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Transportation Association of Canada

Shared Micromobility Services in Canadian Communities

February 2025

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Title and Subtitle		
Shared Micromobility Services in Canadian Communities		

Report Date	Coordinating Agency and Address	ITRD No.
February 2025	Transportation Association of Canada 401-1111 Prince of Wales Drive Ottawa, Ontario, Canada K2C 3T2	

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Abstract	Keywords
This report provides a synthesis of Canadian experiences with shared micromobility services. It defines key terms, inventories shared micromobility services in Canada (past, present and planned), and discusses experiences and lessons learned by municipalities for the benefit of others who are studying, planning, managing or operating shared micromobility services.	Traffic and transport planning • Bike sharing • Canada • Electric bicycle • Mobility (personal) • Policy • State of the art report

Recommended Citation
Lipton, E. and Whitfield, K. 2025. *Shared Micromobility Services in Canadian Communities.* Ottawa, ON: Transportation Association of Canada.

Acknowledgements

Executive summary

Shared micromobility services involve fleets of small, lightweight vehicles such as bikes, electric-assist bikes (e-bikes), and electric kick scooters (e-scooters) that are available to members of the public for short-term use.

Shared micromobility services have rapidly expanded across Canada in recent years, and they continue to evolve. Some municipalities actively share their knowledge and experience, but there has not yet been a national-level study of shared micromobility services across Canada; as a result, many municipal staff are unsure of common practices and related considerations. Similarly, there has not been clear coordination between municipal, provincial/territorial and federal orders of government.

This report documents the experiences of Canadian organizations so they may be shared with others that are studying, planning, implementing, or managing shared micromobility services. It captures and communicates lessons learned by Canadian stakeholders about the various types of shared micromobility, their roles within the growing spectrum of mobility options, where key opportunities exist for each, and ultimately how they can make transportation systems more efficient, effective, equitable, safe and sustainable.

This report identifies **about 40 locations in Canada with existing shared micromobility services**; these are in addition to locations where services are being planned or have ceased. From this research, it is clear **there is no single model for shared micromobility services,** which differ in many ways across Canada's municipalities and regions.

The shared micromobility industry has fuelled much of the expansion across the country. Some municipalities simply permit operators to operate micromobility fleets in public rights-of-way, with varying degrees of regulation to address strategic goals, specific needs, or public concerns. Other municipalities offer public investment in equipment and maintain more control over the service management and delivery. In both of these approaches, **municipal goals include enabling mobility options beyond cars, achieving sustainable mode share targets, complementing transit service, and reducing greenhouse gas emissions from transportation.**

The report includes key information that emerged from engagement with municipal staff, supplemented by references to international guidance. Topics presented include municipal goals and objectives, parking management, accessibility, equity, integration with public transit, and program evaluation. As shared micromobility services continue to expand, Canada's **federal, provincial/territorial and municipal governments need to consider their role in enabling, managing and optimizing shared micromobility to best suit the needs of local communities**.

This report provides in-depth discussion around five key themes, presented below with their core takeaways.

Delivery models

A municipality's decision between shared micromobility delivery models will lead to different levels of municipal control – and with that, possibly different levels of affordability, accessibility and sustainability. **For many municipalities, an open or managed delivery model is an attractive way to limit risk and cost; in contrast, services delivered with public backing tend to have lower fees for**

users, greater stability, and more robust equity strategies. While limited funding for shared micromobility is available to municipalities from other orders of government, in some cases it has encouraged municipalities to invest their own resources in new or expanded services.

Maximizing benefits

Municipalities understand the benefits of shared micromobility, regardless of delivery model. They think strategically about where services should operate, identifying where there is the potential to support mode shift and transit access, and considering how to benefit equity-deserving communities. Targeted approaches to improving accessibility include expanded service areas, affordable user fees, and engagement initiatives. **Shared micromobility services provide a flexible mobility option that enables more people to travel in their communities without using a car.**

Fitting into communities

Municipalities that have invested in docked services benefit from more organized parking management that maintains order and accessibility in the public realm. Lock-to and dockless services are more flexible, but require careful consideration of their impacts and the need for regulations on where vehicles can be parked; education, technologies and infrastructure are also needed to maximize compliance and minimize negative impacts. For example, municipalities with fewer parking zones and more restrictive policies have experienced lower ridership. **Lessons learned will help inform new and updated services so they better fit their communities.**

Regulations and their impacts

Municipalities typically implement regulations on operators before launch, in anticipation of public concerns. Some have revised those regulations after each year or season to provide more or less flexibility in response to issues. Some municipalities hold high expectations for shared micromobility performance, with their regulations adding operator costs and reducing ridership and revenue. **Setting up clear expectations for operators and the public, and working proactively with operators can support simpler, more sustainable programs.**

Future readiness

Provincial policies and vehicle definitions have enabled the use of e-scooters through pilot programs that will be evaluated before e-scooters are permanently allowed to operate on public streets. Some provinces are preparing legislation to enable faster future evaluation of new forms of micromobility, but for the most part provinces are allowing municipalities to decide if they will allow new vehicle types to operate in their rights-of-way; this has enabled more municipal control but a lack of consistency in municipal policies that can hamper adoption by putting the onus on individuals to be aware of local rules and regulations. Meanwhile, the importation of federally non-regulated electric micromobility vehicles creates a disconnect between what vehicles consumers see in stores and what vehicles are permitted on streets. Electrification broadens the use cases and potential markets for micromobility vehicles, but represents a challenge for municipalities that want to provide infrastructure that accommodates all ages and abilities, to separate pedestrians and micromobility users, and to enable safe recharging opportunities. **The regulation of shared micromobility needs to be considered broadly in terms of its technologies and timeframes.**

Key takeaways for stakeholders

Through the results of research including interviews with municipal staff, operators and policy makers, the report provides an in-depth discussion on practices and considerations relevant to a range of perspectives.

Municipalities. Municipalities have a lead role in enabling and shaping shared micromobility services. This report provides many insights into how they are addressing challenges and exploring options.

Federal and provincial governments. This report highlights the integral role of provincial governments in anticipating and enabling the use of new forms of micromobility on public roads. It contains considerations for federal and provincial policy makers tasked with assessing and approving emerging types of micromobility vehicle for public use.

Shared micromobility operators. The report can help operators better understand the strategic interests and processes of municipalities, and will hopefully lead to better collaboration between those two groups.

TAC member organizations. TAC member organizations play important and wide-ranging roles in integrating shared micromobility into municipal transportation systems.

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Glossary

Bicycles: Describes bicycles that are human powered that the rider propels forward using the pedals.

Docked service: A shared micromobility service that that requires vehicles to be locked at stations to fixed docking points. Vehicles are only available to be unlocked or locked at these stations.

Dockless service: A shared micromobility service that does not require a docking station; vehicles can be parked anywhere within a defined area, at a bike rack, or along the sidewalk, depending on regulations. These services have locks on the vehicles so they cannot be used when parked. Dockless services can still require users to park at hubs, but the vehicles are not fixed to any objects.

Electric kick scooter: Electric kick scooters (e-scooters) are two-wheeled devices powered by an electric motor; the rider must stand up while riding it. Specific definitions and regulations of these vehicles vary by province.

Electric-assist bicycle: Electric-assist bicycles (e-bikes) are equipped with an electric motor to aid propulsion while still allowing the rider to pedal. The motor gets its power from a rechargeable battery, only assists when the rider is pedaling, and only assists up to a certain speed (usually 25 km/h). E-bike classification and definition varies among countries; in Canada, the definition and regulation of e-bikes is a provincial responsibility as of 2021.

Geofencing: Geofencing is the use of GPS technology to prevent shared micromobility users from parking or riding in certain areas. Geofencing encourages riders to park the devices in designated parking areas, can prevent e-bikes and e-scooters from operate on trails and/or sidewalks, and can limit speeds in specific areas.

Hub: Hubs are areas designated for parking dockless shared micromobility vehicles. They can be demarcated using pavement markings, physical signage, or flex posts. Hubs can also be shown in the system map and enforced using geofencing.

Lock-to service: A shared micromobility service that allows users to start or end their trips at stations or outside of stations (also known as hybrid services). These services have a lock on each vehicle that is used to lock it to the station or at other fixed objects such as public bike racks and poles.

Operator: Operators oversee and manage operations of the shared micromobility service, coordinate with the municipality, and have local staff. They are responsible for the day-to-day operation and management of the shared micromobility fleet, including but not limited to regular checks, equipment maintenance, and safe battery handling. Municipalities may require the operator to provide trip data at certain frequency. Operators may also be involved in public engagement to introduce or expand the shared micromobility service and may develop outreach and education campaigns as requested by the municipality.

Service area: The area where the shared micromobility service is permitted to operate.

Shared micromobility: Refers to small and lightweight human- or electric powered transportation devices, such as bikes, e-bikes, or e- scooters that are rented through a mobile app or kiosk and used on an as needed basis for short trips, typically up to one hour.

1. Introduction

This report is the first national synthesis of experience with shared micromobility services across Canada. It summarizes what shared micromobility is, defines key terminology, and includes general history and trends. An inventory has been prepared of past, present, and planned shared micromobility services in Canada. A focus of the report is the discussion of key topics in Canada that were identified through engagement with stakeholders.

The report synthesizes the policies, strategies and practices of Canadian municipalities so they can be shared with others that are studying, planning, implementing, or managing shared micromobility services. The project captures and communicates lessons learned from Canadian stakeholders about the various types of shared micromobility services, their roles within the growing spectrum of mobility options, where key opportunities exist for each, and how they can make transportation systems more efficient, effective, equitable, safe, and sustainable.

Three major sources of knowledge informed this report:

- **A literature scan** looked at best practice guidance, academic research, and articles related to shared micromobility from North American and international sources. The scan addressed key topics including program management, rules and regulations, transit integration, equity, public health and data, based on the available literature as of July 2023. It built an understanding of key trends, considerations, and results.

- **A jurisdictional survey was** sent to a selection of Transportation Association of Canada (TAC) member organizations in summer 2023. It gathered information about municipalities' experiences and approaches with shared micromobility at a high level, and to identify relevant candidates for subsequent interviews. The survey received 34 responses including representation from most provinces.

- **In-depth interviews** took place between September 2023 and January 2024. The 29 interviews were an opportunity to learn more from individuals who are overseeing or managing shared micromobility services in their municipality. Operators and provincial policy makers were also interviewed. The interviews provided an opportunity to identify key topics for this report.

2.   What are shared micromobility services?

2.1   Definition

Shared micromobility services is an umbrella term for fleets of shared lightweight[1] and low-speed vehicles (see **Table 1**) including bicycles, electric-assist bicycles (e-bikes), and electric kick scooters (e-scooters). They have become a common mobility option in many cities around the world. These services allow the public to have access to micromobility devices as short-term rentals via memberships or casual, one-time use. They enable multimodal trips, allowing people to use devices for only part of a trip that also involve other modes (often public transit). They also remove the need to own, maintain and store a personal micromobility vehicle.

Table 1: Common shared micromobility vehicles

Bicycle	E-bike	E-scooter
• Fully human powered by use of pedals • Gears help to adjust to topography and speed • User balances on two wheels • Steered with handlebar • Front and rear brakes • Bell • Automatically powered white front light and red rear light • Basket for cargo • Typically weighs 15 to 25 kg • Typical top speed of 16 to 20 km/h	• Electric motor operates while being pedalled to bring up to the maximum permitted speed • Some have gears to adjust pedalling to topography • User balances on two wheels • Steered with handlebar • Front and rear brakes • Bell • Automatically powered white front light and red rear light • Basket for cargo • Typically weighs 25 to 40 kg • Typical top speed of 32 km/h (varies based on municipal and provincial regulations)	• Powered by electric motor controlled by throttle that travels up to the maximum permitted speed • User balances on two wheels • No seat • Front and rear brakes • Bell • Automatically powered white front light and red rear light • Typically weighs less than 23 kg • Typical top speed of 24 to 32 km/h (varies based on municipal and provincial regulations)

2.2   History

The first shared micromobility service was the *Witte Fietsenplan* in Amsterdam in the 1960s, and was a fleet of bicycles painted white that were simply left in public for use by residents. In the 1990s, a system of bicycles was made publicly available in Copenhagen where a coin was deposited into a mechanism to unlock the bicycle and was returned when the bike was re-locked at a station. These systems were plagued by vandalism and stolen bicycles.

Modern bike share services began in the late 2000s, with docked services appearing in Canadian cities such as Montreal and Toronto. These started in downtown areas and have since expanded their service areas and bicycle fleets, including the introduction of e-bikes. Many of them have been financially sustained through a combination of user fees, corporate sponsorships, and public investments.
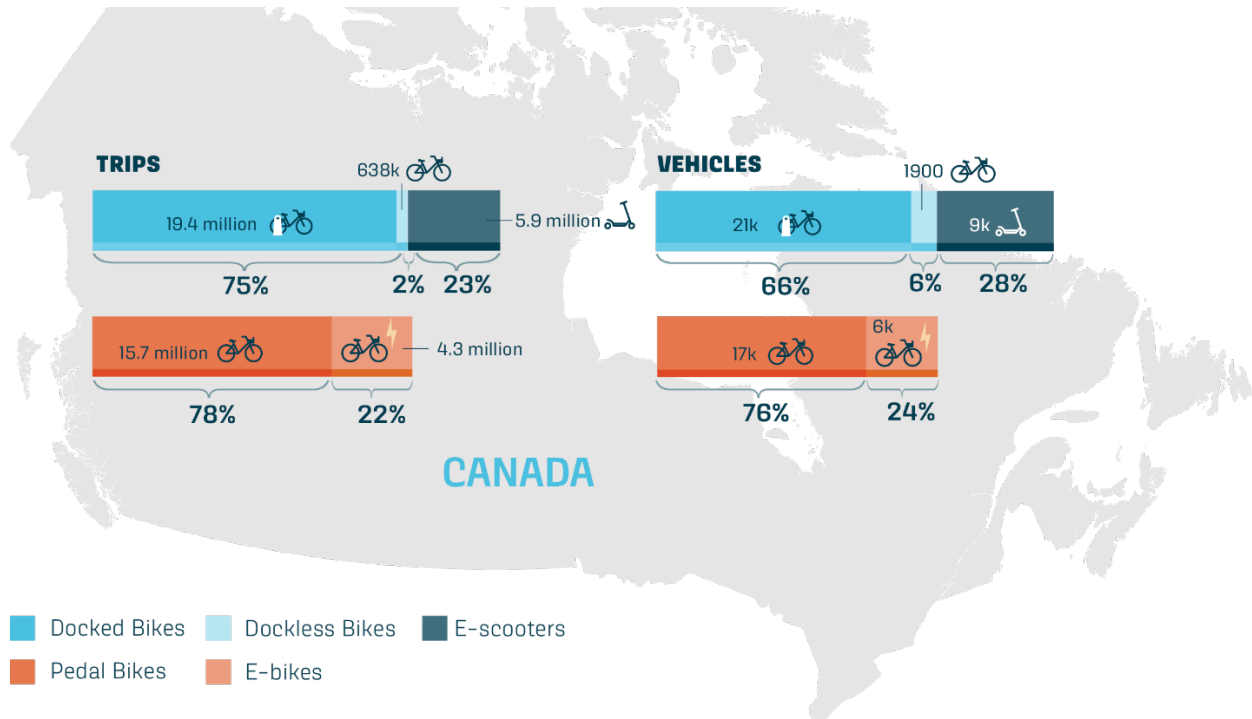
Beginning in 2018, shared micromobility services that offer e-scooters, bikes and e-bikes have become popular. They are typically privately owned and operated, with one or more companies operating in a municipality. The growth of private owner-operators has been fueled by venture capital funding, with billions of dollars invested in North America. With this investment there has been rapid growth, new and enhanced technologies, corporate acquisitions and consolidation, and companies ceasing operations in some markets. Market conditions have shifted rapidly as companies test markets, respond to changing regulations, and gain or lose market share. Companies typically offer to operate in municipalities for free, and even pay municipalities for that right. Municipalities are developing practices to manage and work with private companies to provide their services. Many of the original publicly backed bike share services continue to exist and expand, while municipalities and other organizations including transit agencies continue to implement services with public backing.

There are now about 40 communities with shared micromobility services in Canada, and the North American Bikeshare and Scootershare Association (NABSA) calculated that 25.9 million trips were made on shared micromobility vehicles in Canada in 2023 (see **Figure 1**). Many municipalities have identified shared micromobility as a strategic element of their transportation systems, expecting it to contribute to sustainable mode share targets and expand mobility options for residents and visitors (see **Figure 2**). Municipalities are also often interested in how shared micromobility can complement transit services and enable multimodal transportation trips. These are all aspects of addressing environmental, health, social equity, and other municipal transportation goals. Private micromobility services have also been initiated in campus settings such as universities and business parks; however, such programs are not intended for broader public use and are not considered further in this report.

As shared micromobility has grown, so has the number of international organizations that offer guidance for planning, designing and operating those services:

- **National Association of City Transportation Officials (NACTO).** Through its Bike Share and Shared Micromobility Initiative, NACTO has published numerous resources[2] including annual snapshots; a working paper on permitting, process and participation; *Guidelines for Regulating Shared Micromobility*; *Strategies for Engaging Community*; the *Bike Share Station Siting Guide*; and a paper on walkable bike share station spacing. NACTO has also completed a working paper as part of its *Urban Bikeway Design Guide* update entitled "Designing for Small Things with Wheels," which provides key design considerations for practitioners planning and designing infrastructure for micromobility vehicles.

Figure 1: Shared micromobility trips in Canada, 2023

TRIPS

638k

19.4 million — 75%   2% 23% — 5.9 million

15.7 million — 78%   22% — 4.3 million

VEHICLES

1900

21k — 66%   6% 28% — 9k

17k — 76%   24% — 6k

CANADA

■ Docked Bikes   ■ Dockless Bikes   ■ E-scooters
■ Pedal Bikes   ■ E-bikes

Source: North American Bikeshare & Scootershare Association (NABSA), 2023 Shared Micromobility State of the Industry Report

Figure 2: Typical benefits of shared micromobility

Emission reductions

37% of shared micromobility trips replace a vehicle trip (NABSA, 2022).

Expand transit access

64% of riders use shared micromobility to travel to and from transit stations (NABSA, 2022).

Improve mobility

Shared micromobility rides are typically short in time and distance, thus potentially filling a mobility gap for shorter trips.

Healthier community

Through shared micromobility, over 18 million hours of additional physical activity was attained by North Americans (NABSA, 2022).

Support local economy

Shared micromobility increases the number of jobs people can access, and increases traffic to local businesses.

- **Institute of Transportation and Development Policy (ITDP).** The ITDP *Bikeshare Planning Guide* (2018)[3] was an update to the 2013 edition, responding to the rise in dockless bike share services as well as e-bikes, lock-to services, and opportunities for transit integration. This guide explores bike share services globally, with sections providing in-depth guidance for developing goals and service plans, operations, engagement, financial models, and implementation.

- **Better Bike Share Partnership.** The Better Bike Share Partnership[4] focuses on how shared micromobility access and use can be improved in low-income and BIPOC communities. They have released numerous case studies, one-pagers, and reports highlighting successful practices and furthering the discussion around developing accessible, equitable bike share services.

- **North American Bikeshare and Scootershare Association (NABSA).** NABSA[5] is a non-profit organization that provides resources, education, and advocacy for the shared micromobility industry, and creates spaces such as its annual conference where public, private, and non-profit representatives can convene. NABSA publishes the annual state of the industry report as well as other useful resources.

- **International Transportation Forum (ITF).** The ITF has developed resources on shared micromobility policies including *Towards the Light: Effective Light Mobility Policies in Cities*[6] and *Safe Micromobility*[7]. These documents highlight strategies and policies for all levels of government to enact changes to support the adoption and safety of shared micromobility.

2.3   Categorization by vehicle parking model

One way of categorizing shared micromobility services is by how and where vehicles are parked when not in use. The three most common types are directly related to the flexibility given to users as well as the nature of impacts on public rights-of-way:

- **Docked services**. These have modular docking stations that can be installed within the right-of-way or on adjacent properties. Vehicles are left attached to the stations, which contain the locking and unlocking technology. Stations may rely on solar power, at least in part, to charge e-bikes. They are often designed to be removed seasonally or as needed for construction or special events.

- **Lock-to services** (also referred to as hybrid services). These have vehicles with locking mechanisms and require users to lock the vehicle, either at a designated location (e.g. in a branded bike parking corral) or elsewhere (e.g. to a signpost); many such services have a convenience fee that incentivizes users to park at stations.

- **Dockless services.** These have vehicles with on-board locking mechanisms, and allow users to find vehicles through an app and park them anywhere in the service area; this allows users to ride directly to their destination. Dockless services often require users to park vehicles in the boulevard or parking lanes; they rely on education to encourage users to park vehicles in appropriate locations, they may have technologies to enforce compliance, and they typically have staff to relocate misparked vehicles. To reduce the misparking of vehicles, some dockless services use **hubs,** which are locations identified by signs or pavement markings; users are encouraged to park vehicles at or near hubs identified in the app. Some services operate

exclusively as dockless hubs, while others operate as a mix of conventional dockless parking with hubs.

Figure 3: Types of shared micromobility parking

Docked

Lock-to

Dockless

Dockless hub
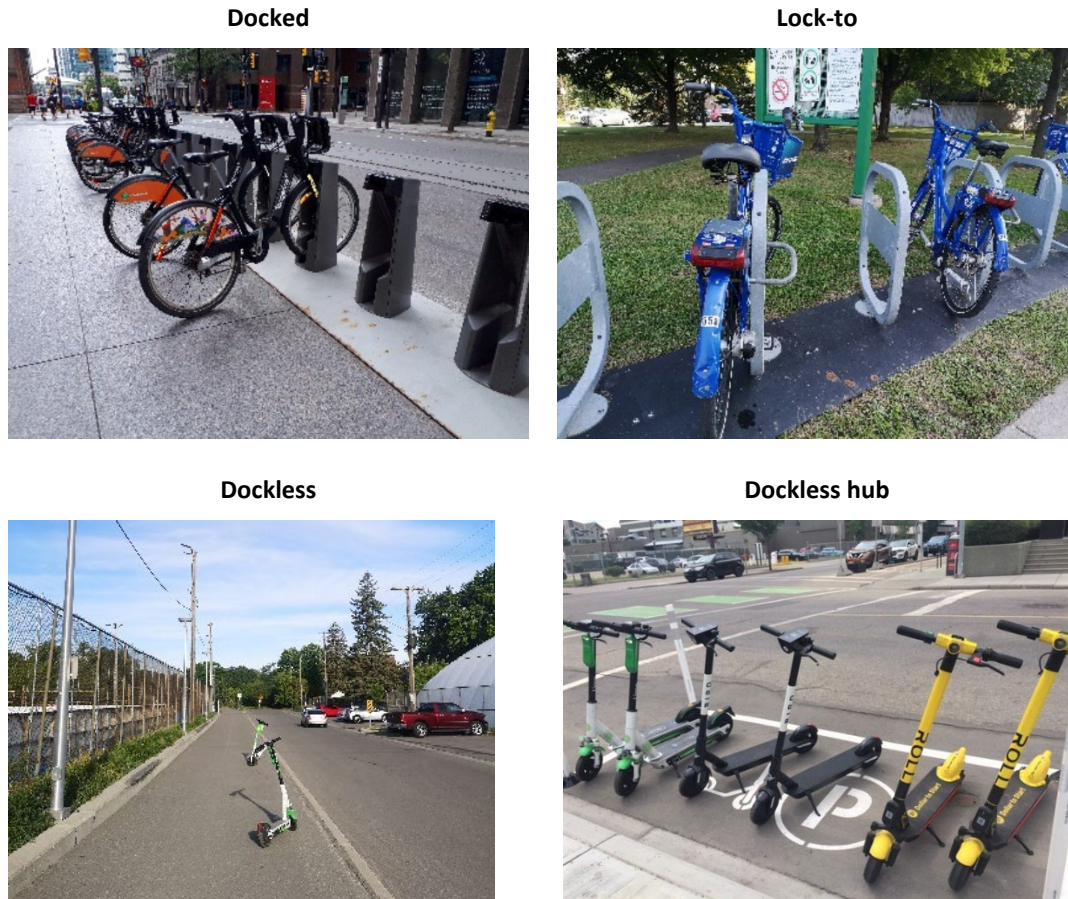
2.4   Categorization by delivery model

Shared micromobility services are typically overseen by a government agency (or a group of agencies) and operated by a service provider through an agreement that determines the responsibilities of each party. **Table 2** presents three typical delivery models observed in Canada, with the primary difference being the level of municipal control and investment.

Table 2: Typical shared micromobility delivery models

Delivery model	Description
Open	The public agency sets operational parameters (e.g. minimum and/or maximum fleet sizes, locations, hours), issues permits, and may limit the number of operators. The public agency does not provide capital or operating funds. Agency staff time is required for oversight. Operators may pay fees to the public agency.
Managed	The public agency sets objectives for the service and uses a competitive procurement process to select one or more operators. Operators enter into a contractual agreement with the public agency and agree to adhere to certain operational parameters. The public agency may or may not provide capital or operating funds; some agencies may contribute financially to support the achievement of key strategic objectives. Agency staff time is required for oversight and contract management. Operators may pay fees to the public agency.
Public backing	The public agency works collaboratively in partnership with a selected operator to deliver the service, which most often is one offering bikes. Some municipalities have proactively created non-profit organizations to operate the service. The public agency contributes financially towards capital and/or operating costs. Agency staff time is required for oversight and contract management. Operators typically do not pay fees to the public agency.

2.5 Differences from rental and library services

Shared micromobility vehicles may be parked within the public right-of-way, and can be used by residents and visitors who can access a vehicle on-demand for one-way trips and need not return the vehicle to its original location. In this respect, shared micromobility services are intended to be used for short trips (typically under one hour) and are particularly convenient for accessing transit service as there is no fear of the vehicle being stolen once it is left at the transit station.

In contrast, businesses have rented bikes and other vehicles to tourists for decades. They charge by the hour or day and are commonly located in stores (with some newer businesses using automated docked stations located on private property). Vehicles are the responsibility of renters until they return the bike at the end of rental period.

Lending libraries have also existed for decades, and are often run by universities, public libraries or community-based organizations. They allow people to borrow a bicycle or other vehicle for an agreed upon time, often a few days or weeks, often without a fee. Loaned vehicles are often consumer bikes or refurbished bicycles, but some programs provide access to adaptive cycle options such as tricycles and hand-powered bikes. Vehicles must be returned at the end of the period to the program's location. These programs can provide a low-cost option for longer-term mobility, and may be of particular interest to small or rural communities where there is not a high demand for shared micromobility services. A few examples include:

- Commun-O-Terre program[8] in Dolbeau-Mistassini, QC has 100 bicycles that were previously abandoned. They are maintained by youth hired for the summer season.

- BookBike[9] is a program of the Berwick, Wolfville, and Annapolis Royal libraries in Nova Scotia.

- Bécik Jaune[10] operates in multiple communities in Quebec, providing bikes and e-bikes free of charge via self-service stations and from specific locations such as community libraries.

- Haliburton Bike Share[11] in Haliburton, ON operates a single self-service station located in a park. The program is operated by the Rotary Club and sponsored by local businesses. It allows people to borrow a bike for up to three hours for free using their smartphone, with a credit card required for deposit.

3.   Inventory of municipal shared micromobility services in Canada

This chapter provides key information on existing, previous and planned shared micromobility services in Canada. The information was developed through a desktop search and confirmed with appropriate individuals where possible. Some services may have had previous operators not listed here. The information was collected up to January 2024 and is subject to change.

3.1   Existing services

A total of 39 Canadian communities in five provinces were identified as having shared micromobility services, as shown in **Table 3** and **Figure 4** – four with bikes, 17 with e-bikes, and 31 with e-scooters. In four communities, operations are regional in scope and cover multiple municipalities: the North Shore in BC; Waterloo Region in Ontario; the Bixi service in Greater Montreal; and the bike share service in Quebec's Gaspésie that is operated by the regional transit agency.

Table 3 shows a diverse mix of shared micromobility vehicle types, with locations being served by bikes, e-bikes and e-scooters in various combinations. There is an equally diverse mix of vehicle parking models with dockless, dockless hubs, lock-to and docked services all making appearances. However, it is worth noting that there are only six docked services, all of which involve bikes or e-bikes, and all of which have a public backing delivery model (a topic discussed in more detail in Section 4.3).

Table 3: Existing shared micromobility services in Canada (as of January 2024)

Location	Date initiated	Parking type	Delivery model*	Operator(s)	Vehicle types and fleet size	Winter operation
Alberta						
Airdrie	2022	Dockless	Open	Bird Canada; Neuron (max 3)	100 e-scooters	No
Blackfalds	2022	Dockless	Managed	Neuron	30 e-scooters	No
Calgary	2018	Dockless with hubs	Managed	Bird Canada; Neuron	200 e-bikes, 1500 e-scooters	Permitted but removed if more than 3 cm
Chestermere	2023	Dockless	Managed	Bird Canada	100 e-scooters	No
Cochrane	2021	Dockless	Managed	Bird Canada	100 e-scooters	No
Edmonton	2019	Dockless with hubs	Managed	Lime; Bird Canada	420 e-bikes, 1980 e-scooters	Permitted but have not operated in snowfalls
Leduc	2022	Dockless	Managed	Bird Canada	150 e-scooters	No

Location	Date initiated	Parking type	Delivery model*	Operator(s)	Vehicle types and fleet size	Winter operation
Lethbridge	2022	Dockless	Managed	Neuron	100 e-bikes, 500 e-scooters	No
Medicine Hat	2022	Dockless	Managed	Bird Canada	100 e-scooters	No
Okotoks	2020	Dockless	Managed	Bird Canada	100 e-scooters	No
Red Deer	2021	Dockless	Open	Bird Canada; Neuron (no limit)	250 e-scooters	No
St. Albert	2021	Dockless	Open	Bird Canada	300 e-scooters	No
Spruce Grove	2023	Dockless	Managed	Bird Canada	100 e-scooters	No
Sylvan Lake	2023	Dockless	Managed	Neuron	100 e-scooters	No
British Columbia						
Coquitlam	2023	Dockless with hubs	Managed	Lime; Neuron	130 e-bikes, 450 e-scooters	Yes
Kelowna	2021	Dockless	Managed	Lime (maximum 2 operators)	300 e-bikes, 700 e-scooters	Yes, unless there is snow on the ground
North Shore	2022	Dockless with hubs	Managed	Lime	200 e-bikes	Yes
Oliver	2023	Dockless hubs	Managed	Sparrow	45 e-scooters	No
Osoyoos	2023	Dockless hubs	Managed	Sparrow	45 e-scooters	No
Penticton	2022	Dockless hubs	Managed	Sparrow	70 e-scooters	No
Richmond	2021	Lock-to	Managed	Lime	200 e-bikes, 500 e-scooters	Yes
Vancouver	2016	Docked	Public backing	Mobi/Vancouver Bike Share Inc.	2000 bikes, 600 e-bikes	Yes
Vernon	2021	Dockless	Managed	Neuron	350 e-scooters	No
Whistler	2022	Lock-to	Managed	Evolve (British Columbia Automobile Association)	100 e-bikes	No
Ontario						
Ajax	2023	Dockless hubs	Managed	Bird Canada	50 e-bikes, 200 e-scooters	No
Brampton	2023	Dockless	Managed	Bird Canada; Neuron; Scooty	750 e-scooters	No

Location	Date initiated	Parking type	Delivery model*	Operator(s)	Vehicle types and fleet size	Winter operation
Hamilton	2015	Lock-to	Public backing	Hamilton Bike Share Inc.	825 bikes	Yes
	2023	Lock-to	Managed	Bird Canada	450 e-scooters	No
Oshawa	2023	Dockless	Managed	Bird Canada; Neuron	600 e-scooters	No
Ottawa	2020	Dockless hubs	Managed	Bird Canada; Neuron (others previously)	900 e-scooters	No
Toronto	2011	Docked	Public backing	Toronto Parking Authority/Shift Transit	7150 bikes, 1850 e-bikes	Yes
Waterloo Region	2023	Dockless	Managed	Neuron	500 e-bikes, 500 e-scooters	No
Windsor	2021	Dockless	Managed	Bird Canada	75 e-bikes, 375 e-scooters	No
Quebec						
Laval	2023	Dockless hubs	Managed	Bird Canada; Lime	200 e-scooters	No
Gaspésie	2023	Docked	Public backing	RÉGîM	32 e-bikes	No
Greater Montreal	2009	Docked	Public backing	BIXI Montreal	7400 bikes, 2600 e-bikes	Yes
Quebec City	2021	Docked	Public backing	PBSC Urban Solutions	780 e-bikes	No
Saguenay	2020	Docked	Public backing	Société de transport du Saguenay	38 e-bikes	No
Saskatchewan						
Regina	2023	Dockless with hubs	Managed	Bird Canada; Neuron	500 e-scooters	No
Saskatoon	2023	Dockless with hubs	Managed	Bird Canada; Neuron	500 e-scooters	No

* See the description of service delivery models in Table 2, Section 2.4. The three models used here represent a spectrum of approaches and provide a general (rather than definitive) categorization.

Figure 4: Existing shared micromobility services in Canada (as of January 2024)
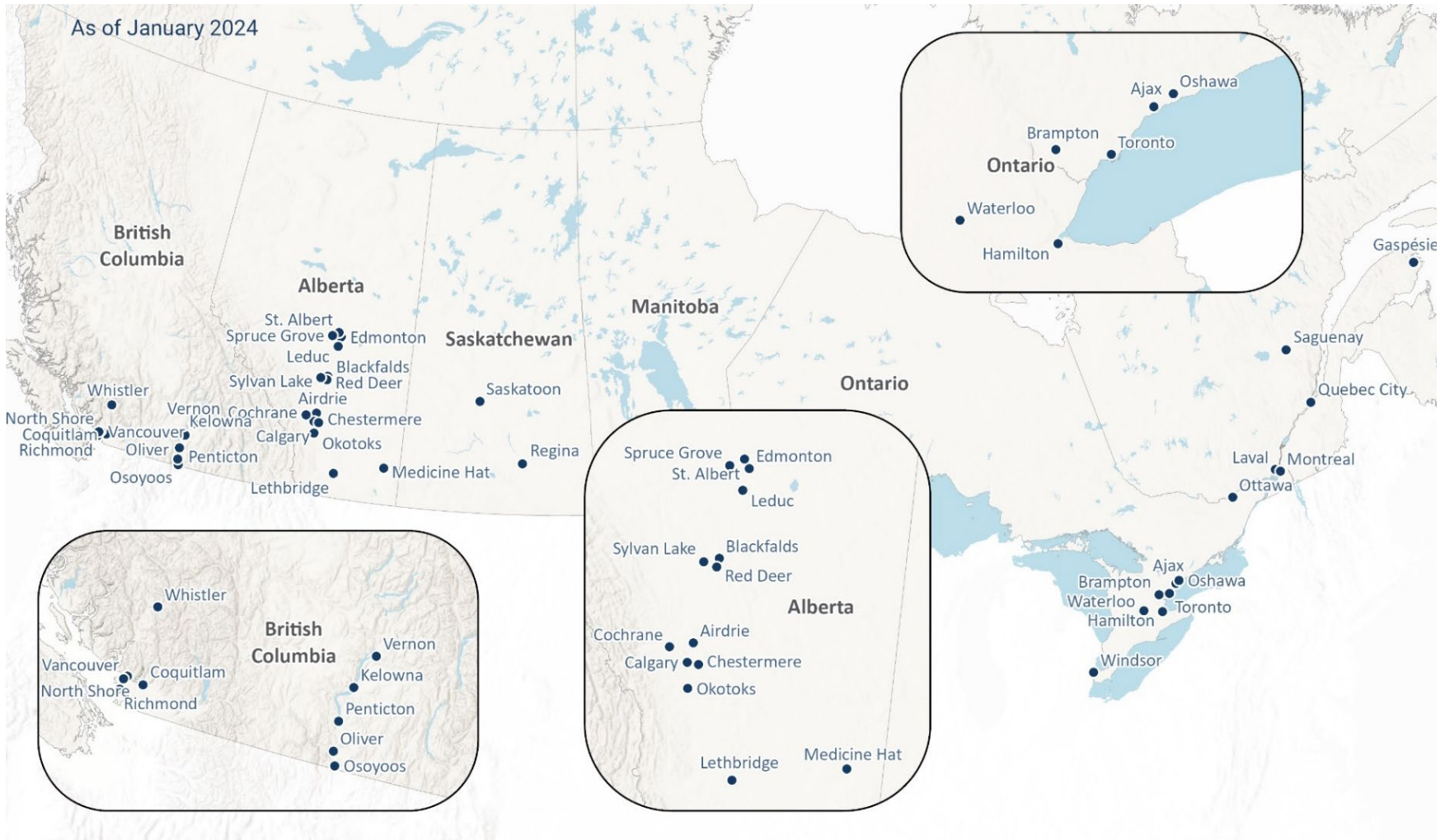
3.2   Closed services

Table 4 identifies known shared micromobility services that have ceased operations. The indicated reasons for ending a service are based on available information; there may have been several contributing factors including poor performance or lack of interest from the operator, lack of commitment from the municipality, and financial challenges.

Table 4: Closed shared micromobility services in Canada

Municipality	Date of service	Parking type	Delivery model	Operator	Vehicle types and fleet size	Known reasons for closing
Kelowna, BC	2018	Dockless	Managed	DropBike	300 bikes	Operator closed
Kingston, ON	2017 & 2019	Dockless	Managed	DropBike	100 bikes	Pilot ended due to COVID-19
Lacombe, AB	2022	Dockless	Managed	Roll	e-scooters	Operator closed
Laval, QC	2018	Docked	Public backing	Bewegen	40 bikes	City started new service
Montreal, QC	2019	Dockless hubs	Open	Lime	430 e-scooters	Pilot ended; docked Bixi service preferred
		Dockless hubs	Open	JUMP	e-bikes	Pilot ended; docked Bixi service preferred
Orford, QC	2022-23	Docked	Public backing	Bewegen	10 e-bikes	Operator closed
Ottawa, ON	2009-14	Docked	Public backing	Capital Bixi	250 bikes	Contract not renewed
	2014-18	Lock-to & dockless	Managed	VeloGo	300 bikes	Contract ended
Toronto, ON	2017	Dockless	Open	DropBike	68 bikes	Pilot not renewed
Victoria, BC	2017-19	Dockless with hubs	Managed	U-Bicycle	200 bikes	Contract not renewed
Waterloo Region, ON	2011-18	Docked	Open	Community Access Bikeshare	11 bikes	Lack of funding
	2018-19	Dockless	Managed	Lime	e-scooters	Pilot ended
	2019	Lock-to	Managed	DropBike	200-300 bikes	Pilot ended

3.3   Planned services

The following 18 municipalities indicated that they were planning to implement a shared micromobility service:

- City of Burnaby, BC
- City of Cranbrook, BC (expected launch spring 2024)
- City of Markham, ON
- City of Mississauga, ON (expected launch spring 2024)
- City of Nanaimo, BC (expected launch spring 2024)
- City of New Westminster, BC (request for proposals posted spring 2024)
- City of Port Coquitlam, BC

- City of Richmond Hill, ON
- City of Sainte-Julie, QC
- City of Sherbrooke, QC (bike share request for proposals posted January 2024)
- City of St. Johns, NL
- City of Surrey, BC (expected launch spring 2024)
- City of Thunder Bay, ON
- City of Vancouver, BC (expected e-scooter launch in 2024)
- Halifax Regional Municipality, NS
- Municipality of Brighton, ON
- Town of Smiths Falls, ON
- Ville de Baie-Comeau, QC

4. Key topics in Canada

This chapter discusses the following topics that stakeholders suggested were of particular interest and importance:

- Goals and objectives
- Delivery models
- Vehicle parking
- Vehicle types
- Accessibility impacts
- Equity initiatives
- Transit integration
- Operational parameters
- Enforcement
- Liability and risk assessment
- Evaluation

Sections 4.1 through 4.11 address each key topic in turn, providing an introduction, a summary of observed approaches in Canada and related guidance, and a discussion of implications and considerations.

4.1 Goals and objectives

The reasons behind a municipality initiating or enabling a shared micromobility service will influence the delivery model, regulations, and service parameters among other elements. Clear definition of a service's vision, goals and objectives will provide direction for staff and help them to evaluate it.

4.1.1 Observed approaches

Not all municipalities were observed to have defined goals and objectives for shared micromobility. Many referenced goals and objectives in planning documents (e.g. strategic plans, transportation plans, environmental plans). Common observed goals included:

- Provide additional mobility options beyond cars
- Make non-car travel more convenient and attractive to support sustainable mode share targets
- Complement transit service
- Lower greenhouse gas emissions from transportation
- Enable affordable mobility options
- Support public health goals for physical activity

Many municipalities acknowledged that a local service was principally a supportive response to interest by private operators, with other goals being secondary.

4.1.2   Guidance

ITDP's *Bike Share Planning Guide* recommends that "cities should clearly identify their objectives for bike share". Chapter 3 discusses goal definition and provides examples from a variety of international cities.

NACTO's *Shared Micromobility Permitting, Process, and Participation*[12] includes goal-based selection as a trend in regulating shared micromobility. This term references municipalities that undertake processes to select operators whose goals align well with their own. The guidance goes on to discuss considerations for municipalities in designing and procuring services to achieve goals, such as length of contract terms, evaluating technology, and limiting operators.

NACTO's 2022 *Shared Micromobility in the U.S. and Canada*[13] highlights the need for municipalities to set clear goals to support affordable pricing, particularly with services delivered by businesses. It acknowledges that clear policies and goals, as well as close collaboration between municipalities and operators, are key to developing services that are economically feasible, competitive, and attractive to users.

4.1.3   Implications and considerations

Initially defining goals for shared micromobility will help a municipality make decisions later on. Some municipalities emphasized that their view of shared micromobility as an element of public transit systems directly influenced their objectives and decisions. Establishing goals can also help communicate to operators and the public why the municipality is enabling or investing in shared micromobility. Goals can also inform how services are evaluated (see Section 4.11 for more).

4.2   Delivery models

The delivery model chosen for shared micromobility (open, managed, or public backing, as defined in Section 2.4) is fundamental to informing many aspects of operations. It leads directly to differences in the way that municipalities work with operators, and in their level of control over the service. These differences illustrate the tensions between shared micromobility's potential to deliver benefits for the public, and its potential to deliver profit for the operator.

4.2.1   Observed approaches

Some larger cities (e.g. Vancouver, Toronto, Hamilton, Montreal, Quebec City) have provided public backing for shared micromobility. Provincial funding in Quebec has also enabled bike share services in smaller communities such as Saguenay and Gaspésie, with others planned (e.g. in Sherbrooke). Vancouver, Toronto, Hamilton and Montreal implemented shared micromobility before private investments accelerated in the late 2010s; they had to provide some level of funding, either for equipment purchase or operations. In contrast, Quebec City's program began in 2021 through the leadership of the public transit authority.

Some large cities like Calgary and Edmonton, along with most mid-sized and smaller municipalities, have adopted delivery models without public backing – either open (which tends to allow multiple operators and place fewer requirements on them) or managed (which tends to limit the number of operators and impose more requirements on them). Some municipalities have refined their programs over the years, adjusting the balance between open and managed delivery – for example, Kelowna[14] has repeatedly adjusted its micromobility permit program to change regulations and the number of permits available.

In some circumstances, municipalities have cooperated to create regional shared micromobility services:

- In the case of the North Shore (District of North Vancouver, City of North Vancouver, and City of West Vancouver) and the Region of Waterloo, coordination yielded a single operator across municipal boundaries; each municipality maintains its own agreement with the operator, but integration allows users to travel between jurisdictions.

- Montreal's Bixi has expanded to become a regional service; it is funded mostly by the City of Montreal, but the non-profit operator also serves Laval, Longueuil, Boucherville, Terrebonne, Westmount, Mont-Royal and Montreal-Est with each municipality contributing funding based on the number of bikes located there. This approach creates opportunities for seamless travel across the region – for example, commuters who cross municipal boundaries can access Bixi on either end of a transit trip.

4.2.2   Guidance

NACTO's *Shared Micromobility Permitting, Process, and Participation* includes some of the most up-to-date guidance on municipal approaches. It highlights the continuum of municipal delivery models and outlines the trade-offs between having a program with longer contracts and fewer companies compared to shorter agreements and more companies.

NACTO's 2022 *Shared Micromobility in the U.S. and Canada* highlights industry uncertainties and questions the long-term viability of open delivery models. It states that "shared micromobility systems that see consistent growth and equitable outcomes are typically municipally owned or closely managed through long-term partnerships with private operators."

4.2.3   Implications and considerations

There is a cost for the improved services, control or oversight that municipalities may seek in order to achieve desired goals or public benefits. For this reason, some municipalities may choose open delivery models and evaluate their performance before moving to a managed or public backing model that requires additional resources. Some municipal staff found it difficult to explain the differences between delivery models in their effort to achieve political support for funding of a new service.

The shared micromobility industry continues to evolve. Some operators still rely on venture capital investment, but as this funding runs out some companies have limited, closed or consolidated their activities. Some industry experts have started to label more open market models as unsustainable.[15] Operators interviewed during this project agree that growing municipal expectations and operator fees (see **Table 5**) hamper their ability to be profitable; they acknowledge that some companies will survive while others may not, and foresee that one or two companies may start to dominate over time. They also noted that stricter operating conditions can also lead to higher user fees, which deter usage in opposition to most municipalities' goals. Research on shared micromobility fees in 120 cities (including

33 in North America) noted that they vary significantly between cities, and (in part due to the application of sales taxes) can be higher per mile than other modes.[16]

Table 5: Examples of operator fees

Lethbridge (e-bikes & e-scooters)	Windsor (e-bikes & e-scooters)	Hamilton (e-scooters)
• $7,500 fee for permit	• $10,000 annual licensing fee • $1 annual program administrative fee per device per day	• $5,000 annual administration fee • $8 annual program improvement fee per e-scooter • $45 annual vehicle fee per e-scooter • $15 annual device equity fee per e-scooter • $10,000 annual winter operations offset fee • $0.05 per trip for all e-scooters

Financial requirements for operators differ between managed and public backing delivery models and can change over time as services becomes established. Capital funding for new equipment (e.g. bicycles and stations) can come from the municipality and/or grants. Operations are often funded from a combination of sources, which aids sustainability compared to those that rely heavily on a single source of operating revenue (e.g. grants or sponsorships). Preserving the opportunity for public investment to help cover costs if required can enable sustainable growth; for example, Toronto's bike share service receives funding from public parking revenues. **Table 6** presents a breakdown of revenue sources for some services with public backing.

Table 6: Sources of operating funding for shared micromobility services with public backing

Toronto	Hamilton (bike share)	Quebec City	Montreal
• 69% user fees • 24% parking subsidy • 7% sponsorship and advertising	• 50% user fees, sponsorships, advertising, grants • 50% city funding	• 20% user fees • 55% public funding • 25% private funding (advertising)	• 35-55% user fees • 20-25% city funding • 25-40% sponsorship and advertising

Some shared micromobility funding from non-municipal orders of government does occur in Canada, but is more common internationally. The Province of Quebec has started funding bike share through the *transports actifs dans les périmètres urbains* program.[17] The program offers municipalities and other organizations funding for 50% of the cost of bike share equipment including stations and bicycles. This has supported expansion of services in Montreal and Quebec City, and the establishment of new services in other Quebec communities. Toronto's bike share program has received funding from the federal Public Transit Infrastructure Fund, matched by the City of Toronto.[18] Hamilton's bike share program received initial funding from the Metrolinx Quick Wins grant program,[19] and additional funding from the Federation of Canadian Municipalities and Hamilton Community Foundation for the Everyone Rides equity initiative.[20] The Province of British Columbia committed funding to Vancouver's bike share program in 2023.[21] The federal National Active Transportation Fund launched by Infrastructure Canada in 2021 specified that it would fund "non-removable infrastructure" such as stations, but it would not fund bicycles.[22]

In the United States, the Bipartisan Infrastructure Law (2021) added shared micromobility as an eligible project type through multiple funding programs.[23] The European Union[24] is planning on permitting

environmental funding for bike sharing by 2026. A study of European cities found that one-third of respondents provide funding to shared micromobility operators.[25] Across Europe there are examples of transit agency funding and involvement; for example, the German national railway Deutsche Bahn funds and operates the Call a Bike program in many German cities.[26]

Ultimately, municipalities using open delivery models need to recognize the trade-offs between services with fewer requirements and more operator flexibility, and services where the contribution of funds allows the pursuit of key goals and long-term financial sustainability. More municipalities may begin to explore managed delivery models or those with public backing.

4.3 Vehicle parking

As highlighted in Section 2.3, shared micromobility can be sorted into three categories (i.e. docked, lock-to, dockless) according to how vehicle parking is managed. Docked vehicles are picked up and returned to designated stations with docking points which lock the vehicle. Lock-to services have locking mechanisms on vehicles and require them to be locked to fixed objects. Dockless services also have locking mechanisms on vehicles, but vehicles are left free-standing where permitted in the service area; some dockless services use hubs to better manage vehicle parking.

4.3.1 Observed approaches

Canadian municipalities have implemented docked, lock-to, and dockless services, with the choice between them closely related to the delivery model.

All docked services in Canada have public backing – this is partly due to programs having started when only docked services were available, but docked services also need public investment to support the cost of the stations. Also, all docked services in Canada are for bikes and there are no docked e-scooter services (although the technology is available).

Lock-to services include those with public backing (e.g. Hamilton) and as well as others (e.g. Richmond, Whistler). Operators in open delivery models are generally less interested in lock-to approaches due to the added equipment costs of the vehicle locking mechanisms and parking corrals. The City of Brampton began with a lock-to service but compliance issues arose as there were insufficient locking locations in the right-of-way; that city is moving towards a dockless service that does not require vehicle locking (or only requires it in certain areas where capacity exists). Hamilton required shared e-scooters to be lock-to in order to match its existing bike share service; in preparation for launch, the city installed more than 400 additional parking racks and is continuing to add hundreds more as it identifies popular start and ending locations for e-scooter trips.

Most shared micromobility services in Canada are dockless, and in most of these cases municipalities have implemented regulations and operator requirements to control where dockless vehicles can be parked. Most municipalities permit vehicles to be parked in the boulevard space adjacent to the sidewalk where there is grass, street furniture or sufficient space; this relies on users knowing to park vehicles outside the sidewalk's clear zone. Some municipalities (e.g. Kelowna, Regina) allow vehicles to be parked in unpaid on-street parking spaces. Many municipalities have required or worked with operators to implement hub stations where vehicles can be parked, either across the entire service area (e.g. Ottawa, Waterloo) or in high traffic areas (e.g. Regina, Coquitlam, Calgary). Some municipalities have implemented (or worked with the operator to implement) pavement markings and/or signage at

hubs to build use awareness. Vernon does not have geofenced hubs but uses mats to show where vehicles should be parked. Some operators require users to take a photo when ending a trip to confirm their vehicle is parked correctly.

4.3.2 Guidance

NACTO's *Bike Share Station Siting Guide*[27] offers guidance on station placement considerations for locations on the street, in the boulevard next to the sidewalk, and in open spaces. Although the guidance was developed for docked bike share services, others would still benefit from its discussion of standard clearances around different streetscape elements as well as materials that can be used to delineate station areas.

NACTO's *Shared Micromobility Permitting, Process, and Participation* states that there is value in establishing designated pick-up and drop-off areas for dockless vehicles. It suggests prioritizing on-street options as this is where people are riding vehicles and minimizes potential for vehicles to be misparked on sidewalks. The paper identifies the following tools to help manage dockless operations:

- Lock-to requirements
- Required deployment locations
- Hub zones
- Dockless zones
- Required service areas
- No-deployment zones
- Prohibited zones

NABSA's *Incorporating Shared Micromobility in Electric Vehicle Charging Projects*[28] report offers rationale and resources for providing space for charging shared micromobility vehicles in or near the public right-of-way. It highlights the benefits of pairing investments in electric vehicle charging with locations for charging micromobility vehicles.

4.3.3 Implications and considerations

There are trade-offs between different parking models from planning, operation, and user experience perspectives.

Docked services have been around longer and provide an intuitive way to manage parking, but have higher up-front equipment costs for stations along with the cost of moving stations as needed. From this perspective, municipalities interested in a docked service need to be prepared to participate in a partnership-based or public backing delivery model. With docked services, larger stations offer more reliable availability of vehicles to use and spaces to park them in.

Lock-to services require an abundant supply of bike parking racks or other street furniture that vehicles can be locked to, and the municipality should be prepared to dynamically add more. Some lock-to services (e.g. Hamilton Bike Share) have branded corrals as preferred parking locations that prohibit use by other vehicles. Municipalities may be able to leverage some funding from private companies to fund the purchase of bike parking racks. Implementation of parking racks should still be led by the municipality, as they have the added benefit of serving personal (not just shared) micromobility vehicles.

Dockless services offer more flexible vehicle parking, but can be less intuitive for users and have detrimental impacts on sidewalk accessibility. Tools such as virtually geofenced and physically marked hubs can better manage parking of dockless vehicles; virtual hubs or those marked with low-cost materials can be expanded or moved with ease. The familiarity of users with dockless services will also grow with time, increasing compliance. Generally, dockless services can require more operational staff to manage misparked vehicles and to re-locate vehicles that are parked in lower-demand locations.

With the significant growth in e-bikes and e-scooters, keeping vehicles charged has added another consideration to vehicle parking decisions. Vehicles can be recharged normally, or can have swappable batteries that are replaced by operations staff when empty or low. Services with swappable batteries can require more staff and/or infrastructure for charging batteries. Docked services are starting to incorporate electrical connections at stations, so that e-bikes can recharge when docked. Many docked services have set a target for 20% of stations to be charging-capable so that e-bikes are organically recharged as they are used; with this many wired stations, it is estimated that operational staff needed for rebalancing vehicles with empty or low batteries could decrease by 95%.

4.4 Vehicle types

While "micromobility" refers to small, lightweight personal vehicles or transportation devices, shared micromobility fleets in Canada have only included bikes, e-bikes and e-scooters. This situation is a result of provincial regulations, municipal definitions, and the preferences of operators and manufacturers.

4.4.1 Observed approaches

Most municipalities with open delivery models have either allowed operators to propose the vehicle type, or have sought e-scooter services in response to provincial pilot programs. Some municipalities have requested that bikes or e-bikes be included in the resulting fleet because they are more familiar for users and their use is more aligned with public health goals (for example the North Shore only permitted e-bikes, while the Region of Waterloo permitted bikes, e-bikes and e-scooters with the operator providing only e-bikes and e-scooters). To encourage operators to provide bikes or e-bikes, some municipalities score related proposals higher during procurement processes. Interestingly, municipalities with both e-bikes and e-scooters have found that people use e-scooters more; Calgary's e-bikes are each used twice daily on average, but its e-scooters are used almost six times daily (although users can access more than seven times more e-scooters than e-bikes).

Service operators tend to prefer e-scooters because they are more profitable, with higher ridership and lower capital and operating costs. Some operators reported interest in adding more vehicle types, but face limiting provincial and municipal regulations.

Municipalities delivering bike share services with public backing have started to add e-bikes to their pedal bike fleets. Those e-bikes are generally used more often than pedal bikes, and increase the number of interested potential users. Adding e-bikes affects operations because they need to have their batteries replaced or recharged. Docked bike share services have begun to add recharging capabilities to their stations in response, which requires coordination with relevant stakeholders.

Outside of Canada, shared micromobility services sometimes include vehicles such as seated e-scooters and e-mopeds. Kelowna's permitting approach allows e-mopeds to be included in an operator's fleet, but the municipality has received no requests so far.

4.4.2   Guidance

NABSA's 2023 *Shared Micromobility State of the Industry Report*[29] found that e-bikes and e-scooters are becoming more common in fleets across North America. On average, e-bikes are ridden further than pedal bikes (3.2 versus 2.3 km per trip, respectively), and 56% more frequently than pedal bikes in services that offer both.

In Canada, shared micromobility services operated about 9,000 e-scooters, 17,000 bikes, and 6,000 e-bikes in 2023. This highlights the scale of bike share in Montreal and Toronto, which together offer more than 14,000 bikes and 4,000 e-bikes. As a result of this, two-thirds of shared micromobility trips in Canada are made on pedal bikes.

ITF's *Towards the Light: Effective Light Mobility Policies in Cities*[30] provides details on different type of micromobility vehicles and explores different ways to categorize micromobility vehicles based on weight, form, and active versus passive travel. The report highlights the differences in energy efficiency, material inputs, and space requirements of micromobility vehicle types compared to conventional vehicle types.

4.4.3   Implications and considerations

The types of vehicles offered by a service are often closely related to the delivery model: in Canada there are no services with e-scooters that receive public backing, and no services with bikes that use an open delivery model. A municipality that wants bikes included in a shared micromobility service will likely find it difficult to attract an operator without some form of public backing. More than half of Canada's shared micromobility fleet is comprised of pedal bikes in Vancouver, Toronto, Montreal and Hamilton – services that have public backing and not-for-profit operators, as well as lower costs for users.

Services with bikes are the only ones in Canada that operate through the winter season regardless of snow. Some municipalities allow operators with e-scooters to operate through winter, but require them to remove vehicles or close operations during snowfall events. One area for further study is the impact of cold weather on e-bike and e-scooter batteries; Toronto continues to operate e-bikes all winter, but Montreal has removed e-bikes from their winter fleet (another winter-time operating concession in Montreal is the addition of studded tires to bikes). Municipalities are improving winter clearing, sweeping, and de-icing operations on bikeways to provide more usable conditions during and after snowfall events, and further research could investigate the ability of e-scooters to operate in winter compared with bikes and e-bikes, including in snowy conditions.

Stakeholders observed that Canadian vehicle regulations restrict the use of some vehicle types, and differences exist between various provincial definitions of bikes, e-bikes and e-scooters. For example, Ontario's pilot program does not permit e-scooters that have seats or cargo space, both of which are seen as features[31] that make vehicles accessible to more users for more trips, thus improving equity. Some provinces (e.g. British Columbia) are in the process of updating their Motor Vehicle Acts that set requirements for vehicles allowed on public roads; it is expected that new regulations will help provincial staff review and approve new vehicle types on a case-by-case basis, allowing them to come to market more quickly. In coming years, municipalities will be faced with the need to consider how any new forms and variants of micromobility vehicles could be incorporated into their shared micromobility services.

One notable form of micromobility is shared cargo bikes with electric assist motors that allow people to carry heavy loads or passengers needed. Related services (e.g. Cargoroo[32]) have been implemented in a few European cities; the cargo bikes are typically parked in a dedicated location and must be brought back at the end of the trip, and for this reason these services are considered more as rental or library programs.

4.5   Accessibility impacts

People with visual, mobility, cognitive, and/or hearing impairments have raised concerns about the impacts of shared micromobility, particularly e-scooters and dockless services. Many of those impacts stem from the potential physical conflicts between vehicles (parked or in-use) and pedestrians including persons with disabilities.

Key impacts on accessibility that can arise from shared micromobility include:

- Misparked vehicles that create a hazard by blocking pedestrian routes including sidewalks, curb ramps and crosswalks
- Pedestrian discomfort that results from micromobility users riding on sidewalks, and from the speed differential between micromobility users and pedestrians on pathways

Docked and lock-to services have not raised concerns with misparked vehicles because stations do not encroach on the pedestrian clearway. Misparking can be a concern with dockless services due to the lack of fixed stations, user error, and limited sidewalk space – all of which can lead to vehicles being left in the pedestrian travelway. Dockless hubs can address these issues by geolocating where vehicles can be parked, and by using signs, pavement markings and other materials to show users where to park vehicles.

4.5.1   Observed approaches

General

Some municipalities (e.g. City of Regina, City of Ottawa) have worked with the Canadian National Institute for the Blind (CNIB) and/or local accessibility advisory committees during shared micromobility development. Municipalities and operators noted that proactively engaging with accessibility stakeholders before and after operations begin can help to alleviate tensions and prevent or mitigate conflicts.

Misparking

Some municipalities with dockless services have implemented the following strategies to mitigate misparked vehicles:

- Dockless hubs, or demarcated areas where vehicles can be parked and retrieved
- Geofencing to prevent illegal parking of devices
- Educational programs to raise public awareness about properly parking devices
- Requiring operators to move misparked vehicles within a window of time (see **Table 7**)
- Allowing vehicles to be parked in on-street parking spaces

Many municipalities mentioned that misparking issues have slowly decreased over time as users learn to park correctly.

Table 7: Examples of required response times for operators to address misparked vehicles

Ottawa	Windsor	Kelowna	North Shore
• 15 minutes to address misparked vehicle	• 30 minutes to address misparked vehicle • 1 hour to upright tipped devices • 4 hours to respond to safety concern	• 1 hour to address misparked vehicle	• 6 hours to address misparked vehicle

Speed differential

Some observed approaches to overcoming speed differential challenges between shared micromobility users and pedestrians include:

- Using geofenced slow zones to limit vehicle speeds on multi-use trails and other high traffic areas with a mix of users (e.g. Waterloo Region)

- Requiring constant sound emission to warn others of an approaching vehicle (e.g. Ottawa, Regina)

- Educational campaigns about riding courteously – i.e. sharing space, yielding to pedestrians, and ringing a bell before passing others. The Region of Waterloo is planning to target post-secondary students with future etiquette campaigns at the beginning of the semester. The City of Edmonton, which allows e-scooters on shared pathways, educates users about ringing their bell before passing others. The City of Kelowna's operator runs safety campaigns.

Sidewalk riding

Some municipalities permit sidewalk riding (e.g. Lethbridge, Vernon, Calgary, Leduc). Others have taken these approaches to discourage or prevent it:

- Geofencing technology that uses virtual geographic boundaries to restrict e-bike and e-scooter access to areas including sidewalks and pedestrian zones; fully geofencing sidewalks as no-ride zones is not practical as variations in GPS signals can lead to vehicles stopping unexpectedly on the street

- Sidewalk detection technologies that slow vehicles or warn users when riding on a sidewalk

- Education campaigns to remind users that sidewalk riding is not permitted

4.5.2   Guidance

General

Ongoing opportunities for public feedback are an important part of successfully managing shared micromobility, and NACTO's *Shared Micromobility Permitting, Process, and Participation* recommends strong community collaborations. Programs such as local ambassadors who share information about the

shared micromobility, and holding community engagement as early as possible, are valuable ways to inform the public and incorporate feedback.

The CNIB has prepared a policy brief[33] on e-scooters that recommends:

- Canadian municipalities should permit e-scooters only if the disability community is consulted.
- E-scooters should be subject to the same rules of the road as bicycles.
- E-scooters should be prohibited from sidewalk riding, and careless parking and unsafe operation should be mitigated through clearly designated parking areas.

Misparking

NACTO's *Bike Share Station Siting Guide* is a resource for selecting docked, lock-to, and dockless hub station locations that will not negatively impact sidewalk accessibility or other public realm uses. NACTO's *Shared Micromobility Permitting, Process, and Participation* describes considerations for organizing dockless services on streets, such as by allowing vehicles to park in on-street parking spaces and on bulb-outs.

Speed differential

NACTO's *Shared Micromobility Permitting, Process, and Participation* recommends creating reduced speed zones in areas where micromobility vehicles are the fastest users (i.e. in pedestrian areas), but never on streets shared with cars.

NACTO's *Designing for Small Things with Wheels*[34] (2023) offers guidance on providing high quality infrastructure, such as allocating extra width for wider devices and passing. TAC's *Geometric Design Guide for Canadian Roads*[35] (section 5.3.1.4) recommends widening the trail or separating users in multi-use contexts where there is higher traffic; user separation should be considered for multi-use paths where there is:

- A high percentage of pedestrians (more than 20% of users) and total user volumes greater than 33 persons per hour per metre of path width, or
- A low percentage of pedestrians (less than 20% of users) and total user volumes greater than 50 persons per hour per metre of path width

Sidewalk riding

NACTO's *Shared Micromobility Permitting, Process, and Participation* suggests that cities should invest in expanding their cycling network and improving streets to reduce sidewalk riding, citing that people choose to ride where they feel the safest.

4.5.3   Implications and considerations

At the onset of shared micromobility development, municipalities need to have proactive discussions with the accessibility community to address the needs of people with disabilities. Hamilton's support for the Everyone Rides Initiative, which provides access to cycling education and adaptive vehicle options, shows how shared micromobility can serve people who may not otherwise be able to use it. After a service is launched, ongoing discussions may be necessary to resolve issues and improve service design. Caution is warranted when using regulations to resolve an issue – for example, adding geofences can

impact vehicle usability, slow zones can increase travel time and costs for users, and neither of those approaches would be applicable to users of personal micromobility vehicles.

Relocating misparked vehicles in dockless services requires more resources but is easier with the use of hubs, particularly in high traffic areas. Municipalities also observed that misparking improves over time as users become more familiar with the service. Municipalities should work with operators to select appropriate solutions that will mitigate additional cost or complexity; if misparking is a major concern, the municipality could consider a docked or lock-to service -- which may impact the delivery model being contemplated and the level of public investment required. For example, Montreal continued to invest in its docked Bixi service after cancelling a pilot program with dockless operators.

Conflicts between users on trails are not limited to shared micromobility vehicles and extend to personally owned bicycles, e-scooters, skateboards, e-unicycles, and many other devices. These conflicts can be mitigated by building separated facilities for pedestrian and micromobility users.

Other considerations may include engagement with accessibility stakeholders on including adaptive micromobility vehicles in the shared fleet, developing more accessible educational materials (e.g. Regina offers information in Braille), and evaluating potential operators based on how they would address accessibility (e.g. City of Vernon).

4.6   Equity initiatives

Evaluation of shared micromobility in North America has found that users, in general, are disproportionately white, male and higher-income. This has led governments to explore what barriers may exist for other potential users, and how those barriers could be reduced or removed through equity programs and other targeted initiatives. Research on the subject (see Section 4.6.2) has identified several elements of shared micromobility that may present a barrier to use by important populations:

- Geographic area – Does it operate where people live and are trying to go?
- Network quality – Is there a connected, high-quality network of routes for micromobility users?
- Payment and access options – Are there alternatives to using smartphones or credit cards to access vehicles?
- User fees – How much do vehicles cost to use, and how does this compare with other mobility options?
- Marketing and communication materials – Do people feel that shared micromobility is relevant to them? Is the information clear to different audiences?
- Education – Do people know how to use shared micromobility?
- Fleet vehicle types – Are there vehicle options for people with different abilities and needs?
- Integration with transit – Is it easy to use shared micromobility as part of a transit trip?

4.6.1   Observed approaches

Municipalities that choose a delivery model with public backing have worked with operators to develop and implement equity initiatives, with funding from sponsorships, grants or regular budgets; some have built equity into how they plan and manage the service, while others have focused on future initiatives. They also offer relatively affordable user fees and have different payment options as part of their

operations that they may not consider as an equity initiative. Some other examples of equity initiatives are:

- In Vancouver, the Community Pass program provides annual memberships for $20 or less for people who are part of existing social programs or are referred to the program.

- In Hamilton, the Everyone Rides Initiative funded 12 new stations in the City's east end where the program did not operate, as well as education and engagement programming, and a hub where people can borrow adaptive bike options (e.g. hand cycles, tricycles, cargo bikes) for free, separate from the bike share service.

- In Toronto, bike share expansion is giving priority to locating almost 60% of new stations in the city's Neighbourhood Improvement Areas (ultimately reaching 30 out of 31). In addition to expanding operating areas, Bike Share Toronto has also launched a targeted engagement and education campaign in these areas to identify station locations and educate people on using the service. These efforts have a strong equity focus, recognizing diverse populations and offering information in relevant languages. The program also announced that annual membership can now be purchased in three separate payments rather than a single lump sum, and that $5 reduced-fare annual memberships will be made available to low-income people through existing programs (e.g. YMCA, community housing, transit pass)

Some municipalities choosing open or managed delivery models have started to work with operators to implement equity initiatives, and/or to request equity initiatives as part of the procurement process. The most common types of initiatives are:

- Expanding service in equity-deserving areas with lower demands (e.g. Hamilton, Edmonton, Ottawa)

- Reducing fares for low-income populations or other user groups (e.g. Edmonton, Kelowna, North Shore, Ottawa, Saskatoon, Waterloo, Windsor).

Many municipalities without formal equity initiatives or requirements noted they are still monitoring usage to identify barriers so they can be addressed in a meaningful way.

4.6.2   Guidance

Equity has been a central focus in shared micromobility guidance. NACTO's 2022 *Shared Micromobility in the U.S. and Canada* highlighted that affordability for users is a major threat to the widespread success and equity of programs, especially with pay-per-minute pricing that impacts the cost of longer trips.

The Better Bike Share Partnership publishes guidance on equity and shared micromobility. Their resources include research into the barriers faced by different groups of people in using shared micromobility, equity initiatives, and policy considerations.

The *Accelerating Transportation Equity*[36] report from UCLA's Luskin Center for Innovation looks at initiatives that municipalities can pursue with operators to achieve more equitable shared micromobility services. The report specifically highlights examples from mid-sized cities in the U.S. and offers recommendations to address affordability and infrastructure-related inequities.

The National Institute for Transportation and Communities[37] published research into shared micromobility equity initiatives that includes a dashboard of requirements by programs across the U.S.

and an evaluation tool. Additional materials and the final report from the project are available in the report *Mobility for the People: Evaluating Equity Requirements in Shared Mobility Programs*[38].

The Transportation Research and Education Center[39] at Portland State University has published a national scan of American bike share equity initiatives and a series of subject-specific papers that focus on related topics.

4.6.3   Implications and considerations

The difference in affordability for regular users between shared micromobility services with or without public backing is significant (the former being about half the price, on average), and can impact usage. For example:

- A casual user typically pays $3 to $5 for a 20-minute trip on a service with public backing, compared to about $8 on a service without public backing.
- Annual memberships on services with public backing are often $100 to $120 for unlimited trips of a maximum duration, while memberships on services without public backing often cost more than $80 per month.

Higher prices discourage the use of shared micromobility and thus contravene municipal goals for increasing travel by sustainable modes. This is a particular concern when shared micromobility offers a first-mile/last-mile option to access transit, for which users must pay yet another fare. Services with public backing offer municipalities a greater role in setting or approving user fees; without contributing resources, a municipality is likely to have very little to no influence over pricing.

There is a need for municipalities to identify barriers to equity, and to work with operators to promote, monitor and evaluate equity initiatives. In Canada there have been instances of operators including an equity initiative in a service proposal, but then not implementing it; among implemented initiatives, municipalities may not receive information on uptake or impacts. Operators may have little incentive to implement or promote to equity initiatives, or to simplify paperwork required for users to access a low-income program.

4.7   Transit integration

Shared micromobility can be viewed as one element of a public transit system, and many municipalities intend for it to enable multimodal trips and provide first-mile/last-mile access to transit services. There are several ways that shared micromobility and transit can support and benefit each other.

4.7.1   Observed approaches

Many municipalities encourage operators to locate shared micromobility stations at transit stops and stations; to do so, operators may have to enter property use agreements with the municipality or transit authority. Municipalities can have a role in identifying suitable micromobility station locations and supporting negotiations.

Shared micromobility users are unlikely to bring a vehicle onto a transit vehicle with them, because the additional time would count toward the cost of their trip. In any case, municipalities including the Region of Waterloo and Brampton do not permit shared micromobility vehicles to be carried in or on

transit vehicles, and transit vehicle operators are made aware of shared micromobility vehicle colours and branding so they can enforce this policy. Some shared micromobility operators have explored discounts for users who end their trip at a transit stop.

Fare integration could enable users to receive a discount when a single journey involves both transit and shared micromobility. Many municipalities indicated interest in fare integration, and in some communities (e.g. Hamilton, Montreal, Quebec City) people can link their transit fare card to their shared micromobility account and unlock a vehicle with it. However, no Canadian municipality has implemented full fare integration, and many noted the technical challenges in doing so.

In 2023, the City of Calgary piloted an initiative that offered free shared micromobility trips for users who started at one of three transit stations that had few frequent bus connections to nearby neighbourhoods; the municipality provided lump-sum subsidies to e-bike and e-scooter operators at these stations. The initiative received very high support from users, who reported greater transit usage during the pilot project. Calgary is now considering how to refine the initiative – such as by offering free or discounted trips to the station, or encouraging shared micromobility operators to provide more rides by offering them a per-ride subsidy (rather than a lump sum). It is also exploring which department should be responsible for funding the initiative.

Some transit agencies have taken leadership roles in the initiation of shared micromobility. TransLink's *Shared Micromobility Guidelines*[40] provides guidance to municipalities across Metro Vancouver. Shared micromobility services in Quebec City, Saguenay and Gaspésie are managed by the local transit authorities, and are explicitly viewed as part of the public transit system. In the Region of Waterloo, staff overseeing shared micromobility are part of the Region's Grand River Transit group.

4.7.2   Guidance

The ITDP *Maximizing Micromobility*[41] report looks at benefits and opportunities related to integrating shared micromobility and transit services. It identifies examples and lessons learned for four types of integration:

- Physical integration – such as providing stations and other end-of-trip facilities as close to transit stops and stations as possible

- Payment and fare integration – enabling users to pay or transfer between services more seamlessly

- Informational integration – giving user accessible information to help them plan trips and navigate between services (i.e. wayfinding)

- Institutional integration – transit agency involvement in the management of shared micromobility services

NABSA's 2023 *Shared Micromobility State of the Industry Report* identifies that 70% of riders reported using shared micromobility to connect to transit, with 20% saying that they do so weekly. Overall, 16% of all shared micromobility trips were for the purpose of connecting to transit.

NABSA's *Incorporating Shared Micromobility in Electric Vehicle Charging Projects*[42] highlights the opportunity to co-locate micromobility charging stations with existing or planning electric vehicle charging stations, or where other electrical connections are available, and noted that doing so can create a cost-effective mobility hub serving multiple trip purposes and users. Transit stations would be good candidates for such facilities.

4.7.3　Implications and considerations

There are differing theories about whether shared micromobility use supports or replaces transit ridership. NABSA's 2023 *Shared Micromobility State of the Industry* report identified that 13% of shared micromobility trips replaced transit, while 16% were to access transit. Shared micromobility has also proven that it can serve a public transit function; for example, Bixi's 12 million trips in 2023 made it one of the biggest public transit services in Quebec. And shared micromobility can be a more flexible travel option late at night, when many transit routes have ceased or run infrequently.

How people use shared micromobility in a community will depend on context, but there appears to be a complementary relationship between shared micromobility and public transit in the long term; ultimately, both offer alternatives to car travel. Involving transit authorities in shared micromobility planning can lead to the identification of valuable opportunities such as incentives that encourage mutual ridership increases. The *Putting Micromobility at the Center of Urban Mobility*[43] report highlights opportunities such as bundled tickets or discounts for journeys involving both modes. Institutional integration can support the success of such initiatives, and having transit authorities manage or be involved in shared micromobility services could expand their role and function; this is especially true in metropolitan areas where a single transit system serves several municipalities.

4.8　Operational parameters

Operational parameters define key conditions such as the acceptable times and locations of vehicle operation, and increasingly include technological requirements that municipalities stipulate through contracts and regulations.

4.8.1　Observed approaches

Operational parameters for shared micromobility can vary with the type of service. Docked bike share services typically have fewer restrictions or conditions than dockless services, since shared bikes and e-bikes operate similarly to personal bicycles and lack on-board geofencing technologies.

Curfews and operating season

Most Canadian municipalities permit shared micromobility services to operate 24/7, but some set operational curfews across the entire service area or in targeted locations to control the use of vehicles by intoxicated persons. The City of Vernon found that 25% of rides happen after transit services cease operation in the evening, in alignment with hospital shift changes. Some operators noted that curfews can reduce ridership by 25% to 35%.

Many municipalities only permit shared micromobility operations during warmer months, typically from April to November. Some do not restrict when services can operate, or restrict operations only during snowfall events if the operator chooses to remain open through the winter.

Where vehicles can be used

Provincial regulations determine the degree of municipal authority over where bikes, e-bikes and e-scooters can be used. Some provinces allow municipalities to decide where e-scooters can be operated,

while others have blanket prohibitions (e.g. against riding on roads with speed limits above 50 km/h in Saskatchewan). Municipal regulations often permit e-scooter use on:

- Bike lanes and cycle tracks
- Multi-use paths and trails
- Roads with speed limits of 50 km/h or less

Some municipalities allow e-scooters to operate on sidewalks (e.g. Lethbridge, Vernon, Calgary, Leduc), recognizing that people usually do so only if the road is uncomfortable. This does assume that riders will operate safely and courteously, but eliminates the need for enforcement.

"No ride" and "slow ride" zones

Many municipalities have required the implementation of geofenced "no ride" and/or "slow ride" zones that control where shared micromobility vehicles can be operated. Geofencing technology uses on-board global positioning system (GPS) devices with boundaries developed and managed by the municipality or operator to limit operation in these zones. "No ride" zones define areas where vehicles are not permitted such as on high-speed roads, certain trails, or private property. "Slow ride" zones (typically with 15 km/h speed limits) are commonly applied to better manage conflicts between users in areas with high pedestrian traffic such as parks, plazas and multi-use trails.

Helmets

Helmet regulations are set provincially and vary across Canada for micromobility vehicles (see **Table 8**). They can be a barrier to the use of shared micromobility; they may either require a service to provide helmets, or require users to wear a personal helmet in which case they discourage unplanned use. Related approaches across Canada include:

- Requiring helmets be attached to a percentage of vehicles (e.g. Vancouver, North Shore, Regina)
- Requiring users to acknowledge they should wear a helmet
- Educational and promotional events offering discounted helmets or free helmet giveaways
- Requiring helmet selfies before unlocking vehicle (a feature of some operator apps)
- Messages that helmets are required for shared e-bike trips (e.g. Toronto, Montreal, Quebec City)

Table 8: Micromobility helmet laws for provinces with shared micromobility

Province	Bikes	E-bikes	E-scooters
Alberta	Required for users under 18 years old	Required	Not required
British Columbia	Required	Required	Required
Saskatchewan	Not required	Required	Required
Ontario	Required for users under 18 years old	Required	Required for users under 18 years old
Quebec	Not required	Required	Required

4.8.2   Guidance

NACTO's *Guidelines for Regulating Shared Micromobility*[44] report outlines current and best practices for regulating shared micromobility operators, covering topics including contract term and conditions, operational requirements, public engagement, and data privacy. It should be noted that this guidance is from 2019 and was prepared to respond to the growing implementation of shared micromobility services without municipal approval. The resource's best practices may represent ideal conditions for various goals that may exceed the capacity of an operator or municipality.

ITF's *Safe Micromobility* report discusses shared micromobility regulations and operational parameters of interest to municipal staff on topics such as speed regulation and conflicts with pedestrians. It has a section titled "Finding the right regulatory balance" that further discusses the role and impacts of regulations.

4.8.3   Implications and considerations

Municipalities can set operational parameters for services and operators through contracts and agreements. Many municipalities emphasized the benefits of maintaining a collaborative approach to discussing requirements and expectations with operators, because they can have significant impacts on operator costs and how people use the service. Operators highlighted that operational parameters can significantly impact on service feasibility and profitability, which affects user fees. Municipalities would benefit from a review of their operating requirements against their program goals, using an equity lens. When shared micromobility is intended to be a core mobility option in the municipality, a strong rationale is needed to justify restrictions; it's also important to recognize that technology-based strategies like geofences are not effective in controlling the use of personal micromobility vehicles.

One example of how an operational parameter can impact mobility is a requirement to cease micromobility services at night. While typically intended to prevent riding by intoxicated users, such a policy could have a negative impact by removing a mobility option at a time when transit service is already limited, and could contravene a municipal goal of increasing travel by sustainable modes. There are other ways to limit use by intoxicated people, such as locating stations or vehicles farther from popular nightlife areas to manage who chooses to use the service instead of simply removing the option for all users.

Municipalities and provinces can both set rules about where different types of vehicles can be operated. There is an emerging consensus that e-scooters and e-bikes can be used where bikes are currently allowed to operate; many jurisdictions have also stipulated that e-scooters can operate only on roads with speed limits of 50 km/h or less. Newer shared micromobility vehicles can offer on-board technology to enforce these rules through geofencing; note, however, that extensive use of geofences can make operation more complex – for example, a person crossing a geofenced "no ride" road on a shared e-scooter would likely not be able to ride normally through the intersection, while people using personal e-scooters would still be able to. Some operators consider certain regulations to hold shared micromobility to a higher standard than (for example) household waste collection activities that block sidewalks. Municipalities should always consider the context and intent of rules being considered; for example, if a restriction preventing e-scooters from using higher speed roads is intended to improve safety, then appropriate questions might be whether the rule would negatively impact access to destinations along those roads, and why appropriate cycling facilities are not present on those roads to allow safe access for micromobility users.

Helmet usage on shared micromobility vehicles is another issue where restrictions and requirements present trade-offs. Vancouver was one of the first places in the world to require that helmets be attached to micromobility vehicles, but over time the policy has been refined to a lower percentage – this is because many users bring their own helmet, or leave helmets lying around stations which requires costly clean-up or replacement. Technology-based tactics like requiring "helmet selfies" before using a vehicle can create additional barriers to users who don't own a smartphone, raises privacy concerns related to operator use of the photos. Having to take a photo and wait for it to be reviewed adds another barrier for potential users to access a mode that the municipality is trying to promote.

4.9   Enforcement

Enforcement with respect to shared micromobility services generally relates to the enforcement of contract terms for operators, or operating rules for users:

- Shared micromobility operators that are permitted to operate in a municipality must agree to the terms and conditions of operating in that city. Means of holding them accountable could include a fine or permit suspension, revocation or modification.
- Municipal operating rules for users (where to park or ride) can be enforced by the operator or by police or by-law officers, depending on the rule or infraction in question. By-law officers may hand out fines for a variety of violations including riding on the sidewalk, speeding, or improper vehicle use.

4.9.1   Observed approaches

Enforcement of operator terms and conditions varies among jurisdictions, and municipalities were hesitant to share details of situations where it has been necessary. Municipalities noted that they may enforce financial penalties or suspend an operator's license, but only foresee doing so in the case of major or repeated infractions; they typically mention working with operators to rectify issues before considering enforcement. Examples of operator terms and conditions the municipality may enforce include:

- Misparked dockless vehicles being addressed within a defined time period

- Providing a fleet size conforming to agreed minimums and maximums
- Service reliability (up time)
- Maintenance and customer service levels

Enforcement of operating rules for users is most often carried out by the operator for actions such as misparking and improper riding; they typically apply a two-strike or three-strike system to educate users before applying penalties such as suspending a user. Many municipalities have updated by-laws to incorporate regulations on shared micromobility (e.g. City of Regina, City of Ottawa); many have worked with law or by-law officers to educate them on rules, and some have dedicated staff to e-scooter enforcement for short periods. No municipalities noted a particularly high number of infractions; most indicated that enforcement is a relatively low priority and they prefer to educate users rather than ticket them.

4.9.2   Guidance

NACTO's *Guidelines for Regulating Shared Micromobility* provides best-practice recommendations on general terms and conditions, enforcing permit terms, and setting operation requirements.

NACTO's *Breaking the Cycle: Reevaluating the Laws that Prevent Safe and Inclusive Biking*[45] discusses the implications of enforcement-based approaches. While focusing on the US context, it is a relevant resource for Canadian municipalities to consider what rules exist, how they are being enforced, and the potential impacts and inequities that could result from enforcement.

4.9.3   Implications and considerations

Municipalities need administrative staff to monitor operators' conformance with permits and contracts, 311 staff to handle and/or respond to public comments, and police or by-law officers to enforce the rules of the road. They also need to consider these resources as well as the effects of enforcement on the service's achievement of its goals. One operator noted that being charged a fee to recover the cost of time spent by municipal staff on enforcement simply increases operator costs and thus user fees; it can also have limited benefits compared to expanding outreach and education to improve user behaviour. Most municipalities emphasized that user behaviour and compliance with rules tends to improve over the first few months, as users learn to use the new service properly.

4.10   Liability and risk assessment

Municipal risks and liabilities related to shared micromobility are important considerations.

4.10.1   Observed approaches

All shared micromobility services have terms and conditions that users must acknowledge when signing up, including waivers that state the municipality and operator are not liable for user injuries. Many municipalities also require operators to indemnify the municipality, its elected officials and employees against all liabilities, claims and judgements. Municipalities typically require operators to have general liability insurance and other insurance such as automobile coverage. Some municipalities have worked closely with their legal and risk management staff to build understanding and agreement before implementing a service. Many provinces have standard requirements for vehicle specifications that

should be followed to minimize municipal risk exposure. Additional contract requirements around vehicle maintenance and user education and safety are other steps that municipalities have taken to reduce risk and protect themselves from liability.

4.10.2   Guidance

NACTO's *Guidelines for Regulating Shared Micromobility*[46] recommend that municipalities:

- Require operators to indemnify the municipality and hold appropriate insurance
- Require operators to hold sufficient funds to cover the cost of removing equipment from public rights-of-way
- Require operators to perform monthly maintenance checks of all vehicles in a fleet, and keep a record of maintenance activities

ITF's *Safe Micromobility* discusses risks around micromobility vehicle design and use with a broader discussion of overall transportation system safety.

4.10.3   Implications and considerations

Any new initiative of a public agency will increase its exposure to risk. However, documenting shared micromobility's goals, metrics and risk mitigation strategies can improve the balance of benefits versus risks.

Requiring that vehicles meet recognized national or international specifications can help address liability and risk. For example, lithium-ion batteries in micromobility vehicles can present a fire risk if not handled properly; related concerns have increased as these vehicles have grown in popularity, but now focus mostly on personally owned vehicles using cheaper, off-brand or after-market batteries.[47] In December 2022, the Consumer Product Safety Commission instructed manufacturers to undergo voluntary testing and certification by Underwriters Laboratories (UL) for micromobility vehicles; requiring UL or similar certification of vehicle elements is an increasingly standard requirement.

Municipalities and service operators need to jointly explore trade-offs between regulations and risks. For example, most shared micromobility services require users to be at least 18 or 19 years old, but Bixi in Montreal permits users 14 years and older[48] while Mobi in Vancouver allows users as young as 12.[49] In both cases, responsibility for young users lies with their legal guardians. There is a risk to broadening the user base in this way, but it can be managed through standard responsibility waivers. Another example of a trade-off revolves around where vehicles can be used: restricting use on roads with no bikeways and speeds over 50 km/h will help minimize risk, but could also impact the service's accessibility and convenience.

4.11   Evaluation

Monitoring and evaluating a shared micromobility service can help identify its strengths, weaknesses, impacts, and opportunities for growth. Municipalities will also be interested in evaluating shared micromobility's role in the transportation system generally, as well as operator performance. Service evaluation is often structured around key goals and objectives (e.g. equity or accessibility); operator evaluation typically reflects contractual requirements. Ultimately, evaluation is an opportunity to

consider how well shared micromobility is meeting municipal and community objectives, in order to guide policy making and inform operational decisions including future expansion.

4.11.1   Observed approaches

Municipalities take a variety of approaches to evaluating outcomes, including:

- Public surveys – Some municipalities send out their own public surveys to gather feedback (e.g. Regina, North Vancouver, Vernon, Saskatoon, Edmonton, Leduc).
- Surveys by program operators – In many cases, operators send out an end-of-season or end-of-year survey to collect data (e.g. Regina, Windsor), sometimes in addition to the city's survey.
- Public opinion – The City of Coquitlam completed a sentiment analysis on social media to understand what people were saying about the program.
- Injury data from local health agencies – Municipalities may work with local health agencies to gather injury data involving shared micromobility users and/or vehicles. The City of Regina works with the local health authority to collect data on emergency room visits; the City of Calgary collaborates with Alberta Health Services and the University of Calgary to collect injury data; and the City of Ottawa collects injury data from Ottawa Public Health through hospital records.
- Use of third-party platforms – Many municipalities said they purchased or were given access to platforms (e.g. Populus, Ride Report) that allow staff to analyze and generate program reports.
- Predetermined metrics – Some municipalities use predetermined metrics to assess shared micromobility, possibly based on established goals and objectives (e.g. Region of Waterloo). The North Shore's evaluation criteria include ridership, fleet size, user experience, environmental impacts, and social equity. Bike Share Toronto uses ridership, revenue, expansion plan, fleet electrification, and modal splits of bikes on the road. The City of Vancouver collects data on ridership, user demographics, financial aspects, and mode shift.

Most municipalities do not have predetermined metrics for evaluation, and instead evaluate shared micromobility using public feedback, surveys and operational data. Some examples of program evaluation reports include:

- The City of Kelowna's *2021 Program Evaluation Report: Micromobility Permit Program*[50] used data from e-scooter companies, a community survey, community feedback, e-scooter rider surveys, injury data, and stakeholder engagement.
- The City of Calgary's 2020 report[51] was based on two public engagement surveys and a study with Alberta Health Services and the University of Calgary on shared e-scooter injuries. It recommended steps to address concerns.
- The City of Portland Bureau of Transportation's *E-scooter Findings Report*[52] (2019) is another example of shared micromobility evaluation.

4.11.2   Guidance

The ITDP *Bike Share Planning Guide* recommends that cities collect data on performance which can be used to adjust operations, inform policy making, and improve the program. Section 3.1 of the guide identifies goals and suggests that cities establish metrics to evaluate performance. Indicators may

include mode share, accessibility by low-income users, average daily trips per vehicle, and average daily trips per 1,000 residents.

4.11.3   Implications and considerations

Evaluation of shared micromobility often aligns with the nature or state of a municipality's interest in it. For example, municipalities interested in enabling or testing the local market may evaluate a service using operator data, user feedback and public surveys; formal criteria may be lacking and the evaluation process is intended to identify and address significant concerns. In other cases, where municipalities have set goals and objectives for shared micromobility services, evaluation metrics tend to be aligned with municipal mobility goals to better assess impacts and the return on any municipal investment.

Program evaluation can require significant resources. Shared micromobility operations can produce large volumes of data to be verified, stored and assessed; and in some cases, parallel surveys by municipalities and operators have led to public confusion and survey fatigue.

Some operators viewed the reporting requirements of municipalities as frequent, extensive and time-consuming. Municipalities should work with operators to consider options and identify the datasets that give municipal staff the information they require; dashboards and similar tools can allow staff to pull reports as needed. Where municipalities have provided public backing, there is a stronger case for oversight and transparency through measures such as a review of an operator's financial statements.

5.   Conclusion

This report addresses several important topics related to shared micromobility services in Canada, and represents a foundational effort that can be built on as more experience is gained across the country. It provides an inventory of existing, past and planned services across the country, and offers a synthesis of practice and perspectives. The following paragraphs highlight some of the report's key findings for different stakeholder groups.

Municipalities. Local and regional municipal governments play a lead role in enabling and shaping shared micromobility, notably by working with local stakeholders to evaluate the feasibility of service delivery with or without public backing. Experience shows that diverse municipal staff need to be involved throughout planning, implementation, operation and evaluation phases.

Federal and provincial governments. Provincial governments have an important role in enabling the use of micromobility vehicles on public roads – current regulations on bikes, e-bikes and e-scooters vary among provinces, and not all provinces permit e-scooters. New forms of micromobility vehicles are expected to emerge, and policy makers will need to evaluate and regulate their use. As well, some senior governments in Canada and other countries play a growing role in funding shared micromobility.

Shared micromobility service operators. While this report does not focus on information for operators of shared micromobility services, it does highlight Canadian practices and initiatives that could help shape new or existing services. It explains key perspectives of municipalities that could help operators to understand public objectives and decisions, and captures some views of operators that could foster better mutual understanding between governments and businesses.

TAC member organizations. The report can help public, private and not-for-profit TAC member organizations reflect on how shared micromobility is integrated into Canadian transportation system policies and operations. It summarizes the potential benefits of shared micromobility and how it aligns with common municipal goals, and also reflects on how municipalities and operators can work together to develop or expand shared micromobility services.

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