

Cycling Network Implementation Plan

JUNE 2012



Acknowledgements

This report has been prepared by Howes Technical Advantage Ltd. as a collaborative effort with the District of West Vancouver staff and the Cycling Network Implementation Plan Technical Committee. There are a number of individuals who are thanked and recognized for their insights and time.

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TABLE OF CONTENTS

1.	Introduction and Context	1
1.1	Background	1
1.2	Goals and Objectives	1
1.3	Research	1
2.	Consultation.....	5
3.	Analysis	6
3.1	Previous work review:	6
3.2	Current Review:	6
3.3	Marine Drive:.....	7
3.4	Implementation Strategy:.....	13
3.4.1	Phased Implementation.....	13
3.4.2	Priorities within Phases	15
4.	Estimated Project costs.....	20
5.	Conclusions.....	20
6.	Recommendations	20

Appendices

- A. Terms of Reference: Cycling Network Plan Implementation Technical Committee
- B. 2007 Cycling Network and Greenway Plan
- C. Phase 1: Costs for Implementation

Tables

- Table 1: List of Proposed New Routes to the Cycling Network Plan
- Table 2: List of Proposed Removal of Routes from the Cycling Network Plan
- Table 3: List of Other Routes Considered but not included in the Cycling Network Plan
- Table 4: Phase 1 Projects
- Table 5: Phase 2 Projects
- Table 6: Phase 3 Projects
- Table 7: Phase 4 Projects

Figures

- Figure 1: Cycling Target Markets
- Figure 2: Cycling Trip Distances by Trip Type
- Figure 3: Cycling Trip Distances as a Percentage of Trips
- Figure 4: Map of Proposed New Routes to the Cycling Network Plan
- Figure 5: Map of Proposed Route Removals from the Cycling Network Plan
- Figure 6: Proposed New Cycling Network Map
- Figure 7: Example of a Bicycle Guide Sign
- Figure 8: Examples of warning signs that can be used where needed
- Figure 9: Example of Road Marking
- Figure 10: Map of Phased Implementation of the Cycling Network Plan

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1. INTRODUCTION AND CONTEXT

1.1 Background

The District's Cycling Network and Greenway Plan was developed in 2007 (2007 Plan) and approved by Council in that year. The Plan describes the vision of a network of bicycle routes, both on-street facilities and pathways, connecting major destinations and many neighbourhoods across the municipality.

The District's Strategic Transportation Plan (STP) was completed in March 2010, and was subsequently received by Council. The STP presents a vision for the future of all modes of transportation, and included a recommendation that the 2007 Plan be updated. Staff recently reviewed the Plan and concluded that the policy goals were consistent with the STP and the majority of the proposed network was still valid and relevant for implementation. Therefore, staff felt that it was more appropriate to focus on fine tuning implementable routes, establishing priorities and identifying potential funding options than completing an updated Cycling Network and Greenway Plan. This work was called the development of a Cycling Network Implementation Plan. This report summarizes the proposed changes to the Cycling Network and provides a prioritized list of projects as the key deliverable.

1.2 Goals and Objectives

The primary goal of the Cycling Network Implementation Plan is to attract new cyclists in West Vancouver, and encourage cycling within the community. The secondary goal is to improve conditions for cyclists who currently use West Vancouver streets for cycling.

The key objectives of the Cycling Network Implementation Plan were identified as the following:

- To review the current Cycle Network and Greenway Plan for continuity, appropriateness, and feasibility for implementation;
- To categorize the routes for phased implementation; and
- To estimate budgets for future implementation where possible.

1.3 Research

Staff reviewed previous research undertaken to ensure that the work being proposed was in step with current trends.

TransLink conducted market research in order to understand the different markets for cycling, barriers that prevent people from cycling more often and people's preferences for cycling facility improvements. According to the research, Metro Vancouver's adults can be grouped into one of four categories based on their inclinations toward cycling.

Figure 1 below highlights the findings of this market research documented in TransLink's Regional Cycling Strategy (June 2011).

A small proportion of Metro Vancouver adults already bicycle regularly. Regular cyclists considered in the "strong and fearless" and "enthused and confident" categories are depicted

in blue and red in Figure 1. These cyclists make up approximately one quarter of the population and are comfortable and confident enough to ride using the existing roadways and cycling facilities.

At the other end of the spectrum, approximately one third of the population has no interest in cycling, which is depicted in purple, “no way, no how” category.

The remaining residents fall somewhere between these two groups - as shown in yellow in Figure 1- were categorized as “interested but concerned”. This group is made up of *occasional cyclists* who cycle at least once per month, *infrequent cyclists* who cycle at least once per year, and *potential cyclists* who do not currently cycle but have considered doing so. This group of residents is interested in cycling more but is deterred from doing so by factors such as safety, lack of time, fitness, or challenges with carrying heavy items. The single greatest deterrent to cycling for this group is concern about riding a bicycle near motor vehicle traffic.

These “interested but concerned” cyclists are a crucial target audience in West Vancouver in order to reduce auto dependency and achieve the vision of the Strategic Transportation Plan.



Figure 1: Cycling Target Markets¹

In 2007, TransLink partnered with researchers at the University of British Columbia to study factors that influence the decision to cycle in the Cycling in Cities Project. Researchers used opinion surveys to collect data from current and potential cyclists. They found that “interested but concerned cyclists” are more likely to use cycling routes that feature low traffic volumes, safe intersections and that provide connections to frequent destinations. However, feedback from the frequent cyclists who are more confident riding with traffic suggested that this group look for improved connectivity and safety for on-street cycling routes that they already use. Staff considered both groups when creating the Cycling Network Implementation Plan.

¹ Richard Drdul, October 2011

Additional research by TransLink suggests that the majority of bicycle trips in Metro Vancouver are 7.5 kilometres or less with a median trip distance of 3.6 kilometres, and very few trips longer than 10 kilometres. These data indicates that the greatest potential to increase bicycle mode-share is for short, urban trips. Figure 2 and Figure 3 illustrate the results of these surveys.

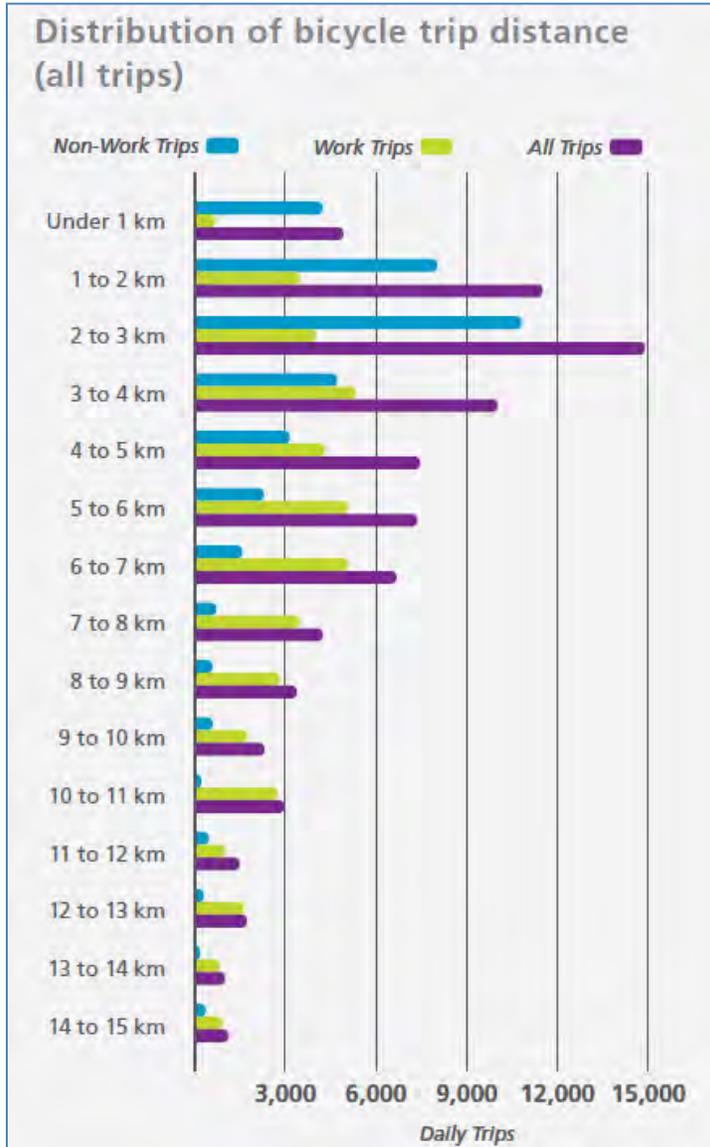


Figure 2: Cycling Trip Distances by Trip Type²

² TransLink Regional Cycling Strategy, June 2011

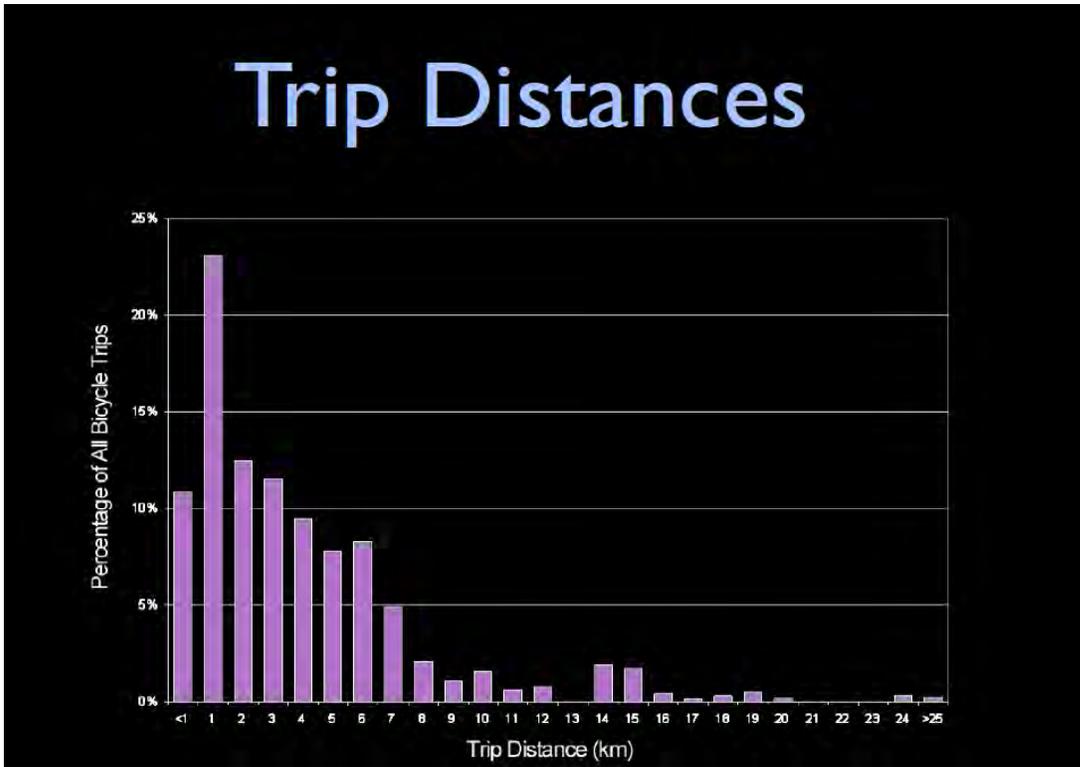


Figure 3: Cycling Trip Distances as a Percentage of Trips³

This information was used by staff to guide the development of implementation priorities, as well as the phasing of projects. While staff considered both the regular cyclists and the “interested but concerned” cyclists when creating the Cycling Network Implementation Plan, greater focus was placed on increasing the number of participants from the latter group.

³ Richard Drdul, October 2011

2. CONSULTATION

There was considerable consultation completed during the original development of the original 2007 Cycling Network and Greenway Plan. (This is documented in the original report).

For this work, a Cycling Network Implementation Plan Technical Committee (Committee) was established to obtain specialized input on behalf of the broader community. The Committee included members of the North Shore chapter of the Vancouver Area Cycling Coalition (recently renamed HUB), which is a non-profit society whose goal is to make cycling an attractive choice for everyone. Through advocacy, education and events, this organization is a cycling resource for the entire Metro Vancouver region. Several members of the North Shore chapter are residents of the municipality, have served on the District's Working Groups in the past, and volunteered to participate on the Committee. The Terms of Reference for the Cycling Network Implementation Plan Technical Committee is provided in **Appendix A**.

There were five meetings held on December 5, 2011, January 30, 2012, February 9, 2012, February 21, 2012 and April 17, 2012 respectively. The Committee provided input to staff on the proposed routing changes, the prioritization of the tasks identified and the phased implementation. As avid cyclists and community proponents of cycling, they provided valuable input from the end user perspective.

A number of internal meetings were also held between Engineering and Planning during this process. Current development applications as well as future planning for local areas was discussed to insure that cycling proposals were consistent with proposed land use changes.

3. ANALYSIS

As described above, the work involved a review of the 2007 Plan with a view to identifying implementable options and the potential for phasing.

3.1 Previous work review:

The report associated with the 2007 Plan was reviewed to identify how the routes were established. The previous map is included in **Appendix B** and is located on the District website. The report provides a fair amount of depth regarding the Spirit Trail, but did not provide much detail on the other routes.

The technical cycling expert engaged for the 2007 work was also hired for this study to provide insights into the previous process, as a resource on current standards in the Lower Mainland, and to provide suggestions that would help with integration, implementation and staging of the network.

3.2 Current Review:

The existing network map was reviewed to assess the ease of implementation, as well as the rationale of routes in relation to ridership, lower volume roads and connections to destinations. Both the Committee and staff provided valuable insight to the various routes identified.

In general, most routes in the existing 2007 Plan made sense. There were a few routes where changes were identified to address a gap in connectivity. Suggestions were proposed by the Committee which were also reviewed onsite by staff. Additional feedback was also obtained from the technical expert and was incorporated into the review.

Routes were reviewed based on the following criteria:

- presence of on-street parking,
- width of pavement,
- grade,
- traffic volume and speed, and
- connectivity to key destinations.

Research findings from the Cycling in Cities Project, introduced in Section 1.3 of this report, informed the selection of these criteria. The research suggested that “interested but concerned” cyclists prefer to cycle on routes separated from motor vehicle traffic or residential streets with traffic calming and less motor vehicle traffic.

A qualitative review was carried out for each route based on staff observations onsite. No additional data collection was undertaken for this study.

The proposed changes are shown on Figure 4 and Figure 5. Figure 4 illustrates the routes to be added while Figure 5 depicts the routes proposed for removal. Figure 6 presents the final proposed Cycling Network Plan.

The proposed New Cycling Network Map is shown in **Figure 6**.

The background to the changes is listed in three tables where details are provided as to why changes are being proposed and replacement routes:

- Table 1: List of Proposed New Routes to the Cycling Network Plan
- Table 2: List of Proposed Removal of Routes from the Cycling Network Plan
- Table 3: List of Other Routes Considered but not included in the Cycling Network Plan

3.3 Marine Drive:

There was considerable discussion regarding Marine Drive and its role in the network especially between 13th Street and 25th Street. It was agreed that Marine Drive is a major arterial transportation corridor through the District and should be included in the cycling network.

It was identified that where possible, it would be advantageous to widen the curb lane along Marine Drive to a shared lane width of 4.3m. This is primarily anticipated to occur with redevelopment and/or where capital work is being undertaken, but it is recognized that cycling considerations will be balanced with enhanced pedestrian objectives and the need for on-street parking.

An alternative route to Marine Drive will be established in the Ambleside area using Bellevue Avenue. Work on this alternative has commenced as part of the Ambleside Village Centre Streetscape Standards Project and will be further refined through public consultation for the alignment of the Spirit Trail.

North/south crossings of Marine Drive were confirmed as an important consideration and improving these was also identified as a short term priority.

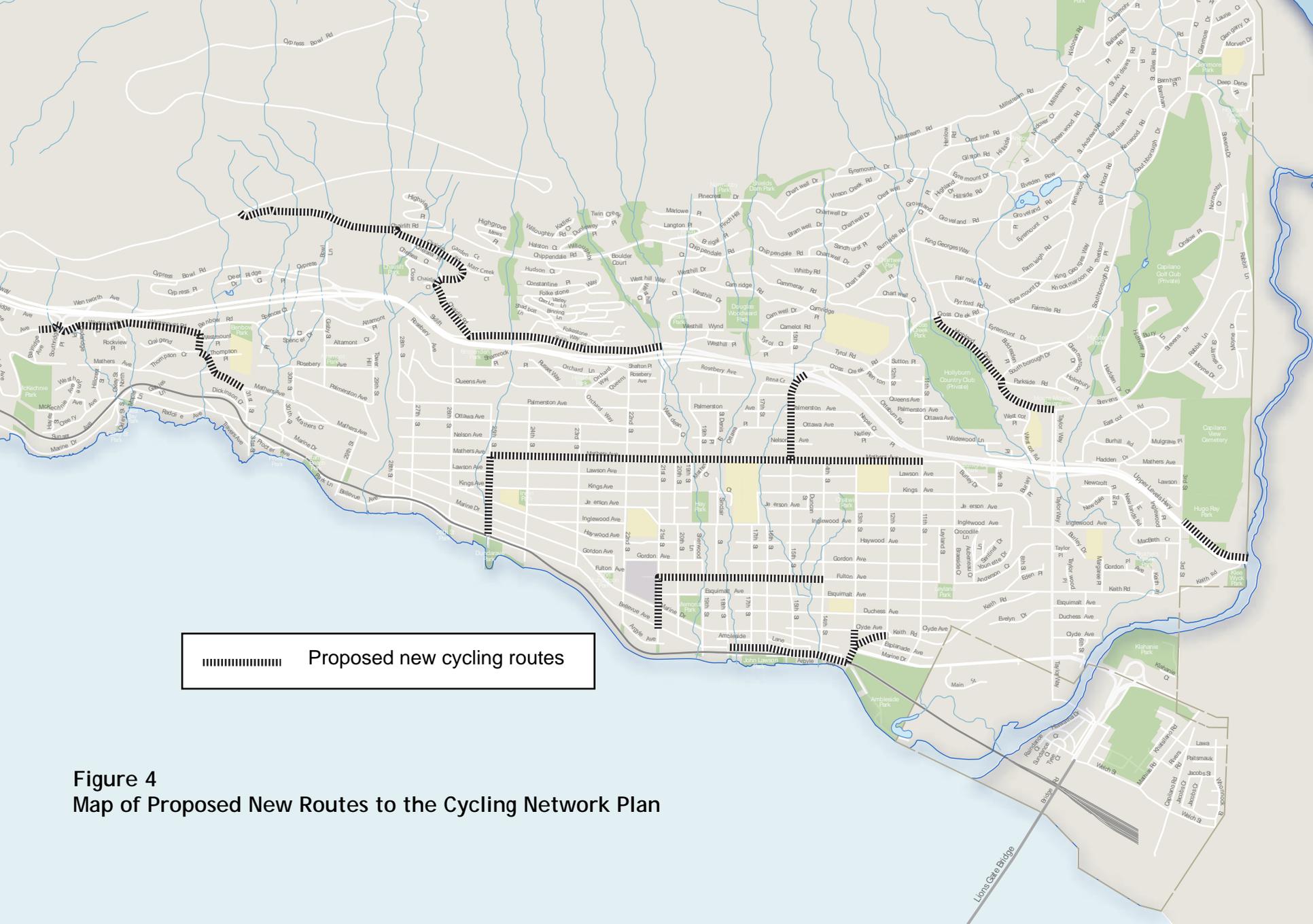


Figure 4
Map of Proposed New Routes to the Cycling Network Plan

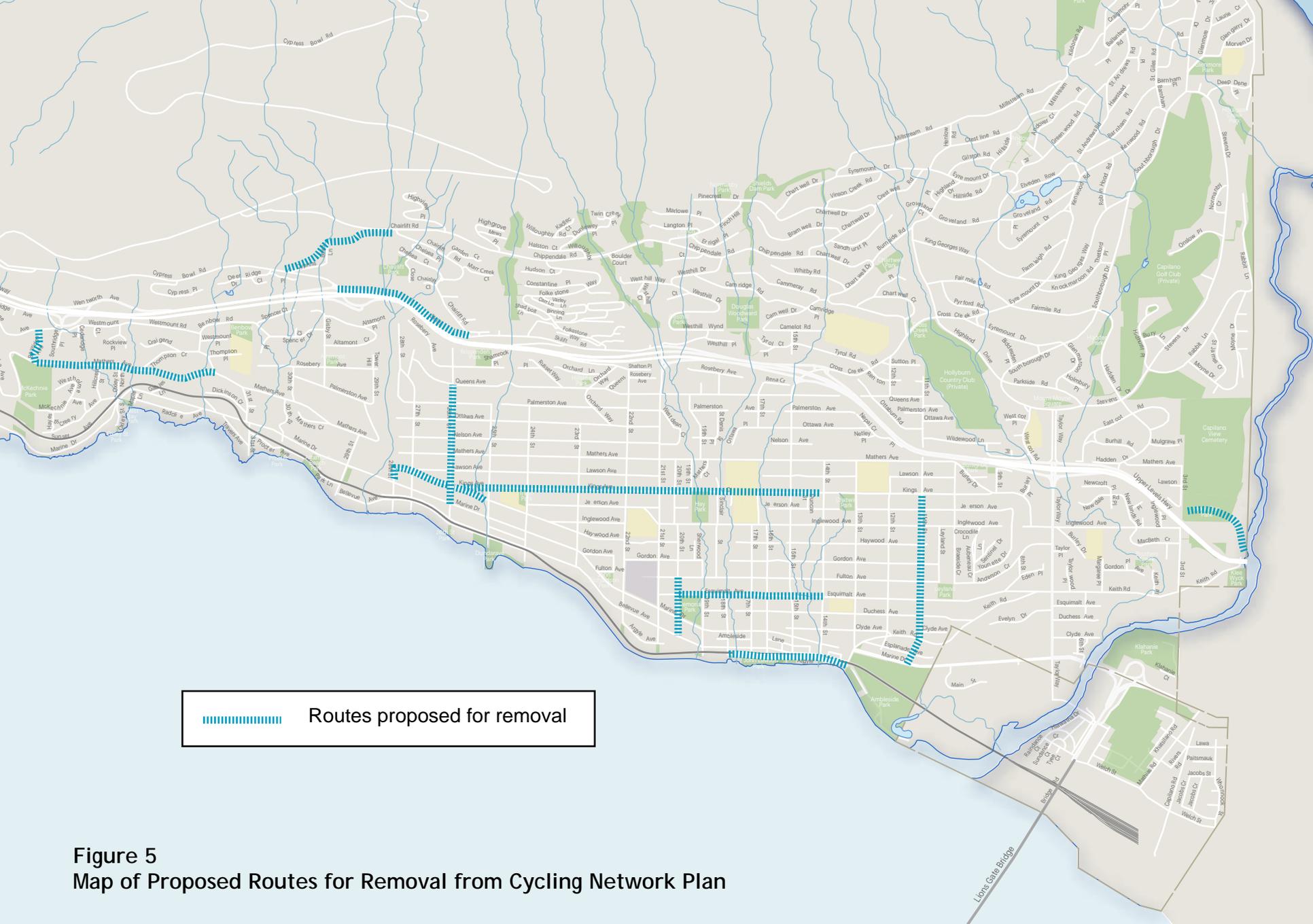


Figure 5
Map of Proposed Routes for Removal from Cycling Network Plan

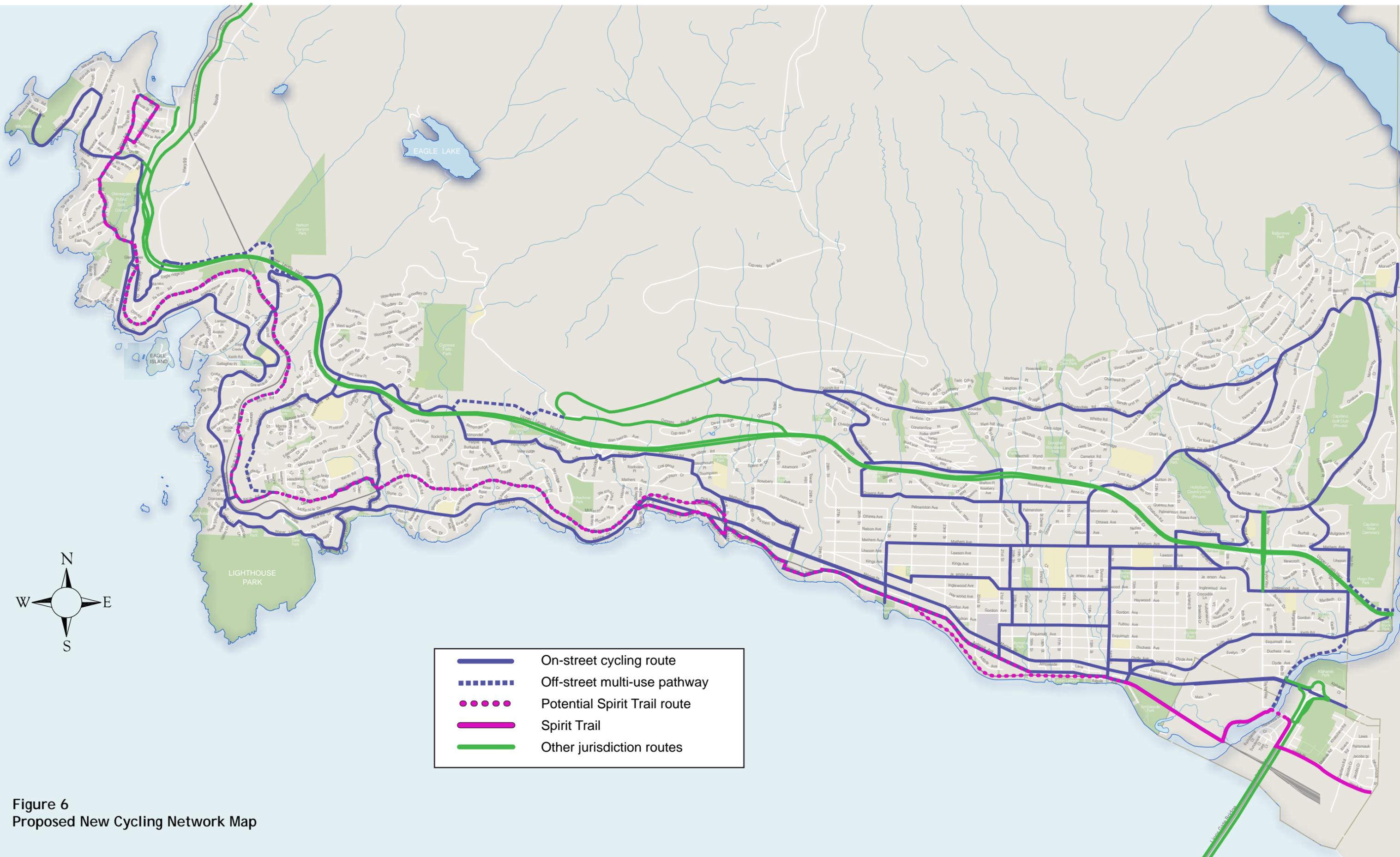


Figure 6
Proposed New Cycling Network Map

Table 1: List of Proposed New Routes to the Cycling Network Plan

Street Name	From	To	Status	Description
Mathers	11 th Street	25 th Street	New - needs approval	Provides connections to schools, is a good alternative to the extension of Kings through private land.
13 th Street	Bellevue	Keith / Clyde	New - needs approval	Provides connection to Spirit Trail and Keith Road.
Fulton	14 th Street	21 st Street	New - needs approval	Preferred over Esquimalt - has a complete connection, connects Community Centre, Municipal Hall.
21 st Street	Fulton	Bellevue	New - needs approval	Preferred over 20 th Street - connects to Spirit Trail, has a full signal at Marine Drive.
25 th Street	Mathers	Bellevue	New - needs approval	Preferred over 26 th Street - better grade, connects to Spirit Trail, has a full signal at Marine Drive.
15 th Street	Mathers	Highway 1	New - needs approval	Needs further review, internal design, some consultation
Highland Drive	Taylor Way	Cross Creek	New - needs approval	Needs further review, internal design, some consultation
Skilift	21 st Street	Chairlift	New - needs approval	Ties in with new development on Skilift
Chairlift	Skilift	Chippendale	New - needs approval	Needs further review, internal design, some consultation
Chippendale extension	Chairlift	Cypress Bowl Road	New - needs approval	Road still under construction - need to tie into mountain trail
13 th Street	At Marine		New - needs approval	Priority crossing of Marine Drive, needs special treatment for bikes at signal crossing
21 th Street	At Marine		New - needs approval	Priority crossing of Marine Drive, needs special treatment for bikes at signal crossing
25 th Street	At Marine		New - needs approval	Priority crossing of Marine Drive, needs special treatment for bikes at signal crossing
Southridge/ Westmount/ Thompson	Mathers	Southridge	New - needs approval	Replaces Mathers and Bayridge, better grade than Mathers and continuous for bikes
Bellevue	13 th Street	25 th Street	New - needs approval	Need to co-ordinate with Spirit Trail, possible "Greenway" route

Hugo Ray Linkage	Capilano River	Hugo Ray	New - needs approval	Needs review with MoT, replace route through park/cemetery, needs design and some construction work.
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Table 2: List of Proposed Removal of Routes from the Cycling Network Plan

Street Name	From	To	Status	Description
11 th Street	Marine	Kings	On bike map	Too steep, no connection to Spirit Trail
Esquimalt	14th	20th	On bike map	Not continuous for bikes, bridges would need to be widened, too costly.
TC Trail route	14th	26th	On bike map	Replaced by Mathers, too costly, needs to cross private property
Haywood / Lawson	25th	28th	On bike map	Not continuous, narrow
28 th Street	Marine Drive	Lawson	On bike map	Too steep, need safe crossing of Marine, replaced by 25 th Street
26 th Street	Marine Drive	Queens	On bike map	Too steep, narrow, replaced by 25 th Street
20 th Street	Fulton	Bellevue	On bike map	Too narrow, no access through Library, no connection to Bellevue and Spirit Trail
Mathers	Thompson	Bayridge	On bike map	Not continuous for bikes, needs widening, too costly
Bayridge	Mathers	Southridge	On bike map	Too steep
Hugo Ray Trail	Capilano River	3 rd St	On bike map	Needs to connect through park - better alternative to use existing paved area next to Highway 1
Skilift	Chairlift	Cypress Bowl Rd	On bike map	No access road exists - too expensive, not feasible
Chippendale	Chairlift	Cypress Bowl Rd	On bike map	Old alignment , replaced by new alignment

Table 3: List of Other Routes Considered but not included in the Cycling Network Plan

Street Name	From	To	Status	Description
13 th Street	Keith	Kings	New - needs approval	14 th Street is preferred as it on the bike map, is wider, connects with the TransCanada Trail, not as steep.
22 nd Street	Highway 1	Jefferson	New - needs approval	Too steep, guide signage exists on Highway 1

3.4 Implementation Strategy:

3.4.1 Phased Implementation

One key objective of this project was to determine the most efficient and effective way to implement the routes on the network. The first criterion used to prioritize the routes was the ease of implementation and the associated relative costs. A second key criterion was to target denser areas with higher levels of connectivity that will provide better service and encourage more mode shift. Based on the information presented in Section 1.3, a 3km radius was used around the Ambleside Village Centre. Based on this radius, staff and the Committee agreed that the main focus area initially would be the area south of Highway 1, west of Taylor Way, and east of 25th Street. This is the focus of Phase 1.

The new Cycling Network Plan contains many routes and even with these two criteria there was still a need to sub-divide the individual projects.

Four phases were identified which are summarized below:

- **PHASE 1:** Easy to implement, primarily signage and road marking only, low cost; in area below Highway 1, east of 25th Street, west of Taylor Way.
- **PHASE 2:** Easy to implement, signage and road marking only, low cost - outside of the main focus area.
- **PHASE 3:** Easy to implement, need some further review in house (e.g. survey, data collection, minor design), some minor civil work, medium cost.
- **PHASE 4:** Needs further study, likely external expert advice, consultation required, likely significant civil work, potential property issues, and expected higher cost requiring a separate capital budget item.

The Phase 1 and 2 areas will mainly include signage and road marking to identify the route. The type of signage to be used will be based on the Manual of Uniform Traffic Control Devices (MUTCD) and be consistent with other signage on the North Shore.

An example of a directional sign is shown in Figure 7. Examples of warning signs that can be used if necessary are shown in Figure 8 and a typical road marking that shows a shared use symbol (sharrow) is depicted in Figure 9.



Figure 7: Example of a Bicycle Guide Sign

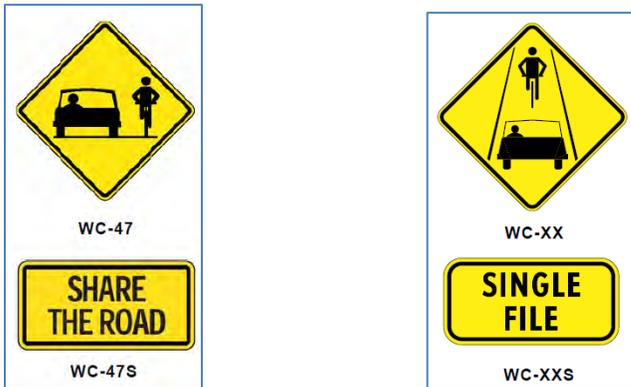


Figure 8: Examples of warning signs that can be used where needed

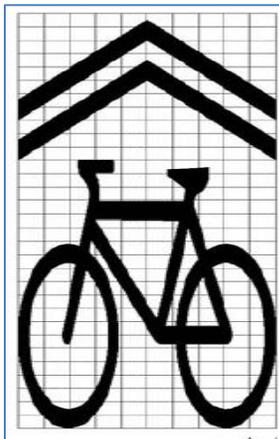


Figure 9: Example of Road Marking

The Phase 1 routes are shown below in **Figure 10**.

The details of each phase and the associated routes are listed in the following tables:

- Table 4: Phase 1 Projects
- Table 5: Phase 2 Projects
- Table 6: Phase 3 Projects
- Table 7: Phase 4 Projects

3.4.2 Priorities within Phases

Within the Phase 1 projects, it was felt that the priorities should focus on the Ambleside Town Centre especially in relation to an east west route along Bellevue. In addition, where opportunities arise with redevelopment and capital projects, designs can be adjusted to accommodate the network. The implementation plan will be developed to allow for some logic and connectivity between routes.

Implementation within Phase 2 will likely be driven by opportunities that arise with redevelopment or capital projects.

Due to the level of resources and complexity required for Phase 3 and Phase 4 projects, individual projects have not been sub-prioritized in this plan. Many of these projects will be dependent on budget availability and on opportunities to combine with other capital works or development related projects. Over time, the objective of connecting the various routes and expanding the Spirit Trail is anticipated to be the primary focus of the Phase 3 and 4 projects.

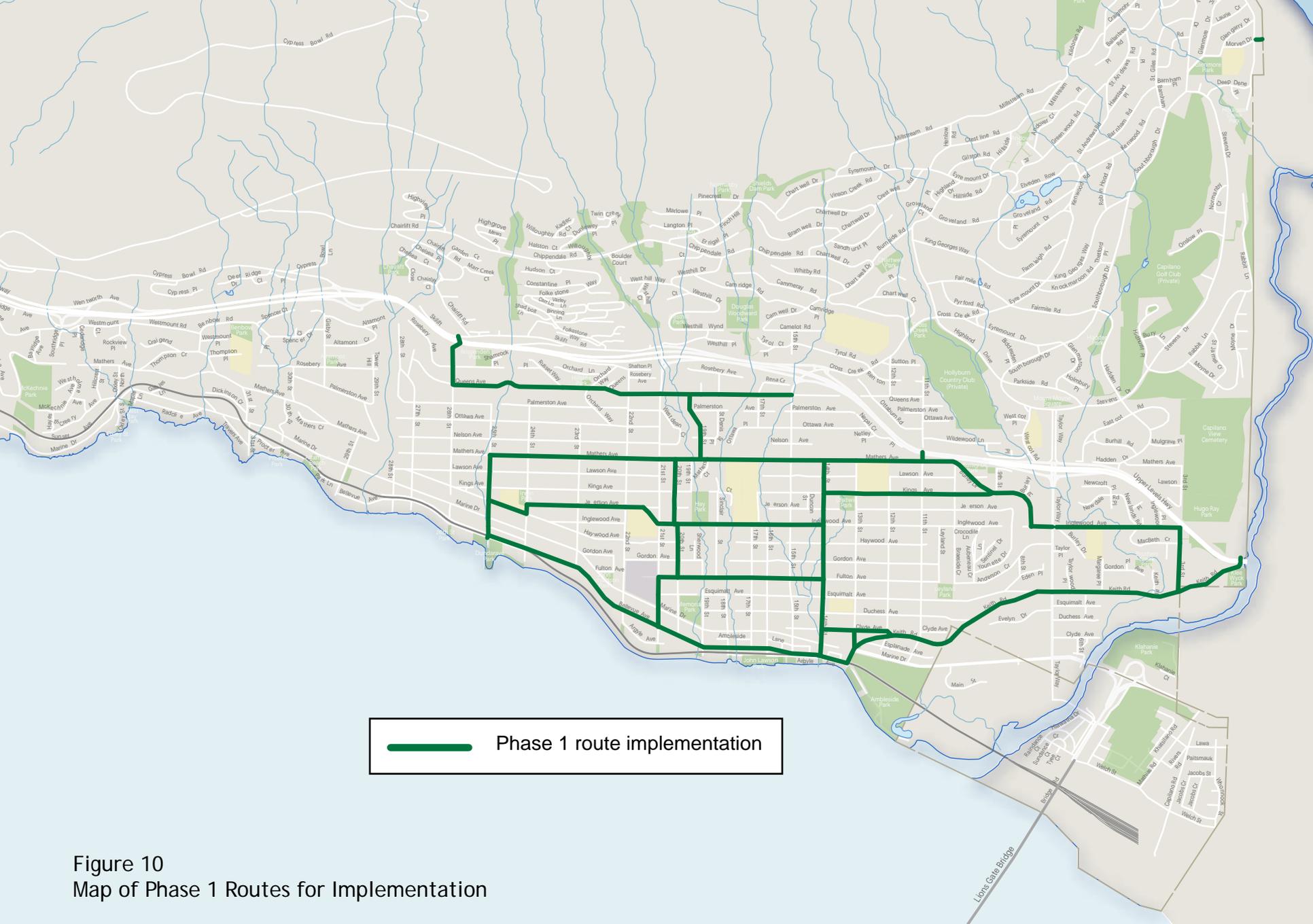


Figure 10
Map of Phase 1 Routes for Implementation

Table 4: Phase 1 Projects

Street Name	From	To	Status	Comment
Keith Road / Clyde	14 th Street	Highway 1	On bike map	Complies with criteria, Evelyn development will have wider outer lane on Keith Rd.
3 rd / Inglewood	Keith	Taylor Way / Burley	On bike map	Complies with criteria
Burley / Kings	Taylor Way	14th	On bike map	Complies with criteria
Burley Drive	Kings	11th	On bike map	Complies with criteria
11th	Kings	Hwy Pedestrian Crossing	On bike map	Complies with criteria
Mathers	11 th Street	25 th Street	New - needs approval	Provides connections to schools, is a good alternative to the extension of Kings through private land.
Queens	15 th Street	26 th Street	On bike map	Complies with criteria
14 th Street	Mathers	Bellevue	On bike map	Complies with criteria, preferred over 13 th
13 th Street	Bellevue	Keith / Clyde	New - needs approval	Provides connection to Spirit Trail and Keith Road
Inglewood / Jefferson / Haywood	14 th Street	25 th Street	On bike map	Complies with criteria
Fulton	14 th Street	21 st Street	New - needs approval	Preferred over Esquimalt - has a complete connection, connects Community Centre, Municipal Hall.
21 st Street	Fulton	Bellevue	New - needs approval	Preferred over 20 th Street - connects to Spirit Trail, has a full signal at Marine Drive.
20 th Street	Fulton	Mathers	On bike map	Complies with criteria
19 th Street	Mathers	Queens	On bike map	Complies with criteria
25 th Street	Mathers	Bellevue	New - needs approval	Preferred over 26 th Street - better grade, connects to Spirit Trail, has a full signal at Marine Drive.
26 th Street	Queens	Highway Pedestrian Crossing	On bike map	Complies with most criteria - although connection is steep - it connects to the pedestrian crossing over Highway 1.
Bellevue	13 th Street	25 th Street	New - needs approval	Complies with criteria - initially sign the route. Need to co-ordinate with Spirit Trail, possible "Greenway" route.
Glenmore	To Cleveland Dam		On Bike Map	Connector - need a sign to show connection to North Vancouver Trail System.

Table 5: Phase 2 Projects

Street Name	From	To	Status	Description
29 th Street	Marine	Mathers	On bike map	Complies with criteria
Mathers	29 th Street	Thompson	On bike map	Complies with criteria
Southridge/ Westmount/ Thompson	Mathers	Southridge	New - needs approval	Complies with some criteria, better grade than Mathers and Bayridge and continuous route for bikes
Southridge	Bayridge	Westridge	On bike map	Complies with criteria
Westridge/Ripple / Almond / Woodcrest	Southridge	Woodgreen	On bike map	Complies with criteria
Woodgreen	Woodcrest	Westport	On bike map	Complies with criteria
Kenwood/Groveland /Burnside / Chippendale	Southborough	Chairlift	On bike map	Complies with criteria

Table 6: Phase 3 Projects

Street Name	From	To	Status	Description
15 th Street	Mathers	Highway 1	New - needs approval	Needs further review, internal design, some consultation
Marine Drive	25 th Street	31 st Street	On bike map	Needs further review, internal design, some consultation
Eyremount / Crosscreek	Kenwood	Highway 1	On bike map	Needs further review, internal design, some consultation
Highland Drive	Taylor Way	Cross Creek	New - needs approval	Needs further review, internal design, some consultation
Westcot School	Taylor Way	Mathers	On bike map	Needs further review, internal design, some consultation
21 st Street	Queens	Skilift	On bike map	Needs review with MoT, tie in with new signal at 21 st and Queens, tie in with new development on Skilift
Skilift	21 st Street	Chairlift	New - needs approval	Tie in with new development on Skilift
Chairlift	Skilift	Chippendale	New - needs approval	Needs further review, internal design, some consultation
Chippendale extension	Chairlift	Cypress Bowl Road	New - needs approval	Road still under construction - need to tie into mountain trail

Table 7: Phase 4 Projects

Street Name	From	To	Status	Description
Queens	15 th Street		On bike map	Crossing with 15 th Street needs review - signal?
14 th Street	Marine		On bike map	Need special treatment for bikes at signal crossing
13 th Street	Marine		New - needs approval	Need special treatment for bikes at signal crossing
21 th Street	Marine		New - needs approval	Need special treatment for bikes at signal crossing
25 th Street	Marine		New - needs approval	Need special treatment for bikes at signal crossing
31 st Street	Marine	Mathers	On bike map	Need bike button at ped signal
Westport Road	Westport Pl	Marine	On bike map	Restripe for northbound bike lane, needs design and consultation
Taylor Way	Inglewood	Southborough	On bike map	Needs review with MoT
Hugo Ray Linkage	Capilano River	Hugo Ray Park	New - needs approval	Needs review with MoT, replace route through park/cemetery, needs design and some construction work.
3 rd St / Mathers / Hadden Dr	Hugo Ray	Stevens Dr	On bike map	OK - implemented at the same time as Hugo Ray Linkage
Picadilly North	Marine	Highway 1	On bike map	Needs detailed review - steep, not continuous for bikes
Meadfield Road	Highway 1		On bike map	Needs detailed review - steep, not continuous for bikes
Cypress Bowl Road Extension	Cypress Bowl Road		On bike map	Future connection with redevelopment
Eagleridge Drive	Highway 1	Marine Drive	On bike map	Recreational route, steep, continuity and connections - needs further review.
Eagleridge Trail	Highway 1	Westport Road	On bike map	Recreational route, needs further review.
Water Lane Loop	Lighthouse Park	Marine Drive	On bike map	Recreational route, needs further review.

4. ESTIMATED PROJECT COSTS

The estimated costs for Phase 1 as shown in Figure 10 are provided in Appendix C.

Estimates for the future Phases will be developed as more information becomes available. Projects in Phases 3 and 4 will also require in-house and/or external assistance to confirm the extent of the projects prior to estimates being established.

The estimated costs provided in Appendix C are based on the following assumptions:

- Standard bicycle signage as per MUTCD
- Standard road marking as per MUTCD
- Small bike decals on the street names will be used to complement the guidance signage
- Warning signs will only be used where necessary

The total estimated cost for the Phase 1 projects is approximately \$40,000. All opportunities will be explored for cost sharing on these projects to accelerate implementation.

5. CONCLUSIONS

The 2007 Cycle Map has been reviewed by staff in consultation with a Committee and a cycling expert where practical feedback was received on route applicability and implementation. A revised Cycling Network Map has been developed based this feedback which includes a number of route additions and deletions when compared to the 2007 Plan.

A phased implementation plan has been developed to focus the first stage of implementation on those areas where there can be a greater impact. Phase 1 has been developed within the area below Highway 1, east of 25th Street, west of Taylor Way and includes projects that are easy to implement - primarily signage and road marking only, at a lower cost. The intent is to make use of existing funds, use opportunities with existing development and capital projects, and develop cost share arrangements.

6. RECOMMENDATIONS

It is recommended that:

1. The Cycling Network Implementation Plan be adopted as a guide for implementation of cycle routes in West Vancouver;
2. Council approval be sought for the updated plan as shown in Figure 6: Proposed New Cycling Network Map;
3. Phase 1 projects be given the highest priority;
4. Projects in subsequent Phases be implemented opportunistically until such time as they are identified as the next projects in priority;
5. A wider outer lane (4.3 m) be considered for Marine Drive where feasible in coordination with redevelopment and capital projects;
6. The District explore all opportunities for cost sharing to accelerate implementation;
and

7. This report be circulated to other relevant departments for use as a reference when planning projects, reviewing development applications and designing upcoming District capital works projects.

Appendix A

Terms of Reference for the Cycling Network Plan Implementation Technical Committee

**Terms of Reference:
Cycling Network Plan Implementation Technical Committee**

Duties

The Cycling Network Plan Implementation Technical Committee will be established to develop a Cycling Network Implementation Plan with the assistance of staff and a consultant. It is envisioned that the Technical Committee will meet monthly, and meetings will be arranged at key milestones. It is likely that some additional meetings will be required based on progress and additional discussion.

The main duties will include:

- Provide input on prioritization of routes for further review;
- Provide input on current signage plans;
- Provide input on current and upcoming development applications, as it pertains to its relevance to achieving goals and objectives of the Cycling Network and Greenway Plan;
- Comment on easily implementable routes on existing roads utilizing modest signage and pavement marking improvements and possibly limited parking removal;
- Provide input on strategy to implement next phases of Spirit Trail; and
- Provide input on refinement of future routes to preliminary design stage.

Composition

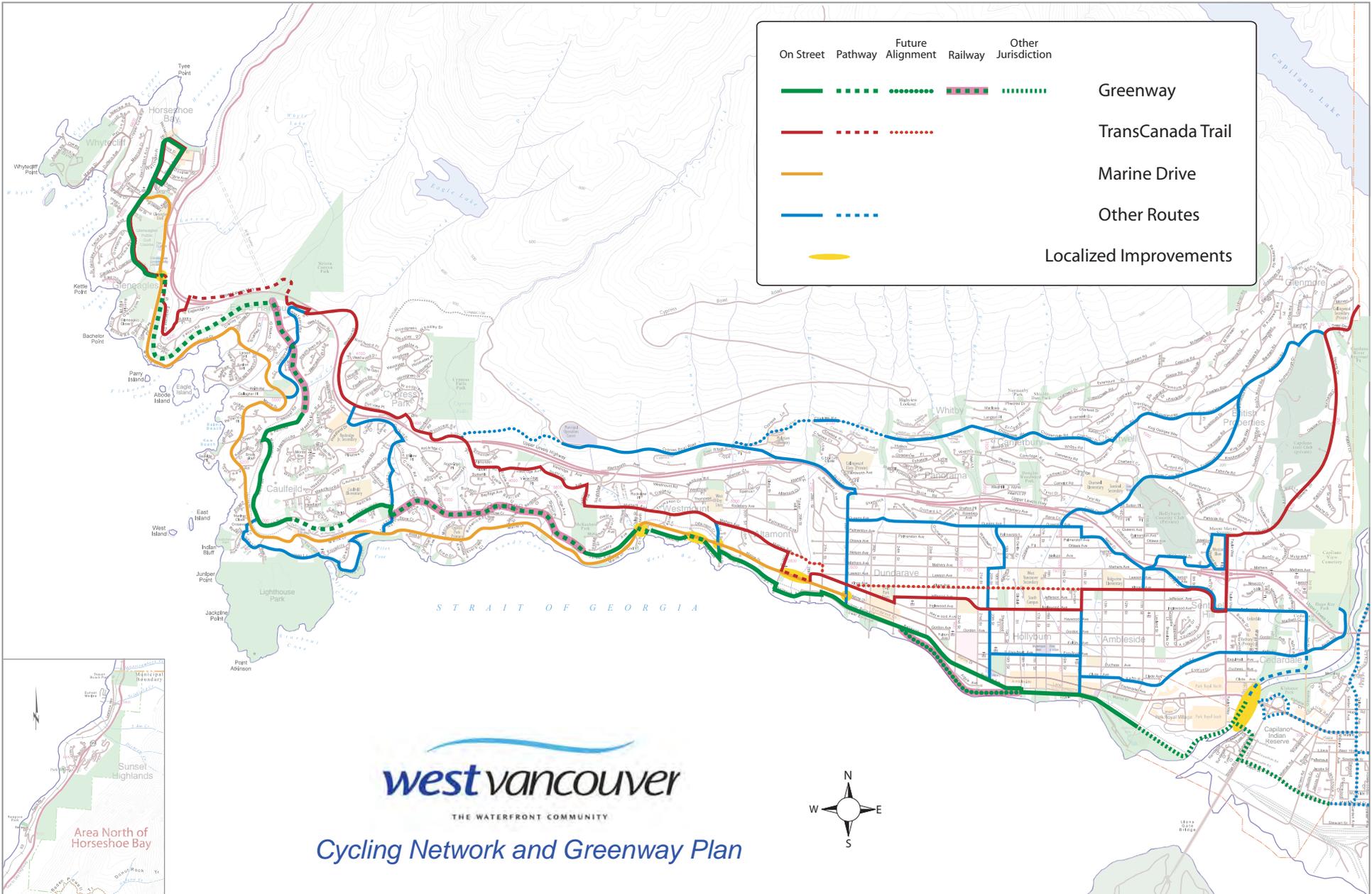
The Technical Committee will consist of 4 to 5 members of VACC-NS. Members are required to be residents of West Vancouver. Staff liaison and administrative services will be provided by the Engineering & Transportation Division. Consultant resources will be engaged by the District as necessary to work with the Working Group to develop the Implementation Plan.

Term

The Cycling Implementation Plan Working Group will complete its work within four months of its establishment.

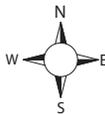
Appendix B
2007 Cycling Network
and Greenway Plan

On Street	Pathway	Future Alignment	Railway	Other Jurisdiction	
					Greenway
					TransCanada Trail
					Marine Drive
					Other Routes
					Localized Improvements



westvancouver
 THE WATERFRONT COMMUNITY

Cycling Network and Greenway Plan



Appendix C
Phase 1: Costs for Implementation

ESTIMATED COSTS FOR PHASE 1: [Estimates based on \$150/sign and \$100/markings which includes labour]

Street Name	From	To	Length (km)	Signs	Cost	Road Mark'gs	Cost	Total
Keith Road	14th Street	Highway 1	2.5	14	\$2,100	6	\$600	\$2,700
3rd / Inglewood	Keith	Taylor Way / Burley	1.1	6	\$900	2	\$200	\$1,100
Burley / Kings	Taylor Way	14th	1.5	10	\$1,500	4	\$400	\$1,900
Burley Drive	Kings	11th	0.5	3	\$450	0	\$0	\$450
11th	Kings	Highway Ped Xing	0.1	4	\$600	0	\$0	\$600
Mathers	11th Street	25th Street	2.6	14	\$2,100	4	\$400	\$2,500
Queens	15th Street	26th Street	2.0	10	\$1,500	0	\$0	\$1,500
14th Street	Mathers	Bellevue	1.2	16	\$2,400	4	\$400	\$2,800
13th Street	Bellevue	Keith / Clyde	0.4	12	\$1,800	8	\$800	\$2,600
Inglewood / Jefferson / Haywood	14th Street	25th Street	2.1	14	\$2,100	0	\$0	\$2,100
Fulton	14th Street	21st Street	1.0	6	\$900	0	\$0	\$900
21st Street	Fulton	Bellevue	0.3	10	\$1,500	8	\$800	\$2,300
20th Street	Fulton	Mathers	0.8	4	\$600	0	\$0	\$600
19th Street	Mathers	Queens	0.4	2	\$300	0	\$0	\$300
25th Street	Mathers	Bellevue	0.5	12	\$1,800	8	\$800	\$2,600
26th Street	Queens	Highway Ped Xing	0.3	4	\$600	0	\$0	\$600
Bellevue	13th Street	25th Street	2.4	6	\$900	4	\$400	\$1,300
Glenmore	To Cleveland Dam		0.1	2	\$300	0	\$0	\$300
Other Items								
Small bike decals on signs	Allow for 200 at \$15/decal							\$3,000
Warning signage where required	Allow for 30 at \$150/sign							\$4,500
Sub total								\$34,650
Contingency - 10%								\$3,465
TOTAL				149	\$22,350	48	\$4,800	\$38,115
							Say	\$40,000