



TRANSPORT 2050 IMPLEMENTATION

Moving Towards a Major Bikeway Network

Contents

- 1** What is the Major Bikeway Network?
- 2** MBN Purpose
 - 2 Provide Regional Connections
 - 2 Support More People Cycling
 - 2 Support Diverse Users
 - 2 Complement Local Cycling Networks
- 3** What Could the MBN Look Like?
- 4 Guiding Principles
 - Comfortable
 - Direct
 - Connected
 - Cohesive
 - Navigable
- 6 Essential Elements
 - Excellent Bikeways
 - Excellent Intersections
 - Good Lighting
 - Branding and Wayfinding
 - Good Maintenance
 - Amenities
- 12 Monitoring and Evaluation
- 13** Making it Happen – Taking the MBN from Concept to Reality

About this Document: This document provides an overview of the Metro Vancouver Major Bikeway Network (MBN). It describes the MBN's purpose, discusses the different user groups who may use the MBN, and provides examples of what the MBN could look like once completed. This document also outlines guiding principles and essential design and planning elements for TransLink and its local governments to reference while developing the MBN.

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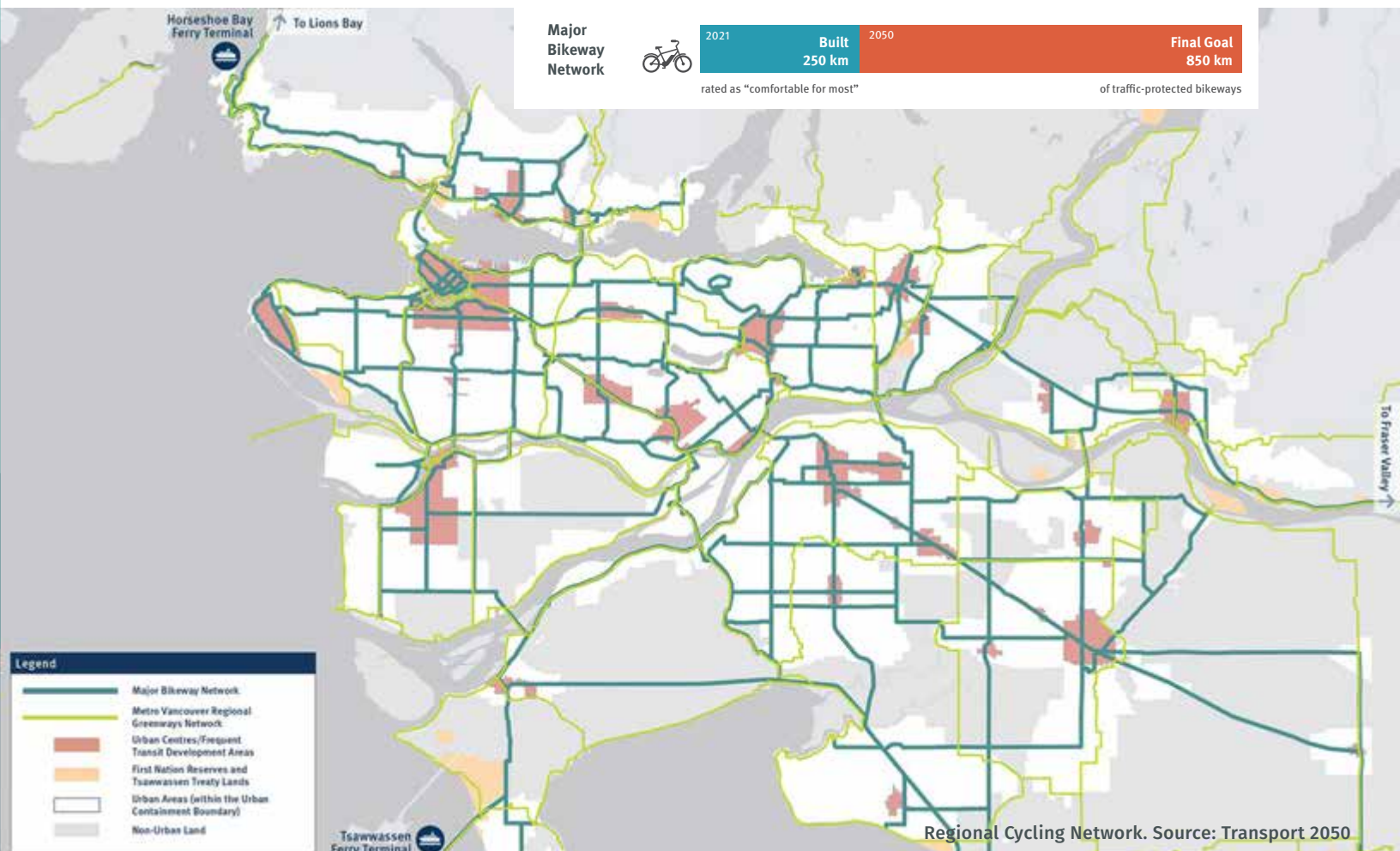
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What is the Major Bikeway Network?

The Major Bikeway Network (MBN) is a proposed 850-kilometre network of safe and comfortable cycling facilities connecting Urban Centres and major destinations across Metro Vancouver. It builds on existing regional cycling networks, with approximately 250 kilometres of MBN facilities already built as of 2021. The MBN is intended to make it safer, more comfortable, and more convenient to use active transportation, including e-bikes and e-scooters, for longer distance trips between Urban Centres as well as shorter trips within communities.

The first MBN concept was developed by TransLink in 2011 as part of the Regional Cycling Strategy. The MBN was expanded once in 2018 and again in 2022 as part of Transport 2050, TransLink's updated 30-year Regional Transportation Strategy. Transport 2050's vision for the MBN is a complete network of traffic-protected bikeways within and connecting every Urban Centre, providing active transportation and recreation options that are comfortable for most people to use. The MBN is complemented by Metro Vancouver's Regional Greenway Network (RGN), which connects parks, open spaces, natural areas, and scenic pathways. Together, the MBN and RGN form the 2050 Regional Cycling Network.

The corridors identified on the Regional Cycling Network map represent desire lines and further work is needed to confirm the actual streets used to deliver those corridors. These corridors are under local government and provincial jurisdiction, who are responsible for building and maintaining the MBN facilities. TransLink supports the MBN through project identification, planning and design guidance, and cost sharing.



MBN Purpose

Provide Regional Connections

Similar to a highway, the MBN is intended to facilitate medium and longer distance cycling trips, serving as a regional network of bikeway corridors that provide fast, direct, safe, and comfortable connections between Urban Centres and other regionally significant destinations across the region.

Support More People Cycling

Transport 2050 aims to make bicycles, scooters, and other electrified or micromobility devices the most direct and convenient travel option for most trips between 1-5 kilometers, as well as longer trips throughout the region. According to TransLink's 2017 Regional Trip Diary Survey, 43% of driving trips in the region are less than 5 kilometres. Additionally, another 23% of driving trips are between 5-10 kilometres in length. This means that 66% of driving trips are less than or equal to 10 kilometres. If even a portion of these trips (e.g., 20%) could be converted to cycling or other micromobility devices, there would be a significant gain in cycling mode share and a corresponding reduction in vehicle kilometres travelled and greenhouse gas emissions, supporting numerous regional and provincial goals. This will be supported by the growing popularity of e-bikes and other electric mobility devices, which are attracting new active transportation users who may otherwise have been unwilling or unable to cycle over long distances and/or steep topography.

Support Diverse Users

The MBN is intended to be for people of all ages, abilities, genders, and backgrounds, with all facilities being comfortable for most people to enjoy.

The Regional Cycling Strategy included a goal to address the cycling gender gap, so that by 2040, 50% of cycling trips are made by women. The MBN is also intended to serve a variety of trip types, including commuting, daily errands, recreation, and commercial cycling or cyclelogistics (i.e., bicycle-based goods movement and deliveries). Finally, the MBN is meant for diverse speeds and devices, accommodating both human-powered mobility devices and electric-assisted mobility devices.

Complement Local Cycling Networks

The MBN aims to complement local cycling networks and act as a 'spine' throughout Metro Vancouver. Few cyclists are expected to use the MBN from start to finish; instead, the MBN will integrate seamlessly with local cycling networks, allowing users to hop on and off the MBN as required. As such, MBN routes will serve a double purpose, acting as regional connections as well key segments of local networks in each local government.



E-cargo Bike Delivery, Vancouver

What Could the MBN Look Like?

Over the past several years, local and regional governments in countries such as Denmark, the Netherlands, Belgium, and England have developed premium-quality regional cycling networks – sometimes referred to as Cycle Highways – to facilitate medium- and longer-distance cycling trips within and between communities. For example, the Capital Region of Denmark is creating a 746-kilometre network of regional cycling facilities with 45 routes spanning 27 municipalities. These regional facilities provide a functional and recreational connection, and they use strong branding and wayfinding to direct users across long distance networks. They often consist of a variety of facility types, but they all provide a safe and efficient way to travel across a region by bicycle.

HUB Cycling has developed a report titled Cycle Highways in Metro Vancouver that provides a more detailed overview of the Cycle Highway concept. While there may be similarities between Cycle Highways and the MBN, certain differences may exist as well. In North America, regional cycling facilities such as the Midtown Greenway in Minneapolis and the Galloping Goose, Lochside, and E&N Rail Trail in the Capital Regional District provide inspiration. Lessons from these places can help inform the design and development of the MBN in Metro Vancouver.



Copenhagen. Source: Cycle Superhighways, Capital Region of Denmark



Midtown Greenway, Minneapolis. Source: Minneapolis Public Works TPP by CC 2.0

Guiding Principles

Guiding Principles can help to ensure the MBN meets a minimum regional standard that ensures a consistent user experience, while still allowing for flexibility in design within the local context. These Guiding Principles outline relevant considerations for MBN corridors, with the goal of creating a premier regional cycling experience in a coordinated way. The Guiding Principles are listed below in order of most to least important: Comfortable, Direct, Connected, Cohesive, and Navigable.

Comfortable

The MBN should aim to provide the highest degree of safety and comfort by providing facilities that are suitable for people of All Ages and Abilities (AAA). Where AAA is not possible, at a minimum, MBN facilities should be considered 'Comfortable for Most' as defined in the TransLink and HUB Cycling report Benchmarking the State of Cycling in Metro Vancouver. This means providing facilities that are fully protected from motor vehicle traffic or located on shared roadways with low posted speed limits and traffic volumes.

The MBN should facilitate an enjoyable, inclusive, and safe cycling experience for all Metro Vancouver residents and visitors. It should therefore be designed, constructed, and maintained with a lens that promotes equity, universal accessibility, and child and youth friendly design. This means considering the comfort and safety of all users travelling along and connecting to the MBN, including safety at intersections and areas of potential multi-modal conflict.

Direct

While the Regional Cycling Network has been planned, the MBN corridors identified on the Regional Cycling Network map represent desire lines that provide direct connections between Urban Centres and major destinations. There is some flexibility in determining specific MBN streets, as feasibility, local network connections, and local needs all play a role. Consideration can be given to different streets that roughly parallel the desire line for the MBN; however, the selected street must meet the original intent of the MBN corridor by serving similar origins and destinations, be reasonably direct as compared to the desire line, and not represent a significant increase in travel distance.

TransLink planning staff are available to discuss the feasibility of specific streets based on desired MBN corridors. When planning, designing, and building MBN corridors, local governments can also seek feedback from community members, stakeholders, and neighbouring local governments to understand local needs, considerations, and interests, as well as ensuring a coordinated implementation across boundaries.

Connected

The MBN should enhance multi-modal connectivity throughout Metro Vancouver, providing connections to transit stations and exchanges, local cycling networks, and shared mobility services such as carshare and shared micromobility. The MBN should consider where cyclists are coming from, where they want to go, and how to make that journey as convenient as possible.

Navigable

The MBN should be easily recognized by cyclists and other road users, using consistent branding and wayfinding. Regardless of familiarity with the MBN, people cycling should know when they are on the MBN and how to navigate the MBN to their destination. Users of all languages, ages, and abilities should be able to travel with ease throughout the MBN.



Signs on the Central Valley Greenway, Burnaby

Cohesive

The MBN should consider the cycling experience, using a consistent set of facility types across jurisdictions and forming a clearly recognizable and well understood regional network. Transitions between local networks and the MBN should be seamless, as should transitions across local government boundaries.



Arbutus Greenway, Vancouver

Essential Elements

The essential elements below are provided as considerations for local governments when designing and implementing cycling facilities along MBN corridors. Meeting minimum expectations for the design of bikeways contributing to the MBN will be important to ensure a high-quality, consistent experience for people cycling, and to ensure that local governments are positioned to be eligible for potential future opportunities related to on-going funding for MBN maintenance and upkeep.

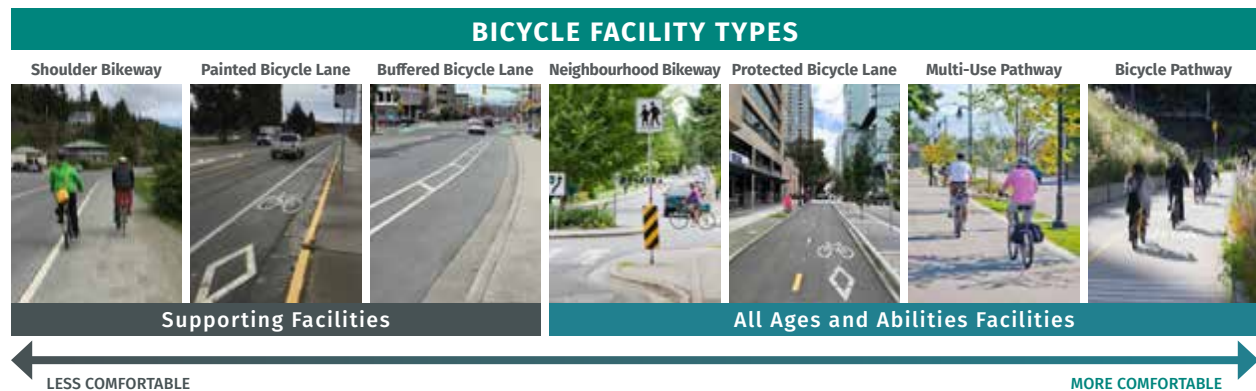
Excellent Bikeways

The MBN is intended to serve people of all ages and abilities, using premium quality infrastructure that is comfortable for all users. As shown in the spectrum of facility types below, AAA bicycle facilities include protected bicycle lanes, neighbourhood bikeways (bike-priority, low traffic speeds with traffic calming features), and off-street facilities such as multi-use pathways and bicycle pathways. Facility selection should be context sensitive and adapt to the land use context, understanding that there is no 'one size fits all' solution. Rapid bikeway network expansion is a top priority, so utilizing rapid implementation as an interim solution to create AAA protected facilities is encouraged.

Where possible, bikeway geometric design should meet Transportation Association of Canada standards and align with the B.C. Active Transportation Design Guide's 'Desirable' widths. At a minimum, following the B.C. Active Transportation Design Guide's 'Constrained Limit' widths is expected. Facilities should also meet other basic requirements, such as being as flat as possible, providing a smooth paved surface, and avoiding the use of obstructions such as bollards and maze gates where feasible. Facilities should consider a wide range of users and devices, ensuring that different speeds and abilities are accommodated on the MBN.

When further defining facility types for MBN corridors, local governments should consider:

- Is this cycling infrastructure AAA or Comfortable for All?
- Does this infrastructure accommodate a wide cross-section of people cycling, including space to pass, conversational riding, and a variety of larger, non-standard bicycles such as cargo bikes, recumbent bikes, and bikes with trailers?
- Could this infrastructure accommodate (or be easily adapted to accommodate) higher volumes of people cycling in the future, including transitioning shared multi-use pathways to separated facilities?
- Could this infrastructure safely and comfortably accommodate higher speed devices such as e-bikes and e-scooters?
- Does this facility accommodate commuters, commercial cyclists, and recreational users?



Excellent Intersections

Intersections involve complex multi-modal interactions and are often the most significant real or perceived barrier for people cycling. Crossings on the MBN should be safe and comfortable for all, with people cycling prioritized. At a minimum, crossings on the MBN should be in line with safe intersection considerations in the B.C. Active Transportation Design Guide. This includes key design elements such as protected intersections, traffic calming and diversion, signal phasing to reduce conflicts, signage, and pavement markings such as cross-ride markings and conflict zone markings.

MBN crossings should also maintain directness between Urban Centres by minimizing delays for cyclists. Measures to minimize delay include automated bicycle detection and signal phasing, including “green wave” technology that times signals to match average cycling speeds. Where feasible, premium grade separated treatments such as active transportation bridges or underpasses can be explored to remove conflict and delay for cyclists. For example, grade separated facilities along the RijnWaalpad cycle highway in the Netherlands enable people to ride 16 kilometres without having to stop at any intersections (HUB Cycling: Making the Case for Cycle Highways in Metro Vancouver, 2022).

When designing crossings on MBN corridors, local governments should consider:

- Does this crossing improve the safety of cyclists to AAA standards?
- Does this crossing prioritize people cycling on the MBN and minimize delays?
- Does this crossing clearly communicate to people cycling and other road users that MBN users have priority?



Good Lighting

Ensuring adequate lighting along the MBN supports both real and perceived user comfort and safety. Lighting improves the visibility of the roadway and pathway surfaces, surrounding environment, and other users of the facility. Lighting is particularly important for facilities with high variability in user operating speeds. It can also help ensure accessible, reliable, and predictable transportation choices throughout all times of day and all seasons. This is especially important for growing and maintaining existing active transportation mode share when commuting occurs during periods of low natural light. Lighting also encourages people to gather, increasing perceptions of safety. This may, in turn, create actual security through eyes on and in public spaces. Adding this type of safety and comfort can be especially important for supporting the mobility of equity-priority groups, who may feel uncomfortable using active transportation facilities in darker and less secure environments. Where feasible, provide lighting that effectively illuminates the entire facility, including shoulder areas and pedestrian facilities. Pedestrian scale lighting can make spaces look and feel more inviting.

When implementing lighting on MBN corridors, local governments should consider:

- Is the corridor sufficiently lit, providing adequate sightlines for safety, security, and visibility?
- Is there additional lighting in areas where there may be personal security concerns, hazards, and at crossings?



Two-way cycling path in Sweden

Branding and Wayfinding

Excellent wayfinding is essential to the success of the MBN, as it allows people to easily and intuitively identify where they are and navigate to where they want to be. Consistent branding allows road users to recognize the MBN corridors and aids wayfinding, while also bringing awareness and visibility to the MBN as a cohesive network. Together, wayfinding and branding help people feel they are on a safe and reliable route between communities throughout the region.

The approach is similar to the wayfinding system of a highway – simple, intuitive, and repetitive signage, combined with standard naming conventions for each route, makes it very easy to navigate. There are many excellent local and international cycling network examples of branding and wayfinding. Even something as simple as a sticker, such as those used along the UK's National Cycle Network, can be effective in helping users quickly confirm they are on the right route.

TransLink understands the importance of developing a branding and wayfinding strategy for the MBN, and more work is needed to advance this process. While much of the branding and wayfinding for the MBN is yet to be determined, it will likely include a visual identity with a logo and colour palette repeated across decals, signage, and pavement markings that aid with wayfinding. TransLink will work with local governments to determine the best approach for branding and wayfinding, as well as funding the development and implementation of branding and wayfinding.

The considerations for branding and wayfinding include:

- How do we attract new users to the MBN?
- What is the best name for the MBN? Is there a more intuitive, interesting, and inclusive name?
- How do we create a brand that is easily recognized by residents and visitors of all ages and abilities?
- How do we integrate local and regional (MBN) branding and wayfinding?
- How do we integrate wayfinding with transit and other forms of transportation?



Wayfinding sticker for National Cycling Network, UK
Source: Andrew Cuthbert, Spacing, Urban Systems



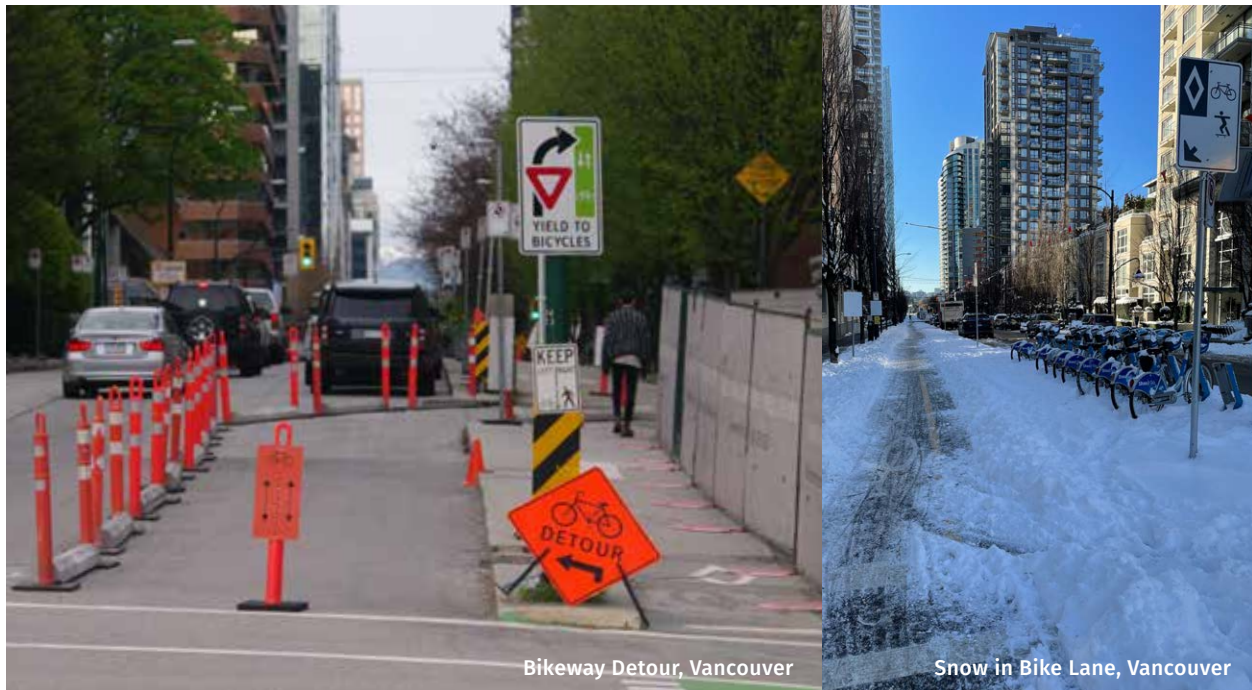
Belgium. Source: Interreg Cycle Highway Manual

Good Maintenance

The operations and maintenance of the MBN is critical to its long-term success. The goal is to ensure that people can utilize the MBN at all times of day and in all seasons. This requires keeping the MBN in a state of good repair, including maintaining pavement quality, sweeping, and the clearing of leaves, ice, and snow. This could include future opportunities for TransLink to provide regional funding toward the operations, maintenance, and rehabilitation of MBN bikeways to ensure that established standards are met.

Key operations and maintenance considerations on MBN corridors include:

- Is there a way to monitor and track current conditions and the state of repair for the corridor?
- Is there a policy that determines the order of clearing cycle routes?
- Is there a way to alert users when facilities are closed or affected by weather (snow, flooding, etc.) or other unsafe conditions?
- Are there provisions for people cycling when maintenance takes place, such as proper signage and detours?



Amenities

Amenities such as bicycle parking, e-bike charging stations, and repair stands create a premium experience that takes users' needs into consideration. The MBN aims to promote multi-modal integration by locating amenities at or near transit stops and stations, making multi-modal journeys convenient and accessible for more people. Making places interesting and beautiful adds to the cycling experience. Creating opportunities to install public art, planters, and additional trees is encouraged.

When implementing amenities on MBN corridors, local governments should consider:

- Is there a sufficient supply of secure short- and long-term bicycle parking, including electric charging stations, for those who are ending their trip in this area?
- Are there opportunities to integrate bicycle parking and other amenities near transit stops and stations in partnership with TransLink?
- Are there opportunities to incorporate bicycle-friendly amenities such as foot and hand rests, places to rest, and bike repair stations?
- Are there opportunities to make this corridor more attractive and fun through public art, trees, planters, etc.?



Monitoring and Evaluation

Understanding who does and does not use the MBN, as well as tracking ridership and network build out allows TransLink and local governments to make the MBN better and demonstrate its usefulness. At a minimum, it is expected that bicycle counters would be installed to track ridership along MBN routes. Other quantitative and qualitative ways of collecting data and feedback – such as intercept surveys, sensors, and cameras – should also be considered. Moving forward, the State of Cycling in Metro Vancouver dataset will be updated to track how many of our region’s facilities are considered ‘Comfortable for Most.’

Reporting out on this data is an important step that helps involve the community, and it presents an opportunity to be creative. For example, with bicycle count data, heat maps that include qualitative data or safety issues can visually represent the challenges and opportunities on the MBN. Understanding the percentage of new users, average trip distance, trip purpose, and demographics of riders are all important for future route planning and facility design.

Key considerations for monitoring and evaluation include:

- What monitoring tools best capture ridership along these corridors?
- What data is most useful for increasing cycling mode share?
- What locations along the corridor would most accurately represent volume?
- What is the best way to process this data?
- At which intervals should this data be collected and analyzed?



Making it Happen – Taking the MBN from Concept to Reality

[Transport 2050](#) reinforces the need for safe and connected regional cycling facilities, with individuals of all demographics asking for active transportation improvements such as direct regional routes and consistent wayfinding. The MBN will meet these needs by providing safe, convenient, and direct cycling connections between Urban Centres and other major destinations. This document outlines the overall purpose, guiding principles, and design and planning considerations for the MBN. It is meant as both a planning and design reference and a discussion piece to initiate conversation between TransLink and its partners, including local governments, the province, and cycling advocates. Further engagement with local and regional partners will be undertaken to advance the elements described in this primer.

In the meantime, projects along many MBN corridors have already been implemented and more are being planned each day. TransLink has created several ways to support local governments in planning, funding, and implementing cycling infrastructure along MBN corridors. These include:

- Supporting local governments with project identification and offering planning and design guidance via TransLink planning staff and/or consultant support.
- Cost-sharing partnerships with local governments, covering up to 75% of the cost for projects on the MBN, and up to 100% of the cost for projects that will result in an MBN corridor being implemented quickly (e.g., within 1-2 years).
- Concept, branding, and wayfinding development.

TransLink looks forward to continuing to work with its partners to build out the MBN and meet the goals and targets of Transport 2050, including making active transportation a competitive choice that is reliable, affordable, safe, and comfortable for all.



E-bike Share, North Vancouver

