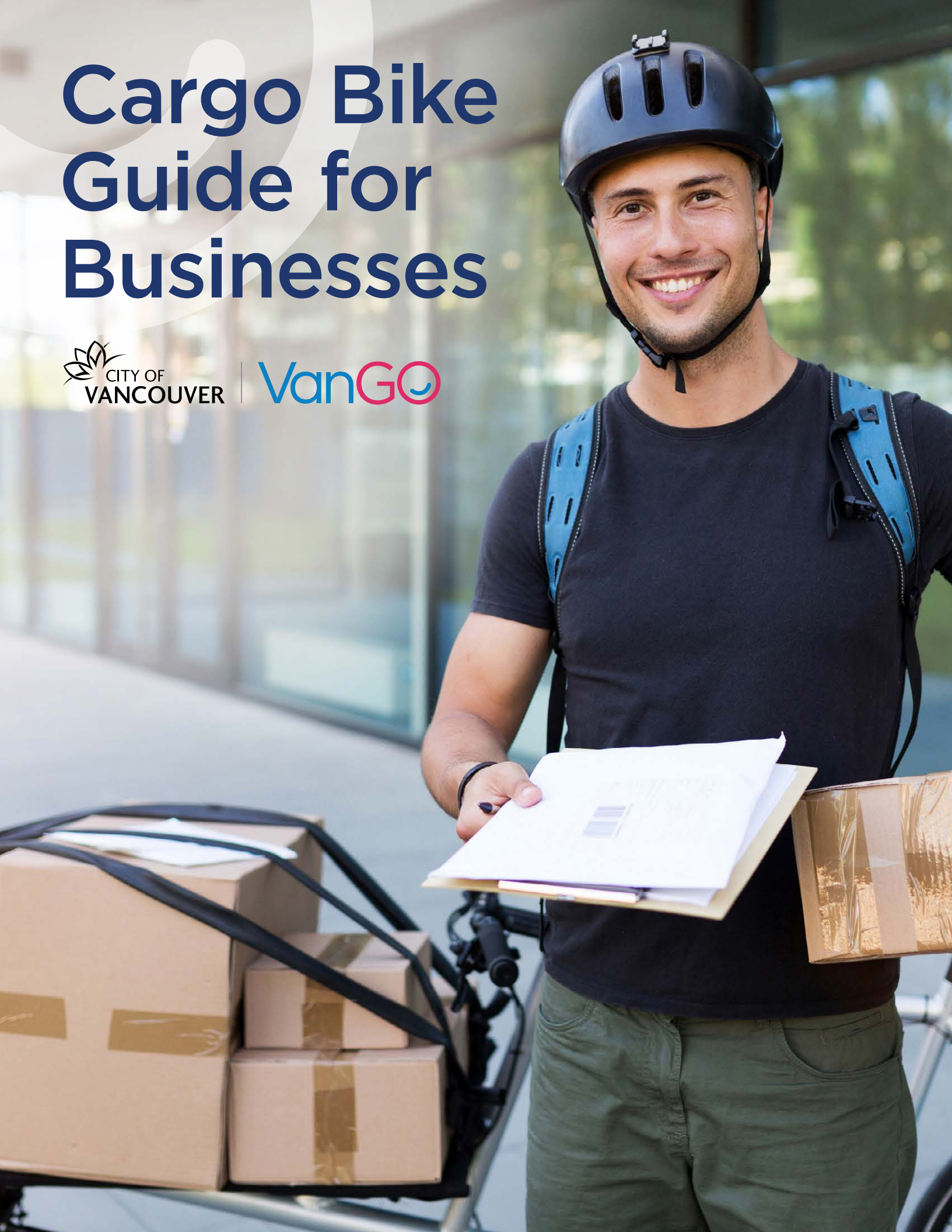


Cargo Bike Guide for Businesses



Contents

Introduction	1
Policy Context	
Growth of Cargo Bikes	
The Vancouver Context	
Cyclelogistics	
Cargo Bike Defined	3
What is a Cargo Bike?	
Cargo Bike Styles	
Cargo Bikes Versus Cargo Trikes	
Electric Cargo Bikes	
Cargo Bike Benefits	
Cargo Bike Overview	7
Cargo Bike Dimensions	
Weight & Load Capacity	
Cargo Bike Accessories	
Cargo Bike Maintenance	
Where to Ride & Park	
Operating Requirements	11
Bike Couriers	
Food or Street Vending	
Mobile Special Event Vending	
Purchasing Tips & Storage	12
Manufacturers & Retailers	
Track & Trace Technology	
Monitoring & Evaluation	14
Micro-hubs	15
Sources & References	17
End Notes	
Additional Resources	
Appendix A	18
Cargo Bike Implementation Checklist	
Appendix B	19
Employee Engagement & Buy-in	

Introduction

Policy Context

In April 2019, the City of Vancouver declared a Climate Emergency to increase its efforts to tackle climate change. This call to action takes place in a city home to over 630,000 residents and 1.4 million jobs. The City is expected to grow even more, bringing increased pressure on its street space. To better accommodate future growth and move towards a more sustainable future, the City has set a target of two-thirds of all daily trips made in Vancouver to be by sustainable transportation modes by 2030. Another target is to have 50% of all vehicle kilometres travelled by zero-emission vehicles by 2030.

This guide has been created as part of the Transportation Demand Management (TDM) Action Plan (2021-2025). The TDM Action Plan focuses on non-infrastructure-based approaches to increase sustainable transportation and reduce greenhouse gas emissions. The TDM Action Plan is part of the City's Climate Emergency response and is an extension of the City's Active Transportation Promotions and Enabling Plan (2016).

This is a free resource guide for businesses of all sizes. It provides an overview of best practices and how companies may be able to adapt to deliver goods and services using cargo bikes.

Growth of Cargo Bikes

Organizations worldwide are looking to improve the efficiency of deliveries, especially as e-commerce and online services continue to grow in demand. The transport of goods by motor vehicles, particularly in larger cities, adds to road congestion, delays, and competition for curbside spaces to load and unload goods. These challenges make it difficult for businesses and customers to deliver and receive their packages on time and within budget.

Cargo bike deliveries are a growing trend. Compared to light delivery vehicles, cargo bikes have many advantages, including improved efficiency and sustainability of last-mile deliveries. Users can often access areas that can be difficult for cars, vans or heavy motor vehicles to get to.

Travel by cargo bike produces no emissions and can be more cost-effective to operate and maintain than a light delivery vehicle. Cargo bikes may also contribute to corporate social responsibility strategies or targets.

From product delivery to serving small pop-up street shops, cargo bikes can be flexible, have public relations potential, and the low buy-in costs have made them an integral part of many business models, large and small.

Did You Know?

The term “last-mile deliveries” refers to the final destination in the supply chain, when a product is transferred from a business (typically a retail store or distribution centre) to the customer's business or home by transport.



Introduction

The Vancouver Context

The City of Vancouver is a leading Canadian city in sustainable transportation. It has developed a comprehensive connected cycling network with over [330 kilometres of routes](#). These routes consist of protected bike lanes, local street bikeways, and off-street pathways.

The term “cyclelogistics” describes the integration of bicycles into the goods movement network to improve efficiency and reduce the impacts of deliveries in cities.

Studies have shown that cargo bikes are more efficient in point-to-point travel in dense cities like Vancouver and can [occupy less than 35% of the space compared to a van](#).

Cargo bikes, including electric cargo bikes, can be used on both the city’s street and bike network, providing increased permeability and access to residents and businesses compared to other delivery solutions.

Cyclelogistics

Cyclelogistics refers to the use of bicycles for urban goods and service logistics. Industries that are looking to incorporate cargo bikes into their business model may consider various elements, including:

- Assessing costs and benefits;
- How to source equipment (local versus international manufacturers);
- Bicycle storage and business operation integration;
- Policy, insurance, licensing and liability requirements;
- Staff training, and;
- Ongoing evaluation and assessment of next steps.

This guide focuses on cargo bikes and how they may be able to support goods and services and help meet the demand for last mile deliveries.

Did You Know?

The [2022 Cycling Map & Guide](#) is available online. As of 2021, there are 330 kilometres of cycling routes with 31% designed for all ages and abilities (AAA).

Source:

vancouver.ca/files/cov/map-cycling-vancouver.pdf



Cargo Bike Defined

What is a Cargo Bike?

DEFINITION: “Freight bicycles, carrier cycles, freight tricycles, cargo bikes, box bikes, or a cycle truck are human-powered vehicles designed and constructed specifically for transporting loads.

Vehicle designs include a cargo area consisting of an open or enclosed box, a flat platform, or a wire basket, usually mounted over one or both wheels, low behind the front wheel, or between parallel wheels at either the front or rear of the vehicle. The frame and drivetrain must be constructed to handle loads larger than those on an ordinary bicycle.”



Cargo Bike Defined

Cargo Bike Styles

Many bicycles move goods, including traditional two-wheeled bikes, electric bicycles and three-wheeled cargo bikes. Cargo bikes are designed to transport heavier goods compared to conventional bicycles, which rely on backpacks, saddlebags, or panniers.

Cargo bike configurations include pedal-only and electric-assist powered options. Pedal-only cargo bikes generally weigh less and have lower maintenance costs than their electric counterparts. However, they are difficult to use on hilly terrain.

Electric cargo bikes can generally travel greater distances, carry heavier loads, and assist in challenging terrain such as hilly areas.

For more examples, please visit cargobike.ca/definitions

Cargo bikes come in different shapes and sizes and can include the following styles:



Cycle trucks have the same overall size as a standard city bicycle, but they have a smaller front wheel (typically 20 inch compared to a 26 inch rear), with a front rack affixed to the frame over the wheel.



Long-tails have an extra-long wheelbase at the back, accommodating an extended, built-in deck to carry cargo.



Long Johns, also known as bakfiets and box bikes, have a long wheelbase at the front with a smaller front wheel. The cargo area or an attached wooden basket sits low to the ground between the handlebars and front wheel.



Utility bikes are built with a traditional wheelbase with reinforced frames to carry larger loads.



Commercial grade cargo bikes, also known as **cargo trikes/cycle rickshaws**, are low-maintenance, have four-season durability, and are designed to carry significant cargo loads.

Cargo Bike Defined

Cargo Bikes Versus Trikes

Current **British Columbia Provincial regulations** specify that an electric cargo bike can have a maximum of three wheels. Four or more wheels are illegal. There are no restrictions on pedal-only cargo bikes.

Typically, two-wheeled cargo bikes are smaller, lighter, and easier to manoeuvre in narrow areas.

Three-wheeled cargo trikes have a larger load capacity and better stability.

Both cargo bikes and trikes can be front or back loading, with rear-loads typically carrying larger and heavier weight.

Electric Cargo Bikes

Electrically powered cargo bikes must meet **Provincial regulations** for motor-assisted cycles and include the following characteristics:

B.C. Motor Vehicle Act – Motor Assisted Cycle Regulation	
Wheels	Maximum three wheels in contact with the ground
Power Source	Pedal power with electric motor assistance
Wattage	Maximum continuous power 500 watts
Speed	Maximum 32 kilometres per hour on level ground
Wheel Diameter	Minimum 350 milometres
Braking	Brake from 30 kilometres/hour to full stop in nine metres

Source: [B.C. Motor Vehicle Act](#)

Requirements for motor shut-off, generators, brake performance, drive system and equipment securement are detailed in the **[B.C. Motor Vehicle Act](#)**.

Additional considerations include:

- While it has a motor, an electric bicycle (e-bike) is not considered a motor vehicle.
- To be eligible to operate an e-bike or motor-assisted vehicle, a person must be 16 years of age or older and wear a bicycle helmet.
- By law, all riders in B.C. operating any and all bicycles half an hour after sunset and half an hour before sunrise must have a white front headlight with a visibility distance of 150 metres and a rear red light with a visibility distance of 100 metres. It is recommended that front and rear lights be used when operating a cargo bike.

For more information, please refer to the **[Motor Vehicle Act](#)** and Section 1, **[Motor Assisted Cycle Regulation](#)**.

Cargo Bike Defined

Cargo Bike Benefits

Incorporating a cargo bike fleet into a business model may have many benefits, including:

Efficiency: Cargo bikes may increase delivery accessibility and efficiency during peak travel hours.

Costs and Savings: Compared to commercial vans, cargo bikes are more affordable. Businesses may see cost savings in several areas, including parking/storage fees, parking tickets, insurance, maintenance and fuel.

Sustainability: When comparing cycling to driving, cargo bikes **produce a tenth of the CO2** and require less storage space. Cargo bikes are also quieter, producing less noise pollution.

Employee Benefits: Research has shown that cycling leads to healthier lives, contributing to the prevention of various illnesses and improving mental health.

Safety: Cargo bikes are safer for pedestrians as they are smaller and have lower top speeds than vans.



Cargo Bike Overview

While all cargo bikes are suitable for carrying goods, different types have varying benefits depending on what cargo a business is planning to move. Before the purchase, do the research and consider the following:

- **Cargo Bike Type:** Consider what the cargo bike(s) will be used for, the goods it will be carrying, the fleet size, average distance of deliveries, level of delivery demand and congestion in the local area. Most importantly, pick a cargo bike that employees are comfortable using by providing training and safety tips.
- **Weather Conditions:** Take the time to consider the size, shape, and weather resistance of the cargo you transport.
- **Infrastructure and Topography:** Consider the infrastructure and terrain on which the cargo bike will be used (roads, bike lanes, and topography).
- **Travel Distance and Charging Time:** Consider the maximum distance an e-assist cargo bike can go on a single charge. Understand the charging time of an e-assist cargo bike to ensure it fits operational needs.
- **Cargo Bike Quality:** Steel bicycles are more robust than aluminum; however, they can rust. Aluminum bikes are rust-resistant but need thicker tube walls to ensure strength. Also, ensure internal gears are sealed from the weather.
- **Export Ready:** If exploring vendors outside of Canada, ensure that the manufacturer can ship to Canada.
- **Cost and Rebates:** The B.C. government offers up to \$1,700 in rebates for business owners looking to purchase an e-cargo bike.
- **Motor Vehicle Act Regulations:** Follow requirements for e-bike cargo bikes as detailed in the B.C. Motor Vehicle Act.

Did You Know?

Cost and Rebates: The B.C. government offers up to \$1,700 in rebates for business owners looking to purchase an e-cargo bike.



Cargo Bike Overview

Cargo Bike Dimensions

While Vancouver has no formal regulations on cargo bike size requirements, specific dimensions have been recommended to ensure cargo bikes operate comfortably and safely on the city's cycling network.

Cargo bikes should not exceed **1 metre in width and 2.7 metres in length**. These dimensions will allow the cargo bike to move quickly within narrower protected bike lanes and fit into turn areas. Smaller cargo bikes may be desired to enhance the flexibility of operations, including having access to more parking opportunities. The **2019 B.C. Active Transportation Design Guide** recommends up to 0.9 metres in width for a standard cargo bike.

City of Vancouver Cargo Bike Size Chart

Dimensions	Recommended Size
Width	less than 1.0 metres
Length	less than 2.7 metres
Height	less than 2.0 metres

Weight & Load Capacity

The weight of the cargo bike and its loading capacity can vary widely among the different types of bicycles available. The cargo bike weight can range from 20 to 170 kilograms, and the loading capacity can range from 50 to 350 kilograms².

Other considerations include:

- Overall weight (bike and cargo) is reasonable and can be managed by a human-powered or legal e-assist bicycle.
- Cargo bikes with a large carrying capacity may benefit from electric-assist motors. It is important for cargo bikes not to be too top-heavy to maintain balance.
- Safety features similar to that of a pedicab, including rear hydraulic brakes and front V-brakes, and bicycle accessories.

For additional specifications, please reference Section 14, "**Pedicabs and motor-assisted pedicabs**," of the Vehicles for Hire By-Law No. 6066.

The total maximum weight limit, or payload capacity, includes the weight of the rider as well as clothing, riding gear, cargo, etc.—everything but the bike itself. See the table below for more details.

Cargo Bikes and Trikes – Load Capacity Versus Width

Type		Payload Weight (kilograms)		Payload Length (centimetres)		Width (centimetres)	
Range (R)/Typical (T)		Range	Typical	Range	Typical	Range	Typical
Cargo bike		100-275	100	200-800	300	50-90	70
Cargo trike	Front loaded	100-300	100	200-2500	300	80-90	85
	Rear loaded	200-300	300	500-1700	1000	80-120	100

*Adapted from the [Cycle Logistics Study Final Report \(2019\)](#)

Cargo Bike Overview

Cargo Bike Accessories

Cargo bike accessories can improve a rider's safety and comfort level. Safety accessories may include:

- **Lights (MVA 183.6-7):** By law, all riders in B.C. operating a bike half an hour after sunset and half an hour before sunrise are required to have a white front headlight with a visibility distance of 150 metres and a rear red light with a visibility distance of 100 metres. It is recommended that front and rear lights be used when operating a cargo bike.
- **Bells and Horns (COV By-Law 60B):** Vancouver cycling laws require all people cycling to have a bell or device "capable of being used as a warning." This by-law only pertains to the City of Vancouver and is not part of the Motor Vehicle Act.
- **Helmets:** These have been mandatory in B.C. since 1995. (**MVA Section 184 – COV By-Law 60D, 60E**)
- **Bike Locks (where applicable):** Cargo bikes are usually equipped with built-in locks. A U-Lock in conjunction with a heavy chain lock is recommended to offer maximum protection. Bikes can be registered for free with **Project 529**. The system records your bike serial number to assist with bike recovery in the event of theft.
- **Air Pump:** The correct tire pressure is essential in avoiding flat tires and improving ride quality and efficiency.

- **Bicycle Repair Kit**
- **Doors, Sides, and Windshields (where applicable)**
- **Mirrors**
- **Beverage holders**

Cargo Bike Maintenance

Regular cargo bike maintenance is vital to ensure bicycles are in proper working order. Be aware of the manufacturer's warranty and follow their maintenance guidelines.

Pre and post-trip checklist inspections should be developed, implemented, and required for all trips, along with regular tune-ups completed by a professional bike mechanic.

An ABC quick checklist includes air, brakes, chain/crank, and quick releases (holds seat and tires to the frame). In addition, riders should ensure the load is properly secured before the trip begins.

If a cargo bike requires service while on the route, ensure there are procedures in place for assistance. BCAA Bike Assist provides 24/7 Emergency Roadside Assistance for bicycle riders. A **BCAA membership is required.**

Did You Know?

By the 1930s and 40s, the cargo bike had risen to peak relevancy. Many companies were producing and using cargo bikes called a Long John.

Source: <https://mechaniccycling.com/blogs/blog/a-visual-history-of-the-cargo-bike>



Cargo Bike Overview

Where to Ride & Park

Cargo bikes are currently allowed on roads, protected and unprotected bike lanes, and most off-street pathways for faster and more reliable deliveries throughout Vancouver.

Cargo bikes are **not** permitted to ride on sidewalks unless signage indicates otherwise. More information can be found [here](#).

Parking

Cargo bikes can park in spaces similar to other bicycles, including:

- Boulevard/utility strip between a protected bike lane
- Roadway or between the roadway and a sidewalk

Cargo bike riders must dismount the bicycle and walk the bike onto sidewalks to access boulevard parking areas. Cargo bikes should not block any portion of the clear sidewalk or bike path.

See [Section 183 of the Motor Vehicle Act: Rights and Duties of Cycle Operators](#)³.



Operating Requirements

To operate a cargo bike as a goods delivery service, it's important to have the correct licences, permits, and insurance coverage to ensure your business is protected and compliant with Provincial and local by-laws.

In the City of Vancouver, cargo bikes used for third-party deliveries are currently licensed as courier bicycles; they are regulated and licensed under the **Vehicles for Hire By-law**

Regulations include:

- Standard City of Vancouver business licence required to operate a company in the city
- Bike courier licence
- Special requirements for the type of service, e.g., a roaming food vendor permit, health authority requirements for food businesses and appropriate insurance.

Bike Couriers

A courier licence is required to transport third-party goods via a cargo bike. A courier licence is also required if you are an independent contractor making deliveries. A licence is not currently required if one is hired as an employee by a company and is delivering company goods (i.e. flowers for a flower store). To obtain a bicycle courier licence, one must:

1. Write the exam
2. Acquire a bike courier plate and pay the fee
3. Renew the licence annually

For more information on whether a courier licence is required for your company please visit the **website** or contact: **vehicle4hire@vancouver.ca**

Food or Street Vending

A permit is required if a cargo bike is used for stationary food, roaming street food, or street vending. Insurance requirements for roaming street food vending and street vending include:

- Inclusive limit of \$2,000,000 P.L. and P.D. (public liability and property damage)
- Cross liability clause
- City of Vancouver named as an insured

For additional information, please visit **vancouver.ca** or **click here** to access:

- **Street Vending Information Guide for Stationary Food and Non-Food Permit Locations**
- **Information and Application for Roaming Food Vending Permits on City Property**

Mobile Special Event Vending

A mobile special event vending permit is required to sell merchandise within two blocks of the boundary of a city-recognized special event that is already at capacity with other vendors. Permits are by the day.

Questions? Please visit the **website**



Purchasing Tips & Storage

Manufacturers & Retailers

Manufacturers across Canada and around the world specialize and sell different styles of cargo bikes for personal and business use.

Manufacturers can custom build cargo bikes for the unique needs of companies across all sectors, including:

- **High Volume Delivery Services:** For businesses specializing in a high volume of deliveries, consider commercial-grade, low maintenance, and four-season cargo bikes for last-mile deliveries.
- **Custom Builds:** Local vendors can customize a cargo bike that best meets operational demand. This can range from vending, display areas, and e-cargo bikes to help with extra-heavy loads.

- **Local Retailers:** Many local retailers have a variety of pre-made cargo bike options that may be suitable for a wide range of business applications. Local retailers allow businesses to explore the different types of cargo bikes in person to understand better which one can fit their operational needs.

Storage

Storage is important for cargo bikes. Box bikes and trikes are heavier in design and cannot be lifted by one person or regularly carried downstairs. Ensure that the cargo bike's length will fit inside elevators in multi-level buildings.

- Consider a dry, secure and ground-level storage option for easy access.
- When possible, securely lock your cargo bike in the storage area.
- For additional information, visit [Vancouver's Off-street Bicycle Space Regulation](#).

Business **end-of-trip facilities** might also include:

- Locker and shower facilities
- Change rooms
- Washing machines and dryers (dryers for wet clothing and shoes)



Purchasing Tips & Storage

Track & Trace Technology

In an urban and dynamic city like Vancouver, cargo bikes give businesses an edge in promoting their offerings, getting around during peak hours, and providing a unique way to connect with customers.

Fleet management software is becoming a growing trend. Key management tasks that used to be done manually are no longer sustainable as cargo bike fleets continue to grow.

Tracking and tracing technology is an electronic system that can be used by various transport businesses to record the movement of goods at all stages of the transportation journey.

This technology allows businesses to get real-time insight on features, including lock status, live GPS location, and estimated delivery times which can help fleet managers accurately plan trips and increase delivery speed through fleet optimization.

Businesses may simulate deliveries in multi-level networks (test different street configurations) to estimate network performance as well as environmental and economic impacts, including:

- **Network Level:** Location and density of routes
- **Order Frequency:** Minimum and maximum time between orders
- **Demand:** Minimum and maximum volume and weight per day
- **Routing Type**
- **Speed Velocity**
- **Loading/Unloading Times**

Learn more with ***"A Simulation Tool to Assess the Integration of Cargo Bikes into an Urban Distribution System."***



Monitoring & Evaluation

Program evaluation is a valuable tool for program managers seeking to strengthen the quality of their programs and improve outcomes. Monitoring and evaluating a cargo bike program at an organization can highlight successes and weaknesses and identify opportunities for improvements.

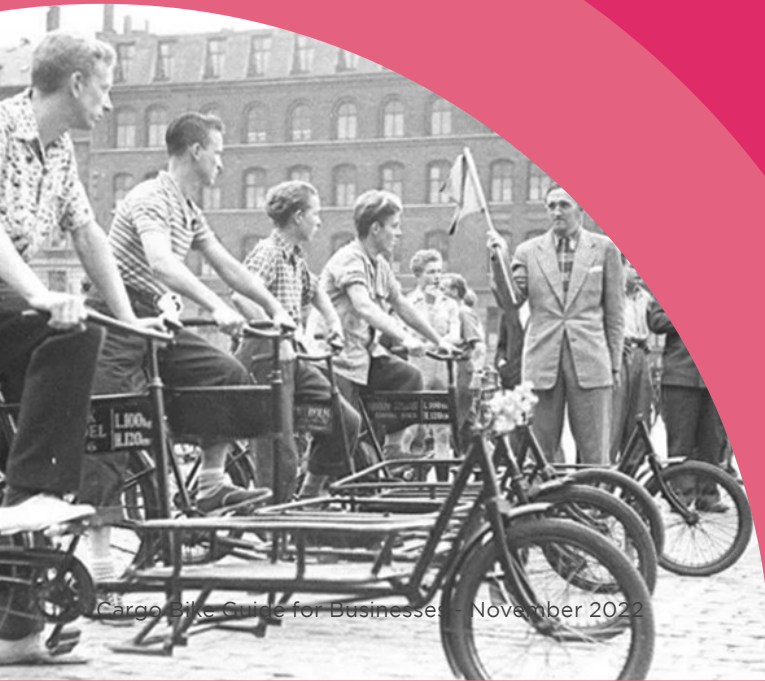
Examples of how data can be used include:

- Tracking and monitoring program impact
- Resource allocation
- Measuring employee engagement and satisfaction
- Improving and streamlining business procedures

Data can be collected from a variety of sources and may include:

- Pre/post trip checklists
- Employee and customer satisfaction surveys
- Collect efficiency data, including the number of packages delivered per day/trips made per day
- Trip data such as frequency, time, distance, speed, etc.
- Annual delivery mode share survey—surveying the mode share split for business deliveries/services
- Tracking the number of events cargo bikes have been a part of

Evaluations may lead to more effective and efficient programs and delivery services. It can provide strategic direction and other benefits when evaluation processes are completed on an ongoing basis.



Did You Know?

Copenhagen held annual cargo bike Svajrløb races until 1960, when cars and vans started to dominate goods transport in the city. In 2009, the race was revived in Copenhagen and is now an annual event.

Source:

<https://mechanicccycling.com/blogs/blog/a-visual-history-of-the-cargo-bike>

Micro-hubs

Delivery micro-hubs are a type of urban consolidation centre located between major suburban warehouses and final delivery destination points.

Micro-hubs are logistic facilities typically used by companies to consolidate deliveries from larger vehicles to cargo bikes, stage last-mile pick-ups and deliveries by cargo bike, and charge and maintain their bike fleet. Vans can drop packages off at the micro-hub during off-peak hours to improve delivery efficiency.

Companies can use cargo bikes for last-mile deliveries to better navigate urban areas during peak hours. Micro-hubs allows riders to concentrate on delivering packages to customers by saving on multiple round trips to warehouses and distribution centres located further away from final delivery destinations. Depending on the volumes of deliveries for a company, micro-hubs can be shared with other organizations to decrease operational costs and maximize uptake.

Micro-hubs can take the form of free-standing buildings or mobile structures and should be located in or near dense urban neighbourhoods that can be easily reached by bicycle. Micro-hubs typically range between 1,000 and 10,000 square feet in terms of space.

Consider converting parking lots (open lot and underground), parkades, storage containers, and buildings into a micro-hub.

Elements to consider when implementing a micro-hub may include:

- **Location:** Pick an area with a high demand for deliveries. Consider the cargo bike and accessibility of the site, especially where pick-up and drop-off will take place and required ramp access if required. It is recommended that the micro-hub is located within five kilometres of the final destination.
- **Power:** Power for charging stations for electrified fleets and equipment (e.g. scanners).
- **Land Use:** Check the zoning regulations of the potential site to ensure it will allow for a micro-hub.
- **Space:** Ensure there is adequate space for delivery of goods by trucks and space for storage.
- **Cost:** Consider if the land acquisition or rental is the most appropriate for the business operation. In addition, common elements required for micro-hubs include washrooms, scanners, and electricity for charging stations. Finally, decide on a financial model (e.g., public financing or fee-for-use).
- **Partnerships:** Consider partnering with other companies offering similar services. Design the micro-hub and create an environment that meets the needs of all delivery sectors.



Micro-hubs

Examples of Micro-Hubs around the World

City	Project Name	Project Timeline	Project Highlight
<u>Montreal</u>	Colibri	Three delivery carriers have been participating in the micro-hub pilot since 2019	<ul style="list-style-type: none">• Deliveries ramped up to 5,000 e-bike deliveries a week in 2020• Analysis shows that an e-cargo bike is 30% to 40% more efficient than a truck in terms of deliveries per hour
<u>Seattle</u>	Neighbourhood Delivery Hub Pilot	The pilot ran for 3.5 months	<ul style="list-style-type: none">• E-cargo bikes could replace trucks mile for mile• 30% reduction in CO₂ emissions per package delivered by e-cargo bike

For additional tips, reference "[Planning of Cargo Bike Hubs](#)."



Did You Know?

In the 1860's the Michaux family of Paris reinvented the bicycle and used Velocipede as a term to describe it. Its iron and wood construction and lack of springs earned it the nickname "boneshaker." It was driven by pedaling cranks on the front axle.

Source: Powerhouse Museum Collection. Gift of I Phizackerley, 1945. Photographer unknown. collection.maas.museum/object/240501

Sources & References

Endnotes

- 1 **Cargo Bike Definition - Wikipedia:**
en.wikipedia.org/wiki/Freight_bicycle
- 2 **City Logistics: Light and Electric:**
hva.nl/binaries/content/assets/subsites/kc-techniek/publicaties/lefv-logic.english.pdf
- 3 **Motor Vehicle Act:**
bclaws.gov.bc.ca/civix/document/id/complete/statreg/96318_05

Additional Resources

1. Commercial Cargo Bicycle Pilot: A New Model for Last Mile Deliveries in NYC Evaluation Report:
<https://www1.nyc.gov/html/dot/downloads/pdf/commercial-cargo-bicycle-pilot-evaluation-report.pdf>
2. Cargo Bike Library Evaluability Assessment:
https://www.gla.ac.uk/media/Media_812887_smx.pdf
3. A Simulation Tool to Assess the Integration of Cargo Bikes into an Urban Distribution System:
https://hal.archives-ouvertes.fr/hal-01875988/file/A_Simulation_Tool_To_Assess_The_Integration_of_Cargo_Bikes_-_Hofmannetal2017_pdf_HQ.pdf
4. Planning of Cargo Bike Hubs:
https://cyclelogistics.eu/sites/default/files/downloads/Hub%20Planning%20Brochure_EN_Web_final.pdf
5. Parcel delivery companies are trading trucks for bikes in some Canadian cities:
<https://www.cbc.ca/news/science/parcel-delivery-trucks-e-bikes-1.5819378>
6. Cargo e-bikes for urban deliveries:
<https://www.pembina.org/reports/cargo-ebikes-urban-delivery-2021-12.pdf>
7. City of Vancouver Zoning and Land-Use Document Library:
<https://vancouver.ca/home-property-development/zoning-and-land-use-policies-document-library.aspx>

Appendix A

Cargo Bike Implementation Checklist

1. Research and Business Case

- ☐ Review your business model and identify areas in which cargo bikes can be implemented to help achieve operational and sustainability goals.
- ☐ Review business policy, insurance and liability requirements;
- ☐ Create a business case for key stakeholders (e.g. management and employees).

2. Gather Data and Engage Management and Employees

- ☐ Present business case to key stakeholders (e.g. management and employees) and gather insight.
- ☐ Do your research and address potential drawbacks (e.g. research into best practices, training, and regulations).

3. Cargo Bike Selection, Storage, and Micro-hubs

- ☐ Explore and purchase a cargo bike that best suit your operational business needs (e.g., pedal versus electric powered, distance travel on a single battery charge, size, cost, charging stations, etc.). Ensure the manufacturer's warranty is sufficient.
- ☐ Determine accessories required to support a cargo bike fleet (e.g., helmets, locks, air pumps etc.).
- ☐ Confirm where and how the cargo bikes will be stored. Consider the security, size, and accessibility of the location.
- ☐ Explore if a micro-hub could streamline logistical efforts, especially for high delivery volumes.

4. Employee Preparation and Training

- ☐ Provide safety training for employees. Training should highlight safety, maintenance, malfunction and emergency protocols.

5. Program Implementation and Evaluation

- ☐ Implement a program and ensure opportunities for feedback from key stakeholders (e.g. management, employees, and customers).
- ☐ Evaluate throughout the year. Adjust program according to best meet business operational needs.
- ☐ Share program metrics and data with management.

Appendix B

Employee Engagement & Buy-in

Employee engagement and buy-in are among the most important factors in implementing a successful cargo bike fleet into a business' operational model.

Engage employees by:

1. Check the Pulse

- ☐ Check the team's pulse through surveys and dialogue to gauge the readiness of your employees to implement a cargo bike fleet. Ensure to address any questions and concerns.
- ☐ Identify employees that have high buy-in and are excited about the implementation. These employees are champions in supporting the program and can help with the transition.

2. Marketing and Spread the News

- ☐ Create marketing materials to communicate the business case, benefits, and opportunities of implementing a cargo bike fleet.
- ☐ Ensure marketing materials are available for wide use (e.g. emails, website, brochures, posters, newsletters, webinars, social media, luncheons, etc.). Consider the best form of engagement for your team, for example, if materials need to be translated in a diverse workplace.
- ☐ Consider regular communication (e.g. emails, newsletters, etc.) to update employees. Highlight achievements, lessons learned, future improvements etc.

3. Employee Preparation and Training

- ☐ Provide training opportunities for employees, and ensure they are safe, comfortable, and confident drivers. Training should highlight safety, maintenance, malfunction and emergency protocols.
- ☐ Provide opportunities for employees to test and trial the cargo bike in lower-stress environments before integrating it into your business operations.

4. Program Implementation, Feedback, and Evaluation

- ☐ Implement a program and ensure opportunities for employee feedback.
- ☐ Address concerns and tailor the program to fit business and employees' needs.
- ☐ Share metrics, program success, and thank employees for their support. Celebrate the team's accomplishments.



For More Information:

vancouver.ca/streets-transportation/vango.aspx
employerTDM@vancouver.ca

Phone: 3-1-1

Outside Vancouver: 604-873-7000

Interpretations available, phone 3-1-1

致电 3-1-1, 可以得到传译服务。

致電 3-1-1, 可獲提供傳譯服務。

Tulong para sa interpretasyon, tumawag sa 3-1-1

ਵਿਆਖਿਆ ਸੇਵਾਵਾਂ ਉਪਲਬਧ ਹਨ, 3-1-1 ਨੂੰ ਕਾਲ ਕਰੋ

Có thông dịch viên, hãy gọi 3-1-1

통역이 필요하시면 3-1-1 으로 전화주세요

برای توضیحات بیشتر با شماره ۳۱۱ تماس بگیرید

Hay servicios disponibles de intérprete, llame al 3-1-1

Services d'interprétation disponibles, composez le 3-1-1

通訳がご利用できます、3-1-1にお電話ください

نقدم خدمة الترجمة الفورية – اتصل برقم ۳۱۱

The City of Vancouver acknowledges that it is situated on the unceded traditional territories of the xʷməθkʷəy̓əm (Musqueam), Skwxwú7mesh (Squamish), and səliłwətaʔ (Tsleil-Waututh) Nations.