



# Cycling Wayfinding Signage Planning

Preliminary draft - for consultation

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## Introduction

Cycling is a healthy, sustainable, meanwhile efficient mode of transportation. More and more people recognize the social, economic, environmental and health benefits of cycling. According to the District's 2012 Transportation Planning Priorities survey, residents of the District of North Vancouver indicated their preference of cycling over driving in the next five years. To encourage more trips made by cycling, the District of North Vancouver strives to provide a more complete cycling network that is safe and efficient for all ages and abilities.

A safe and efficient cycling network in the District is not only fundamental to achieve a sustainable transportation system that enhances the environmental, social and economic aspects of a complete community, but also critical to the Metro Vancouver Regional Cycling Strategy, "Cycling for Everyone". Therefore, from 2010 to 2012 intensive researches and studies have been done by the City and District of North Vancouver to develop an integrated North Vancouver Bicycle Master Plan that defines every on and off-road bike routes.

Having the cycling network map developed, the next step for the District to actualize its vision is to develop a navigation system to assist cyclists to utilize the District's bike network and get to their destinations safely, comfortably, and efficiently.

## Goals and Objectives

The Cycling Wayfinding Plan is developed to provide a navigation system to assist various types of cyclists to find their desired routes within the District's bike network. The objective of the Cycling Wayfinding Plan is to assist cyclists to utilize the District's bike facilities and support the District's objective to encourage the transportation mode shift from driving to cycling. The goals of the Cycling Wayfinding Plan are in conformity with the District's Bicycle Master Plan and respective future visions for cycling.

### **I. To assist cyclists of all types to navigate the District's bike network**

It is important to distinguish different experiences of cycling. The purposes of cycling trips range from utility cycling to cycle tourism; as a result, the needs for navigation information vary. The wayfinding signage plan does not only focus on directing popular destinations, but also guides cyclists to find preferred routes: either quiet routes for recreational cycling or efficient connections between designated bike routes for utility cyclists, who choose cycling to get to work or specific destinations.

### **II. To improve safety, level of comfort, and convenience of cycling trip**

In 2011, the District conducted a survey to identify cycling barriers in North Vancouver. The response from cyclists and potential cyclists suggest safety concerns that rise from sharing the road with motor vehicles and the risk of injury from car-

bike collision are major impediments to cycling. The Cycling Wayfinding Signage Plan intends to help cyclists of different skill levels to get around the District's designated routes that are treated with pavement markings, lighting, surface treatments and et cetera.

### **III. To encourage total number of trips made by cycling in the District**

Typical cycling trips are less than 8 kilometers. According to TransLink's 2008 study, the average bicycle trips that begin in the District are 7.5 kilometers. The average car trips starting in the District for personal business is 7.3 kilometers, for grade school is 6.3 kilometers, and for work is 10.0 kilometers. These trips made by car can potentially alter to cycling trips with the provision of a safer and well-connected bike network. The wayfinding signage plan plays a critical role in the District's strategy to encourage transportation mode shift, since easy navigation of the network is a key criterion of comfortable cycling trip.

## **Scope and Principles**

The Cycling Wayfinding Signage Plan is a supportive study to the Bicycle Master Plan. Its study scope includes identifying the users, prioritizing routes and destinations in the District for wayfinding signage, developing a strategic guideline for signage planning, a preliminary signage plan for decision signs (Appendix 1), and finally providing a standard for sign design (Appendix 2).

The District's wayfinding strategy abides by the principles from BC TransLink's Wayfinding Guidelines, Get There by Bike. This set of principles are derived and adapted from the principles of TransLink Wayfinding Standards Manual (TWSM) that has been widely adopted for all transit facility wayfinding in Metro Vancouver to allow consistency for facility design of all traffic modes.

### **1. Connect places**

In order to attract new cyclists to cycling for most trips, the wayfinding information should help cyclists easily get around between destinations and develop a sense of how cycling can improve mobility.

### **2. Use consistent names**

The consistency of destination names is crucial to the clarity and legitimacy of the wayfinding signage, especially for the District where many bike routes across different municipalities. The navigation information provided by the wayfinding signage should avoid causing confusion and help users to learn the system and apply their knowledge to new journeys.

### **3. Maintain movement**

Repeated stopping and starting is tiring for a physical activity like cycling. Wayfinding information that cannot be read effortlessly and quickly would disrupt the cycling pace and cause physical tiredness, and therefore make cycling less desirable.

### **4. Be predictable**

Predictability of signage would enable information to be recognized, understood, and applied. Predictability relates to all aspects of wayfinding information, from sign placement to design of a sign's contents. Predictable signage allows users to easily apply their understanding of known information to new situations, and therefore new journeys are made more easily.

### **5. Disclose information progressively**

Too much information or too many signs can cause visual clutter and make decision-making difficult. Information provided to mobile users need to be provided before major changes in directions, with guidance at decision points, repeated as necessary and confirmed after the maneuver is done.

### **6. Help users learn**

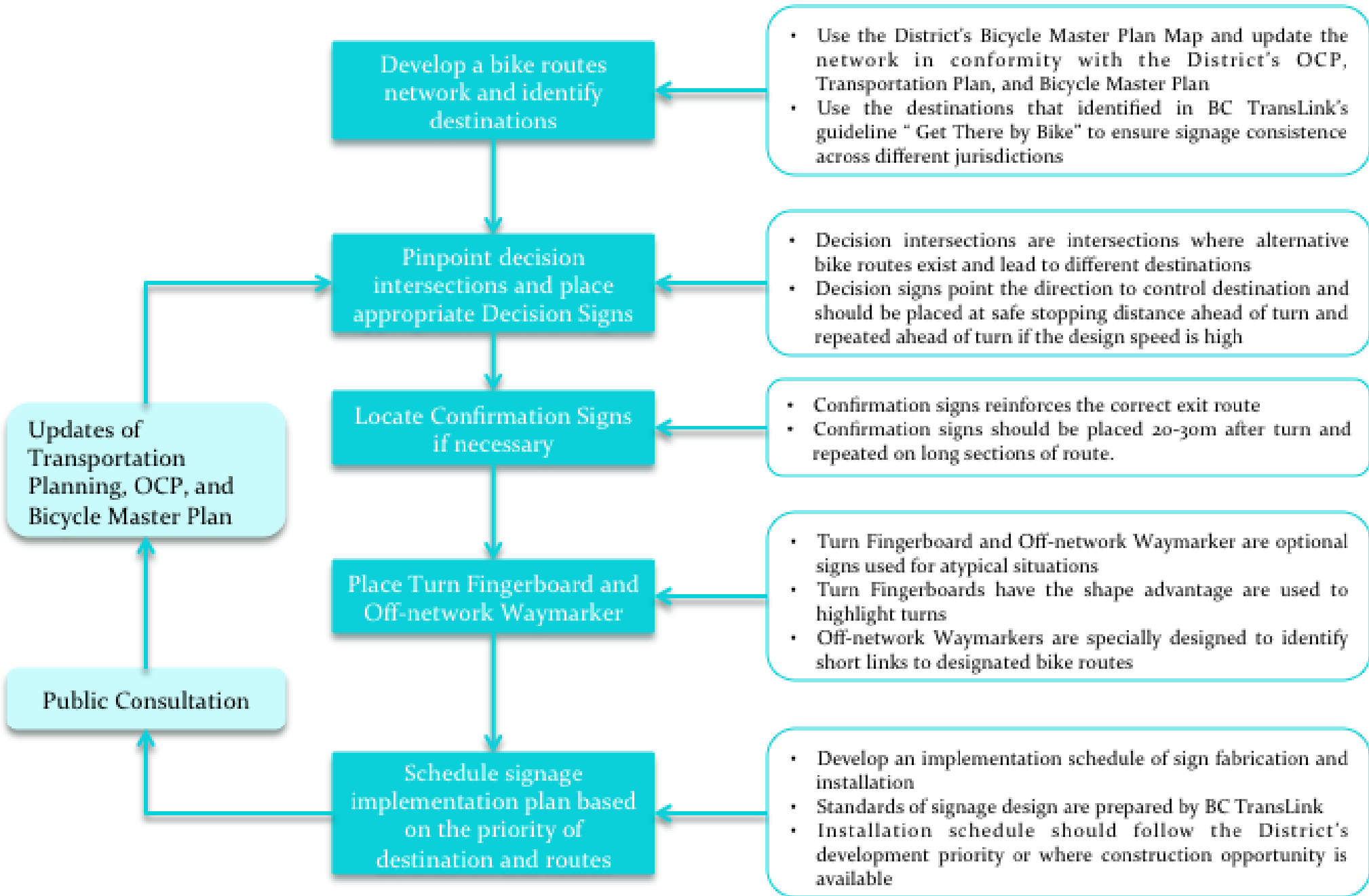
Helping newcomers to cycling understand what is accessible and how to navigate the network and challenging situations is an important component of wayfinding signage plan. This can be achieved by associating wayfinding plan with other information media, such as online route planners and portable maps of regional cycling routes.

### **7. Keep information simple**

Being able to make decisions quickly during journey is critical to cycling safety. Complicated or too much information requires extra time for cyclists to read and understand. As a result, information should be structured in a simple and logical form. For example, bike symbols can provide information in a more visually straightforward manner than text contents.

## **Design Guideline**

In this section, the design guideline is presented in the format of a process flow chart for easy application. It is important for planner to note that it is an iterative planning process. Public inputs and updates of the District's Transportation Plan, Official Community Plan, and Bicycle Master Plan would affect the wayfinding signage plan. Following the flow chart are detailed design considerations on type of signs, prioritizing routes to be signed, and optimization of signs.



## **Sign Family**

There are four common types of signs designed by the BC TransLink, Decision Signs, Confirmation Signs, Turn Fingerboards, and Off-network Waymarkers. Decision signs and confirmations signs are used for normal situations. However, in some situations, where intersection configuration is complex or turns are concealed, turn fingerboards and waymarkers can be beneficial. The following section delineates the situations and locations at where each type of signs should be installed. The detailed sign configuration and geometry are demonstrated in Appendix 2.

### ***Decision Signs and Confirmation Signs***

Typically, at an intersection, where bike routes lead to more than one destination, a decision sign before the turn and a confirmation sign after the turn are recommended in each direction. Decision signs provide navigation information, therefore are placed before the decision point. It is important to check the levels of destinations and the corresponding signing distances at a decision point. This ensures that destinations are signed at an appropriate distance without causing visual clutter by including too many destinations.

After the intersection, confirmation signs should be installed to reassure cyclists of their direction and provide distances to their destinations. Confirmation signs should be located 20-30 meters after the turn has been made and repeated for long routes. Repeated confirmation signs are recommended every 400 meters in urban areas and 800 meters in rural areas.

### ***Turn Fingerboards and Off-network Waymarkers***

Both turn fingerboards and off-network waymarkers are optional signs that are applied to atypical situations. Turn fingerboards have the advantageous directional shape and are helpful to highlight turns from one bike route to another. These signs are also used to provide distance from their location to directed destinations. Several situations where turn fingerboards are suggested are:

- To emphasize turns at busy areas with many distractions
- To indicate unusual turn geometry such as acute angles and bike-only routes
- To guide cyclists to stay on a designated bike routes at intersections where other arms are not bike routes

Another useful optional sign is the off-network waymarkers. These signs are particularly effective in indicating short off-network connection routes. These signs should be installed close to the turn that directs cyclists to the closet bike routes. To avoid confusion, off-network waymarkers are not recommended for marking the designated bike routes (fingerboards are the appropriate alternative).

## Prioritizing Routes

Although cycling is allowed on most District's streets, a network of designated bike routes with road treatment and provision of bicycle facilities are the focus of this signage plan. The District's bike network is large and contains routes with various bicycle facilities, traffic use, geomorphic features, and therefore suitability for cyclists on different skill levels.

In general, the signage plan should align its priority with the locally important bike routes and future development focus that are described in the 2012's Bicycle Master Plan. Off-street bike routes with special treatment or newly constructed bike routes have obvious advantages and should be prioritized for signage. In addition, bike routes that lead to newly developed town centers are of high priority according to the District's OCP and Transportation Plan. There are some special considerations (descending importance order) should be incorporated in the planning processes:

- On-street bike routes shared with traffic modes with high speeds
- Shared bike routes with inadequate road facilities, for example, poor lighting, deteriorated surface paving, and limited sight distances
- Routes are generally busy and connect to undeveloped routes or areas where safety is a concern
- Routes with geomorphic barriers or steep grades
- Routes that require higher skill level of cycling

As a result, site assessments are highly recommended before and throughout the planning process to determine these route characteristics for routes prioritization and track changes in routes conditions and traffic modes and speeds. Meanwhile, provision of route characteristic information on the signs can be beneficial for cyclists of different skill levels. Several add-ons can be considered to assist cyclists to find suitable routes:

- Paved routes ended
- Destination via quiet routes
- Steep road grade ahead/ via mild grades detour

## Optimizing Signs

Finally, it is of vital importance to maintain a balance between providing guidance to cyclists and causing visual impact and maintenance burden of excessive signage. One of many approaches to achieve the balance is to conform to the destination hierarchy and sign destinations at the corresponding distances. Meanwhile, planners should utilize existing sign poles and replace redundant information with a single comprehensive sign. In addition, legibility treatments can also enhance the navigation system:

- Surface treatments including contrasting color and material for bike routes, pavement marking, and slight elevation difference to distinguish bike routes
- Furnishings such as bollards, benches, and bike racks

- Lighting, planting, and public arts to add identity to bike routes

## Routes and Destinations in the District of North Vancouver

### **Bike Route Conditions**

In order to provide cyclists with valuable information, the current challenges, problematic routes, and priority development projects in the District must be taken into account. Some general challenges for encouraging cycling in the District includes:

- Disconnection due to Highway and topographic barriers (hills and waterways cause detours and increase the length of cycling journeys)
- Lack of integrated network, especially east-west connections
- Steep grades of cycling routes in North Vancouver, especially south-north routes
- Traffic volume and speed are high on most District's streets

In 2011, some problematic routes were identified through public consultation conducted by the City and District of North Vancouver. At the same time, the District prioritized development of bike routes and end-of-trip destinations. As a result, the wayfinding signage plan must be tailored for the District to address these issues by incorporating routes characteristics.

### **Bicycle Master Plan of North Vancouver**

In the District's 2012 Bicycle Master Plan, an integrated North Vancouver Bicycle Routes Network was prepared. This is the base map for the wayfinding plan since it not only includes all the on and off street bike facilities, but also incorporates priority developments and treatment of the problematic routes (Figure. 1)



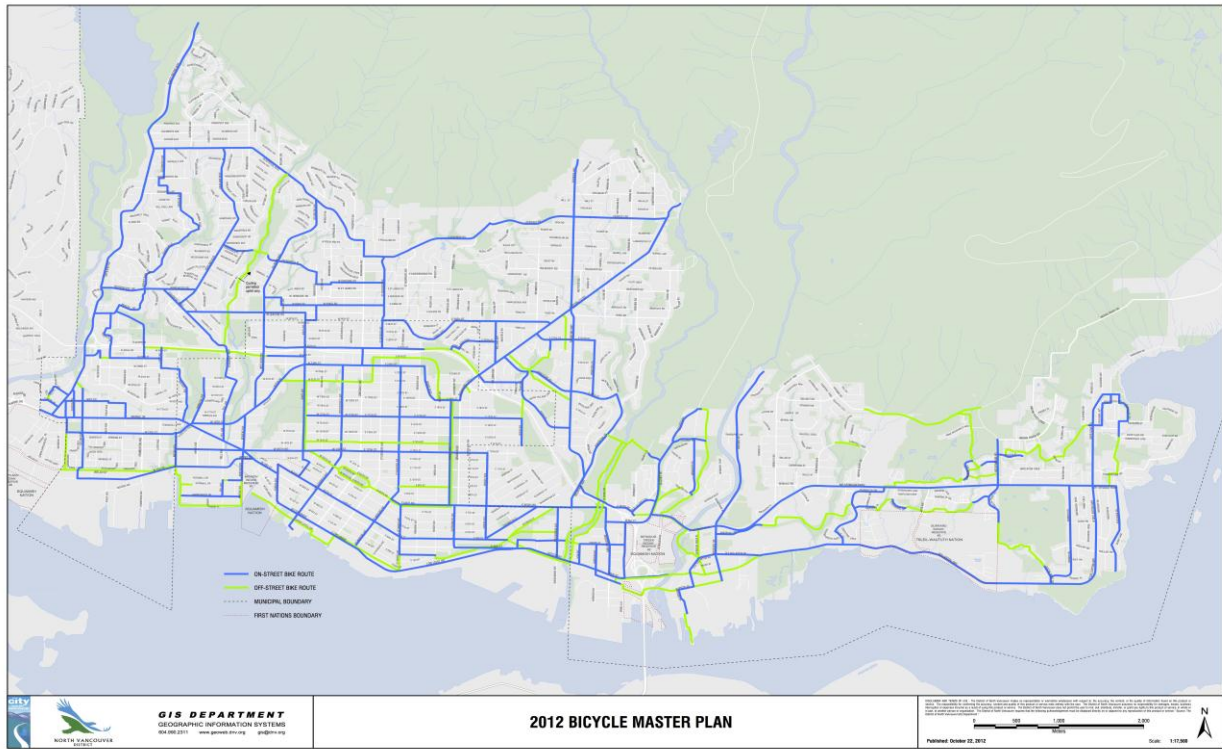


Figure 1. 2012 Bicycle Network of North Vancouver

## Destinations

When there are too many destinations can be signed, a hierarchy of destinations becomes beneficial in terms of determining which destinations should be signed at what distance. The BC TransLink's guideline on destination hierarchy is adopted by all the municipalities to achieve consistency and predictability of wayfinding signage plan. The following chart describes different levels of destinations and the maximum distance from which the destination can be signed.

## Level 1 Urban Centers

- Start Signing 8 km away
- Major centres of activity described in the Metro Vancouver Regional Growth Plan are signed 8km away. The urban centres are the main centres within individual municipalities offering a full range of attractions and services, and provide the primary geographic orientation points for regional cycling.

## Level 2 Local Neighbourhoods

- Start Signing 4 km away
- These represent centres of community with sub-regional importance. Local neighbourhoods provide a mixture of services used by local people.

## Level 3 Major AttractionsLevel 2 Local Neighbourhoods

- Start Signing 2 km away
- These trip attractions include transit stations and exchanges, major tourist venues, regional parks, post secondary education institutions and the region's border crossings.

## Level 4 Local DestinationsLevel 2 Local Neighbourhoods

- Start Signing 2 km away
- These destinations are selected by the municipality to reflect the nature of lower density areas or to integrate bike routes that are not connected with level 1-3 destinations.

Follow the destination hierarchy guideline, 12 destination groups are selected to be included in the signage plan for the District, as listed below.

|   |   |         |
|---|---|---------|
| A | Park Royal/ Lower Capilano – Marine Village/ Downtown Vancouver via Lions Gate Bridge | Level 1 |
| B | Grouse Mountain/ Capilano River Regional Park/ Capilano Suspension Bridge             | Level 3 |
| C | Edgemont Village  | Level 3 |
| D | Queensdale  | Level 3 |
| E | Lonsdale - Seabus   | Level 1 |
| F | Lynn Valley Town Center   | Level 1 |
| G | Downtown Vancouver via Ironworkers Memorial Bridge                                    | Level 1 |
| H | Lower Lynn/ Phibbs Exchange   | Level 2 |
| I | Parkgate  | Level 3 |
| G | Maplewood Village   | Level 2 |
| K | Deep Cove   | Level 3 |
| L | Capilano University   | Level 3 |

These destinations are added to the Bicycle Network Map of North Vancouver as illustrated in the following Figure 3. This map is used to develop the wayfinding signage plan for the District of North Vancouver.

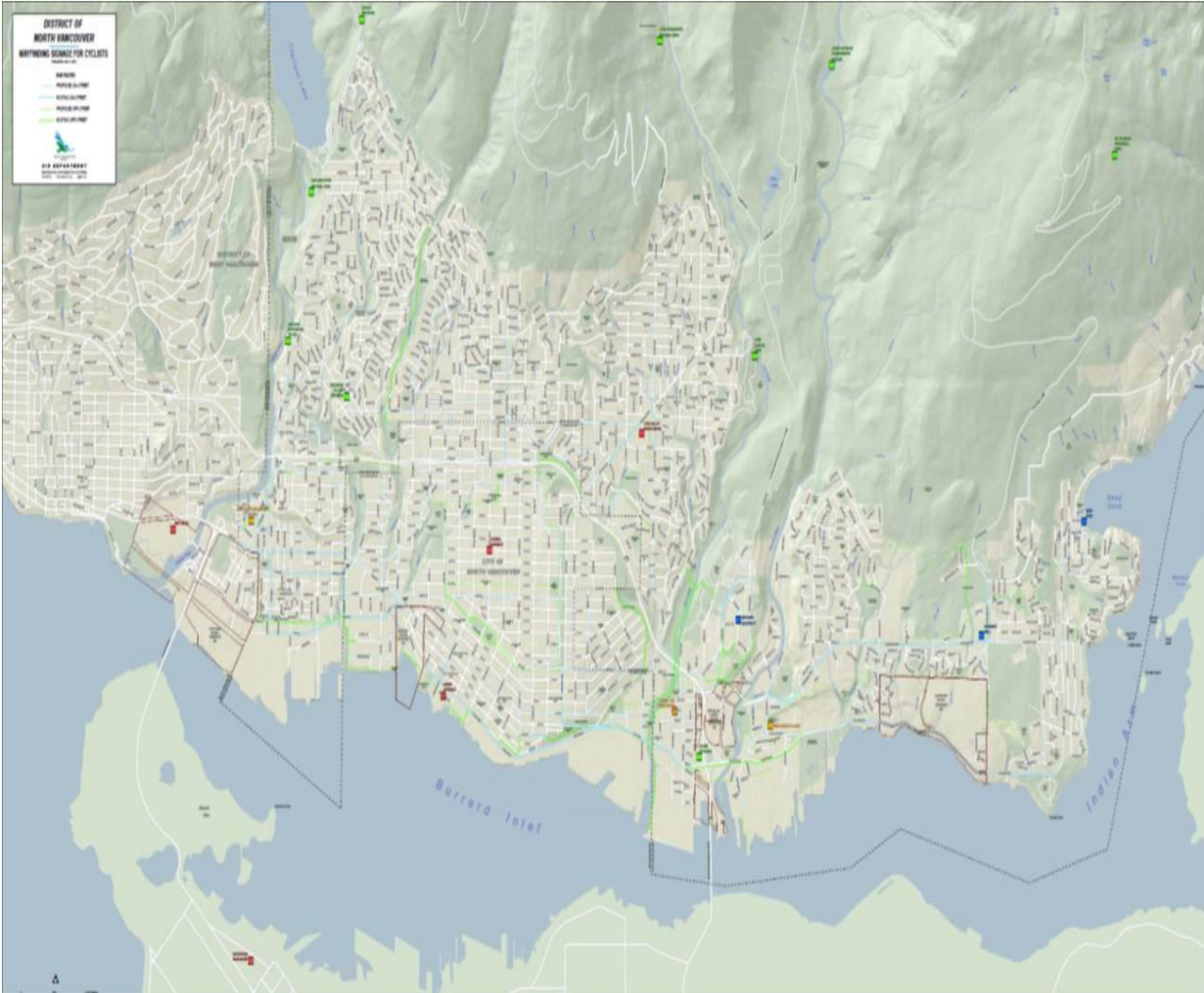


Figure 3 Bicycle Master Plan map with destinations to be signed

**Decision Signage Plan of District of North Vancouver**

This following section is a sample application of the guidelines of cycling wayfinding signage plan. Decision signs are the first signs to be located on the Bicycle Master Plan and will provide the reference locations for other signs.

In appendix 1, decision intersections are identified near the twelve destinations that the District pinpointed according to the OCP and Transportation Plan. A decision sign contains appropriate directional information is placed at each arm of a decision intersection. It is important to note that this plan is a preliminary study and subjected to changes and alternations to optimize

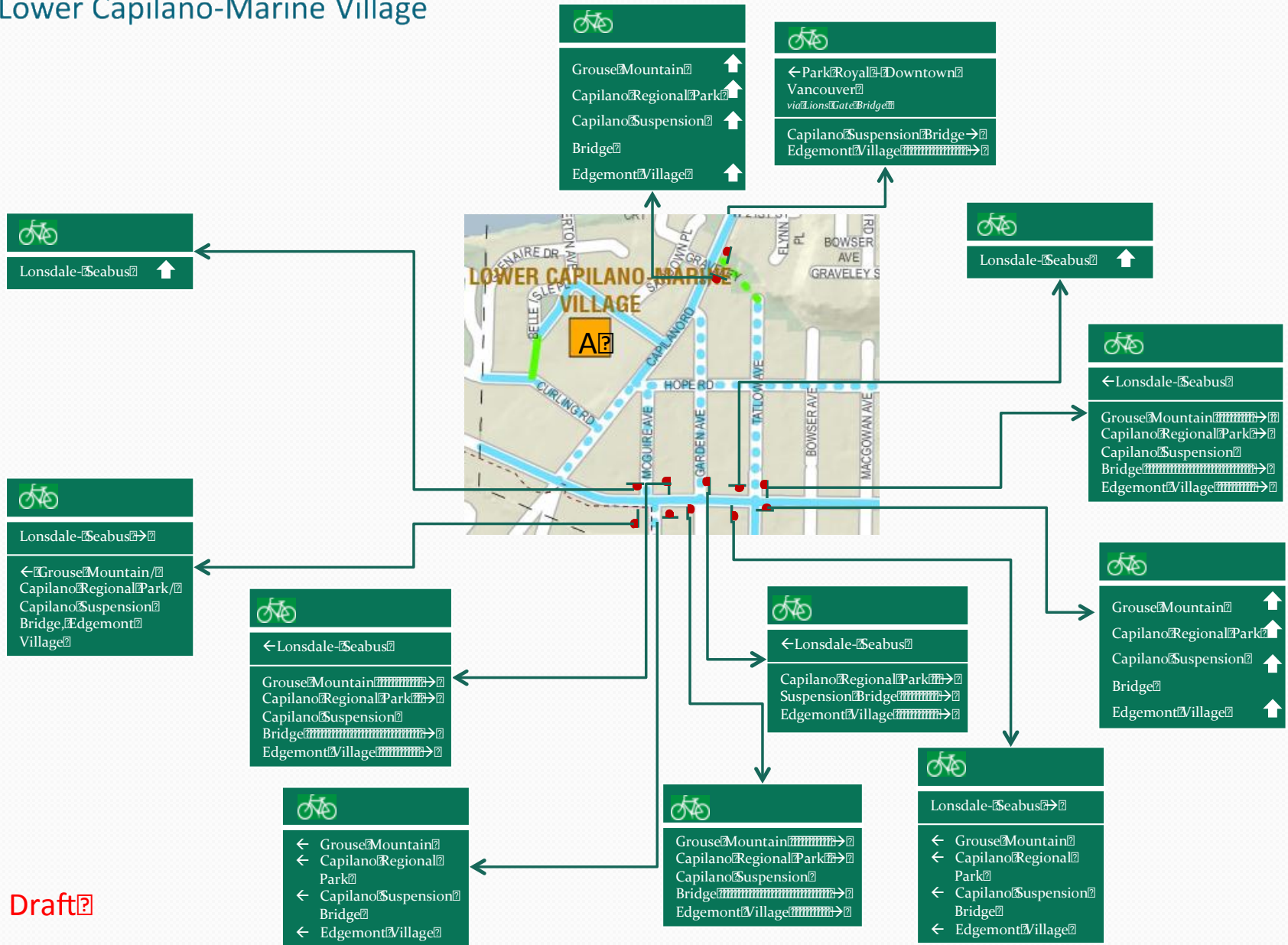
signage. With site assessment, public consultation, and updates of bike routes improvement projects, some decision signs will need to be changed, replaced by other signs to reduce visual cluttering, and even removed due to undesirable route conditions and so on.

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## Appendix 1 Decision Signs Plan – District of North Vancouver

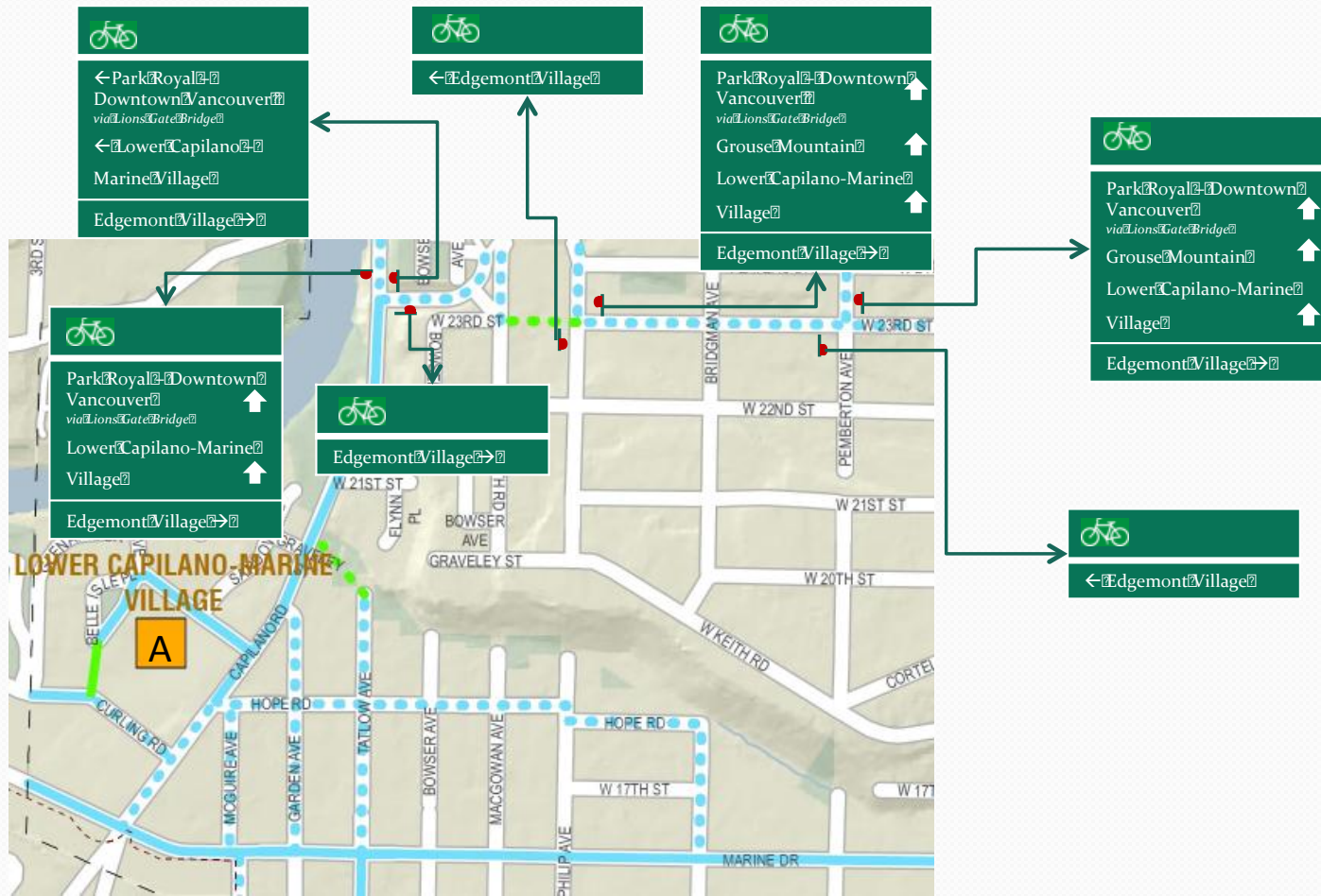
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# Lower Capilano-Marine Village



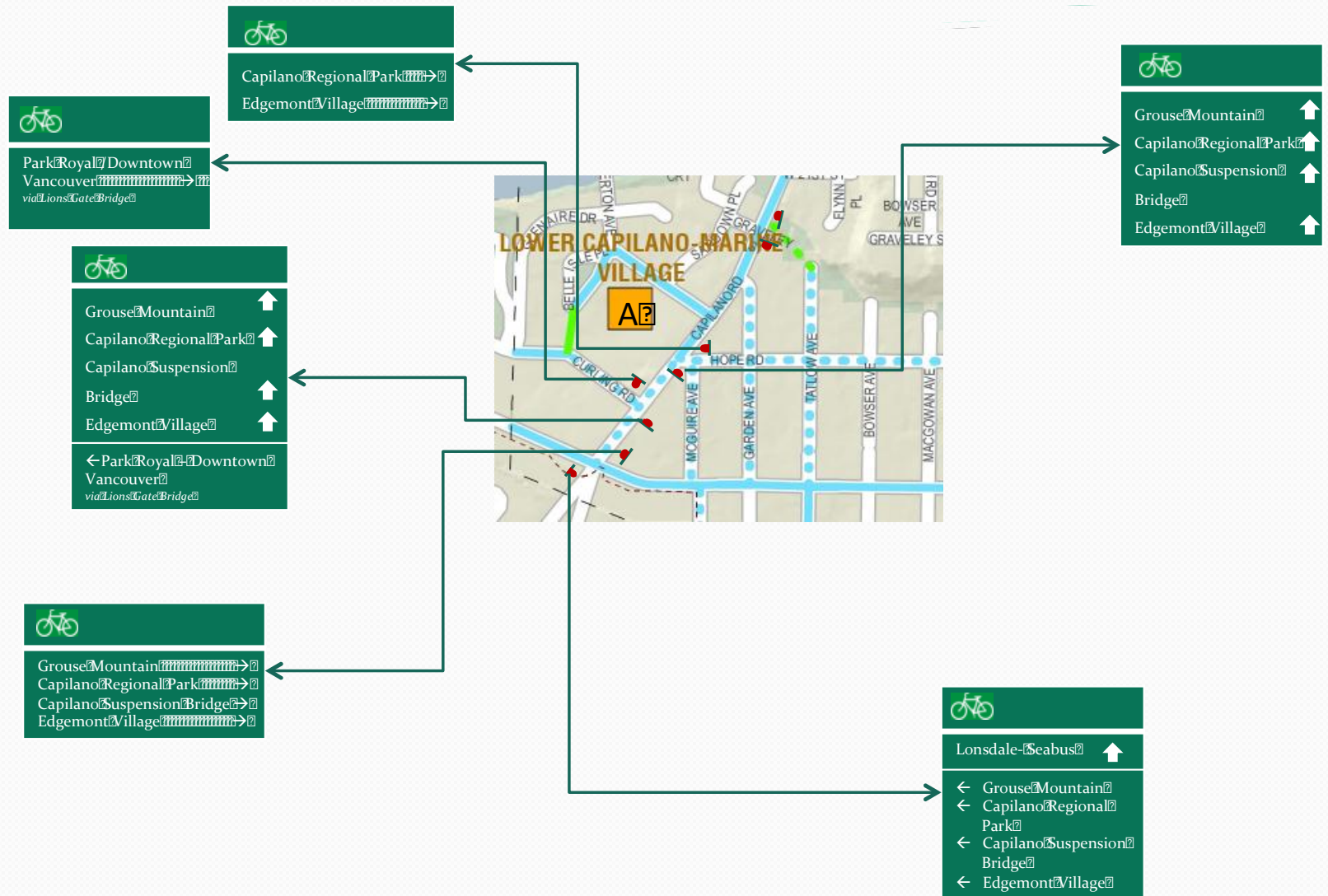
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# Lower Capilano-Marine Village



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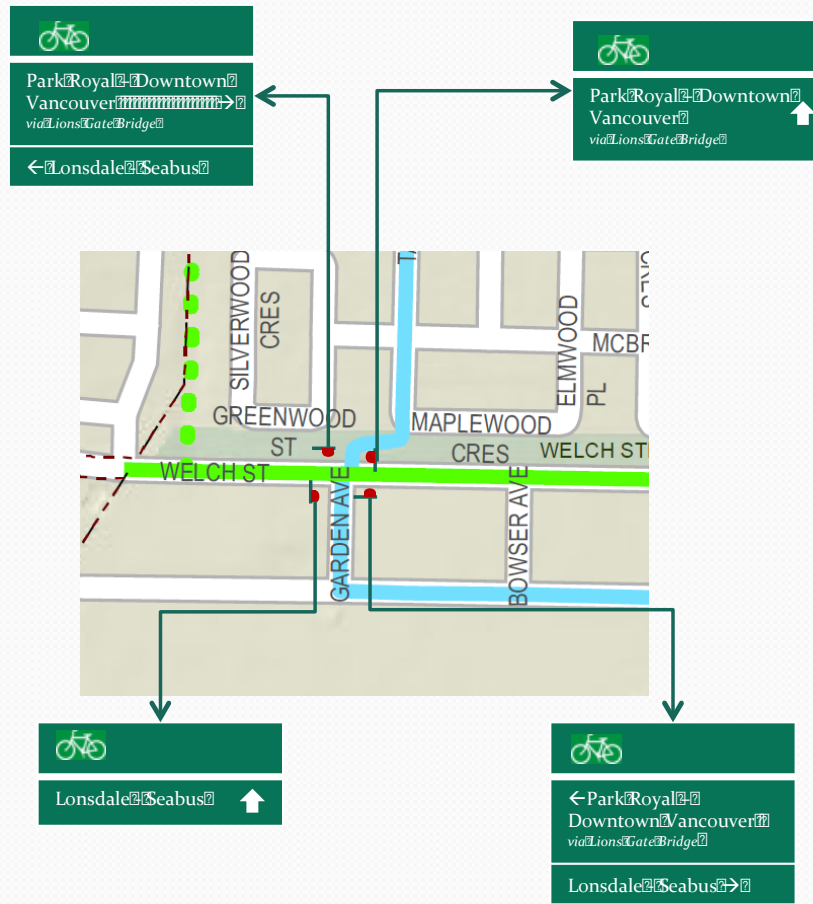
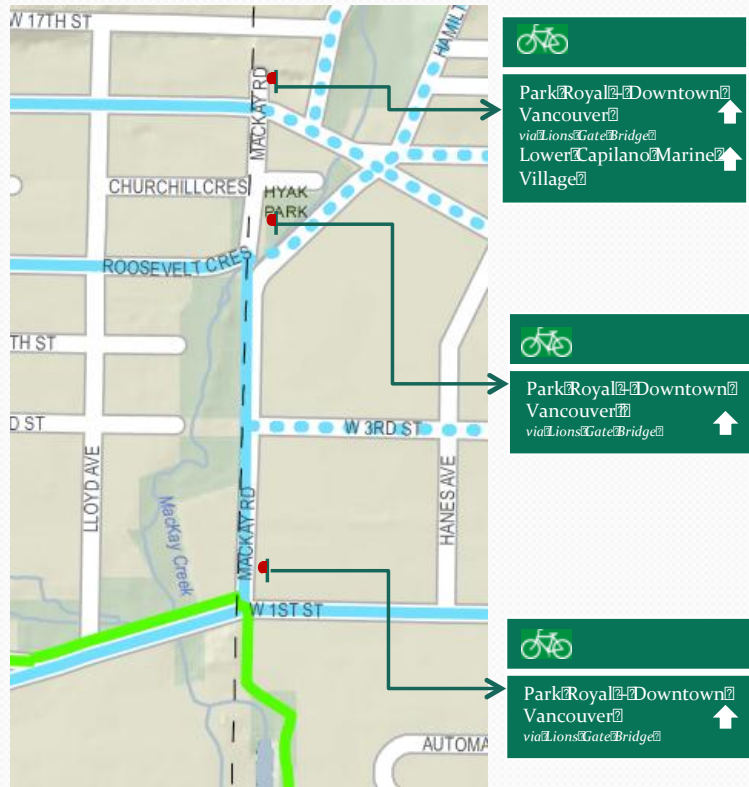
# Lower Capilano-Marine Village



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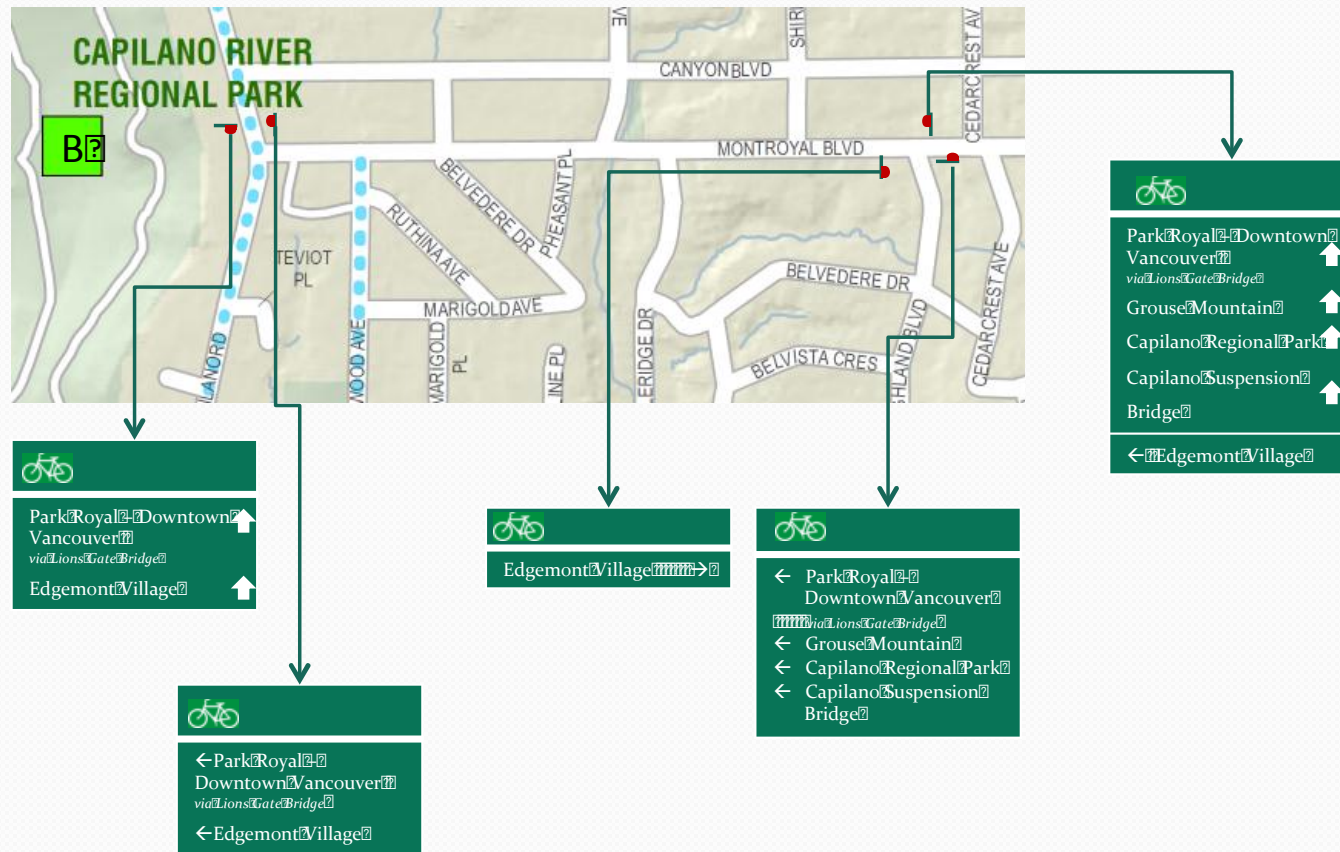


# Lower Capilano-Marine Village



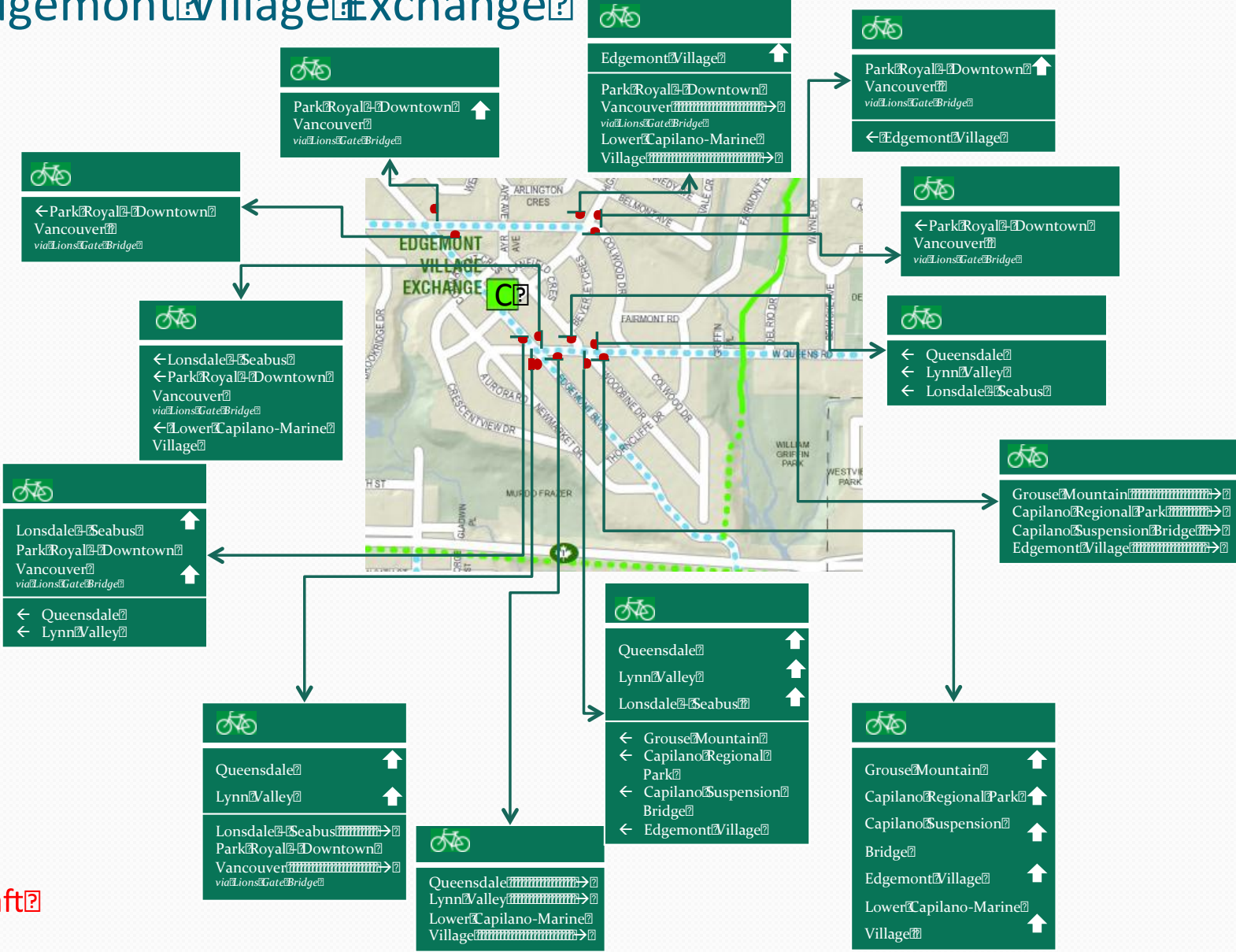
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# Capilano River Regional Park



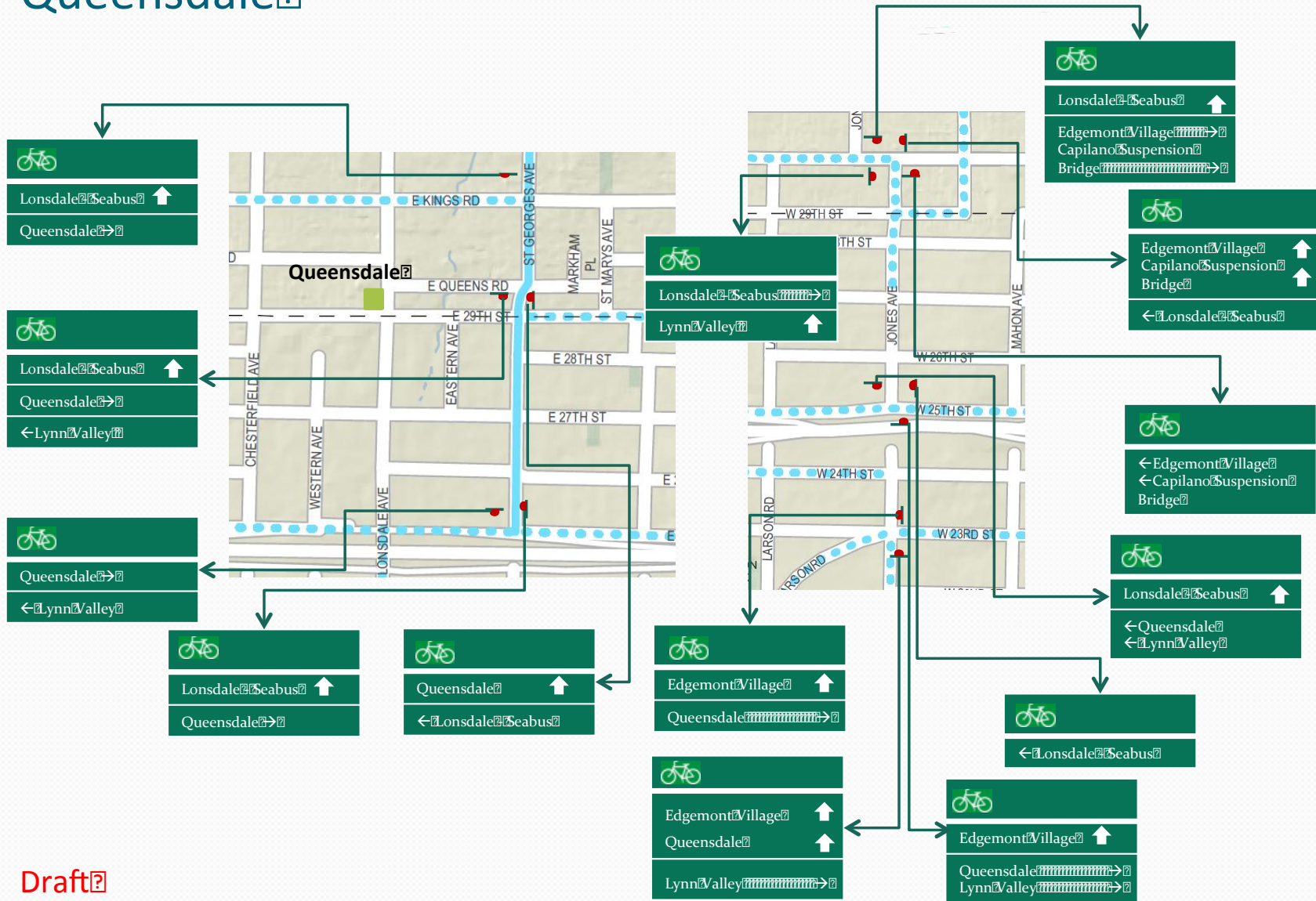
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# Edgemont Village Exchange



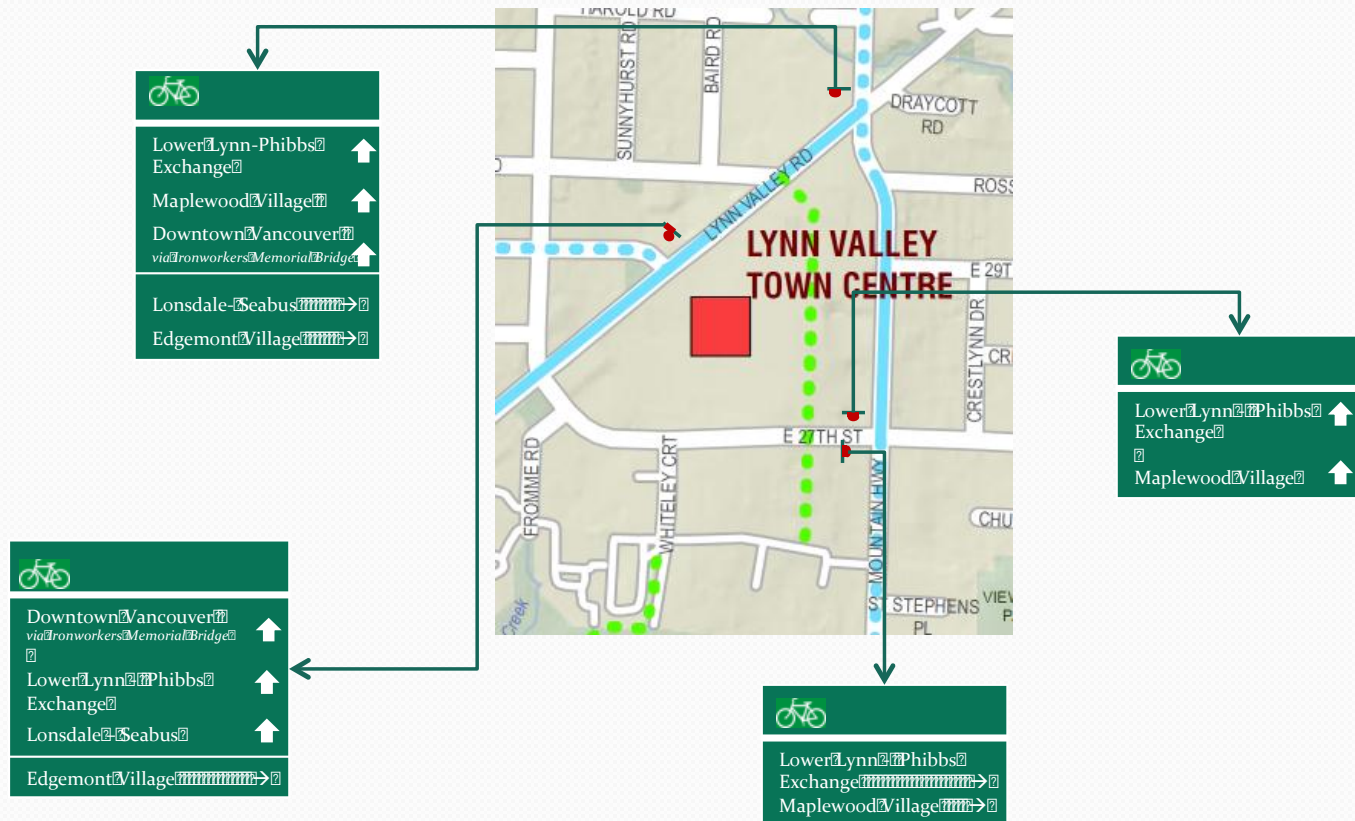
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# Queensdale



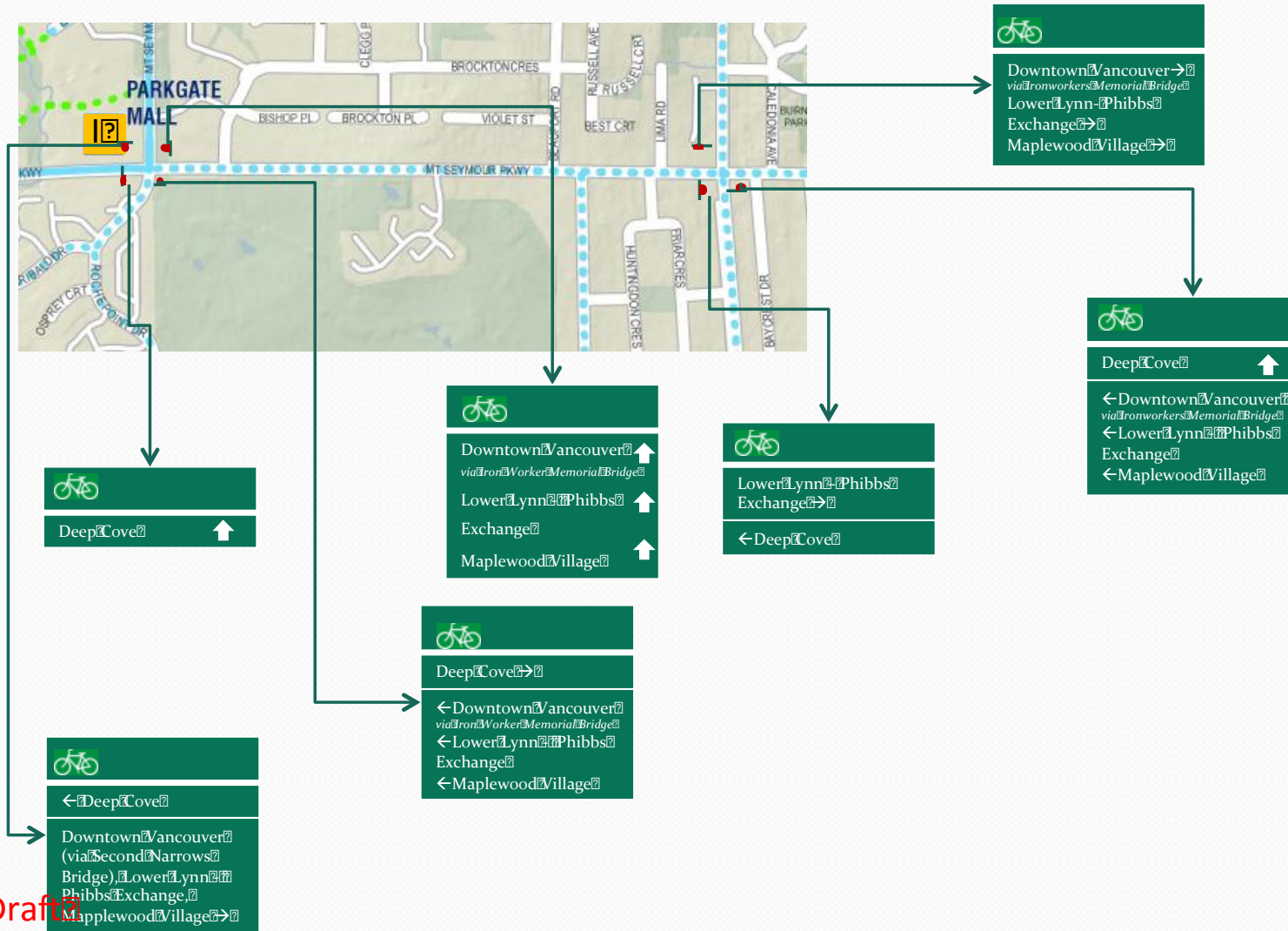
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# Lynn Valley Town Centre



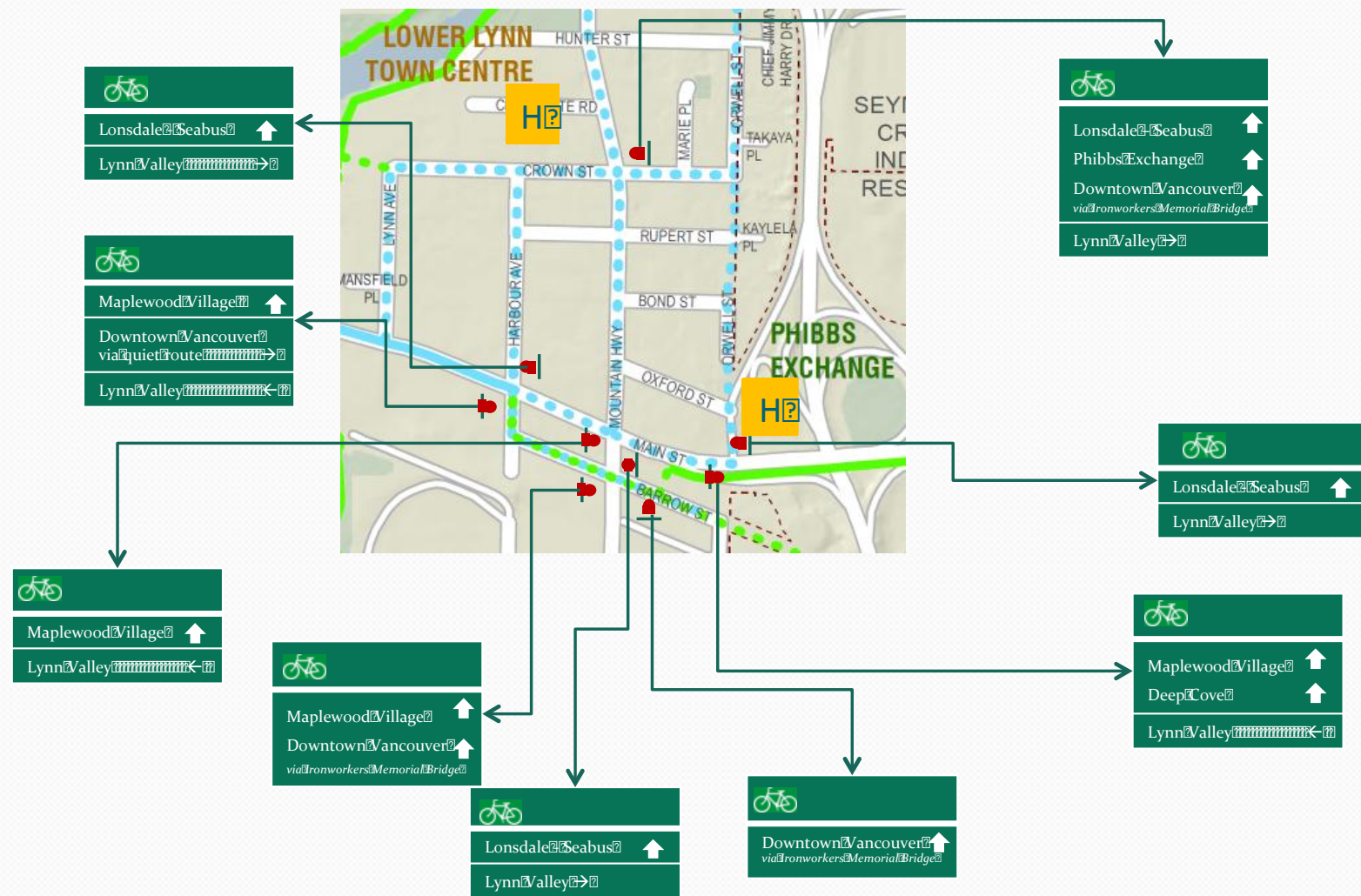
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# Parkgate Mall



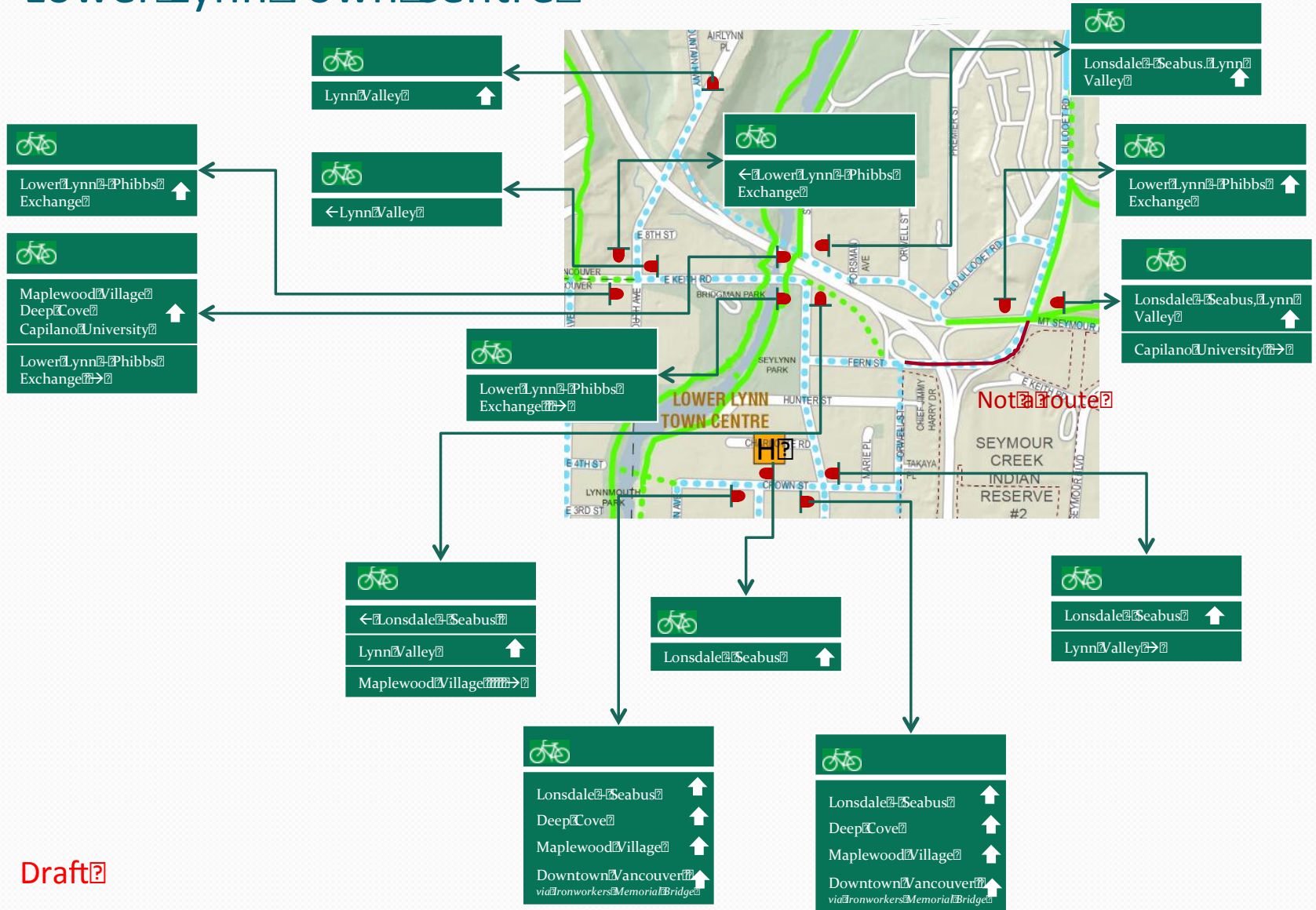
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# Lower Lynn Town Centre



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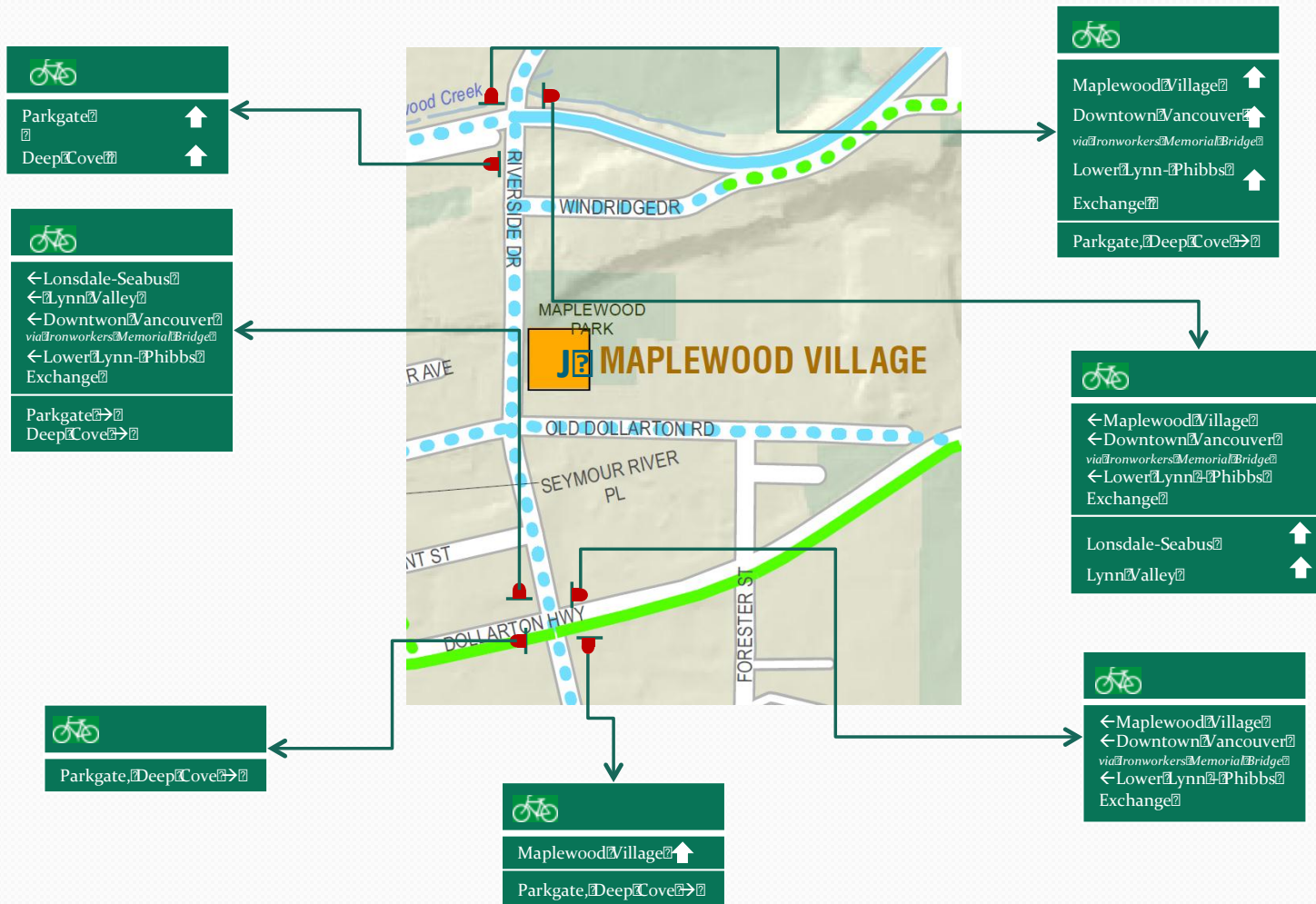
# Lower Lynn Town Centre



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# Maplewood Village



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## Appendix 2 Design Standard of Cycling Wayfinding Signs

This appendix provides design standards of each type of the cycling wayfinding signs. These standards are developed by TransLink. Please note that the following diagrams are direct references from the TransLink's guideline, *Get There by Bike*.

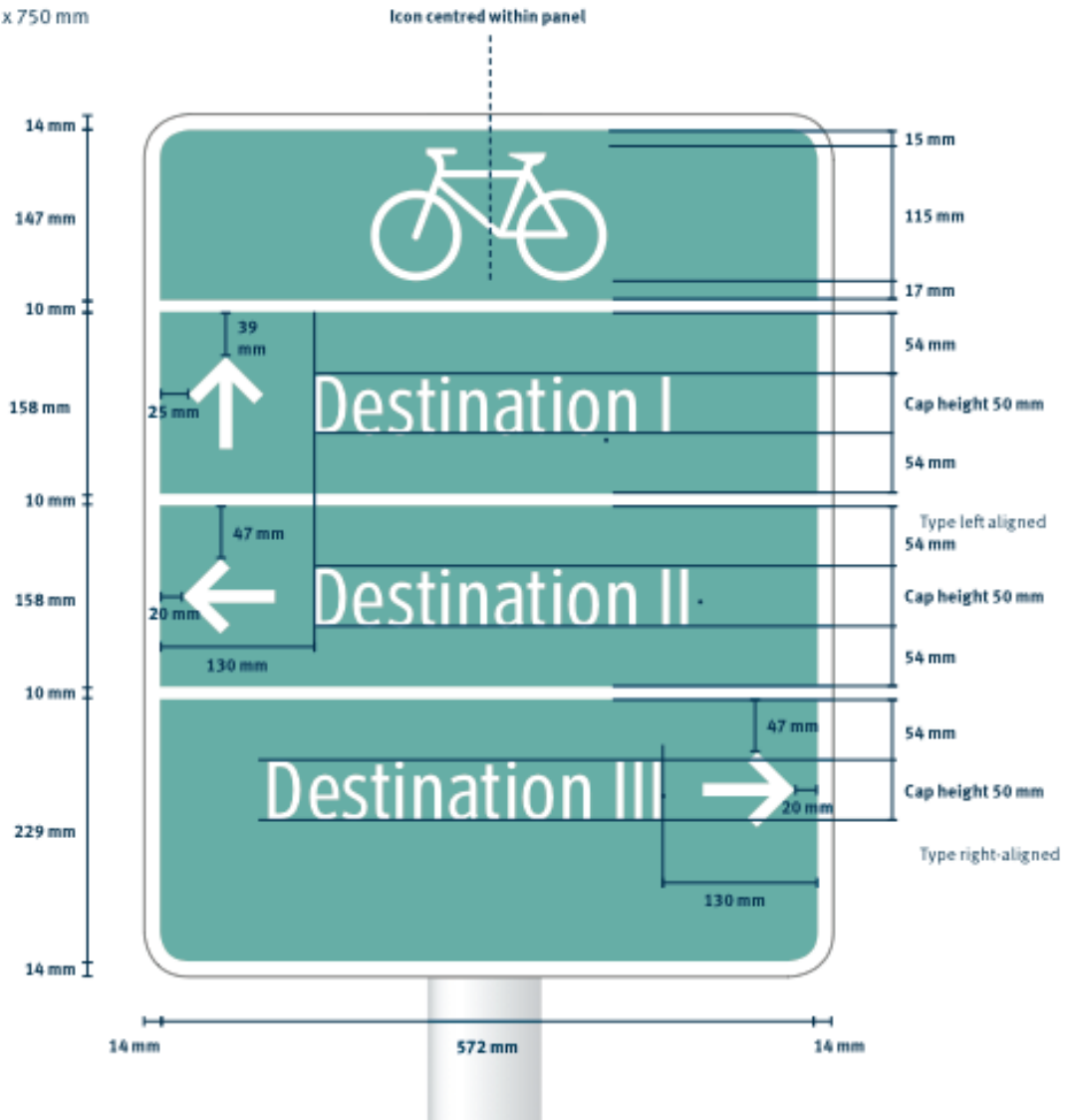
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# Decision Signs

## Standard dimensions

### Panel size

600 x 750 mm



Courtesy of Get There by Bike, TransLink

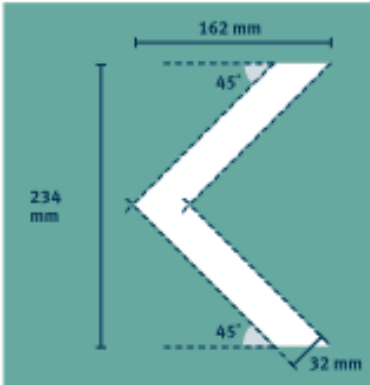




## Off-network Waymarkers

### Standard dimensions

#### Directional chevron



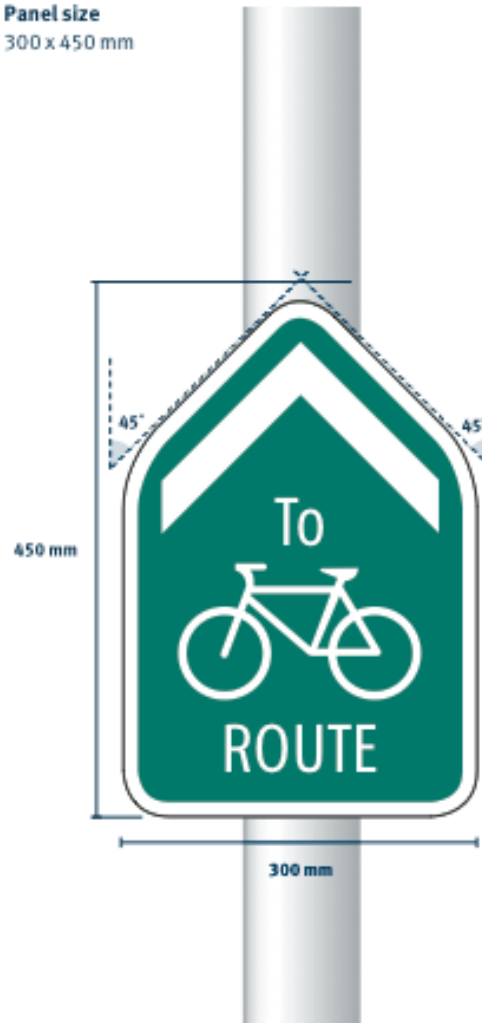
#### Bicycle icon



The bicycle icon should appear as shown. This icon should be consistent with TAC Bikeway Traffic Control Guidelines for Canada.

The bicycle should face the direction of travel.

Panel size  
300 x 450 mm



*Courtesy of Get There by Bike, TransLink*