system in Ottawa-Gatineau, ensuring an equity lens is considered throughout the process. The study examines three different governance models and analyzes the feasibility of each approach,

considering logistical, financial and operational aspects. Furthermore, it aims to support progress toward a regional understanding of what is needed to implement a viable and successful bike share system in the Ottawa-Gatineau area.

This feasibility study was produced by a consulting team led by Mobycon, with subconsultants Baxter Analytics and Brigitte Milord. EnviroCentre served as the primary client for the study, managing the project plan and schedule.

A Core Partner Team (CPT) was closely involved in the development of the study, consisting of staff from Ville de Gatineau, Société de transport de l'Outaouais (STO), City of Ottawa, National Capital Commission, MOBI-O, EnviroCentre, and the Ottawa Climate Action Fund (OCAF). The roles of the CPT were to:

- **Inform the feasibility study** to align with their respective organization's objectives and facilitate internal decision-making
- **Share** their respective organizations' goals, particularities and constraints regarding bike share

2.2 Key Terms Used in This Report

- **Study area:** the area studied for bike share feasibility within the Ottawa-Gatineau Region
- **Initial service area:** the area recommended for the launch phase of the system, to be expanded upon in future phases
- **Core Partner Team (CPT):** the team of staff who guided and informed the project, from Ville de Gatineau, Société de transport de l'Outaouais (STO), City of Ottawa, National Capital Commission, MOBI-O, EnviroCentre, and the Ottawa Climate Action Fund (OCAF)
- **Consulting Team:** the team responsible for developing the feasibility study, including Mobycon, Baxter Analytics, and Brigitte Milord
- **E-bike:** a bike that is motorized with a battery
- **Non-electric bike:** a conventional bike without electric assist
- **8-month operation:** a bike share system that operates only in the eight warmest months of the year (April to November)
- **12-month operation:** a bike share system that operates through the winter months, in full or a reduced size

3. METHODOLOGY

This section describes the process used to develop the findings and recommendations of this report.

3.1 Core Partner Team Meetings

Core Partner Team (CPT) meetings were structured to share consulting team findings and facilitate discussions over key aspects of the design of the system. The goal was to develop a collective vision among the partners and consensus on the system's design. Partners met to identify project goals and requirements for success, discuss the results of ridership and financial modelling, and decide on key aspects of the system design.

The membership of the Core Partner Team included:

- EnviroCentre
- MOBI-O
- Ottawa Climate Action Fund (OCAF)
- City of Ottawa
- Ville de Gatineau
- National Capital Commission (NCC)
- Société de transport de l'Outaouais (STO)
- OC Transpo, represented by liaisons from the City of Ottawa

3.2 Listening Sessions

At the beginning of the project, the consulting team conducted individual consultations with City of Ottawa, Ville de Gatineau, STO, and the NCC to understand each partner's specific perspective, challenges, and opportunities regarding the implementation of a bike share system and the specific information needed from the feasibility study to support the next steps.

At these sessions, partners shared:

- Insights from previous and present experience in bike share
- Expectations for a bike share system in the region and for the feasibility study
- Opportunities, constraints, risks and concerns of their organization regarding the bike share system in the region

3.3 Peer System Benchmarking

Bike share is a well-established concept worldwide, with published research and reports on drivers of demand, operating models, and costs. The consulting team's recommendations emphasize the incorporation of the many practices and lessons learned from established bike share systems rather than developing a highly customized system for the Ottawa-Gatineau context.

Representatives from five peer systems were interviewed to learn from their success and challenges. Table 4 summarizes the selection and rationale for each interview.

Table 4: Peer review – bike share systems benchmarking

Bike Share System	Rationale for Selecting
àVélo (Québec City)	Recently launched in Québec, entirely electric, dock-based system, publicly owned and privately operated
Bike Share Toronto	Large and successful dock-based system in Ontario, publicly owned and privately operated
BIXI Montréal	Large and successful dock-based system in Québec, publicly owned and operated by non-profit organization, similar climate
Capital Bike Share (Washington, DC)	Large dock-based system operating in a single geographic area across multiple jurisdictions (states/federal district), with the presence of other shared micromobility devices
Hamilton Bike Share	Medium-sized hybrid lock-to system in Ontario, publicly owned and operated by a non-profit organization, presence of other shared micromobility devices

Interviews with staff from each system were conducted in an open format with questions covering these different elements, but not limited to:

- **Governance:** how the operating model was selected, key advantages and any limitations encountered, anything staff would do differently if starting over, organizational structure, relationship with transit agencies
- **Regulatory:** specific bylaws and other regulatory considerations, especially for systems operating in multiple jurisdictions
- **Strategy:** the overarching objectives guiding decision-making, approach to equity, and reporting structures
- **System Operations:** approach to e-bikes, winter, rebalancing, marketing, deployment, ramp-up/expansion
- **Financial:** capital and operating costs, launching costs vs annual costs, funding/revenue model, changes in the revenue model and user fees over the year

Insights received from these interviews were shared with partners during CPT meetings and used to inform the financial analysis, governance recommendations, and demand modelling.

3.4 Spatial Analysis and Demand Modelling

This task involved the use of mapping, data, and modelling to identify an appropriate initial service area for bike share as well as to estimate ridership for different options to support decision-making. The detailed modelling process was documented across **Technical Memos 1, 2, and 3**, which supplement this report, produced by Baxter Analytics.

The process of arriving at ridership predictions for the Ottawa-Gatineau bike share system began with the Stage 1 Model, detailed in **Technical Memo 1**. This initial phase involved a regression analysis that drew upon the ridership data from established bike share systems in Toronto (Bike Share Toronto) and Montréal (BIXI). By collecting and analyzing data on population demographics, transit service frequency, and street network connectivity across these two regions, a statistical model was developed to predict a ridership potential index for the Ottawa-Gatineau area using local data. This model generated an expected annual trip activity based on the assumption of a fully developed dock-based bike share network, identifying core areas with the highest potential demand (Figure 2).

While providing a useful first assessment, the memo acknowledged the limitations of this model for precise demand prediction, as other local variables were needed to refine the accuracy (which would be investigated in **Technical Memo 2**).

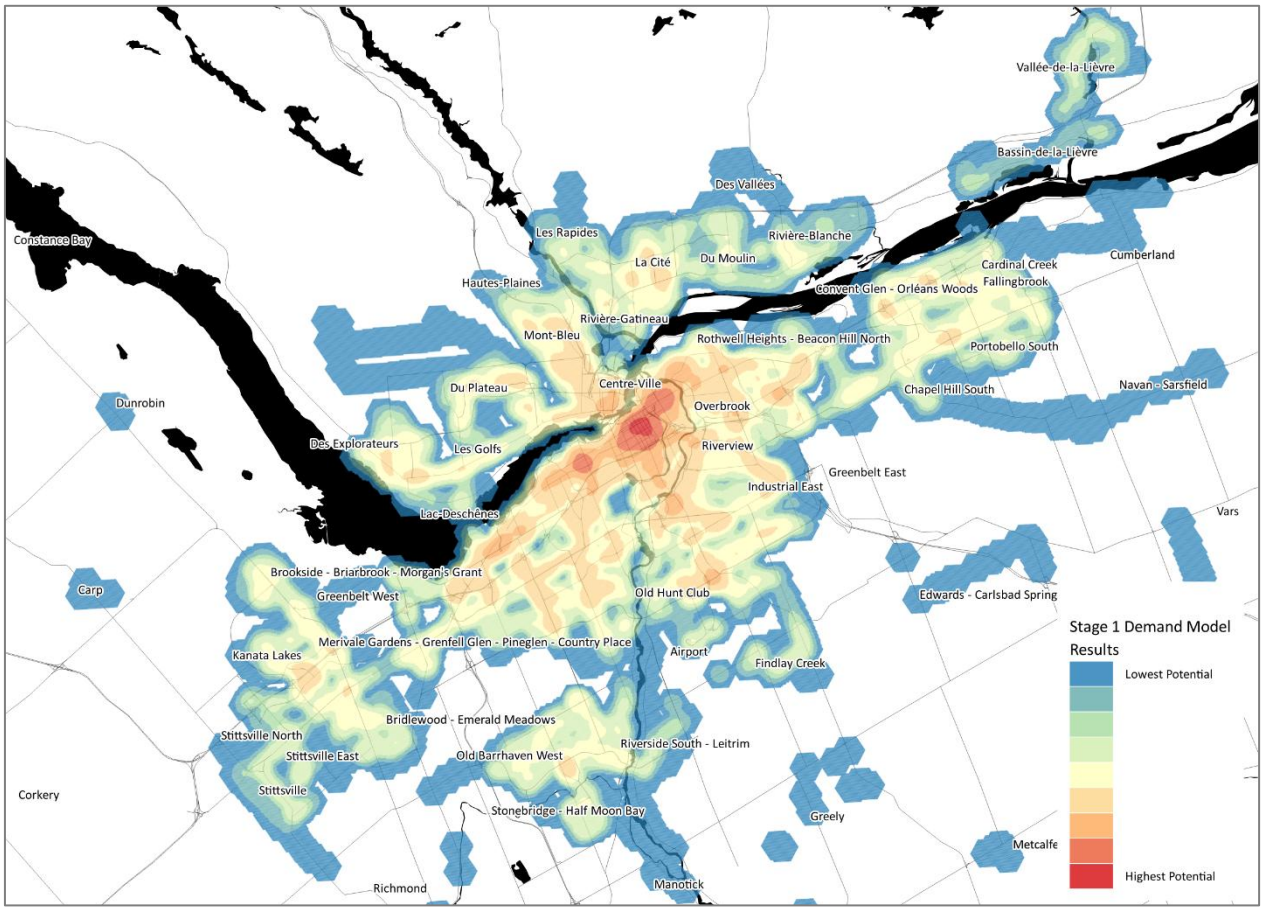

Figure 2: Stage 1 demand model results, applied across the entire study area

Technical Memo 1 also included the development of four "local lenses" that were mapped visually to guide the project team in establishing and refining the initial service area. Maps that visualize these lenses are shown below.

- **Equity:** areas with a higher likelihood of experiencing transportation-related barriers to participation in society. Sources included the *Indice de défavorisation du Québec 2021*, Ottawa's "Equity Priority Neighbourhoods" developed as part of its 2023 Transportation Master Plan policies, and the 2021 Canadian Census (household income).
- **Trip Conversion Potential:** the areas with the greatest number of trips likely to be captured by bike share. The 2022 Ottawa-Gatineau Origin-Destination Travel Survey was used to understand trip volumes, and judgement-based weightings were applied based on existing mode of travel used.
- **Popular Destinations:** local destinations likely to be popular for bike share. The CPT members were asked to provide destinations to a shared map along with a priority level. Waterfront trails were also included.
- **Future Growth:** areas with expanding population and employment, based on a key principle that people are more likely to consider new travel modes when first moving to a new home or job. Population and employment

growth projections to 2046 were provided by the City of Ottawa at the Transportation Assessment Zone level. Unfortunately, population and employment growth projections for Gatineau were not available during the course of this study.

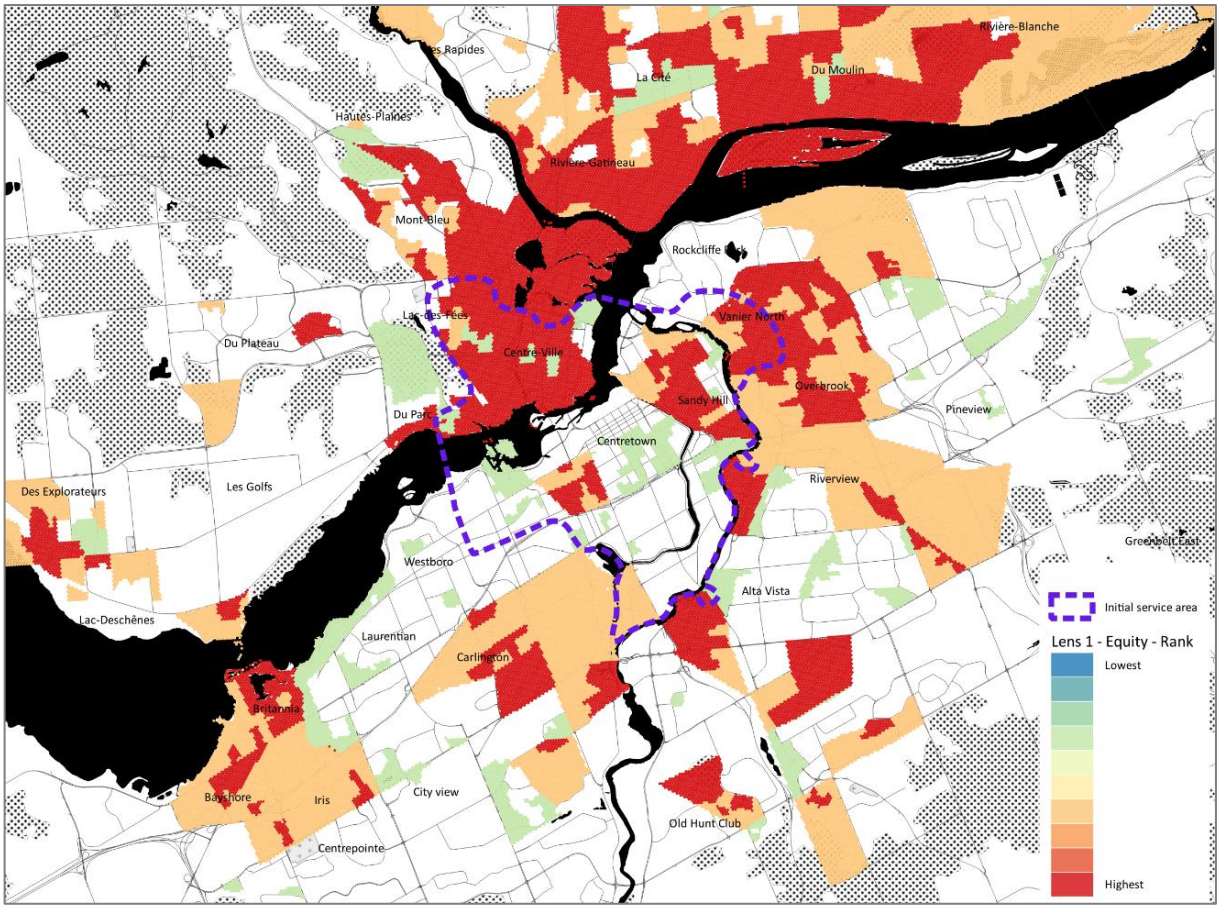

Figure 3: Equity lens (higher rank means a higher likelihood of experiencing transportation-related barriers to participation in society)

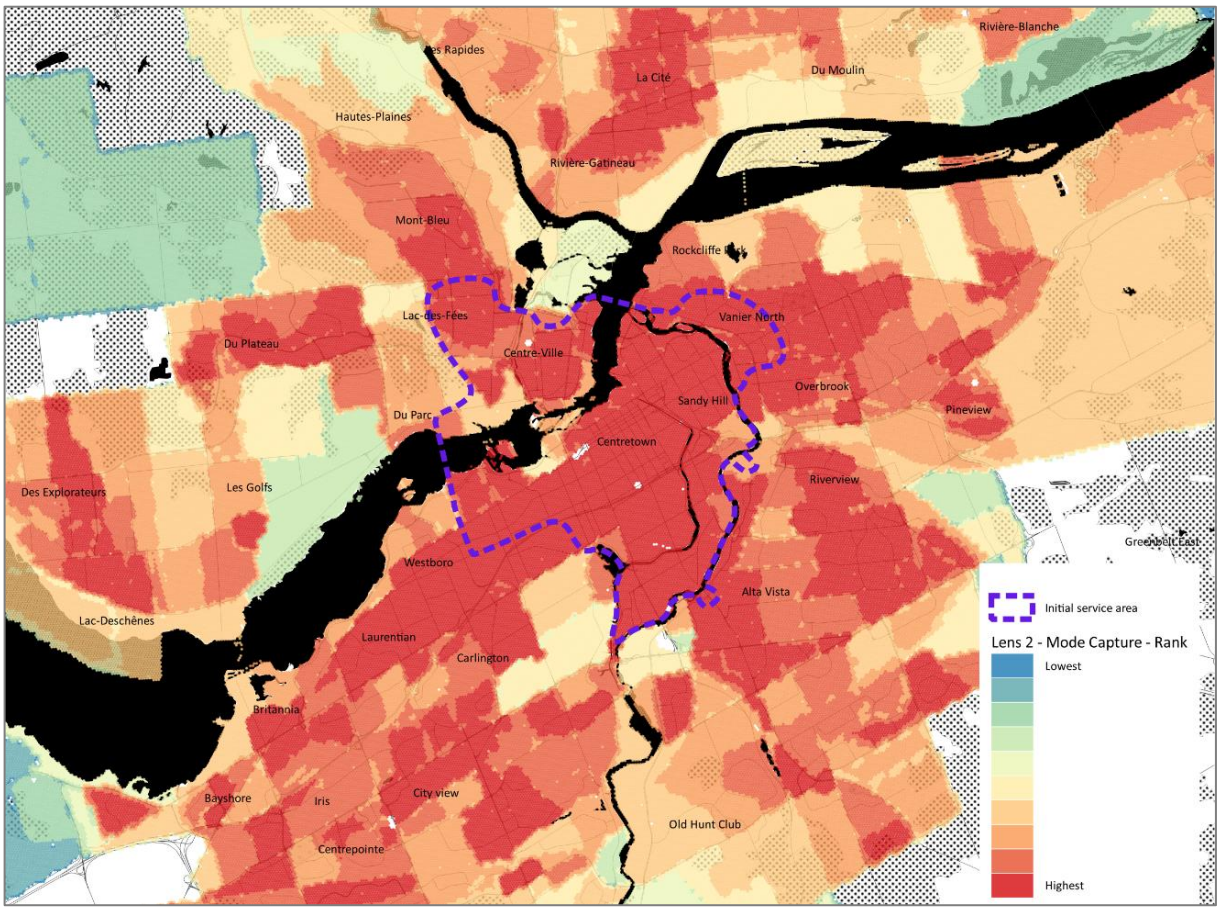

Figure 4: Trip Conversion Potential lens (higher rank means a higher density of short trips that are favourable for bike share trips)

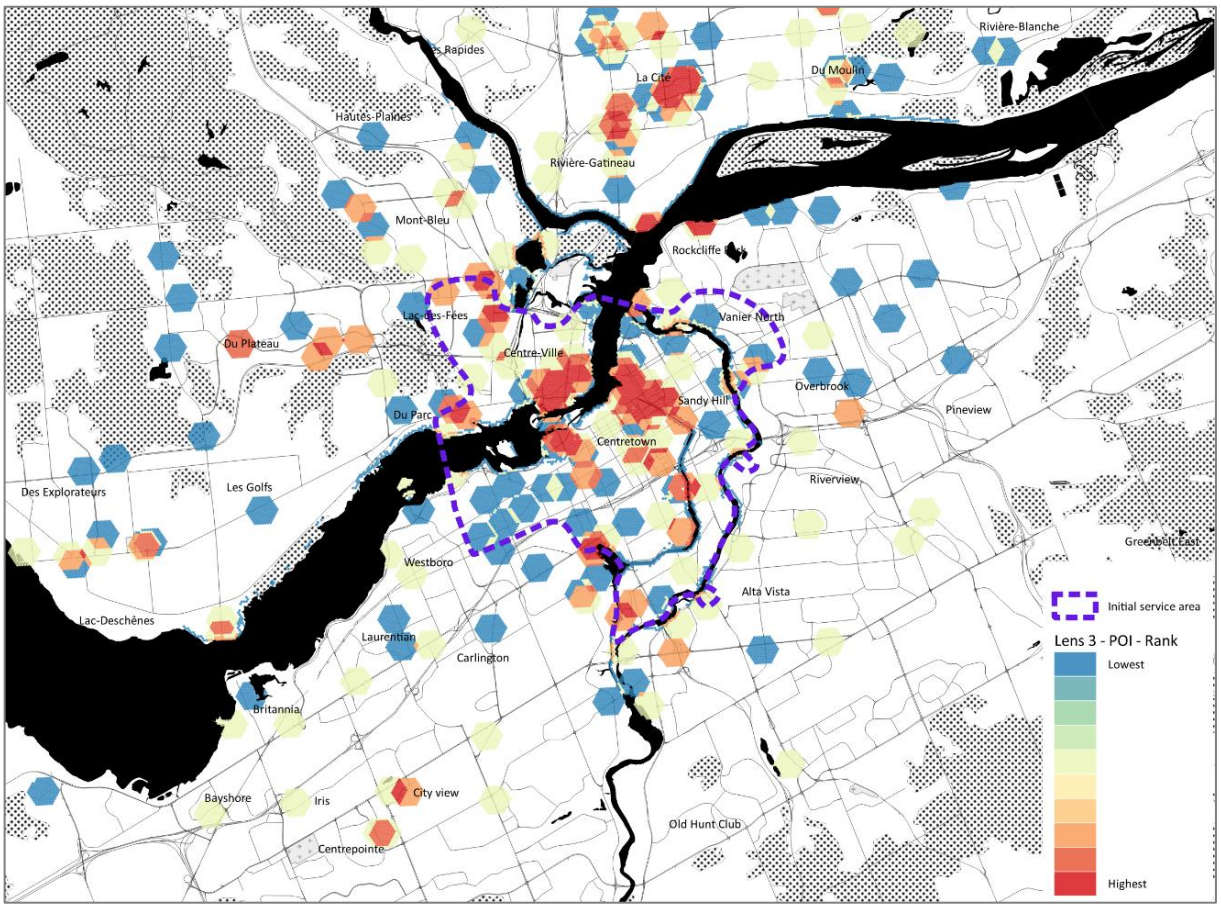

Figure 5: Popular Destinations lens (higher rank means a higher-value point of interest and/or a higher density of points of interest)

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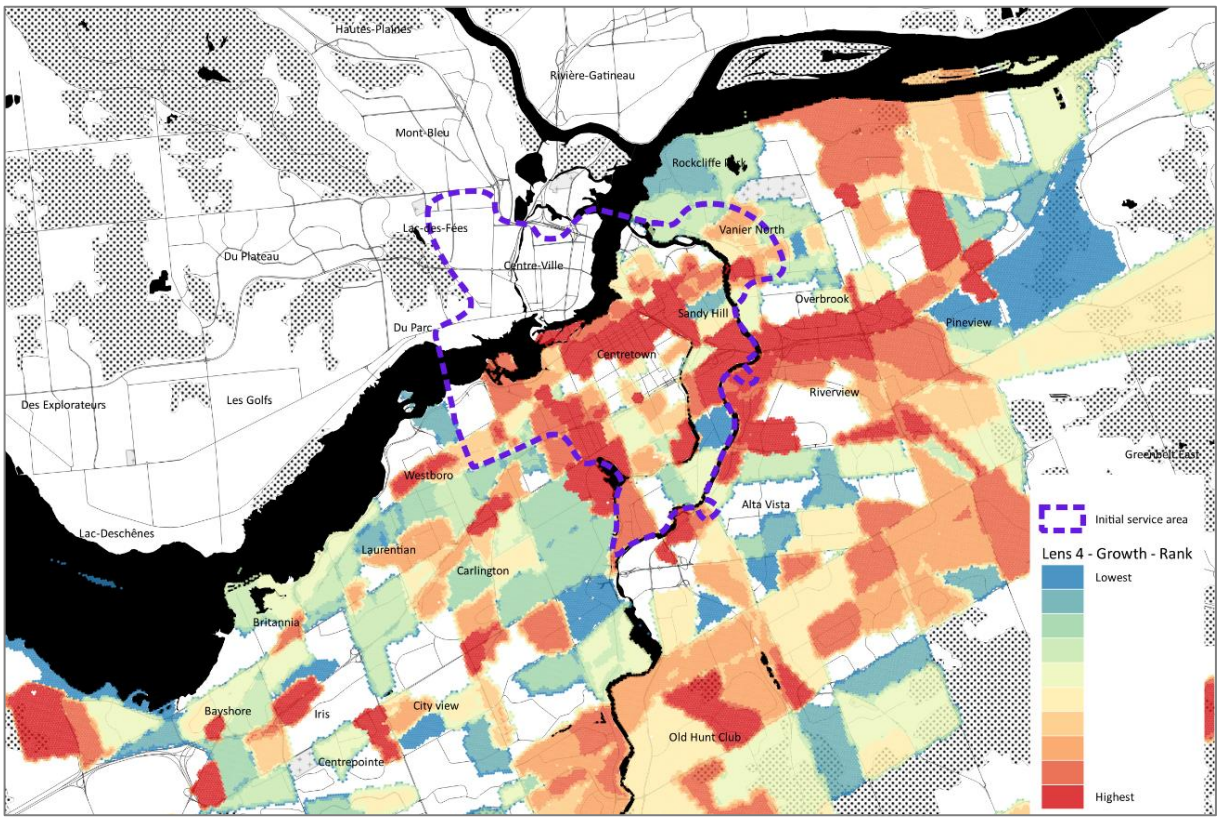

Figure 6: Future Growth lens (higher rank means a higher predicted growth in population and employment)

Building upon this broad geographic demand potential, **Technical Memo 2** delved deeper into the potential sources of ridership by analyzing mode shift and trip distance distributions. This memo assessed which existing travel modes (walking, transit, personal vehicle, etc.) were most likely to be replaced by bike share trips, considering both non-electric bikes and e-bikes. By reviewing literature and analyzing trip data from Bike Share Toronto and the 2022 Ottawa-Gatineau Origin-Destination Travel Survey, the study established probability distributions for mode shift and trip distances for both bike technologies. This analysis generated a weighted potential index for each technology, indicating which type of bike was better suited to the existing travel patterns in the study area (Figure 7). This step helped to understand the potential impact of incorporating e-bikes into the fleet mix.

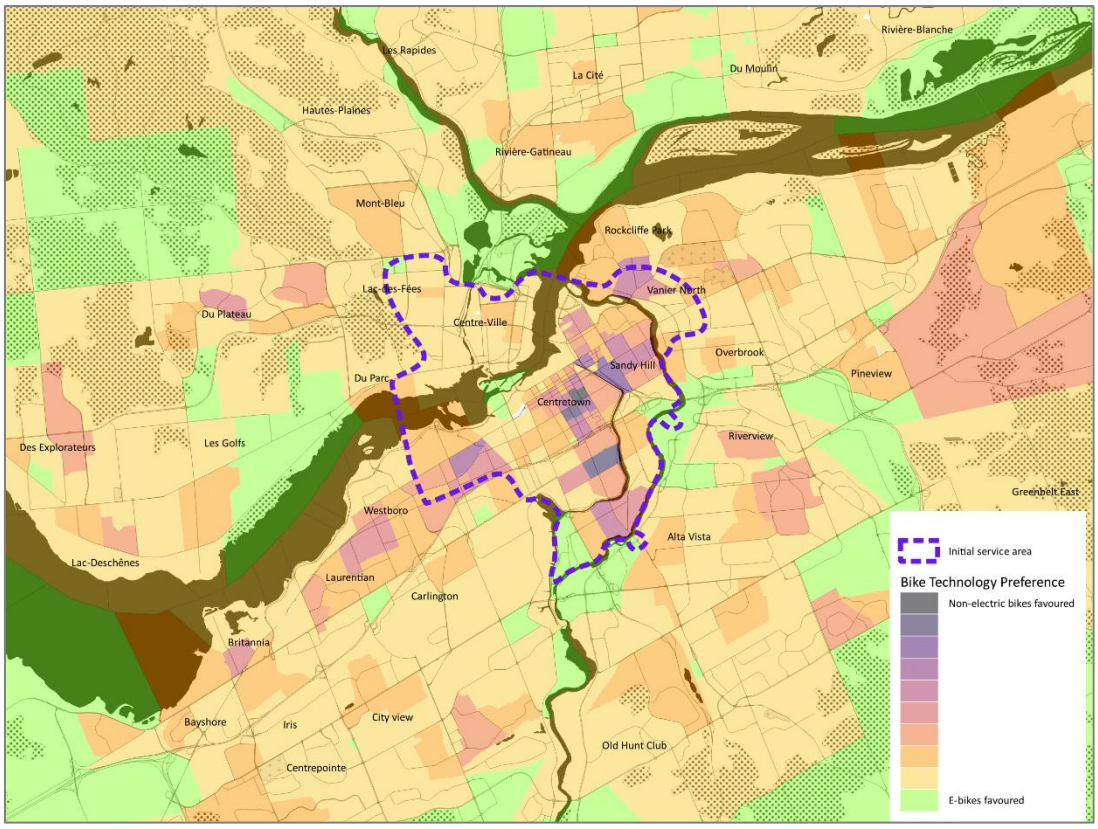

Figure 7: Map showing value of e-bikes by area based on trip characteristics in each zone. Darker colour corresponds with shorter trip distances (and therefore less hypothetical value for e-bikes).

Technical Memo 3 then integrated the findings from the previous stages to arrive at more concrete ridership estimations. The theoretical maximum ridership predicted by the Stage 1 Model was "capped" by comparing it to the available supply of trips identified in the Origin-Destination survey, providing a more conservative estimate. Furthermore, the memo addressed the system's evolution over time by analyzing the ramp-up of ridership in Toronto and Montréal, suggesting that initial ridership in Ottawa-Gatineau would likely be lower than the mature system's potential. Seasonal variations were also modelled using a regression analysis that compared historical daily trips per station in Toronto and Montréal with daily weather fluctuations, allowing for predictions of ridership under different operating season lengths (8 months vs. 12 months).

Finally, **Technical Memo 3** presented estimated mature system annual ridership under different launch scenarios (0% and 20% e-bikes) and operating seasons, drawing from both the capped Stage 1 Model and the weather-predicted results. These predictions were benchmarked against the initial performance of peer bike share systems, showing a comparable predicted daily rides per bike for Ottawa-Gatineau. The memo also discussed the potential for greenhouse gas emission reductions based on the estimated ridership. Importantly, the limitations of the methodologies were acknowledged, with the overall belief that the predictions were more likely to underestimate the system's true ridership potential due to factors like undercounting walking trips and the more extensive existing cycling network in Ottawa-Gatineau compared to when peer systems launched.

The demand modelling process for the Ottawa-Gatineau bike share system faced several **limitations**. Notably, the Stage 1 Model, while providing an initial assessment of geographic demand potential could not precisely predict demand. To compensate, the modelling process incorporated local origin-destination data and mode-shift assumptions in subsequent stages. However, origin-destination surveys tend to undercount walking trips, which could lead to an artificially low estimation of the "supply" of potential bike share users since walking is a major source of converted trips. Furthermore, the analysis relied on historical data from Montréal and Toronto, cities with less developed cycling networks at the time of their bike share launches compared to Ottawa-Gatineau, potentially leading to an underestimation of ridership given the existing cycling infrastructure. The lack of academic literature on e-bike bike share usage also hindered a more accurate assessment of e-bike popularity and its impact on ridership in Launch Scenario 2 (20% e-bikes). Finally, the Stage 1 model did not account for daily trips that start or end outside the core study area and near transit stations, which could represent a further source of bike share demand (trips that could use bike share to connect with transit for longer distance trips).

3.5 Financial Analysis

The financial analysis for the Ottawa-Gatineau bike share system developed cost estimates using data from comparable existing bike-sharing systems obtained through interviews and publicly available reports. The detailed analysis is documented across **Technical Memo 4**, which supplements this report, produced by Brigitte Milord, Economist Consultant. Two main scenarios were analyzed: Scenario 1 with 100% non-electric bikes and Scenario 2 with 80% non-electric and 20% electric bikes. For acquisition costs, a base cost was established based on the surveyed systems.

Recognizing economic uncertainty, a provision for risk was added to these base costs, accounting for inflation and potential tariff impacts. This provision differed across minimum, medium, and maximum cost estimations. The total acquisition cost, including the risk provision, was then allocated between Ottawa (75%) and Gatineau (25%) based on their respective service areas. Operational costs were estimated by deriving an average cost per bike-day of activity from financial data of comparable systems like BIXI Montréal and Toronto Bike Share. A sensitivity analysis was conducted using minimum, medium (with variations for asset maintenance deficit), and maximum cost values combined with different inflation rate assumptions over a five-year period.

Despite the comprehensive approach, the study acknowledges several limitations primarily stemming from the limited and varied data available from existing bike-sharing systems with differing governance models. This made it challenging to directly compare costs and prevented detailed estimations for specific cost categories. For instance, it was not possible to provide more precise cost breakdowns for electric versus non-electric bike operations or for 12-month versus 8-month operations. Furthermore, the analysis could not reliably predict the impact of the current economic situation on maintenance costs. There was also uncertainty regarding the specific cost elements included in the reported unit acquisition costs, such as the cost of connecting to the electrical grid for charging stations. The marginal costs associated with electrification and maintaining services in winter could not be accurately estimated, with total costs derived from average estimates of comparable systems.

Finally, the economic context as of March 2025 was used to calculate the risk provision, and changes in the economic climate could significantly affect the actual costs, especially if the launch is delayed. It is notable that, while economic uncertainty may impact the purchase costs of bicycles, costs of automobile-based forms of travel are likely to be far more impacted.

4. PROJECT FOUNDATIONS

4.1 Historical Context of Shared Micromobility in Ottawa-Gatineau

Bike share systems have previously operated in the National Capital Region. For a new system to be considered viable and ultimately successful, it is essential to learn from past experiences in Ottawa-Gatineau. The key lessons from the historical context are:

- The importance of maintaining **public ownership** of the system, with a clear governance model and **long-term commitment** from partners
- The importance of Ottawa and Gatineau working together to provide a **unified interprovincial system**
- The need to establish a **minimum system size** to provide users with a useful utilitarian network that focuses on residents in addition to visitors
- The need to consider **clear, simple, and free procedures for permitting** bike share stations in the right-of-way

4.1.1 Capital BIXI (2011-2014)

In 2009, Montréal introduced BIXI, the first bike share program in North America. That same year, the National Capital Commission (NCC), collaborating with the City of Ottawa and the City of Gatineau, initiated the Capital BIXI dock-based bike share as a pilot program. By 2011, Capital BIXI was officially launched with 10 stations, which peaked at 250 bikes and 25 stations in 2013, in downtown Ottawa and some in Gatineau [1]. **The NCC's goal was to establish a bike share system, and its intent was to transition system ownership and administration to a private operator once the system had achieved stability.**

At that time, the vision for a bike share system was to enable residents, employees, and visitors of the National Capital Region to explore and appreciate heritage sites and their history while promoting physical activity. It also provided a convenient alternative to automobiles to reduce congestion and the need for searching for parking in the downtown area [2].

In 2014, Public Bike Share Corporation (PBSC) went bankrupt [3] and the NCC changed strategic direction. As the **NCC owned the assets**, they announced their desire to sell the 250 bikes and 25 stations, intending for the bike share system to resume seamlessly in the region, operated by a third party [4]. This led to the establishment of VeloGo (Section 4.1.2).

It is believed that the small network extent in the core of Ottawa-Gatineau and its narrow focus on tourism were key reasons that the system failed to survive long-term.

4.1.2 CycleHop – VeloGO (2015-2018)

When PBSC, the international division of BIXI, filed for bankruptcy in 2014, CycleHop, a Miami-based company, acquired Capital BIXI [5] and re-launched it under the name VeloGo in 2015. This dockless (wheel-lock) bike share system was privately owned and operated by CycleHop. Users could secure bikes to any rack within the municipalities rather than being required to return them to a bike share hub at the end of each ride. Users paid a convenience fee upfront, but would be refunded this fee if they returned the bike to a VeloGo hub. The system launched in 2015 with 300 bikes and 28 hubs across the region and decreased to 18 hubs and 100 bikes two years later during the 2017 season (see Figure 9 for hub locations) [6]. In 2019, CycleHop pulled out of the National Capital, declining to explain why it was not returning [7].

Figure 8. VeloGo and hybrid wheel lock technology (source: VeloGo/Facebook)

Over the course of the feasibility study, partners shared reflections and feedback on the VeloGO service, including:

- The **permitting process of bike share hubs in the public right-of-way differed between jurisdictions** (NCC, Gatineau, and Ottawa). This situation impacted the relationship with the private operator, leading to delays in issuing permits for hub locations and deployments at the beginning of each season.
- The fact that **bikes could be parked anywhere was also problematic** for the municipalities: bikes cluttered the sidewalks, hindering pedestrians, with some falling over and creating a messy appearance in certain areas.
- **The vision for VeloGo was not clear**, leading to confusion about whether the system served more as a **service for residents or as a tourist attraction.**

Figure 9: Season maps – Hub locations [left: 2015, right: 2017] (source: VeloGo Cumulative Report 2015-17 [6])

4.1.3 STO Request for Proposals for Bike Share Feasibility Study (2021)

In 2021, the municipal council of Gatineau asked the Société de transport de l'Outaouais (STO) to take on more responsibilities in the bike share program, reflecting the mayor's political will at that time. The STO issued a public Request for Proposals (RFP) to conduct a feasibility study for a bike-share system in Gatineau but did not receive any proposals.

4.1.4 Ottawa Shared E-scooter Pilot (2021-Present)

2024 marked the successful completion of the fourth season of the shared e-scooter pilot in Ottawa. The pilot began in 2021, when Bird Canada, Lime, and Neuron Mobility deployed a total fleet of 1,200 e-scooters. These vendors were selected through a competitive procurement process. In 2022, 2023, and 2024, Bird Canada and Neuron Mobility deployed a total fleet of 900 e-scooters each year. A final report on the e-scooter pilot in Ottawa was completed in Spring 2025 and recommended the City's continued participation in the Provincial Electric Kick Scooter Pilot Program until 2029.

The City of Ottawa is constantly striving to enhance the e-scooter program and address issues. The City's website reports the following ongoing improvements and changes to the program [8]:

- The City is working with the providers to ensure the e-scooters are equipped with the proper technology to reduce unwanted behaviours such as sidewalk riding and improper parking
- In 2024, the City extended hours from 5 am to 1 am (previously 6 am to 11 pm) to **align with transit operating hours**
- In 2024, the City ensured companies deployed **sobriety technologies** for all rides initiated after 11 pm
- In 2024, the City eliminated the fee of $0.10 per ride it previously charged providers, to ensure the program remains **revenue-neutral** (the City collected more revenues in 2024 than the costs incurred to administer the program)

Discussions with the City of Ottawa during the bike share feasibility study revealed that:

- The e-scooter program in Ottawa is considered successful and widely used.
- The e-scooter program's impacts are limited since it is a for-profit company running the program and only serving high-volume locations. It is important to ensure that the e-scooter and bike share program will serve different purposes and operate as two distinct entities. Section 10.5.2 of this report discusses some of the specific advantages and differences that a bike share program offers relative to the existing e-scooter program.

4.2 Policy Context for Bike Share in Ottawa-Gatineau

This feasibility study examines options for planning a regional bike share system in the Ottawa-Gatineau area. The region's uniqueness stems from its two municipalities located in different provinces: Gatineau, Québec, and Ottawa, Ontario. Furthermore, the National Capital Commission, a federal Crown corporation, owns several lands in the area. In the context of a regional bike share system, this feasibility study should be considered in conjunction with other relevant documents described in the following sub-sections. The policies of all three organizations emphasize the need to support and promote active transportation use and shared mobility options. Bike share can help achieve many of each organization's goals related to transportation, climate, and urban planning.

4.2.1 Gatineau

The vision for the Gatineau ***Plan de déplacements durables (2013-2033)*** prioritizes pedestrians. This plan focuses on increasing the safety, connectivity, efficiency, and convenience of sustainable modes of transportation (e.g., walking, cycling, public transportation, and shared mobility).

As part of the second orientation to prioritize sustainable mobility (section 1, objective 1) in Gatineau, the ***Schéma d'aménagement et de développement révisé (2050-2016)*** aims to increase the use of public transportation and support interprovincial trips by offering various options to the residents, such as shared mobility. Bike share is mentioned as a public transportation solution to reduce car use.

Gatineau's ***Plan directeur du réseau cyclable de la Ville de Gatineau (2018-2024)*** supports a bike share system. Action 2.6 stipulates: "Continue collaborating with the NCC and Ottawa to increase the quantity and utilization of bike share in Gatineau." This action was developed when VeloGo was in operation in the region (until the end of 2018).

STO has also identified in its **Strategic Plan (2017-2026)** that bike sharing is part of the multimodal strategy it wishes to develop to enhance first and last mile options.

Many policies in Gatineau encourage a shift from cars to more sustainable modes, such as public transit and bicycles, while ensuring convenience for these alternatives. (e.g. *Plan Climat, Plan stratégique municipal 2021-2026, Politique des rues conviviales, Politique de développement social, Politique familiale, and Politique de loisir, du sport et de plein air*).

4.2.2 Ottawa

Ottawa's Official Plan (2003-2046) supports active transportation and transit to create a healthier and more equitable city. New mobility options are part of the solution and must be consistent with efforts to establish a more walkable environment and seamless movements across jurisdictions. A policy also states that the City may acquire property and repurpose parts of the street and road network to provide greater access to active transportation and public transport systems.

Ottawa's Transportation Master Plan (2023-2046) was built with the following themes in mind: meet the mobility needs of a growing city, address climate change, create a healthy and equitable transportation system and respond to emerging technologies and trends**.** Policy 4-4 (Leverage the Shared Mobility Marketplace to Achieve City Objectives) supports exploring opportunities to provide bike share and other shared micro-mobility services in Ottawa. The following is mentioned: "Collaboration between the City of Ottawa, Ville de Gatineau, and National Capital Commission on shared mobility services and their regulation will enable more efficient and coherent regional mobility systems."

With **Energy Evolution: Ottawa's Community Energy Transition Strategy**, Ottawa committed to reducing 100% of emissions by 2050. Increasing active and public transportation options, including shared mobility programs, is part of that strategy.

One of the five main objectives of Ottawa's **Municipal Parking Management Program** is to promote sustainable modes of transportation by supporting programs and facilities that encourage sustainable mobility choices. This program is likely to be one of the primary funding sources for bike share.

4.2.3 National Capital Commission

In the **Plan for Canada's Capital 2017-2067**, the NCC defines its role as a facilitator and coordinator of investments in increased connectivity and services. By employing emerging mobility options, including car and bike sharing, the NCC aims to support the integration of travel modes across the region.

The NCC supports a bike share system in the region through its **Capital Pathway Strategic Plan (2020-2030)**. The NCC's fundamental premises for the Capital Pathway network form the basis for planning, design, and management. These premises focus on accommodating and supporting a wide spectrum of active mobility modes (including bike rental facilities), providing access to natural areas and symbolic features in the Capital, and connecting people to major destinations while ensuring a comfortable and safe experience. In multiple objectives of its strategic plan, the NCC mentions the importance of maintaining and building relationships with the City of Ottawa and Ville de Gatineau.

The **Long-Term Integrated Interprovincial Crossings Plan (2022-2050)** aims to explore the feasibility of coordinated interprovincial micromobility sharing programs (i.e., e-scooters, bike sharing, etc.) and highlights the importance of further discussions on roles, responsibilities, and governance to encourage more sustainable mobility initiatives.

4.3 Market Assessment

4.3.1 Who Is Bike Share For?

Many studies in Canada and across the world find that a higher proportion of bike share trips are made by particular groups:

- The most active bike share members in Vancouver BC were more likely to be young, male, have household incomes below $75,000, and live and work near bike share docking stations. These users had fewer transportation options than regular users, with lower odds of having a personal bike or car share membership [9].
- In the Greater Sacramento region, frequent users were found to be individuals with low incomes, students, and non-auto owners, and women were less likely than men to use the bike-share service [10].
- A study of bike share users in Lyon, France, found that a higher proportion of trips are made by men and members aged 20–40 [11].
- BIXI Montréal's assessment of its user base (dubbed "BIXIists") found that 80% have a university degree; more than 70% are between 20 and 44 years old; average household income is $86,000; More than 75% are employed (full-time or part-time); 50% have a personal bicycle, and 40% own a car [12].

During listening sessions and CPT meetings, the partners shared their perspectives on who the bike share system should be planned and designed for in the region:

- People who can't afford to buy a bike, an e-bike, and/or a car (Ottawa's Origin-Destination survey results highlight that household bicycle ownership is lower in the downtown core compared to outer areas)

- People who don't have a secure place to park a personal bike
- People who want to commute by bike
- People and visitors who want to explore the National Capital Region
- People with physical and mental disabilities (with efforts to make it accessible to these users)
- Women and non-binary people
- The bike share system should reach beyond wealthy neighbourhoods and downtown areas
- Teenagers who can't drive and would benefit from another public transportation option

While the highest proportion of bike share users are young males with higher household incomes, many other population groups are interested in using it if the system is geographically and financially accessible and safe. Indeed, bike share systems have the potential to benefit equity-deserving populations, but only when intentional efforts are made in the system design [1] [13] [14]. This can include:

- Offering affordable pricing monthly pass options, and further subsidized options to qualifying individuals
- Closely integrating bike share with public transit
- Prioritizing stations in underserved and disadvantaged communities
- Offering membership options to users without smartphones, credit cards, or bank accounts
- Engaging with the community in the design of the system
- Building partnerships with community-based organizations, for example, to offer learn-to-ride classes (see Bike East Bay program)
- Including bikes that offer electric assist (e-bikes) or other adaptive measures (such as tricycles, cargo-bikes or trailers)

4.3.2 Multimodal Integration

A key strength of bike share is its ability to expand access by giving people the ability to reach more territory, and thus more destinations, in less time [15]. Bike share should be viewed as part of a multimodal transportation system – a combination of modes and options – that together provide a valid alternative to driving. For a resident who does not own a car, bike share could offer time and effort savings over long walking trips, or cost and time savings over local bus trips. **The more alternatives a resident or visitor has to driving, the less likely they are to own and use a car.**

The literature review conducted in **Technical Memo 2** concluded that bike share trips are more likely to replace walking trips (37%), followed by transit trips (28%), personal vehicles (10%), personal bike/scooter (10%), and taxi/rideshare (8%). Six percent of bike share trips are "induced trips," in that they are trips that would not have otherwise been taken if bike share did not exist. This share is shown visually in Figure 10.

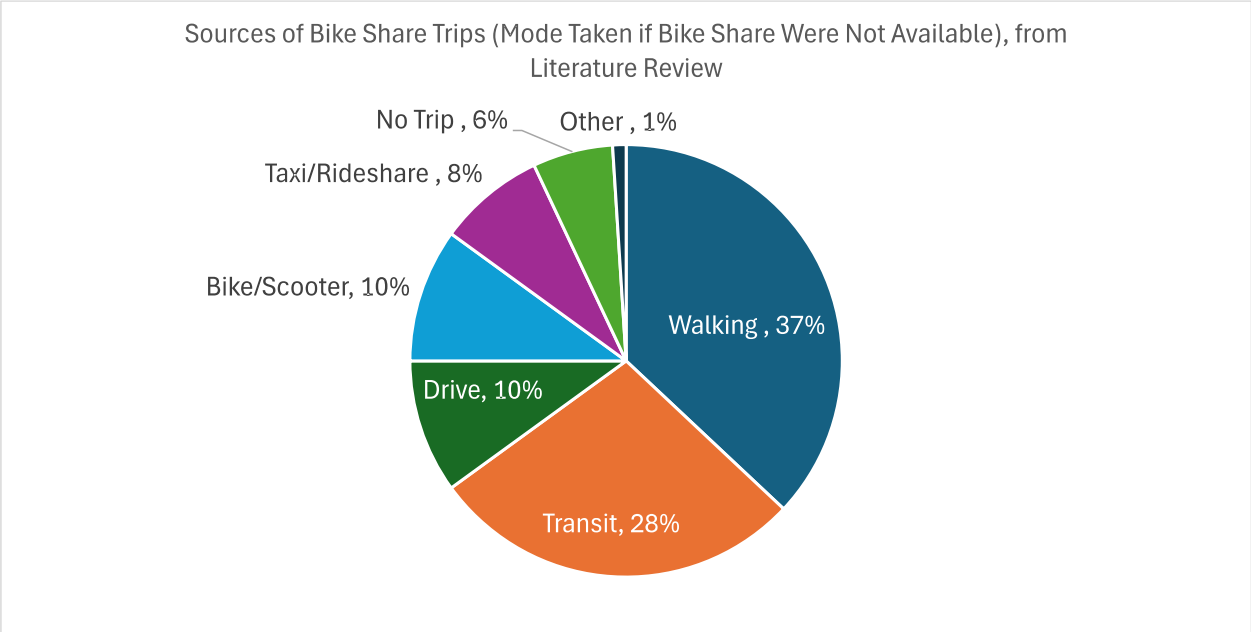

Figure 10: Sources of bike share trips

It is predicted that 28% of bike share ridership would come from trips currently made by **transit**. While this may seem counterproductive, the relationship between bike share and transit is complementary rather than competitive, and bike share can help strengthen transit systems. The North American Bikeshare & Scootershare Association (NABSA) reports that 63% of shared micromobility users used these services to connect to transit [16]**.** According to a 2025 systematic literature review on the subject, most studies have shown that shared e-scooters and shared bikes complement transit systems rather than compete with them. They notably reduce the number of transfers and travel time for passengers' trips, while also improving the operational efficiency of public transit systems [17]. Bike-sharing has a complementary relationship with public transport for commuting and longer trips, effectively complementing rail services while also providing a viable alternative to buses when needed [18].

A recent study in Montréal found that there is potential for competition between bike share and transit for certain trip types (especially those in the city centre), finding that transit trips could be reduced by 1.3% for every 100 bike-sharing trips, and that bike share is more competitive for travel in the city centre. The report concludes that this demonstrates that bike share can complement transit in time (when the service is not running), in space (trips connecting with transit to travel outside the bike share service area), or when bike share offers a more direct alternative [19]. Hamilton Bike Share reports that 41% of its users use bike share to connect to local and regional transit services [20].

In the context of Ottawa-Gatineau, bike share can complement transit as a last-mile solution for connecting to and from transit stations. Particularly for trips into the city centre, bike share can make long-distance transit trips more feasible by providing an efficient way to reach destinations beyond walking distance of rapid transit stations. Take, for example, a commuter from Orléans who works at Place Vanier, near Montreal Road and Vanier Parkway. This commuter could comfortably reach Hurdman O-Train station from Orléans and then use bike share to cycle the remaining 2.6 km in just 10 minutes, instead of a connecting local bus trip that takes 21 minutes and runs every 30 minutes. Data from the OD Survey shows that there are approximately **66,000 daily trips in Ottawa-Gatineau that are similar to this pattern,** that start outside the initial service area and end within the initial service area beyond walking distance from a rapid transit station.

It is predicted that 1 in 10 bike share trips would replace a **personal bike** trip. Compared to personal bikes or scooters, bike share offers the convenience to take one-way trips (allowing the potential to use another mode for subsequent trips) and eliminates the risk of bike theft. If e-bikes are offered in bike share, users who own non-electric bikes may prefer to use e-bikes for certain trip types.

Although bike share may seem very similar to Ottawa's shared **e-scooter** program, use of these two travel modes varies considerably. NACTO reports that the typical trip length on dockless e-bikes and e-scooters is 11 to 12 minutes, which is much shorter than the average station-based bike share trip length of 30 to 35 minutes, and despite this significant difference, riders of dockless e-bikes and e-scooters are paying a lot more per trip. The greater user costs associated with the e-scooters constrain their long-term sustainability as an affordable everyday option for most people [21]. Bike share also has the potential to operate interprovincially and across a much larger area, with baskets on bikes that allow users to carry more items.

The modelling predicts that 1 in 6 bike share trips replaces one taken by a **motor vehicle** (either driving or taxi/rideshare). Many of these replaced car trips likely would occur on congested corridors, helping increase overall people-moving capacity in the bike share service area. Finally, as part of a suite of solutions that improve sustainable travel options, bike share can benefit road safety by reducing the need for people to drive, and the resulting safety risks that result from driving [22].

4.3.3 Current Transportation Landscape in Ottawa-Gatineau

Many factors locally support a bike share system in the National Capital Region. There is a strong cycling network on both sides of the river, spanning more than 295 km in Gatineau and 365 km in Ottawa, with a Capital Pathway network of over 200 km of off-road multi-use pathways. The core area, which combines the city centers of Ottawa and Gatineau, is dense and walkable. The region also has a significant student population, with five universities and seven colleges.

Transit systems in the Ottawa-Gatineau region have seen a decrease in ridership following the COVID pandemic. Similar to many other peer transit agencies, transit in the Ottawa-Gatineau region has seen a slower ridership recovery in the post-COVID period. In recent years, there have been major expansions of Ottawa's rapid transit network and Gatineau's Rapibus bus rapid transit system, which are expected to increase the demand for transit.

Many residents face multiple barriers to cycling, including limited access to bikes, insufficient safe bicycle parking at home or destinations, bike theft, and concerns about the safety of cycling infrastructure. Nevertheless, active

transportation has gained popularity in the region, with Ottawa's cycling mode share doubling from 2% in 2011 to 4% in 2022. This growth is partly due to the hundreds of kilometres of new cycling and multi-use infrastructure added since 2013 [23].

A bike share system in the National Capital Region offers a solution to these challenges, complementing expanding public transit networks, increasing bicycle accessibility and offering a reliable option for residents and visitors to complete short trips.

4.4 Objectives for Ottawa-Gatineau Bike Share

The Core Partner Team were engaged at the project onset by the consulting team to identify an opportunity statement and objectives for the system. The opportunity statement was based on the group collectively identifying the problems that bike share can solve. The objectives were developed by CPT members voting on a list of potential benefits of bike share to identify the priorities most important to them and the local context.

4.4.1 Opportunity Statement

With high vehicle ownership costs, environmental concerns, and increasing congestion, there's a ***need for greater sustainable and equitable transportation solutions*** *in Ottawa-Gatineau.*

The public transit system cannot meet all needs*. The current transit system in the National Capital Region faces challenges similar to those in other peer municipalities, including coverage and reliability, which has provided the region with the* ***opportunity to build a more multimodal transportation network with an emphasis on building first mile-last mile connections.***

Though Ottawa-Gatineau's network of cycling infrastructure is strong and growing, ***other barriers to cycling still exist****, including access to bikes, lack of quality bike parking at destinations, bike theft, convenience for one-way and/or multimodal trips, and perceived comfort.*

A bike share system, including affordable e-bikes, is a "missing piece" in the region's transportation network and can offer a ***practical, on-demand, low-cost, environmentally friendly, and convenient travel mode*** *that enhances* ***last-mile transit connections and connects residents and visitors*** *to key destinations across the National Capital Region.*

4.4.2 System Objectives

Primary objectives for the design of the bike share system:

- Support a **multimodal transportation system** that **complements public transit**, helps grow transit ridership, and gives people **more options** to get around without a car.
- Provide a **reliable service** that is available on demand and is designed to **last over the long term.**
- Ensure the service supports the people who need mobility options most, by locating in **equity**-deserving areas and offering **affordable** pricing.
- Reduce car trips in the region, **reducing congestion** and lowering the region's transportation-related carbon **emissions**.

Secondary objectives include:

- **Enhance the practicality of cycling** by offering improved access and removing common barriers to cycling (comfort, convenience, cost, parking, theft/vandalism, physical effort).
- Provide a cherished **community service,** much like public libraries or museums, with minimal barriers to access.
- **Support economic activity** in the region by connecting residents and visitors seamlessly to destinations, business areas, and major events.

5. BENCHMARKING FINDINGS

This section outlines the lessons learned from the peer systems that were shared during the interviews and in follow-up conversations. All statements in the following sub-sections are based on five peer systems: **àVélo, Bike Share Toronto, BIXI Montréal, Capital Bike Share, and Hamilton Bike Share.**

The selected peer systems were compared based on several important components of a bike share system, particularly regarding the interests of the CPT. Information was included only when available and if relevant to the regional context for the variable being evaluated. The relevant statistics for the proposed Ottawa-Gatineau bike share system are shown alongside the peer systems in the tables below.

Lessons learned can be categorized into six categories of bike share systems (Governance, Bike Fleet and Service Area, E-Bike Fleet, Ridership, Financing, and Winter Operation). Key takeaways within these categories include:

- **Governance:** There is no one-size-fits-all governance model for bike share, and each peer system has been built on its own unique model that works in its local context.
- **Bike Fleet and Service Area:** There are several effective methods to roll out and deploy a bike share system, but the most effective bike share networks prioritize a high concentration of stations in the central area from the outset.
- **E-Bike Fleet:** E-bikes are a major mobility trend, attracting a wide variety of users and encouraging short and longer bike-share trips. E-bikes entail additional capital and operational costs (e.g., more expensive technology, electrification of stations, battery swapping), though some of the costs can be recovered by charging higher rates.
- **Ridership:** The success and popularity of a bike share system largely rely on ridership. Initially, patience might be required during the first few years as ridership may grow gradually, as was the case for more mature systems such as Bike Share Toronto, BIXI Montreal and Hamilton Bike Share many years ago. On the other hand, more recent systems such as àVélo Québec have seen an impressive growth of 1200% in their first four years, reaching 1.28 million trips in 2024.
- **Financing:** Governments should not expect a bike share system to fully cover operating costs with user fees. The optimal funding strategy is a mixed revenue model that includes user fees, sponsorship, and public investment to cover a large portion of capital and operational costs.
- **Winter Operation:** Winter operation strengthens bike share's position as a public transport system available 365 days a year, creating a more stable team and eliminating the need to rehire staff every season. However, it presents multiple operational challenges and risks, such as higher costs related to snow clearance, salt and snow that can damage the assets, and reduced ridership.

5.1 Governance

In the context of a bike share system, governance is defined by the ecosystem and organizational structure of the bike share system. All organizations involved in the governance model have their respective roles and responsibilities to ensure the system is successful. Typical roles can be described as:

- **Overseeing Agency:** the public sector organization(s) accountable for the system.

- **System Operator:** the entity responsible for the procurement of the system, management of its contracts, planning expansions, and setting policies like pricing.
- **Logistics Operator:** the organization responsible for the day-to-day operations of the system (e.g., rebalancing, maintenance, customer service, fare collection). The daily operations for running the bike share service are usually handled by a private operator acquired through procurement or by the system operator.
- **Equipment Supplier:** the organization that supplies bikes, docks, and other assets, if applicable.
- **Sponsor:** an organization that provides ongoing funding in exchange for marketing assets, advertising, etc.

Table 5 summarizes the members of the ecosystem of each peer bike share system as part of the benchmarking.

Table 5: Governance benchmarking

Bike Share System	Region	Overseeing Agency	System Operator	Logistics Operator	Equipment Supplier	Main Sponsor
àVélo (Québec City)	Québec City, QC	Réseau des Transports de la Capitale	Capitale Mobilité	Vélosolutions	Lyft Urban Solutions, in partnership with Cycles Devinci	N/A
Bike Share Toronto	City of Toronto, ON	City of Toronto	Toronto Parking Authority, (with Lyft as technical advisor)	Shift Transit	Lyft Urban Solutions	Tangerine Bank
BIXI Montréal	Greater Montréal and Sherbrooke	Ville de Montréal	BIXI Montréal	BIXI Montréal	Lyft Urban Solutions	Loto Québec and others
Capital Bike Share DC	Washington DC, five counties of Northern Virginia and two counties of Maryland	Local Municipalities	Local Municipalities	Motivate	Lyft Inc. and Lyft Urban Solutions	N/A
Hamilton Bike Share	City of Hamilton, ON	City of Hamilton	Hamilton Bike Share Inc.	Hamilton Bike Share Inc.	Social Bicycles Inc. (600 bikes were purchased from Portland bike share system)	Cogeco Connexion

During the interviews, system representatives were asked to describe their organizational structure and ecosystem related to their bike share systems. What we have learned can be summarized as follows:

- **All bike share systems are publicly supported and considered a form of public transport.** Government entities own the assets (bikes, stations/hubs, and terminals) and contribute to covering the operational costs. All bike share systems contract a private/external system operator to manage day-to-day operations.

- **Each bike share system selects a governance model based on its vision and regional constraints; there is no one-size-fits-all model.** When asked if they would approach things differently if they had to start over, all indicated they would choose the same governance model.
- **Most systems had to adapt along the way to remain in operation.**
  - àVélo started with Réseau de transport (RTC) de la Capitale as the system operator but quickly reassigned the mandate to Capitale Mobilité, an organization owned by the RTC and responsible for developing a real estate strategy around public transit that would bring new revenues to the RTC.
  - BIXI Montréal and Bike Share Toronto were both impacted by PBSC bankruptcy in 2014 and had to reorganize to survive as independent bike share systems. BIXI Montréal became a non-profit organization established by the City of Montréal and is now expanding to nearby cities. Bike Share Toronto is now a program under the responsibility of the Toronto Parking Authority. Both partners with Lyft Urban Solutions to acquire equipment.
  - Hamilton Bike Share risked going bankrupt in 2020 and was saved by public contributors and corporate donors; following this event, the City of Hamilton began providing operational funding for the system.

5.2 Fleet and Service Area

Table 6 compares the fleet of each system and its service area. The initial and current fleet sizes, along with the number of bikes and stations, are displayed. Systems can be evaluated using an indicator of **bikes per square kilometre**. Notably, all systems currently operate between 31 and 45 bikes per square kilometre across their networks.

Table 6: Fleet and service area benchmarking

Bike Share System	Year	Bikes	Stations	Service Area (km2)	Bikes/km2
àVélo (Québec City)	Initial (2021)	100	10	7 km^2	14
	Current	1,300	115	30 km^2	43
Bike Share Toronto	Initial (2011)	1,000	80	6 km^2	167
	Current	9,000	840	200 km^2	45
BIXI Montréal	Initial (2009)	3,000	300	18 km^2	167
	Current	11,000	934	360 km^2	31
Hamilton Bike Share	Initial (2015)	750	116	35 km^2	21
	Current	825	191	25 km^2	33
Ottawa-Gatineau Bike Share	*Proposed*	*1,200*	*115*	*30 km^2*	*40*

Table 7 shows the different strategies for expanding the bike share systems, from the launch, after five years, and as of today. Notably, all systems have undergone expansion since launching and continue to actively plan for further growth.

Table 7. Rollout strategy benchmarking

Bike Share System	Launch	After 5 Years	2025	Average Annual Growth (Bikes)
àVélo (Québec City)	100 bikes 10 stations	1,800 bikes 165 stations	After 5 years: 1,800 bikes 165 stations	240 bikes per year
Bike Share Toronto	1,000 bikes 80 stations	1,000 bikes 80 stations	After 14 years: 9,000 bikes 840 stations	571 bikes per year
BIXI Montréal	3,000 bikes 300 stations	5,120 bikes 411 stations	After 16 years: 11,000 bikes 934 stations	500 bikes per year
Hamilton Bike Share	750 bikes 116 hubs	750 bikes 116 hubs	After 10 years: 825 bikes 191 hubs	7.5 bikes per year

During the interviews, systems representatives were asked to discuss their strategy and decision-making process for deploying, expanding, and rolling out the bike share network. The lessons are:

- Avoid “satellite hubs” that are not connected to the main network
- Add one station in the core area for every new station on the perimeter
- The target distance between stations should be:
  - 300-400 m in the core
  - 500-600 m outside the core
- The permit process (access to public property) should be simple and free of charge for operators

5.3 E-Bike Fleet

Table 8 presents the e-bike composition for all systems. It includes the current proportion of e-bikes in the fleet, future targets, and current usage data, available at the time of the interviews.

Table 8: E-bike fleet benchmarking

Bike Share System	Fleet Size	# of E-Bikes (present)	Usage	# of E-Bikes (future)
àVélo (Québec City)	1,300	1,300 (100% of fleet)	6.7 times/day	
Bike Share Toronto	9,000	1,825 (20% of fleet)	E-bike ridership has increased by 96% from 2022 to 2023, expected 14% of total ridership in 2024	Continue to increase the number of e-bikes – numbers to be confirmed in Bike Share Toronto Four Year Expansion Plan (2026-2030)
BIXI Montréal	11,000	2,620 (24% of fleet)	7.8 times/day (vs 6 times/day for non-electric bikes)	
Capital Bike Share DC	6,000	3,600 (60% of fleet)	More than 60% of total ridership	
Hamilton Bike Share	825	0		100 (coming in 2025)

E-bikes are gaining popularity, and all systems have some e-bikes or are considering adding them to their fleet. The composition of e-bikes in each fleet varies significantly; while àVélo has achieved exceptional ridership with a fully electric fleet, the larger systems in Toronto and Montréal are still mostly comprised of non-electric bikes. Each system was asked about their approach to e-bikes, and the lessons learned were categorized under opportunities and considerations below.

Opportunities

- All systems indicated that e-bikes are popular among residents and visitors, especially among occasional users.
- They also attract a more diverse customer base, such as individuals with physical limitations or a lack of interest in riding a non-electric bike, as well as those who cannot afford a bike or who want to limit their physical efforts for everyday travel. E-bikes are used for short and long trips and might be more convenient for longer distances or durations than non-electric bikes.

Considerations

- All systems indicated that:
  - Swapping batteries is less effective than using electric stations for rebalancing.
  - Providing electrified docking stations for bike charging involves a long-term effort and investment, but it strengthens the perception of the permanence of the system.
  - Winter affects the lifespan of assets and reduces battery capacity for e-bikes.
- Bike Share Toronto did not recommend including e-bikes from the outset for a new system, because of the higher costs and additional planning considerations (e.g., swapping battery process, separate fee system).

- BIXI Montréal recommends including e-bikes as part of the initial fleet; however, the electrification of stations is essential for simplifying e-bike charging.

5.4 Ridership

Ridership data was collected for the initial year and latest year (2024) of the four Canadian bike share systems interviewed. Table 9 also presents a comparative metric of daily rides per bike, normalized for 365 days.

Table 9: Ridership benchmarking

Bike Share System	Year	Bikes	Annual Rides	Daily Rides per Bike (for 365 days)
àVélo (Québec City)	Initial (2021)	100	30,000	0.82
	2024	1,300	1,300,000	2.74
Bike Share Toronto	Initial (2011)	1,000	500,000	1.36
	2024	9,000	5,400,000	1.64
BIXI Montréal	Initial (2009)	3,000	1,096,000	1.0
	2024	11,000	13,000,000	3.23
Hamilton Bike Share	Initial (2015)	750	215,000	0.78
	2024	825	500,000	1.66
Ottawa-Gatineau Bike Share	*Proposed*	*1,200*	*451,000*	*1.03*

All peer systems started with a daily rides per bike between 0.78 and 1.36, and all systems have increased this rate as they matured and expanded. A key lesson shared by the peer systems is that patience might be necessary to build a long-lasting, successful system. It is important to **anticipate a gradual ramp-up period** and to **review and re-evaluate ridership targets within the first few years**.

5.5 Finances

5.5.1 Capital Costs

Table 10 shows the capital costs, comprised of the costs of the assets, such as bikes, stations with terminals/kiosks, and the price of electrifying a station. It is important to note that not all information was publicly available, and not all peer systems were comfortable sharing figures, which explains why some boxes are left empty.

Table 10: Capital costs benchmarking

Bike Share System	Non-Electric Bike	E-Bike	Station	Station Electrification
àVélo (Québec City)		**$3,500**	$50,000	
Bike Share Toronto	$1,200	**$2,800**	$50,000 (solar) to $85,000 (e-station)	
BIXI Montréal	$1,437	**$3,317**		$25,000
Hamilton Bike Share	$2,000	**< $3,000**	<$10,000 *($400 per docking point, $1,500 per sign, $400 to $800 for installation)*	
Bike Share in Ottawa-Gatineau: A Missing Piece of the Local Transportation Puzzle report [1]	$2,000 to $4,000		$40,000 to $50,000	

Peer systems shared that a one-time startup cost must be considered to acquire a service centre, a storage warehouse, tools, basic business infrastructure, and pre-launch marketing. This represents between $1,000 and $3,000 per bike at the launch [1].

5.5.2 Operational Costs and Revenue Model

Most of the systems operate on a mixed revenue model, which means capital and operational costs are covered by:

- **User fees:** Revenue generated from users who pay to access the bike share service
- **Sponsorship:** Revenue from one or more organizations that financially support the system in exchange for advertisement on bikes or stations
- **Public investment:** Revenue and contribution from municipalities, federal contributions, and other funding from transit or government agencies

Table 11 illustrates the revenue model for each bike share system by presenting the annual operating budget per bike and the proportion of revenue derived from user fees, sponsorship, and public investments. The annual subsidy per bike is also calculated based on the percentage of the operating budget covered by public investments.

Table 11: Operational costs and revenue model benchmarking (grey cells indicate data that was not available)

Bike Share System	Operating Budget per Bike	% from user fees	% from sponsorship/ advertising	% from public investments	Annual Subsidy per Bike
àVélo (Québec City)		30%	5%	65%	
Bike Share Toronto	$1,155	68%	3%/6%	23%	$266
BIXI Montréal	$3,281	60%	24%	14%	$272
Hamilton Bike Share					

While a wide range of percentages is witnessed, it is notable that the mature systems in Toronto and Montréal recover over 75% of operating costs from user fees and sponsorships.

5.5.3 Pricing Strategies

Typical pricing strategies include single-use (one-way), monthly, or full-season passes (which have a daily limit). Table 12 presents the user fees of all bike share systems in 2024.

Table 12: Pricing benchmarking (2024)

Bike Share System	One-way	Daily	Monthly	Seasonal
àVélo (Québec City)	$1.35 + ¢0.30/min e-bike		33$ (30min/ride) 38$ (45min/ride)	120$ (30min/ride) 140$ (45min/ride) (6 months)
Bike Share Toronto	$1.00 + $0.12/min regular $0.20/min e-bike	$15		105$ (30min/ride) 120$ (45min/ride) + $0.10/min e-bike (12 months)
BIXI Montréal	$1.35 + $0.20/min regular $0.35/min e-bike		$22	$107 + $0.17/min e-bike (8-month; winter months are not included)
Hamilton Bike Share	$0.20/min		$20	$100 (6 months)

5.5.4 Financial Lessons

The systems were asked about their revenue models and financial challenges. The lessons shared include:

- All systems interviewed are designed to operate in the long term and as public transportation systems. This expectation must be clearly communicated and effectively managed with decision-makers.
- Ridership needs to come from a healthy balance of members and casual users.
- Attracting sponsorships takes time.
- The initial investment will be crucial and important.
- For financial stability, pricing strategies (user fees) should be evaluated yearly.
- Some grants are available at the federal level, and provincially in Québec, to finance the purchase of the assets.
- It is important to secure multi-year municipal funding commitments.

5.6 Winter Operations

Winter operations are an important component of bike share systems, and many factors need to be considered for this to work properly. Table 13 summarizes the status of winter operations and the related objectives for the bike share systems interviewed.

Table 13: Winter operations benchmarking

Bike Share System	Status of Winter Operation	Future Plans
àVélo (Québec City)	No, only operates between May 1 and November 15.	Not financially ready yet but will explore the option for the future
Bike Share Toronto	Yes, 12 months, non-electric bikes only	
BIXI Montréal	Yes, operating a reduced fleet through winter as a pilot initiative (from mid-November to mid-April)	Started as a pilot in 2023-2024 with 150 stations within 100 km2, now expanding with 200 stations and 2000 bikes. Still a pilot. Monitor, evaluate, and adjust the pilot based on lessons learned
Capital Bike Share DC	Yes, 12 months, full system	Maintain
Hamilton Bike Share	Yes, 12 months, full system	Maintain

Not all systems operate during winter. However, they were all asked in interviews about their approach to winter operations.

- **Hamilton Bike Share** stated that the system must remain available year-round, as it is an essential component of the public transportation system.
- **BIXI** shared that seasonal operations signify the need for staff renewal each season. Now that they operate during winter, they can have permanent operations staff.
- All said there are significant challenges to winter operations:
  - Winter operations impact the life expectancy of assets.
  - Winter operations reduce battery capacity for e-bikes.
  - The ridership during winter is significantly lower.
  - The private operator is responsible for clearing snow from the stations, but the city is tasked with maintaining the cycling network.

5.6.1 BIXI Montréal's Winter Pilot

BIXI Montréal presented its winter bike share pilot at IceBreaker 2025 [24], a platform for practitioners and winter cycling. BIXI is still evaluating its winter pilot program on a yearly basis. Their strategy focuses on concentrating stations around major destinations and transit hubs, while their service area corresponds with the all-season bike network. To prepare for the winter season, they change the brakes, pedals, tires, and cranksets of the non-electric bikes designated for winter use. Currently, they believe it is too dangerous to operate e-bikes during the cold months due to the "kill switch" in the batteries, which activates when the battery reaches 20% capacity; in cold weather, this threshold is reached more quickly. During the winter season, winter ridership peaks during shoulder seasons, specifically from November to December and from March to April. For that reason, BIXI leaves some e-bikes in the fleet during transitional periods before fully storing all e-bikes from January to February. More than half (65%) of winter users are individuals aged 16-34 years. For 65% of winter users, it was their first experience with winter biking, and the membership retention rate was 41% in winter 2024. No collisions have been reported since the beginning of the pilot, and the reasons users cited for not wanting to cycle in the winter include the cold temperatures, reluctance to pay a separate membership fee, and the absence of stations close to where they live.

6. REGULATORY REVIEW

Shared micromobility has inconsistent regulations across Canada, and this must be considered for the Ottawa-Gatineau regional context. This section gives an overview of:

- Regulations that relate to the implementation of a bike share system.
- Regulatory differences between the two cities/provinces that would affect the implementation of a regional bike share system, as well as regulations that would affect how a bike share system is used across the two regions/provinces.

6.1 Federal & Provincial

In the context of municipal public transit systems, such as OC Transpo and STO, both must comply with provincial regulations, despite operating across provincial borders. “This responsibility was delegated by the federal government to the provinces under the Motor Vehicle Transport Act” [25]. The cities and the NCC will have a role in making sure the system characteristics and the service providers comply with federal and provincial requirements, notably because some laws differ between the two provinces. The categories of regulations that need to be considered for the implementation are, but are not limited to:

- Safety requirements
- Device and equipment requirements
- User requirements
- Consumer protection and service requirements (official languages, data privacy, marketing and advertising regulations)

6.1.1 Safety requirements

The bike share service providers will have to comply with occupational health and safety regulations, specifically:

- Ontario Occupational Health and Safety Act
- In Québec, *La loi sur la santé et la sécurité du travail*

6.1.2 Device requirements

Vehicles under 32 km/h are exempted from Canadian Motor Vehicle Safety Regulations (MVSR), and their regulation falls entirely to provinces and territories and their jurisdictions (the Highway Traffic Act for Ontario, and *Code de la Sécurité Routière* in Quebec). Non-electric bikes and e-bikes must meet specific requirements to be legally operated on roads in Ontario and Québec, including a bike bell, weight, power, brakes, wheel width, battery, and speed limits. Some of these requirements differ by province, outlined in Table 14.

Table 14: Bike requirement by province

Type of Bike	Province of Ontario	Province of Québec
Any bike	• Bell or horn • Lights and reflectors: (a white light mounted on front of the bike, a red light or reflector on the back at night • Reflective tape (white reflective tape on the front forks, red reflective tape on the rear forks	• Front white reflector • Visibility accessories on the front wheel • Rear red reflector • Visibility accessories on the rear wheel • Amber or white reflectors on each pedal • With light in front and red light in the back during nighttime
E-bike	• A maximum assisted speed of 32 km/h • A maximum weight of 120 kg (includes the weight of the bike and battery) • An electric motor not exceeding 500 watts • No modifications to the motor to allow it to exceed a power output greater than 500 watts and an assisted speed greater than 32 km/h • Battery and electric motor securely fastened to the bicycle frame to prevent them from moving while the e-bike is operating • All electrical terminals properly insulated • Minimum wheel width of 35 mm and minimum diameter of 350 mm • Two independent braking systems that applies force to each wheel and is capable of bringing the e-bike, while being operated at a speed of 30 km/h, to a full stop within 9 metres, on a level asphalt surface, from the point at which the brakes were applied	• A maximum power of 500 W or less. • The electric motor must cease to generate power once the bicycle reaches a speed of 32 km/h. This speed can only be exceeded through the cyclist's muscle power on a flat surface. • They must bear an identification number. Unlike the identification number that appears on road vehicles, this number does not need to be decodable, have 17 characters or comply with Transport Canada Standard 115.

E-Bike charging stations are subject to regulations to ensure electrical safety in both provinces.

- *Code de construction du Québec – Électricité*
- Ontario Electrical Safety Code

Rebalancing vehicles will have to comply with the Highway Traffic Act for Ontario, and *Code de la Securité Routière* for Quebec. It is also to be noted that these vehicles will cross interprovincial borders, so they must follow both provinces' traffic laws.

6.1.3 User requirements

Bicycle and e-bike users must follow specific safety rules when using these devices, as per the Highway Traffic Act for Ontario and *Code de la Securité Routière in Québec*.

Table 15: User requirements by province

Type of Bike	Regulation	Province of Ontario	Province of Québec
Non-electric Bike	Helmet Use	Mandatory for riders under 18	Optional for all
E-Bike	Age and License	Everyone over 16 years old can ride an e-bike	Everyone aged 18 and older can ride an e-bike. People under 18 years old must have a moped licence (Class 6D) or a driver's licence (if older than 16)
	Helmet Use	Mandatory for all e-bike users	Mandatory for all e-bikes users

Peer systems have set their own age-related requirements as follows:

- BIXI allows users aged 14 and over, over 1.24 metres (4'1") tall.
- Bike Share Toronto permits users 14 years or older. Riders under 16 must be accompanied by a parent or guardian.
- Hamilton Bike Share's system is available to everyone 16 years and older. 16- and 17-year-old riders must have the permission of their parent or guardian.
- Because àVélo Québec only offers e-bikes, the service is available to users aged 18 and over, unless the user holds a moped license (6D) (between the ages of 14 and 17) or a driver's license (between the ages of 16 and 17).

6.1.4 Consumer protection and service requirements

Both provinces have laws to protect consumers:

- *Office de la protection du consommateur*, in Québec
- Consumer Protection Ontario

If any data on users is collected by the service providers, the data must be accessed and kept in accordance with the applicable laws:

- The Federal Privacy Act
- *La sur la protection des renseignements personnels*, in Québec
- Freedom of Information and Protection of Privacy Act (FIPPA) and the Municipal Freedom of Information and Protection of Privacy Act (MFIPPA) in Ontario

For all publicity and advertising efforts, marketing and advertising regulations must be followed. Additionally, in Quebec, there is an official language law for communication in French.

6.2 Municipal (Ottawa and Gatineau) and Federal Lands (NCC)

This section presents the bylaws related to implementing a bike share system. In summary, Gatineau, Ottawa and the NCC present some regulations that could affect:

- Station siting: Permitting stations in the right-of-way
- Station placement: Construction work (to install and electrify stations) in the right-of-way
- Commercial activities related to bike share operations in the right-of-way

6.2.1 Gatineau

Regulation 364-2008 relates to all actions within the streets right-of-way on the City of Gatineau territory. Relevant elements from the regulations that relate to bike share are:

- Under section 1: Electrification works in the public right-of-way require a “Permis d’action”; however, works awarded by the City are exempt from applying this regulation.
- Under section 3: Bike share is considered an activity within the street's right-of-way, without excavation, which has the potential to partially impede roadways, sidewalks, pedestrian crossings, and bicycle networks. For that type of activity, a permit issued under by-law number 300-2006 concerning traffic and parking on the territory of the City of Gatineau is required.

Regulation 629-2009 is for the temporary occupation of the public domain related to construction work. However, works awarded by the City are exempt from applying this regulation.

6.2.2 Ottawa

By-law No. 2017-301 relates to Traffic and Parking:

- Part II: The General regulations for parking and stopping stipulate that no person shall park or stop any vehicle or permit a vehicle to remain parked or stopped on any highway unless otherwise stated by this by-law. This specifically states that this does not apply to bicycles where the City provides bicycle parking facilities.
- Based on the definitions section, “Bicycle parking facilities” include ring and post racks, ring racks, and bicycle corrals that support bicycles in an upright position and enables the bicycle frame and one or both wheels to be secured and which facilities are predominantly located within the road right-of-way and may be located in select designated and delineated on-street parking spaces, but do not include light standards, utility poles, sign posts, fences, street furniture, or similar infrastructure within the road right-of-way.

For any permanent and temporary encroachments of the road, as well as any road activities, some fees are payable, according to:

- By-law No. 2003-446 relates to encroachments on City Highways
- By-law No. 2003-445 relates to Road Activity
  - Based on Section 4.1, it is unclear whether construction work granted by the City could be issued a permit for free

In the case of shared e-scooters, the City of Ottawa designates parking in some areas. Shared e-scooters must be parked upright in signed physical spaces or permitted areas shown in e-scooter apps. These areas are in the furniture zone on sidewalks at least two metres wide, out of the travel path, alongside bike racks and benches [8].

6.2.3 NCC

The NCC has a process for permitting land access [26]. A permit is needed for any action that requires the use of, or access to, NCC land, such as:

- Using NCC land to access private property for construction
- Driving a commercial vehicle on NCC parkways
- Performing research on NCC land

- Storing materials or equipment on NCC land
- Construction and maintenance contracts on NCC land
- Authorization to hold recurring programs or activities on NCC land

According to their process, the **land access permit for partners is free.** The cities of Ottawa and Gatineau are considered municipal partners.

7. SYSTEM DESIGN

This section provides the system characteristics that are proposed for the launch of the Ottawa-Gatineau bike share system. These metrics were decided with the CPT for the purpose of the feasibility study and may be adjusted during the procurement phase.

7.1 Initial Service Area

The **initial service area** represents the recommended area to serve with the launch of the system. To develop the initial service area, demand mapping was first conducted to predict the highest areas of the region in terms of ridership potential. Next, benchmarking was used to identify a target service area of approximately 30 km^2. Then, four local lenses were developed to guide the refinement of the area, and the CPT provided feedback, which led to further refinements. **This area does not represent the ultimate service area for the network**, only the starting point upon initial rollout. There are many high-potential destinations and neighbourhoods that are worthwhile to serve, which are not included in the initial service area but could be added during future expansions.

The initial service area includes:

- Area: 30 km^2, approximately 7.5 km^2 in Gatineau and 22.5 km^2 in Ottawa
- Population: 157,000
- Encompasses the highest employment density, tourism areas, the region's busiest recreational pathways, and four universities
- Three Rapibus stations, 12 O-Train stations, and two Transitway stations (Billings Bridge and Hurdman)
- 15 of Ottawa's 38 Equity Priority Neighbourhoods
- 5 of 6 interprovincial bridges

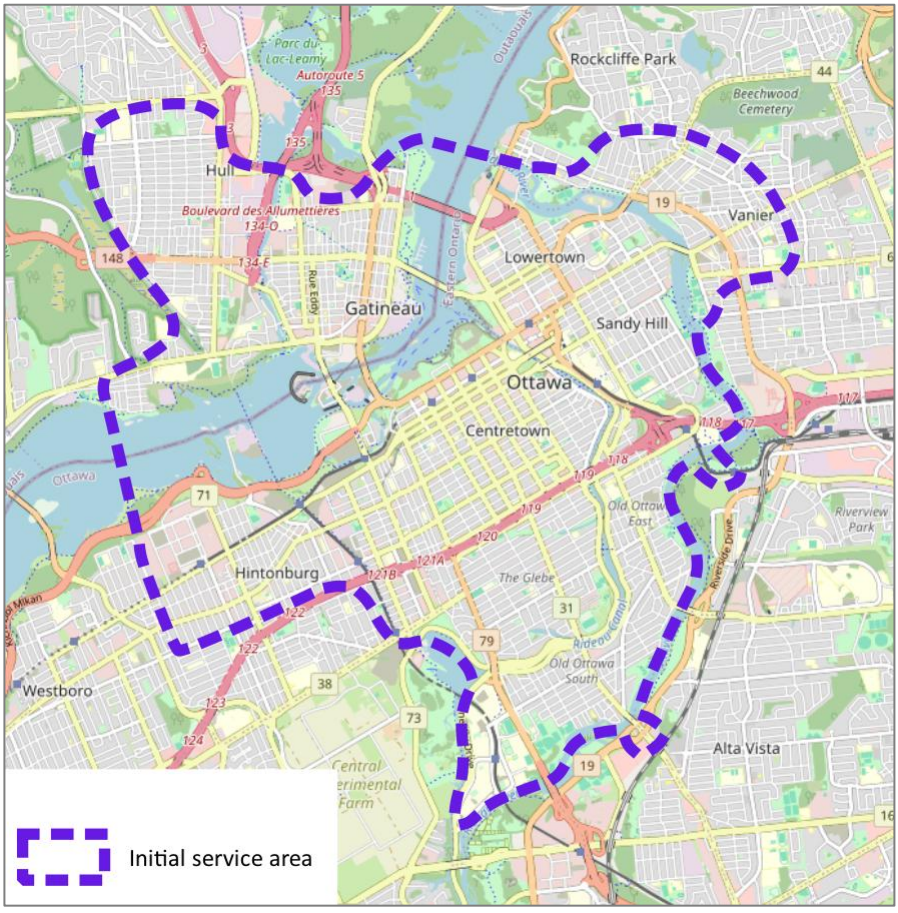

Figure 11: Map of the initial service area

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For **Gatineau**, to enable the system to support internal travel rather than just being one feeding into Ottawa, the study area generally includes the core of downtown Gatineau with moderate to high ridership potential, plus:

- Expanded north to reach Jacques-Cartier Park (popular for tourism/recreation)
- Expanded north-west to reach Wrightville, Lac-des-Fées and a section of Parc-de-la-Montagne neighbourhoods (high rate of infill development around existing commercial centers and new cycling facilities) and the Hull Hospital
- Followed the border of Gatineau Park to enable recreational cycling into the park
- Expanded the west edge to Saint-Jean-Bosco and to Val-Tetreau to capture dense neighbourhoods, Parc Moussette, as well as Université du Québec en Outaouais

For **Ottawa**, this study area generally includes moderate to high ridership potential, bordered by:

- Little Italy (high rate of development and O-Train station)
- Carleton University
- Billings Bridge Mall (a large transit station and shopping centre with under-construction cycling facilities connecting to it)
- Old Ottawa East (high rate of infill development with good cycling facilities)
- Hurdman Station (major public transit transfer point)
- Ottawa River and Rideau River pathways (high generators of tourism/recreational ridership)

7.1.1 Potential Additions to the Initial Service Area

The initial service area does not represent the ultimate service area for the network, only the starting point that was used for ridership and cost modelling. There are many high-potential destinations and neighbourhoods that are worthwhile to serve, which are not included in the initial service area. During the feasibility study, the CPT shared several areas that are of high value to serve that are just beyond the initial service area, which are listed in Table 16. **Serving these areas in the initial launch would require either shifting service from other parts of the network or expanding the system with more bikes and stations.** Planning for ongoing expansions following the initial launch is important; this is discussed further in Section 12.4.

Table 16: Desired areas to serve with bike share that are just beyond the initial service area

City	Destination/Neighbourhood
Gatineau	• Cégep facilities along Boulevard de la Cité-des-Jeunes • Lac Leamy & Station les Galeries de Hull • Pointe-Gatineau
Ottawa	• Montréal Road to St. Laurent Boulevard • Overbrook • Tremblay / VIA Rail station • South-East Transitway between Billings Bridge and Hurdman • Hog's Back Park, Westboro Beach, River House • Civic Hospital neighbourhood • Westboro business area

7.2 System Characteristics

The feasibility study assumes a dock-based system. Based on the initial service area of 30 km^2 and the ratio of bikes per square kilometre of peer systems (see Table 6), it was determined that a bicycle fleet of 1,200 bikes would be appropriate for the service area. Benchmarking also revealed that peer systems provide 10-12 bikes for every station (see Table 6); based on this ratio, 115 stations are proposed to support the fleet. Finally, the Institute for Transportation & Development Policy (ITDP) recommends providing 2 to 2.5 docks for every bike in the network to ensure availability of docking points [27]; based on this, approximately 2,400 to 3,000 docks should be provided across the 115 stations. Table 17 presents the two launch scenarios analyzed in this feasibility study and the description of the fleet.

Table 17. Launch scenarios fleet

Launch Scenario	Non-Electric Bikes	E-Bikes	Stations	Docks	Service Area
1	1,200	0	115	2,400 to 3,000	30 km2
2	960	240 (20%)	115 (20% electrified)	2,400 to 3,000	30 km2

7.2.1 Seasonality

The consulting team recommends not launching the system with a year-round operation but instead focusing on an 8-month operating season to consolidate the knowledge of the system, while preserving equipment. A 12-month operation should be considered in a later phase of the system, to eventually offer a public transportation system 365 days a year.

This study reviewed the costs and ridership opportunities associated with a 12-month operation. To do so, the 4-month winter network is analyzed as an augmentation, comprising a subset of the fleet with 400 non-electric bikes and 40 stations.

7.3 Station Locations

The consulting team proceeded with a station placement exercise to determine whether 115 stations are sufficient for the study area and whether they can be "stretched" to cover a larger area (Figure 12). Based on established practices of peer bike share systems, a station spacing of 300 m was applied in the core area and 600 m elsewhere. Stations were placed by first assigning every rapid transit station a bike share station, then prioritizing placing stations along activity streets and bike routes. The gaps were filled in with stations at parks, schools, community centres, and similar locations.

The team's conclusion is that **for the local geographic context, the proposed 115 stations are suitable for serving the initial service area, and that to serve a larger area, more bikes and stations would be required.** It is important to note that this is not the proposed map of station locations, which is subject to further consultation and feasibility review.

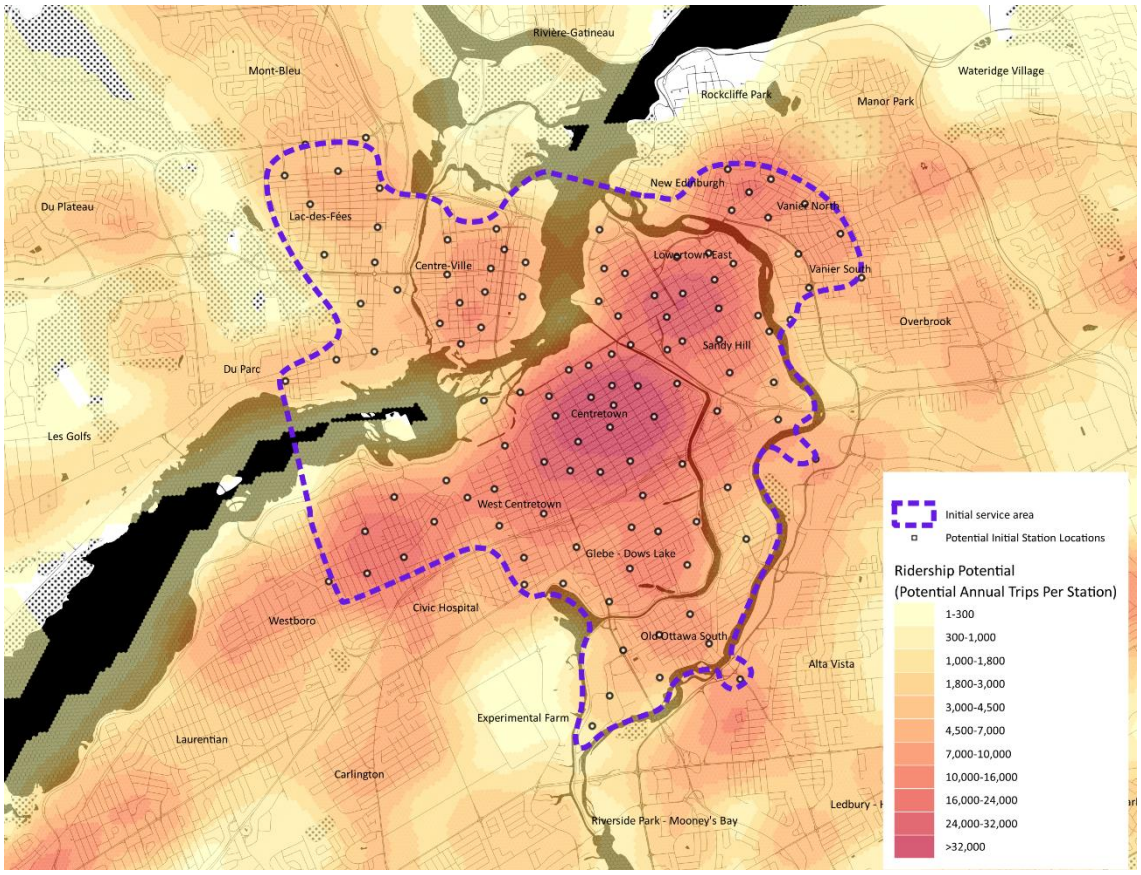

Figure 12: Potential station locations overlaid on the ridership demand map (subject to further study)

8. RIDERSHIP AND FINANCIAL ASSESSMENT

This section presents the assessment for system ridership, costs, and revenues, and concludes with a five-year budget.

8.1 Ridership

The following methods were used to estimate the potential ridership for an Ottawa-Gatineau bike share system:

- A **regression-based analysis** that involved developing a model to predict factors affecting ridership for BIXI Montréal and Bike Share Toronto, and then applying the model to Ottawa-Gatineau. This data was sourced from publicly available datasets, including the Canadian census.
  - The **Stage 1 model,** which used census data to predict ridership at the station level.
  - The **Weather model,** which uses weather data, is used to predict seasonal variations.
- A **mode capture analysis** that involved assessing the distribution of trips in the study area by mode and distance and applying modal conversion rates. Trip data within the study area was based on the 2022 Origin Destination Survey conducted by TRANS, a committee that coordinates efforts between the major transportation planning agencies of the National Capital Region.

The methodology is described further in Section 3.4 and the detailed assessment is documented in **Technical Memos 1, 2, and 3**.

8.1.1 Estimated Ridership, Including Spatial and Seasonal Variations

For a dock-based bike share system serving the study area with a network of 115 stations, ridership was estimated for both a fully non-electric system and a system with 20% e-bikes, and for an 8-month operation (April to November) as well as a 12-month operation.

Table 18: Estimated mature annual ridership

		Scenario 1: Fully Non-Electric	Scenario 2: 20% Electric
Estimated Mature Annual Ridership	**8-month operation**	451,000	462,000
	Incremental for 12-month operation (full network)	+99,000 (+22%)	+101,000 (+22%)
April to November Typical Daily Ridership		1,400 to 2,200	
November to March Typical Daily Ridership		120 to 700	

The term “mature” is used to describe a system that has achieved the status of being a known, established, and trusted part of the transportation network. For any new service, time is required for users to become aware and familiar with the service. In the early years of the service some level of “ramp-up” can be expected where demand is lower than the mature ridership estimates, which is estimated at up to 33% lower ridership in the first year. Ramp-up can be accelerated with greater communications, marketing and outreach efforts. Based on the experience of the àVélo bike share in Quebec City, it is possible that the provision of electric bikes could facilitate a faster ramp-up period.

8.1.2 Peer Benchmarking Validation

Table 19 benchmarks the predicted annual rides for the Ottawa-Gatineau bike share system against the peer systems. To account for the effects of system maturity, peer systems are shown based on their initial and latest reported ridership. Ridership is normalized to the system size using the "daily rides per bike" metric. To allow for comparison of systems that have different operating seasons, the daily rides per bike is based on a 365-day operating season (annual rides / 365 / # of bikes). **Overall, the predicted ridership for Ottawa-Gatineau is comparable to the daily rides per bike at the inception of each of the benchmarked systems.** The higher rides per bike in later years in Montréal and Quebec City suggest significant potential for ridership growth over time with future network expansions.

Table 19: Peer ridership benchmarking validation

Bike Share System	Year	Bikes	Annual Rides	Daily Rides per Bike (for 365 days)
Hamilton	Initial (2015)	750	215,000	0.78
	Latest (2024)	825	500,000	1.66
Toronto	Initial (2011)	1,000	500,000	1.36
	Latest (2024)	9,000	5,400,000	1.64
Montréal	Initial (2009)	3,000	1,096,000	1.0
	Latest (2024)	11,000	13,000,000	3.23
Quebec City	Initial (2021)	100	30,000	0.82
	Latest (2024)	1,300	1,300,000	2.74
Ottawa-Gatineau Bike Share	*Proposed*	*1,200*	*550,000**	*1.26*

**Annual estimated rides for 12-month operation*

8.1.3 E-Bike Potential and Considerations

The ridership modelling did not capture a significant increase in ridership with Scenario 2, which included 20% e-bikes, compared to Scenario 1. This could be explained by the fact that recent research on e-bikes' potential on bike share ridership has not been included in the analysis. Even though the potential of e-bikes was not captured in the estimation of ridership of the Ottawa-Gatineau region, there is a growing body of research demonstrating the potential of e-bikes and the success of shared e-bike systems. Other reasons may explain the increase in ridership resulting from the inclusion of e-bikes in the fleet, namely:

- *Personal* e-bikes are growing in popularity:
  - A survey of participants in the Vélovolt project (a program that encourages Quebec citizens, organizations and policy makers to learn about and to try out e-bikes), found that 37 percent of participants reduced their car use for commuting purposes in the year following their trial of an e-bike [28].
  - The City of Ottawa's Transportation Trends Report reported that based in the 2022 origin-destination survey, e-bikes accounted for 9% of all cycling trips [29].
- There are positive impacts of introducing e-bikes in a *bike sharing fleet*:
  - àVélo, with its fully electric bike share fleet, has seen an impressive ramp-up in ridership in its first four years. BIXI is also expanding into Sherbrooke, QC in 2025 with a fleet that includes 80% e-bikes.

- In Chengdu China, adding e-bikes to their bike share fleet ultimately resulted in a 65.9% increase in overall shared cycling usage [30].
- In Los Angeles, e-bikes are used 8 times more than mechanical bikes, and 4 times more in New York. Between 2022 and 2023, Los Angeles quadrupled its e-bike fleet, tripling journeys from 87,000 to 232,000. In New York, e-bike availability increased from 20% to 25%, boosting trips by 50% [31].

With the above in mind, there are two key considerations for including e-bikes:

- **Cost:** while e-bikes are used more and tend to collect more revenue per trip (due to higher fees), they also cost more to purchase, operate, and maintain.
- **Implementation:** e-bikes require additional infrastructure, including electrified stations, which can add complexity and cost to the initial rollout

The consulting team recognizes that, without a doubt, e-bikes are an essential part of the long-term success of a bike share system in Ottawa-Gatineau and can make the system more attractive to a wider user base and serve as a tool for increasing ridership. **The key consideration for decision-makers is whether they should be included in the initial rollout or during a subsequent expansion phase.**

8.2 Costs

There are three types of costs associated with a bike share system:

- Capital costs, which include initial and future purchases of bikes and docks, as well as installation
- Launch costs, which are one-time costs associated with the initial rollout
- Operating costs, which are required to sustain the service and are variable based on revenue and system size

Table 20 lists the typical cost items that fall within each category.

Table 20: Types of costs associated with launch, capital, and operating costs

Type	Typical cost items
Capital Costs	• Bikes & Docks • Installation (including electrification)
Launch Costs	• Operations & storage facility • Vehicles for fleet rebalancing • Maintenance equipment • Business setup fees • Pre-launch marketing
Operating Costs	• Employer compensation and contributions • Installation, maintenance and repair work • Promotion and advertising costs • Credit card and transaction fees • Building rental and operating costs • Information technology costs • Professional fees • Transportation vehicle costs • Communication costs • Insurance costs • Supplies and other non-durable goods

The cost estimates provided are based on the following assumptions:

- For the purpose of this study, the system launch is assumed to be in Spring 2027:
  - The high season is assumed to be 8 months (248 days).
  - The winter season is assumed to be 4 months (97 days).
- The characteristics of the system design proposed in Section 7 are stable for the first five years.
- Costs are predicted based on collected data, which does not distinguish:
  - The governance model and service providers of the peer systems.
  - The difference in cost and revenue to operate a single non-electric bike vs a single e-bike.
  - The difference in cost and revenue to operate a single non-electric bike during winter vs summer months – costs for winter operations follow the same assumptions as for summer operations.
  - The additional cost of winterizing bikes.
- 75% of the public investment will be provided by the City of Ottawa and 25% by the City of Gatineau. This is subject to further discussion between the Cities and the NCC.

The estimated costs for the first five years are summarized in Table 21. The operating costs are presented as an average per year for the first five years.

Table 21. Costs Estimations for the First Five Years

	Scenario 1: Fully Non-Electric			Scenario 2: 20% Electric		
	Ottawa	**Gatineau**	**Total**	**Ottawa**	**Gatineau**	**Total**
Capital cost (initial rollout only)	$6.98 M	$2.33 M	$9.30 M	$8.25 M	$2.75 M	$11.0 M
Launch cost	$1.8 M	$0.6 M	$2.40 M	$1.8 M	$0.6 M	$2.40 M
Annual 8-month operating costs (averaged over five years)	$2.25 M	$0.75 M	$3.00 M	$2.57 M	$0.86 M	$3.43 M
Incremental costs for annual winter operations	+ $0.35 M	+ $0.12 M	+$0.47 M	+$0.40 M	+$0.13 M	+$0.54 M
Annual capital cost for system expansions*	TBC	TBC	TBC	TBC	TBC	TBC

**The financial analysis did not estimate unit costs for bikes and stations. These can be obtained via a formal request for proposals from suppliers. An Expansion Plan should be developed post-launch to determine an approach to the ongoing expansion of the system.*

8.2.1 Capital Investment

Capital costs were estimated for **bikes and stations only**, and a sensitivity analysis was conducted with the following parameters:

- **Minimum cost:** corresponding to the lowest capital costs on the market
- **Average cost:** corresponding to the average capital costs on the market + a 15% increase to account for economic uncertainty + (an additional $10,000 electrification cost for each station for scenario 2)
- **Maximum cost:** corresponding to the highest capital costs on the market + a 25% increase to account for economic uncertainty + (an additional $25,000 electrification cost for each station for scenario 2)

Economic uncertainty is meant to capture risks of tariffs impacting the costs of bikes as well as risks of higher rates of inflation.

For information purposes only, capital costs can be averaged as follows for each scenario:

- **Scenario 1:** An average of $1,700 per bike, and $63,000 per station
- **Scenario 2:** An average of $2,250 per bike, and $72,000 per station (based on the data reviewed for the financial analysis, it is not possible to distinguish between the costs of non-electric and electrical technology)

These figures should not be interpreted as unit costs for estimating the costs of other system size configurations. Since the collected data only allows for the calculation of total costs, these average costs are valid solely for the two scenarios mentioned. It is not recommended to use these costs to derive total costs for other scenarios beyond the scope of this feasibility study.

8.2.2 Launch Costs

In addition to purchasing the bicycles and docking systems, there are other one-time capital costs associated with launching a bike share system, including:

- Securing a warehouse for operations and storage
- Purchasing supporting technology
- Purchasing maintenance and rebalancing assets (trucks, trailers, repair equipment, etc.)
- Pre-launch marketing campaigns

Technical Memo 4 communicated that, given the variety of governance models and limited financial data, it is impossible to isolate the one-time costs associated with system launch. Table 22 breaks down one-time launch costs in more detail.

Table 22: Factors influencing launch costs

	Influenced by	Determined by
Operations & storage facility	• Availability of publicly owned warehouse space • Seasonality of service • Needs and practices of chosen private operator	• Governance model • Operator procurement
Vehicles for fleet rebalancing	• Needs and practices of chosen private operator • System service area	• Operator procurement
Maintenance equipment	• Needs and practices of chosen private operator	• Operator procurement
Business setup fees	• Whether operating model involves creating a new organization	• Governance model
Pre-launch marketing	• Whether the service is offered by an existing company with high brand awareness (e.g., BIXI) or a new brand needs to be created • Needs and practices of chosen private operator	• Governance model • Operator procurement

Ultimately, the selection of the governance model and operator will determine the precise costs of these items. Depending on the governance model and the procured operator(s), an undefined portion of one-time launch costs might already be included within the total operating costs. For example, some operators may already own maintenance equipment and choose to cover depreciation costs through the operating expenses. In addition, provision of a publicly owned warehouse space for operations could help reduce these costs.

EnviroCentre's discussion paper identified from research that one-time launch costs range from $1,000 to $3,000 per bike [1]. For the purposes of this feasibility study, an average one-time launch cost of **$2,000 per bike** is assumed.

8.2.3 Operating costs

Total operational costs per year are based on an average cost per bike-day of activity derived from the financial data collected most appropriate to the scenario contexts of this study (Scenario 1: BIXI Montréal before 2019 and Hamilton Bike Share 2023 and Scenario 2: BIXI Montréal and Toronto Bike Share 2021-2023). A sensitivity analysis was conducted with the following parameters:

- **Minimum:** combines the minimum value with an assumed inflation rate of 2%
- **Medium-low:** combines the average value with an assumed inflation rate of 2%
- **Medium:** combines the average value plus 5% to account for the asset maintenance deficit, and an assumed inflation rate of 4%
- **Medium-high:** combines the average value increased by at least 5% to take account of the asset maintenance deficit and an assumed inflation rate of 6%
- **Maximum:** combines the high average value with an assumed inflation rate of 6%

For comparative purposes, operating costs can be calculated per bike, as follows for each scenario:

- **Scenario 1:** Operating costs per bike range from $2,380 to $2,622 for an 8-month operation, and from $2,754 to $3,035 for a year-round service
- **Scenario 2:** Operating costs per bike range from $2,720 to $2,997 for an 8-month operation, and from $3,147 to $3,468 for a year-round service

Similar to the note above, since the collected data only allows for the calculation of total costs, these average costs are valid solely for the two scenarios mentioned. It is not recommended to use these costs to derive total costs for other scenarios beyond the scope of this feasibility study.

8.3 Revenues

The financial strategies surrounding bike share systems are multifaceted. The peer systems all have a mixed-revenue model. Revenues are retrieved from user fees, sponsorships and public funding.

8.3.1 Revenue Estimates

Based on benchmarking data and estimated average operating costs (presented in Section 5) for the first five years of the system, a **high-level estimate of revenue** from various sources is provided for each scenario. The cases are presented to illustrate a range of potential revenues:

- **Lower limit**: This case is based on the smallest proportion of revenue coming from user fees and sponsors, along with the highest public investment. This limit could be a situation where the system gets low funding from sponsors and low ridership, which is possible in the initial years.
  Upper limit: This case is based on the highest proportion of revenue coming from user fees and sponsors, along with the lowest public investment. This limit could be a situation where the system gets considerable funding from sponsors and high ridership, which is more likely in mature systems.

Table 23: 8-month operation potential revenue (full, mature system)

	Scenario 1: Fully Non-Electric		Scenario 2: 20% Electric	
	Lower limit	**Upper limit**	**Lower limit**	**Upper limit**
Operating Budget	$3,000,000		$3,430,000	
Revenue from User Fees	30%	60%	30%	60%
	$900,000	$1,800,000	$1,029,000	$2,058,000
Revenue from Sponsors	5%	25%	5%	25%
	$150,000	$750,000	$171,500	$857,500
Public Investment	$1,950,000	$450,000	$2,229,500	$514,500

Table 23 calculates for each scenario the possible range of annual public investment required to support the system for an 8-month operation, as well as the average public subsidy per trip based on ridership estimates.

8.3.2 Potential Sources of Revenue

User Fees

There is a relationship between pricing and demand, where increases in the price of bike share will reduce demand. As a starting point, it is recommended that the pricing for the system be based on peer systems and then revisited in future years based on local data. Mature systems serving larger cities appear to be able to source a higher percentage of funding from user fees.

- Bike Share Toronto and BIXI Montreal, two of the most mature and successful bike share systems in North America, cover 68% and 60% of their operating budget with user fees, respectively
- Hamilton Bike Share, a smaller bike share system in a mid-sized Canadian city with an intentional focus on affordable pricing, sourced approximately one-third of its funding from user fees in 2024 [20]
- àVélo, a new all-electric bike share system in a mid-sized Canadian city, sourced 30% of its funding from user fees in its third year of operation in 2023

Grants

Grants can offer a key source of capital and/or operational funding for bike share systems, and there are many examples of existing and past programs supporting this in Canada.

- In the province of Quebec, the *Programme d'aide financière au développement des transports actifs dans les périmètres urbains* (TAPU) covers 50% of admissible expenses related to bike share services, up to $3 M. This program will continue until 2028.
- At the federal level, there is an Active Transportation Fund aiming at advancing the national objectives related to public transit, active transportation strategy and the Climate Plan. It can cover costs for the acquisition or improvement of capital infrastructure. Only municipalities are eligible to apply to the Fund. Crown corporations, such as the NCC, are not eligible.
- In 2020, Bike Share Toronto was allocated $9 M from the Provincial Government's Ontario Municipal Commuter Cycling Program (OMCC) to purchase equipment. This fund is no longer active but could return in the future.

- In 2022, the Hamilton Bike Share Adaptive Bike Hub launched with support from the Ontario Trillium Foundation. This foundation provides grants to support the work of non-profit organizations, small municipalities and Indigenous communities to help them deliver direct community-based programs and services in Ontario.

Sponsorship

One of the greatest opportunities to obtain financial support for operating a bike share system is to provide visibility to external organizations in exchange for money. This visibility can include the sponsor's logo on bikes or stations, on the bike share website, and in public announcements and social media.

- BIXI Montréal is well-established and has a wide range of sponsors, including Loto Québec as the presenting partner, Fizz, Tangerine, Beneva, and Rachelle Béry as major partners; ARTM, EXO, Communauto, and Vélo Québec as mobility partners; Cinémas Beaubien, Mural, and Mutek as cultural partners; and Parc Olympique and CycloChrome as local partners, along with all the municipal partners involved in the BIXI bike share system network. In 2024, BIXI received approximately $4.5 million from sponsorships and advertising, which was 24% of their total revenue.
- Bike Share Toronto has a partnership with Tangerine since 2023, which provide sponsorship per contract (a five-year contract). Their role is to amplify the brand and encourage ridership through co-marketing and communications [32].
- Hamilton Bike share is sponsored by Cogeco, Downtown Hamilton BIA, Metrolinx, and The Biking Lawyer.
- àVélo in Quebec City is the newest bike share system reviewed as part of this study. àVélo shared the difficulty of getting financial support from sponsors due possible risks of association with a new company. It takes a few years for a system to build that reputation and establish itself as a "permanent" system.

Public Investment

A publicly backed system is one in which a public agency financially contributes to capital and operational costs. This delivery model ensures lower user fees, greater stability, and more robust equity strategies [33]. All peer systems analyzed as part of this study have ongoing public investment to cover operating and expansion costs.

- BIXI will debut in Sherbrooke in 2025. The launch will feature 250 bikes and 25 stations, with 80% of the fleet consisting of e-bikes. The acquisition costs total approximately $2.3 million for the bikes and stations. The Société de transport de Sherbrooke (STS) received a subsidy of $1.1 million from *Le Programme d'aide financière au développement des transports actifs dans les périmètres urbains* (TAPU), accounting for 50% of the estimated cost. The City of Sherbrooke covers 60%, while the STS covers 40% of the remaining amount. Additionally, the City will invest $687,000 in the first year for the system's operating costs [34].
- For Bike Share Toronto, the City subsidized $6 million in 2024 for Annual Members. The system reported that if the annual membership were priced to cover the costs, it would need to cost users $305 per year (compared to the current price of $105 per year) [32].
- In 2023, the partner cities subsidized BIXI Montréal for a total of $3 million [30].

8.4 Five-Year Budget

For budgeting purposes, it is important to predict and present the expected revenues and expenses on an annual basis. This section presents an estimated budget based on the financial information presented above and the following key assumptions:

- Capital costs presented represent the average cost based on data from peer systems
- Operating costs represent the average between medium and medium-high estimates
- An **8-month season** with a stable system size (i.e., no expansion) for Years 1-5 (in reality, the system may be expanded prior to Year 5)
- The fees for memberships and one-way trips are based on the average of the peer systems' pricing and an assumed average one-way trip duration of 20 minutes
- Ridership is split evenly between casual user trips and member trips, and members take an average of 115 trips per year (based on Bike Share Toronto statistics)
- Ramp-up effects would result in Year 1 ridership being 66% of mature system ridership, increasing to 75%, 90%, and 100% in Years 2, 3, and 4, respectively
- A conservative mature system sponsorship value of $300,000 is assumed, with a ramp-up following the same path as ridership
- A rate of return of 5% is used to calculate net present value

8.4.1 Scenario 1: Fully Non-Electric

Table 24: Five-year budget for Scenario 1

Scenario 1: Fully Non-Electric	Year 1	Year 2	Year 3	Year 4	Year 5
Ridership Revenue	$777,960	$884,046	$1,060,855	$1,178,728	$1,178,728
Sponsorship Revenue	$198,000	$225,000	$270,000	$300,000	$300,000
Launch Costs	$2,400,000				
Capital Costs	$9,300,000				
Annual Operating costs	$2,710,000	$2,850,000	$2,990,000	$3,140,000	$3,300,000
Estimated Net Public Investment	$13,434,000	$1,740,954	$1,659,145	$1,661,272	$1,821,272
Estimated Five-Year Net Present Cost	$18,600,400				

8.4.2 Scenario 2: 20% Electric

Table 25: Five-year budget for Scenario 2

Scenario 2: 20% Electric	Year 1	Year 2	Year 3	Year 4	Year 5
Ridership Revenue	$974,490	$1,107,375	$1,328,850	$1,476,501	$1,476,501
Sponsorship Revenue	$198,000	$225,000	$270,000	$300,000	$300,000
Launch Costs	$2,400,000				
Capital Costs	$11,000,000				
Annual Operating costs	$3,100,000	$3,260,000	$3,420,000	$3,590,000	$3,780,000
Estimated Net Public Investment	$15,327,510	$1,927,625	$1,821,150	$1,813,499	$2,003,499
Estimated Five-Year Net Present Cost	$20,981,000				

Sensitivity Test: Higher E-Bike Use

Peer benchmarking from other systems revealed that e-bikes are highly popular and tend to be used, on average, more often than non-electric bikes. To capture the potential impacts of this, a sensitivity test is presented below for the scenario with a fleet of 20% electric bikes, where each electric bike is assumed to generate 2x more trips per bike than the non-electric bikes in the system. Assuming the fully non-electric system modelled in Scenario 1 generates 376 annual trips per non-electric bike, an average annual ridership of 752 trips per e-bike is therefore applied for the sensitivity test, resulting in an 8-month season ridership of 541,200 trips.

Table 26: Five-year budget for sensitivity test

Sensitivity Test: Higher E-bike Use	Year 1	Year 2	Year 3	Year 4	Year 5
Ridership Revenue	$1,250,064	$1,420,527	$1,704,633	$1,894,037	$1,894,037
Sponsorship Revenue	$198,000	$225,000	$270,000	$300,000	$300,000
Launch Costs	$2,400,000				
Capital Costs	$11,000,000				
Annual Operating costs	$3,100,000	$3,260,000	$3,420,000	$3,590,000	$3,780,000
Estimated Net Public Investment	$15,051,936	$1,614,473	$1,445,367	$1,395,963	$1,585,963
Estimated Five-Year Net Present Cost	$19,439,000				

8.4.3 Comparison of Scenarios

This report's methodology presents a data-driven estimate of ridership and financial performance for the proposed bike share system and makes key assumptions based on peer systems to complete extra details, including launch costs, per-trip revenue and ramp-up effects. This presents a most likely estimate of the performance of the initial rollout of the system. A comparison of the key metrics for each of the three scenarios is shown in Table 27.

Table 27: Comparison of scenarios

	Scenario 1: Fully Non-Electric	Scenario 2: 20% E-Bikes	Sensitivity Test: Higher E-Bike Use
Ridership (8-month operation)	451,000	462,000	541,200
Net Present Cost (Years 1-5)	$18,600,000	$20,981,000	$19,439,000
Year 5 Net Public Investment	$1,821,000	$2,003,000	$1,586,000

When considering the capital outlay for the system, Scenario 2 (20% E-bikes) represents a capital outlay that is 13% higher than Scenario 1. Under the scenario where e-bike demand is higher than the demand modelling predicted, a system of 20% E-bikes could cost less than Scenario 2, but still 5% higher than Scenario 1, while delivering approximately 20% more system ridership.

Finally, it is important to note that a key recommendation of this report is the development of an **Expansion Plan** post-launch, with continuous expansion of the system. Growth of the system will require additional capital investments and will increase the system's operating revenues and costs.

9. ENVIRONMENTAL, SOCIAL AND ECONOMIC BENEFITS

9.1 Environmental Benefits

By offering another convenient and reliable travel option, it allows people to depend less on cars and drive less frequently. Overall, more people on bikes means lower emissions from vehicles and improved air quality.

The ridership model was expanded to estimate greenhouse gas (GHG) savings by looking at how many high-emission trips (like car and taxi rides) bike share could replace. The modelling predicts that 1 in 6 bike share trips replaces one taken by a **motor vehicle** (either driving or taxi/rideshare). Different bike types (like e-bikes) replace different kinds of trips, which affects GHG savings. GHG reductions were estimated using formulas from the Government of Canada, based on typical fuel efficiency. Table 28 shows how much potential energy (gigajoules [GJ]) and GHG emissions would be offset based on estimated annual trips for a year-round operation, as well as the potential reduction to vehicle kilometres travelled.

Table 28: Potential GHG emissions reductions based on estimated annual trips and fleet mix

Percent E-Bike	Energy Diverted (GJ)	Converted Vehicle Kilometres Travelled (VKT)	CO_2 Reductions (tonnes)	CH_4 Reductions (kg)	N_2O Reductions (kg)
0%	1,539	476,825	1,100.04	47.68	9.54
20%	1,654	512,567	1,182.49	51.26	10.25

As seen in Table 28, the potential for GHG emissions reduction is significant in the region and **could reach up to 1,654 GJ of energy diverted, which is equivalent to approximately 1.2 kt of CO_2 annually**, assuming a fleet mix of 20% e-bikes and a full build-out of 115 stations operating in its mature state.

Insights from eight US cities indicate that the total annual reduction in emissions correlates linearly with the number of trips, bikes, and docks. Bike share stations in city centers yield greater overall GHG emission reductions due to elevated trip volumes, whereas stations located farther away demonstrate higher emission reductions per trip, attributed to longer trips and increased car substitution rates [35]. As the Ottawa-Gatineau bike share service area increases with future system expansions, it will reach areas where car travel is more dominant and trips average longer distances, creating more potential to further reduce emissions.

9.2 Equity, Public Health, and Social Well-being

The benefits to the community are extensive, ranging from employing local residents to manage the system to increasing physical activity and stimulating the economy. Bike sharing can also be a social activity, encouraging people to spend more time outdoors [16].

Bike share as a public transport option offers an affordable way for everyone to participate in the community. The proposed initial service area for a bike share system in Ottawa serves 15 Equity Priority Neighbourhoods, as well as many neighbourhoods that are materially and socially disadvantaged in Gatineau.

Riding a bike reduces the sedentary lifestyle that comes with relying on a car for everyday travel. If an average of 20 minutes per trip is applied to the estimated ridership [16], the Ottawa-Gatineau bike share system could represent up to 153,000 hours of physical activity annually.

9.3 Tourism, Economy and Local Business

Downtown revitalization is a major economic challenge and goal for the Cities of Gatineau and Ottawa. A March 31, 2025 press release from mayors Mark Sutcliffe and Maude Marquis-Bissonnette containing joint priorities for the region identified "revitalizing downtowns" as the first of 8 shared priorities, specifically partnering with the federal government to revitalize downtown neighbourhoods [36]. Additionally, in May 2024, the Ottawa Board of Trade released "The Downtown Ottawa Action Agenda," which included the immediate action of "enhancing transit options to make downtown more accessible" with a specific step to "re-introduce a bike share program" [37]. Moreover, the City of Gatineau is currently reviewing its *Plan particulier d'urbanisme* (PPU) for its downtown, with a vision to create complete streets that are favourable for pedestrians and cyclists. The previous version aimed to strategically implement bike share stations within downtown.

According to a North American Bikeshare & Scootershare Association (NABSA) report [16], in North America, in 2023, 75% of bike share trips are for social activities, shopping, running errands, exercise and recreation. **A bike share service that connects with rapid transit stations in the downtowns of Ottawa and Gatineau and beyond has tremendous potential to improve the ease and enjoyment by which people can travel to and around these centres.** Among the peer systems interviewed, bike share has become a tremendous source of local pride; Capital Bike Share staff shared that the service is "the pride of the region."

The initial service area in Ottawa contains 8 business improvement areas, all of which are easily accessible by bike and would benefit from the increased access to customers that bike share offers. In Gatineau, a bike share system could play a crucial role in revitalizing Boulevard Saint-Joseph, providing transportation options to existing commercial centres, local businesses, and supporting major housing growth (more than 10,000 new homes between Saint-Raymond and Montclair).

Lansdowne Park is another example of where bike share can complement transit. Lansdowne is beyond walking distance from Ottawa's rapid transit network but is within a 10–15-minute bike ride via existing cycling infrastructure (bike lanes, cycle tracks, off-road multi-use pathways and local streets) from five different rapid transit stations within the proposed bike share network (see Table 29). The provision of bike share could become a significant tool for making this regional destination and others more accessible to more people by sustainable modes of travel.

Table 29: Bike time vs walk time for accessing Lansdowne Park from nearby rapid transit stations

Access to Lansdowne Park from:	Distance (km)	Walk Time (mins)	Bike Time (mins)
Lees (Line 1)	2.8	38	11
Hurdman (Line 1)	3.3	45	13
Billings Bridge (Transitway)	2.2	31	12
Carleton (Line 2)	2.5	34	11
Dow's Lake (Line 2)	2.8	38	13

Major events and tourism benefit from bike share as it puts less pressure on existing transportation systems and is more space efficient. In Toronto and Vancouver, travel to the FIFA World Cup Games will be supported by bike share systems. When Taylor Swift performed in Toronto, Bike Share TO offered special promotional passes and event support to keep all modes of transportation moving. Opportunities like this in the region are numerous. The initial service area will also include bike share stations at:

- The Bluesfest site in Ottawa currently offers free supervised valet bike parking.
- The future Ottawa Senators complex on LeBreton Flats, which will host major sports and cultural events, aligns with development priorities to facilitate the use of sustainable modes to access the site.
- Zibi Gatineau, which hosts major festivals on its site, with limited parking spaces.
- Casino Lac Lemay is also a host to major events, such as the Festibière and has a program of shows.
- Lansdowne Park, which regularly hosts major concerts and sporting events

In summary, bike share has been determined to be a catalyst for wider economic benefits. Bike share allows cities to function more efficiently, only by reducing journey time, which increases the community's productivity. If the cycling network is well-connected, bike share can make a considerable contribution to the urban economy. In Dublin, Ireland, it was shown that time benefits, wider economic benefits and health benefits contribute to a combined benefit-cost ratio of over 12-to-1 [38].

10. RECOMMENDATIONS AND FURTHER NEEDS

10.1 Regulatory Considerations

As a next step, the City of Ottawa, Gatineau and NCC should collaborate with legal and risk management staff to review all federal and provincial regulations listed in Section 6.1 to confirm which ones are applicable to a bike share public transportation system and discuss whether any are missing.

10.1.1 Municipal By-Laws

There are key considerations that the future operator must address for the smooth implementation of bike share in each jurisdiction. As a general recommendation, to avoid any delays or unnecessary fees for permitting construction work related to station installation, **the land access permit process within each jurisdiction should be free and simple.** Additionally, as bike share service is a form of commercial activity, the bike share service provider should be allowed to drive their vehicles and operate freely and legally in the streets and Capital Parkways. Rebalancing vehicles should also be permitted to park on-street, at designated areas, when performing rebalancing activities. More specifically:

- **The City of Gatineau** must lead any construction work for electrification and any other encroachment of the street's right-of-way so that the bike share system is exempt from following the 364-2008 and 629-2009 regulations. Another option would be for the City to include in their process the ability to authorize the operator to perform the construction work without any fee.
- **The City of Ottawa** should clarify that construction works awarded by the City (such as installation and electrification of a station) can be exempted from permit fees in By-law 2003-445, section 4.1.
- **The City of Ottawa** should ensure that bike share stations in the public right-of-way are included in the definition of bicycle parking facilities. According to By-law 2017-301, as long as the city provides the facility, bicycles are permitted to park on bicycle parking facilities.
- **The NCC** should ensure that the bike share provider that will be procured is listed and considered an official partner of the NCC within the permit department, so that the permit for land access is free to issue and that access to the NCC parkways for service vehicles is permitted.

10.1.2 Procurement

While many regulations at both the provincial and federal levels are the vendor's responsibility, municipalities must ensure that the vendor understands the specific requirements of the region, as bikes and their users have different requirements between the two provinces. When issuing the RFP and purchasing the assets, it must be confirmed with the vendor that the devices and charging stations meet the most stringent requirements (between the two provinces) to maintain uniformity within the fleet, respecting the equipment standards of both provinces.

More specific to the logistics operator, when releasing the RFP and reviewing the contract, the municipalities should work closely with their legal and risk management staff to ensure that the operator, at least:

- Have proof of **liability insurance**
- Their **vehicles and equipment meet the traffic laws** of both provinces
- Meets the applicable **occupational health and safety** requirements for both provinces

- Meets the **advertisement** requirements for both provinces
- Meets the **data privacy** requirements when collecting and using personal information from the users
- Register (or are already registered) on the list of merchants at the *Office de la protection du consommateur* and Consumer Protection Ontario, if applicable

Looking at available RFPs requesting services from bike share providers is useful to write terms and conditions applicable to the region. Examples of recent RFPs published are the ones from the City of London, the City of Coquitlam and the City of Surrey.

10.1.3 Terms and Agreements – Minimum Age

In Ontario and Québec, users must be a certain age, possess a license, and wear a helmet to ride an e-bike. These conditions differ from province to province. While the users are responsible for following these provincial laws, the requirements should be well communicated to them on the website FAQ and as part of the terms and agreement references.

Ottawa, Gatineau and the NCC must agree on the terms and agreements for age requirements to use the system, in collaboration with the procured bike share provider. The following must be clearly communicated to the users:

- The minimum age for using the system without adult supervision. BIXI allows anyone over 14 years old to use non-electric bikes without adult supervision, and for Bike Share Toronto, it is 16 years old.
- The age range for using the system with adult supervision. For Bike Share Toronto, users between 14 and 16 years old must be accompanied by a parent or guardian.
- The minimum age and applicable requirements to use e-bikes must align with both provincial regulations. For both provinces, e-bikes can be used by people aged over 16. However, the requirements for riding an e-bike are more restrictive in Québec for individuals between 16 and 18 years old, where a moped licence (Class 6D) or a driver's licence is required to operate an e-bike.

10.2 Governance Framework

Governance refers to the various structures and processes that a system has in place to ensure optimal operation. In the context of a bike share system, the governance model refers to asset ownership, the roles and responsibilities of the various stakeholders, and the contracting structure with different service providers. Defining the governance framework will help determine:

- Who will make system planning and expansion decisions
- How much control each municipality will have (and how much influence others will have) over pricing, station placement, and other policies
- How much staffing time and effort will be required
- Which vendors will be eligible to operate the system
- How equity-focused will the system be

The governance model selected will also affect the timeline for launching the system and the costs. A key factor for a bike share program in the Ottawa-Gatineau region is the involvement and collaboration of the three agencies: the City of Ottawa, the Ville de Gatineau, and the National Capital Commission.

10.2.1 Ownership Model

A key project assumption identified with the CPT is that the bike share system will be **publicly backed**. Therefore, each agency (Ville de Gatineau, City of Ottawa, and possibly the NCC) will own its assets (bikes, stations, and terminals) and will contribute to the operational costs. This assumption is based on:

- Previous experience in the region that was not successful in the long term with a privately permitted system.
- North American and international best practices show that publicly backed systems are more sustainable, successful, and serve a wider population.
- Benchmarking with peer systems highlighted the benefits of public investment in a bike share system to ensure its status of "permanence."

10.2.2 Roles and Responsibilities

The governance model will need to consider the region's complexity and define each partner's clear roles and responsibilities for implementing and running the bike share system. The peer benchmarking exercise found that while each system's governance model is different, all governance models are tailored to the region's needs and selected based on the regional constraints. The governance model needs to be somewhat flexible to political changes.

As a reminder, the roles for governing a bike share system are as follows:

- **Overseeing Agency/Agencies:** accountable for the system, including procurement of the system, management of its contracts, planning expansions, and setting policies like pricing.
- **System Operator:** responsible for the day-to-day operation of the system (e.g., rebalancing, maintenance, customer service, fare collection). The daily operations for running the bike share service are typically handled by a private operator acquired through a procurement process.
- **Equipment Supplier:** supplies bikes, docks, and other assets, if applicable.
- **Sponsor:** provides ongoing funding in exchange for marketing assets, advertising, etc.

Option 1: Collaborative Model

Under the Collaborative Model, partners work together to implement and run the bike share system. This model is inspired by Capital Bike Share DC, where the eight jurisdictions overseeing the Capital Bike share program are considered the system operators. While jurisdictions collaborate on procurement, each jurisdiction has its own contract with a shared equipment supplier (Lyft) and with the same logistics operator (Motivate). The advantages and considerations of this model in the context of Ottawa-Gatineau are listed in Table 30.

Table 30: Governance Option 1 (Collaborative Model) advantages and considerations

Advantages	Considerations

• Develops/consolidates local knowledge of bike share in the region
• Each jurisdiction can make decisions about their networks independently and without the creation of a new organization
• More control over the bike share system:
  ○ Responsible for the procurement of the assets with the providers
  ○ Responsible for deciding user fees and revenue models
  ○ Significant involvement of the jurisdictions in major decisions (e.g., station locations, data-sharing, maintenance of the assets)
	• Require consensus between partners at all stages
	• Collaboration for procurement - Requires going through a procurement process to contract a logistic operator
	• Requires significant ongoing collaboration between the jurisdictions on overarching policies
	• Innovations and expansions could take longer

The biggest risk of adopting this governance model is the current lack of institutional capacity and experience related to bike share.

Option 2: Third-Party Model

The Third-Party Model consists of partners **collaborating to create a third-party organization** that will implement and run the bike share system in the region. This model is inspired by àVélo Québec, where the agency overseeing and initially operating the bike share system (Réseau de Transports de la Capitale), created a third-party organization called Capitale Mobilité in the form of a limited partnership responsible for commercial and real estate development, which was eventually given the mandate to operate the system. The logistics operator for àVélo Québec is Vélosolutions, and Capitale Mobilité procures its assets with Lyft.

Currently, the only transportation planning entity coordination efforts within the entire National Capital Region is TRANS, a joint transportation planning committee serving the National Capital Region that conducts travel surveys and other activities. While the TRANS committee is an example of collaboration among the major transportation planning agencies of the National Capital Region, this entity is not responsible for generating additional revenue from public transportation systems, unlike Capitale Mobilité. In the context of the Ottawa-Gatineau region, a new entity would need to be established, or the TRANS mandate and mission could be updated to include bike share operations. The advantages and considerations of this model in the context of Ottawa-Gatineau are listed in Table 31.

Table 31: Governance option 2 (Third-Party Model) advantages and considerations

Advantages	Considerations
• Develops/consolidates local knowledge of bike share in the region • Requires less ongoing staff effort and coordination between the Cities and the NCC • Daily risks are managed by a third-party organization • A third-party organization, created by the partners, is responsible to ensure that the vision of the three partners is respected	• Some control over the bike share system: The liability of the limited partners is capped by the amount of capital they contribute, without involvement in daily operations. • Depending on the model of the third-party organization, the partners could have limited influence over: ○ Planning the network ○ The procurement of the assets with the providers ○ Going over a procurement process to contract a logistic operator ○ Deciding user fees and revenue models ○ Innovations and expansions

The biggest risk with this model is putting trust in an external organization whose interests could diverge from those of the partners if the relationship is not well maintained. This risk can be mitigated if members of the third party's boards of directors are municipal and NCC representatives. Building a third-party operator and partnership demands careful preparation, ensuring board members understand the mandate and objectives.

Option 3: Vendor Managed Model

The "Vendor Managed" Model consists of **contracting a vertically integrated organization to plan and operate the bike share system**. The key difference is that a provider under this model would serve as both the system operator and the logistics operator. For example, BIXI has served this role in Montréal for many years, and the organization has recently shown interest in expanding its presence to other jurisdictions. Sherbrooke is the most recent city outside the Greater Montréal area to have joined the BIXI network.

"BIXI" in Gatineau and Ottawa would mean that the bike share system would be part of the BIXI Montréal bike share network and share the benefits and risks with the other cities that are part of the network.
In the context of the Ottawa-Gatineau Region, the advantages and considerations of this model are listed in Table 32. The table is completed based on the scenario of BIXI filling this role; it is possible that another vertically integrated organization may operate differently.

Table 32: Governance option 3 (Vendor Managed Model) advantages and considerations

Advantages	Considerations
• "Turn-key" solution of a bike share system that has demonstrated a high level of success • Access to BIXI's (or equivalent) experience and knowledge in planning and operating a bike share system • Access BIXI's (or equivalent) strong brand recognition • Share the financial risks among all the partner cities • Users have access to bike share in multiple cities under the same account and membership, boosting interregional tourism.	• User fees are fully determined by the system operator, and consistent across the entire BIXI (or equivalent) network • Possibility for Cities and/or NCC to fund stations with lower performance • Dependence on a bike share entity that is not local • All partners individually collaborate with BIXI (or equivalent) and have less incentive to collaborate with each other

The biggest risk of choosing a vertically integrated operator is that if it encounters difficulties and fails, there may be less local expertise in planning and operating a bike share system. This risk could be mitigated if the partners ensure close collaboration with the operator. Since the municipalities would still own the assets, they could restart with another logistics operator.

A key next step for the CPT is to gather more information on this governance option, such as the level of control the partners have with this model, the challenge of starting over with another logistics operator if a given operator fails, and the various constraints related to sole-source procurement for the partners.

10.2.3 Next Steps for Governance

While this report sought to provide a clear recommendation for a governance model, more information and internal consultation is needed before partners can arrive at this decision. After completing the Ottawa-Gatineau Bike Share Feasibility Study, a key next step is to determine roles and responsibilities and decide on one of the three governance options. **Deciding on a governance model is the key next step to start implementing the bike share system in the region**.

For partners to further consider governance options 1 and 2, the next logical steps are to:

- Assess staffing capacity
- Review the procurement process (joint procurement)
- Discuss the value of creating a new organization

If partners are interested in simplifying the organizational structure and having consistency between system and logistics operations, they could:

- Meet with BIXI and any other interested vertically integrated operators
- Request a presentation and reach out to Sherbrooke to learn more about their experience with BIXI
- Explore the presence of equivalent organizations that offer integrated planning and operations services, which could include Bicycle Transit System and Lyft

Ultimately, procurement of the service providers needs to be a joint effort among the three partners that respects procurement rules.

10.3 Station Permitting

The preliminary station placement exercise identified 9 station candidate locations that are not within the municipal right-of-way, therefore requiring additional permitting with stakeholders such as Carleton University, University of Ottawa, OC Transpo, municipal parkland, and the NCC. To facilitate station permitting both on public right-of-way and on private property, a free and streamlined procedure for permitting stations should be developed. This process could include:

- Developing a checklist for by-law compliance for stations in the public right-of-way (in boulevard and on-street), such as the checklist used by Bike Share Toronto.
- Developing a bike share station reference guide, providing guidance on dimensions and spacing requirements, such as the one developed by Bike Share Toronto.
- Developing procedures for approval for stations on municipal property outside the right-of-way, private property, and federal lands.
- Developing procedures for relocation of bike share stations during temporary disruptions (e.g., street works).
- In the future, encouraging or incentivizing developers to allocate space for bike share stations on private property as part of site planning for new developments.

10.4 Safety and Security

10.4.1 Municipal Liability

The 2025 TAC report on Shared Micromobility Services in Canadian Communities [33] shares steps that municipalities have taken to reduce risk and protect themselves from liability. Municipalities should:

- Require operators to indemnify the municipality, its elected officials and employees against all liabilities, claims, and judgements.
- Require operators to have general liability insurance and other insurance such as automobile coverage.
- Work closely with their legal and risk management staff to build understanding and agreement before implementing a service.

10.4.2 User Liability

Typically, the terms and conditions absolve the operator of responsibility for any incidents caused by users. For example, below is one of the terms and conditions articles of àVélo Québec:

> "The user assumes full responsibility for any damage or injury of any kind caused by the use of the Service. The user assumes full responsibility for any accident or injury to himself or a third party resulting from using a bicycle."

The terms and agreements should inform the **users** that they **assume full responsibility** for injuries.

10.4.3 Road Safety

The International Transport Forum (ITF) Safe Micromobility report provides some valuable recommendations to improve road safety related to the use of micromobility devices [39]. The most relevant ones for bike share are:

- It is important to collect and manage data on crashes, incidents, injuries and safety performance of the street network (e.g., potholes, damages) to improve the system and the network on which the bikes navigate.
- ”By-the-minute” rental fees should be avoided so users don’t feel rushed. This reduces the incentive to commit road infractions, such as running a stop sign or a red light. Fare strategy should consider options such as a one-way fixed fee and monthly/annual memberships.
- Next to bike share stations, road space should be provisioned for bike rebalancing vehicles to avoid conflicts with other road users.

10.4.4 Station Siting

The NACTO Bike Share Station Siting Guide provides high-level guidance on physical bike share station siting principles [40]. To maximize personal safety, the following recommendations are provided:

- Stations should be highly visible
- Stations and kiosks shouldn’t impede pedestrians and other cyclists
- Stations and kiosks shouldn’t create conflicts with bus stops, loading bays, utility access points (e.g., drainage covers or tree grates)
- On-street stations should be prioritized at intersections for better pedestrian visibility and safety, compared to a parked vehicle
- Stations should be physically protected when users are at risk of having to deal with motor vehicles (e.g., with bollards, wheel stops, blocks, planters, curbs or fencing)

10.5 Multimodal Integration

10.5.1 Public Transit

Transit integration with shared micromobility offers opportunities for growth and collaboration. Recommendations to improve the integration of shared micromobility and public transport found in the literature include [17]:

- Physical integration (i.e., bike share stations close to transit stations, wayfinding, cycling infrastructures around transit stations)
- Payment and fare integration (i.e., integrated payment options)
- Informational integration (i.e., integrated trip planning platform)
- Institutional integration

Local transit agencies have an active role to play in the success of a bike share system. According to a NABSA survey [16], transit agencies are typically involved in:

- Station and hub planning
- Supporting grant writing/funding applications
- Serving on advisory boards
- Providing direct funding support
- Co-marketing or cross-promotion with shared micromobility

- Receiving information through data-sharing agreements
- Offering in-app trip planning
- Offering bundled transit + shared micromobility passes and payment
- Providing a discount when connecting with transit

The roles and responsibilities of transit agencies with respect to the bike share system should be clearly defined. The City of Ottawa and Ville de Gatineau should coordinate with OC Transpo and STO to clearly define their role in the bike share system. Additionally, to maximize transit integration in the context of Ottawa-Gatineau:

- Bike share docked stations should be located in highly visible locations near higher-order transit stations, such as O-Train stations, Transitway stations, and Rapibus stations.
- Bike share docked stations should also be situated at major Park-and-Ride or incentive parking areas.
- Other opportunities to integrate bike share with transit could be to eventually locate stations at intercity transportation hubs, e.g., where intercity buses drop off passengers within the service area.
- Strategically locating bike share stations near major transit hubs should be accompanied by a reduction in the supply of car parking spaces in these locations.
- Transit agencies should co-promote incentives like “free-trial ride for first-time users” to showcase alternatives to the automobile for first and last-mile trips.
- Transit agencies should continue to collaborate in facilitating integrated payment methods between OC Transpo, STO, and the future bike share system.
- All public transport schedules and routes should be integrated into a single trip planning platform, such as the Transit App or Google Maps.

10.5.2 E-Scooters

In North America in 2023, **115 cities** had concurrent bike share and shared e-scooter programs. Two of the peer systems interviewed, Hamilton and Washington, DC, have public bike share systems operating concurrently with private shared e-scooter systems. Both indicated that the two systems **complement** rather than compete with each other, as they attract different types of users and/or serve different trips.

To complement and co-exist with shared e-scooters, recommendations from Braga, a city in Portugal that added a shared e-bike service after an established shared e-scooter service include:

- Ensuring that the dedicated infrastructure where bike share can be used is as safe and convenient as where shared e-scooters can be ridden. In Ottawa-Gatineau, e-bikes and non-electric bikes are currently permitted more widely than e-scooters.
- Efforts need to be made to minimize price differences among the systems to provide equal opportunities for people to ride their preferred mode.

For the Ottawa-Gatineau region, it is important to position bike share and private shared e-scooters as strong services that complement each other. The recommendations to achieve this are:

- City of Ottawa staff need to prepare talking points to speak about how bike share is different from e-scooters, and the importance and advantages of offering both systems, emphasizing:
  - **Restrictions:** The NCC does not permit e-scooters to operate on its pathways, while bikes and e-bikes are permitted.

- **User Costs:** Shared e-scooters are usually more expensive to users than bike share. In 2023, the average cost of a one-way trip on a dockless e-bike or e-scooter in North America was around $6.00, while in 2023 the cost of a one-way trip on Hamilton Bike Share averaged $1.83 [20].
- **Trip Distance:** Dockless e-bike and shared e-scooter trips usually last 11 to 12 minutes, significantly shorter than the 30 to 35 minutes typical for pay-as-you-go station-based bike share rides average, indicating that bikes tend to be used for longer trip distances.
- **Effort:** More physical effort is required to ride a non-electric bike compared to an e-bike or e-scooter.
- **Equity:** With higher costs, shared e-scooters have less potential to be considered as an equitable transportation mode if no reduced-fare pricing is offered for lower-income populations.
- **Utility: S**hared bikes are more convenient for utility trips because they can carry more items and often include a basket or rack.
- **User Base:** Shared bikes attract users in a wider age range, from teenagers to elderly people.
- **Pedestrian Conflicts:** Shared bikes are safer for pedestrians because users venture onto the sidewalks less often.
- **Versatility:** Shared bikes have larger wheel sizes that are better able to navigate road conditions (including sewer grates and potholes).
- **Visibility:** Shared bikes are usually more visible to drivers, especially at night.

- If the City of Ottawa wishes to minimize the price difference between the two systems, the pricing of shared e-scooters that should be lowered, not the other way around.
- Constraints limiting the use of e-scooters in Ottawa, shouldn't be applied to the bike share system. Instead, bike share may serve as an inspiration to reduce restrictions on e-scooters, for example on NCC pathways or during overnight periods.

10.5.3 Car-Share and Carpooling

In Montréal, a local car share organization, Communauto, and BIXI are long-term partners. Communauto members receive a 10% discount on a BIXI seasonal membership, while BIXI members enjoy a $45 discount on various Communauto packages.

Communauto operates in both Ottawa and Gatineau. Bike share integration with car share services opportunities include:

- Installing bike share stations close to car-sharing stations
- Offering bundled car-share + shared micromobility passes as payment
- Providing discounts when connecting with car share

A partnership could also be considered with carpooling services like Poparide, Ottawa Ride Match, and Kangaride/Amigo Express. Bike share stations could be located at main departure or arrival sites.

10.5.4 Intercity Transportation

Similar to major public transit stations, it is important to enable bike share to support first- and last-mile transportation for intercity travel, specifically for intercity rail, coach bus, and carpooling services.

Existing stops for intercity transportation within the initial service area, which are likely to be within a short walk of a proposed bike share station, include:

- Place du Portage, serving Autobus Maheux and Orleans Express
- Mackenzie King Bridge, serving Autobus Maheux

Existing stops for intercity transportation beyond the initial service area include:

- Tremblay Station (VIA Rail), serving VIA Rail, Ontario Northland, Orléans Express, Red Arrow, and Flixbus
- St. Laurent Station, serving Megabus and Rider Express

These stations would be accessible in the initial rollout with a bike share + transit trip via O-Train Line 1 but are highly valuable to serve directly with bike share to further enable intercity travel connections.

10.6 Equity

Bike share systems have the potential to benefit equity-seeking populations, but only when intentional efforts are made in the system design. For the National Capital Region, recommendations for achieving equity objectives are divided into network design, financial, and social equity.

10.6.1 Equitable Network Design

An equitable bike share network in Ottawa-Gatineau should:

- Provide stations that are highly visible, with well-lit stations in well-trafficked areas
- Serve destinations beyond just office employment
- Operate in areas with low car ownership and a high concentration of young people (e.g., apartments, university campuses), and in higher equity priority areas
- Collect data and assess the various user profiles annually to adapt to the local customer base
- Have a rebalancing target for availability across the city, to ensure hubs in equity-deserving areas have bikes available at all times of day
- Be available 24 hours a day and 7 days a week

At a higher level, it is also important that the municipalities and the NCC remain committed to improving the safety of the cycling network and providing a network for people of all ages and abilities.

10.6.2 Remove Financial Barriers

Bike share should be accessible to people facing transport poverty who cannot afford to buy a bike, an e-bike, or a car. Providing an equitable payment structure is key to removing financial barriers to accessing bike share. This means:

- Accepting multiple forms of payment
- Allowing access without internet and a credit card. For example, BIXI has the option to unlock a bike with a special key containing membership personal information
- Offering different membership commitment options
- Offering low-cost / discounted memberships to select populations. For example, Hamilton Bike Share's Everyone Rides Initiative offers memberships to qualifying individuals at 10% of the regular membership price

[41]. Transit services already offer lower-cost memberships with the STO ECHO pass and OC Transpo EquiPass, so a precedent exists in the region for special fares in the public transportation system.

10.6.3 Social Equity

Providing a socially equitable system in the region means:

- Offering all communications in both French and English and considering other languages as needed.
- Offering different types of bikes, such as cargo bikes or adaptive bikes, to meet the needs of specific groups of populations and requiring less reliance on the use of a car.
- Including e-bikes as part of the fleet in the early phases of the system, as they are more popular among occasional users.
- Partner with organizations to promote educational programming to teach people how to cycle and use the system, for example, *Toutes à vélo* and Velo Vanier.

For reference, Hamilton Bike Share has an initiative called "Everyone Rides" [41], which offers:

- An adaptive bike hub that allows members to rent adaptive cycles
- 90% subsidized bike share passes for qualifying individuals
- Education and training support for users

10.7 Pricing

While fare collection is typically a function of the logistics operator, pricing policy is a key decision of the system operator. As discussed in Section 5.5.3, typical pricing strategies include single-use (one-way), monthly, or full-season passes (which have a daily limit). Pricing across the peer systems is quite similar, with casual use costing $0.12 to $0.30 per minute in addition to a $0 to $1.35 unlocking fee, and seasonal passes costing $100 to $140. In systems with both e-bikes and non-electric bikes, e-bike pricing is higher.

Applying an average across the peer systems and assuming a trip length of 20 minutes and that an average seasonal pass is used for 115 trips (i.e., the price for a member), the potential average user cost per trip is estimated in Table 33 comparing non-electric bike and e-bike trips for casual users and members.

Table 33: Average user cost for a 20-minute trip

	Non-electric bike	E-bike
Casual	$4.25	$6.87
Member	$0.98	$3.68

The following is recommended for the system's pricing strategy:

- The same pricing structure should be applied across the full system, with no additional fees for interprovincial trips.
- Offer one-way pricing options, like transit does in the region. For safety purposes, avoid "by-the-minute" pricing, so users don't feel rushed.
- Offer monthly and seasonal pricing options that deliver high value for frequent users of the system.
- Set fees comparable to other peer systems. Exact fees should be determined by the system operator.
- Consider offering highly subsidized memberships to qualifying low-income individuals.

While membership pricing results in a lower revenue per trip for the system, it incentivizes higher use of the system, supporting many of the non-financial objectives of bike share. Meanwhile, per-use rates are often more expensive and priced for cost recovery or even profit generation for the system.

10.8 Marketing & Communications

10.8.1 Public Engagement

A system's previous, current, and future users possess valuable knowledge that can help it succeed. The peer systems engaged with the public in different ways to build a system that aligns with their interests and needs:

- Hamilton Bike Share and BIXI crowdsource station locations.
- àVélo surveyed the population to assess their interests in the type of bike share system they would prefer. Based on this, they decided to adopt a fleet of 100% e-bikes.
- BIXI surveys users every winter to evaluate and enhance the winter operation pilot.

Engaging the public will help build support and inform other interested organizations and stakeholders (e.g., student associations, cycling advocate groups) on the path to implementation. Some local organizations can provide local knowledge, guidance and expertise in mobility and transportation, consolidate relationships among various partners by aligning everyone's vision, or support and facilitate the process of obtaining funding. Hamilton Bike Share's efforts to crowdsource stations even identified local property owners who were willing to permit a station on their private property.

Public engagement techniques that could be used include:

- Surveying residents to gauge interest in a bike share system and set criteria for success
- Pop-up booths at events to discuss bike share and answer questions
- Ongoing crowdsourcing of station locations and other elements of the system design

10.8.2 Communications and Advertising

There are still cultural, environmental, and financial barriers to riding a bike in North America, and car ownership is still associated with social status. This cultural shift needs to be accompanied by the population's perception of cycling as a convenient and desirable mode of transportation. àVélo shared a valuable lesson that "the best advertisement is the people using the system!"

It will take some time before the bike share system becomes a seamless part of the cultural landscape of the National Capital Region, but there are some essential elements that can help accelerate that shift:

- **Communicating bike share positively**: Bike share is "cool," "easy," "convenient," "social."
- **Running special events** (e.g. free ride Wednesdays, presence at major events like Weekend Bikedays, major event partnerships).
- **Strong branding and signage** to clearly identify and promote the bike share system.

10.8.3 Sponsorships and Partnerships

Sponsors play a big role in financing bike share systems as part of a mixed revenue model. Again, àVélo shared that after five years of operating, they are just starting to secure sponsors for the system. The key takeaway is that it takes time for a new service to build credibility and trust. It's crucial to start building relationships with potential sponsors or partners now.

Partnering with large associations (student associations, cycling clubs, etc.) or major employers (federal governments, municipalities, school boards or health care services) could provide a stable source of revenue with recurrent memberships.

11. RISK ASSESSMENT

11.1 Key Risks and Mitigations

Table 34 presents key considerations that could threaten the success of the system, along with proposed mitigation measures.

Table 34: Considerations and mitigation opportunities

Consideration	Mitigation Opportunities
What if sufficient capital and operating funds are not secured?	Identify multiple funding streams, solicit commitments from elected officials and emphasize that bike share acts as a service just like public transit.
What if operating funding support weakens over time?	Seek bulk memberships with major employers and institutions, request operating budget for multiple years at a time, **don't commit to a break-even** operation.
What if there is significant pressure to stretch the system to outlying areas?	Develop an **Expansion Plan** after 1-3 years of operation with robust analysis and public consultation, emphasize the launch as Phase 1 of the ultimate network, and advertise bike share as a last-mile **extension of the regional transit system** to make the first phase relevant to those living outside the service area.
What if initial ridership is lower than expected?	Communicate ridership target as a five-year goal, collect data on the system and work with the logistics operator to optimize the network.

11.2 Consequences of "Do Nothing"

The National Capital Region is facing many challenges that bike share can help address. Without a bike share system, the region may see more car use and ownership, leading to increased congestion and negative land use impacts. STO and OC Transpo could face added pressure to handle short trips, with fewer alternatives available during service disruptions. Residents would have less access to affordable and convenient transportation, especially during off-peak hours and overnight. Tourists would also have fewer ways to get around. The absence of bike share could leave issues of bike theft and limited bike parking as significant barriers preventing more people from getting around by bike. Ultimately, the absence of a bike share system will make it difficult to reach the shared goals of enhancing accessibility to sustainable transportation options, particularly cycling.

12. CONCLUSION & NEXT STEPS

12.1 Summary of Findings

The proposed size for the launch of the Ottawa-Gatineau bike share system is 1,200 bikes and 115 stations, serving an initial service area of 30 km^2, including 300 bikes and 25 stations within 7.5 km^2 in Gatineau, and 900 bikes and 90 stations within 22.5km^2 in Ottawa. The initial service area includes 157,000 residents, major employment and tourism areas, the region's busiest recreational pathways, four universities, three Rapibus stations, 12 O-Train stations, two Transitway stations, 15 of Ottawa's 38 Equity Priority Neighbourhoods, and 5 of 6 interprovincial bridges.

Within this network size, two launch scenarios were considered further:

- Scenario 1: launch with a fully non-electric fleet of bikes
- Scenario 2: launch with 20% of the fleet and stations electrified

The estimated ridership and financial cost for an eight-month (April-November) service is summarized in Table 35.

Table 35: Summary of ridership and cost estimates

		Scenario 1: Non-Electric Fleet	Scenario 2: 20% Electric Fleet
Estimated mature annual ridership		451,000	462,000
Daily ridership		1,400 to 2,200	
Capital cost		$9.3M	$11.0M
Annual operating cost		$3.0M	$3.4M
Annual public investment	**Best Case**	$0.45M	$0.51M
	Worst Case	$2.0M	$2.2M
Estimated five-year net present cost		$18.6 M	$21.0 M

Additional findings include:

- **Ridership:** Overall, the model to estimate demand likely underestimates potential mature system ridership, but ridership in early years could be lower than "mature" system estimates due to ramp-up, by as much as 33% in the first year. While ridership should be tracked and reported publicly, ridership targets should be expressed as a five-year goal.
- **Costs:** The annual public investment is highly affected by user fees and sponsorship, with operating needs expected to be higher (i.e., closer to the "worst case" value) in the early years.
- **Winter:** Maintaining a full fleet through winter is predicted to increase annual ridership by 22%, with lower average daily ridership (120-700 rides per day) than in the 8-month operations (1,400-2,200 rides per day). Maintaining a reduced-size winter fleet (400 bikes and 40 stations) could achieve a much smaller incremental ridership due to network effects of a smaller system and would cost an estimated additional $0.47M per year (an operating cost increase of 16%).
- **E-Bikes:** Estimated capital costs for a 20% electric fleet are 18% higher, and estimated operating costs are 13% higher for the same system size. Ridership estimates are limited by a lack of literature on ridership impacts on

electric bikes in a bike share fleet; however, peer systems are finding that e-bikes generate more ridership per bike and are highly popular, especially among casual users. In addition, since e-bikes are more convenient for longer trips, the value of e-bikes in the system increases as the system grows in area.

- **Expansions:** Evidence from peer systems suggests that future expansions could grow ridership exponentially, and a future doubling of the system size could carry over 1.3 million annual rides. In addition, expansion phases should add stations in the core of the network in addition to the periphery.

12.2 Next Steps

Table 36 lists the key next steps that need to be completed prior to the launch. The most important is to secure funding commitments for capital investment and operational costs for the first few years based on the financial analysis presented in this report. Determining the governance model is key to starting to implement the system. In parallel, municipalities can start involving transit agencies and other parties, and the three agencies can start administratively establishing the station permitting and electrification process. Before making any commitment to a vendor and a service provider, conducting a survey to gauge the interests of the public could be beneficial to facilitate or confirm decisions on the system design (service area, technology, user fees and seasonality).

Table 36: Summary of recommended next steps

Category	Next Steps
Governance	• Three governance models are presented and discussed in this report. **Gatineau, Ottawa, and NCC should determine the governance model** they wish to pursue, which may include gathering further information from operators such as BIXI.
Procurement	• Partners need to **secure capital and operating budgets** through various funding sources, as well as ensure adequate staffing capacity • Partners should work together to identify the best procurement process and use the process to gather **refined costs of different system configurations** such as e-bike composition or winter operation, as well as gather information on fare payment systems
Permitting	• Develop a **clear, simple, and free process** for permitting bike share stations in the public right-of-way and on public lands in each jurisdiction. • Initiate conversations with **third parties** for bike share stations outside of the public right-of-way • Work with **OC Transpo and STO** to permit bike share stations on transit property and develop cross promotional initiative
Other Activities	• Engage **the public**; for example, to gauge interest in aspects of the system such as station placement, e-bike composition, and year-round operation. • Work with **Hydro Ottawa and Hydro-Québec** to outline procedures for station electrification • Work with **major institutions and employers** to offer corporate bike share memberships or annual passes (e.g., student associations) • Seek **third parties** for sponsorships, special event partnerships, and other promotional opportunities
Prepare for launch	To prepare for the launch and maximize its success: • The service should start being available in the spring, when the weather is ideal (end of May, beginning of June).

	• A strong marketing plan at the launch should generate high ridership from the outset, as the best advertising is the people on bikes. The marketing plan should include a launch event, special launch fares, and an intensive advertising campaign in the first few weeks.

12.3 Post Launch

The first five years of operation are a critical period for establishing the service as permanent and stable, and a ramp-up in ridership is expected during that period. To achieve the objectives formulated in Section 4.4.2, the consulting team recommends keeping four sets of actions in mind:

- **Engage:** The best advertisement is the people riding the bikes. To get people on bikes, the bike share system needs to be advertised and built according to the needs and interests of the potential users. To get more people on bikes, engagement with the public needs to be continuous. Section 10.8 provides recommendations to keep active communications and engagement with users and stakeholders.
- **Maintain:** The primary objective is to offer a long-lasting and stable system. Bikes have a life expectancy of 10 to 15 years, and stations could last longer. For maximum preservation of the equipment, a strong maintenance strategy needs to be in place, including repair, storage, cleaning and replacement. The proposed budget includes a markup for maintaining the assets. Funding from sponsorships can become an important source of revenue; these partners' relationships should be evaluated on a yearly basis to ensure the satisfaction of both parties.
- **Evaluate:** Daily operations are the core of a successful bike share system, and naturally, the initial years will necessitate some adjustments. Some key performance indicators should be identified with the logistics operator(s) to deliver impeccable service to users and measure improvements.
- **Enhance:** Improvements to the system include increasing the service area, introducing or expanding the e-bike fleet and the number of electrified stations, adding winter operations, and introducing different types of bikes such as cargo bikes, tricycles, or kids' bikes.

12.4 Continuous Expansion

Continuous expansion should be an expectation of the system's design and operation. Peer systems in Quebec City, Toronto, and Montréal have added an average of 250 to 550 bikes to their fleets each year since launch and continue to expand further to the point where now Bike Share Toronto has reached every ward of the City of Toronto, and BIXI Montréal has expanded beyond the City of Montréal.

Many lessons will be learned during the design of the system and the launch year. An **Expansion Plan** should be developed after 1-3 years of operation to develop a data-driven plan for the system's growth that is informed by public engagement. Further, purchase of new bikes and stations should be budgeted for every year of operation, with a target of adding an average of 200-300 bikes (and approximately 20-30 stations) each year, **which could double the system size by Year 5**.

The costs associated with geographic expansion are non-linear because each new station added to the periphery requires the addition of stations in the core service area, as well as increased rebalancing operations. Experience from other jurisdictions also finds that ridership grows faster than the size of the system with expansions. It is not recommended to use the financial information presented in Section 0 to predict the cost associated with future

service territory expansions. Thus, the **Expansion Plan** should also help update financial numbers and ridership forecasts to secure buy-in for funding the service.

12.5 Long-Term Network Vision

A successful implementation of bike share in the National Capital Region's core area will build lasting public support and a strong political appetite to see bike share expand to reach outlying communities. In the long term, it is realistic to expect that bike share could reach communities across the Ottawa-Gatineau region, crossing Ottawa's Greenbelt to reach Orleans, Barrhaven, Kanata, and reaching more of Gatineau's communities, including Aylmer, Buckingham, and Masson-Angers. Some outlying areas could have enough internal travel to support a local network of bike share stations that is not contiguous with the primary service area. Figure 13 presents a conceptual map of the long-term network vision for the Ottawa-Gatineau bike share system.

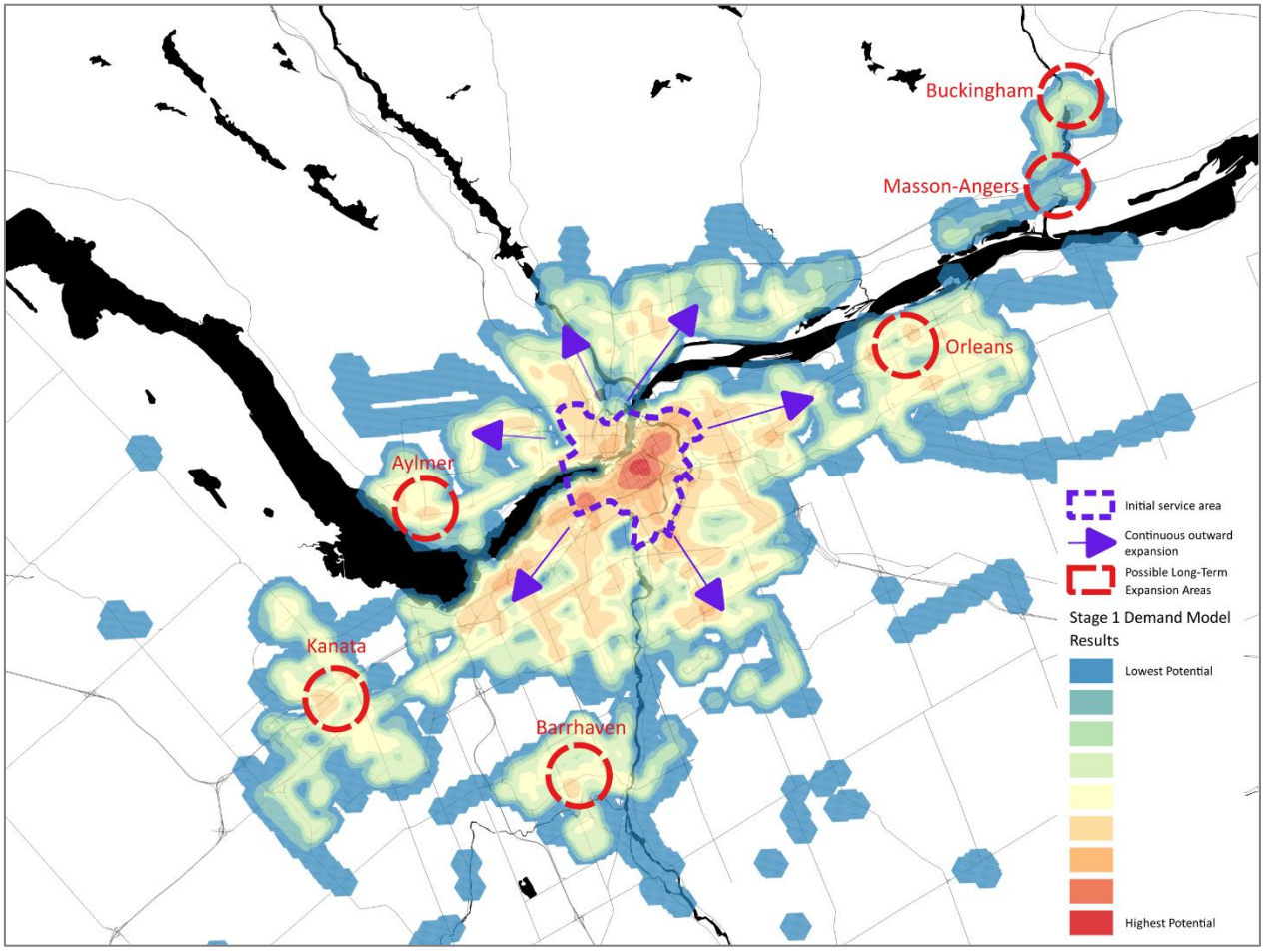

Figure 13. Map showing possible long-term expansion areas

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Technical Memo 2: Bike Share Potential by Mode and Trip Distance

Technical Memo 3: Bike Share Ridership Prediction

Technical Memo 4: Financial Analysis

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