City of New Westminster

All Ages and Abilities Active Transportation Network Plan

September 2022



NEW WESTMINSTER



September 2022

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1.0
Introduction

The City of New Westminster is committed to enabling active transportation as a safe, comfortable, and convenient mobility option for people of all ages and abilities. The City recognizes the importance that active transportation plays in creating a community that is accessible, sustainable, and equitable. This All Ages and Abilities Active Transportation Network Plan updates the long-term active transportation network plans identified in the City's Master Transportation Plan, Downtown Transportation Plan, Uptown Streetscape Vision, and other overarching planning documents. The Plan identifies an updated active transportation network, including a Core Network that will connect all major destinations, including neighbourhoods, commercial areas, civic facilities, schools, parks, and interregional routes. The plan has a practical focus that is based on a rapid implementation approach to expedite the implementation of a city-wide All Ages and Abilities (AAA) active transportation network within the next five years.

1.1 Plan Context and Purpose

New Westminster is Western Canada's oldest city, and a vibrant and rapidly growing community that aspires to be a highly walkable and bikeable city. New Westminster is centrally located within the region, and has many interregional active transportation routes located within it, including the BC Parkway, Brunette Fraser Regional Greenway, and Central Valley Greenway.

The City's Master Transportation Plan was adopted in 2015 and includes a long-term bicycle network plan. The City declared a climate emergency in March 2019. Following this declaration, Council endorsed a Climate Action Budgeting Framework, and Seven Bold Steps to achieve a carbon-neutral future by 2050. The City has also adopted a new framework to measure its commitment to diversity, inclusion, equity, and anti-racism efforts in community representation, policies and procedures, and service delivery and programs. Investments in active transportation infrastructure can help to address these issues, as these investments benefit the most vulnerable in our community through many lenses, including safety, affordability, climate, health, and social connectedness.

The City has made significant progress in building out its active transportation network and growing its sustainable transportation mode share since the Master Transportation Plan was adopted. However, the City recognizes the urgency of completing the network in the midst of a climate emergency. In addition, the COVID-19 pandemic has created generational changes in how people move around urban areas with a significant increase in active transportation in communities around the world, including New Westminster. By rapidly building out an active transportation network, the City can work towards several community goals, including Climate Action Bold Steps #2 and #7 to create a car-light community and quality people-centred public realm.

Bold Step #2:

Car Light Community: accelerates the 60% sustainable transportation mode share target from the Master Transportation Plan to 2030

Bold Step #7:

Quality People-Centred Public Realm: at least 10% of the City's streets should be reallocated to sustainable transportation or public gathering spaces by 2030

City Council recently unanimously passed a motion directing staff to revisit the active transportation network with an All Ages and Abilities (AAA) infrastructure lens, and to develop a plan to aggressively implement a revised city-wide active transportation network using a rapid implementation approach. The motion included:

- Committing to the rapid completion of a safe, comfortable, and connected AAA active transportation network;
- Requesting that staff update the Long-Term Bicycle Network in the Master Transportation Plan, with an emphasis on establishment of a core AAA active transportation network to connect neighbourhoods and schools across New Westminster; and
- Working with the Sustainable Transportation Task Force to develop preliminary AAA designs and standards, and reporting back to Council with an ambitious timeline for implementation of a Core Network and phasing schedule that can be integrated into a 5-year capital plan for Council consideration.

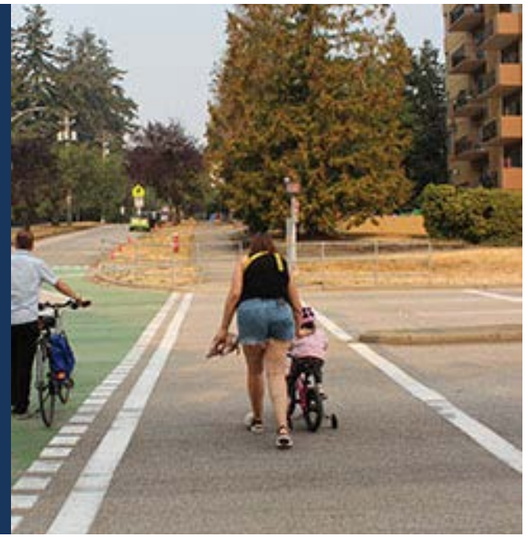
A PLAN FOR ALL AGES AND ABILITIES

The All Ages and Abilities Active Transportation Network Plan focuses on creating a city-wide network of active transportation corridors that are comfortable for people of all ages and abilities – including children, women, and seniors. This means focusing on safe and comfortable facilities such as protected mobility lanes and multi-use pathways that are physically separated from traffic on busy streets ,and shared local street bikeways on streets with low traffic volumes and speeds.



MORE THAN JUST A BICYCLE PLAN

Active transportation refers to all forms of human-powered mobility, including walking, rolling, and cycling. The focus of this plan is primarily on wheeled forms of personal mobility such as cycling. However, the plan also considers the needs of users of all forms of 'micromobility', including nascent technologies, motorized or not. The plan also considers improvements for foot traffic where it can be coordinated with cycling network improvements, such as multi-use pathways and crossing improvements.



The Plan will guide the development of safe and convenient active transportation facilities for people of all ages and abilities, with a specific focus on rapid implementation of a Core Network over the next five years. Rapid implementation is an approach to enable cities to respond quickly to urgent issues such as the climate emergency, social inequities, public health, and road safety, among others. This approach allows cities to use relatively low cost, easy to implement, interim materials to rapidly deliver cycling facilities as well as other public amenities like parklets and plazas. Rapid implementation does not mean lower quality – it means that a City can strategically allocate its resources to quickly build a comfortable, connected, and complete network, leaving opportunities to refine designs at a later stage. Facilities implemented through a rapid implementation approach can be to upgraded to permanent infrastructure over time through future utility projects, capital projects, and/or redevelopment.

The Plan also includes design guidelines to support the planning, design, and maintenance of the active transportation network (see **Appendix A**). The design guidelines define what AAA means in the New Westminster context and ensures a consistent user experience for everyone. The design guidelines build on several existing resources – including the British Columbia Active Transportation Design Guide – while addressing the unique New Westminster context.

By developing this Plan, the City can work to increase the number of people walking, cycling, and rolling in New Westminster, reducing greenhouse gas emissions (GHG), improving public health and safety, and providing more mobility options for people of all ages and abilities.

1.2 Study Process

The Plan was developed over a six-month period from April to September 2022 through four phases. The Plan followed an iterative process that allowed for engagement with external and internal stakeholders. External stakeholders included HUB Cycling, the District Parent Advisory Committee (DPAC), adjacent municipalities, and regional agencies such as TransLink, Metro Vancouver, and the Ministry of Transportation & Infrastructure (MoTI). Internal stakeholders included staff from various departments, the Sustainable Transportation Advisory Committee (STAC), and the Sustainable Transportation Task Force (STTF). Stakeholders were consulted throughout the process to gather information about gaps, opportunities, and challenges, as well as to assess priorities, desired routes, and outcomes.

Phase 1

PROJECT LAUNCH

- Kick-off meeting
- Site visit

Phase 2

NETWORK PLANNING AND FEASIBILITY REVIEW

- Gap Analysis and Field Assessment
- Stakeholder Engagement
- Network Development and Feasibility Review

Phase 3

AAA DESIGN GUIDELINES

- Design Criteria and Design Guidelines
- Stakeholder Engagement

Phase 4

IMPLEMENTATION STRATEGY

- Cost Estimates
- Implementation Strategy and Regulatory Changes

1.3 Report Overview

The Plan includes the following five sections:



1.0

INTRODUCTION

outlines the study purpose and process, including the stakeholder engagement undertaken to inform the Plan.



3.0

NETWORK PLAN

outlines guiding principles, design criteria, and assumptions used to developed the active transportation network, and summarizes the proposed active transportation network, including a detailed review of the Core Network.



2.0

SETTING THE STAGE

highlights the benefits of active transportation and rapid implementation, as well as the opportunity and policy context for increased active transportation in the City.



4.0

SUPPORT INITIATIVES

includes additional action items the City can take to support increased use of active transportation beyond implementing a network, such as regulatory and bylaw changes, wayfinding, micromobility, and other support initiatives.



5.0

IMPLEMENTATION PLAN

summarizes the evaluation framework, network priorities, cost estimates, and a five-year action plan, including funding and leverage strategies to support the City with financial resourcing of the network.

2.0
Setting the Stage

Investments in active transportation can result in a more balanced transportation system and can improve mobility options for people of all ages and abilities. Active transportation is typically more accessible, cost effective, and efficient in terms of infrastructure investments. Improved access to active transportation also has significant quality of life, health, safety, recreation, and economic benefits.

This section summarizes the benefits of active transportation, existing conditions for active transportation in New Westminster, the opportunity for active transportation in New Westminster, and the policy context for the Plan.

IMAGE CREDIT: HAPPY CITIES

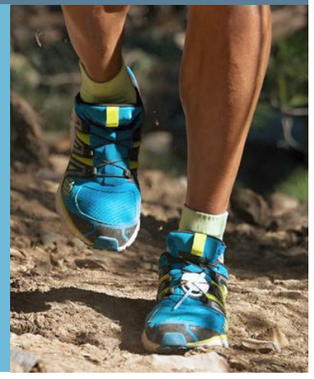
2.1 Why Promote Active Transportation?

Over the past decade, communities of all sizes across North America have seen a significant interest in shifting away from a reliance on automobiles towards active transportation. This shift can help communities move towards a more balanced transportation system that encourages healthy and active living, creates a more livable community, and results in cost-effective and efficient solutions in terms of a community's infrastructure investments. Some of the benefits of active transportation include:

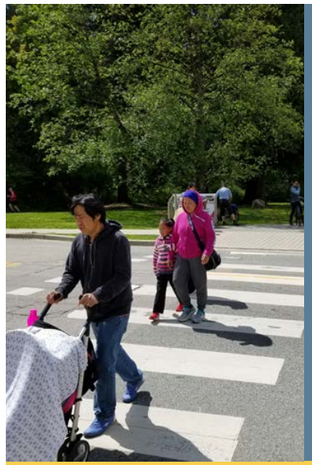


CLIMATE ACTION: Active transportation helps to reduce vehicle trips, congestion, air pollution, and GHG emissions. 47% of the City's GHG emissions are from on-road transportation. A person who cycles to work has approximately one-tenth the ecological footprint of a person who commutes by car.[1] By shifting as much as one trip per day from driving a car to active transportation, individuals may be able to reduce their carbon footprint by about 0.5 tonnes over a year, representing a substantial share of average per capita CO^2 emissions.[2]

PUBLIC HEALTH: Regular physical activity reduces the risk of early death and numerous chronic diseases, improves mental health and well-being, and contributes to healthy growth and social development of children.[3] 64% of New Westminster residents commute by automobile either as a driver or passenger and are inactive during their typical commutes.[4] Any type of physical activity reduces time when people are sedentary. Active transportation is one of the most affordable and accessible ways to add exercise into our daily lives.



1 Transport Canada (2011). Active Transportation in Canada – A Resource and Planning Guide
2 University of Oxford. 2021. Get on your bike: Active transport makes a significant impact on carbon emissions. www.ox.ac.uk/news/2021-02-02-get-your-bike-active-transport-makes-significant-impact-carbon-emissions
3 TransLink (2013). Walking cycling and transit investments lead to healthier people
4 TransLink (2017). 2017 Trip Diary Survey. Accessed at: https://public.tableau.com/app/profile/translink/viz/Trip_Diary_2017/TripDiary2017



EQUITY: Research has shown that there are significant social and equity issues related to transportation. A lack of personal mobility or access to transportation services can hinder an individual's social and economic development and can result in social exclusion. Certain groups tend to be more adversely affected by inequities in the transportation system, including children, youth, older adults, single parents, low income groups, ethnic minority populations, people with disabilities, and others who may not have access to a vehicle. As an affordable and efficient mode of transportation, active transportation can help to build transportation equity, provided that active transportation facilities and support services are equally distributed, and the diverse needs of all community members are considered.

SAFETY: Creating a safe and comfortable way to travel around the city makes active transportation feel safer while also reducing the risk of collisions. Between 2016 and 2020, ICBC reported that 166 collisions involved people walking and 60 involved people cycling in New Westminster. Based on TransLink's State of Cycling report, New Westminster (combined with Burnaby) had a collision rate of 16 collisions per million bicycle trips.[5] When the number of people cycling increases, there is also an effect of safety in numbers, where drivers are more likely to expect cyclists.





ECONOMY: Active transportation can have a multitude of economic benefits, including attracting business and tourism, boosting local business, and reducing household, healthcare, and government spending. Promoting and investing in active transportation can contribute to the development of a healthy and diverse local economy by generating tourism revenue, supporting local business, and increasing property values. Cost savings from transportation mode changes can result in people having larger disposable incomes. The average annual cost to own and operate an automobile is $10,000 compared to $350 for a bicycle, and virtually no cost as a pedestrian.[6,7]

5 TransLink and HUB Cycling (201). Benchmarking the State of Cycling in Metro Vancouver
6 Alini, Erica. Own a car? You won't believe how much that's costing you every year
7 Sierra Club. Pedaling to Prosperity

2.2 Why Focus on Rapid Implementation?

Over the past several years, cities across Canada and throughout the world have increasingly shifted their approach to delivering active transportation infrastructure by following a rapid implementation or quick build approach. Rapid implementation facilitates an urgent response to a range of critical issues facing our communities as outlined above, including climate action, social inequity, public health, road safety, congestion, and increasingly constrained municipal budgets.

Rapid implementation of active transportation infrastructure provides the opportunity to quickly change the function of a street with temporary or low-cost, flexible materials, meaning a faster and more cost-effective active transportation route or network. It also allows for on the ground design adjustments, acting as an interim period prior to implementing more permanent materials if desired. Ultimately, it is another tool for cities to act quickly, leave room to make modifications as the need arises, and do so in the most cost-effective way possible.

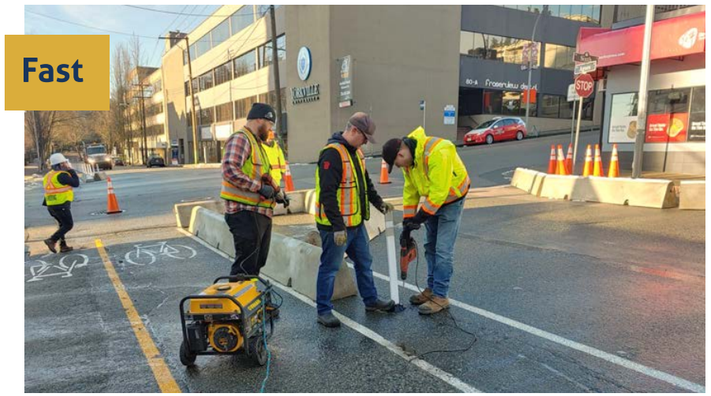
Rapid implementation enables the delivery of AAA active transportation infrastructure—as well as comprehensive active transportation networks—all at once and at a lower cost than traditional methods.

While rapid implementation projects can be implemented relatively quickly using low-cost materials, this does not mean that they are lower quality than traditional projects. These projects follow best practices in AAA design. Depending on the materials selected, rapid implementation can provide a high degree of physical separation using durable materials, creating a AAA facility that can last for several years. These projects can also create opportunities for amenities, activation, and beautification, resulting in more vibrant, attractive, people-first streets.



Rapid implementation projects include several key elements:

Fast



Rapid implementation projects can be implemented relatively quickly, often in a matter of days or weeks. Because they often do not require significant capital construction, they may not require time-consuming design and tendering processes and can often be installed by City crews. This can also help minimize construction impacts on a community.

Low-Cost



Rapid implementation projects make use of lower-cost materials such as flexible delineator posts, curbs, landscaped planters, or concrete barriers. These projects also typically occur within the available curb space and require minimal capital construction.

Flexible



Materials used for rapid implementation projects are flexible and adjustable. This approach recognizes that, we do not always have all the answers. This provides the opportunity to pilot, monitor, and adjust designs as needed, based on lived user experience.

Active transportation facilities can be implemented using a range of materials, as shown below.



1. Painted Buffers
2. Flexible Delineator Posts
3. Modular Plastic Curbs
4. Planter Boxes
5. Pre-cast Concrete Curbs
6. Extruded Curbs
7. Concrete Barriers

2.3 Active Transportation in New Westminster Today

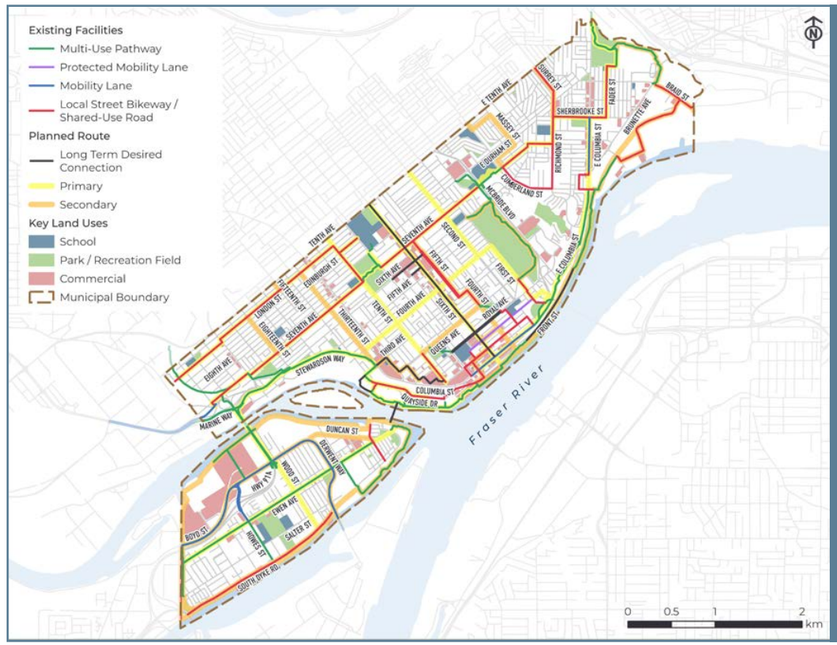
Existing and Planned Cycling Network

The City has made significant progress to improve active transportation in recent years. New Westminster's existing cycling network is made of both on-street and off-street facilities. On-street facilities include protected mobility lanes, painted bicycle lanes, local street bikeways, and shared use lanes. Off-street facilities include both paved and unpaved multi-use pathways.

The City's background plans and policies, such as the Master Transportation Plan, Downtown Transportation Plan, and Uptown Streetscape Vision, have also identified a proposed long-term bicycle network made up of Primary and Secondary facilities.

The existing and planned cycling network from previous plans is shown in **Figure 1**.

FIGURE 1: EXISTING AND PLANNED CYCLING NETWORK



WHAT IS A MOBILITY LANE?

In the past, the term bicycle lane has been used to refer to designated facilities exclusively for people cycling. Recognizing that these facilities may be used by other wheeled users, such as rollerbladers and stakeboarders, this Plan uses the broader and more inclusive term of mobility lane.

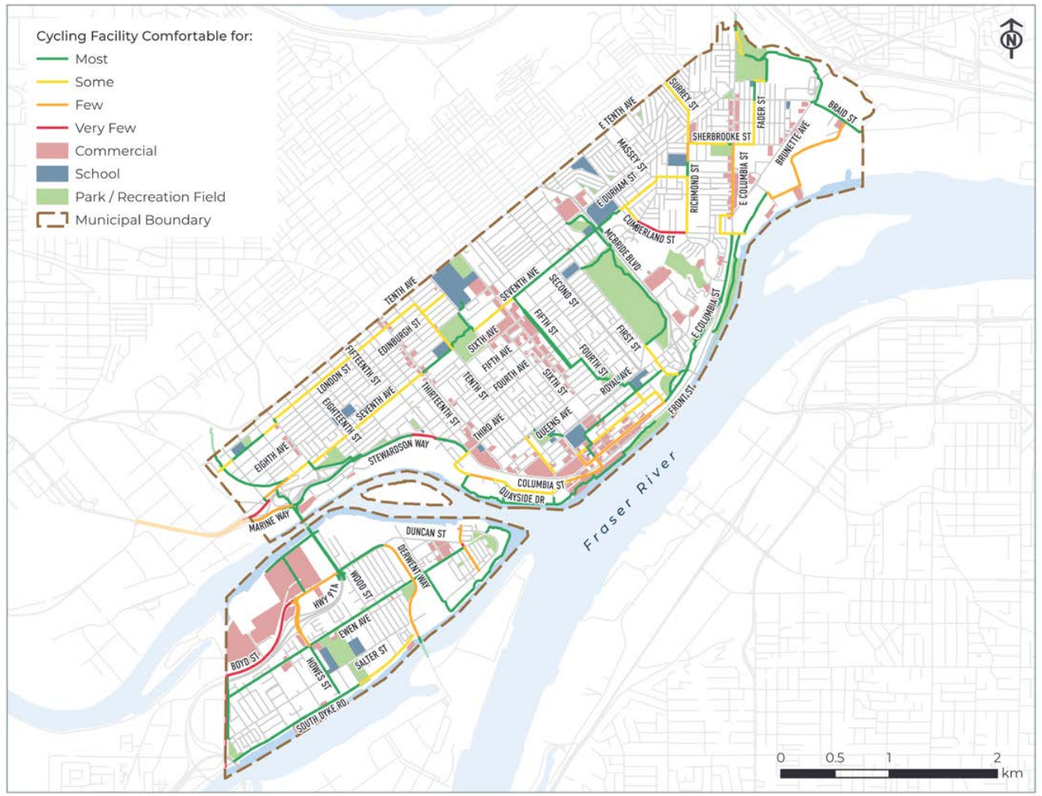
Cycling Comfort

In 2019, HUB Cycling and TransLink completed the Benchmarking the State of Cycling in Metro Vancouver report, which categorized all cycling facilities in Metro Vancouver into one of four categories:

- Comfortable for Most People;
- Comfortable for Some People;
- Comfortable for Few People; and
- Comfortable for Very Few People.

As shown in **Figure 2,** this study found that approximately 63% of New Westminster's cycling network is rated as "comfortable for most," which is much higher than the regional average of 46%. These "comfortable for most" routes are mostly multi-use pathways, including the BC Parkway, Central Valley Greenway, multi-use pathways adjacent to roadways such as Ewen Avenue and Boyd Street, multi-use pathways within parks and open spaces, and local street bikeways such as portions of Seventh Avenue and South Dyke Road.

FIGURE 2: CYCLING COMFORT



Cycling Coverage and Gaps

The City has a comprehensive cycling network that places most residents within relatively close proximity to an existing bicycle route. Approximately 78% of the City is located within 400 metres of a bicycle route, as shown in **Figure 3**. However, when only considering more comfortable facilities, only approximately 61% of the City is within 400 metres of a bicycle route that is "Comfortable for Most," as shown in **Figure 4**. Despite this coverage, there are large areas of the city that are beyond 400 metres of a cycling route, and there are many significant gaps in the existing cycling network.

FIGURE 3: NETWORK GAP ANALYSIS – COMPLETE NETWORK

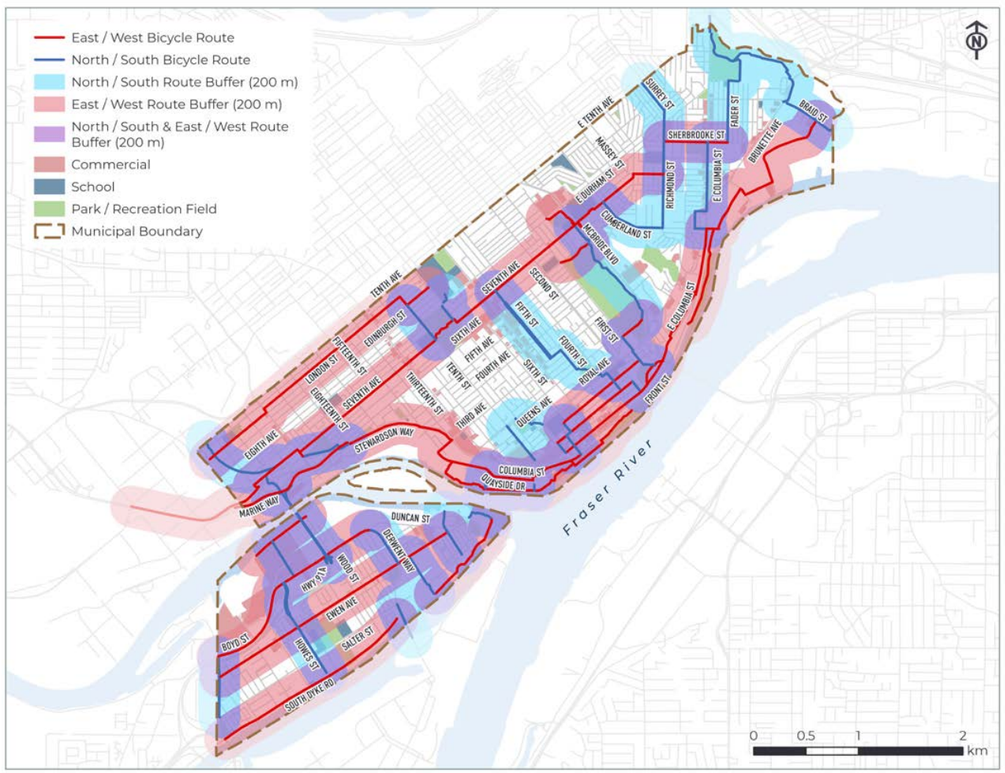
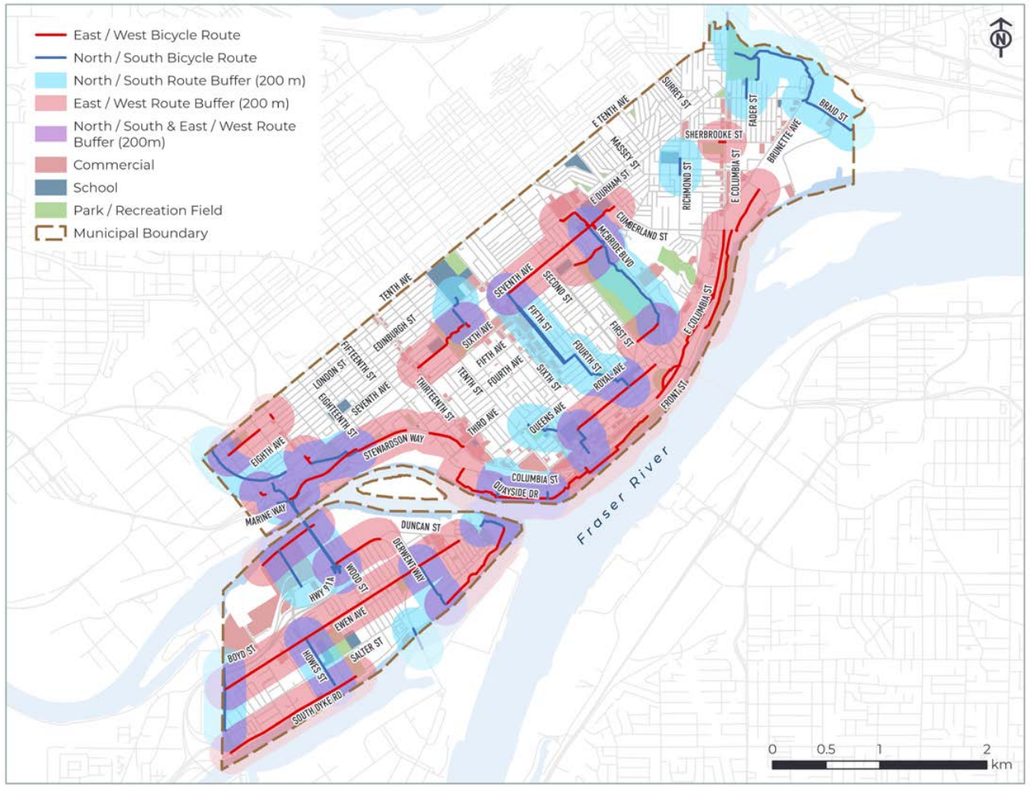


FIGURE 4: NETWORK GAP ANALYSIS – COMFORTABLE FOR MOST FACILITIES



2.4 The Opportunity for Active Transportation in New Westminster

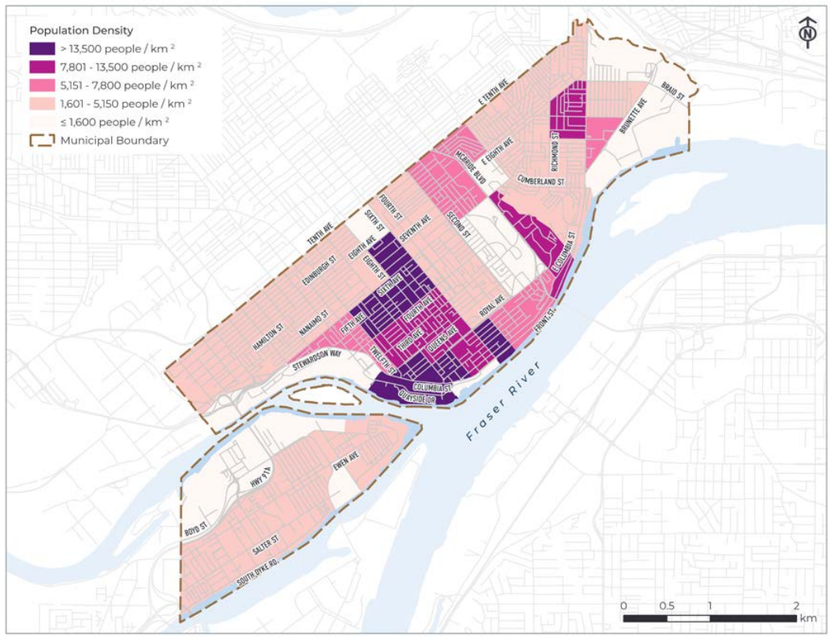
New Westminster is uniquely positioned to enable active transportation and see an increase in the use of active transportation. The key opportunities to increase active transportation are summarized below.

A Dense, Compact, and Built-out Community

New Westminster is the province's oldest incorporated municipality, making it one of the most well-established communities in the region. Today, the City is a rapidly growing, dense, and compact community, making the opportunity for active transportation significant. According to the 2021 Census, New Westminster is one of the fastest growing municipalities in Metro Vancouver and is the second most dense Census Subdivision in Canada. With more residents and more employment in the community, there are greater transportation demands. However, the City is built out and cannot accommodate this growth by expanding the roadway network. Enabling sustainable forms of transportation such as walking, cycling, and transit will help the City accommodate growth pressures.

The majority of the City's population resides in Downtown and in Uptown, which is also where the majority of community destinations exist, as shown in **Figure 5**. Together, this makes cycling between residential and community destinations relatively direct and within close proximity.

FIGURE 5: POPULATION DENSITY



Leveraging Increases in Electrified Personal Mobility

New Westminster is a hilly community, with significant grades on many streets. The Plan seeks to minimize the impacts of topography by identifying corridors with lower grades wherever possible. Over the past several years, e-bicycles have increased significantly in popularity around the world. This also presents an opportunity for electrified personal mobility, such as e-bicycles, to help address issues due to steep topography.

Building on the Momentum of Increase Use of Active Transportation

The City has invested heavily in active transportation infrastructure, education, and transportation demand management over the last decade, and has seen mode share shifts to active transportation during this time. In 2011, the City's active transportation mode share was 11.2% of all trips, and this grew to 15.6% in 2017.[8] The City now has one of the highest active transportation mode shares in Metro Vancouver, and this is continuing to increase.

Focusing On The "Interested But Concerned"

Research from cities across North America has identified a spectrum of the population based on their interest in cycling and their level of tolerance for risk and stress. As shown below, the largest segment of the population is typically comprised of people who are "Interested but Concerned."[9] These people often own a bicycle but do not ride frequently due to concerns about the safety of cycling. Focusing on AAA bicycle facilities is critical to building a cycling culture where people of all ages – ranging from young children to older adults – feel comfortable cycling.

25%–38%
of the population is uninterested in unable to ride a bicycle.

No Way, No How

37%–60%
of the population prefer complete separation from motor vehicle traffic or routes with low motor vehicle speeds and volumes.

Interested But Concerned

9%–28%
of the population is comfortable riding in traffic when they need to, but prefer dedicated bicycle facilities.

Enthusiastic and Confident

2%–6%
of the population is comfortable on streets with or without dedicated bicycle facilities and prioritize speed and directness.

Strong and Fearless

8 Source: TransLink, 2017 Household Trip Diary

9 Source: British Columbia Active Transportation Design Guide Chapter B.2. Note: the percentage of users for each category is shown as a range because the research is based on several different cities, each of which have their own unique contexts and types of bicycle users.

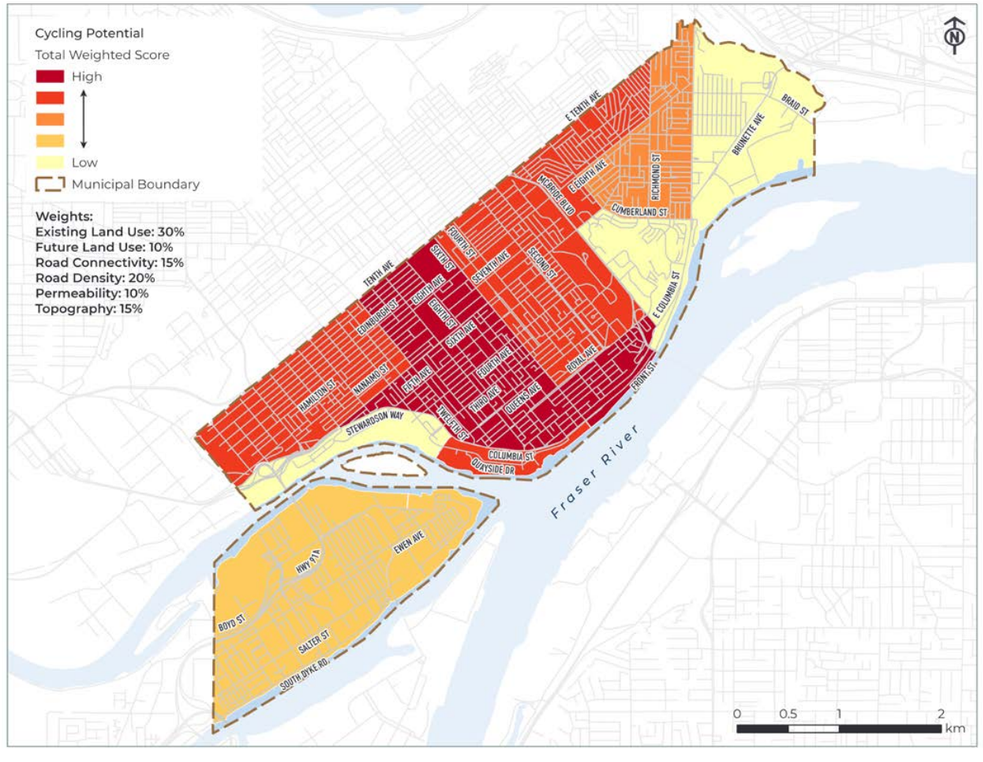
Strategically Investing in Areas with Higher Active Transportation Potential

An analysis was conducted to identify areas with the greatest opportunity to increase the number of active transportation trips. This analysis was based on several factors including:

- Existing land use;
- Future land use;
- Road network connectivity;
- Road network density;
- Barriers; and
- Topography

In general, areas with a dense and well-connected street network, higher population and employment densities, greater mixtures of land use, and that are relatively flat have the highest potential to increase the use of active transportation. As shown in **Figure 6**, much of the City has a relatively high cycling potential, with Downtown, Uptown, Brow of the Hill, and Kelvin showing the greatest potential.

FIGURE 6: ACTIVE TRANSPORTATION POTENTIAL



Centering Equity in Planning and Decision-Making

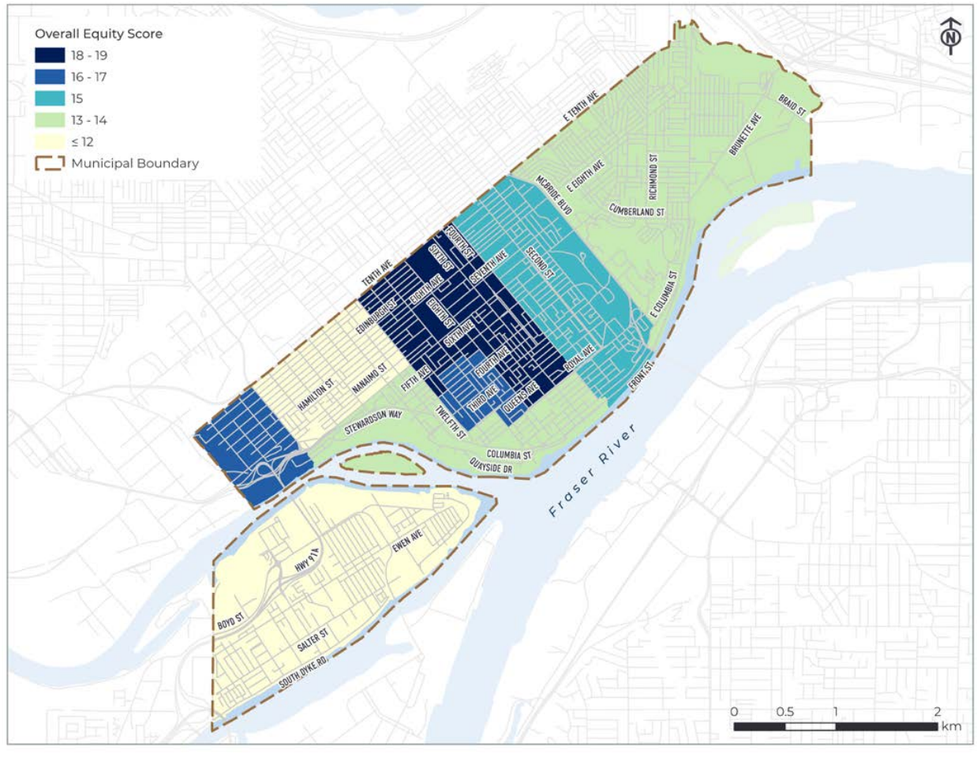
One of the central aims of the plan is to develop an active transportation network that serves all areas of the city and provides equitable access for all residents. This means being inclusive of – and prioritizing – people of all ages, abilities, backgrounds, and identities. It is especially important to focus on centering equity and supporting equity-seeking populations.

Equity-seeking populations face unique and intersecting challenges when navigating the transportation system, including the threat of discrimination and violence. They may be uncomfortable walking, rolling, and cycling due to personal safety concerns. These populations – especially seniors and the BIPOC community – also tend to be overrepresented in traffic fatalities and serious injuries.

An equity analysis was conducted to identify under-served areas in the city where there is an opportunity to strategically invest in areas where there are higher concentrations of people who are more dependent on active transportation for moving around.

Five indicators were used to examine equity across neighbourhoods, including: the percentage of youth populations, senior populations, immigrant populations, Indigenous populations, and low-income populations. As shown in **Figure 7**, the areas of the city with the greatest equity need include the Uptown, Brow of the Hill, Kelvin, and Connaught Heights neighbourhoods.

FIGURE 7: EQUITY NEED



2.5 Policy Context

The Plan was informed by the City's existing policy documents, as well as key regional, provincial, and federal plans and strategies. The Plan considered the broader vision and goals within these documents, ensuring that it helps to advance the City's work in many areas.

The Plan also considered the transportation plans and cycling networks of neighbouring municipalities (City of Burnaby, City of Coquitlam, and City of Richmond), and TransLink/Hub Cycling's Benchmarking the State of Cycling in Metro Vancouver Report.

External Plans And Policies

Both the Provincial and Federal governments have established bold targets to reduce GHG emissions. Canada has set a target to cut its GHG emissions by 40-45% below 2005 levels by 2030, while the Province's *CleanBC* plan includes targets to reduce GHGs to 40% below 2007 levels by 2030, 60% by 2040, and 80% by 2050.

The Province released *Move. Commute. Connect. — B.C.'s Active Transportation Strategy* in 2019. The strategy sets bold targets to double the percentage of trips taken with active transportation by 2030 as a way to help the Province meet its GHG emissions targets. To support the implementation of active transportation infrastructure, the Province released the *B.C. Active Transportation Design Guide* to ensure consistent active transportation facility design across the Province. The Province also administers the *Active Transportation Infrastructure Grant* to support active transportation investments across British Columbia. These provincial initiatives, along with Canada's new federal *National Active Transportation Strategy* and *National Active Transportation Fund*, represent new partnership opportunities to help finance transformational active transportation infrastructure programs for communities with shovel-ready projects that meet the goals of making active transportation safe, comfortable, and connected.

At the regional level, TransLink recently adopted *Transport 2050*, Metro Vancouver's updated Regional Transportation Strategy, while Metro Vancouver recently adopted Metro 2050 and Climate 2050, which set out the foundation for land use planning and climate action across the region. These regional documents include a proposed Major Bikeway Network (MBN) and Regional Greenway Network (RGN).

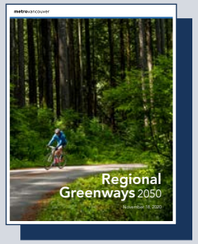
City Plans And Policies

Several overarching City plans are closely tied to this plan, including overarching City-wide plans and policies as well as neighbourhood plans and transportation studies. These plans and policies place significant emphasis and commitments to encourage active transportation.

External Plans and Policies



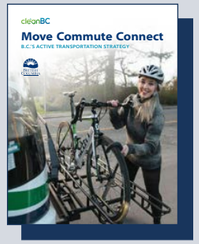
TRANSPORT 2050 REGIONAL TRANSPORTATION STRATEGY



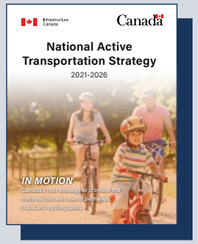
REGIONAL GREENWAYS 2050



METRO 2050 REGIONAL GROWTH STRATEGY



MOVE COMMUTE CONNECT BC'S ACTIVE TRANSPORTATION STRATEGY



NATIONAL TRANSPORTATION STRATEGY 2021–2026

City Plans and Policies



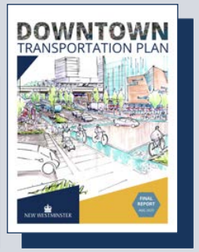
OFFICIAL COMMUNITY PLAN



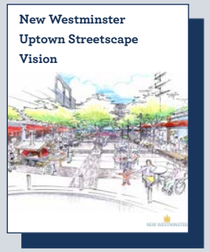
SEVEN BOLD STEPS FOR CLIMATE ACTION



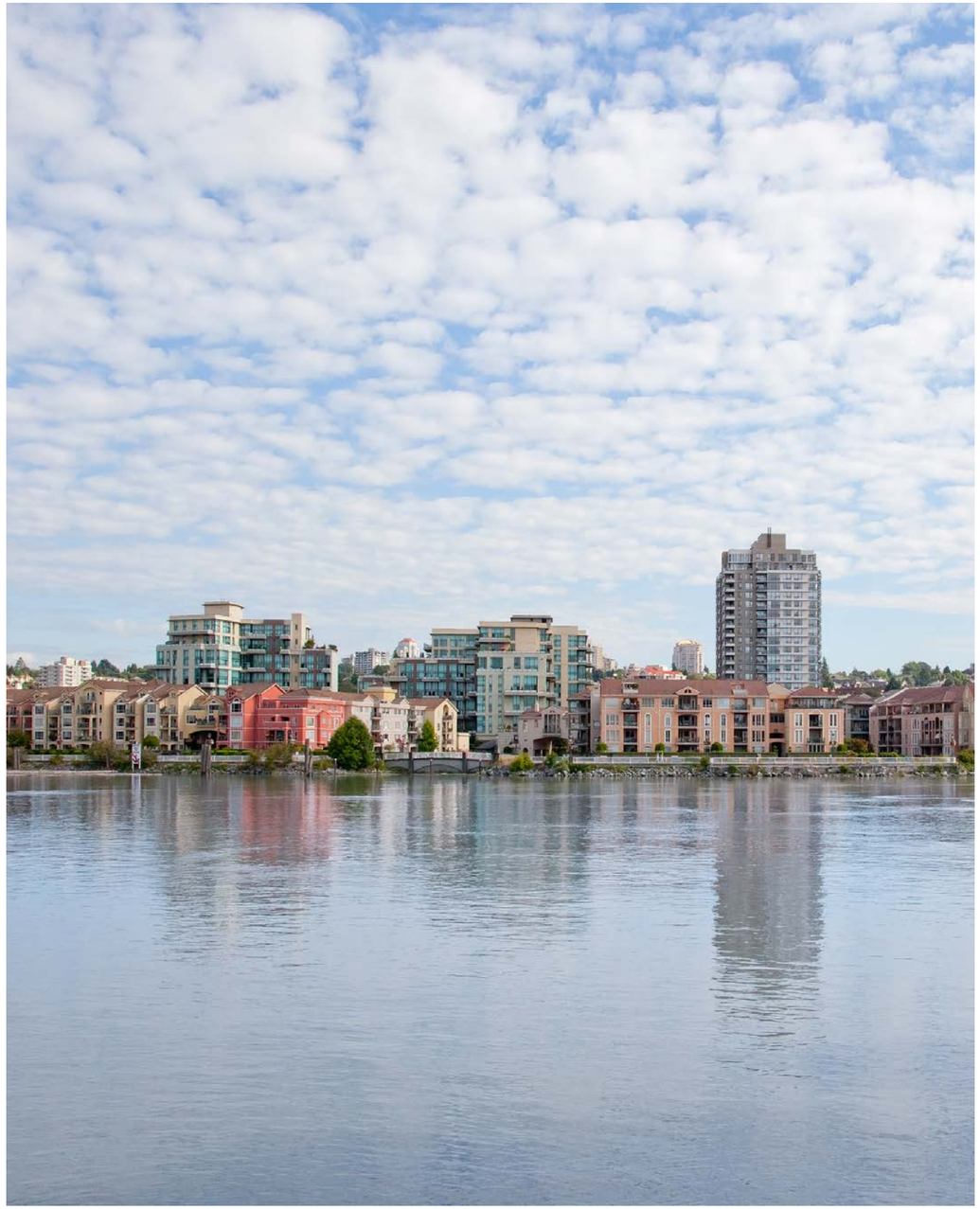
MASTER TRANSPORTATION PLAN



DOWNTOWN TRANSPORTATION PLAN



UPTOWN STREETSCAPE VISION



3.0
Network Plan

The Plan identifies a recommended active transportation network based on three guiding principles: comfortable, complete, and connected. These guiding principles were used along with stakeholder input and technical analysis to identify a Core Network of active transportation facilities for rapid implementation over the next five years. The Core Network is made up of active transportation facilities that will be comfortable for people of all ages and abilities and that will connect all major destinations, including neighbourhoods, commercial areas, civic facilities, schools, parks, and interregional routes.

This section outlines guiding principles, design criteria, and assumptions used to developed the active transportation network, and summarizes the proposed active transportation network, including a detailed review of the Core Network.

3.1 Guiding Principles

The active transportation network was developed based on the following three guiding principles:



COMFORTABLE

A network that is comfortable for people of all ages and abilities, all year round.

This means the network focuses on creating an experience that is:

- **SAFE:** It minimizes interactions between people walking, cycling, and other users
- **SECURE:** It is well-lit and well-maintained year-round
- **ENJOYABLE:** It is a pleasant experience that considers access to nature, street trees, views, and quiet streets



COMPLETE

A complete network that places all residents within a short walking, rolling, or cycling distance.

This means the network is:

- **A COMPLETE GRID:** Target that all residents are within 400 metres of an AAA active transportation corridor route, with a range of 300-500 metres depending on topography and other local factors
- **DIRECT:** Routes should avoid unnecessary jogs unless required to address topography or to access destinations



CONNECTED

A network that connects to all neighbourhoods and major destinations.

This means the network considers connections to the following destinations:

- Schools
- Parks
- Commercial areas
- Community facilities
- Hospitals
- Multi-modal connections (SkyTrain, Q2Q Ferry)
- Regional and adjacent community cycling facilities

3.2 Network Planning Process

The development of the active transportation network development was informed by these three guiding principles along with a feasibility review of candidate corridors and discussions with stakeholders at key milestones throughout the process. This section summarizes the network plan development process.

Step 1: Identify Candidate Network

Proposed cycling networks in the Master Transportation Plan, Downtown Transportation Plan, and Uptown Streetscape Vision were reviewed as a starting point to identify candidate corridors. The initial candidate network included all existing facilities and corridors identified in previous plans as well as suggested corridors based on stakeholder input.

Step 2: Assess Existing Conditions

The candidate active transportation network was assessed by developing an inventory of all existing on-street bicycle facilities and multi-use pathways by facility type, and by assessing comfort level based on existing motor vehicle volumes and speeds as well as curb-to-curb and right-of-way width of all corridors. With this inventory, several GIS analyses were conducted to better understand opportunities and constraints, including:

- **Gap analysis**, identifying gaps in the existing network with areas of the City that are more than 400 metres from an existing bicycle route.
- **Slope analysis**, identifying grades of all roads and multi-use pathways in the City.
- **Equity analysis**, identifying areas with the greatest concentrations of vulnerable populations, including children and youth, seniors, low income groups, new immigrants, and Indigenous communities.
- **Active transportation**, identifying areas of greatest active transportation potential based on land use, road network characteristics, topography, and barriers.
- **Population and employment density analysis**, identifying areas of highest population and employment density based on 2021 Census data.
- **Safety analysis**, identifying the average number of reported collisions per year between 2016 and 2020 based on ICBC data.

In addition to these GIS analysis, input from the first round of stakeholder engagement was also used to identify barriers and gaps as well as locations where improvements to active transportation facilities were desired.

Step 3: Screen Candidate Network

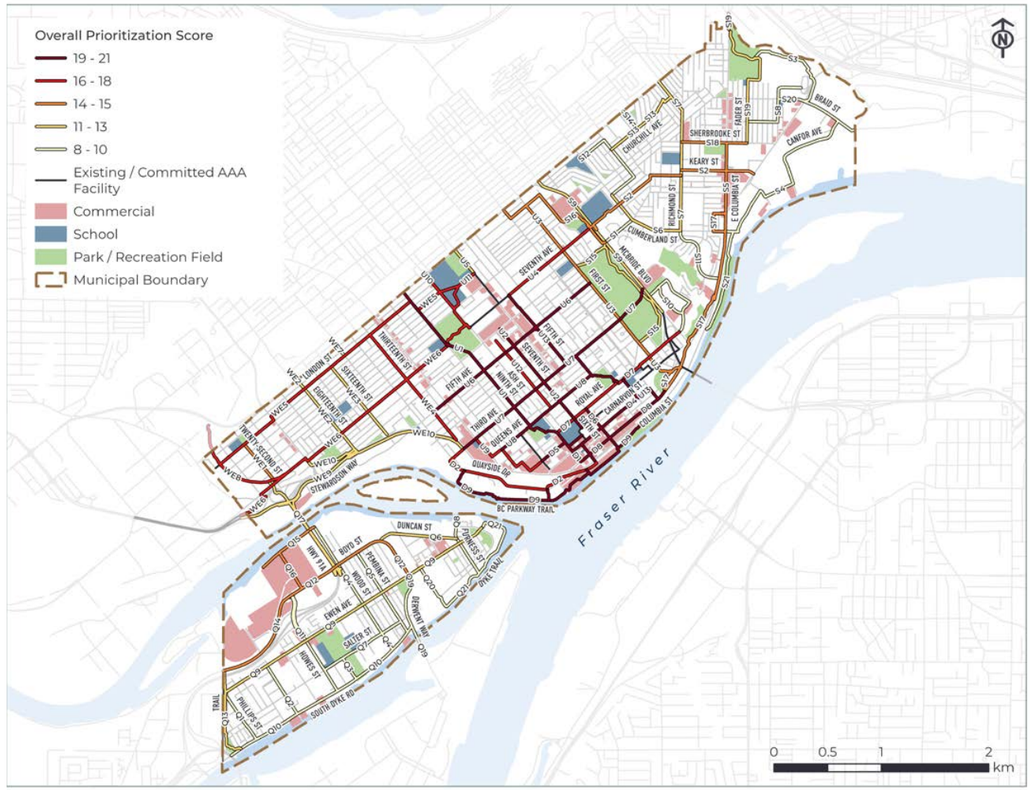
The candidate active transportation network identified a comprehensive network of active transportation facilities throughout the city. However, the complete candidate network was beyond the scale of what might be considered a Core Network to be implemented over the short-term. In that regard, a GIS-based screening process was conducted to help assess which routes might be considered part of the Core Network for short-term implementation. The GIS-based screening analysis included was a systematic, objective assessment based on five criteria:

1. **Completes a Gap** which assessed the degree to which each project connects to the existing local and regional cycling network.
2. **Population Served** which assessed the combined population and employment density that would be served by the project.
3. **Destinations Served** which assessed the number of destinations that would be served by the project.
4. **Equity** which summarized the results of the equity analysis, with a higher score for projects in areas that have a greater equity need.
5. **Active transportation Potential** which summarized the results of the active transportation potential analysis, with a higher score for projects in areas that have a greater potential to increase active transportation use.

The overall results of the screening analysis are shown in **Figure 8**. The results of the analysis provided a tool to help determine which routes should be considered as part of the Core Network, by focusing on the corridors with the highest scores in each neighbourhood. In addition, the screening was a tool to help select between potential corridors that could serve a similar purpose and desire line.



FIGURE 8: OVERALL SCREENING ANALYSIS RESULTS



Step 4: Review and Assess Feasibility of Core Network Corridors

A Core Network for implementation within the short-term was developed based on the screening process. More detailed investigations were then conducted for the Core Network corridors to better understand the current conditions of the potential routes and assess possible facility types. A variety of considerations were factored into this assessment, including:

- **Road Classification:** The City's existing road network classification was reviewed to determine if corridors were located on a local or collector road, and whether they were designated as part of the Major Road Network (MRN) and/or designated as truck route or transit route.

- **Existing Roadway and Right-of-way Width**: Options were developed based on the ability to implement active transportation facilities within the existing road width or, for multi-use pathways, within the available right-of-way width. The intent was to focus on facilities that were implementable within these existing widths. The assessment also considered the number of motor vehicle lanes and opportunities to remove or narrow the width of existing motor vehicle lanes.
- **Existing Cycling Facilities:** The City's existing cycling network was reviewed to identify if the facility would be new or an upgrade. In addition, TransLink's Major Bikeway Network and Metro Vancouver's Regional Greenway Network were also reviewed to identify opportunities for alignment with interregional routes.
- **Traffic Volumes and Speed:** Daily traffic volumes and speeds were reviewed where data was available. For corridors with higher traffic volumes and speeds, (4,000 vehicles per day and/or speeds of 50 km/h or greater) greater separation was recommended to ensure the facility is comfortable for everyone. For corridors with low traffic volumes and speeds (1,000 vehicles per day and/or speeds of 30km/h or less), local street bikeways were considered. For corridors with traffic volumes and speeds between these ranges, additional judgement was required to determine the preferred facility type.
- **On-Street Parking:** Cycling facilities directly adjacent to on-street parking without a door zone buffer are not AAA (with the exception of parking protected mobility lanes, which are located between the sidewalk and the on-street parking lane). It is generally preferable to implement bicycle facilities on streets without on-street parking; however, if on-street parking was present and would need to be removed, this was identified in the feasibility assessment.
- **Network Connectivity:** Recommendations were developed to ensure continuity of facilities to the extent possible, including providing consistent facility types along an entire corridor where possible.
- **Land Use Context:** Recommendations were identified based on land use context, with consideration for different implementation challenges where more intensive land uses are located, such as high-density residential and commercial as compared to versus less intensive uses such as single-detached residential neighbourhoods.

Step 5: Identify Options and Recommendations

Based on the factors described above, several options were developed for each corridor, including different facility types and configurations. A preferred option was then identified for each corridor based on the results of the feasibility review and assessment of benefits and impacts of each option. The feasibility review resulted in a recommendation for a proposed facility type with a recommended cross-section along with a summary of potential benefits and impacts of the recommended option.

3.3 Assumptions and Limitations

The feasibility review that was undertaken for the Plan focused on ensuring that recommendations were practical and implementable. This review was based on professional judgement, a high-level review of the existing conditions for each corridor based on available data, and best practices in active transportation facility design. It should be noted that the purpose of this study was to review the feasibility of implementing a Core Network, and that ***this was not a design study***. As such, the feasibility review is only intended to illustrate ***what is possible*** to provide guidance to the City about next steps in budgeting, planning, and designing a Core Network.

The feasibility review was developed based on information available to the project team at the time of the study, a desktop review, a site visit, feedback from City staff and stakeholders, and previous concepts and/or designs provided by the City. The review did not include any topographic survey or detailed site-specific investigations. All dimensions and spatial assumptions are based on estimates from available GIS data and orthophotos. The study did not include any traffic modelling or operational analysis. Further work may be required if any laning or other geometric changes are proposed to confirm impacts on traffic operations.

Finally, the feasibility review was based only on a technical review and did not include broad public engagement. The City may need to conduct public engagement for each corridor as it moves forward with planning and design.

For each corridor, suggestions with illustrative cross-sections were developed that are intended to highlight recommended facility types and approximate widths of each cross-section element. Suggestions were developed based on segmenting each corridor into distinct segments and applying a typical cross-section for each segment, and did not involve any conceptual plan view design drawings. The City may need to conduct a more detailed investigation for each corridor as part of subsequent planning and design stages, including topographic survey, planning, design, analysis, and engagement.

3.4 Design Criteria

Design criteria were developed for this study based on a variety of local, national, and international best practice design guidelines noted below.

- Transportation Association of Canada (TAC) Geometric Design Guide for Canadian Roadways;
- MoTI;
- BC Active Transportation Design Guide;
- TransLink Rapid Implementation Design Guide for Cycling Infrastructure;
- City of New Westminster Design Criteria; and
- NACTO Urban Bikeway Design Guide and other relevant design guidance documents.

This guidance allowed context dependent cross-sections to be developed. Design dimensions noted in the following sections should be considered as preliminary as these were based on measurements of aerial imagery and not topographic survey. As the design progresses for each corridor, detailed design criteria should be established that reflect the guidance in each of the relevant guidelines noted above.



3.5 Facility Types

The Core Network encompasses three types of AAA infrastructure: local street bikeways, protected mobility lanes, and multi-use pathways.



Local Street Bikeways

Local street bikeways are streets with low motor vehicle volumes and speeds that have been enhanced to varying degrees to prioritize bicycle traffic. Because motor vehicle volumes and speeds are relatively low, local street bikeways can be comfortable facilities for people of all ages and abilities. Local street bikeways should have traffic speeds of 30 km/h or less (posted and operating speeds) and traffic volumes of less than 1,000 vehicles per day, and desirably less than 500 vehicles per day.

A range of typical treatments are used to create safe and comfortable local street bikeways. Each corridor will use a different suite of treatments based off the existing motor vehicle traffic volumes and speeds.

The typical treatments include:

- **30km/h posted speed limit** for safer operation;
- Local street bikeway **signage** and **pavement markings;**
- **Traffic calming** features including centre medians, curb extensions, speed humps, speed tables, raised crosswalks, and chicanes;
- **Traffic diversion** features including right-in/right-out islands, median barriers, and partial or full closures to prevent through motor vehicle traffic;
- **Traffic controls** such as half or full traffic signals or rapid rectangular flashing beacons (RRFB) at major intersections.



Protected Mobility Lanes

Protected mobility lanes are recommended on busier streets that have higher traffic volumes and speeds (volumes greater than 4,000 vehicles per day and/or posted or operating speeds greater than 50 km/h). Many people do not feel comfortable sharing the road or riding adjacent to high traffic volumes and vehicles travelling at high speed. Protected mobility lanes should be considered on major streets to provide physically separated space for people cycling and to create a comfortable cycling environment.

Typical treatments on major streets will involve either bi-directional protected mobility lanes on one side of the street, or uni-directional protected mobility lanes on each side of the street. In general, uni-directional facilities are preferred over bi-directional facilities as they are more predictable, intuitive, and have better safety performance. However, bi-directional facilities may be considered for a number of reasons, including network connectivity and available width, among others.



Multi-Use Pathways

Multi-use pathways are facilities that are physically separated from motor vehicles and can be located within the road right-of-way or within parks and open spaces. They provide sufficient width to be used by people walking, cycling, and other forms of active transportation such as in-line skating and jogging. Where pedestrian and cycling volumes are higher, separated bicycle and pedestrian pathways are preferred over multi-use pathways. Multi-use pathways are an effective facility on roads or in off-street locations where right-of-way is available. They can be installed parallel to a major roadway, within a park, or along a utility corridor or rail line.

3.6 Active Transportation Network

Stemming from the network planning process, an active transportation network was developed. The proposed active transportation network includes a **Core Network** of AAA facilities intended for rapid implementation over the short-term, along with a **Supporting Network** to be implemented over the longer-term as shown in **Figure 9**. The Supporting Network may include facilities that are not considered AAA.

FIGURE 9: PROPOSED ACTIVE TRANSPORTATION NETWORK BY FACILITY TYPE



CORE NETWORK CYCLING FACILITIES

EXISTING PROPOSED

- Protected Mobility Lane
- Multi-Use Pathway
- Local Street Bikeway
- Supporting Network
- Other Agency

- City Hall
- Library
- Recreation Facility
- Massey Theatre
- Royal Columbian Hospital
- SkyTrain Station

- School
- Park / Recreation Field
- Commercial
- Municipal Boundary

Corridors

West

W1. London Street

W2. 7th Avenue (West)

W3. 13th Street

W4. Burnaby Connections

Central

C1. 8th / 9th / 10th Streets

C2. 7th Street

C3. 6th Street (Uptown)

C4. 6th Street (Downtown)

C5. 4th / Merivale / Elliot Streets

C6. 1st Street

C7. Begbie Street

C8. 7th Avenue (Central)

C9. 5th Avenue

C10. 3rd Avenue

C11. Columbia Street

C12. Columbia Square Connections

C13. Waterfront Pathway

East

E1. 7th Avenue (East) / Shiles / Keary Streets

E2. East Columbia Street

E3. Brunette Fraser Regional Greenway

E4. Fader Street

E5. Sherbrooke / Rousseau Streets

E6. York Street / Churchill Avenue / Burnaby Street

South

S1. Boyd Street

S2. Wood Street

S3. Howes Street

FIGURE 10: PROPOSED ACTIVE TRANSPORTATION NETWORK



CORE CYCLING NETWORK

- E1 - 7th Ave East / Shiles / Keary Streets
- E2 - East Columbia Street
- E3 - Brunette Fraser Regional Greenway
- E4 - Fader Street
- E5 - Sherbrooke / Rousseau Streets
- E6 - York Street / Churchill Ave / Burnaby Street
- C1 - 8th / 9th / 10th Streets
- C2 - 7th Street
- C3 - 6th Street (Uptown)
- C4 - 6th Street (Downtown)
- C5 - 4th / Merivale / Elliot Streets
- C6 - 1st Street
- C7 - Begbie Street
- C8 - 7th Avenue (Central)
- C9 - 5th Avenue
- C10 - 3rd Avenue
- C11 - Columbia Street
- C12 - Columbia Square Connections
- C13 - Waterfront Pathway
- S1 - Boyd Street
- S2 - Wood Street
- S3 - Howes Street
- W1 - London Street
- W2 - 7th Avenue (West)
- W3 -13th Street
- W4 - Burnaby Connections

- Other Core Network (Existing or Committed AAA Facility or Other Agency)
- Supporting Network
- Other Agency
- City Hall
- Library
- Recreation Facility
- Massey Theatre
- Royal Columbian Hospital
- SkyTrain Station

- School
- Park / Recreation Field
- Commercial
- Municipal Boundary

NEW WESTMINSTER
Active Transportation Network

3.7 Corridor Improvements

The following sections summarize recommendations for each corridor identified in the Core Network, based on the geographic area of the City within which it is located (west, central, east, and south). This summarizes improvements for all projects that are either new or require upgrades, but does not include existing or committed facilities that do not require upgrades. This section only provides recommendations for corridors that are under the City's jurisdiction.

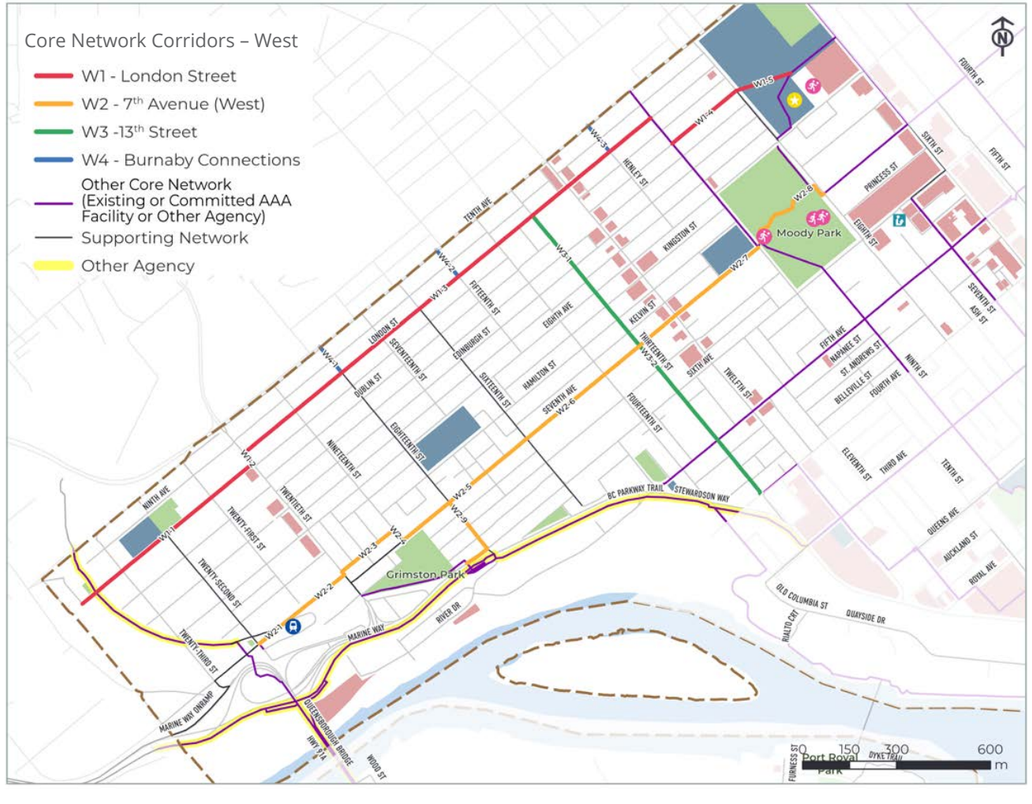
For each corridor, a summary sheet has been developed which summarizes the recommended improvements for each corridor. **Appendix B** provides the detailed improvements for each corridor and segments within the corridor, and includes the information described below.

The following sections provide a summary of these considerations for each corridor, broken down by geographic area of the City.

3.7.1 West

The west area of the City includes recommended improvements in the Connaught Heights, West End, and North Arm North neighbourhoods, as shown in **Figure 11**.

FIGURE 11: CORE NETWORK – WEST



W1. LONDON STREET

Corridor Overview

This corridor provides a direct east-west connection through the northern portion of the Connaught Heights, West End, and Moody Park neighbourhoods. The corridor runs for approximately 2.75 km from BC Parkway in the west to 8th Street in the east, and primarily follows London Street with a connection at the east end of the corridor to Dublin Street. This corridor provides a direct connection to BC Parkway as well as connections to Connaught Heights Park, Connaught Heights Elementary School, New Westminster Secondary School, and a commercial node at 12th Street.

The corridor is an existing bicycle route and is primarily located on local streets with traffic volumes below 1,000 vehicles per day. The corridor includes several existing traffic calming and diversion features, including speed humps at several locations, traffic circles at 21st Street and 15th Street, and traffic diversion at 20th Street and 13th Street.

Suggested Improvements

The corridor is already relatively comfortable due to low traffic volumes and speeds and existing traffic calming and diversion measures. This corridor is proposed primarily as a local street bikeway with the following improvements:

- Re-orienting stop signs at several locations to prioritize east-west bicycle traffic;
- Installing speed humps between 12th Street and 19th Street to reduce motor vehicle speeds;
- Upgrading the existing rectangular rapid flashing beacon (RRFB) at 12th Street to a pedestrian and cycling half signal;
- Providing pavement markings to guide people cycling through the intersection at the 8th Street intersection;
- Conducting a parking occupancy survey between 10th Street and 20th Street to determine if any changes to on-street parking should be considered to provide sufficient width for motor vehicles and people cycling to comfortably share the road; and
- Installing curb extensions at several locations to reduce motor vehicle speeds and reduce pedestrian crossing distances.

In addition, TransLink is currently planning improvements to the BC Parkway, including intersection improvements at the BC Parkway and London Street intersection. The corridor should be extended through the New Westminster Secondary School site to connect with 6th Street. Details for this connection will require further study based on the redevelopment plans for that site. Finally, the City should work with the City of Burnaby to improve connections across 10th Avenue at 18th Street and 15th Street.

Summary of Key Efforts Required

There are few significant challenges for this corridor as most improvements are relatively minor and do not have significant implementation challenges. Key considerations include:

- Developing a concept to provide a connection across the New Westminster Secondary School site in conjunction with redevelopment;
- Working with TransLink to confirm the planned improvements to BC Parkway; and
- Informing residents on any parking changes are required based on the parking occupancy survey.

W2. 7TH AVENUE (WEST)

Corridor Overview

This corridor provides a direct east-west connection through the southern portion of the Connaught Heights, West End, and Moody Park neighbourhoods. The corridor runs for approximately 2.6 km from BC Parkway and the 22nd Street SkyTrain Station in the west to 8th Street in the east, and primarily follows 7th Avenue. This corridor provides a direct connection to BC Parkway and the 22nd Street SkyTrain Station as well as connections to Lord Kelvin Community School, Moody Park, Grimston Park, and a commercial node at 12th Street. The corridor also provides broader connections to the Queensborough Bridge and to the pedestrian and cycling overpass across Stewardson Way.

The corridor is part of TransLink's Major Bikeway Network and is an existing bicycle route. The corridor is primarily located on local streets with traffic volumes below 1,000 vehicles per day, with the exception of the segment west of 20th Street which carries approximately 3,000 vehicles per day and is a transit route. The corridor includes several existing traffic calming and diversion features, including speed humps between 10th Street and 12th Street and a traffic circles at 13th Street.

Suggested Improvements

The corridor is already relatively comfortable due to low traffic volumes and speeds and existing traffic calming and diversion measures. This corridor is proposed as protected mobility lanes west of 20th Street and a local street bikeway east of 20th Street with the following improvements:

- Re-orienting stop signs at several locations to prioritize east-west bicycle traffic and providing an all-way stop control at 10th Street;
- Reconfiguring angled parking to parallel parking on the north side of the street west of 10th Street adjacent to Lord Kelvin Community School;

- Installing speed humps between 12th Street and 20th Street to reduce motor vehicle speeds;
- Conducting a parking occupancy survey between 16th Street and 20th Street to determine if any changes to on-street parking should be considered to provide sufficient width for motor vehicles and people cycling to comfortably share the road;
- Adding a local street bikeway connection on the lane north of 7th Avenue between 19th Street and 20th Street;
- Adding a local street bikeway connection to provide a connection to the pedestrian and bicycle overpass over Stewardson Way via 18th Street and Nanaimo Street;
- Determining east-west pathway improvements within Moody Park while considering other park users;
- Installing a constrained width bi-directional protected mobility lane on north side of 7th Avenue between BC Parkway and 20th Street; and
- Installing curb extensions at several locations to reduce motor vehicle speeds and reduce pedestrian crossing distances.

In addition, TransLink is currently planning improvements improve BC Parkway, including intersection improvements at the BC Parkway and 22nd Street and 7th Avenue intersections.

Summary of Key Efforts Required

There are few significant challenges for this corridor as most improvements are relatively minor and do not have significant implementation challenges. Key considerations include:

- Working with TransLink to confirm the planned improvements to BC Parkway;
- Informing residents on any parking changes are required based on the parking occupancy survey;
- Consulting with property owners along lane north of 7th Avenue between 19th Street and 20th Street;
- Confirming impacts to transit and vehicles with the implementation of a bi-directional protected mobility lane on north side of 7th Avenue between BC Parkway and 20th Street; and
- Working with Parks staff to determine the preferred approach to improving east-west multi-use pathway connections through Moody Park while considering other park users.

W3. 13TH STREET

Corridor Overview

This corridor provides a direct north-south connection through the West End and Brow of the Hill neighbourhoods. The corridor runs for approximately 1.2 km along 13th Street from London Street in the north to 4th Avenue in the south.

The corridor is not an existing bicycle route. The corridor is located on a local street with low traffic volumes of below 1,000 vehicles per day north of 7th Avenue, and moderate traffic volumes of approximately 1,500 vehicles per day south of 7th Avenue. The corridor includes some existing traffic calming and diversion features, including traffic diversion at London Street, 8th Avenue, and 4th Avenue, and a traffic circle at 7th Avenue.

Suggested Improvements

The corridor is already relatively comfortable due to low traffic volumes and speeds and existing traffic calming and diversion measures. This corridor is proposed as a local street bikeway with the following improvements:

- Installing speed humps to reduce motor vehicle speeds;
- Installing curb extensions at several locations to reduce motor vehicle speeds and reduce pedestrian crossing distances;
- Installing a pedestrian and cycling half signal at 8th Avenue;
- Installing a pedestrian and cycling half signal with traffic diversion to reduce motor vehicle volumes at 4th Avenue; and
- Redesigning the existing diagonal diverter at 4th Street to provide bicycle cut-throughs to be permeable for cycling movements.

The corridor does not provide a direct connection to the City of Burnaby due to limited connection opportunities at 10th Avenue. Connections to Burnaby would be accommodated via local street bikeway connections on London Street and 15th Street.

Summary of Key Efforts Required

There are no significant key efforts required for this corridor. It should be noted that this corridor is planned for water main replacement which provides an opportunity to coordinate these projects.

W4. BURNABY CONNECTIONS

Corridor Overview

This corridor consists of three connections to the City of Burnaby from the west area of New Westminster.

Suggested Improvements

This corridor includes the following crossing improvements:

- New traffic signal at 18th Street along with connectivity improvements due to jog in street network;
- Update existing pedestrian and cycling half signal to full signal at 15th Street along with connectivity improvements due to jog in street network; and
- Improve existing connection at signalized intersection at Henley Street.

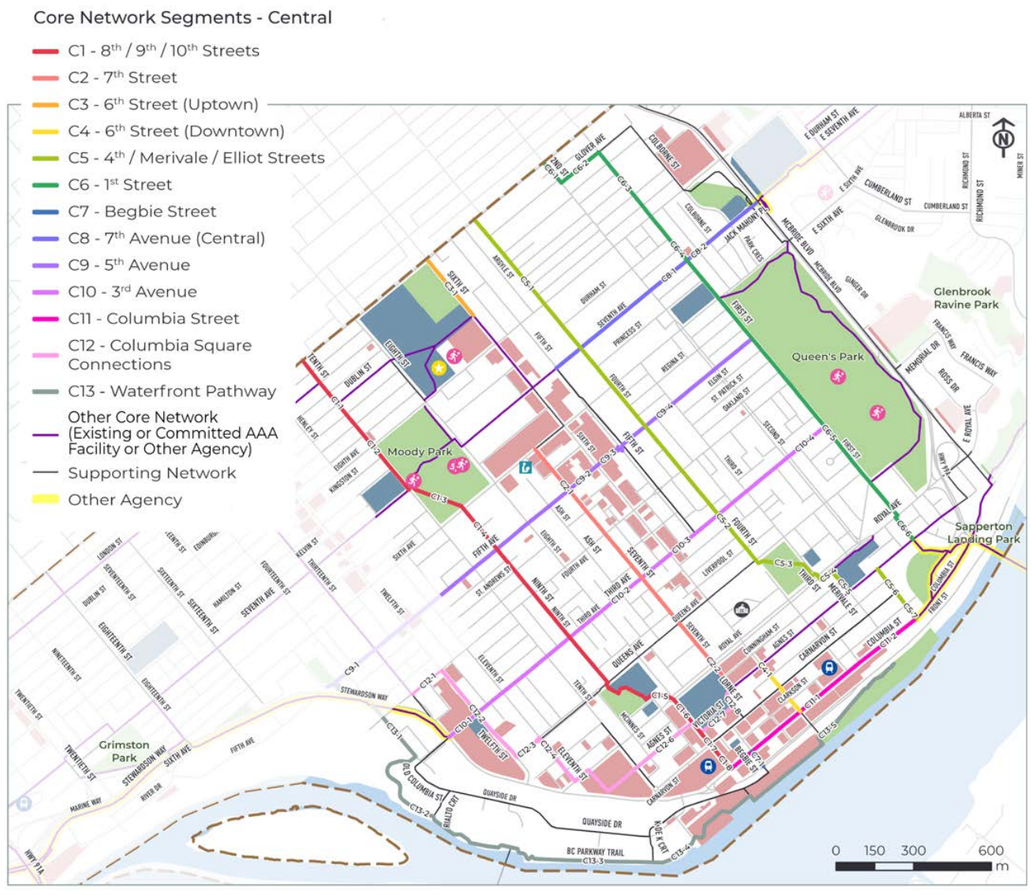
Summary of Key Efforts Required

- Working with the City of Burnaby to improve connections across 10th Avenue at 18th Street 15th Street, and Henley Street.
- Coordinating with TransLink regarding new or upgraded traffic signals on 10th Avenue due to Major Road Network status.

3.7.2 Central

The central area of the City includes recommended improvements in the Kelvin, Brow of the Hill, Uptown, Downtown, Queen's Park, and Glenbrooke North neighbourhoods, as shown in **Figure 12**.

FIGURE 12: CORE NETWORK – CENTRAL



C1. 8TH / 9TH / 10TH STREETS

Corridor Overview

This corridor provides a direct north-south connection through the Moody Park, Brow of the Hill, and Downtown neighbourhoods. The corridor runs for approximately 2.5 km from the City of Burnaby boundary at 10th Avenue in the north to Columbia Street in downtown New Westminster in the south using a combination of 8th Street, 9th Street, and 10th Street as well as a short connection on Henley Street via London Street to connect to the City of Burnaby (see W4 as discussed above). This corridor provides a direct connection to Lord Kelvin Elementary School, Fraser River Middle School, Douglas, College, Moody Park, and Simcoe Park.

The majority of the segments along this corridor are not an existing bicycle route, although there are some segments designated as an existing bicycle route. The corridor is primarily located on local streets and through parks, with the exception of 8th Street which is classified as a City Collector. Traffic volumes are lowest on 9th Street, which are below 500 vehicles per day. The segments on 10th Street have moderate to high traffic volumes of approximately 1,200 vehicles per day north of 8th Avenue and 3,000 vehicles per day adjacent to Moody Park between 7th Avenue and 8th Avenue. The highest traffic volumes are found on 8th Street, with over 6,000 vehicles per day.

Suggested Improvements

This corridor is proposed primarily as a combination of local street bikeways (10th Street from 10th Avenue to 8th Avenue and 9th Street from 6th Avenue to Queens Avenue), multi-use pathways (10th Street from 8th Avenue to 7th Avenue and within Moody Park and Simcoe Park), and protected mobility lanes (8th Street from Royal Avenue to Columbia Street), with the following improvements:

- Re-orienting stop signs at several locations to prioritize north-south bicycle traffic;
- Installing speed humps on 10th Street between London Street and 8th Avenue and on 9th Street between 6th Avenue and Queens Avenue to reduce motor vehicle speeds;
- Installing traffic circles at London Street and Dublin Street to improve the transition to those local street bikeways;
- Installing a multi-use pathway on the east side of 10th Street between 7th Avenue and 8th Avenue adjacent to Moody Park, potentially with the reconfiguration of angled parking to parallel parking;
- Installing curb extensions at several locations to reduce motor vehicle speeds and reduce pedestrian crossing distances;
- Widening and adding lighting to the pathway through Moody Park;
- Installing a pedestrian and cycling half signal at 9th Street and 6th Avenue and improving accessibility of the pathway ramp on the north side of 6th Avenue;
- Improving the multi-use pathway connection through Simcoe Park; and
- Installing uni-directional protected mobility lanes on 8th Street between Royal Avenue and Columbia Street.

The corridor does not provide a direct connection to the City of Burnaby due to limited connection opportunities at 10th Avenue. Connections to Burnaby would be accommodated via local street bikeway connections on London Street and Henley Street.

Summary of Key Efforts Required

There are few significant efforts for this corridor as most improvements are relatively minor and do not have significant implementation challenges. Key considerations include:

- Coordinating with TransLink as well as taxi companies and delivery companies regarding the proposed road space reallocation on 8th Street; and
- Working with Parks staff on multi-use pathway connections through Moody Park and Simcoe Park.

C2. 7TH STREET

Corridor Overview

This corridor provides a direct north-south connection through the Moody Park, Brow of the Hill, and Downtown neighbourhoods. The corridor runs for approximately 1.2 km from 6th Avenue in the north to Agnes Street in downtown New Westminster in the south. This corridor provides a direct connection to the Agnes Greenway as well as connections to Royal City Centre, Douglas College, and the Provincial Law Courts. The corridor also provides access to the heart of the commercial area in Uptown New Westminster.

The corridor is not an existing bicycle route. The corridor is located on a local street with low traffic volumes of below 1,000 vehicles per day between Royal Avenue and Agnes Street, and moderate traffic volumes of approximately 2,000 vehicles per day between Royal Avenue and 6th Avenue.

Suggested Improvements

This corridor is proposed as a local street bikeway north of Royal Avenue and protected mobility lanes south of Royal Avenue with the following improvements:

- Removing the centreline to make the traffic operations more consistent with a local road and make it more comfortable for motor vehicles and people cycling to share the road;
- Installing a rectangular rapid flashing beacon with traffic diversion at 4th Avenue;
- Adding speed humps between Royal Avenue and 6th Avenue;
- Installing curb extensions at several locations to reduce motor vehicle speeds and reduce pedestrian crossing distances;
- Adding a bicycle pushbutton at the 6th Avenue intersection; and
- Installing a bi-directional protected mobility lane on the west side of 7th Street between Royal Avenue and Agnes Street to provide a continuous extension of the Agnes Greenway to the north.

While the suggested improvements include a local street bikeway with traffic calming and diversion, an alternate configuration could be considered during the design process to consider conversion to a one-way street for motor vehicles to reduce traffic volumes and increase cycling comfort.

Summary of Key Efforts Required

There are few significant efforts for this corridor as most improvements are relatively minor and do not have significant implementation challenges. Key considerations include:

- Conducting further traffic study to confirm configuration as a local street bikeway with traffic diversion or converting to a one-way street for motor vehicles, including impacts on neighbouring streets with either option; and
- Consultation with Douglas College regarding the connection between Royal Avenue and Agnes Street.

C3. 6TH STREET (UPTOWN)

Corridor Overview

This corridor provides a direct north-south connection through the Uptown neighbourhood. The corridor runs for approximately 0.3 km from the City of Burnaby boundary at 10th Avenue in the north to the mid-block crossing at the entrance to New Westminster Secondary School to the south. This corridor provides a direct connection the Uptown Active Transportation Improvements that are currently being advanced, including an extension of the uni-directional protected mobility lanes currently under construction between 7th Avenue and the mid-block crossing on 6th Street. This concept extends the same cross-section currently under construction to this segment to the north. This corridor also provides a direct connection to New Westminster Secondary School, the City of Burnaby, and the heart of the commercial area in Uptown New Westminster.

The corridor is not an existing bicycle route. The corridor is located on a City Collector street with high traffic volumes and frequent transit service.

Suggested Improvements

The concept includes extending the configuration of the uni-directional protected mobility lanes currently under construction south of the mid-block crosswalk further north to 10th Avenue.

Summary of Key Efforts Required

Key considerations include:

- Conducting further traffic study to confirm operational impacts at 10th Avenue intersection;
- Working with the City of Burnaby to improve connections across 10th Avenue; and
- Coordinating with TransLink to confirm any impacts on bus speed and reliability and the design of impacted bus stops.

C4. 6TH STREET (DOWNTOWN)

Corridor Overview

This corridor provides a direct north-south connection through Downtown New Westminster. The corridor runs for approximately 0.3 km from Agnes Street in the north to Columbia Street and the access to the pedestrian and cycling overpass connecting to Westminster Pier Park via the Front Street Parkade.

The corridor is not an existing bicycle route. The corridor is located on a City Collector street with high traffic volumes and frequent transit service.

Suggested Improvements

The concept includes providing a bi-directional mobility lane on the west of 6th Street to provide a connection from the Agnes Greenway to the Waterfront Pier Park.

Summary of Key Efforts Required

Key considerations include:

- Conducting further traffic study to confirm operational impacts at the Carnarvon Street and Columbia Street intersections;
- Coordinating with existing and planned developments;
- Coordinating with TransLink to confirm any impacts on bus speed and reliability and the design of impacted bus stops;
- Further design work to confirm the transition and access to the Front Street Parkade; and
- Further engineering review to confirm that bi-directional protected mobility lanes are appropriate given the topography based on sightlines and design speeds, as well as to identify any mitigation measures to address issues related to topography.

C5. 4TH / MERIVALE / ELLIOT STREETS

Corridor Overview

This corridor provides a direct north-south connection through the Glenbrooke North, Queen's Park, and Downtown neighbourhoods. The corridor runs for approximately 2.5 km from the City of Burnaby boundary at 10th Avenue in the north to Columbia Street in downtown New Westminster in the south using a combination of 4th Street, Merivale Street, and Elliot Street. This corridor provides a direct connection to BC Parkway at Columbia Street and the Agnes Greenway, as well as connections to Albert Crescent Park, Tipperary Park, Ecole Qayqayt Elementary, and the City of Burnaby.

South of 3rd Avenue, this corridor is an existing bicycle route. This corridor makes use of connections of existing cycling facilities along Agnes Street and Merivale Street. North of 3rd Avenue, this corridor is not an existing bicycle route. The corridor is primarily located on local streets with traffic volumes below 1,000 vehicles per day and through parks. The corridor includes some existing traffic calming features, including speed humps and a traffic circle at 7th Avenue.

Suggested Improvements

This corridor is proposed primarily as a local street bikeway along with multi-use pathway connections through Tipperary Park with the following improvements:

- Adding pedestrian and cycling activated half signals at 6th Avenue and 8th Avenue;
- Re-orienting stop signs at 4th Avenue;
- Installing traffic circles at 3rd Avenue and 5th Avenue to improve connections to east-west bicycle routes;
- Adding east-west stop signs and providing pavement markings to guide people cycling through the intersection at the 4th Street and Queens Avenue intersection to improve the transition to Tipperary Park;
- Adding east-west stop signs and providing pavement markings to guide people cycling through the intersection at the Elliot Street and Clarkson Street intersection to improve the transition to the multi-use pathway south of Clarkson Street;
- Installing curb extensions at several locations to reduce motor vehicle speeds and reduce pedestrian crossing distances;
- Adding wayfinding signage at entrances to the multi-use pathway south of Clarkson Street; and
- Working with the City of Burnaby to improve connections across 10th Avenue at 4th Street, including a new pedestrian and cycling half signal and multi-use pathway connection.

Summary of Key Efforts Required

There are few significant efforts for this corridor as most improvements are relatively minor and do not have significant implementation challenges. Key considerations include:

- Working with the City of Burnaby to improve connections across 10th Avenue and 4th Street; and
- Coordinating with TransLink regarding new or upgraded traffic signals on 10th Avenue due to Major Road Network status.

C6. 1ST STREET

Corridor Overview

This corridor provides a direct north-south connection through the Glenbrooke North, Queen's Park, and Downtown neighbourhoods. The corridor runs for approximately 2.2 km from the City of Burnaby boundary at 10th Avenue in the north to Agnes Street in downtown New Westminster in the south primarily using 1st Street along with a jog to 2nd Street via Glover Avenue in the north to provide a connection to the City of Burnaby. This corridor provides a direct connection to the Agnes Greenway, BC Parkway, and Pattullo Bridge, as well as connections to Queen's Park, a commercial node at 8th Avenue, and the City of Burnaby.

The majority of this corridor is not an existing bicycle route, with the exception of the segment between Vancouver Street and Agnes Street. The corridor is primarily located on local streets with moderate traffic volumes below 2,000 vehicles per day. The corridor includes some existing traffic calming features, including speed humps between 1st Avenue and 7th Avenue and a traffic circle at 7th Avenue.

Suggested Improvements

This corridor is proposed primarily as a local street bikeway with short segments of protected mobility lanes on 2nd Street between Glover Avenue and 10th Avenue and 1st Street between Royal Avenue and Agnes Street with the following improvements:

- Installing uni-directional protected mobility lanes on 2nd Street between Glover Avenue and 10th Avenue;
- Installing a pedestrian and cycling half signal with traffic diversion at 8th Avenue;
- Adding traffic diversion at 6th Avenue;
- Installing speed humps between 8th Avenue and Glover Avenue and between Vancouver Street and Royal Avenue;
- Installing raised intersections at Queens Avenue, 3rd Avenue and 4th Avenue;
- Installing bi-directional protected mobility lanes between Royal Avenue and Agnes Street;

- Installing curb extensions at several locations to reduce motor vehicle speeds and reduce pedestrian crossing distances;
- Conducting a parking occupancy survey on Glover Avenue to determine if any changes to on-street parking should be considered to provide sufficient width for motor vehicles and people cycling to comfortably share the road; and
- Installing traffic diversion on the north leg of 1st Street at Royal Avenue, while considering impacts to transit.

The City should work with the City of Burnaby to improve connections across 10th Avenue at 2nd Street.

Summary of Key Efforts Required

There are few significant efforts for this corridor as most improvements are relatively minor and do not have significant implementation challenges. Key considerations include:

- Working with TransLink to address any issues with potential traffic diversion on the north leg of 1st Street at Royal Avenue, with the potential for re-routing the transit route to 2nd Street; and
- Inform residents on any parking changes are required based on the parking occupancy survey.

C7. BEGBIE STREET

Corridor Overview

This corridor provides a short-north south connection between Quayside Drive and Columbia Street in Downtown New Westminster. This corridor provides a critical connection between downtown New Westminster and the waterfront, including the waterfront pathway. This corridor forms part of the BC Parkway.

The corridor is part of TransLink's Major Bikeway Network and is an existing bicycle route.

Suggested Improvements

This corridor is proposed for upgrades of the existing shared use lanes to bi-directional protected mobility lanes. This could be accomplished by reallocating road space and removing on-street parking from one side of the street.

Summary of Key Efforts Required

Key considerations include:

- Removing on-street parking on one side of the street;
- Tree removal; and
- Confirming the transition across the railway tracks and to access Waterfront Park.

C8. 7TH AVENUE (CENTRAL)

Corridor Overview

This corridor provides a direct east-west connection through the Moody Park and Glenbrooke North neighbourhoods. The corridor runs for approximately 1.0 km from 5th Street in the west to the pedestrian and cycling overpass over McBride Boulevard in the east. This corridor provides a direct connection to the Uptown Active Transportation Improvements that will be constructed in 2023 on 7th Avenue west of 5th Street, as well as Ecole Glenbrooke Middle School and Terry Hughes Park.

The corridor is part of TransLink's Major Bikeway Network and is an existing bicycle route. The corridor is located on a local street with traffic volumes below 1,000 vehicles per day and includes several existing traffic calming features, including speed humps between 3rd Street and 4th Street and traffic circles at 4th Street, 2nd Street, and 1st Street.

Suggested Improvements

The corridor is already comfortable due to low traffic volumes and speeds and existing traffic calming and diversion measures. This corridor is proposed as a local street bikeway with the following improvements:

- Considering improvements to the transition to protected mobility lanes west of 5th Street, including traffic diversion at the east leg of the intersection;
- Conducting a parking occupancy survey to determine if any changes to on-street parking should be considered to provide sufficient width for motor vehicles and people cycling to comfortably share the road;
- Installing a raised intersection at 7th Avenue and Park Crescent; and
- Installing curb extensions at several locations to reduce motor vehicle speeds and reduce pedestrian crossing distances.

Summary of Key Efforts Required

Key considerations include:

- Inform residents on any parking changes are required based on the parking occupancy survey.

C9. 5TH AVENUE

Corridor Overview

This corridor provides a direct east-west connection through the Brow of the Hill and Queen's Park neighbourhoods. The corridor runs for approximately 2.1 km from Stewardson Way in the west to 1st Street in the east. This corridor provides a direct connection to BC Parkway via Stewardson Way, as well as connections to the heart of the commercial area in Uptown New Westminster and Queens Park.

This corridor is not an existing bicycle route. This corridor would provide connections to several proposed bicycle routes, including local street bikeways on 13th Street, 9th Street, 7th Street, 4th Street, and 1st Street. The corridor is located on a local street with moderate traffic volumes below 2,000 vehicles per day west of 5th Street, and low traffic volumes of approximately 200 vehicles per day east of 5th Street. The corridor includes no traffic calming and diversion features, with the exception of traffic diversion at 5th Avenue and 5th Street.

Suggested Improvements

This corridor is proposed primarily as a local street bikeway with short segments of protected mobility lanes on 5th Avenue between 7th Street and 5th Street with the following improvements:

- Installing traffic circles at 13th Street, 9th Street, 7th Street, and 4th Street to reduce traffic volumes and improve connection to intersecting local street bikeways;
- Installing a pedestrian and cycling half signal at 12th Street;
- Installing speed humps west of 7th Street;
- Installing curb extensions at several locations to reduce motor vehicle speeds and reduce pedestrian crossing distances;
- Installing uni-directional protected mobility lanes on 5th Avenue between 7th Street and 5th Street; and
- Improving the bicycle cut-through in the existing diagonal diverter at 5th Street to improve permeability for bicycle movements.

Summary of Key Efforts Required

Key considerations include:

- Removing parking between 7th Street and 5th Street.
- Further engineering review to confirm appropriate treatments for areas of steep grades given the topography based on sightlines and design speeds, as well as to identify any mitigation measures to address issues related to topography.

C10. 3RD AVENUE

Corridor Overview

This corridor provides a direct east-west connection through the Brow of the Hill and Queen's Park neighbourhoods. The corridor runs for approximately 1.9 km from Stewardson Way in the west to 1st Street in the east. This corridor provides a direct connection to BC Parkway via Stewardson Way, as well as connections to the commercial area in Uptown New Westminster and Queen's Park, including the existing pathway network within Queen's Park.

This corridor is not an existing bicycle route. This corridor would provide connections to several proposed bicycle routes, including local street bikeways on 9th Street, 7th Street, 4th Street, and 1st Street. The corridor is located on a local street with moderate traffic volumes below 1,500 vehicles per day west of 5th Street, and low traffic volumes of less than 1,000 vehicles per day east of 5th Street. The corridor includes no traffic calming and diversion features, with the exception of traffic diversion at 3rd Avenue and 12th Street.

Suggested Improvements

This corridor is proposed as a local street bikeway with a short segment of protected mobility lanes on 3rd Avenue between Stewardson Way and 12th Street and with the following improvements:

- Installing uni-directional protected bicycle lanes on 3rd Avenue between Stewardson Way and 12th Street;
- Installing bicycle pushbuttons at 12th Street;
- Conducting further design work for the segment between 12th Street and 11th Street to determine the best treatment to accommodate steep grades;
- Installing speed humps throughout the corridor;
- Installing traffic circles at 9th Street, and 7th Street, and 4th Street to reduce traffic volumes and improve connection to intersecting local street bikeways;
- Installing curb extensions at several locations to reduce motor vehicle speeds and reduce pedestrian crossing distances;
- Installing a pedestrian and cycling activated half signal at 6th Street; and
- Re-orienting the existing stop sign at Ash Street to prioritize east-west bicycle traffic.

Summary of Key Efforts Required

There are no significant considerations anticipated for this corridor.

C11. COLUMBIA STREET

Corridor Overview

This corridor provides a direct east-west connection through Downtown New Westminster. The corridor runs for approximately 0.9 km from 8th Street in the west to Elliot Street in the east. This corridor provides a direct connection to BC Parkway to the west and east, as well as connections to the heart of the commercial area in Downtown New Westminster.

The corridor is part of TransLink's Major Bikeway Network, is part of both BC Parkway and Central Valley Greenway, and is an existing bicycle route. The corridor is located on an arterial street with high traffic volumes and transit frequency. Due to the busy commercial nature of the street, there is also significant curbside activity and on-street parking, including some angled parking. The existing painted mobility lanes are located between motor vehicle traffic and on-street parking and are not comfortable for people of all ages and abilities.

Suggested Improvements

This corridor is proposed for upgrades of the existing painted mobility lanes to uni-directional protected mobility lanes. This could be accomplished by reallocating road space to reconfigure angled parking to provide continuous parallel parking on both sides of the street, although this would likely reduce parking supply. This would also involve significant capital roadworks to remove and replace curb extensions and relocate utilities along the corridor.

Summary of Key Efforts Required

There are several significant considerations for this corridor Key considerations include:

- Coordinating with TransLink to confirm any impacts on bus speed and reliability and the design of impacted bus stops;
- Consulting with businesses and the Downtown Business Improvement Association regarding parking and loading changes;
- Conducting further traffic analysis at all signalized intersections to determine traffic impacts, particularly if turn lanes must be removed; and
- Potential tree impacts;
- Removal and replacement of existing curb extensions; and
- Relocation of utilities.

C12. COLUMBIA SQUARE CONNECTIONS

Corridor Overview

The Columbia Square Connections corridor provides a connection around the Columbia Square shopping mall. There are limited opportunities for connections through this area due to the existing shopping mall, located at the southwest corner of 10th Street and Royal Avenue, and constrained right-of-way on Columbia Street and Stewardson Way. This corridor would use an alignment that connects from the local street bikeway on 13th Street via 4th Avenue (from 13th Street to 12th Street); 12th Street (from 4th Avenue to Queens Avenue); Queens Avenue (from 12th Street to 11th Street); 11th Street (from Queens Avenue); internal connections through Columbia Square; Agnes Street (from 10th Street to 8th Street); and Victoria Street (from 8th Street to Lorne Street). This corridor would ultimately provide a connection through downtown that would connect the BC Parkway to the Agnes Greenway, including a connection to Douglas College.

Suggested Improvements

This corridor includes a range of improvements depending on the segment:

- Protected mobility lanes on 4th Avenue from 13th Street to 12th Street;
- Protected mobility lanes on 12th Street from 4th Avenue to Queens Avenue;
- Protected mobility lanes on Queens Avenue from 12th Street to 11th Street;
- Protected mobility lanes on 11th Street between Queens Avenue and Royal Avenue;
- Internal connections within Columbia Square with enhanced signage and wayfinding;
- Protected mobility lanes on Agnes Street between 8th Street and 10th Street;
- Local street bikeway on Victoria Street from 8th Street and Lorne Street; and
- Local street bikeway and improvement to stairs on Lorne Street.

Summary of Key Efforts Required

Key considerations include:

- Removal of on-street parking on several segments;
- Steep grades on some segments;
- Working with stakeholders to replace the existing stairs at the north end of Lorne Street with an accessible ramp; and
- Coordinating segment alignment with future redevelopment and design of Columbia Square.

C13. WATERFRONT PATHWAY

Corridor Overview

New Westminster follows the Fraser River and has an existing multi-use pathway that continues along the waterfront This corridor is part of BC Parkway and is part of TransLink's Major Bikeway Network, forming a critical transportation and recreation link for active transportation. The waterfront pathway is currently a busy multi-use pathway with a mix of users. Due to the high volumes and high mix of people walking, rolling, and cycling, upgrades should be considered to create a separated bicycle and pedestrian pathway.

Suggested Improvements

This corridor will involve reallocating existing space on the multi-use pathway to create a separated bicycle and pedestrian pathway between Rialto Court and Begbie Street. It should be noted that there are several constrained locations, including the underpass under the railway west of Quayside Park and the segment between 10th Street and Begbie Street. This would also involve creating a new multi-use pathway through future redevelopment to the Quayside Off-Leash Dog Areas as well as a new pedestrian and cycling overpass over the rail corridor to connect directly with 14th Street and Stewardson Way as an alternative to the Quaysid Drive overpass.

Summary of Key Efforts Required

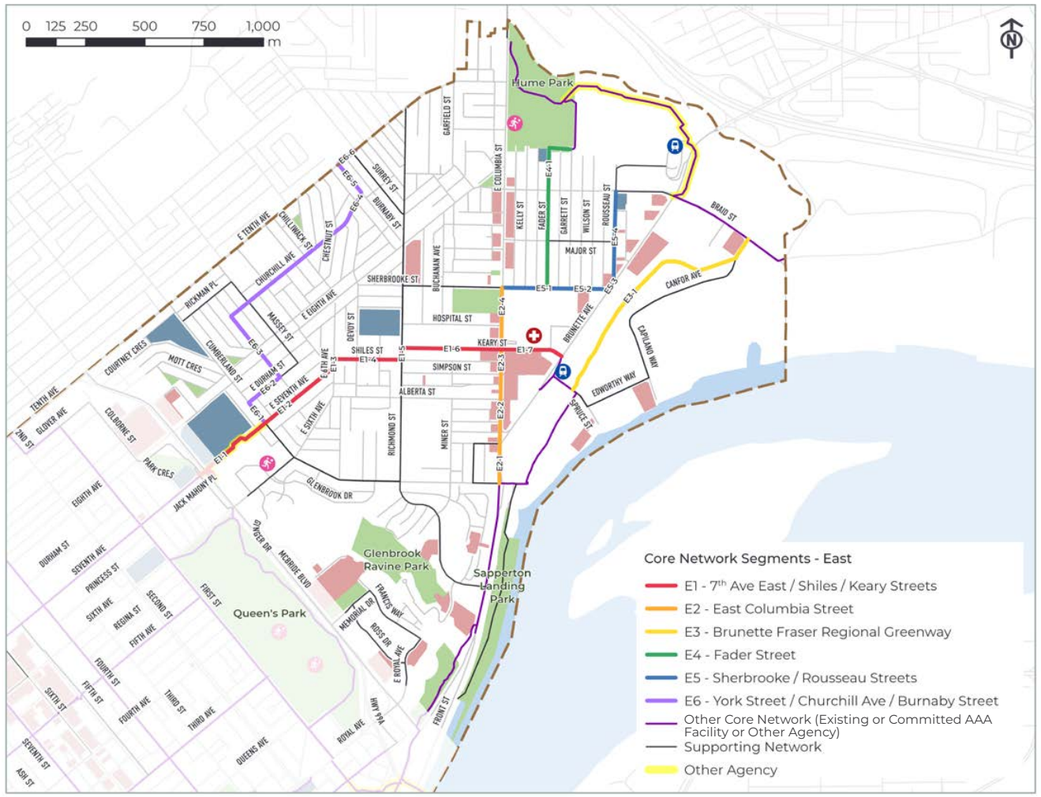
Key considerations for this corridor include:

- New pedestrian and cycling overpass over the rail corridor to connect 14th Street with the Quayside Off-Leash Dog Areas;
- New pathway through the Quayside Off-Leash Dog Areas to be provided through redevelopment;
- Constrained areas with limited widening opportunities in several areas, including the underpass under the railway west of Quayside Park and the segment between 10th Street and Begbie Street; and
- The need for reconstruction of the pathway in the future to address sea level rise.

3.7.3 East

The east area of the City includes recommended improvements in the Glenbrooke South, Victory Heights, Sapperton, and Brunette Creek neighbourhoods, as shown in **Figure 13**.

FIGURE 13: CORE NETWORK – EAST



E1. 7TH AVENUE (EAST) / SHILES / KEARY STREETS

Corridor Overview

This corridor provides a direct east-west connection through the Massey Victory Heights and McBride Sapperton neighbourhoods. The corridor runs for approximately 1.7 km from the pedestrian and cycling overpass over McBride Boulevard in the west to Brunette Avenue in the east. This corridor is an extension of the other segments of 7th Avenue and provides a direct connection to the təməsewtxʷ Aquatic Community Centre, Justice Institute of British Columbia, Royal Columbian Hospital, Sapperton SkyTrain station, and commercial area on East Columbia Street.

The corridor is primarily located on local streets with traffic volumes below 1,000 vehicles per day, with a short connection on Richmond Street, which has volumes of up to 5,000 vehicles per day, and Keary Street, which has volumes of up to 2,000 vehicles per day.

The segment of Keary Street east of East Columbia Street will be constructed through redevelopment of the Royal Columbian Hospital on the north side and redevelopment opportunities on the south side of the street.

Suggested Improvements

The corridor is already relatively comfortable due to low traffic volumes and speeds and existing traffic calming and diversion measures. This corridor is proposed primarily as a local street bikeway, with a short multi-use pathway connection on Richmond Street and uni-directional protected mobility lanes on Keary Street east of East Columbia Street with the following improvements:

- Constructing a multi-use pathway on the north side of the təməsewtxʷ Aquatic Community Centre between McBride Boulevard and Cumberland Street (already under construction);
- Upgrading crosswalks with pavement markings to guide people cycling through the intersection at Cumberland Street to transition from a multi-use pathway to a local street bikeway;
- Installing speed humps between Cumberland Avenue and East 6th Avenue;
- Conducting a parking occupancy survey between Cumberland Avenue and East 6th Avenue to determine if any changes to on-street parking should be considered to provide sufficient width for motor vehicles and people cycling to comfortably share the road;
- Reducing corner radii and pedestrian crossing distance at the skewed intersection of East 7th Avenue and East 6th Avenue;
- Re-orienting a stop sign on Shiles Street at Devoy Street to prioritize east-west bicycle movements;
- Installing a pedestrian and cycling activated half signal at Richmond Street along with a multi-use pathway connection on the east side of Richmond Street;
- Installing speed humps on Keary Street between Richmond Street and East Columbia Street;
- Installing curb extensions at several locations to reduce motor vehicle speeds and reduce pedestrian crossing distances;
- Either installing traffic diversion at East Columbia Street and Keary Street or converting Keary Street to a one-way street between Richmond Street and East Columbia Street to reduce traffic volumes;
- Installing uni-directional protected mobility lanes on Keary Street between East Columbia Street and Braid Avenue through redevelopment; and
- Investigating the feasibility of a potential pedestrian and cycling half signal across Brunette Avenue at Keary Street to provide a connection to the Brunette Fraser Regional Greenway.

Summary of Key Efforts Required

Key considerations for this corridor include:

- Consulting with residents on Keary Street between Richmond Street and East Columbia Street about options to install traffic diversion at East Columbia Street and Keary Street or converting Keary Street to a one-way street between Richmond Street and East Columbia Street to reduce traffic volumes;
- Informing residents of any parking changes are required based on the parking occupancy survey;
- Coordinating with Royal Columbian Hospital and developers regarding the implementation of uni-directional protected mobility lanes on Keary Street between East Columbia Street and Brunette Avenue; and
- Consulting with TransLink and other impacted stakeholders about a potential pedestrian and cycling half signal across Brunette Avenue at Keary Street, including impacts on traffic operations, goods movements, and bus speed and reliability.

E2. EAST COLUMBIA STREET

Corridor Overview

This corridor provides a direct north-south connection through the McBride Sapperton neighbourhood The corridor runs for approximately 0.8 km from Cumberland Street in the south to Sherbrooke Street in the north. This corridor provides a direct connection to the Central Valley Greenway, Royal Columbian Hospital, and commercial area on East Columbia Street.

The corridor is part of TransLink's Major Bikeway Network and is an existing bicycle route. There is a critical gap in this existing bicycle route between East Columbia Street and Debeck Street, where people cycling are required to divert up a steep hill to Sapper Street due to right-of-way constraints. The corridor is located on an arterial street that is part of the Major Road Network and is also a designated truck route and transit route, with ongoing safety and operational challenges at the intersection of East Columbia Street and Brunette Avenue.

The segment of East Columbia Street between Keary Street and Sherbrooke Street will be constructed through redevelopment of the Royal Columbian Hospital.

Suggested Improvements

This corridor is proposed to have a combination of bi-directional and uni-directional protected mobility lanes with the following improvements:

- Constructing bi-directional protected mobility lanes on the west side of East Columbia Street between Cumberland Avenue and Brunette Avenue by obtaining additional right-of-way and shifting the road alignment to the east;
- Redesigning the East Columbia Street and Brunette Avenue intersection to prioritize through vehicle movement to and from Brunette Avenue and transitioning protected mobility lanes from bi-directional to uni-directional facilities;
- Constructing uni-directional protected mobility lanes between Brunette Avenue and Keary Street; and
- Constructing uni-directional protected mobility lanes on East Columbia Street between Keary Street and Sherbrooke Street by Royal Columbian Hospital.

Summary of Key Efforts Required

Key considerations for this corridor include:

- Coordinating with TransLink to confirm any impacts on bus speed and reliability and the design of impacted bus stops;
- Consulting with businesses regarding parking and loading changes;
- Conducting further traffic analysis at all signalized intersections to determine traffic impacts;
- Coordinating with Royal Columbian Hospital regarding the implementation of uni-directional protected mobility lanes East Columbia Street between Keary Street and Sherbrooke Street;
- Consulting with TransLink about impacts on bus speed and reliability and bus stop design; and
- Property acquisition between Cumberland Avenue and Braid Street.

E3. BRUNETTE FRASER REGIONAL GREENWAY

Corridor Overview

This corridor provides a direct north-south connection through an industrial portion of the McBride Sapperton neighbourhood. The corridor runs for approximately 1.7 km from Cumberland Avenue in the south to Braid Street in the north. This corridor provides a direct connection adjacent to the Brunette River as part of the Brunette Fraser Regional Greenway as an alternative to less direct facilities through the adjacent industrial area.

Suggested Improvements

This corridor is proposed as a multi-use pathway with the following improvements:

- Constructing a new multi-use pathway north of Spruce Street through existing City-owned properties and acquisition of some properties;
- Constructing a new multi-use pathway through an existing right-of-way; and
- Constructing a new multi-use pathway on Canfor Avenue west of Braid Street.

Summary of Key Efforts Required

Key considerations for this corridor include:

- Coordinating with Metro Vancouver as this is a regional pathway connection;
- Property acquisition requirements;
- Coordinating with utilities to private connection through utility right-of-way; and
- Conducting environmental assessments due to proximity to Brunette River.

E4. FADER STREET

Corridor Overview

This corridor provides a direct north-south connection through the McBride Sapperton neighbourhood. The corridor runs for approximately 0.7 km from Sherbrooke Street in the south to Hume Lane and the off-street pathway connection of the Central Valley Greenway in the north. This corridor provides a direct connection to the Royal Columbian Hospital, Hume Park, and the Central Valley Greenway.

The corridor is part of TransLink's Major Bikeway Network and is an existing bicycle route. The corridor is located on a local street with traffic volumes below 500 vehicles per day and includes several existing traffic calming features, including speed humps and a traffic circle at Major Street.

Suggested Improvements

The corridor is already comfortable due to low traffic volumes and speeds and existing traffic calming and diversion measures. This corridor is proposed as a local street bikeway with the following improvements:

- Installing curb extensions at several locations to reduce motor vehicle speeds and reduce pedestrian crossing distances;
- Installing a raised crosswalk and protected mobility lanes across the intersection at Sherbrooke Street; and
- Adding a northbound stop sign with crosswalk and pavement markings to guide people cycling through the intersection to improve the transition to the Central Valley Greenway in Hume Park.

Summary of Key Efforts Required

There are no significant considerations for this corridor.

E5. SHERBROOKE / ROUSSEAU STREETS

Corridor Overview

This corridor provides a direct east-west and north-south connection through the McBride Sapperton neighbourhood. The corridor runs for approximately 0.7 km from Sherbrooke Street in the south to the Braid SkyTrain station in the north.

The corridor is not an existing bicycle route. The corridor is located on a local street with traffic volumes below 500 vehicles per day.

The segment of Sherbrooke Street between East Columbia Street and Fader Street will be constructed through redevelopment of the Royal Columbian Hospital.

Suggested Improvements

The corridor is already comfortable due to low traffic volumes and speeds. This corridor is proposed as a local street bikeway with the following improvements:

- Construction of bi-directional protected mobility lanes on the north side of Sherbrooke Street between East Columbia Street and Fader Street by Royal Columbian Hospital;
- Extending bi-directional mobility lanes on the north side of Sherbrooke Street between Fader Street and Brunette Avenue;
- Installing curb extensions at several locations to reduce motor vehicle speeds and reduce pedestrian crossing distances;
- Installing a narrow multi-use pathway on Braid Street to connect to Rousseau Street; and
- Improving intersection design at Braid Street.

Summary of Key Efforts Required

Key considerations for this corridor include:

- Coordinating with Royal Columbian Hospital regarding the implementation of bi-directional protected mobility lanes on the north side of Sherbrooke Street between East Columbia Street and Fader Street; and
- Limited available right-of-way to install narrow multi-use pathway on Braid Street to connect to Rousseau Street.

E6. YORK STREET / CHURCHILL AVENUE / BURNABY STREET

Corridor Overview

This corridor provides a direct east-west connection through the Massey Victory Heights neighbourhood. The corridor runs for approximately 1.6 km from East 7th Avenue in the south / west to Cariboo Road in the north / east. This corridor provides a direct connection to Westburnco Park and the City of Burnaby.

The corridor is not an existing bicycle route. The corridor is located on primarily local streets with traffic volumes slightly below 500 vehicles per day.

Suggested Improvements

The corridor is already comfortable due to low traffic volumes and speeds. This corridor is proposed primarily as a local street bikeway along with a short segments of protected mobility lanes on Cumberland Avenue between East 7th Avenue and Durham Avenue, and a multi-use pathway on the south side of 10th Avenue, with the following improvements:

- Installing protected mobility lanes on Cumberland Avenue between East 7th Avenue and Durham Avenue;
- Conducting a parking occupancy survey on Durham Street, York Street, and Churchill Avenue to determine if any changes to on-street parking should be considered to provide sufficient width for motor vehicles and people cycling to comfortably share the road;
- Installing speed humps on Durham Street, York Street, and Churchill Avenue to reduce traffic speeds;
- Installing a rectangular rapid flashing beacon at the intersection of York Street and East 8th Avenue;
- Installing curb extensions at several locations to reduce motor vehicle speeds and reduce pedestrian crossing distances;
- Re-orienting a stop sign at Chilliwack Street to prioritize east-west bicycle traffic; and
- Installing a new multi-use pathway on the south side of East 10th Avenue.

Summary of Key Efforts Required

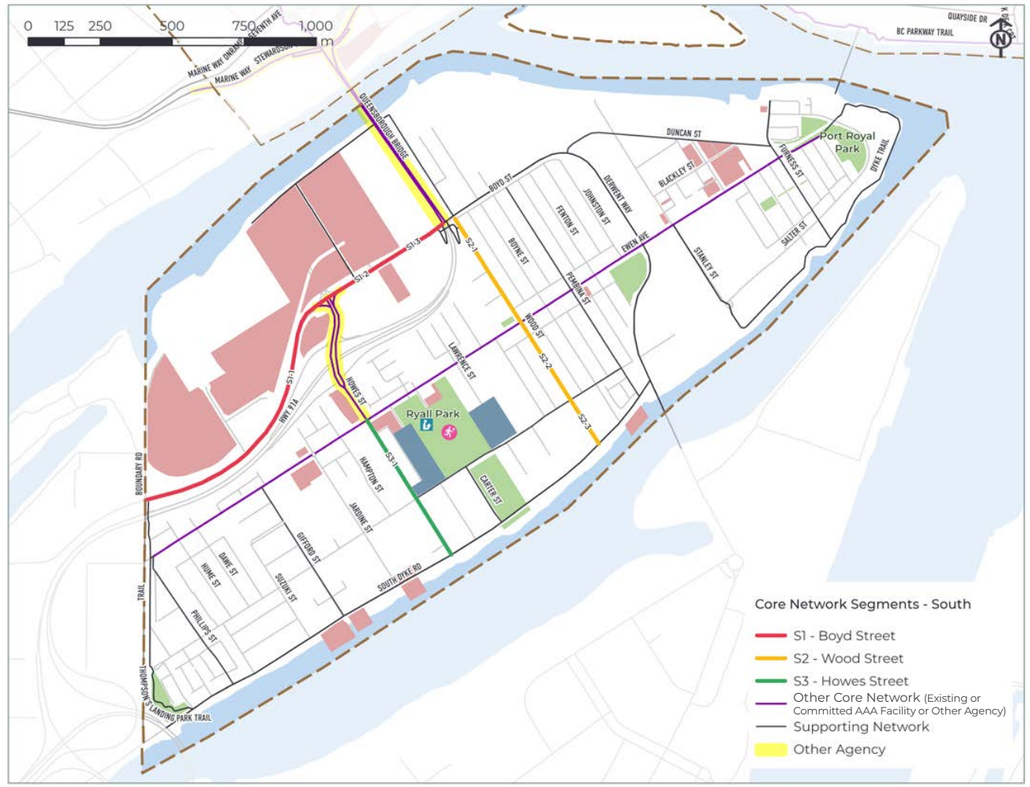
There are few significant efforts anticipated for this corridor, including:

- Consulting with residents if any parking changes are required based on the parking occupancy survey;
- Consulting with the City of Burnaby on connections; and
- Coordinating with TransLink to confirm any impacts on bus speed and reliability and the design of impacted bus stops.

3.7.4 South

The south area of the City includes recommended improvements in Queensborough neighbourhood, as shown in **Figure 14**.

FIGURE 14: CORE NETWORK – SOUTH



S1. BOYD STREET

Corridor Overview

This corridor provides a direct east-west connection through the Queensborough neighbourhood. The corridor runs for approximately 1.5 km from Boundary Road at the boundary with the City of Richmond in the west to the pathway connection to the Queensborough Bridge in the east. This corridor facilitates critical regional connections to the west to the City of Richmond and to the north via the Queensborough Bridge, which is under MoTI jurisdiction. This also provides a direct connection to Queensborough Landing, a major city-wide and regional commercial area.

The corridor is part of TransLink's Major Bikeway Network and is an existing bicycle route. The City has completed a design for a multi-use pathway on the north side of Boyd Street west of the Queensborough Bridge; however, a gap remains with no multi-use pathway for the area fronting Queensborough Landing east of Howes Street. The corridor is located on an arterial street that is part of the Major Road Network and is also a designated truck route.

Suggested Improvements

This corridor is proposed as a multi-use pathway with the following improvements:

- Providing pathway lighting for the existing multi-use pathway between Boundary Road and Howes Street;
- Installing pavement markings to guide people cycling through the Howes Street intersection and installing bicycle pushbuttons;
- Installing a new multi-use pathway with lighting on the north side of street adjacent to Queensborough Landing east of Howes Street; and
- Constructing the mutli-use pathway west of the Queensborough Bridge that has already been designed.

Summary of Key Efforts Required

Considerations anticipated for this corridor include:

- Coordination with City of Richmond on the connection west of Boundary Road.
- Challenges with ditches and utility relocations with the installation of a new multi-use pathway on the north side of street adjacent to Queensborough Landing east of Howes Street, which will require coordination with other government entities.

S2. WOOD STREET

Corridor Overview

This corridor provides a direct north-south connection through the Queensborough neighbourhood. The corridor runs for approximately 0.9 km from Boyd Street and the connection to the Queensborough Bridge in the north to South Dyke Road in the south. This corridor facilitates critical regional connections to the north via the Queensborough Bridge, which is under MoTI jurisdiction. This also provides a direct connection to Queensborough Landing, a major city-wide and regional commercial area and provides connections to key destinations in the Queensborough community via Ewen Avenue, including Queensborough Middle School, Queen Elizabeth Community School, and Queensborough Community Centre.

The corridor is not an existing bicycle route. The corridor is located on a local street with traffic volumes slightly over 1,000 vehicles per day north of Ewen Avenue, and less than 1,000 vehicles per day south of Ewen Avenue.

Suggested Improvements

The corridor is already comfortable due to low traffic volumes and speeds. This corridor is proposed as a local street bikeway with the following improvements:

- Installing speed humps throughout the corridor; and
- Widening the off-street pathway transition to the Queensborough Bridge at the north end of the corridor.

Summary of Key Efforts Required

There are no significant considerations for this corridor.

S3. HOWES STREET

Corridor Overview

This corridor provides a direct north-south connection through the Queensborough neighbourhood. The corridor runs for approximately 1.0 km from Boyd Street in the north to South Dyke Road in the south. This corridor provides a direct connection to Queensborough Landing, a major city-wide and regional commercial area and provides connections to key destinations in the Queensborough community via Ewen Avenue, including Queensborough Middle School, Queen Elizabeth Community School, and Queensborough Community Centre.

The corridor is currently an existing bicycle route. Between Boyd Street and Ewen Avenue, the corridor is under MoTI jurisdiction and is designated as a provincial highway. Between Ewen Avenue and South Dyke Road, the corridor is classified as a Neighbourhood Collector street with moderate traffic volumes of up to 2,500 vehicles per day. A multi-use pathway is already provided on the west side of the street between Ewen Avenue and South Dyke Road.

Suggested Improvements

This corridor is proposed as a multi-use pathway with the following improvements:

- Encouraging MoTI to design and implement improvements for the segment within its jurisdiction between Boyd Street and Ewen Avenue, including intersection improvements;
- Installing bicycle pushbuttons at Ewen Avenue; and
- Installing rectangular rapid flashing beacons and pavement markings to guide people cycling through the intersection at Salter Street.

Summary of Key Efforts Required

Key considerations include:

- Encouraging MoTI to design and implement improvements for the segment within its jurisdiction between Boyd Street and Ewen Avenue, including intersection improvements.



4.0
Support Initiatives

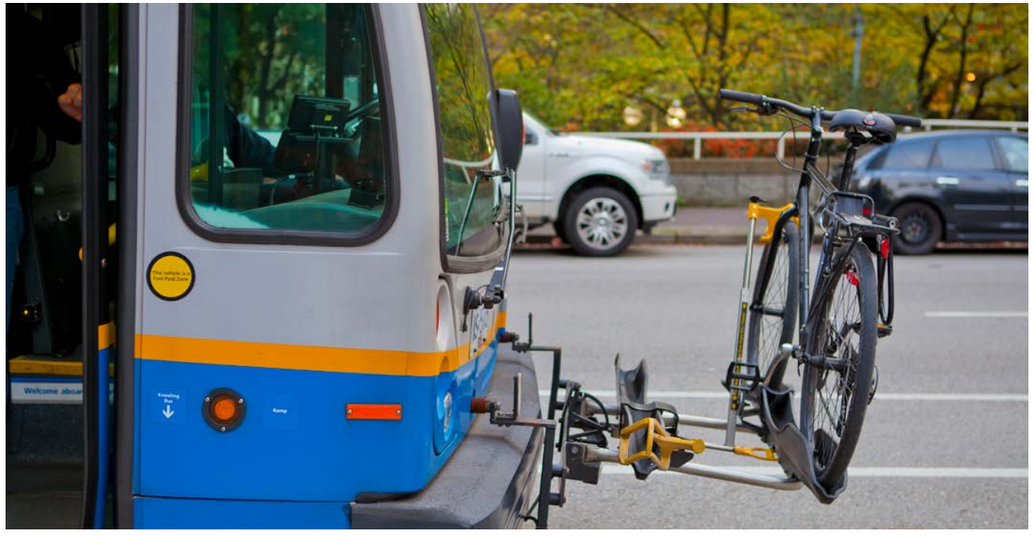
While building a comfortable, complete, and connected active transportation network is critical to make active transportation safe and comfortable for people of all ages and abilities, there are a number of support initiatives that the City should consider to help leverage infrastructure investments and maximize the potential for mode shift towards active transportation. These measures can help to provide education, raise awareness, and provide other support measures to enable increased active transportation in New Westminster.

4.1 Regulations and Bylaw Changes

The City has a number of bylaws and regulations that relate to active transportation, including:

- **Street and Traffic Bylaw,** which outlines regulations for the allowable use of streets for various forms of active transportation, including pedestrians, cyclists, roller skaters, inline roller bladers, skateboarders, and longboarders, among others.
- **Subdivision and Development Control Bylaw,** which prescribes standards for infrastructure works and services required for new development and new lots created through subdivision, including cycling infrastructure.
- **Zoning Bylaw**, which provides the City's off-street bicycle parking regulations. The regulations include: minimum short-term and long-term bike parking requirements by land use and bike parking space standards to ensure feasibility of use. Amendments to further facilitate bicycle use, including requiring end-of-trip facilities and bicycle maintenance facilities for certain land uses, and provision of wayfinding signage to/from bicycle parking areas are recommended.

The City frequently updates and amends existing bylaws and regulations to reflect emerging best practices and changes in Provincial legislation, among others. The City should continue to evolve existing bylaws to ensure they reflect current best practices and regulations, specifically related to bicycle infrastructure design, bicycle parking and end-of-trip facilities, applicable users of active transportation facilities, and new and emerging forms of micro-mobility such as e-scooters.



4.2 Secure Bicycle Parking and End-of-trip Facilities

The fear of theft or vandalism is a significant barrier to biking regardless of the cost of an individual's bicycle. Secure bicycle parking and end-of-trip facilities are critical to encourage people to bicycle as a primary mode of transportation by providing a secure place to leave their bicycle and a place to tidy up and/or change upon arriving at their destinations. At its most basic, this means locking a bicycle to something within the street right-of-way. There are different types of bicycle parking, which can be suitable in different situations depending on the duration of the stay. This can range from on-street bicycle racks which offer limited security, to more secure facilities such as bicycle lockers and dedicated secure bicycle parking facilities. The City should ensure high quality, secure bicycle parking is provided at all City facilities and community destinations (such as schools, libraries, and parks), and at key locations along the Core Network to address the concern about theft and vandalism.

In addition, other end-of-trip facilities, such as changing rooms, showers, and storage space for equipment can also make cycling more convenient as well as to help build a culture for cycling within a specific development or place of employment. This is particularly important in cities that experience variable weather conditions including rain and snow, as more gear is required at certain times of year and having a place to store it has a significant impact on convenience.



4.3 Multi-modal Integration

Every transit trip begins and ends with some form of active transportation, either walking or cycling. Improving active transportation access and connections to transit and improving the customer experience at bus stops and exchanges can help to not only promote transit but also to encourage more cycling, thereby extending the reach and convenience of both modes. While TransLink is responsible for funding, planning, operating, and maintaining transit services throughout Metro Vancouver, the City works to ensure residents can access transit stops and that there are amenities in place to make their transit experience more comfortable.

There are several infrastructure treatments and amenities under municipal jurisdiction that can improve the transit customer experience, including ensuring transit stops are accessible and providing amenities such as shelters, benches, and lighting.

All TransLink buses are equipped with bicycle racks that hold two bicycles of most sizes and styles, and the SkyTrain allows bicycles during off-peak periods. Having the ability to bring a bicycle on the bus or train, or park it securely allows people cycling to include transit in their journey and extend the reach of their trip. It also allows them to more quickly reach destinations that are not immediately adjacent to a transit route.



4.4 E-bike Sharing

In recent years, the transportation sector has witnessed an unprecedented increase in both the pace and scale of new technological innovations, including public bike share programs. There are several types of public bicycle sharing technologies, including docked and dockless systems. In addition, many public bicycle sharing programs have moved to provide e-bike share, with either a portion of or all available bicycles having electric assist. This is particularly important in a hilly communities such as New Westminster and can play a huge role in addressing the impacts of topography.

An e-bike share program has recently been launched on the North Shore of Metro Vancouver through a partnership with the City of North Vancouver, District of North Vancouver, and District of West Vancouver. Residents and visitors can sign-up to participate and have access to rent an e-bike from a fleet available at a variety of public locations. Members pick a bike up at one location and drop it off at another designated location, for a fee. E-bike share provides an easy, cost effective, environmentally sensitive transportation option.

New Westminster City Council has directed staff to develop a feasibility strategy for an e-bike share program.



4.5 E-bike Incentive Programs

Similar to e-bike sharing, encouraging the use of electric assist bicycles more broadly can be a very effective tool to address the impacts of topography. E-bikes are rapidly growing in popularity around the world, with over 150 million e-bikes sold worldwide over the past decade. Similar trends have been taking place in BC over the last few years, with sales of e-bikes up 85% in 2019 and significant increases in sales and ridership. There are tools available for local governments to encourage the use of electric bicycles. The District of Saanich recently launched an E-bike Incentive Pilot Program that offers an incentive on the purchase of new e-bikes by Saanich residents for personal transportation, including additional incentives for low income individuals.



4.6 E-scooters and Other Forms of Micromobility

Micromobility refers to small human and/or electric-powered transportation modes, including e-bikes, electric kick scooters (e-scooters), and other small, one-person electric vehicles such as electric skateboards, skates, and self-balancing boards.

Prior to 2021, micromobility devices were unregulated under the Motor Vehicle Act (MVA), making them illegal to operate on public roadways in BC. Nonetheless, e-scooters and other forms of electric micromobility have become an increasingly common sight on roads and pathways throughout New Westminster and the rest of the province.

In response, the Province has launched an electric kick scooter pilot project that allows municipalities who apply to be a part to enact bylaws to allow for use of electric kick scooters (e-scooters) on roads in their communities. The pilot program came into effect on April 5, 2021 and is due to be repealed in 2024. E-scooters are still illegal to operate in any community that is not participating in the pilot project and in any pilot community that has not yet enacted bylaws for the pilot project. Furthermore, the pilot is limited to e-scooters – other one-person electric micromobility devices were not included and remain illegal to operate on BC roadways.

The MVA Electric Kick Scooter Pilot Project Regulation outlines the pilot community bylaw requirements and e-scooter rules and safety. E-scooters cannot have a continuous power output rating that in total exceeds 500 watts and cannot be capable of propelling the e-scooter at a speed that exceeds 24 km/h on a clean, paved, and level surface. Several other design specifications are laid out in the regulation.[10]

The Province notes that generally, the rules of cycling in BC apply to the use of e-scooters, and the pilot regulations specify that e-scooters must be operated in accordance with provincial regulation and bylaws of the pilot community. On roadways with speed limits of 50km/h or less, e-scooters should use designated lanes for cycling or, where none exist, ride as near as possible to the right side of the street. Where the speed limit is greater than 50km/h, e-scooters must be ridden only in designated bicycle facilities. Sidewalk use is prohibited unless cycling is permitted there by traffic control device or bylaw. Municipalities can dictate whether e-scooters are permitted within municipal parks and lands.

Although e-scooters and other forms of micromobility are not currently legally permitted, the City should plan for the possibility that these may become legal options in the future.





10 Government of British Columbia (2021). Electric kick scooter pilot project. https://www2.gov.bc.ca/gov/content/transportation/transportation-environment/active-transportation/policy-legislation/motor-vehicle-act-pilot-projects/scooter

4.7 Wayfinding

A seamless, consistent, and easy-to-understand system of trip planning tools, signage, and wayfinding for cycling is important. It can make the transportation network easier to navigate, identify the location of important destinations, and provide information about route type. Most importantly, wayfinding helps people make decisions about how to navigate a neighbourhood or area.

Providing wayfinding and network information, including signage, pavement markings, and maps, that help people make decisions about how to navigate the cycling network is key to help make it easy to find the way to destinations. Wayfinding is intended to make the cycling network easier to navigate, identify the location of important destinations, and provide information about route type. Wayfinding and other bicycle-related signage (e.g. Share the Road signs) also help raise drivers' awareness of cyclists using the roadway. Branding and naming routes in coordination with signage can also be an effective form of wayfinding.

Wayfinding should be seamless, consistent and easy to understand to be effective. In 2013, TransLink developed the Wayfinding Guidelines for Utility Cycling in Metro Vancouver, and the City has implemented some recommendations of these guidelines. The City should continue to implement these guidelines with all Core Network projects along with regularly updating its bicycle map.



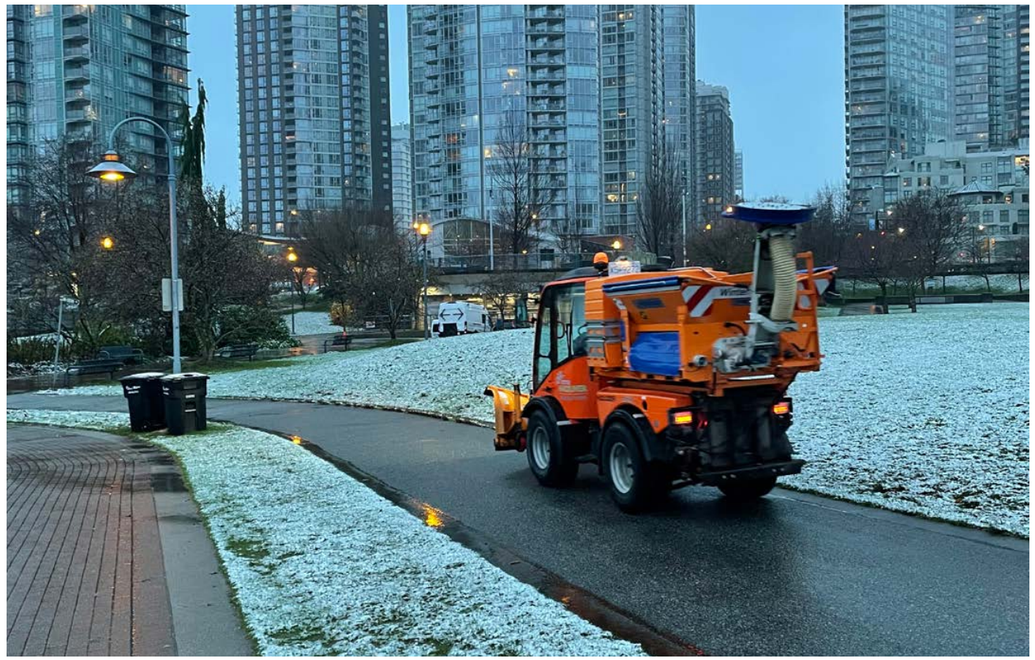
4.8 Maintenance

Active transportation infrastructure should be well maintained and usable for people of all ages and abilities throughout the year. While the installation of new infrastructure to promote and encourage active transportation is often seen as a top priority, ongoing rehabilitation and maintenance of existing and new infrastructure needs to be an equally important focus. On-going maintenance is necessary to keep infrastructure functional and usable over time.

Maintenance needs to be considered at all stages of the planning and the design process. Maintenance is necessary to keep active transportation facilities functional and usable throughout all seasons, which ensures that facilities are universally accessible throughout the year.

Active transportation facilities should be regularly monitored and repaired to ensure they are adequate for riding. Sufficient budget should be allocated for their upkeep. For example, where cyclists are using a road with high traffic volumes, shoulders may need to be swept more frequently than where traffic volumes and speed are lower.

The City should ensure that ongoing maintenance costs are included as part of its budgeting process and should ensure it has the required equipment to clear active transportation facilities. All Core Network routes should be designated as high priority corridors for maintenance.



5.0 Implementation Plan

The Plan includes a Core Network of active transportation facilities for implementation over the short-term. This section summarizes the evaluation framework, network priorities, cost estimates, and a five-year action plan, including funding and leverage strategies to support the City with financial resourcing of the network.



5.1 Project Costs

Order-of-magnitude cost estimates were developed for the Core Network. These cost estimates were based on typical unit rates for key elements of each project. The cost estimates presented are based on typical unit costs and recent construction pricing in the City of New Westminster and elsewhere in the region.

Cost estimates were developed for each individual segment identified in the previous section. Cost estimates include 15% engineering design costs, 15% mobilization and traffic management costs, and a 50% contingency. It should be emphasized that cost estimates are not based on any site-specific designs and are applied on a per-kilometre basis. The cost estimates have been provided to identify the relative cost for planning purposes and will require more detailed estimation as each project is advanced into the design process.

Cost estimates have only been developed for bicycle facilities on City-owned roadways. Cost estimates do not include any facilities under the jurisdiction of the MoTI or projects that will be implemented by other agencies such as TransLink or the private sector.

Based on the unit costs and the suggested options in this report, the total estimated cost to complete the Core Network is approximately $36 million, as shown in **Table 1**. Wherever possible, the City should continue to seek out new opportunities to work with developers, other agencies, and other levels of governments to establish cost-sharing agreements, or to seek grant opportunities to offset total project costs.

TABLE 1: CORE NETWORK COST ESTIMATES

Area	Corridor	Corridor Length (km)	Corridor Capital Cost	Unit Cost ($/km)
West	W1. London Street	2.88	$1,450,000	$510,000
	W2. 7th Avenue (West)	2.72	$1,480,000	$570,000
	W3. 13th Street	1.15	$830,000	$720,000
	W4. Burnaby Connectors	0.33	$350,000	$1,070,000
Central	C1. 8th / 9th / 10th Streets	2.34	$2,530,000	$1,090,000
	C2. 7th Street	1.20	$500,000	$420,000
	C3. 6th Street (Uptown)	0.21	$290,000	$1,360,000
	C4. 6th Street (Downtown)	0.22	$350,000	$1,550,000
	C5. 4th / Merivale / Elliot Streets	2.09	$2,130,000	$1,120,000
	C6. 1st Street	2.42	$1,500,000	$630,000
	C7. Bebgie Street	0.06	$250,000	$4,070,000
	C8. 7th Avenue (Central)	1.01	$340,000	$340,000
	C9. 5th Avenue	2.13	$1,140,000	$540,000
	C10. 3rd Avenue	1.88	$1,080,000	$580,000
	C11. Columbia Street	0.94	$7,800,000	$8,340,000
	C12. Columbia Square Connections	1.38	$550,000	$400,000
	C13. Waterfront Pathway	1.22	$350,000	$290,000
East	E1. 7th Avenue (East) / Shiles / Keary Streets	1.77	$890,000	$760,000
	E2. East Columbia Street	0.46	$5,440,000	$15,280,000
	E3. Brunette Fraser Regional Greenway	1.10	$2,850,000	$2,570,000
	E4. Fader Street	0.78	$230,000	$300,000
	E5. Sherbrooke / Rousseau Streets	0.73	$190,000	$260,000
	E6. York Street / Churchill Avenue / Burnaby Street	1.63	$530,000	$330,000
South	S1. Boyd Street	1.51	$2,560,000	$1,700,000
	S2. Wood Street	0.92	$330,000	$360,000
	S3. Howes Street	0.55	$120,000	$220,000
Total		**33.64**	**$36,060,000**	**$1,080,000**

5.2 Project Implementation

5.2.1 Prioritization Criteria

The Active Transportation Network Plan includes a Core Network of twenty-six (26) AAA active transportation corridors which have been evaluated and prioritized into a phasing strategy.

The evaluation and prioritization methodology includes a Multiple Account Evaluation (MAE) that assessed each of the 26 corridors, on eight (8) criteria, summarized below. Each criterion was scored on a scale of 1 (lowest/least favourable) to 5 (highest/most favourable), as summarized in **Table 2**. It should be noted that the first five criteria below are based on an objective, systematic, GIS-based analysis and the final three criteria (numbers 6, 7 and 8) are subjective based on the results of the feasibility review. The scores for each criterion were subsequently combined for each corridor to produce an aggregate score with a maximum possible score of 40 points.

1 **Completes a Gap** assesses the degree with which each project connects to the existing local and regional cycling network.

2 **Population Served** assesses the combined population and employment density that would be served by the project.

3 **Destinations Served** assesses the number of destinations that would be served by the project.

4 **Equity** summarizes the results of the equity analysis, with a higher score for projects in areas with a greater equity need.

5 **Active Transportation Potential** assesses where the greatest opportunity is to increase the number of active transportation trips, and includes such factors as existing and future land use, road network connectivity, road network density and permeability, and topography.

6 **Scale of Impact** assesses the expected benefit of implementing the project, including local and regional connectivity and ability to generate new users.

7 **Complexity** assesses if the project can be implemented quickly based on the following factors:

   a. Number and diversity of stakeholders needing to be consulted

   b. Estimated level of City staff effort, including potential property acquisition

   c. Impact on utilities, including scope of potential utility relocation

   d. Capital construction requirements, including any change to curbs and/or drainage impacts

8 **Ease of Implementation** assesses the expected timeline for implementation based on anticipated planning, design and/or public engagement effort associated with the project.

TABLE 2: PRIORITIZATION CRITERIA

Criterion / Description	Scoring
Completes a Gap	
Connects to two or more existing bicycle routes (connections part of MBN or RGN)	5 points
Connects to two or more existing bicycle routes (connections not part of MBN or RGN)	4 points
Connects to one existing bicycle route (connection part of MBN or RGN)	3 points
Connects to one existing bicycle route (connections not part of MBN or RGN)	2 points
Within 400m of existing bicycle route	1 point
Population Served	
Highest average population and employment density	5 points
Moderate-high average population and employment density	4 points
Moderate average population and employment density	3 points
Low average population and employment density	2 points
Lowest average population and employment density	1 point
Destinations Served	
Connects to the greatest number of destinations*	5 points
Connects to a moderate-high to high number of destinations	4 points
Connects to a moderate number of destinations	3 points
Connects to a moderate-low number of destinations	2 points
Connects to few destinations	1 point
Equity	
Highest average equity score	5 points
Moderate-high average equity score	4 points
Moderate average equity score	3 points
Moderate-low average equity score	2 points
Lowest average equity score	1 point
Active Transportation Potential	
Highest average active transportation potential score	5 points
Moderate-high average active transportation potential score	4 points
Moderate average active transportation potential score	3 points
Moderate-low average active transportation potential score	2 points
Lowest average active transportation potential score	1 point

Criterion / Description	Scoring
Scale of Impact	
Highest anticipated contribution to overall connectivity and likelihood of increasing new users	5 points
Moderate-high anticipated contribution to overall connectivity and likelihood of increasing new users	4 points
Moderate anticipated contribution to overall connectivity and likelihood of increasing new users	3 points
Moderate-low anticipated contribution to overall connectivity and likelihood of increasing new users	2 points
Lowest anticipated contribution to overall connectivity and likelihood of increasing new users	1 point
Complexity	
Fewest external stakeholders, minimal staff effort required, no impact on utilities, and/or minimal capital construction	5 points
Fewer external stakeholders, minimal staff effort required, no impact on utilities, and/or minimal capital construction	4 points
Moderate external stakeholders, minimal staff effort required, no impact on utilities, and/or minimal capital construction	3 points
Higher external stakeholders, minimal staff effort required, no impact on utilities, and/or minimal capital construction	2 points
Highest external stakeholders, minimal staff effort required, no impact on utilities, and/or minimal capital construction	1 point
Ease of Implementation	
Ability to be completed within 1 year with minimal design or engagement effort	5 points
Ability to be completed within 1-2 years with moderate design and/or engagement effort	4 points
Ability to be completed within 2-3 years moderate design and/or engagement effort	3 points
Ability to be completed within 4-5 years with significant design and/or engagement effort	2 points
Complex project that is unlikely to be completed within the next 5 years	1 point
Maximum points possible	**40 points**

* SkyTrain station, schools, parks, community facilities, libraries, or commercial areas

5.2.2 Project Ranking

Based on the results of the prioritization, each project was combined to an aggregate score with a maximum possible score of 40 points. By combining these criteria into an aggregated score, a ranked project list was then developed that reflected each project's relative priority level for implementation. The results of the analysis are not intended to be cast-in-stone but, rather, to provide a flexible tool to assist the City in its on-going decision making.

The results of the prioritization are shown in **Figure 15** for each criterion. Detailed evaluation results are shown in **Appendix C**.

FIGURE 15: CORE NETWORK PRIORITIZATION



CORE NETWORK PRIORITIZATION

Overall Score
- 34 - 37
- 30 - 33
- 26 - 29
- 22 - 25
- 17 - 21

- Supporting Network
- Other Agency
- City Hall
- Library
- Recreation Facility
- Massey Theatre

- Royal Columbian Hospital
- SkyTrain Station
- School
- Park / Recreation Field
- Commercial
- Municipal Boundary

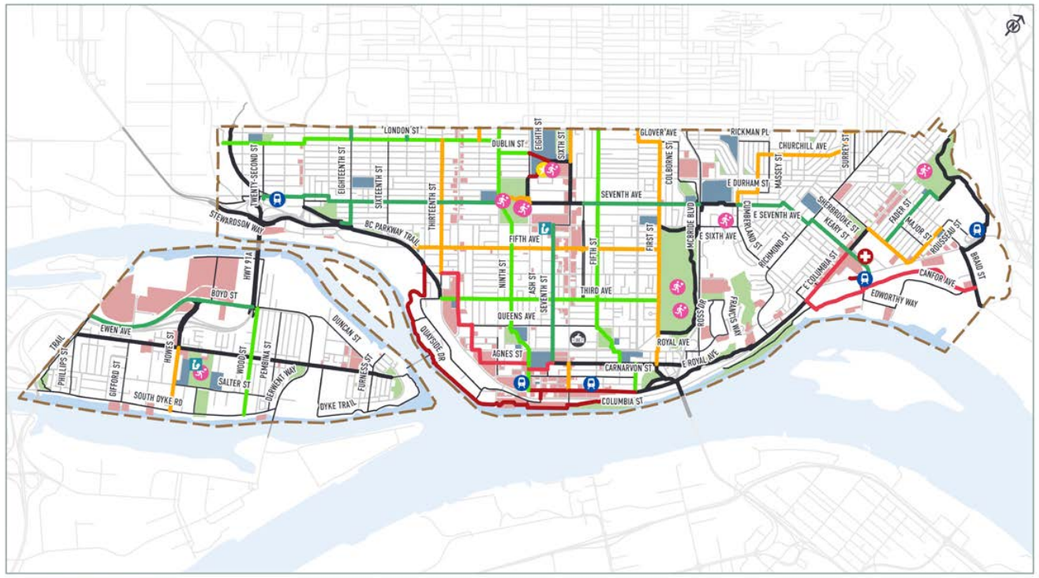
NEW WESTMINSTER
Active Transportation Network

5.2.3 Project Phasing

A phasing plan covering a five-year period was developed for the twenty-six (26) corridor core network. This phasing plan assumes the Core Network will be implemented within a five-year period, although it is recognized this timeline is subject to change, depending on budgeting, project development, and resourcing capacity. The phasing plan is presented in **Figure 16** and was developed with the approach that each project would encompass an entire corridor to ensure completeness of routes as implementation proceeds.

- **Year 1: Expand Core Network:** Year 1 projects are those that can be implemented quickly with minimal design or consultation. These projects will build on the City's existing AAA active transportation network to form an east-west and north-south spine network and include:
  - Boyd Street;
  - 7th Street from Downtown to Uptown;
  - 7th Avenue (Rotary Crosstown Greenway) including Fader Street connection to Central Valley Greenway; and
  - Connections to Burnaby's priority network in Edmonds Town Centre: 18th Street and 15th Street between London Street and 10th Avenue.
- **Year 2: High Impact Low Hanging Fruit:** Year 2 builds on the Year 1 spine network to add additional network density in areas with high active transportation potential, population, equity need, and destination served. The focus of Year 2 projects are corridors with minimal design or coordination effort and include:
  - North-south mainland routes:
    - 8th/9th/10th Streets
    - 4th Street / Elliot Street / Merivale Street
  - East-west mainland routes:
    - 3rd Avenue
    - London Street / Dublin Street
  - Queensborough:
    - Wood Street
- **Year 3: Modest Impact Log Hanging Fruit:** Year 3 would implement projects with minimal design or coordination effort in areas of lower to moderate active transportation potential, equity need, and population and destinations served. Projects include:
  - North-south mainland routes:
    - 13th Street
    - 1st Street
    - Rousseau Street / Sherbrooke Street
  - East-west mainland routes:
    - 5th Avenue
    - York Street / Churchill Avenue
    - Moody Park Connection
  - Queensborough:
    - Howes Street
- **Year 4: Major Capital Projects Phase 1:** Year 4 projects would implement complex projects requiring more significant capital construction, engagement, and coordination with external stakeholders. Project include:
  - East Columbia Street (including the East Columbia Street and Brunette Avenue intersection),
  - Brunette Fraser Regional Greenway, and
  - Columbia Square connections.
- **Year 5: Major Capital Projects Phase 2:** Year 5 projects would implement complex projects that involve more significant capital construction, significant engagement effort, and coordination with external stakeholders. Projects include:
  - Columbia Street,
  - Begbie Street, and
  - Improvements to the Waterfront Pathway.

FIGURE 16: PROJECT PHASING YEAR



PROJECT PHASING YEAR

- Existing / Committed / Other Agency
- Year 1
- Year 2
- Year 3
- Year 4
- Year 5
- Supporting Network
- City Hall
- Library
- Recreation Facility
- Massey Theatre
- Royal Columbian Hospital
- SkyTrain Station
- School
- Park / Recreation Field
- Commercial
- Municipal Boundary
- Prioritization Labels

Based on the phasing plan, it is anticipated that total annual investment would range from $5.5 – 9 million per year, as outlined in **Table 3**.

TABLE 3: CORE NETWORK PHASING AND COSTS

Project Phasing	Corridor Length (km)	Corridor Capital Cost	Unit Cost ($/km)
Year 1	8.23	$5,700,000	$693,000
Year 2	9.87	$7,300,000	$740,000
Year 3	9.42	$5,600,000	$595,000
Year 4	2.85	$8,830,000	$3,100,000
Year 5	2.47	$8,630,000	$3,500,000
Total	**33.6**	**$36,060,000**	**$1,073,000**

5.2.4 Implementation Strategies

The AAA ATNP provides a core network to be developed within a five-year time frame. As such, a broad array of strategies is warranted to cost-effectively implement the network.

Strategy 1: Strategically Pursue Funding – As identified in Section 5.3 funding sources are available through the federal and provincial governments and TransLink. In addition to current known programs, the City should actively be attuned to new funding sources for which ATNP projects would qualify.

Strategy 2: Coordinate Projects with other Capital Infrastructure Projects – Infrastructure projects, such as sewer and water line upgrades or road repaving, are being completed by either the City or other government entities to achieve economies of scale.

Strategy 3: Coordinate projects with redevelopment sites – Where routes front known or anticipated redevelopment sites, the City will request that identified cycling infrastructure improvements will be completed as part of a development applicant's off-site improvements, as required through the City's Subdivision and Development Control Bylaw.

Strategy 4: Use Rapid-build Methods – Where the core network routes are located along corridors where future longer-term (beyond 5 years) infrastructure projects can be expected, as part of either development, internal or third-party capital projects, rapid-build methods should be deployed.

Strategy 5: Collaborate with Neighbouring Municipalities – On an ongoing basis, the City should work with its neighbouring municipalities to ensure coordination of connecting routes, and identify opportunities to cost share on construction contracts to achieve economies of scale.

Strategy 6: Collaborate with TransLink and Metro Vancouver – On an ongoing basis, the City should work with TransLink and Metro Vancouver with implementing the Major Bicycle Network and Regional Greenway system, and identify opportunities to cost share and leverage projects.

Strategy 7: Apply Value Engineering Principles in Project Design – Given the ATNP is a high-level concept plan, final design of each corridor will be required at time of project implementation, and as such the corridor design elements outlined in **Appendix B** – Corridor Summary Sheets, may not all be incorporated at first, or may be delivered initially using lower-cost options. Value engineering should be completed for each final design project to maximize cost efficiencies and benefit and verify if all design elements outlined in **Appendix B** will be required to meet the ATNP's guiding principles, and to determine if more costly elements, such as traffic signals, can be implemented incrementally over multiple years.

5.3 Funding and Leverage Strategies

This section describes some potential funding strategies and sources that the City may consider to help leverage its investments and maximize its ability to implement the active transportation network. The City should regularly check with all levels of government to keep up to date on current funding opportunities. New Westminster should pursue all available sources of funding for transportation facilities and programs, including the programs identified below.

Note: as funding opportunities change regularly, the information in this section is subject to change.

Federal

Green Municipal Funds are managed by the Federation of Canadian Municipalities, with a total allocation of $550 million. This fund is intended to support municipal government efforts to reduce pollution, reduce greenhouse gas emissions and improve quality of life. The expectation is that knowledge and experience gained in best practices and innovative environmental projects will be applied to national infrastructure projects.

Infrastructure Canada manages several programs that provide funding for environmental and local transportation infrastructure projects in municipalities across Canada. Typically, the federal government contributes one-third of the cost of municipal infrastructure projects. Provincial and municipal governments contribute the remaining funds, and in some instances, there may be private sector investment as well. The Federal Government recently launched the **National Active Transportation Grant** program, which will fund $400 million in active transportation across Canada over the next five years.

Provincial

The Provincial Government administers the Active Transportation Infrastructure Funding program (previously known as BikeBC). Funded projects promote active transportation to work, school, or errands. Funded projects can also generate tourism-related traffic based on their proximity to amenities and points of interest for tourists and through linkages to other communities. To ensure maximum success at obtaining grant funding, the City should have grant-ready concepts pre-developed for application.

The Province provides cost-share funding of up to $500,000 per project. Funding is offered based on applicant's community profile. Indigenous governments or partnership between local government(s) and an Indigenous government may apply for up to 80% of total projects. Municipal or regional governments may apply up to 70% of total eligible project costs depending on the community's population size. More information can be found online at:

https://www2.gov.bc.ca/gov/content/transportation/transportation-environment/active-transportation/funding/indigenous-local-governments

Union of BC Municipalities' **Community Works Fund** is one of three funding streams of the Renewed Gas Tax Agreement between Canada, British Columbia, and the Union of BC Municipalities. The fund provides predictable, long-term and stable funding to local governments for investment in infrastructure and capacity building projects. Project examples include public transit, active transportation, parks, trails, bicycle facilities, cultural infrastructure, and long-term infrastructure plans. Funding is delivered twice annually to local governments, with the amount of funding determined by a per capital formula. More information can be found online at:

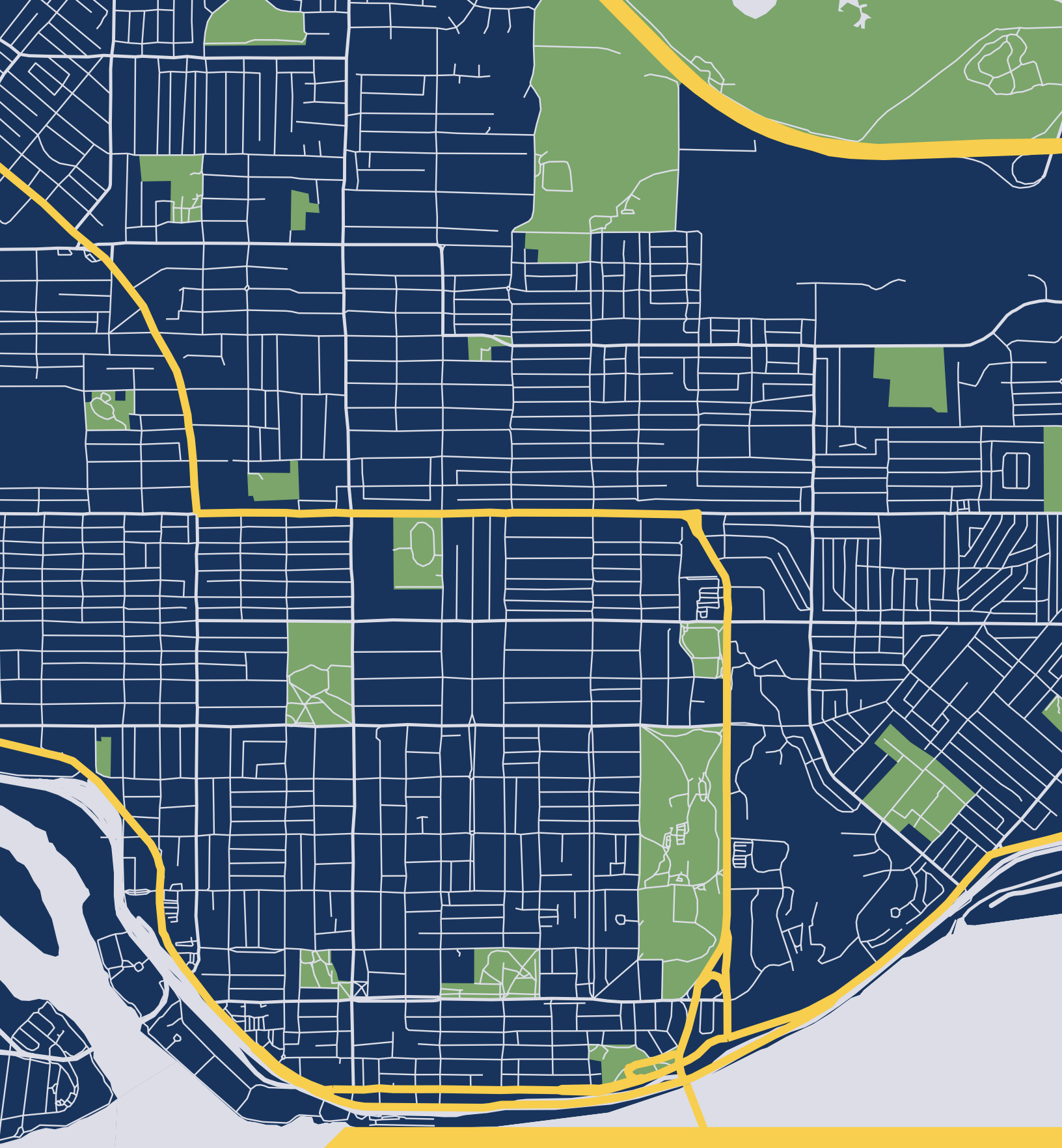
https://www.ubcm.ca/EN/main/funding/renewed-gas-tax-agreement/community-works-fund.html

ICBC provides funding for road improvements, including pedestrian and bicycle infrastructure, particularly where these have the potential to reduce crashes, improve safety, and reduce claims costs to ICBC. Funding is available through ICBC's Road Improvement Program. Other ICBC programs include the Speed Watch Program (through the Community Policing Centres), Speed and Intersection Safety Program, Counter Attack, Operation Red Nose and Road Sense Speaker Program for Schools. Funding is available annually, with the application deadline typically in February. More information can be found online at:

www.icbc.com/about-icbc/community-relations/Pages/community-grants.aspx

Regional

TransLink administers the **Bicycle Infrastructure Capital Cost Sharing Program** (BICCS), which is intended to encourage municipalities to construct more bicycle routes and remove physical barriers to cycling. Funding is available in both "block allocations" on a per capita basis, and "regional needs" funding is based on a set of criteria including safety, network contribution, demand and adherence to guidelines Funding through TransLink's BICCS program is typically up to 50% of the project cost. TransLink also has a specific funding stream focused on rapid implementation called the **BICCS Recovery Stream** which is particularly relevant to the intent of this plan.

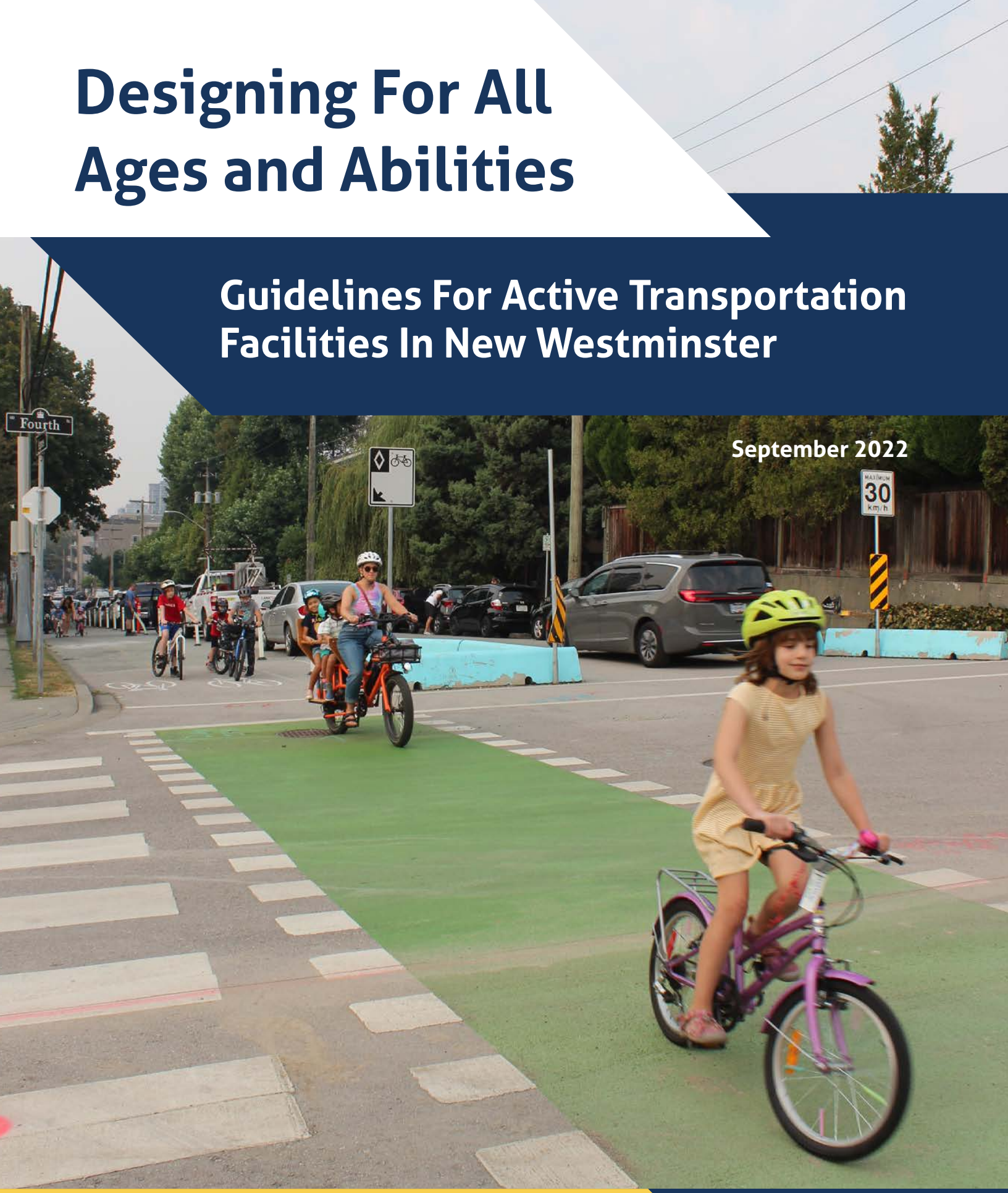


Appendix A

Design Guidelines

Designing For All Ages and Abilities

Guidelines For Active Transportation Facilities In New Westminster



September 2022

NEW WESTMINSTER

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URBAN SYSTEMS

September 2022

All photos courtesy of Urban Systems unless otherwise noted

Introduction

About This Guide

The City of New Westminster is working towards the rapid implementation of a complete and connected active transportation network that is safe, comfortable, and attractive for people of all ages and abilities (AAA). This work is part of the City of New Westminster's commitment to sustainable transportation, climate emergency declaration, and the City's commitments to accessibility, equity, and disability justice.

This document, Designing For All Ages And Abilities, provides guidance for the design, support, and maintenance of active transportation facilities in New Westminster. The purpose is to define what AAA means in the New Westminster context and ensure a consistent user experience for everyone. The AAA Design Guidelines build on several existing resources while addressing the New Westminster context, including a diverse and aging demographic, steep hills, and limited available rights-of-way.



Designing for All Users

Designing for all ages and abilities means considering a diverse range of users and devices, each with varying sizes, speeds, and operating characteristics. Active transportation users include people walking, using personal mobility devices (e.g., wheelchairs and mobility scooters), riding different types of bicycles (e.g., cargo bikes, recumbent bikes, and other designs), and using other human-powered devices (e.g., skateboards, rollerblades, and kick scooters).

Electric Mobility

E-bikes are rapidly growing in popularity and are particularly important in the New Westminster context – they can 'flatten' hills, making the City's steep slopes accessible to a wider range of users. As such, e-bikes are a practical transportation choice for seniors and others with reduced mobility. Provincial regulations dictate which types of e-bikes can be legally operated in New Westminster.

There are several other types of electric micromobility devices, such as e-scooters, electric skateboards, electric unicycles, and others, but these devices are not yet regulated by the province. If these devices are regulated for use in the future, it will be important to determine where they best fit within the active transportation network to support their safe operation and mitigate multi-modal conflict.



Equity Lens

Applying an equity lens means prioritizing people who are underserved or facing barriers with accessing transportation services or infrastructure. Seniors and other equity-priority groups are more likely to use active transportation as a primary means of daily travel and as a connection to transit but may feel uncomfortable using infrastructure that is not AAA. Building out the AAA network will benefit New Westminster's diverse and aging population.

People walking and using personal mobility devices – especially those with reduced mobility, vision, hearing, or other limitations – should be prioritized by applying Universal Design principles to create a consistent user experience. These include providing frequent rest spots, striving for flat and smooth surfaces, and mitigating conflicts between people walking or using mobility aids and faster-moving users such as people cycling. Providing detectable warning surfaces (e.g., Tactile Walking Surface Indicators or other separation) can support wayfinding and alert people of hazards such as elevation changes or interactions with other modes (e.g., at crossings, transit stops, protected mobility lanes adjacent to sidewalks, etc.).



AAA In The New Westminster Context

Everyone's definition of safety and comfort is different. However, there are some key AAA design considerations that help ensure a broad spectrum of users feel safe and welcomed to walk and roll.

Motor Vehicle Speeds & Volumes

- Where speeds and volumes are high, sharing the road with motor vehicles can feel unsafe and uncomfortable, so protected mobility lanes or multi-use pathways are required.
- Where speeds and volumes are low, shared environments (i.e., local street bikeways) can feel safe and comfortable.
- Facility selection and design is context-specific and should align with the B.C. Active Transportation Design Guide.

Facility Width

- Facility width is an important factor in user comfort, with narrow facilities making it challenging to pass or be passed by other users. This is especially problematic when there are a mix of devices and speeds (e.g., people walking, using e-bikes, etc.).

Personal Safety

- Facilities along narrow, fenced in, and/or dark passages can feel unsafe. Designs should consider user safety and comfort by providing clear sightlines, adequate lighting, and, for off-street facilities, multiple entry and exit points to ensure users are not confined to a space.

Experiential Elements

- AAA facilities should go beyond mere functionality to provide a pleasant and attractive experience for all users of all ages and abilities. This means providing rest areas and amenities as well as landscaping and public art to add both convenience and attractiveness.



The following sections of this Design Guide build on this definition of AAA by providing guidance across three key themes: **Designing, Supporting**, and **Maintaining** AAA facilities.

Designing AAA Facilities

Local street bikeways should have:

- **< 500 vehicles per day (ideally)**
- **≤ 30km/h vehicle speeds**

Local street bikeways make up most of the City's AAA core network. To be considered AAA, posted and operating motor vehicle speeds should be 30km/h or less[1] and motor vehicle volumes should be 500 vehicles per day or less (desired), with a maximum of 1,000 vehicles per day. This will ensure limited, low speed interactions between people driving and cycling. Where existing speeds or volumes are higher than these thresholds, local street bikeways can be upgraded to AAA by using traffic calming and diversion.

Managing Traffic Speeds and Volumes

Table 1 outlines the level of traffic calming or diversion treatment required along local street bikeways depending on existing context. The application of traffic calming and diversion should be consistent with the TAC Canadian Guide to Traffic Calming – Second Edition (2018). Where a combination of motor vehicle speeds, volumes, and clear width conditions cannot be achieved, an alternate corridor or facility type (i.e., physical separation), or other design solution (e.g., conversion to one-way for motor vehicles) should be considered.

TABLE 1: LOCAL STREET BIKEWAY TREATMENTS BY MOTOR VEHICLE SPEED AND VOLUME (SOURCE: ADAPTED FROM BCAT TABLE D-9)

Existing Motor Vehicle Volumes (VPD)	Existing Posted Motor Vehicle Speeds	Level of Treatments *		
		Level 1: Required Treatments	Level 2: Traffic Calming	Level 3: Traffic Diversion
<1,000	≤ 30 km/h	✓		
< 1,000	30 – 50 km/h	✓	✓	
1,000 – 2,500	≤ 30 km/h	✓		✓
1,000 – 2,500	30 – 50 km/h	✓	✓	✓
> 2,500	> 50 km/h	Consider alternate facility type		

* ***Level 1:*** *Intersection Treatments (such as new traffic signals, upgraded traffic signals, and bicycle pushbuttons), Signage, and Pavement Markings*
Level 2: *Speed Management*
Level 3: *Volume Management*

Further details about each of these levels can be found in the B.C. Active Transportation Design Guide.

1 New Westminster has adopted a 30km/h speed limit along bikeways, greenways, and streets designated as a local shared street cycling route.

Clear width contributes to comfort

Clear width refers to the space between parked vehicles or between curbs where there is no on-street parking. Streets with wider clear width provide more comfortable passing opportunities for motor vehicles and bicycles but also encourage higher vehicle speeds. Conversely, narrower streets help to slow motor vehicles, but cyclists may feel unsafe when passing oncoming vehicles. Parking occupancy and turnover also impact user comfort – people opening doors and vehicles pulling in and out of parking spots create hazards.

Table 2 outlines recommended clear widths based on on-street parking occupancy. Widths in the upper end of the B.C. Active Transportation Design Guide design domain should be considered where parking turnover and/or motor vehicle volumes are higher. Where a local street bikeway is narrower than these thresholds (i.e. narrower than 3.6m where parking occupancy <40% or 4.6m where parking occupancy >40%), creating passing pockets along the corridor through selective parking removal can help mitigate conflict and discomfort by enabling safe passing opportunities. A parking study can provide occupancy and turnover utilization data that will help dictate facility width and outline whether selective parking removal may be warranted. The type of parking should also be reviewed, with accessible spaces and residential parking permit zones requiring careful consideration prior to any changes being made. [2]

TABLE 2: LOCAL STREET BIKEWAY CLEAR WIDTHS

On-Street Parking Occupancy (within one block)	Clear Width Range* (m)
< 40 %	3.6 – 5.5
> 40%	4.6 – 5.5

** Excluding parking lane width, which is typically 2.2m*

Provide protected or multi-use facilities when:

- **> 1,000 vehicles per day**
- **> 50km/h vehicle speeds**

As noted in **Table 1,** local street bikeways are not recommended on streets with >1,000 vehicles per day or posted speeds >50km/h. On these busier streets, people cycling should be physically protected from motor vehicles, either through protected mobility lanes or multi-use pathways within road rights-of-way.[3]

2 See newwestcity.ca/transportation/parking-and-towing/parking/parking-permits#parking-permit-application-and-requirements

3 Protected bicycle lanes or multi-use pathways may also be required on streets with >1,000 VPD and speeds >30km/h depending on context

Separate people walking and cycling if >2,000 daily users

On multi-use pathways, providing separation between people walking and cycling can help alleviate multi-modal conflict, but this may not be necessary if user volumes are low and the facility is wide enough. Separation can require additional right of way, which can be challenging in New Westminster due to the built-out road network and limited right of way. **Table 3** provides guidance for when to consider user separation on multi-use pathways. Essentially, where there is a combination of high user volumes, a higher ratio of people walking vs. cycling, and narrower facilities, there is a greater potential for multi-modal conflict and separation is recommended.

TABLE 3: THRESHOLDS FOR USER SEPARATION ON MULTI-USE PATHWAYS (SOURCE: ADAPTED FROM BCAT TABLE E-21)

Daily User Volumes (Actual or Anticipated)[4]	Separation
<1,000	No separation required
1,000-2,000	Consider separation depending on context, including available width right-of-way width, land uses, facility width, user volumes, and mix of people walking, cycling, and rolling (for example, a greater mix of different types of users travelling at different speeds may warrant increased separation)
>2,000	Separation recommended



4 Where no pathway is currently in place, ridership on existing facilities within a similar context can be referenced to obtain an understanding of projected volumes



Aim for routes with ≤3% slope

New Westminster's steep hills can be challenging for active transportation – travelling uphill can be difficult for many users, while travelling downhill on steep slopes can be dangerous. Ideally, grades along AAA routes should be ≤3%, as this helps keep downhill speeds under control and allows cyclists to maintain enough speed to keep their balance without weaving. Short segments with grades between 3.1–8.3% may be acceptable from a AAA lens, but mitigation measures are recommended.

Facilities on slopes >8.3%[5] are not considered AAA and should be avoided where possible – instead, consider an alternate route, even if more circuitous. Route directness is important, but it should be considered secondary to grades when looking to provide AAA facilities. Ensure people cycling know when to expect hills and how to avoid them by using wayfinding and identifying hills on cycling route maps.

Provide mitigation measures on steeper routes (>3% slope)

There are segments in the network where steep grades are unavoidable. With more people using e-bikes, these segments will be used by a range of users, so it is important to carefully consider their design. **Table 4** outlines additional mitigation measures for these steep segments, while **Table 5** summarizes extra bicycle lane width recommended corresponding to the degree and length of the grade. Switch backs (such as the example linked here from the Spirit Trail in North Vancouver) and wider facilities are recommended but are also space intensive. As such, road space reallocation or changing traffic operation (e.g., converting to a one-way street) can also be considered to provide the extra space needed.

5 The 8.3% maximum comes from building code design parameters for accessible ramps and has been adopted by the TAC Geometric Design Guide as a maximum recommended grade for an accessible facility.

TABLE 4: MAXIMUM GRADES AND MITIGATION MEASURES (SOURCE: ADAPTED FROM BC ACTIVE TRANSPORTATION DESIGN GUIDE AND CITY OF VANCOUVER AAA DESIGN GUIDE)

Maximum Longitudinal Grade	Mitigation Measures	Considered AAA?
≤3%	• None required	Yes
3.1–5%	• Flat (<3%) landing/rest area at halfway point if the hill is ≥500m • Consider wider facilities to accommodate weaving	Yes
5.1–8.3%	• Flat (<3%) landing/rest area provided every 100m (if grades 5.1–6%) or every 50m (if grades 6.1–8.3%) • Consider wider facilities to accommodate weaving	Yes, if mitigation measure provided and short distances: • 5.1–7%: AAA if <500m • 7–8.3%: AAA if <150m
>8.3 %	• Alternative route recommended if possible. • **Multi-use pathways**: consider switch backs where right-of-way is available. • **On-street facilities**: avoid bi-directional bicycle lanes if possible; provide extra width or shared use lanes to enable weaving uphill	No

TABLE 5: EXTRA BICYCLE LANE WIDTH BASED ON LONGITUDINAL GRADES (SOURCE: VÉLO QUÉBEC (2010) – PLANNING AND DESIGN FOR PEDESTRIANS AND CYCLISTS)

Grade	Length of Segment		
	25 to 75 m	75 to 150 m	>150 m
3-6%	Min 1.5m	1.9m	2.1m
6-9%	1.9m	2.1m	2.3m
>9%	2.1m	2.3m	2.5m

Carefully manage downhill speeds

Typical adult cyclists travel at an average speed of 15 km/h to 30 km/h on flat terrain, but this speed increases by approximately 0.9 km/h for every 1% increase in downhill grade. To manage speeds in the downhill direction, a higher design speed (up to 50 km/h max) should be used to ensure intersection sight distance and stopping sight distance accommodate downhill riders and that motor vehicles on side streets can see approaching cyclists.[6] Warning signage such as the Pedestrian and Bicycle Crossing Ahead Sign (WC-46) and crossing supplementary tab (WC-7S) can be used to indicate to drivers that they are approaching a location where a multi-use pathway crosses the road, while Turning Vehicle Yield to Bicycles Sign (RB-37) may be used at conflict zones where motorists are required to cross a pathway facility and are required to yield to pathway users. Green conflict zone pavement markings can also be used where protected mobility lanes cross an intersection or driveway to highlight conflict areas.

Minimum stopping sight distance for people cycling is the distance required to bring the bicycle to a full controlled stop. Stopping sight distance is a factor of the bicycle user's speed and perception-reaction time, facility grade, and the surface material and condition (friction between the tires and surface). **Table 6** outlines minimum stopping sight distances for bicycles travelling at a range of speeds (10 km/h to 50 km/h) and grades (up to 12%) on a paved surface under wet conditions.[7] For bi-directional bicycle facilities, the values for the descending direction control the design.

TABLE 6: MINIMUM STOPPING SIGHT DISTANCE FOR BICYCLES – PAVED SURFACE, WET CONDITIONS (SOURCE: TAC GEOMETRIC DESIGN GUIDE FOR CANADIAN ROADS, TABLE 5.5.1)

Minimum Stopping Sight Distance for Bicycles (m)*									
Grade (%)	Design Speed								
	10 km/h	15 km/h	20 km/h	25 km/h	30 km/h	35 km/h	40 km/h	45 km/h	50 km/h
12	8	13	18						
10	8	12	18	24					
8	8	13	19	25	32				
6	8	13	19	25	32	40			
4	8	13	19	26	33	41	49		
2	8	14	20	26	34	42	51	61	
0	9	14	20	27	35	44	53	63	74
-2	9	14	21	28	36	45	55	66	77
-4	9	15	21	29	38	74	58	69	81
-6	9	15	22	30	39	50	61	73	86
-8	9	16	23	32	42	53	65	78	92
-10	10	16	24	34	44	56	70	84	100
-12	10	17	26	36	48	61	76	92	110

* *With coefficient of friction of f=0.25*

6 Design professionals should refer to section 9.9.2 of the TAC Geometric Design Guide for Canadian Roads for details for determining appropriate sight distances and sight triangles.

7 A coefficient of friction (f) of 0.25 is recommended for paved surfaces as this accounts for the poor wet weather braking characteristics of many bicycles.

Design elements should be implemented at intersections and crossing points to reduce users' speed to an appropriate level. Narrowing of the road through the introduction of geometric design elements such as median islands and/or curb extensions can slow bicycle and motor vehicle traffic, while also enhancing visibility for people crossing the street so they can see fast-moving vehicles or cyclists approaching.

Along protected mobility lanes and pathways, slight lateral shifts in the alignment of the facility can be introduced at the approach to an intersection to encourage cyclists to slow down. There are two options: bend-in and bend-out. The bend-out design is generally recommended as it provides more space and time for motorists to react as they turn from the parallel road onto the side road, but it is also more space intensive. The shift should generally occur gradually – the taper ratio of the alignment shift for either option should be between 3:1 and 10:1, with a 10 to 15 metre tangent. Sightlines and property impacts should be considered when evaluating this treatment to ensure there is sufficient space to develop an effective lateral shift in constrained locations.

Asphalt is the preferred surface material

Asphalt provides a smooth, firm surface that accommodates a wide range of users, making it the preferred option. In certain contexts, other materials such as concrete, pavers, compact aggregate, or other treatments may be considered (**Figure 1**). For example:

- Special paved surface treatments can be used in parks and plazas such as Queens Park or Belmont Plaza to demarcate areas where pedestrians and cyclists may mix and to showcase the character of the space.
- Unpaved surface treatments can be used in environmentally sensitive areas such as Hume Park or Glenbrook Ravine.
- Using treatments such as wood is not preferred. If necessary (such as on the Waterfront Esplanade), planks should be placed perpendicular to the direction of travel of people cycling and using mobility devices. Consider applying a non-slip finish and warning signage if there is demonstrated need.

Regardless of the material selected, surfaces should be smooth, firm, slip-resistant, and free of tripping hazards

Distinct surface materials can help to visually differentiate zones (i.e., pedestrians on concrete and cyclists on asphalt), and should be consistent and used along the full length of a facility to clearly communicate where the trail begins and ends. Some coloured, patterned, and textured surface materials may be difficult to interpret by those with reduced vision, so it is important to engage with stakeholders to ensure an accessible facility is provided.








VARIOUS SURFACE MATERIALS MAY BE CONSIDERED IN DIFFERENT CONTEXTS

Rapid implementation is key to quickly building out the AAA network

Rapid implementation projects are fast, flexible, and low-cost, using materials such as flexible delineator posts curbs (plastic, pre-cast, and extruded), landscaped planters, and concrete barriers that can be implemented with minimal capital construction. The adjustable materials facilitate adapting the design based on observed user experience. Rapid implementation also provides opportunities for amenities, beautification, and activation projects to create move vibrant and attractive streets.

Treatments and materials are context dependent, with more physical protection needed on higher speed roadways

Table 7 summarizes key considerations for rapid implementation treatments, with the treatments ranked relative to one another in terms of their cost, durability, and other factors. This table is meant to guide decision making for rapid implementation projects with different needs in different contexts. **Table 8** adds to this guidance by emphasizing the need for greater levels of protection on higher speed roadways. Detailed guidance related to rapid implementation is provided in the TransLink Rapid Implementation Design Guide for Cycling Infrastructure.

TABLE 7: SUMMARY OF RAPID IMPLEMENTATION TREATMENTS (ADAPTED FROM TRANSLINK RAPID IMPLEMENTATION DESIGN GUIDE FOR CYCLING INFRASTRUCTURE, 2022)

Consideration	Treatment						
	Paint	Flex Posts	Modular Plastic Curbs	Planter Boxes	Pre-Cast Concrete Curbs	Extruded Curbs	Concrete Barriers
Capital Cost	Low	Low	Medium	Medium	Medium	High	Medium
Maintenance	Low	Medium	Medium	High	Medium	Low	Medium
Durability	Medium	Low	Medium	Medium	High	High	High
Ease of Implementation	Easy	Easy	Easy	Medium	Medium	Hard	Medium
Level of Protection	Low	Low	Low	Medium	Medium	Medium –High	High

TABLE 8: PREFERRED SEPARATION TREATMENT BASED ON MOTOR VEHICLE SPEED (SOURCE: ADAPTED FROM BCAT TABLE D-12)

Posted Speed Limit	Preferred Separation Treatment
> 50 km/h	Continuous barriers offering physical protection such as a raised median
50 km/h	Intermittent vertical elements, such as flexible posts and planters are acceptable. Continuous barriers may also be considered.
< 50 km/h	Ability to include less physical protection due to lower adjacent motor vehicle speeds.

Accessibility is a critical lens for rapid implementation

Rapid implementation is quick, but projects should still be designed for people of all ages and abilities by following best practice guidance related to level of physical protection, facility width, and other key considerations discussed throughout this Design Guide. Projects must consider safety, accessibility, and equity, along with maintaining access for accessible parking, transit, and essential services (e.g., emergency vehicles, waste management, goods movement) as well as operations and maintenance crews.

Supporting AAA Facilities

Lighting should be uniform, consistent, and evenly distributed along the entirety of a cycling facility

Well-lit facilities ensure that users can see one another and upcoming obstacles. It also makes it feel safer and more comfortable to cycle at night and in inclement weather. Good lighting on multi-use pathways is particularly important as cyclists travel faster than pedestrians, requiring higher visibility. Lighting also helps to enhance the aesthetics of the built environment and is crucial for wayfinding and navigation.

For the purposes of defining the need to lighting based on the presence of any adjacent roadway lighting, on-street facilities in this context are based on the definition provided by the Transportation Association of Canada (TACT) as being areas that are located within 5m of the paved edge of an existing roadway Generally, the use of existing roadway lighting is sufficient for facilities located within the roadway allowance, as along as the roadway lighting has properly accounted for the level of pedestrian and vehicle activity. On-street facilities with high levels of active transportation activity may require additional or supplementary illumination through additional lamp posts, secondary luminaires, or pedestrian-scale lighting. Design professionals should assess the lighting conditions upon installing a local street bikeway and, if needed, consider enhancements to the lighting to ensure people cycling are visible, safe, and comfortable riding in all lighting conditions.

Off-street facilities (i.e. those more than 5m from the adjacent roadway) require dedicated lighting if they are a part of the core AAA network or located along urban residential parks, tunnels, overpasses, or areas where security may be an issue. Other locations that require lighting include decision points, wayfinding signage, and conflict points (intersections, driveways, and alleys). At the intersection of a multi-use pathway and a roadway, the active transportation facility should at minimum be illuminated for 25m on either side of the intersection so that people cycling can see the road and are clearly visible to drivers.



SUPPLEMENTAL PEDESTRIAN-SCALE LIGHTING ALONG A MULTI-USE PATHWAY

Avoid using rigid bollards or maze gates at pathway points of entry unless there is a demonstrated history of motor vehicle encroachment and/or collisions

Bollards and other obstructions placed within the operating space of a bicycle facility have historically been used for access restriction and speed control. However, they have been shown to present a significant injury risk to bicycle users and should be avoided unless there is a demonstrated need for access restriction. Where physical elements are required, flexible bollards should be considered in place of rigid bollards or gates. Maze gates are required in advance of rail crossings where crossing arms are not provided. In these cases, the maze gates should be spaced at least 2m apart to allow the passage of oversized bicycles (e.g., cargo bikes, bikes with trailers, etc.) as well as personal mobility devices.

Bicycle speed control is better obtained through geometric design, textural surface contrast, transverse painted lines, yield markings, and warning signage. The physical design of the pathway point of entry should clearly indicate that it is not intended as a motor vehicle access. One technique for restricting motor vehicle access is the use of a centre island that splits the point of entry into two pathways separated by low landscaping and/or signage. Low landscaping allows emergency and service vehicles to access the facility when needed by straddling the island. The design should consider winter maintenance and snow clearing equipment. The pathway-side approach to the island should include solid lane markings leading to and around the island to guide pathway users around the centre island. The width of the pathway on either side of the island should be no more than 1.8 metres to emphasize the non-motorized use of the pathway, but no less than 1.2 metres to ensure accessibility.



SPEED REDUCING TRANSVERSE PAVEMENT MARKINGS (LEFT) SEPARATE ENTRY/EXIT PATHS (RIGHT)

Treat cycling projects as an opportunity for beautification and placemaking

AAA facilities are about more than getting from A to B – landscaping, amenities, and public art enhance vibrancy and provide the opportunity to collaborate with local community members. Along local street bikeways, traffic calming and diversion treatments such as curb extensions and diverters present excellent opportunities for beautification. When siting seating and rest stops, seek opportunities for placemaking and taking advantage of New Westminster's amazing views.

Tactical urbanism can be used to make quick placemaking enhancements

Decorative paint is a low-cost way to make projects more engaging. Accessibility needs to be considered when selecting colours and designs to ensure they are safe people with reduced vision and not confused for regulatory pavement markings or create slipping hazards. Low-cost materials such as planters and simple furniture can provide additional places to gather along a bike route.



Source: Happy Cities

Consider climate change adaptation and mitigation when planning and designing bike routes

Adding landscaping along a facility has multiple benefits beyond beautification. Street trees should be protected or added along bike routes as they provide shade (to make trips more comfortable during increasingly common heat waves) as well as biodiversity benefits.

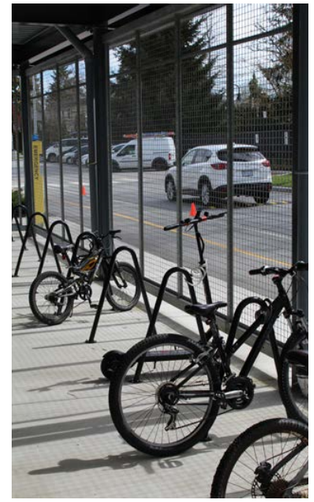


Provide bicycle parking at key destinations throughout the City

The type and amount of bicycle parking is context dependent. Short-term bicycle parking typically consists of on-street bicycle racks, bicycle corrals, or covered bicycle parking. It is generally intended for people stopping for less than four hours to partake in short-term activities such as shopping, errands, and having a meal. Short-term bicycle parking is generally appropriate for commercial and retail areas, office buildings, health care and recreational facilities, and institutional developments such as libraries and universities.

Long-term bicycle parking typically includes bike lockers, bike rooms or cages, and bike parkades. It is designed to offer increased security, weather protection, and extra bike parking capacity, but it may be less convenient than short-term bicycle parking. As such, long-term bicycle parking is intended for people stopping longer than two to four hours, including schools and workplaces, multi-family residences, high activity transit stops, and other areas of high cycling activity. New Westminster Secondary School's bike cages are an excellent local example of integrating long-term bicycle parking with a AAA cycling facility to encourage seamless connectivity.





All types of bike parking should be intuitive, secure, and should accommodate a variety of bicycle types, including larger, non-standard bikes (e.g., cargo bikes). Bike racks should not impede sidewalks, pathways, or building entrances. When installed within the public right-of-way adjacent to a sidewalk, bicycle racks should be placed in the furnishing zone adjacent to the curb alongside other street furniture. 'Smart' bike parking racks and lockers that use mobile apps can be used to provide enhanced security and convenience, but standard bike parking should always be provided as well to ensure that people without access to cell phones and/or data still have safe places to store their bicycles.

Bike corrals provide additional short-term bike parking capacity where demand is high

Bike corrals consist of bicycle racks grouped together in what would normally be an on-street parking stall. Typically, one or two on-street motor vehicle parking spaces are converted into bicycle corrals, with each converted space providing capacity for six to ten bikes. They are suitable in major commercial and retail areas and may be requested by the business community where demand is high, such as in front of restaurants and coffee shops.

Bicycle corrals can be protected from motor vehicles with physical barriers such as curbs, curb stops, bollards, or planters. Parking stalls next to curb extensions provide excellent locations for bike corrals, as the curb extension serves as protection for one side of the corral. Bicycle corrals can also be installed adjacent to protected mobility lanes, which offer protection to parked bicycles. A 1.5 metre maneuvering area is recommended on both ends of the bicycle corral to allow people cycling to enter and exit the parking area.



Use wayfinding to identify the City's Core Network and other key local and regional destinations

The City of New Westminster should use destination-based wayfinding signage consistent with regional guidelines, while ensuring that both new and existing Core Network cycling routes include wayfinding. TransLink's Wayfinding Guidelines for Utility Cycling in Metro Vancouver outline a hierarchy of destinations that were agreed to by Metro Vancouver municipalities. The list below outlines the four destination tiers and notes New Westminster destinations for each category. It is also important to include wayfinding to key destinations outside of New Westminster, including neighbouring municipalities and regional pathway connections.

- **Level 1 – Urban Centres**
  - Downtown New Westminster
- **Level 2 – Local Neighbourhoods**
  - New Westminster neighbourhoods (e.g., Brow of the Hill, Sapperton, Queensborough, etc.)
- **Level 3 – Major Attractions**
  - SkyTrain stations (22nd Street, Braid, Columbia, New Westminster, and Sapperton)
  - Post-secondary education (e.g., Douglas College, Justice Institute of British Columbia)
- **Level 4 – Local Destinations**[8]
  - Local bike routes, including the entire Core Network
  - Potential other destinations include shopping centres, parks, recreation facilities, high schools, landmarks, healthcare facilities, bike shops, washrooms, and civic facilities

TABLE 9: TYPICAL SIGNING DISTANCES BY DESTINATION HIERARCHY (SOURCE: TRANSLINK WAYFINDING GUIDELINES FOR UTILITY CYCLING IN METRO VANCOUVER)

Destination Type	Typical Max Signing Distance
Level 1 – Urban Centres	8 km
Level 2 – Local Neighbourhoods	4 km
Level 3 – Major Attractions	2 km
Level 4 – Local Destinations	2 km

Provide signage at key points to make navigating the network easy and seamless

Signage is needed at intersections to guide people cycling to their destination. In most situations, two signs are recommended in each direction at an intersection: a **decision sign** before the turn and a **confirmation** sign after the turn. **Turn fingerboards** may be used in some situations to provide clarity at complex intersections, while **waymarkers** can be added to guide people cycling to designated cycling routes. Standard TAC bike route signage can also be used as repeaters to confirm that cyclists are on a designated route where full confirmation signs are not practical. Signage should provide advance warning of steep hills or other hazards and provide signed alternative routes if necessary.



DECISION | CONFIRMATION | TURN FINGERBOARD | OFF-NETWORK WAYMARKER | BIKE ROUTE SIGN (WITH OPTIONAL ARROW TAB)

Source: Wayfinding Guidelines for Utility Cycling in Metro Vancouver (TransLink)

8 Due to the number of possible local destinations to include on wayfinding signage, it is important to ensure signs remain simple and consistent; avoid overloading signs with information as this has the unintended effect of making them harder to understand and use.

Engineering judgement and a review of the existing site conditions (including design speed, sight lines, and slope) should be used to determine the specific placement of each sign. However, there is best practice guidance for spacing each type of sign. **Figure 1** shows illustrative sign placement and outlines typical sign spacing based on MOTI and TAC guidance. Decision signs should be located where the person cycling can see an upcoming sign from an appropriate distance given the design speed and physical context. The sign location should exceed the stopping distance needed by the fastest expected travel speed but it should not be placed so far in advance that the relevance of the sign is lost or forgotten.

Confirmation signs provide reassurance of direction after decision points – after a turn, the sign should be placed 20–30 m following the intersection or decision point. Confirmation signs can also be repeated along long routes with no intervening destinations or decision points. In built-up areas, confirmation signs are typically placed every two or three blocks (i.e. approximately 400m apart). In areas where less reassurance is needed (e.g., less built-up areas, low volume streets, or separated pathways), confirmation signs are only needed every 800–1,000 m.

FIGURE 1: TYPICAL SIGN PLACEMENT EXAMPLE

Source: Wayfinding Guidelines for Utility Cycling in Metro Vancouver (TransLink)

Cycling signage and wayfinding should be cohesive, intuitive, and easy to recognize

People of all ages and abilities should be able to navigate the cycling network with ease. Ensure signs are mounted at 1.5m or eye-level (unless they overhang walking areas) and easily visible from afar for people cycling. Signage should also be coordinated with other forms of information and wayfinding such as pavement markings, map kiosks, paper and online cycling maps, and other elements. Sharrow pavement markings can be used to provide directional wayfinding along local street bikeways.

In addition to the signage above, other signage along bikeways can include interpretive signage, neighbourhood branding, and signage from different jurisdictions such as Metro Vancouver and TransLink. It is important to ensure each type of signage has a consistent brand and do not provide inconsistent directions or information. Naming a cycling route provides the opportunity to promote the route and create a memorable reference point. Memorable routes names are typically short, relevant, timeless, and distinctive, including names that have a cultural or social association. The following photos show examples of the many cycling related signs and pavement markings in New Westminster.



Maintaining AAA Facilities

Consider maintenance at all stages of the planning and design process

Maintenance is a critical component in AAA cycling facility design and should not be overlooked. Studies have shown that the most common types of non-motor vehicle collisions resulting in injury were caused by surface conditions (bumps, holes, roots, debris, leaves, etc.), colliding with infrastructure (curbs, bollards, posts, etc.), or colliding with another person cycling, person walking, or an animal.[9]

Prioritize the Core Network for maintenance

People of all ages and abilities should be able to access the Core Network every day of the year and every hour of the day. To help manage the maintenance requirements, bicycle routes follow a maintenance hierarchy, including higher priority routes and lower priority routes based on ridership and connections to key destinations. All Core Network routes should be considered a high priority route for maintenance. As the Core Network expands, these routes should be added to the high priority maintenance list to ensure a high level of service along the AAA network. Over the build out of this network, this will significantly increase maintenance requirements. However, as the network will be built out incrementally each year, the City should plan for increases in maintenance annually based on the new kilometres of facilities planned to be constructed each year as part of its planning and operational budgeting process.

Develop a regular, ongoing program that considers surface lifespan and ensures all facilities are well-maintained in a state of good repair throughout the year

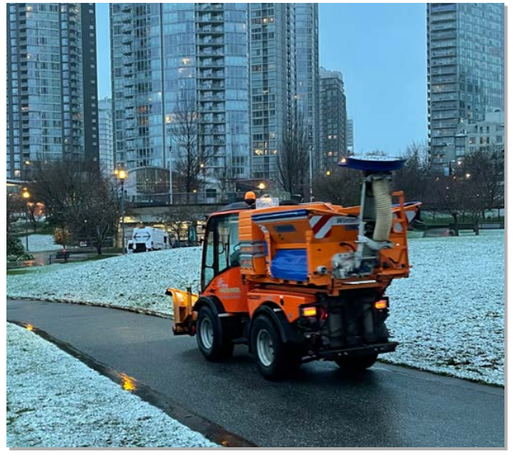
The City should establish a regular on-going program to maintain facilities in a state of good repair. This will help avoid and reduce the likelihood of holes, bumps, roots, debris, leaves, grass, etc. in facilities, including substandard signage and pavement markings. This could involve setting up a way to track and monitor maintenance needs, as well as a way for users or staff to submit maintenance requests.

Invest in the equipment needed to adequately maintain facilities in all seasons

Winter maintenance is an important consideration in New Westminster, especially when snow and ice is combined with the City's steep topography. Proactive (applying de-icing material before an expected snow event) and reactive (plowing and de-icing after the snow event) winter maintenance are two possible strategies, with proactive maintenance helping to reduce de-icing and snow clearing needs. Several de-icing materials are available, including road salt, pre-wetted salt, sand and gravel, and de-icing additives such as beet juice and cheese brine.

Collaborate with operations and maintenance staff to understand their equipment and staffing needs based on any new cycling facility types and treatments. Truck-mounted plow blades can work in many applications, including local street bikeways which make up the bulk of New Westminster's Core Network. However, specially designed, right-sized equipment is also available to sweep and clear protected mobility lanes and multi-use facilities. There are a variety of attachments that can help with de-icing, sweeping, and plowing bicycle lanes and pathways. One machine typically costs around $200,000 to $300,000 (for diesel or gas powered, electric battery powered are $500,000) depending on which attachments are required.





9 City of Vancouver. (2015). Cycling Safety Study. https://vancouver.ca/files/cov/cycling-safety-study-final-report.pdf

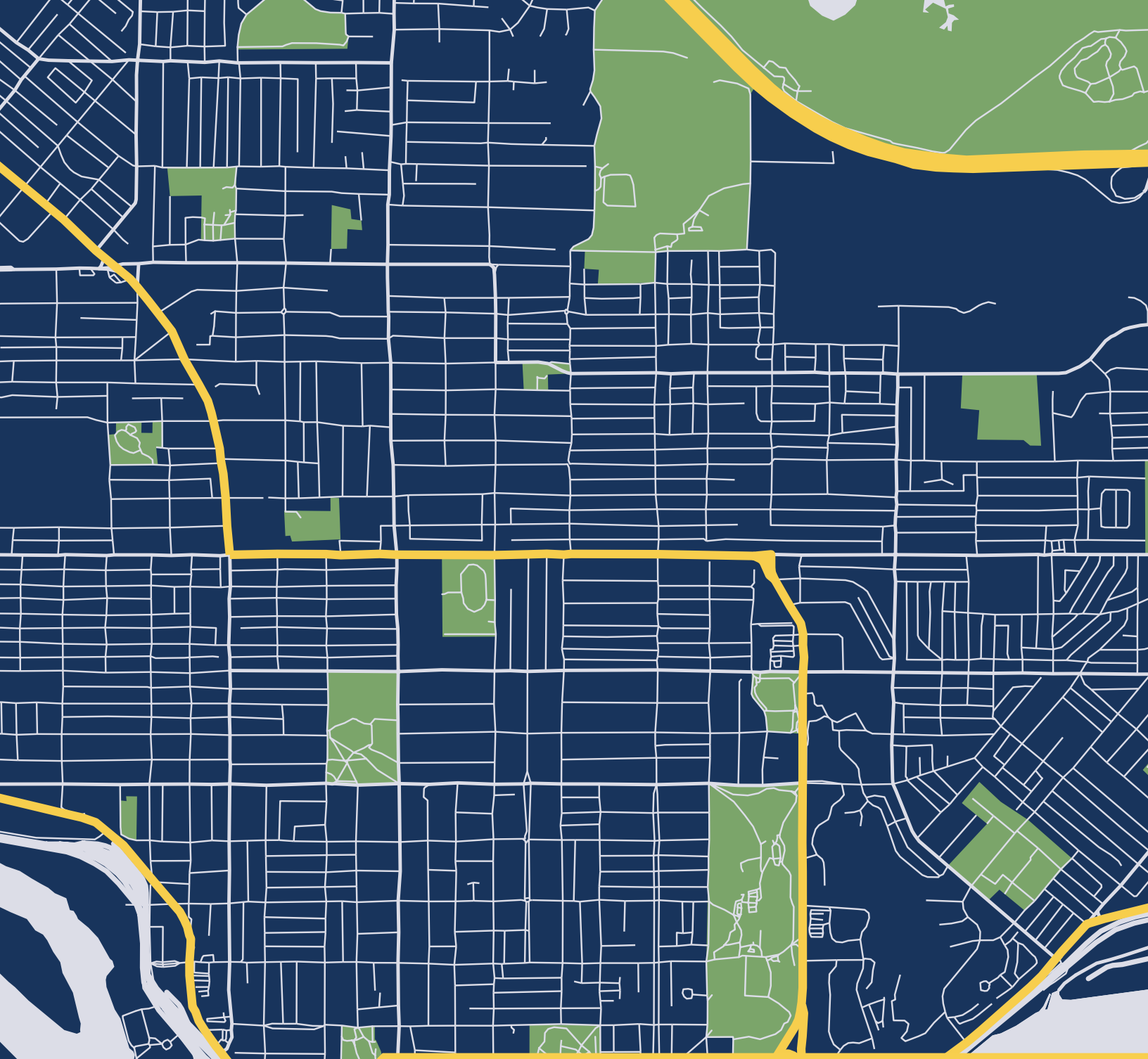
Details & References

The following references provide greater detail on AAA facility design, universal design, rapid implementation, activation and beautification, and other related topics:

- Geometric Design Guide for Canadian Roads (Transport Association of Canada)
- British Columbia Active Transportation Design Guide (Ministry of Transportation and Infrastructure)
- Tactical Urbanism Design Guide (TransLink)
- Rapid Implementation Design Guide for Cycling Infrastructure (TransLink)
- Get There By Bike! Wayfinding Guidelines for Utility Cycling in Metro Vancouver (TransLink)
- Accessible Design for the Built Environment (CSA Standard B651-18)

There are some additional resources available that provide specific design guidance for lighting on transportation facilities, including:

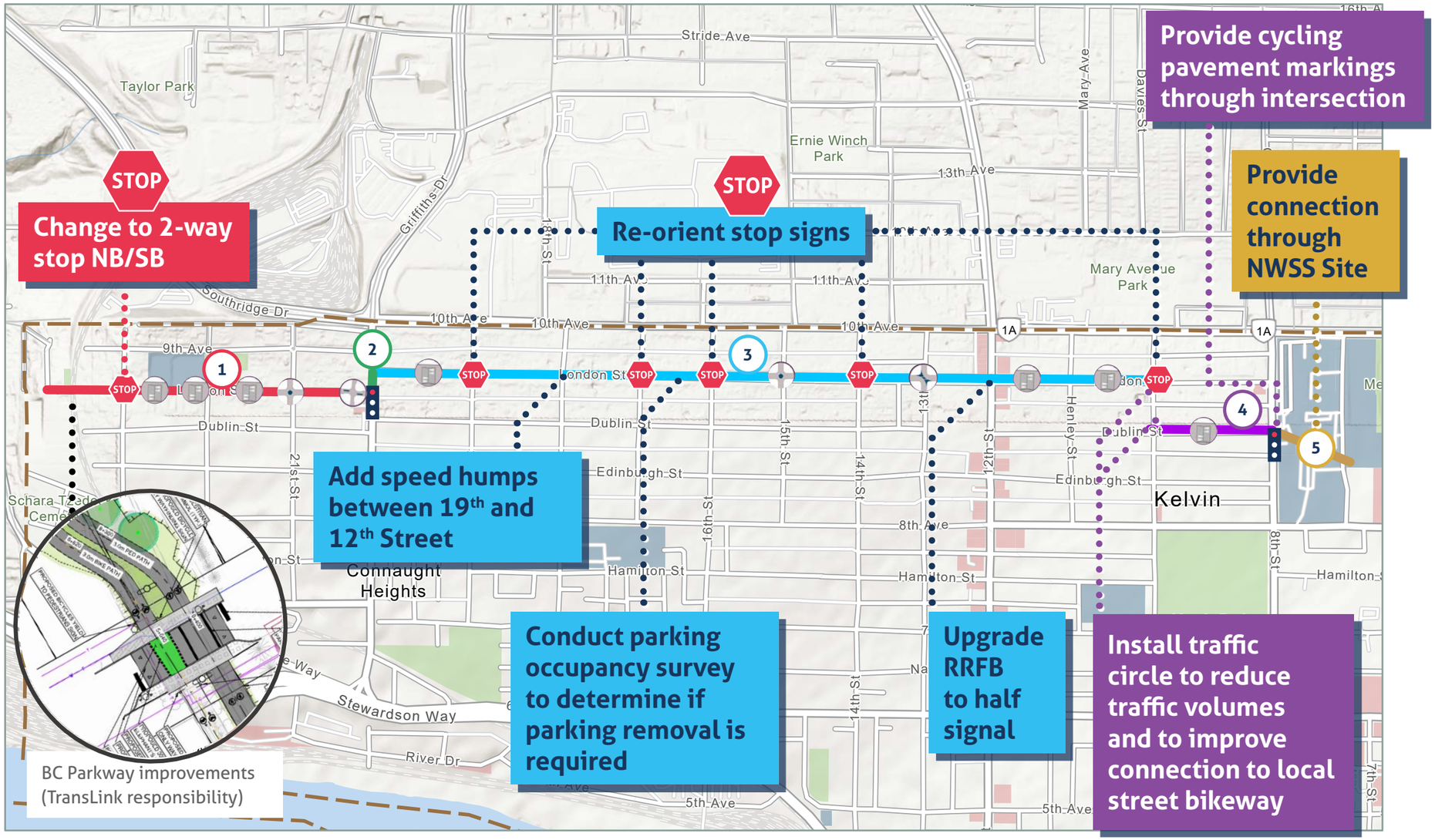
- TAC Guide for the Design of Roadway Lighting (2006)
- MoTI Electrical and Traffic Engineering Manual (2013)
- American National Standards Institute ANSI/IES RP-8-18 Recommended Practice for Design and Maintenance of Roadway and Parking Facility Lighting (2018)
- American Association of State Highway and Transportation Officials Roadway Lighting Design Guide (2005)



Appendix B

Corridor Summary Sheets

West 1. London Street

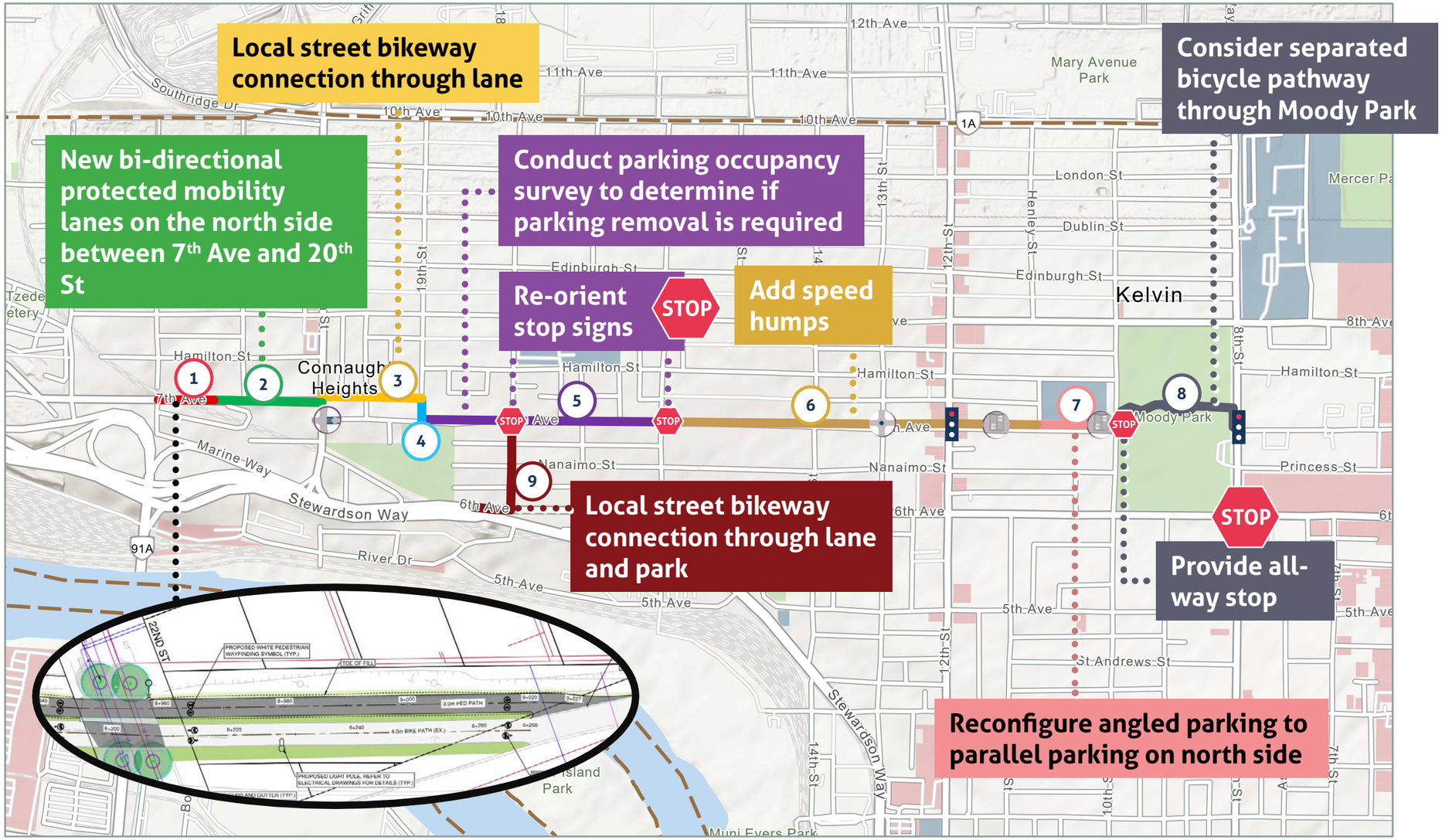


CORE NETWORK CYCLING FACILITIES - WEST 1

- W1-1 (641m)
- W1-2 (40m)
- W1-3 (1691m)
- W1-4 (265m)
- W1-5
- School
- Park / Recreation Field
- Commercial
- Municipal Boundary

NEW WESTMINSTER
Active Transportation Network

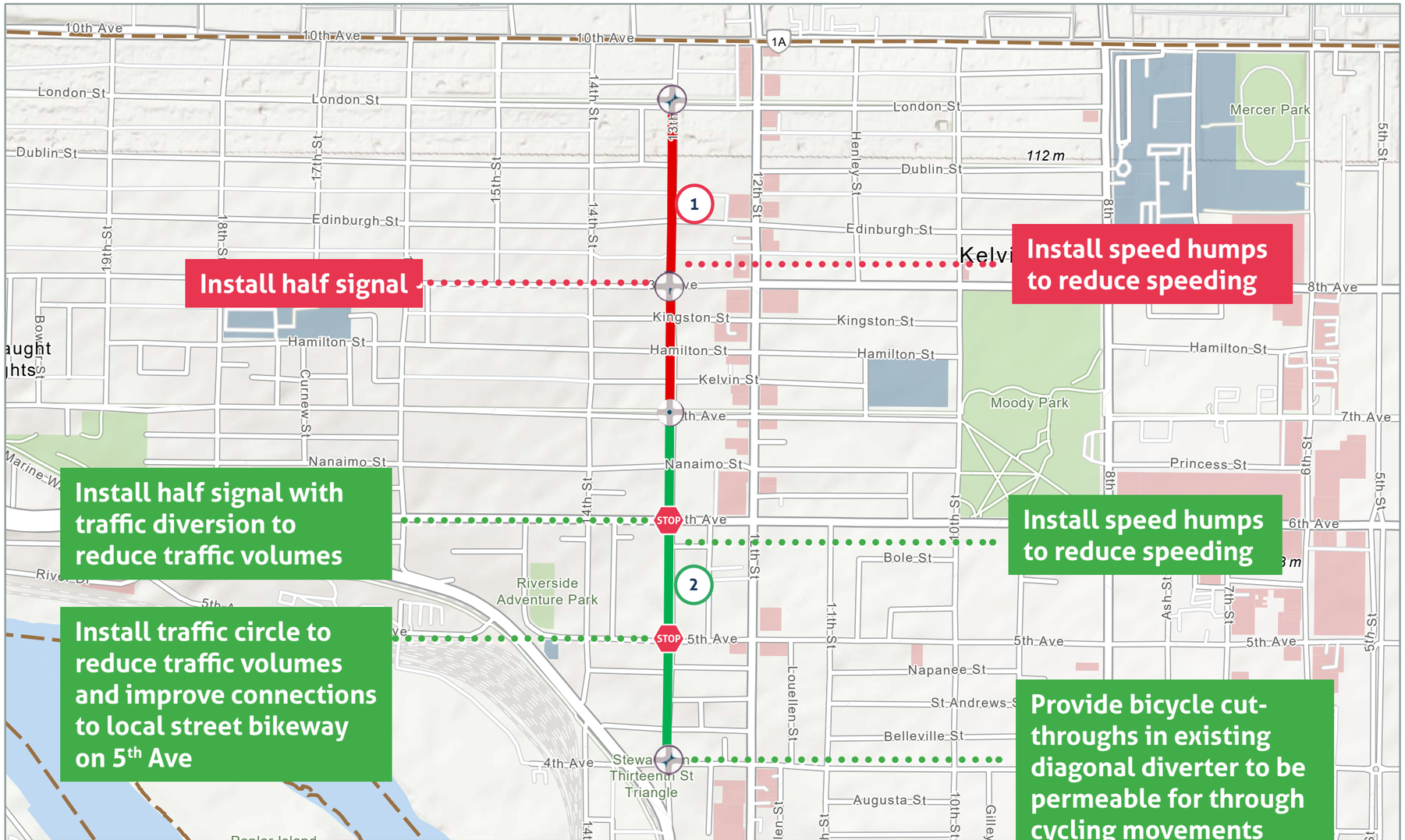
West 2. 7th Avenue West



CORE NETWORK CYCLING FACILITIES - WEST 2

- W2-1
- W2-2
- W2-3
- W2-4
- W2-5
- W2-6
- W2-7
- W2-8
- W2-9
- School
- Park / Recreation Field
- Commercial
- Municipal Boundary

West 3. 13th Street



CORE NETWORK CYCLING FACILITIES - WEST 3

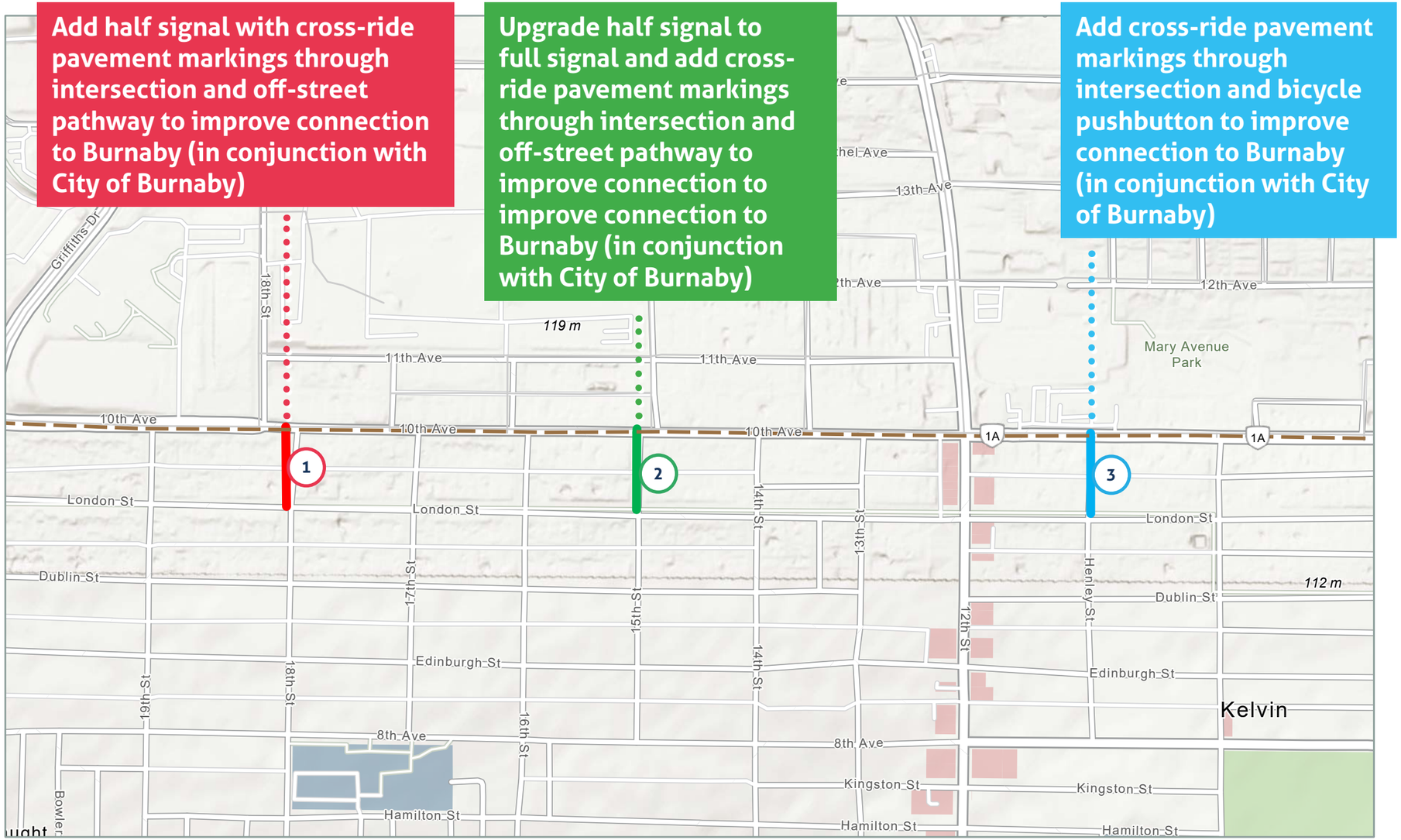
- W3-1
- W3-2
- School
- Park / Recreation Field
- Commercial
- Municipal Boundary

West 4. Burnaby Connectors

Add half signal with cross-ride pavement markings through intersection and off-street pathway to improve connection to Burnaby (in conjunction with City of Burnaby)

Upgrade half signal to full signal and add cross-ride pavement markings through intersection and off-street pathway to improve connection to improve connection to Burnaby (in conjunction with City of Burnaby)

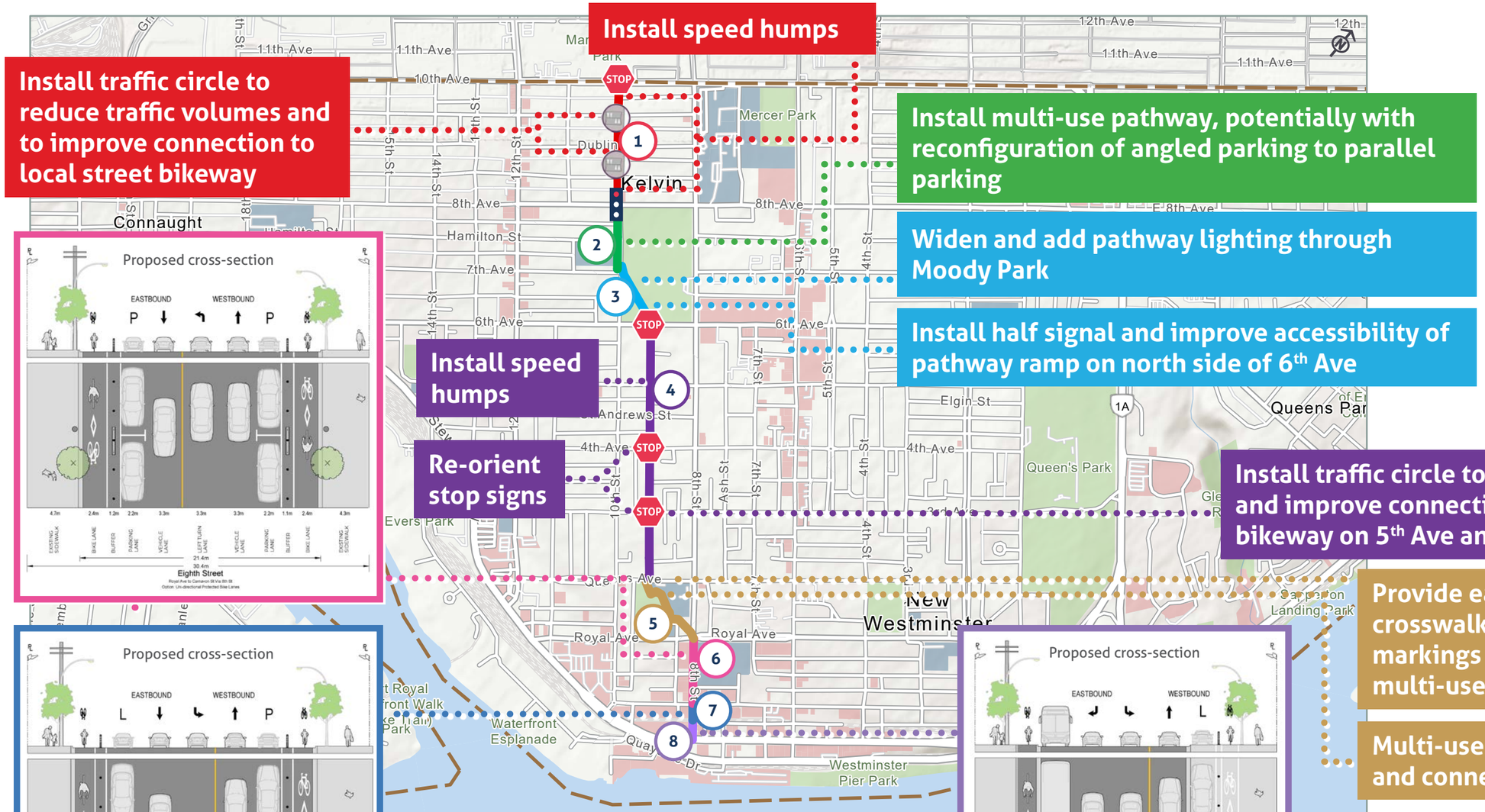
Add cross-ride pavement markings through intersection and bicycle pushbutton to improve connection to Burnaby (in conjunction with City of Burnaby)



CORE NETWORK CYCLING FACILITIES - WEST 4

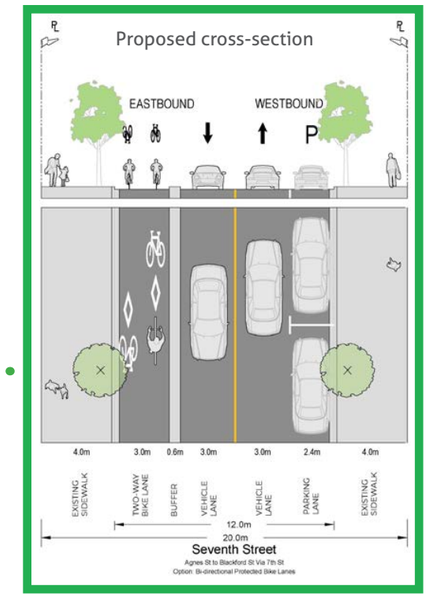
- W4-1
- W4-2
- W4-3
- School
- Park / Recreation Field
- Commercial
- Municipal Boundary

Central 1. 8th Street / 9th Street / 10th Street



Central 2. 7th Street

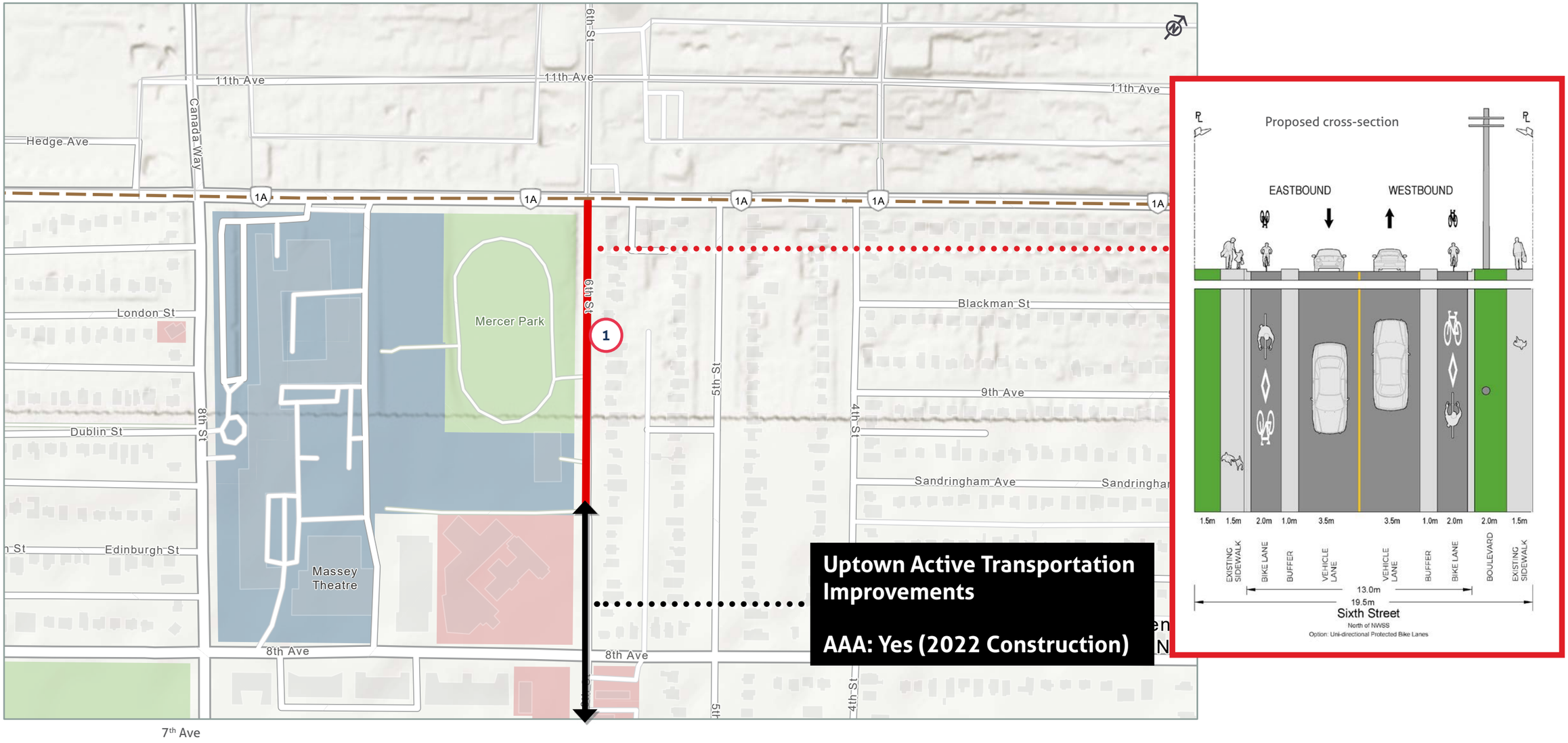




CORE NETWORK CYCLING FACILITIES - CENTRAL 2

- C2-1
- C2-2
- School
- Park / Recreation Field
- Commercial
- Municipal Boundary

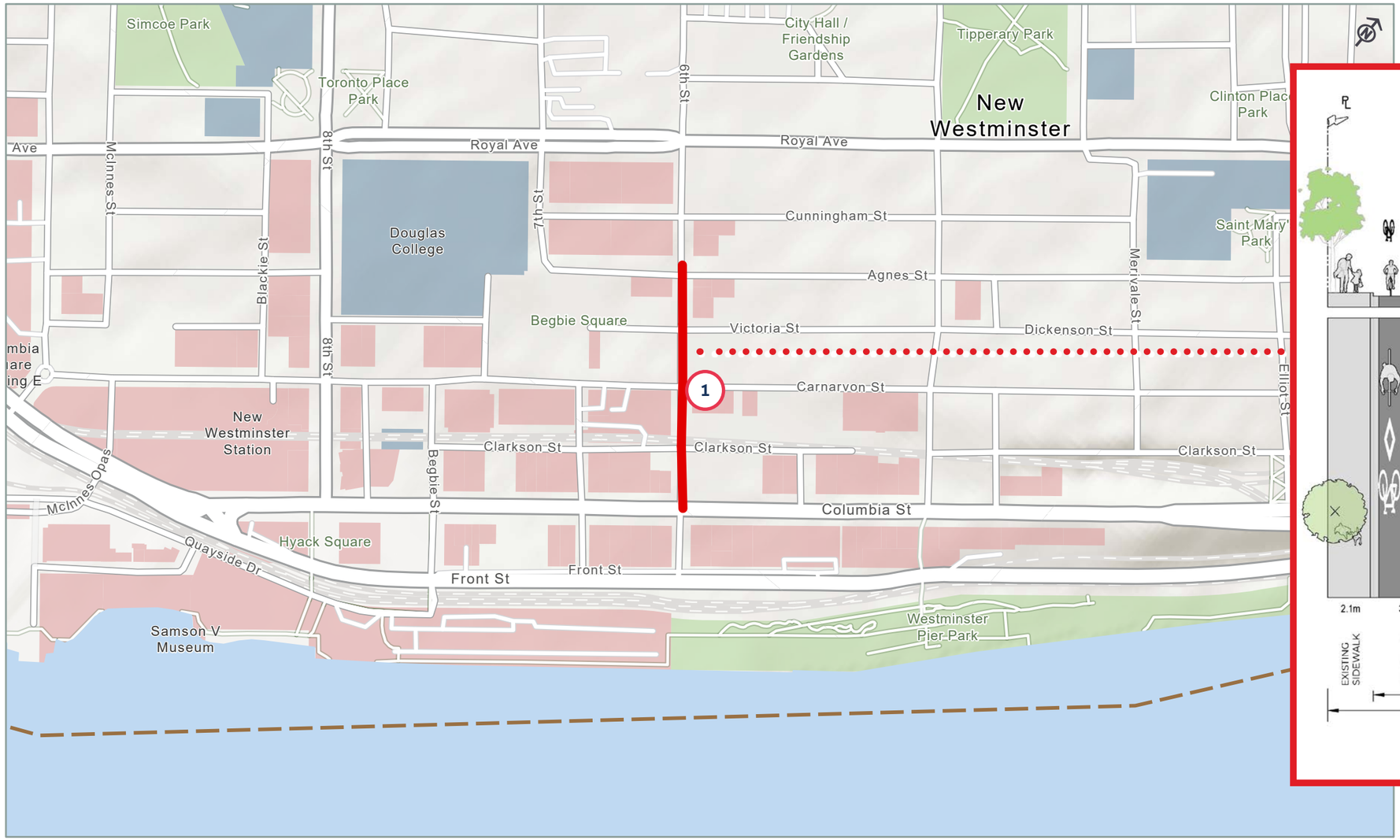
Central 3. 6th Street (NWSS)

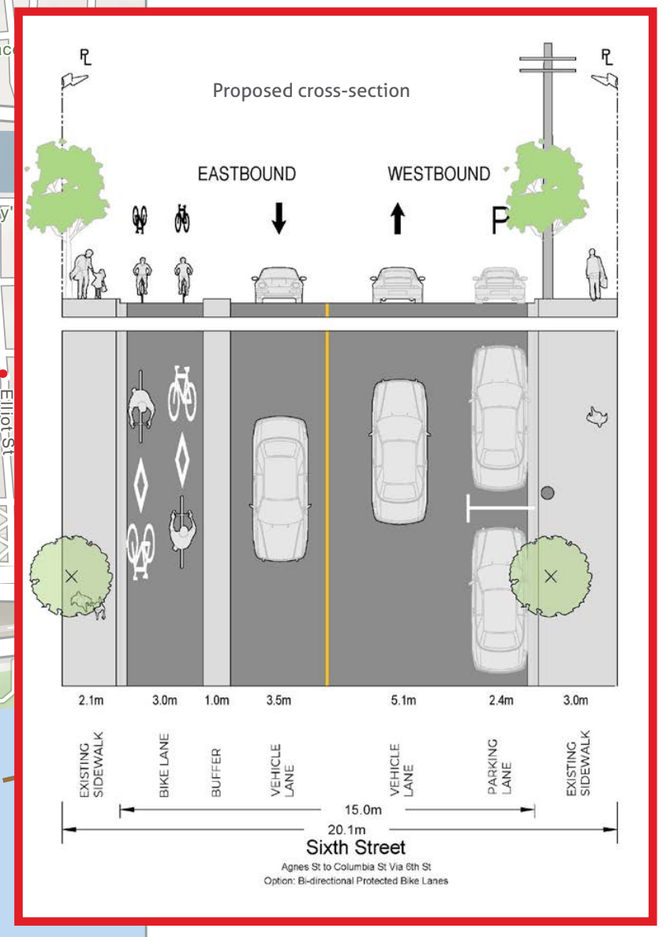


CORE NETWORK CYCLING FACILITIES - CENTRAL 3

- C3-1
- School
- Park / Recreation Field
- Commercial
- Municipal Boundary

Central 4. 6th Street (Downtown)

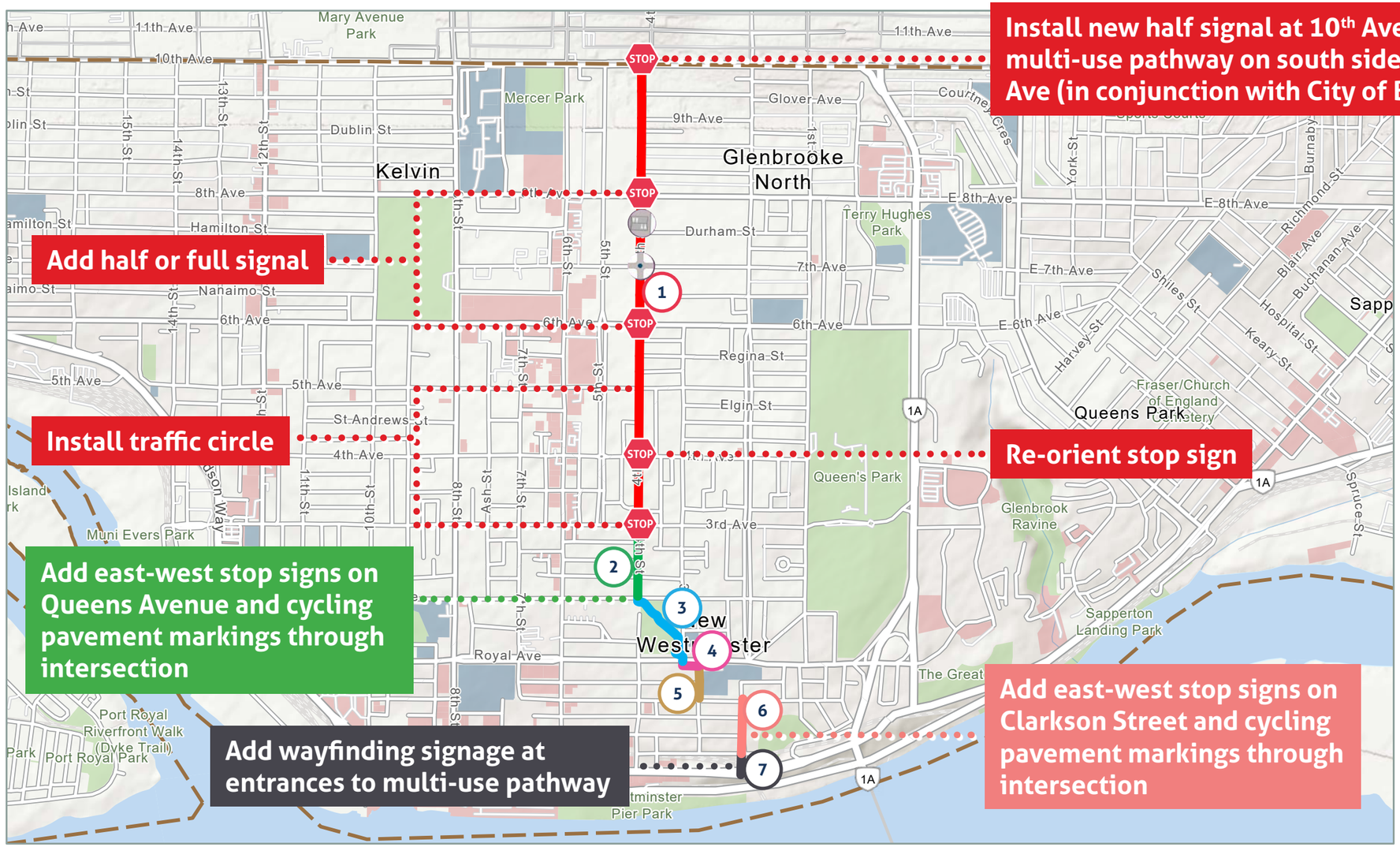




CORE NETWORK CYCLING FACILITIES - CENTRAL 4

- C4-1
- School
- Park / Recreation Field
- Commercial
- Municipal Boundary

Central 5. 4th Street / Merivale Street / Elliot Street

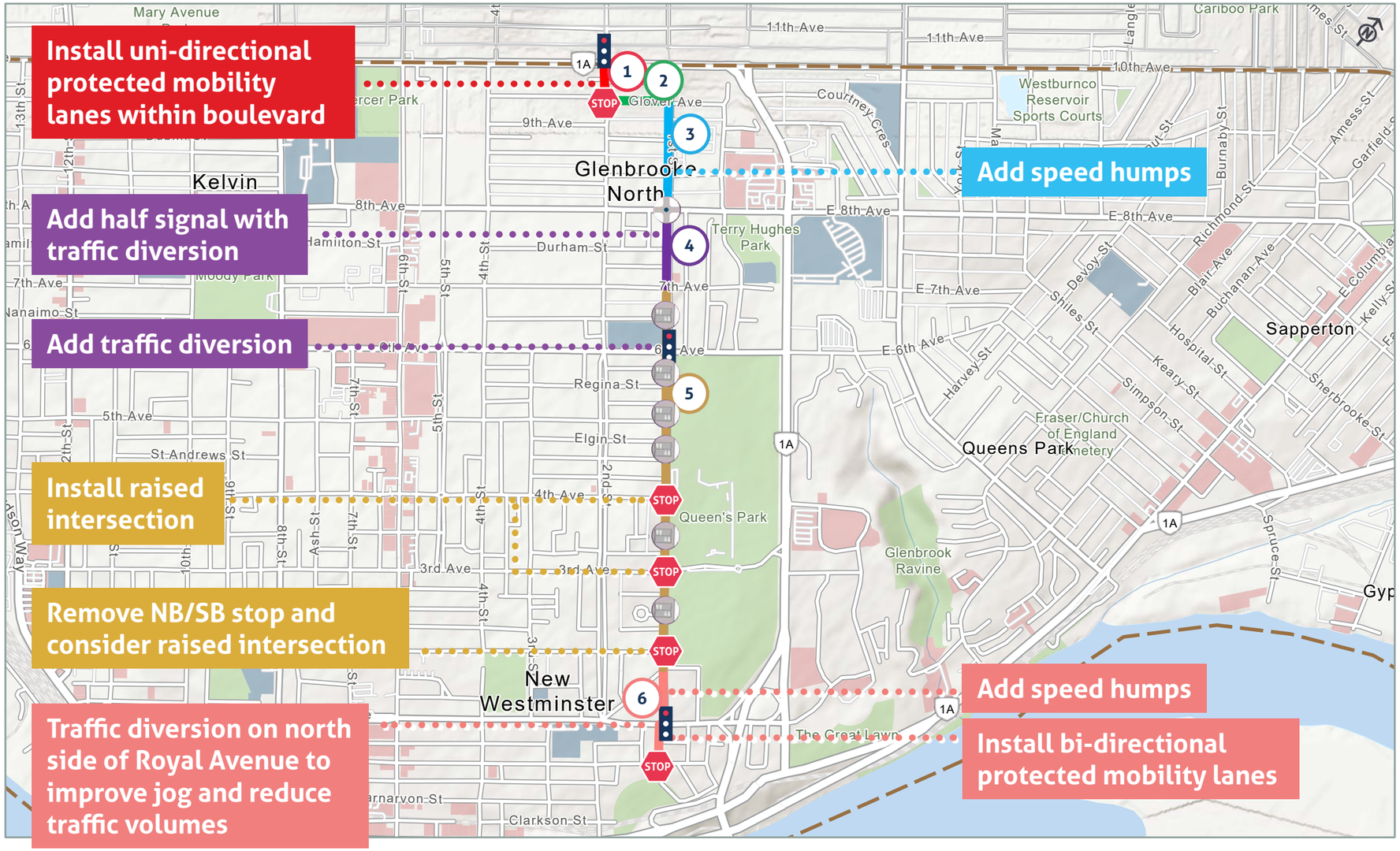


CORE NETWORK CYCLING FACILITIES - CENTRAL 5

- C5-1
- C5-2
- C5-3
- C5-4
- C5-5
- C5-6
- C5-7
- School
- Park / Recreation Field
- Commercial
- Municipal Boundary

NEW WESTMINSTER
Active Transportation Network

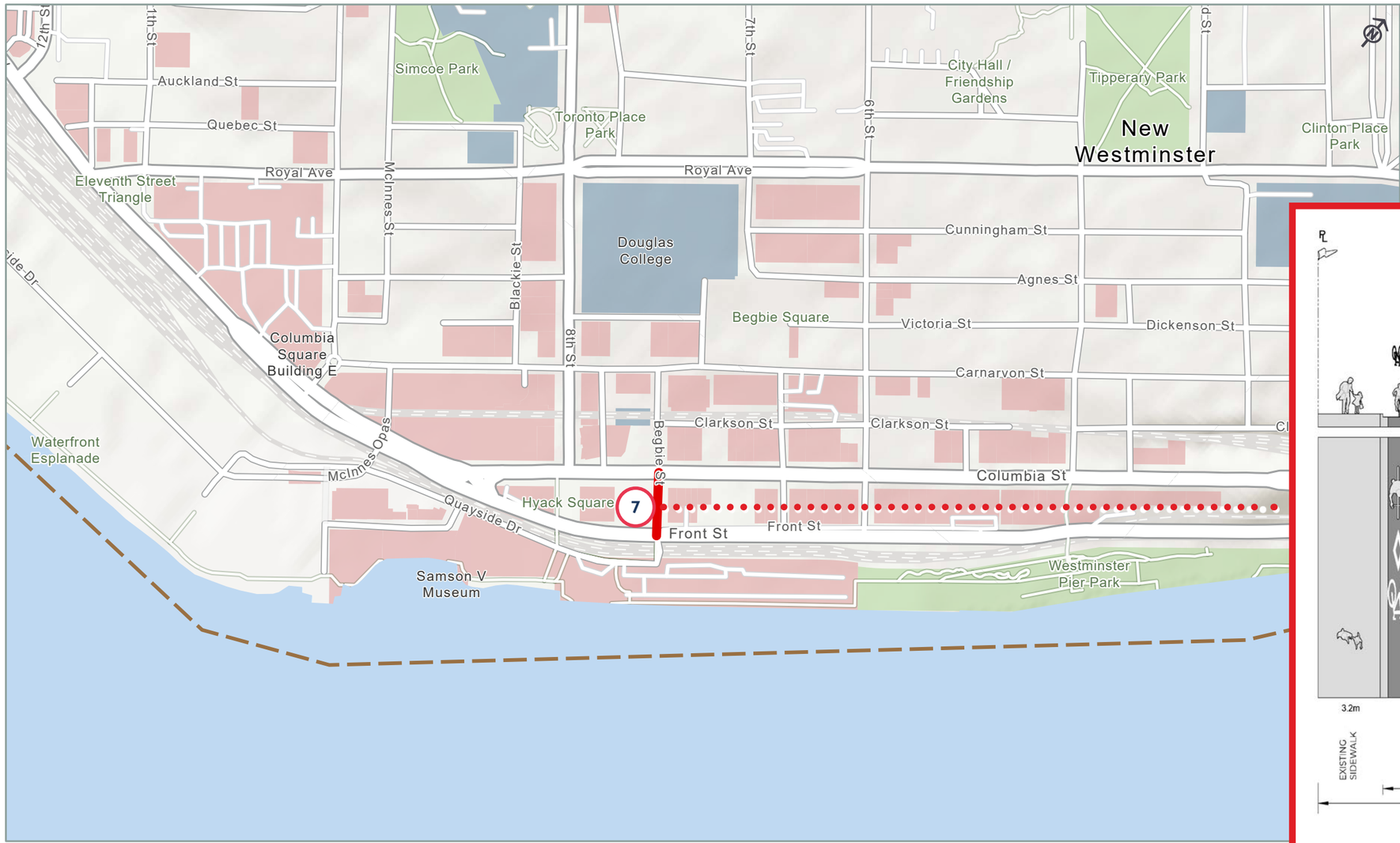
Central 6. 1st Street

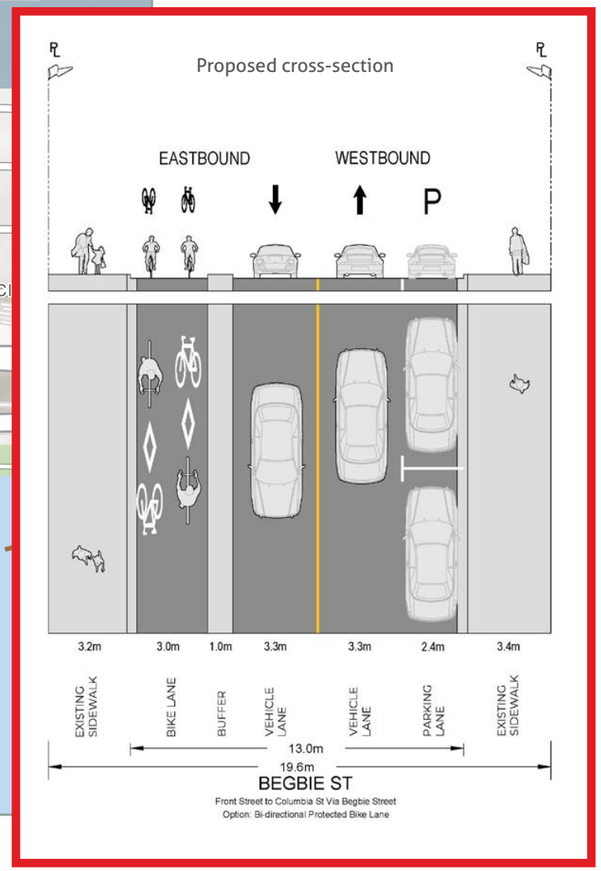


CORE NETWORK CYCLING FACILITIES - CENTRAL 6

- C6-1
- C6-2
- C6-3
- C6-4
- C6-5
- C6-6
- School
- Park / Recreation Field
- Commercial
- Municipal Boundary

Central 7. Begbie Street

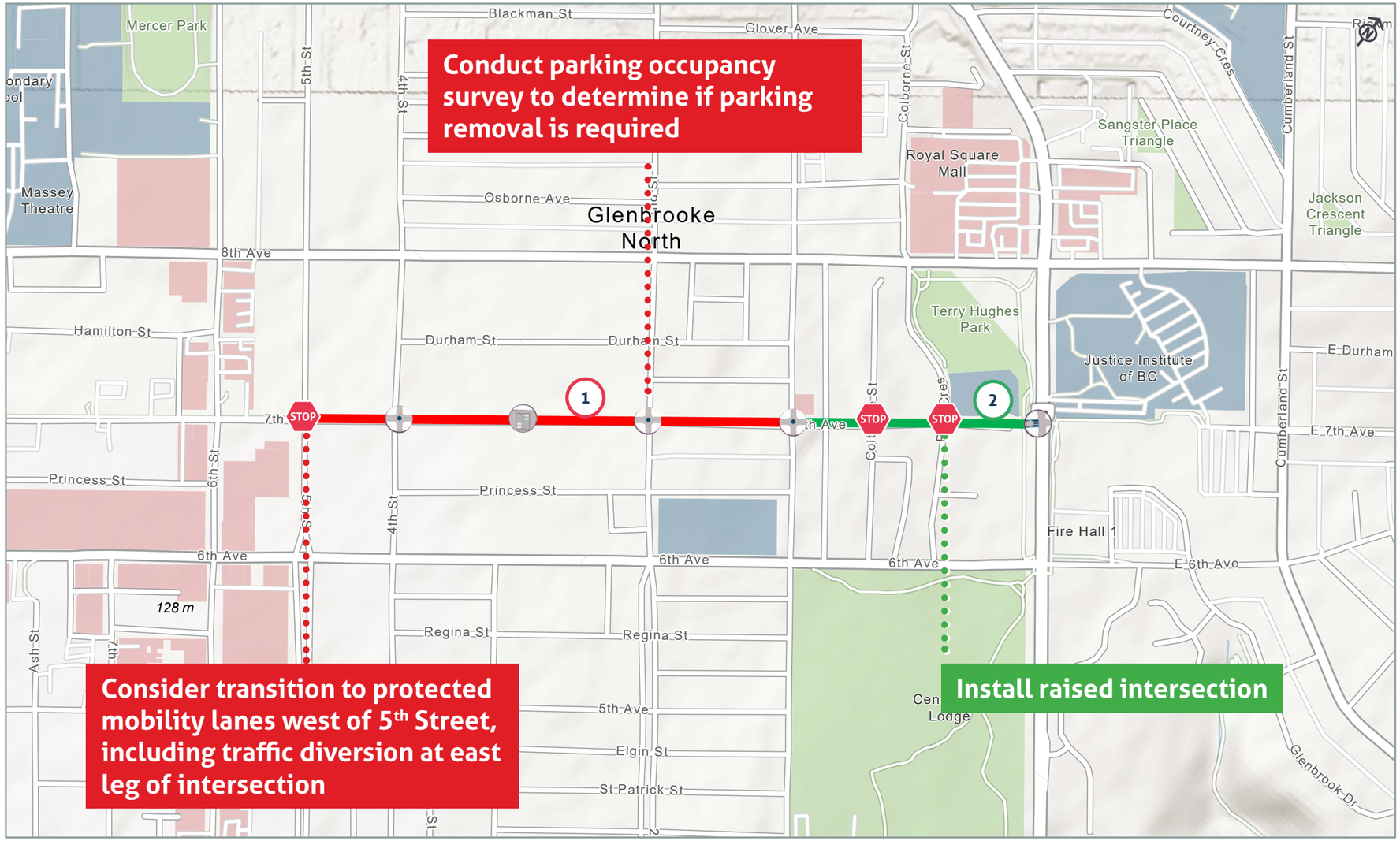




CORE NETWORK CYCLING FACILITIES - CENTRAL 7

- C7
- School
- Park / Recreation Field
- Commercial
- Municipal Boundary

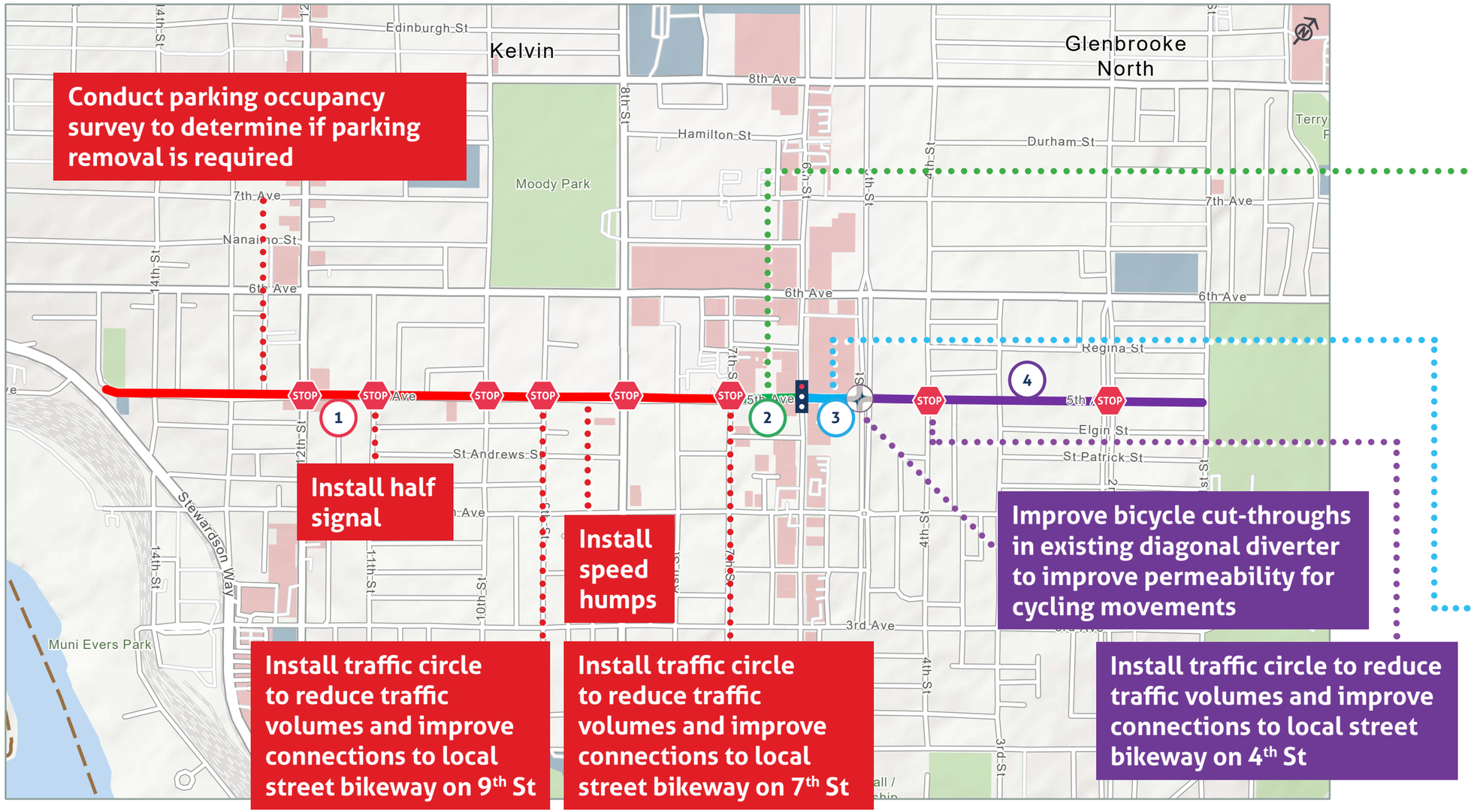
Central 8. 7th Avenue

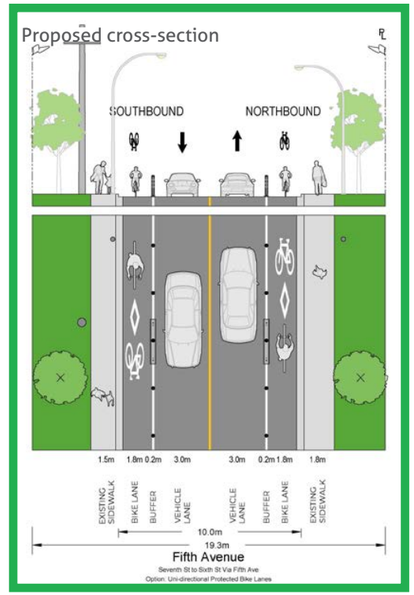


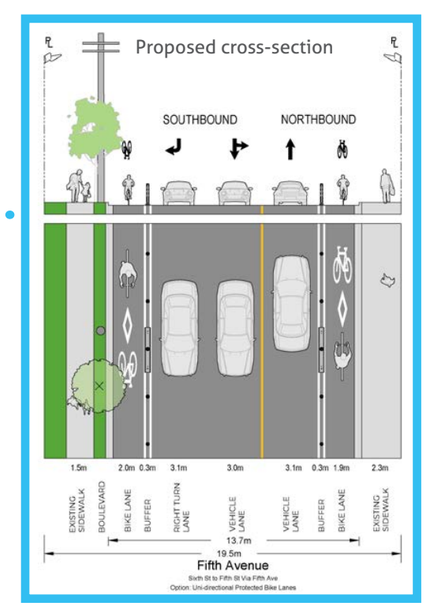
CORE NETWORK CYCLING FACILITIES - CENTRAL 8

- C8-1
- C8-2
- School
- Park / Recreation Field
- Commercial
- Municipal Boundary

Central 9. 5th Avenue



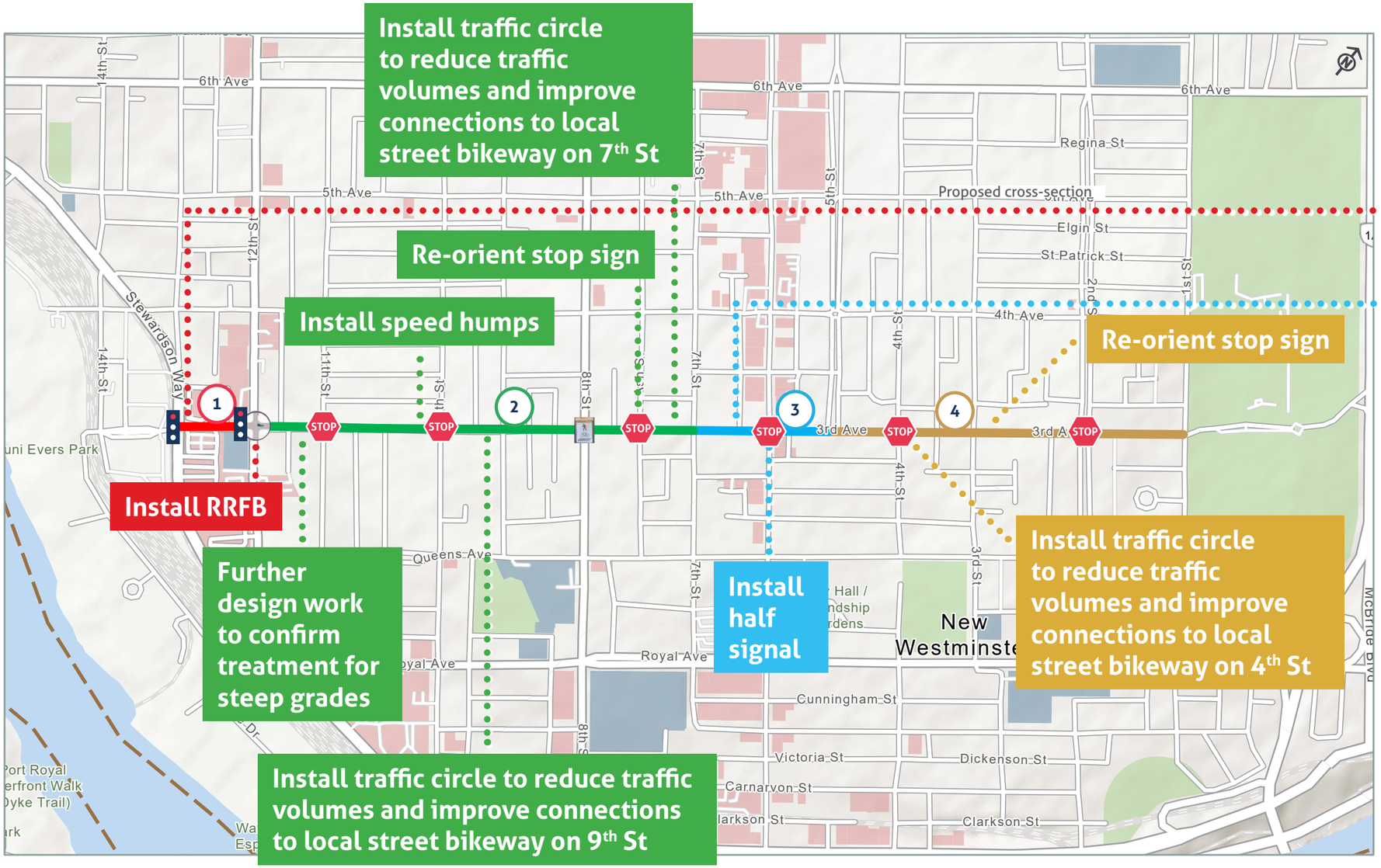


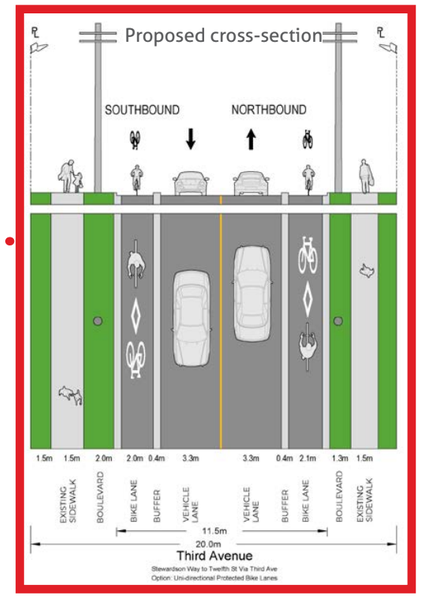


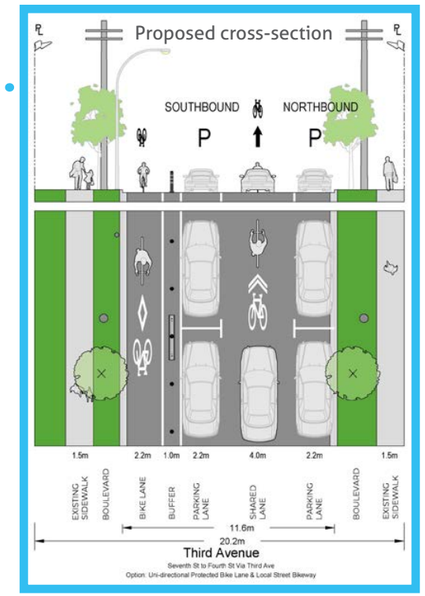
CORE NETWORK CYCLING FACILITIES - CENTRAL 9

- C9-1
- C9-2
- C9-3
- C9-4
- School
- Park / Recreation Field
- Commercial
- Municipal Boundary

Central 10. 3rd Avenue





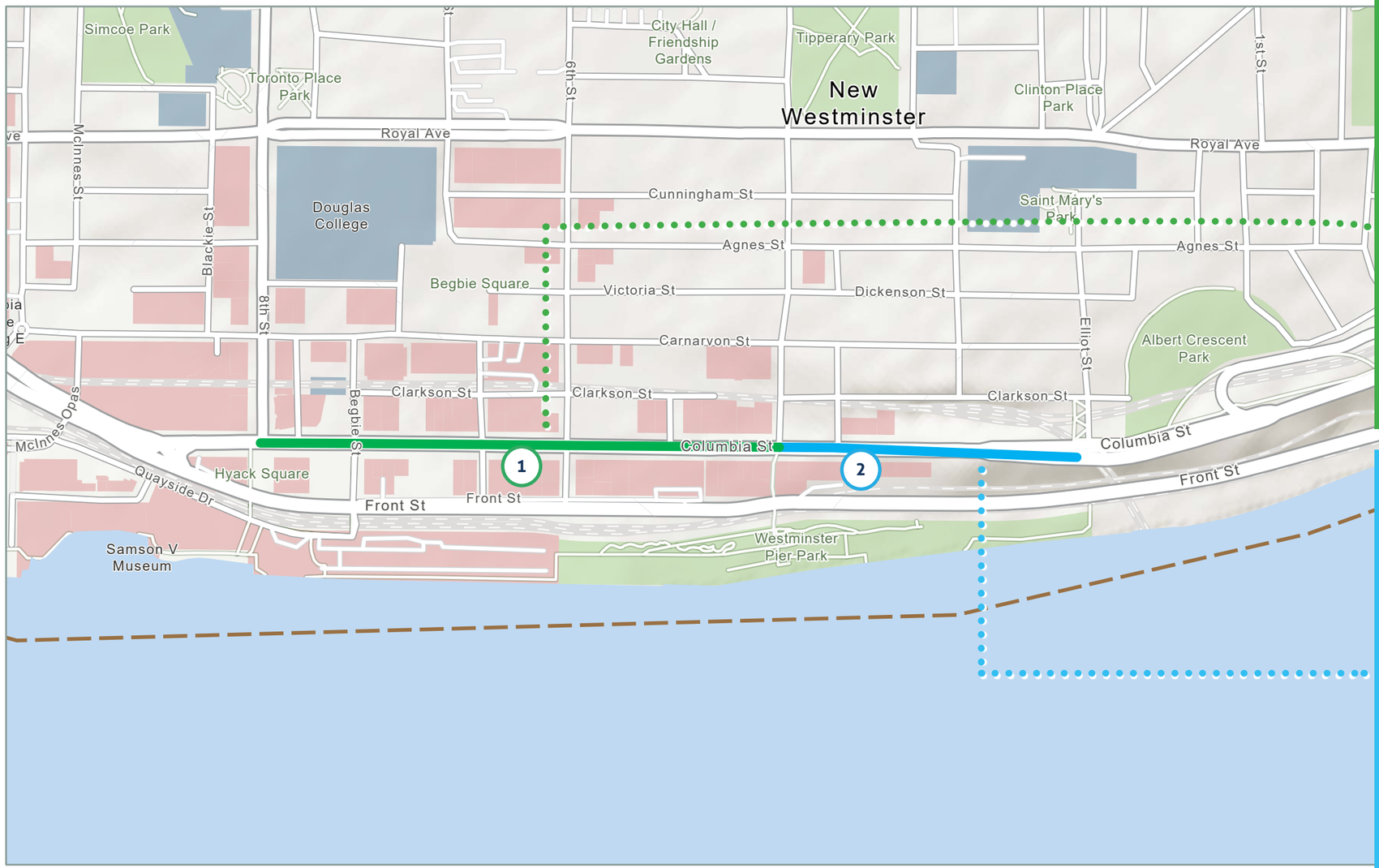


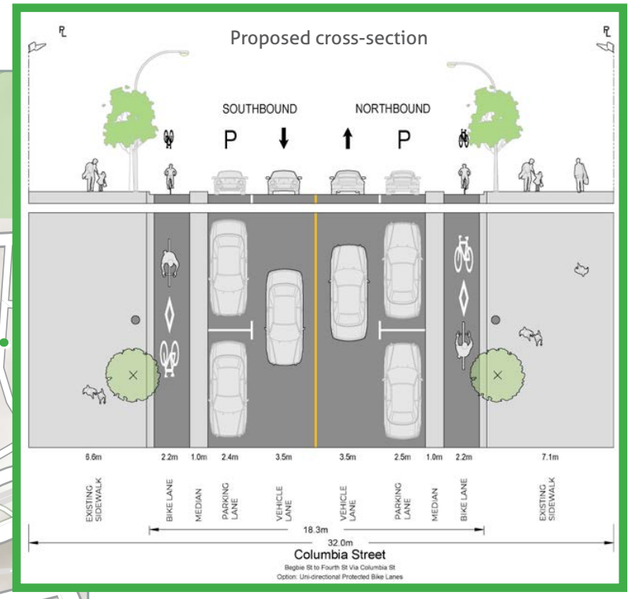
CORE NETWORK CYCLING FACILITIES - CENTRAL 10

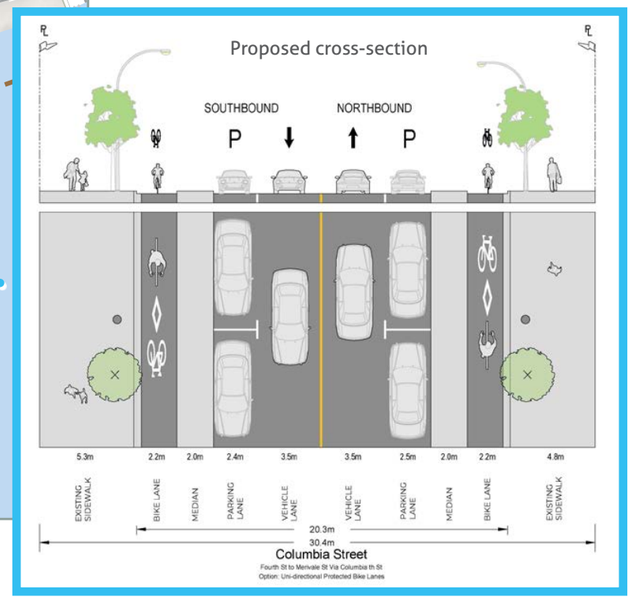
- C10-1
- C10-2
- C10-3
- C10-4
- School
- Park / Recreation Field
- Commercial
- Municipal Boundary

NEW WESTMINSTER
Active Transportation Network

Central 11. Columbia Street



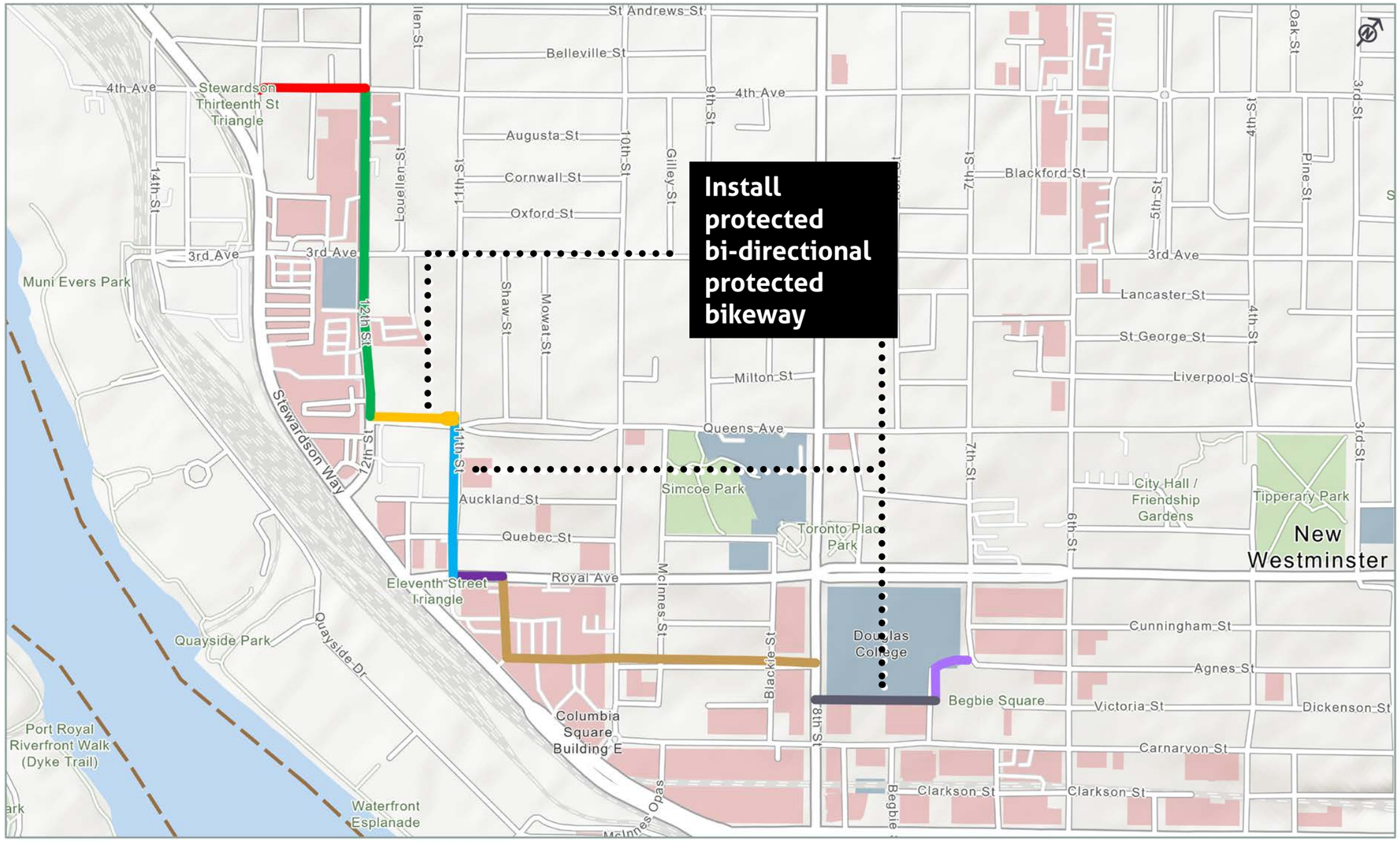




CORE NETWORK CYCLING FACILITIES - CENTRAL 11

- C11-1
- C11-2
- School
- Park / Recreation Field
- Commercial
- Municipal Boundary

Central 12. 11th Street / Auckland Street / 10th Street / Agnes Street

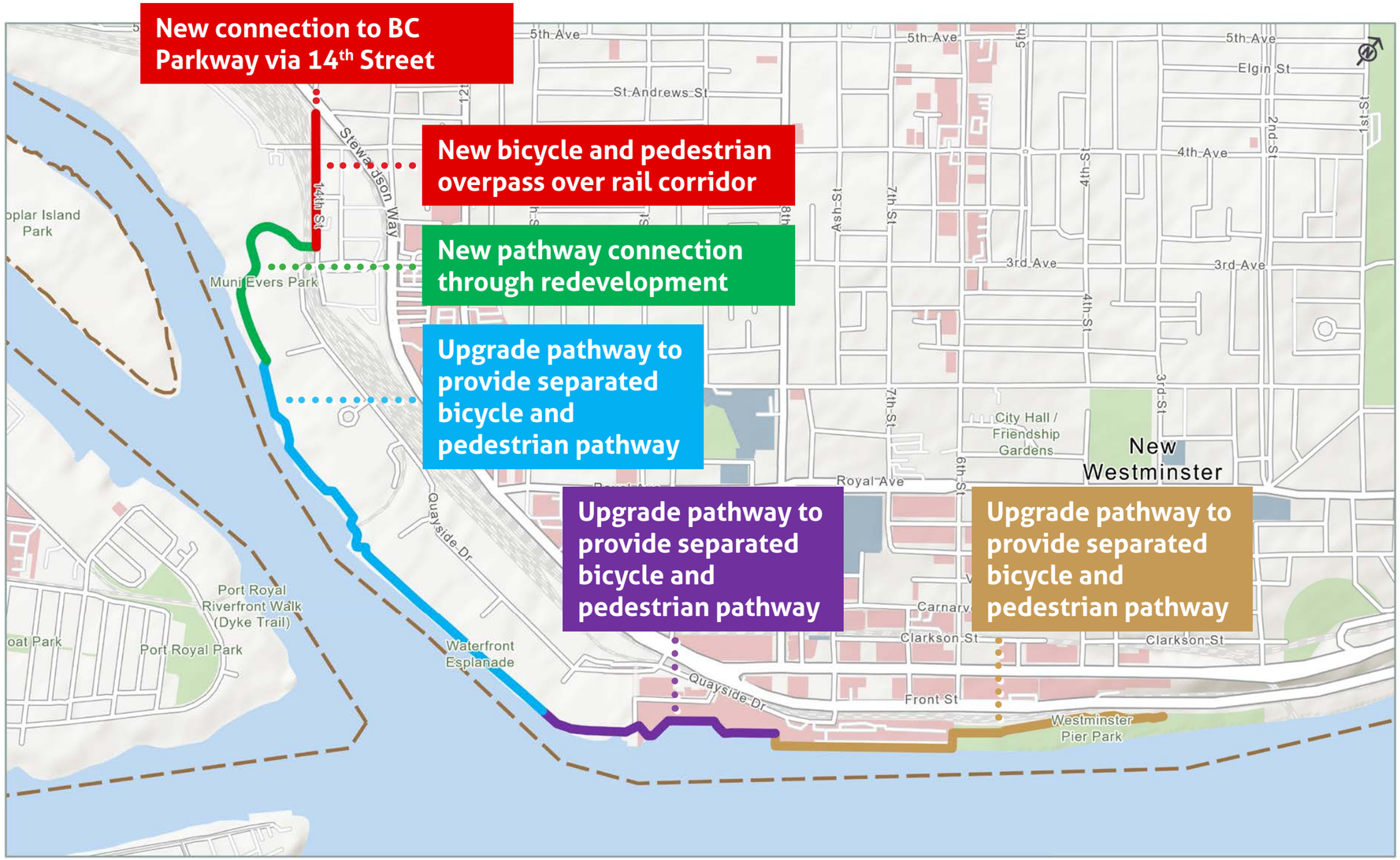


CORE NETWORK CYCLING FACILITIES - CENTRAL 12

- C12-1
- C12-2
- C12-3
- C12-4
- C12-5
- C12-6
- C12-7
- C12-8

- School
- Park / Recreation Field
- Commercial
- Municipal Boundary

Central 13. Waterfront Pathway



CORE NETWORK CYCLING FACILITIES - CENTRAL 13

- C13-1
- C13-2
- C13-3
- C13-4
- C13-5
- School
- Park / Recreation Field
- Commercial
- Municipal Boundary

East 1. 7th Avenue / Shiles Street / Keary Street

Upgrade crosswalk with cycling pavement markings and transition to uni-directional facilities on east side of intersection

Reduce corner radii and pedestrian crossing distance

Install multi-use pathway on east side of street

Conduct parking occupancy survey to determine if parking removal is required

Re-orient stop sign

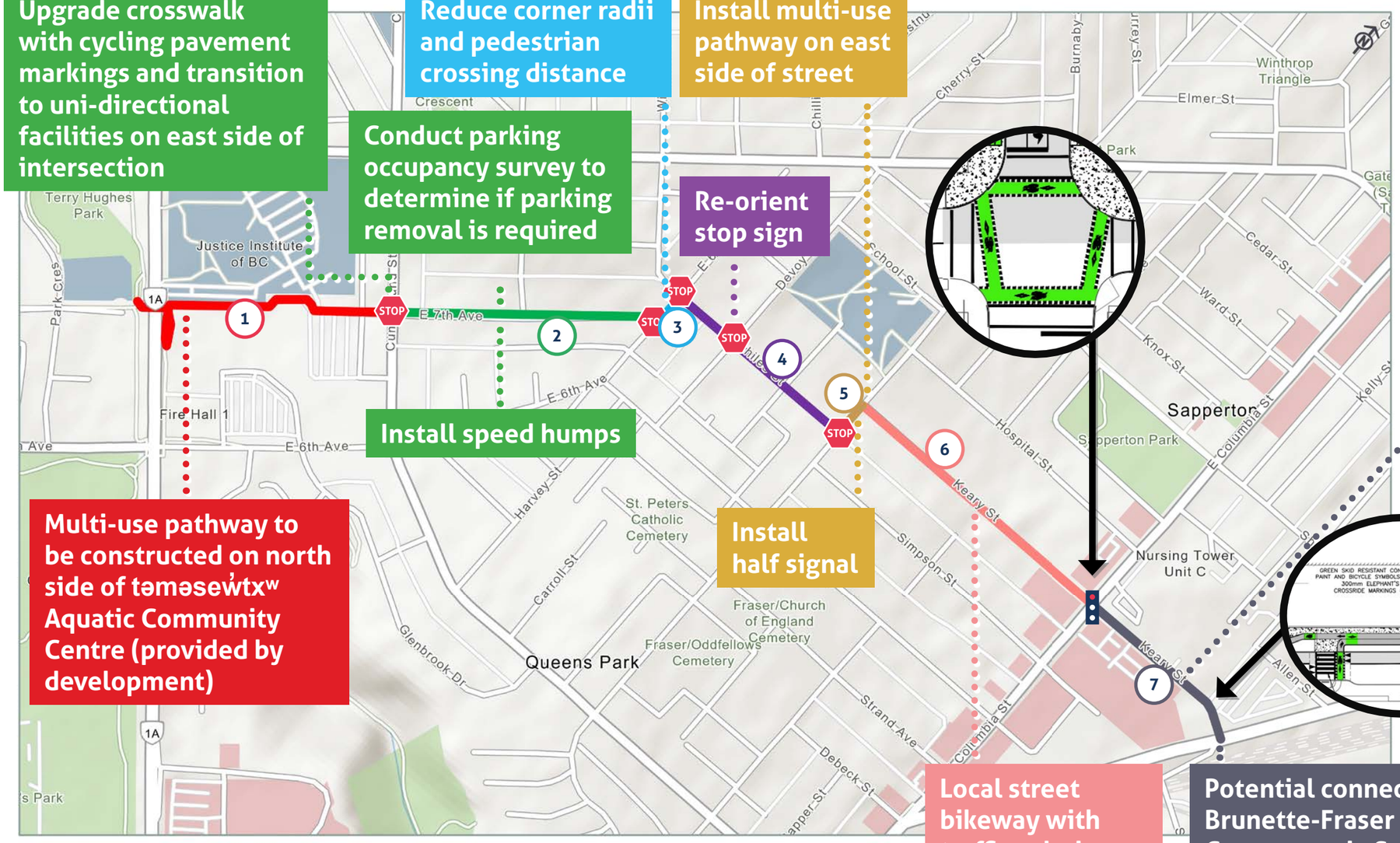
Install speed humps

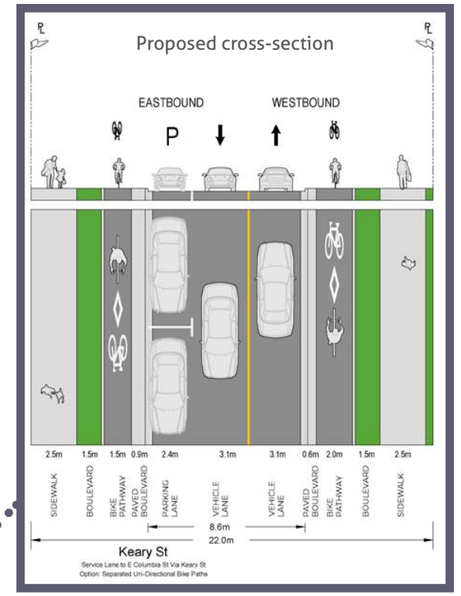
Multi-use pathway to be constructed on north side of təməsewtxʷ Aquatic Community Centre (provided by development)

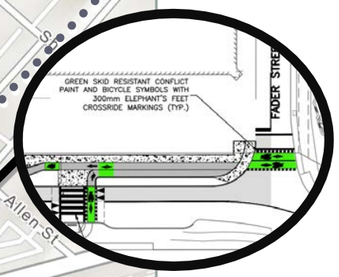
Install half signal

Local street bikeway with traffic calming or conversion to one-way street

Potential connection to Brunette-Fraser Regional Greenway via Spruce St if half signal could be provided at Brunette Ave



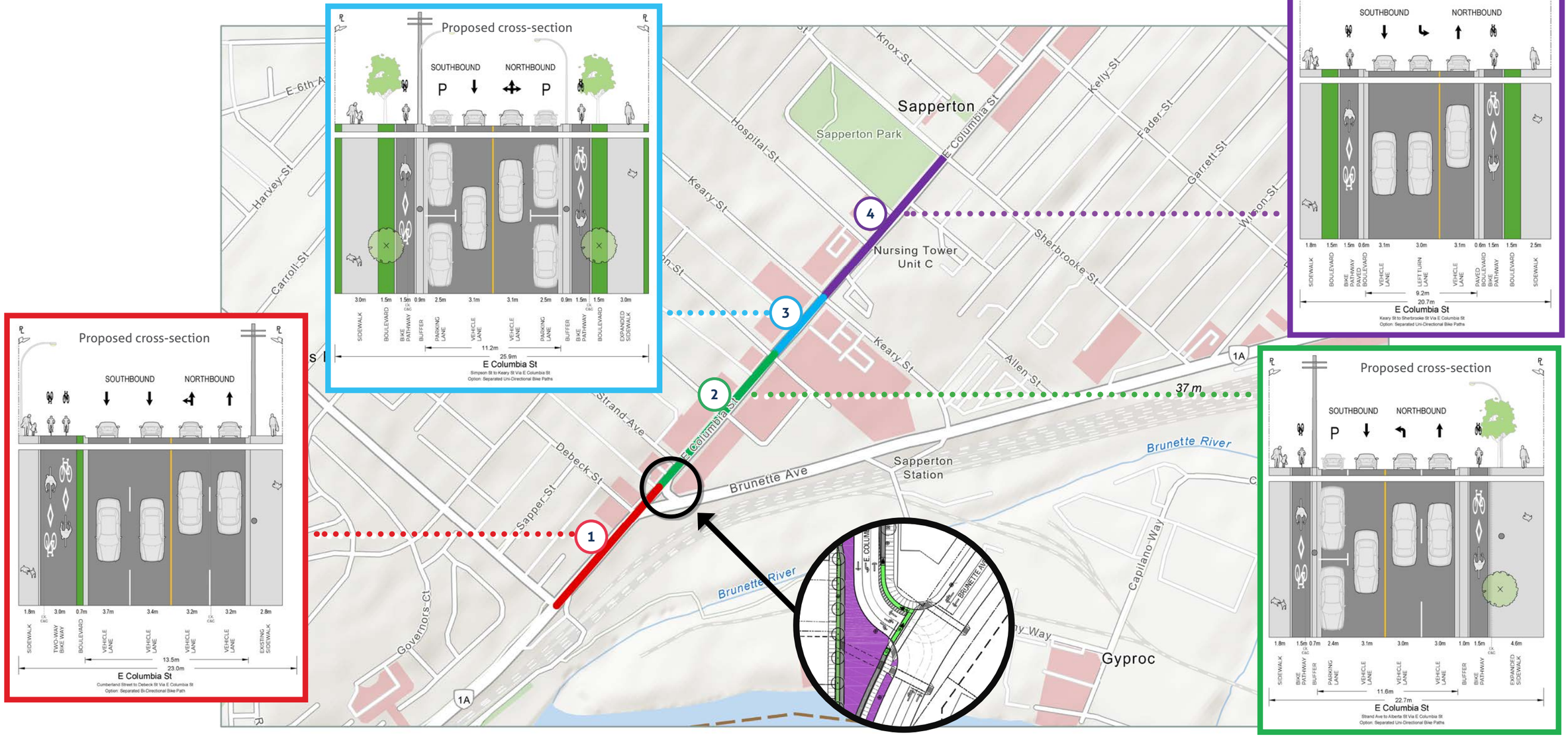




CORE NETWORK CYCLING FACILITIES - EAST 1

- E1-1
- E1-2
- E1-3
- E1-4
- E1-5
- E1-6
- E1-7
- School
- Park / Recreation Field
- Commercial
- Municipal Boundary

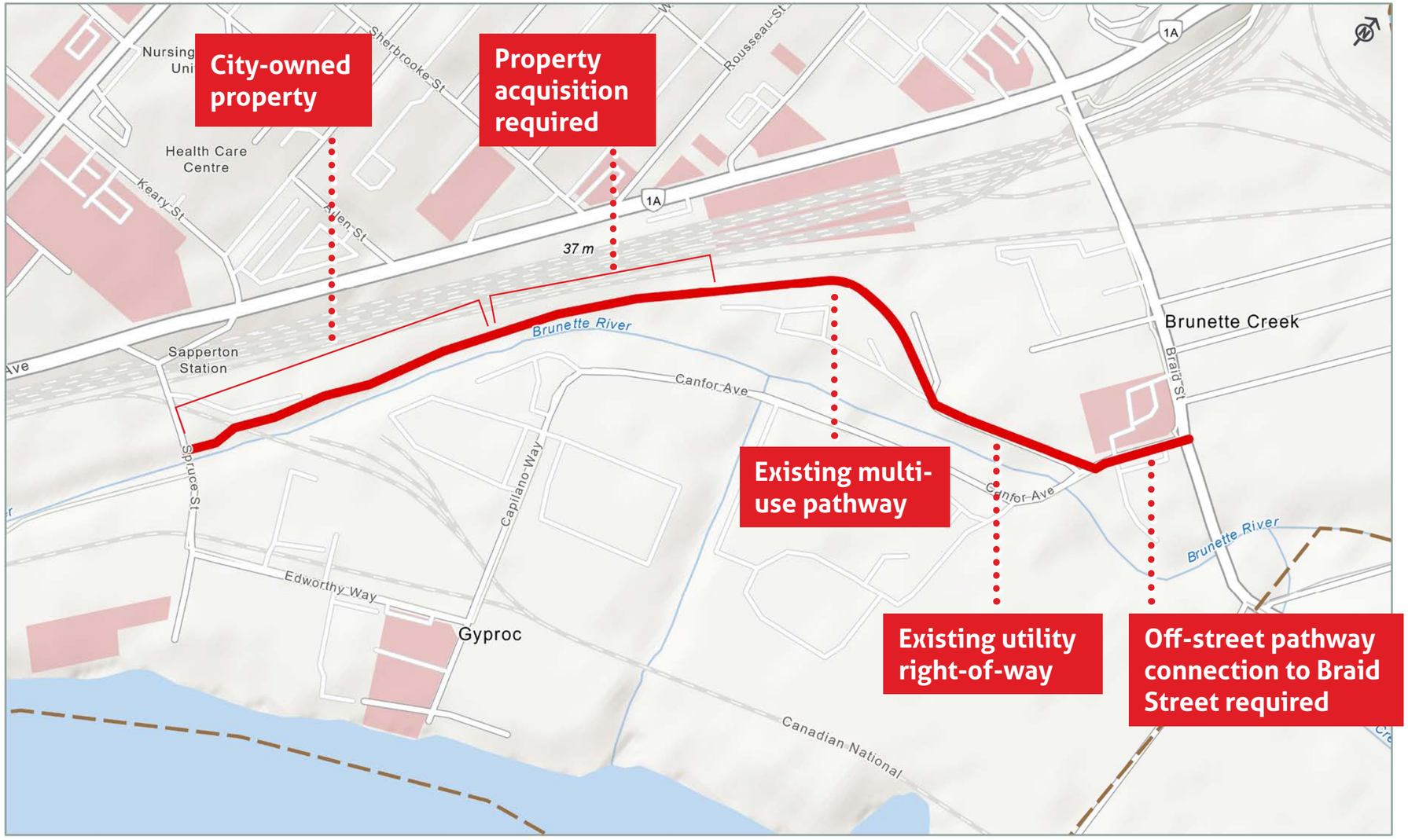
East 2. East Columbia Street



CORE NETWORK CYCLING FACILITIES - EAST 2

- E2-1
- E2-2
- E2-3
- E2-4
- School
- Park / Recreation Field
- Commercial
- Municipal Boundary

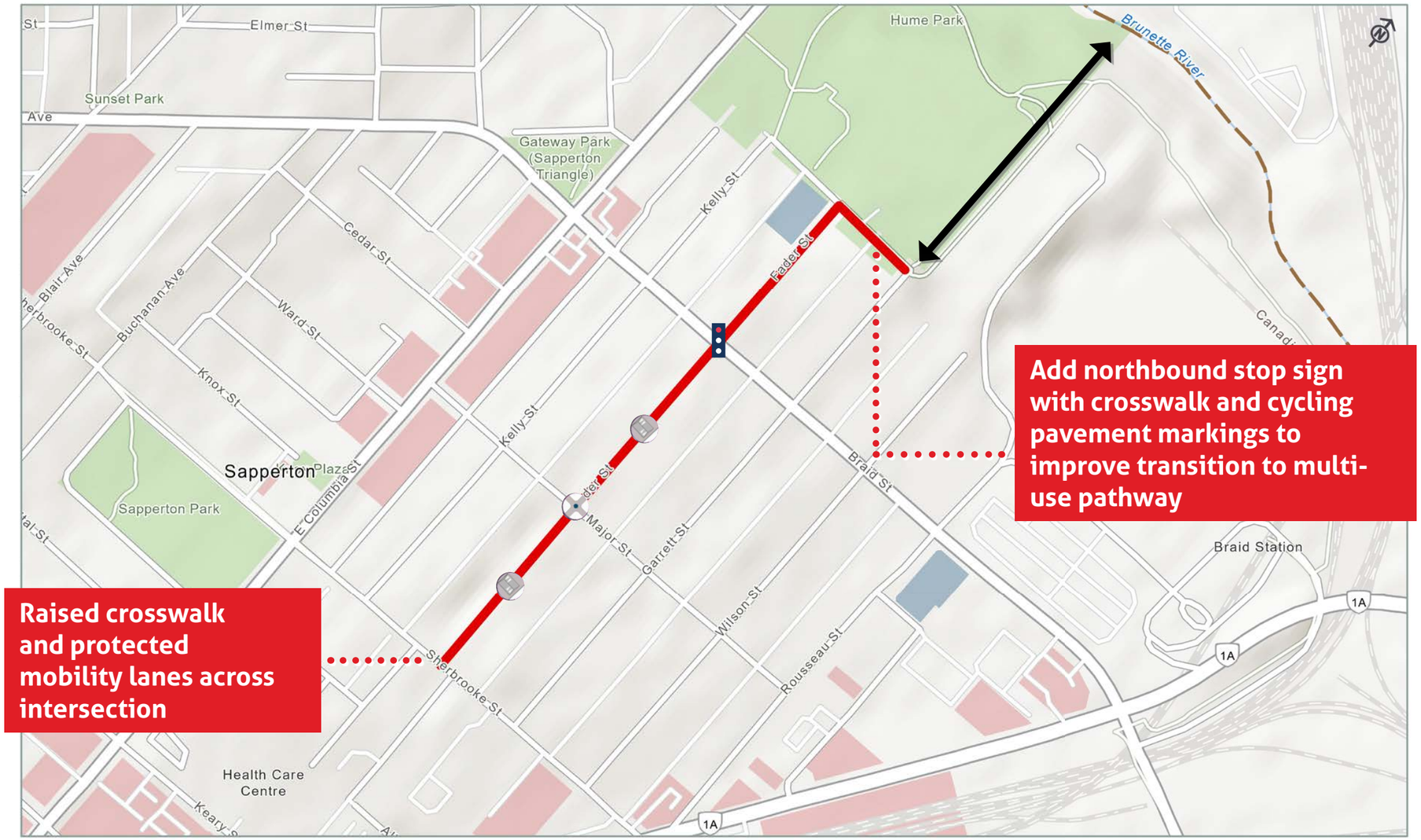
East 3. Brunette Fraser Regional Greenway



CORE NETWORK CYCLING FACILITIES - EAST 3

- E3
- School
- Park / Recreation Field
- Commercial
- Municipal Boundary

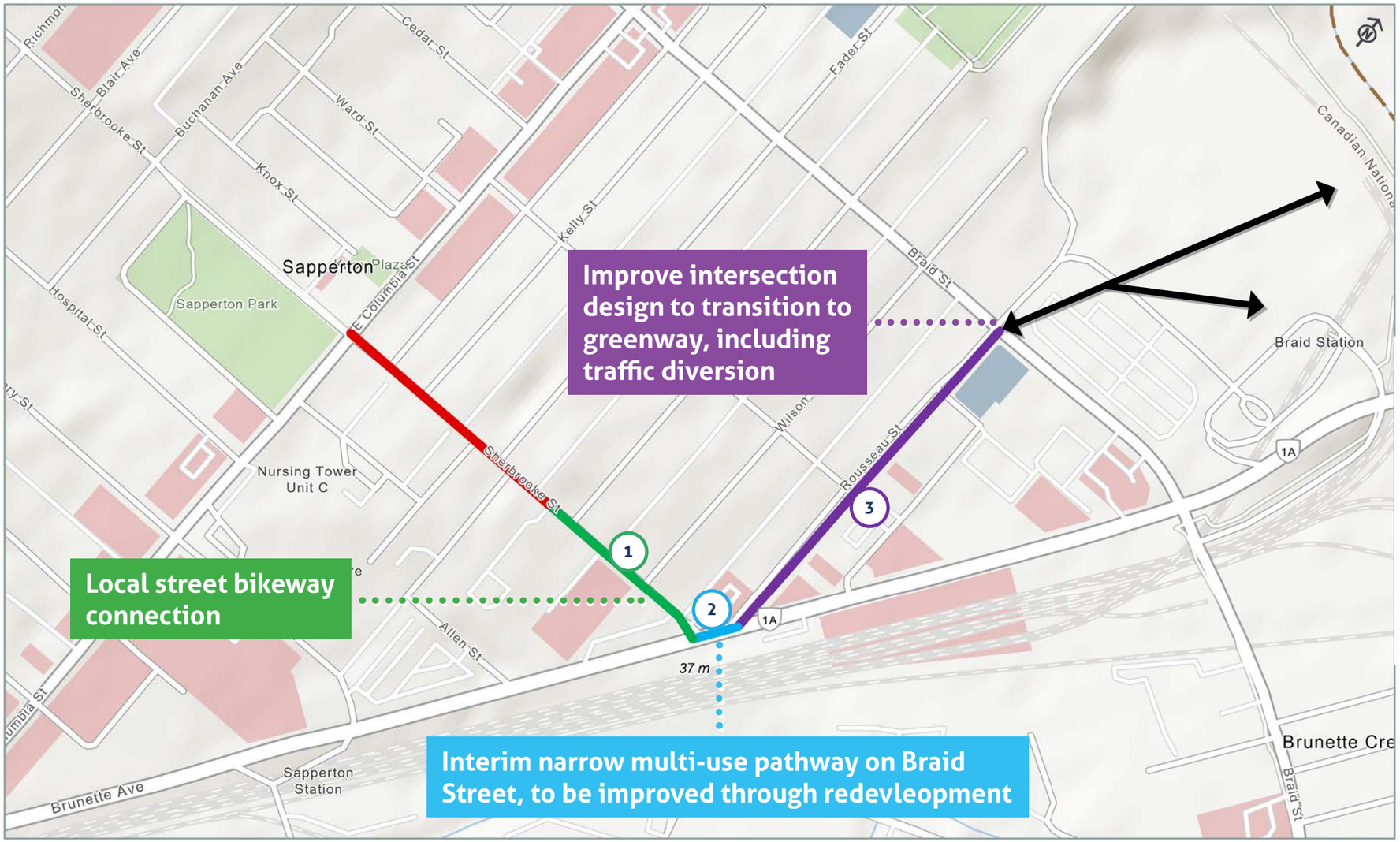
East 4. Fader Street

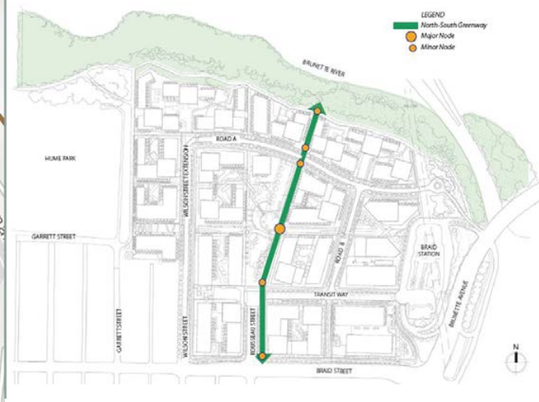


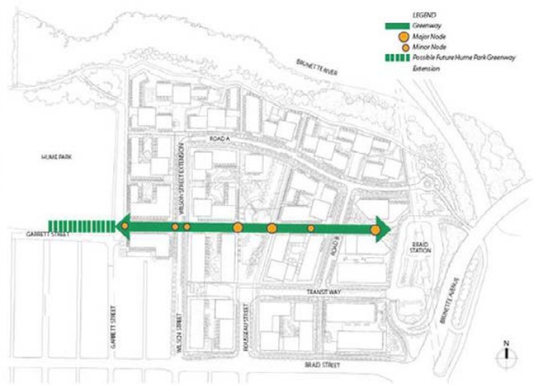
CORE NETWORK CYCLING FACILITIES - EAST 4

- E4
- School
- Park / Recreation Field
- Commercial
- Municipal Boundary

East 5. Sherbrooke Street / Rousseau Street



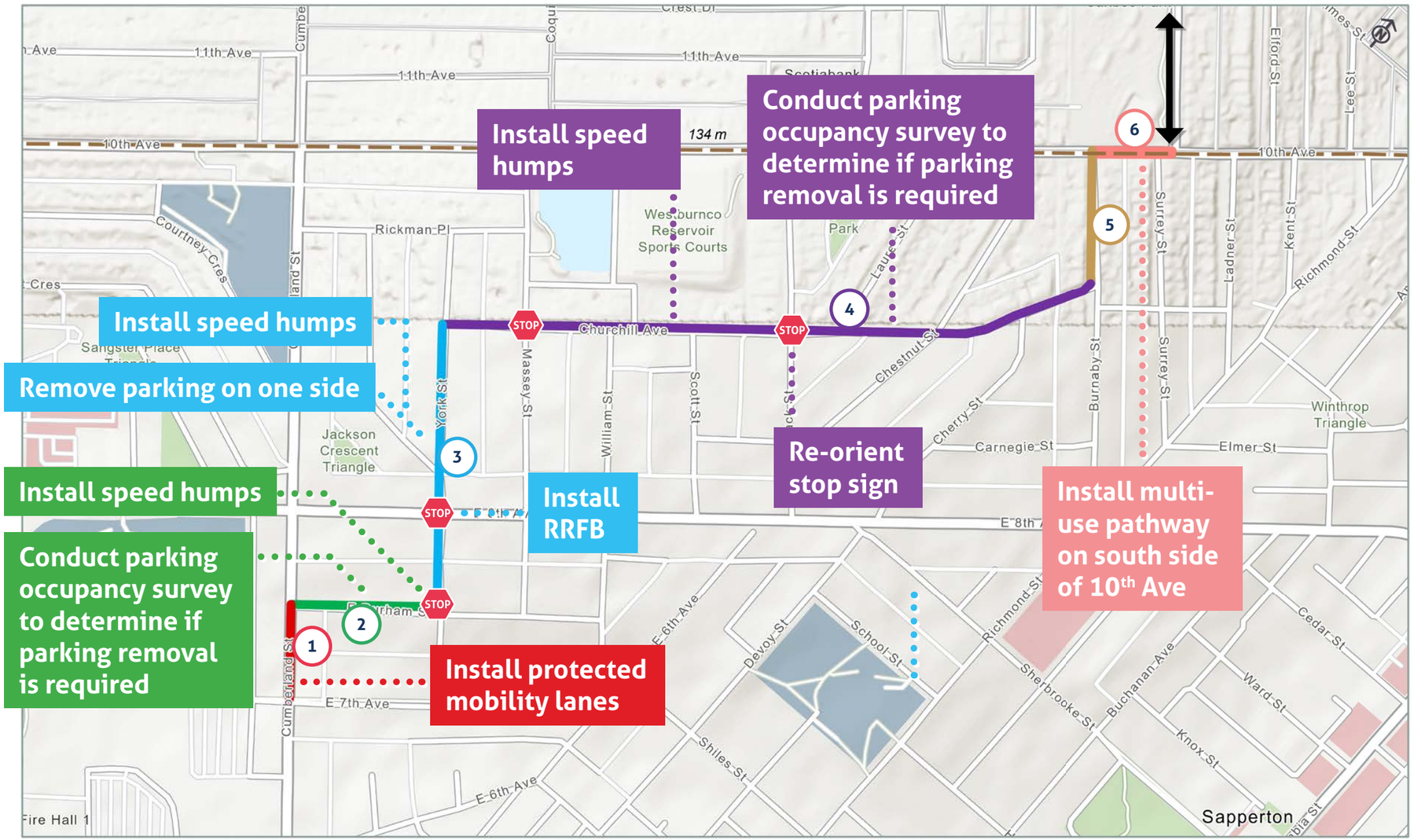




CORE NETWORK CYCLING FACILITIES - EAST 5

- E5-1
- E5-2
- E5-3
- E5-4
- School
- Park / Recreation Field
- Commercial
- Municipal Boundary

East 6. York Street / Churchill Avenue / Burnaby Street

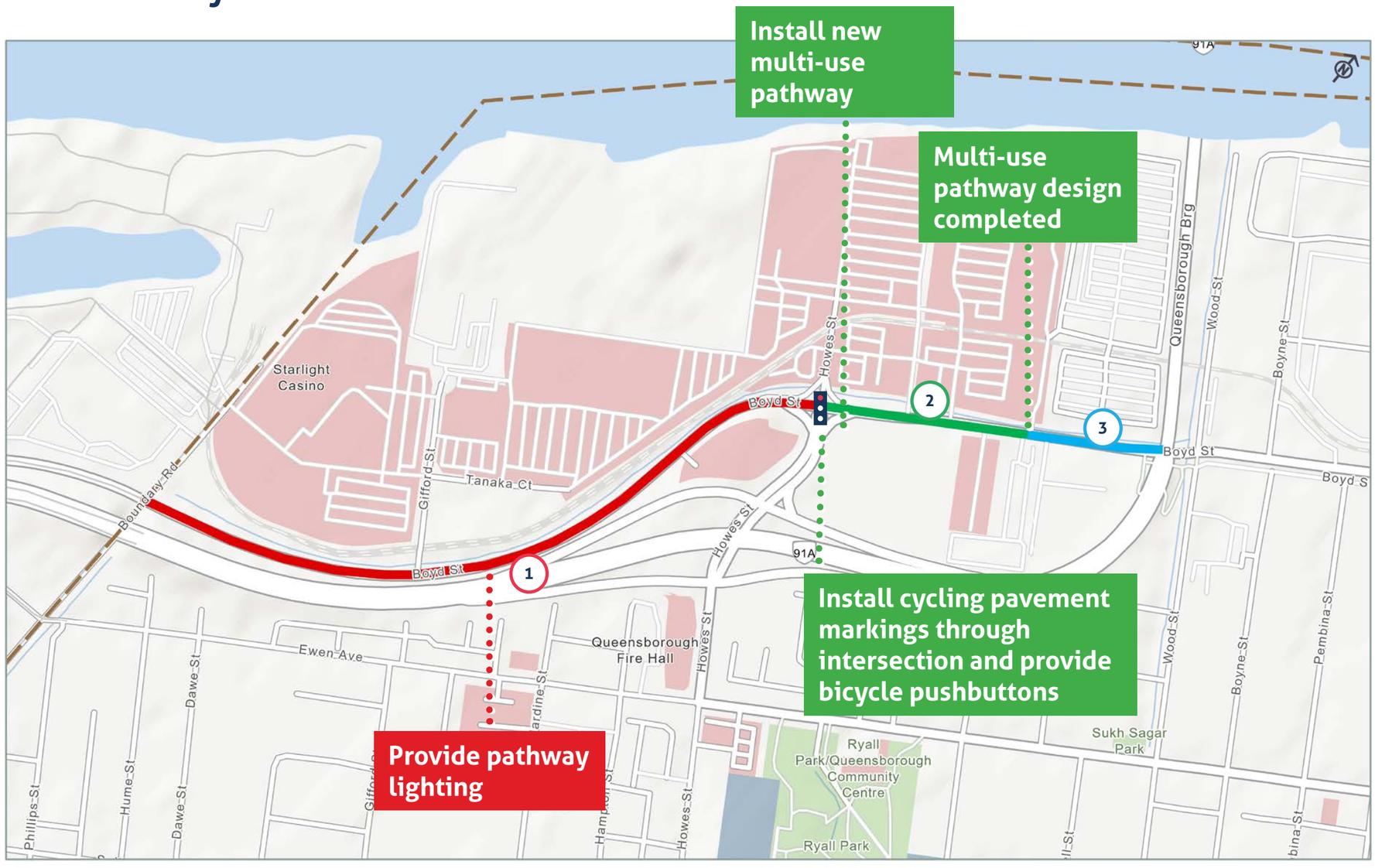


CORE NETWORK CYCLING FACILITIES - EAST 6

- E6-1
- E6-2
- E6-3
- E6-4
- E6-5
- E6-6
- School
- Park / Recreation Field
- Commercial
- Municipal Boundary

NEW WESTMINSTER
Active Transportation Network

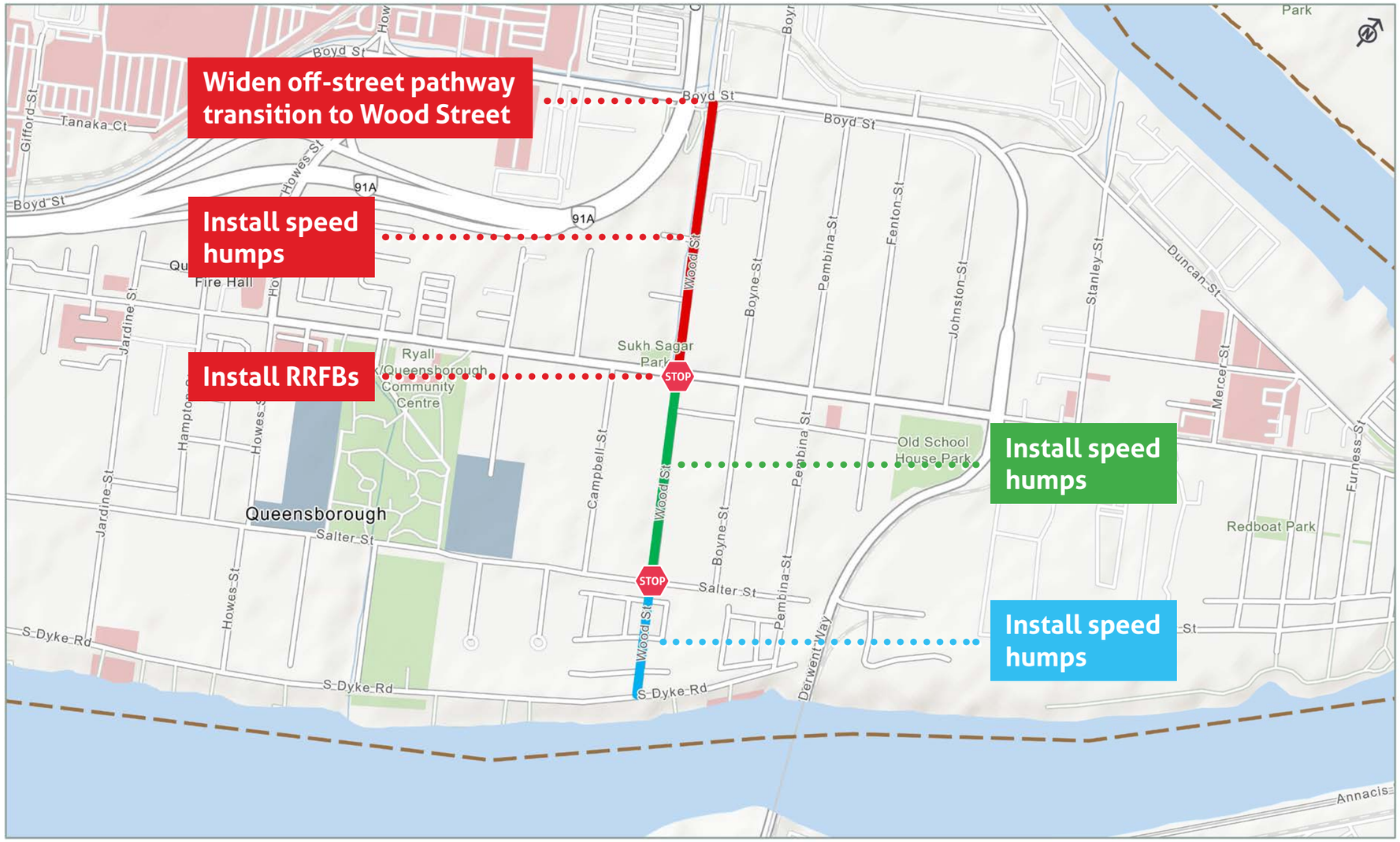
South 1. Boyd Street



CORE NETWORK CYCLING FACILITIES - SOUTH 1

- S1-1
- S1-2
- S1-3
- School
- Park / Recreation Field
- Commercial
- Municipal Boundary

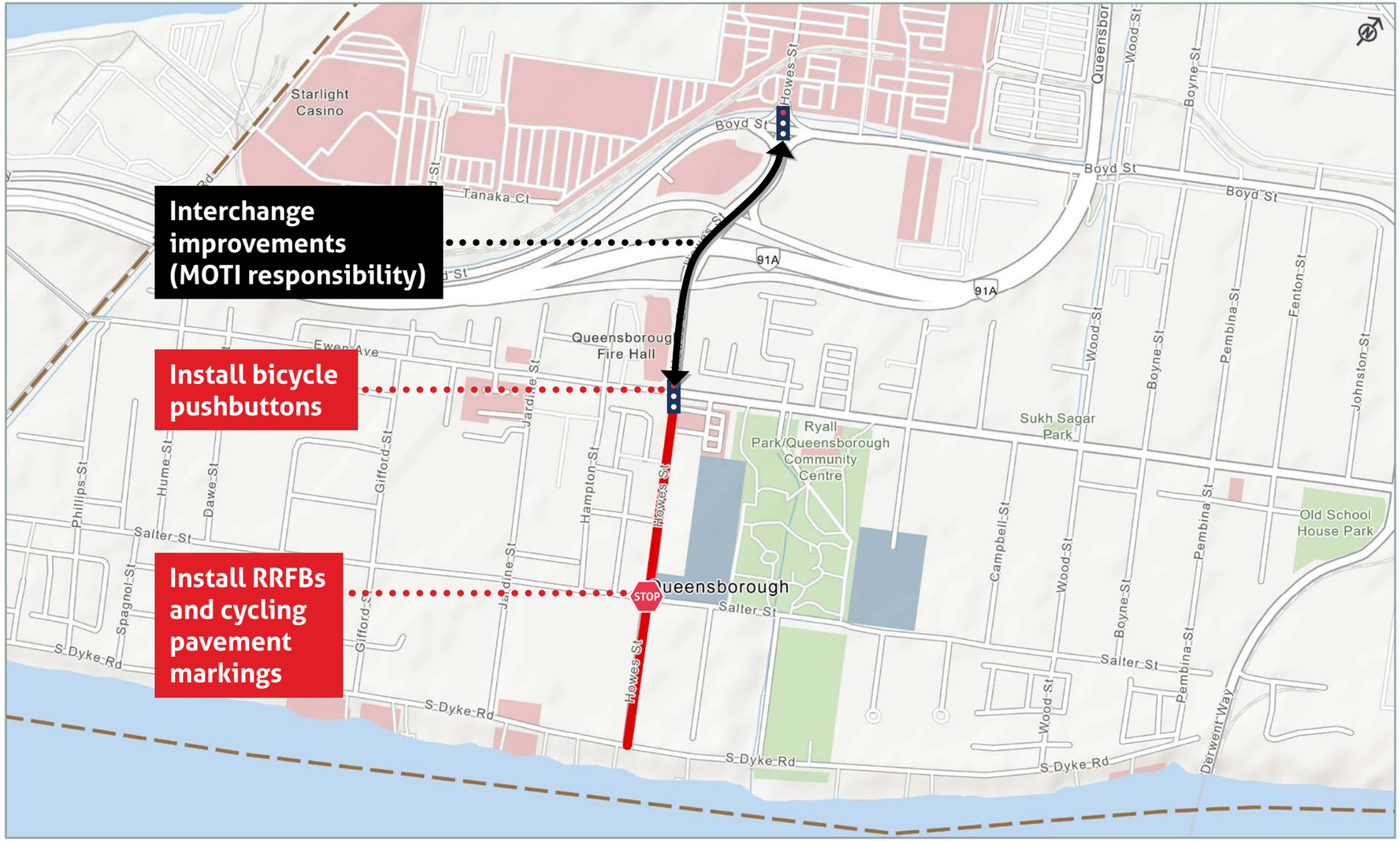
South 2. Wood Street



CORE NETWORK CYCLING FACILITIES - SOUTH 2

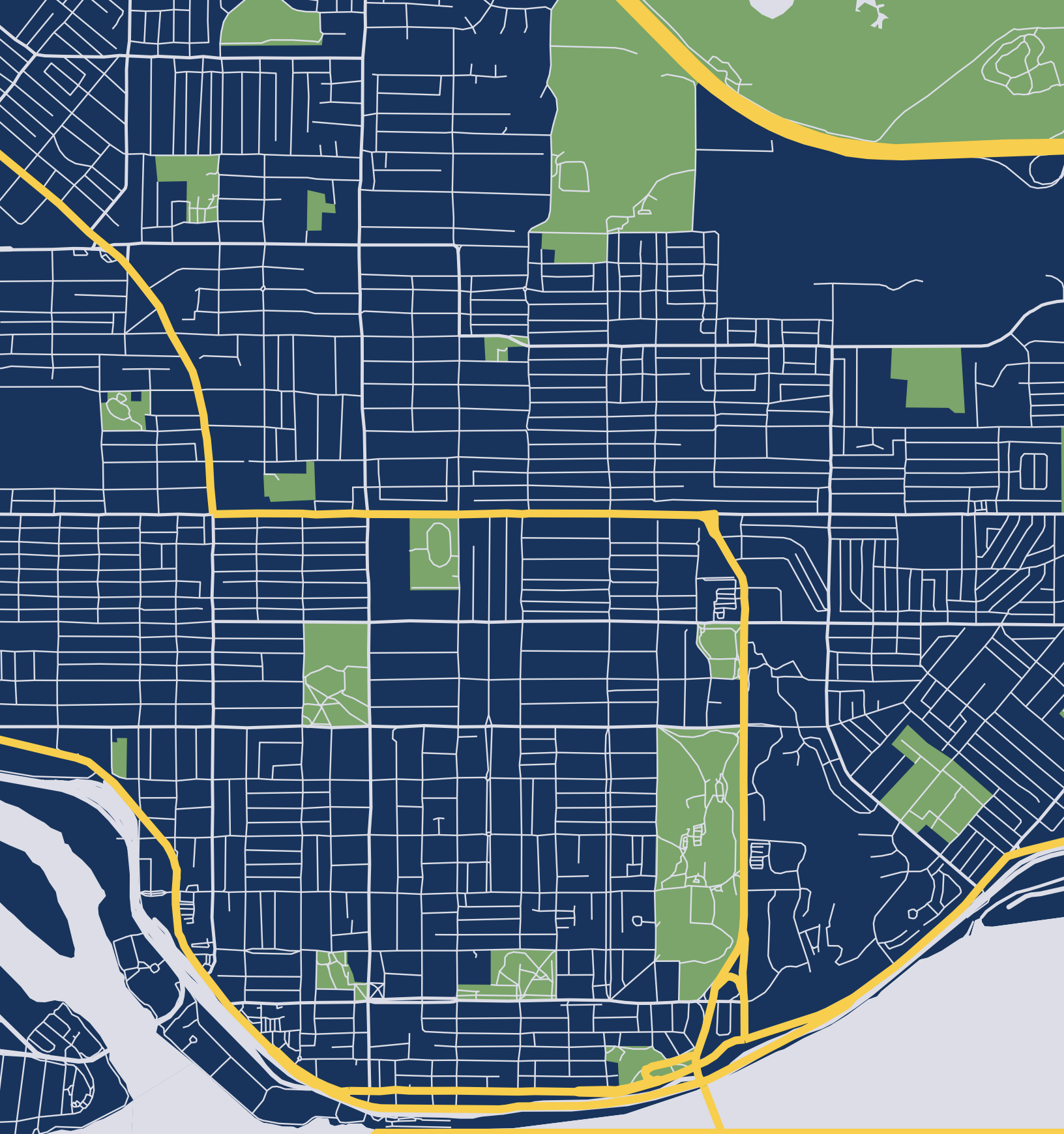
- S2-1
- S2-2
- S2-3
- School
- Park / Recreation Field
- Commercial
- Municipal Boundary

South 3. Howes Street



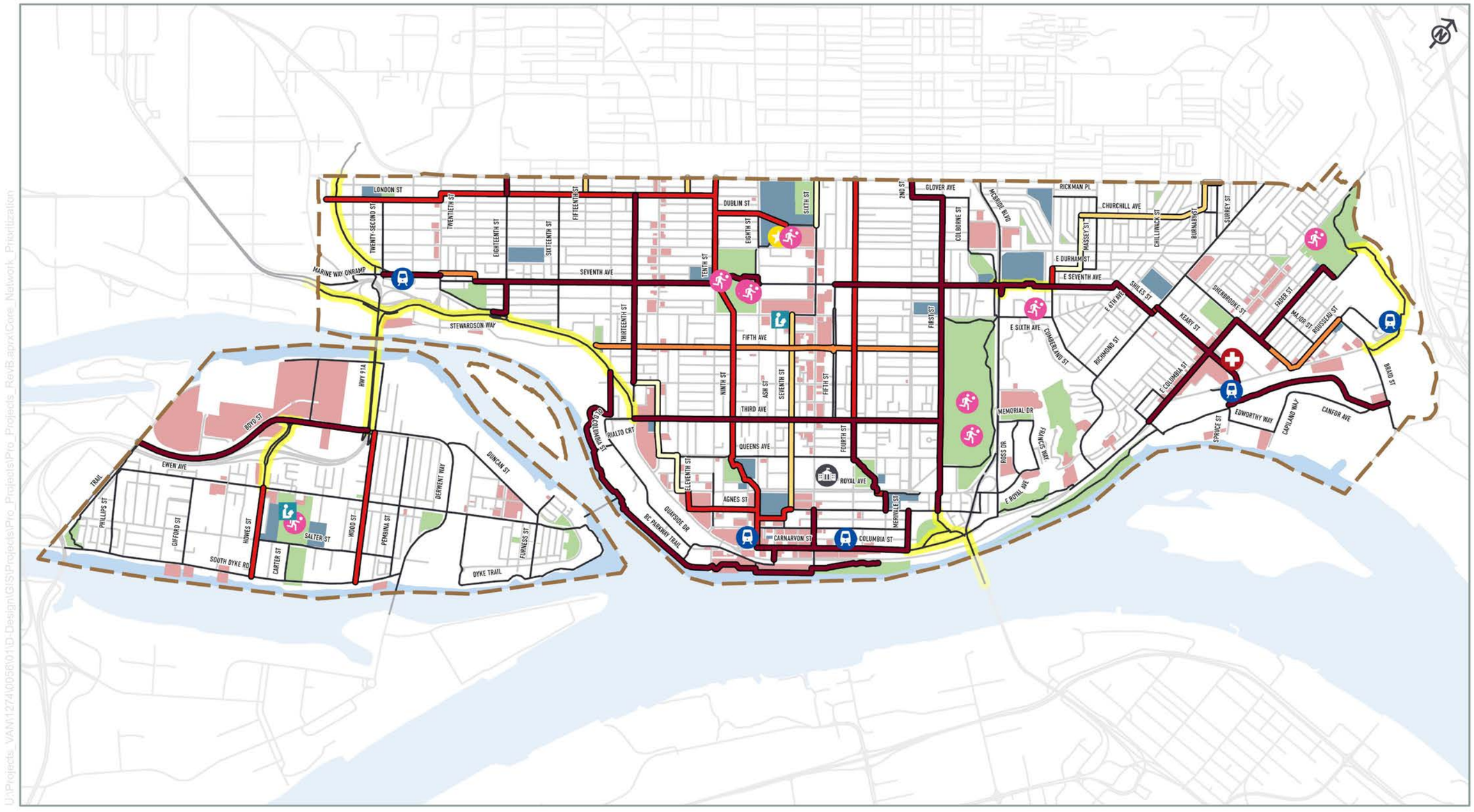
CORE NETWORK CYCLING FACILITIES - SOUTH 3

- S3
- School
- Park / Recreation Field
- Commercial
- Municipal Boundary



Appendix C

Evaluation Results



CORE NETWORK PRIORITIZATION

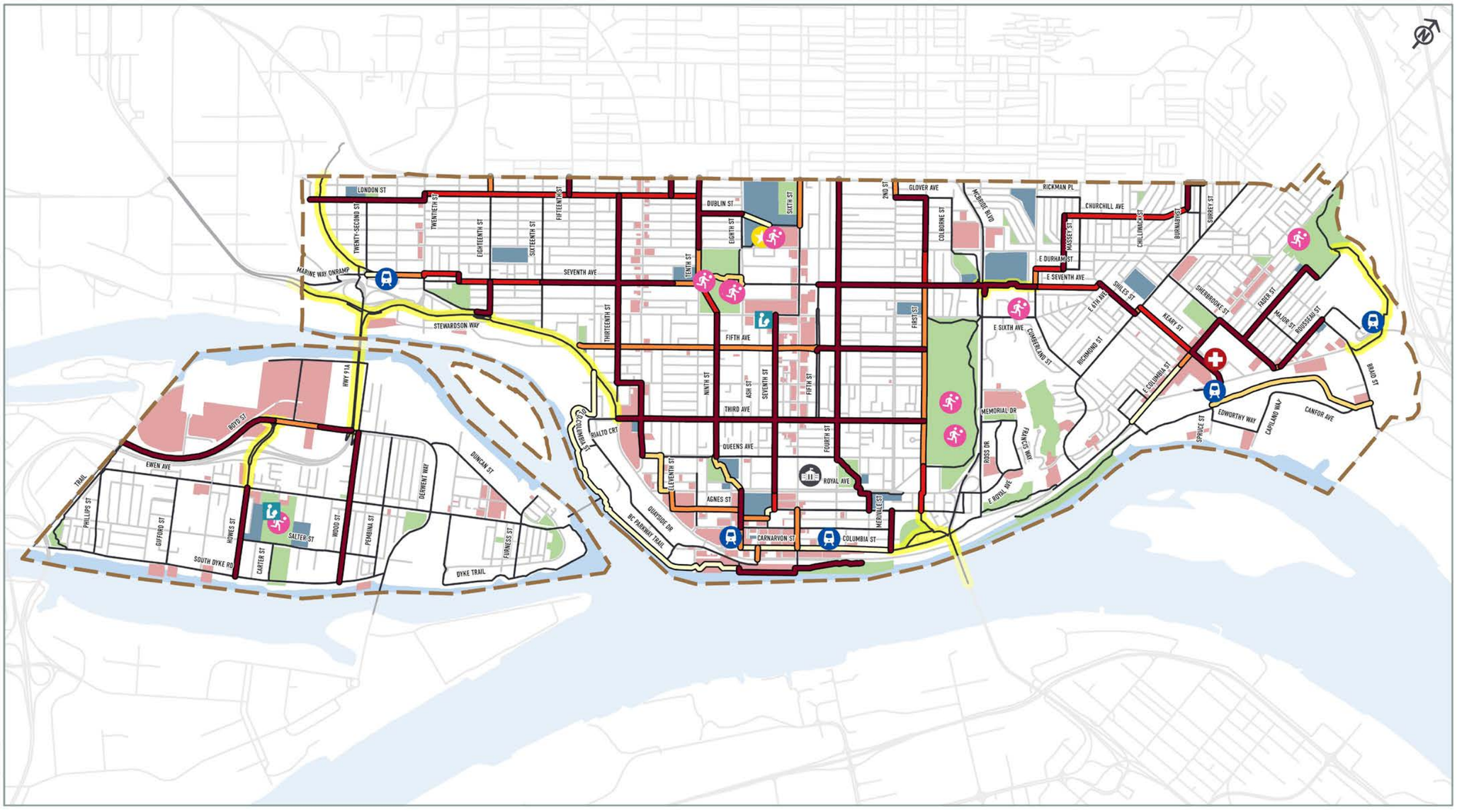
Completes a Gap Score

- 5
- 4
- 3
- 2
- 1

- Supporting Network
- Other Agency
- City Hall
- Library
- Recreation Facility
- Massey Theatre
- Royal Columbian Hospital
- SkyTrain Station
- School
- Park / Recreation Field
- Commercial
- Municipal Boundary

NEW WESTMINSTER
Active Transportation Network

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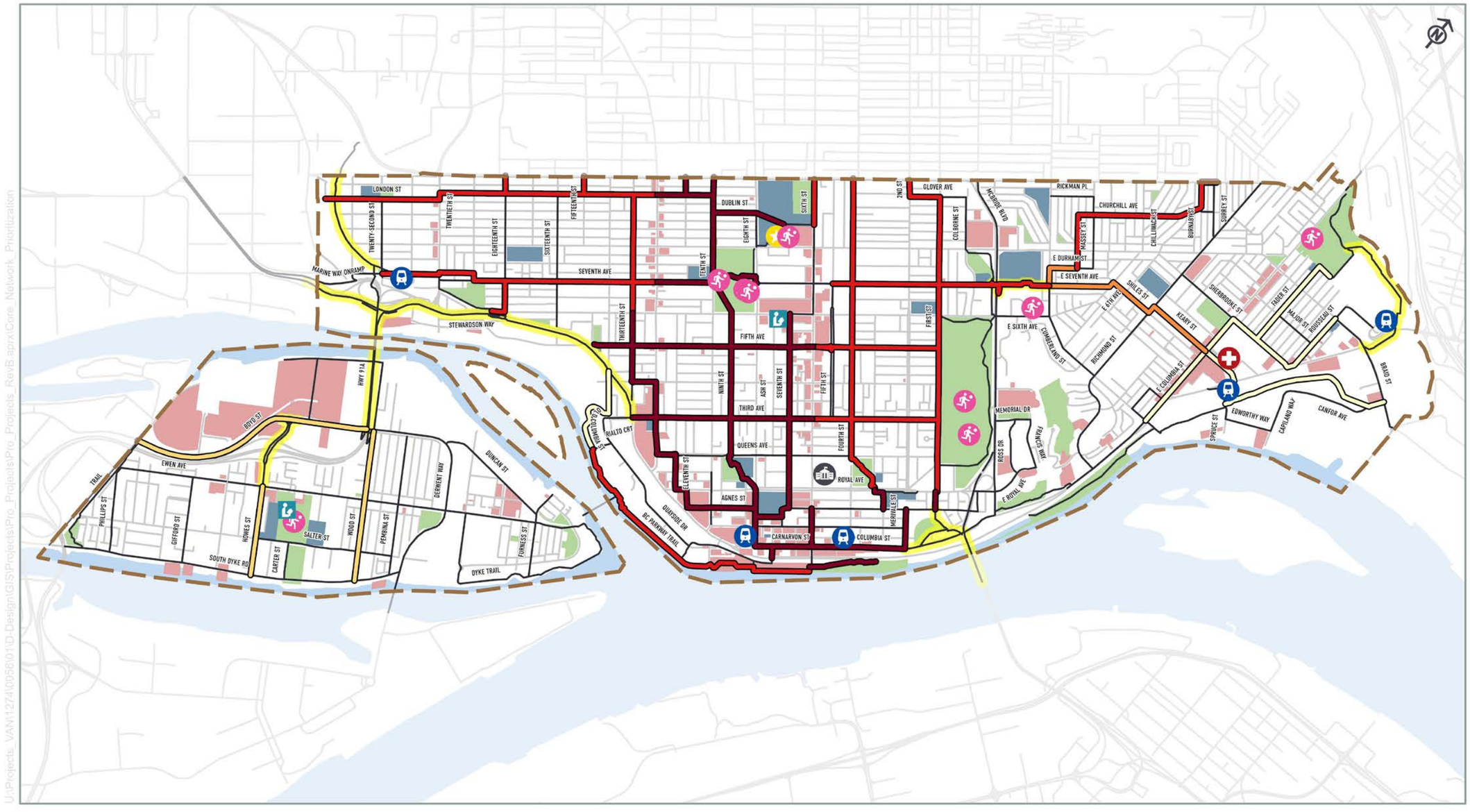
CORE NETWORK PRIORITIZATION

Complexity Score
- 5
- 4
- 3
- 2
- 1

- Supporting Network
- Other Agency
- City Hall
- Library
- Recreation Facility
- Massey Theatre
- Royal Columbian Hospital
- SkyTrain Station
- School
- Park / Recreation Field
- Commercial
- Municipal Boundary

NEW WESTMINSTER
Active Transportation Network

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CORE NETWORK PRIORITIZATION

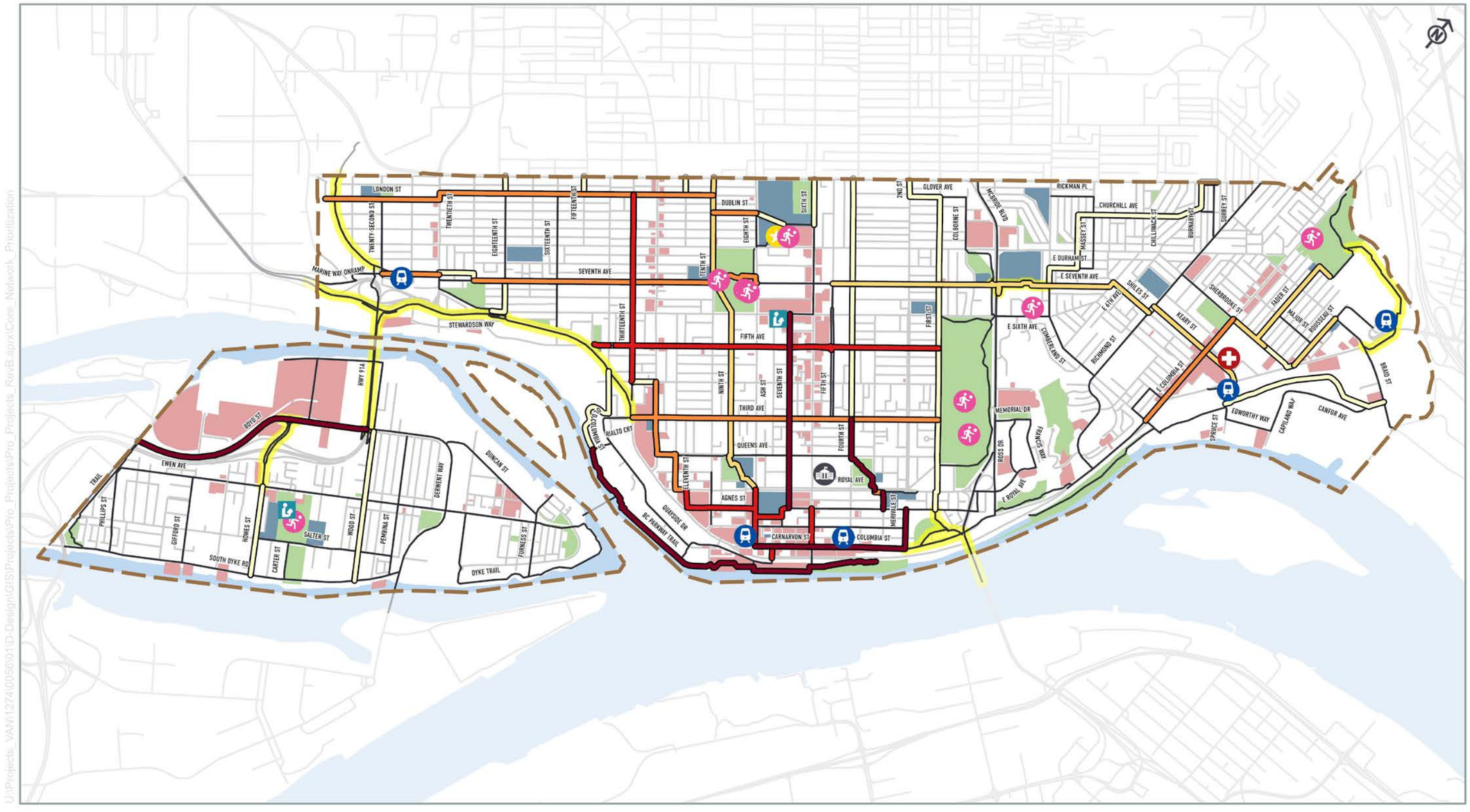
Cycling Potential Score

- 5
- 4
- 3
- 2
- 1

- Supporting Network
- Other Agency
- City Hall
- Library
- Recreation Facility
- Massey Theatre
- Royal Columbian Hospital
- SkyTrain Station
- School
- Park / Recreation Field
- Commercial
- Municipal Boundary

NEW WESTMINSTER
Active Transportation Network

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CORE NETWORK PRIORITIZATION

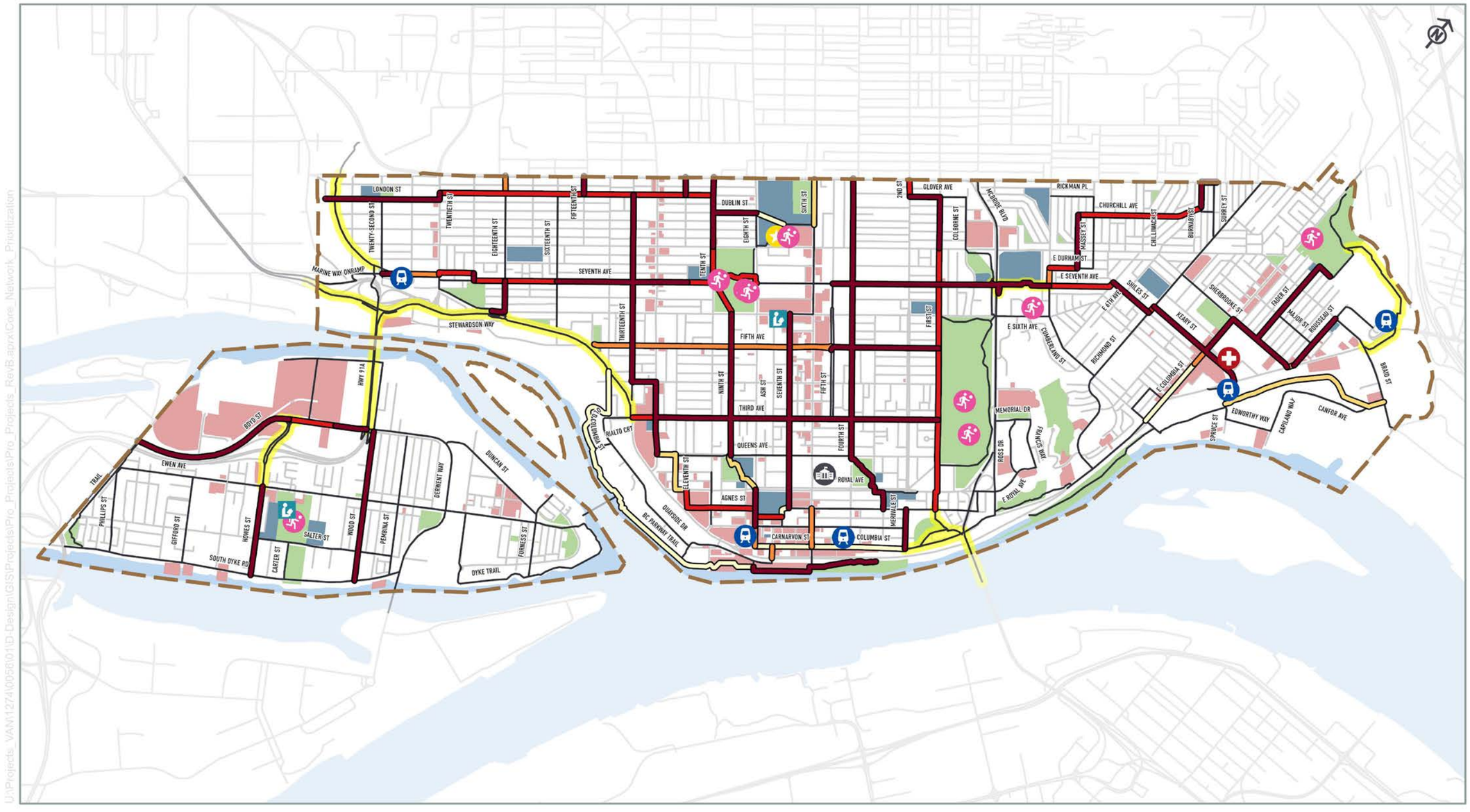
Destinations Served Score

- 5
- 4
- 3
- 2
- 1

- Supporting Network
- Other Agency
- City Hall
- Library
- Recreation Facility
- Massey Theatre
- Royal Columbian Hospital
- SkyTrain Station
- School
- Park / Recreation Field
- Commercial
- Municipal Boundary

NEW WESTMINSTER
Active Transportation Network

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CORE NETWORK PRIORITIZATION

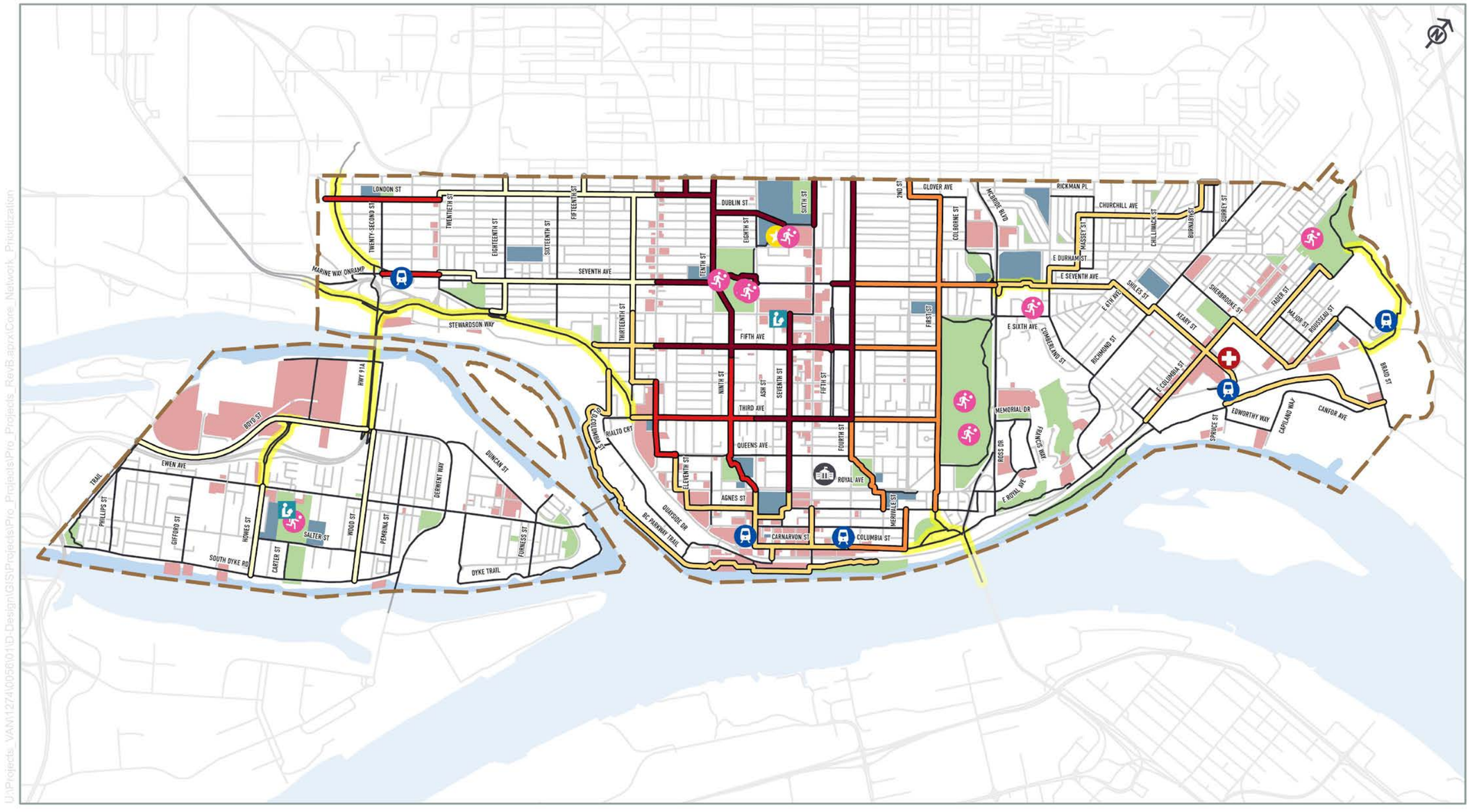
Ease of Implementation Score

- 5
- 4
- 3
- 2
- 1

- Supporting Network
- Other Agency
- City Hall
- Library
- Recreation Facility
- Massey Theatre
- Royal Columbian Hospital
- SkyTrain Station
- School
- Park / Recreation Field
- Commercial
- Municipal Boundary

NEW WESTMINSTER
Active Transportation Network

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CORE NETWORK PRIORITIZATION

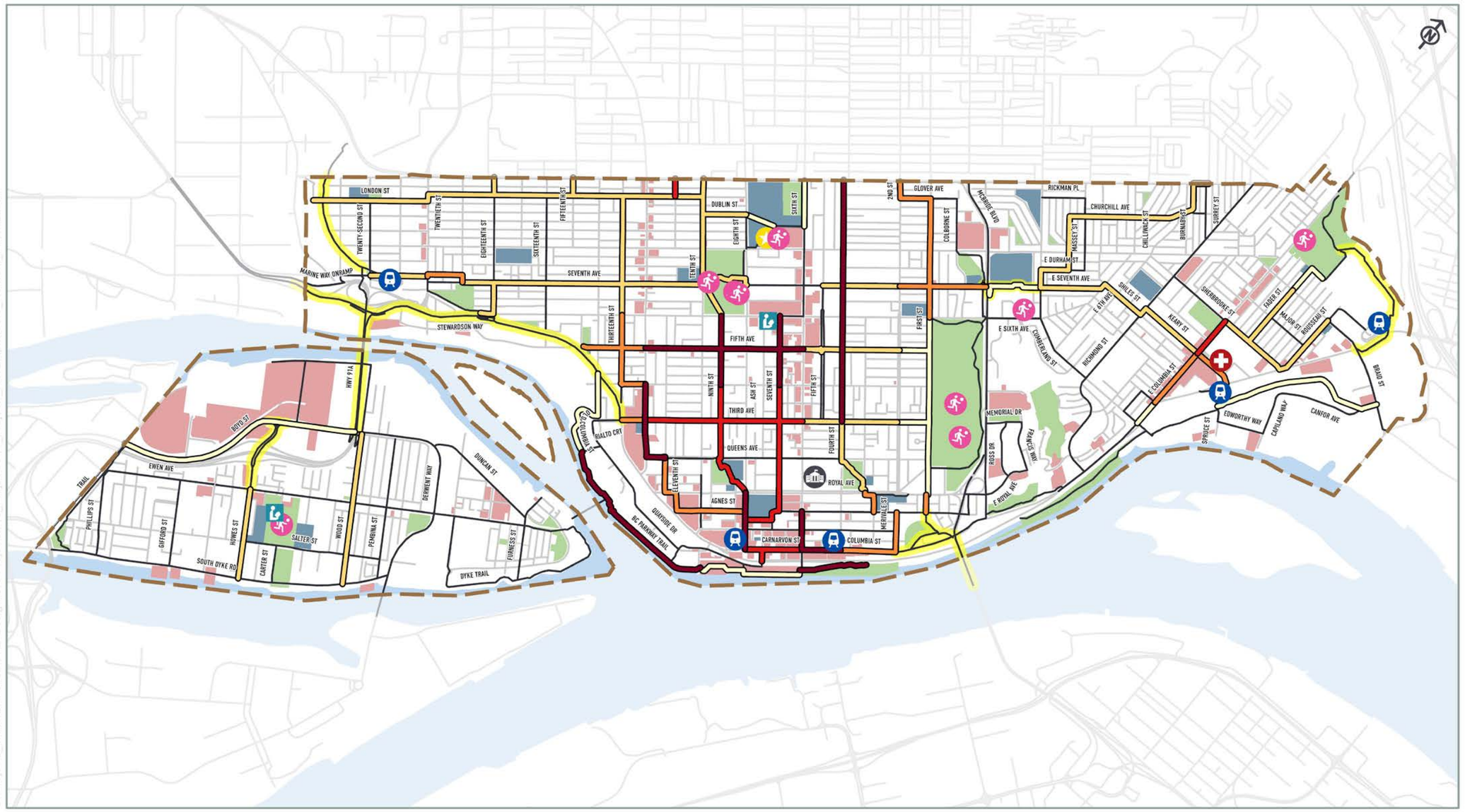
Equity Score

- 5
- 4
- 3
- 2
- 1

- Supporting Network
- Other Agency
- City Hall
- Library
- Recreation Facility
- Massey Theatre
- Royal Columbian Hospital
- SkyTrain Station
- School
- Park / Recreation Field
- Commercial
- Municipal Boundary

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Active Transportation Network

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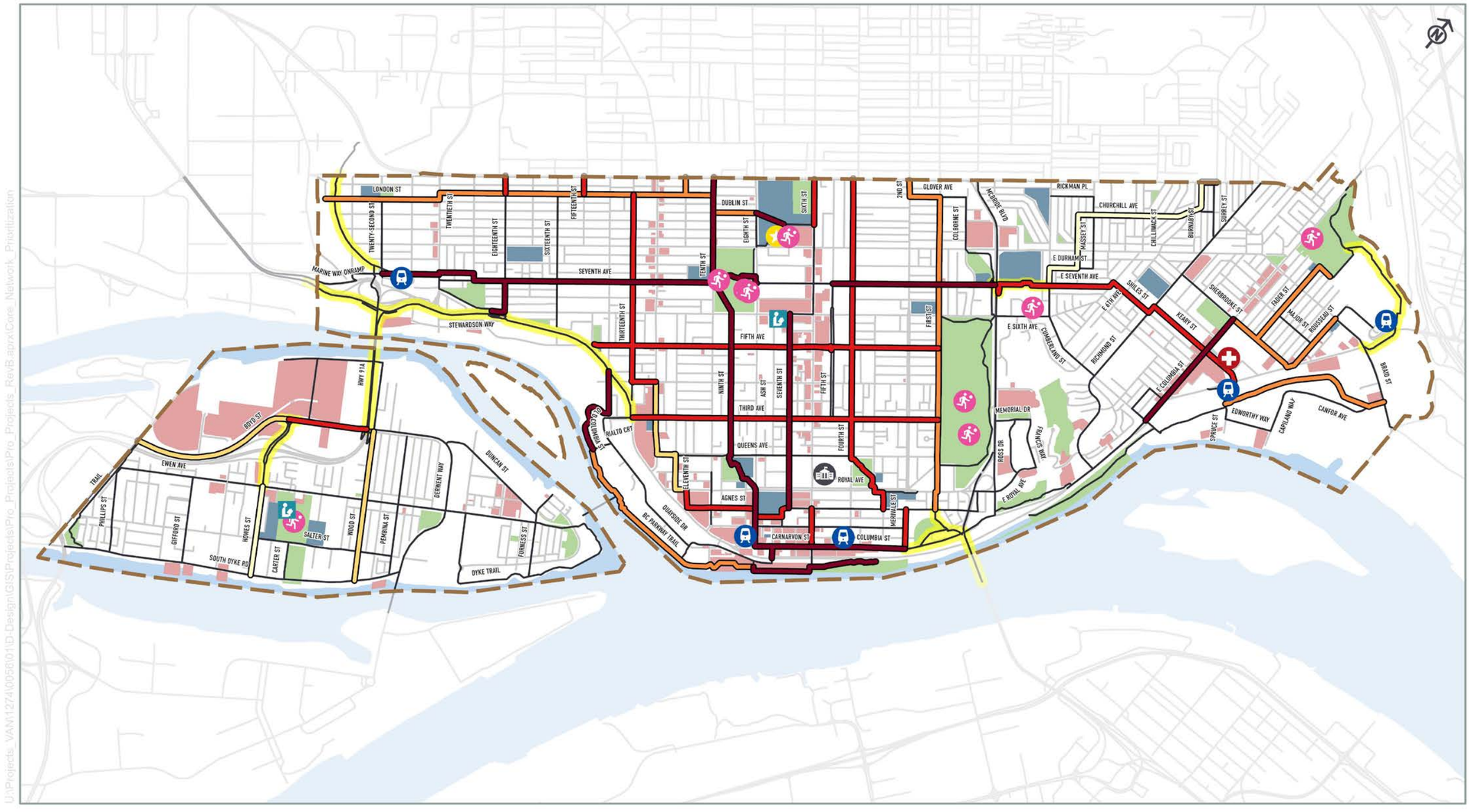
CORE NETWORK PRIORITIZATION

Population Served Score

- 5
- 4
- 3
- 2
- 1

- Supporting Network
- Other Agency
- City Hall
- Library
- Recreation Facility
- Massey Theatre
- Royal Columbian Hospital
- SkyTrain Station
- School
- Park / Recreation Field
- Commercial
- Municipal Boundary

NEW WESTMINSTER
Active Transportation Network



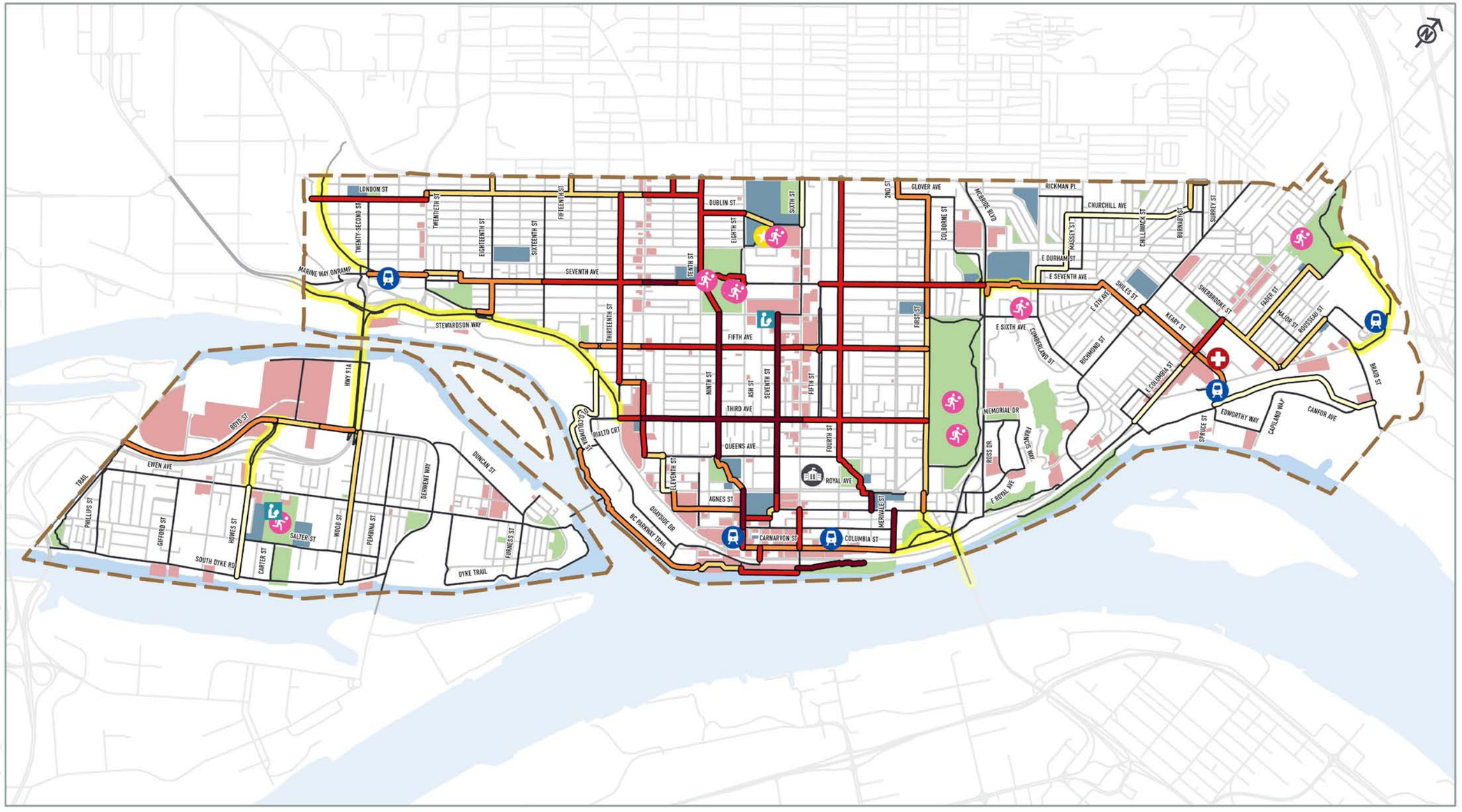
CORE NETWORK PRIORITIZATION

Scale of Impact Score

- 5
- 4
- 3
- 2
- 1

- Supporting Network
- Other Agency
- City Hall
- Library
- Recreation Facility
- Massey Theatre
- Royal Columbian Hospital
- SkyTrain Station
- School
- Park / Recreation Field
- Commercial
- Municipal Boundary

NEW WESTMINSTER
Active Transportation Network



CORE NETWORK PRIORITIZATION

Overall Score
- 34 - 37
- 30 - 33
- 26 - 29
- 22 - 25
- 17 - 21

- Supporting Network
- Other Agency
- City Hall
- Library
- Recreation Facility
- Massey Theatre
- Royal Columbian Hospital
- SkyTrain Station
- School
- Park / Recreation Field
- Commercial
- Municipal Boundary

NEW WESTMINSTER
Active Transportation Network

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