

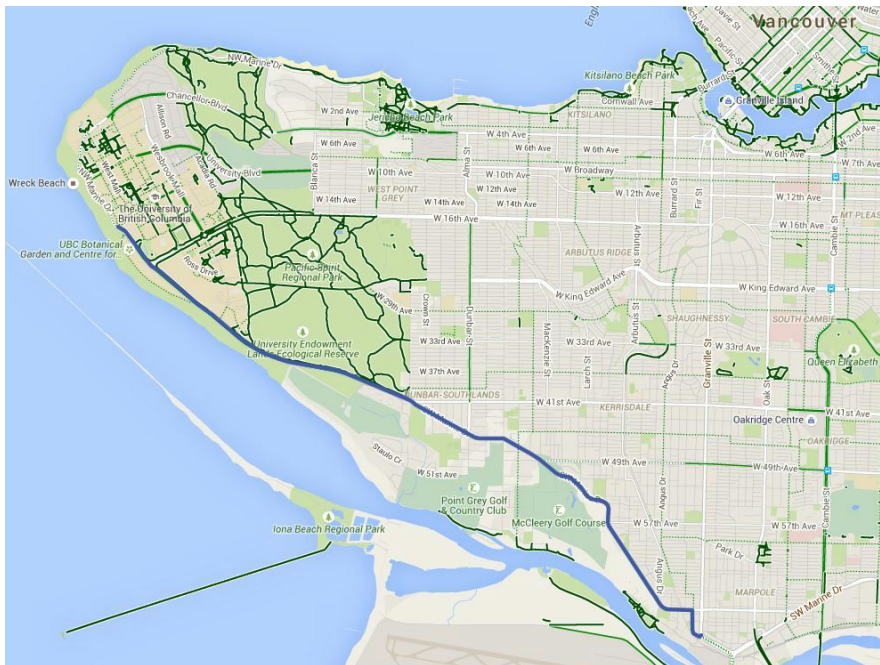


# South West Marine Drive Bike Route Report

Prepared by the Vancouver UBC Committee of HUB Cycling

## Project Vision

The creation of an All Ages and Abilities (AAA) Bike Route running east-west through South West Vancouver, from Granville Street to UBC.



**August 16, 2015**

### **Why Is This Important?**

In this report we urge the COV to ensure that the Southwest Marine Dr (SW Marine) bike route from Granville Street to North West Marine Drive (at UBC) take advantage of the upcoming road work to be upgraded to All Ages and Abilities (AAA) cycling infrastructure. This is completely in line with current City plans and policy and it would be wrong not to upgrade the cycling route when the road is being upgraded. The section of SW Marine within the City of Vancouver was identified as a priority in the Transportation 2040 Plan, and was listed as a potential improvement to be completed in 2014, representing the highest indicated priority level in the plan after Point Grey Road, Comox, and Commercial Drive, which were all listed as 2013 priorities. It is time to act on this opportunity. For the portion maintained by the Ministry of Transportation and Infrastructure (MoTI) on behalf of the Provincial Government, upgrade work should be planned to coordinate with any City of Vancouver work.

The corridor between Granville Avenue and UBC is useful and important for all modes of travel. SW Marine has several advantages for cycling: It is a regional connector, it crosses diagonally along the grid, and it avoids cyclists climbing the hill to 45th or 41st and then descending for those travelling to UBC from points south and east. The route provides a link to one of the largest transport destinations in the region: UBC. As it currently stands it is widely used for cycling training and by experienced commuter cyclists, but is used much less by less confident cyclists, children on their own, or adults with children. It serves an area with relatively little AAA cycling infrastructure

Today, SW Marine from near Granville St., to UBC, is designated by the City of Vancouver as a bike route with painted bike lanes. These painted lanes are in a poor state of repair, with crumbling pavement, and faded pavement markings. In many locations the painted lanes simply stop and start, leaving cyclists squeezed between a gravel shoulder and motor vehicle traffic that is usually fast moving. Parked vehicles often obstruct the bicycle lane. This route does not just require repair; it justifies AAA cycling infrastructure with physically separated bicycle lanes.

As can be seen in Figure 1, there are existing bike routes connecting to the east, generally along Kent Ave, 59th, 45th, and 37th. Travelling north and south, there are connections at Camosun, Dunbar, Carnarvon (via Balaclava), and Angus (via Cornish)

The route is a designated truck route. It is also a designated "Scenic Route". There are many parks located along this route, including Fraser River Park, Riverview Park, Arbutus Park, Maple Grove Park, Malkin Park, Musqueam Park, and Pacific Spirit Park.

This route has been featured as part of the HUB Cycling [#ungapthemap](#) campaign due to its regional significance (Figure 2).



Figure 1

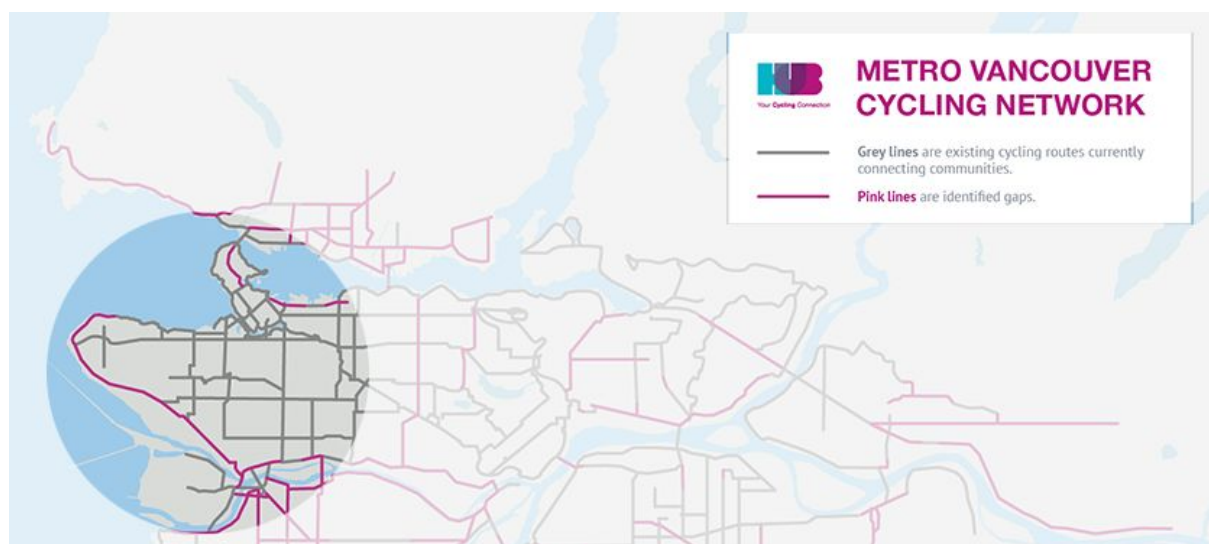


Figure 2

## **The Transportation 2040 Plan**

The Transportation 2040 Plan was adopted by Vancouver City Council on October 31, 2012. The plan makes specific reference to improving the SW Marine Drive Bike Route.

The Transportation 2040 Plan states that the direction for cycling is to make cycling safe, comfortable, convenient, and fun, for people of all ages and abilities.

The relevant policies within the plan include:

### **C1     Cycling Network**

- 1.1. Build cycling routes that feel comfortable for people of all ages and abilities
- 1.2. Upgrade and expand the cycling network to efficiently connect people to destinations
- 1.3. Maintain bikeways in a state of good repair
- 1.4. Make the cycling network easy to navigate

### **C2     Parking and End-of-Trip Facilities**

- 2.1. Provide abundant and convenient bicycle parking and end-of-trip facilities

### **C3     Multi-Modal Integration**

- 3.1. Make it easy to combine cycling with other forms of transportation
- 3.2. Provide a public bicycle system

With the exception of 3.2, the recommendations contained in this report are fully aligned with the cycling policies contained in Transportation 2040. Policy 3.2, to provide a public bicycle system, will not be a consideration for this route until after a public bike share system is established, likely to be done first in the higher density downtown core, and only when an expansion of the bike share system to areas outside the downtown core is contemplated. This could change with the creation of a Public Bike Share system implemented in partnership with UBC.

Transportation 2040 Implementation Principles include investing wisely by prioritizing strategic improvements that realize larger network benefits, and working together with partners on routes that have regional significance. These principles are well aligned with the recommendations in this report, in terms of prioritizing this route.



## What is the potential of this AAA Route?

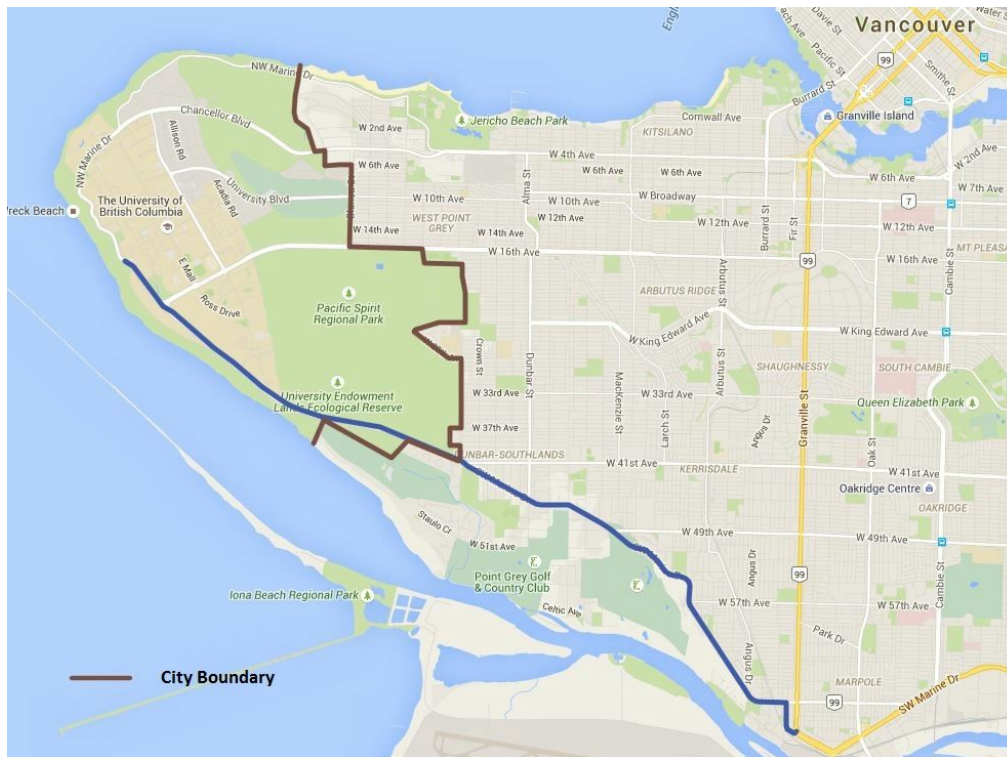


Figure 3

The SW Marine Bike Route, shown in blue in Figure 3, would connect Granville St and UBC with a continuous, All Ages and Abilities (AAA) bicycle route. This route would:

- provide a main east west transportation route for commuters to and from UBC and within South West Vancouver.
- link up to existing bike routes that run north and south, expanding the network in South West Vancouver.
- serve as a regional connector. It will provide a continuous link westward for users heading towards UBC, eastward to Burnaby and on to New Westminster, and connections to all of the Vancouver/Richmond bridges, as well as the Canada Line SkyTrain.
- provide east west connections for active transportation users of the Canada Line Bridge, a significant draw for pedestrians and cyclists. This route avoids the need for westbound cyclists to climb the hill from the Canada Line Bridge only to descend again at 41st.
- provide access to the new river paths, serving recreational users.

### **General Issues**

Due to the volume and speed of motor vehicle traffic, including heavy trucks (SW Marine is a designated truck route) and transit vehicles, this route requires physically separated bicycle lanes in each direction. Particular design attention should be paid to the intersections, many of which are not at 90 degrees due to the alignment of SW Marine.

Signage is required for wayfinding, with directions provided to adjoining bicycle routes and points of interest.

The notes that informed this submission, from a recent HUB Cycling assessment ride, are included in Appendix 2.

A sample of specific issues follows.

## South East End of Route



Figure 4



Figure 5

At Cornish St, approaching Granville, the route is marked as a local street bikeway. Despite the 30 km/hr signage, and parked vehicles, motor vehicles travel quickly around the corner in Figure 4. Southbound on Cornish at SW Marine, shown in Figure 5, there is danger due to northbound vehicles turning left, and a lack of pavement markings in the intersection.



## Painted Bike Lane is not Continuous



Figure 6



Figure 7

SW Marine is listed by the City of Vancouver, and publicized, as having painted bicycle lanes for the length from Wiltshire St. to Camosun St. In reality, the painted bike lanes often disappear, becoming vehicle travel lanes (Figure 6) or unmarked shoulders (Figure 7).



## Poor Pavement Condition



Figure 8



Figure 9

Water damage due to poor drainage causes erosion, and the edge of the existing bike lane is often crumbled away, with gravel and loose rocks (Figures 8 and 9).

## Insufficient Width



Figure 10



Figure 11

SW Marine is shared with trucks and transit vehicles, as well as private motor vehicles. The lane width is insufficient for safe passing, particularly at the speeds many motor vehicles are travelling (Figures 10 and 11).



## Intersection design



Figure 12



Figure 13

At larger intersections, problems exist due to the diagonal nature of SW Marine. Many corners have a large radius, and encourage high speeds. This is particularly a problem westbound. In particular, the intersection at 49th is dangerous due to the number of traffic lanes. (Figures 12 and 13). ICBC reports 18 motor vehicle crashes at this intersection in 2013, and 29 in 2012.



## Vehicles Using the Bike Lane



Figure 14



Figure 15

Parked cars and service vehicles often interfere with the existing marked bike lanes (Figure 14). Vehicles were observed driving in the bike lane, passing on the right (Figure 15).



### Transition to Highway Section at 41st



Figure 16



Figure 17

The intersection of SW Marine and 41st is particularly dangerous, as the route transitions to a highway design (Figure 16). ICBC reported 14 motor vehicle crashes at this intersection in 2013. Lane markings are not clear. Immediately after Camosun, parked vehicles on the shoulder create additional risks, with pedestrians also using the bike lanes. (Figure 17)



## Highway Section toward UBC



Figure 18



Figure 19

The MoTI portion of this route has a typical highway design, but with no lighting (Figure 18). Exits are designed as slip roads, with vehicles travelling at high speeds crossing the bike lane (Figure 19).



### **How Could the SW Marine Drive Bike Route Connect Eastward at Granville St?**

The current bicycle route between Hudson St and Granville St along SW Marine Drive, consisting only of signage indicating the route, has very high traffic volume and high vehicle speeds, with merging traffic onto and off of the Arthur Laing Bridge, and left turns northbound on Granville St at both Milton St and 70th Ave. We have previously proposed that the existing city ROW along 75th Ave between Hudson St and Milton St, which is currently undeveloped and fenced, be utilized to construct a shared bicycle and pedestrian path that would allow users to bypass the congested and dangerous area at the foot of Granville. This as yet unbuilt section is shown in orange in Figure 20, and in more detail in Figure 21. Figure 22 shows this city ROW looking west from Hudson. There is an unused railway siding crossing the city ROW, but no other apparent obstructions.

With the construction of this short section of path on an existing City right of way, a continuous safe active transportation route could be created along the southern edge of Vancouver, from Boundary (Burnaby) to UBC.



Figure 20

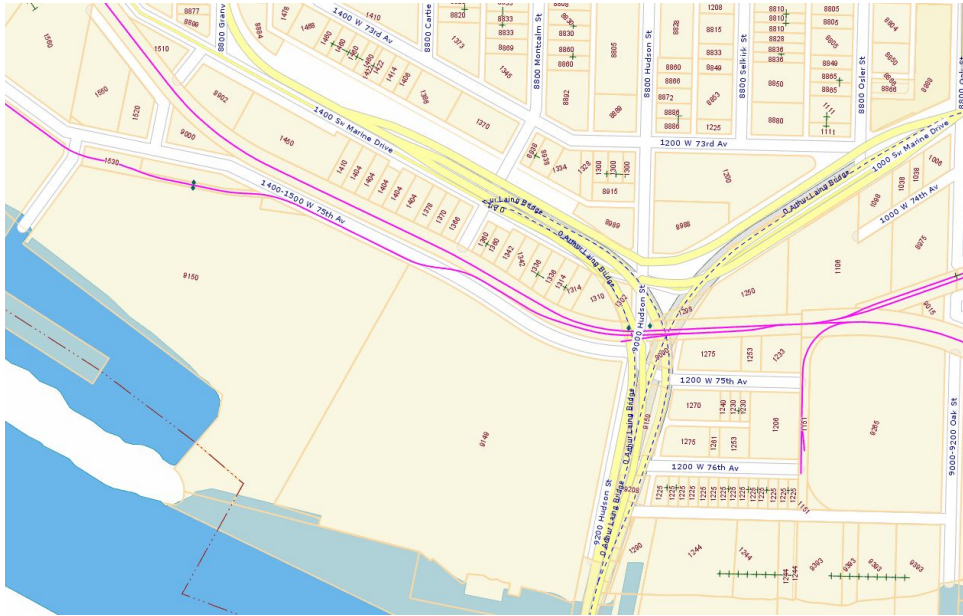


Figure 21



Figure 22

## Appendix 1 - Motor Vehicle Traffic Volumes

The following tables, from the City of Vancouver, provide measured vehicle traffic volumes for SW Marine Drive, at three locations. The first, at 1600 SW Marine, is at Barnard St. and is from December 2012. Peak hourly vehicle volumes range to 1842 (eastbound) and 1349 (westbound). The 24 hour combined maximum was 37,767 vehicles. The second, at 2200 SW Marine, is at Yew St. and is from March 2013. Peak hourly vehicle volumes range to 1361 (eastbound) and 1118 (westbound). The 24 hour combined maximum was 27,337 vehicles. The third, at 3200 SW Marine, is at Blenheim St. and is from February 2012. Peak hourly vehicle volumes range to 1587 (eastbound) and 1398 (westbound). The 24 hour combined maximum was 31,636 vehicles.

### CITY OF VANCOUVER - ENGINEERING SERVICES

#### AUTOMATIC TRAFFIC COUNTS

1600 SW MARINE DRIVE

2011

Excel

Print

Coordinates: 830122 Location: 1600 SW MARINE DRIVE

DIRECTION: EB

ID	Date	Hour	12-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	24 Hours	9AM-4PM	7-9AM	4-6PM
80481	Dec-11, 12	A.M.	101	44	19	28	40	132	321	810	1366	1424	955	1170	19581	9316	2176	3632
		P.M.	1271	1349	1440	1707	1842	1790	1316	724	530	571	400	211				
80482	Dec-12, 12	A.M.	106	40	23	18	46	121	272	710	1593	1478	1257	1448	21036	10366	2303	3725
		P.M.	1384	1385	1521	1895	1943	1782	1517	794	584	586	378	197				
80483	Dec-13, 12	A.M.	114	53	26	21	36	130	283	750	1620	1556	1361	1560	21221	10267	2370	3709
		P.M.	1367	1356	1500	1567	1931	1778	1537	816	565	626	439	229				

DIRECTION: WB

ID	Date	Hour	12-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	24 Hours	9AM-4PM	7-9AM	4-6PM
80478	Dec-11, 12	A.M.	81	50	13	20	47	222	635	1149	1370	1039	875	903	15080	6711	2519	2108
		P.M.	895	907	1010	1082	1047	1061	872	477	420	446	287	152				
80479	Dec-12, 12	A.M.	69	42	29	14	41	205	660	1154	1349	977	916	1016	15729	7154	2503	2163
		P.M.	977	922	1151	1195	1030	1133	913	541	449	462	310	174				
80480	Dec-13, 12	A.M.	95	45	28	25	49	214	701	1294	1333	1110	1018	1030	16546	7525	2627	2323
		P.M.	1023	1013	1100	1231	1178	1145	916	565	487	482	267	197				

Figure 23

### CITY OF VANCOUVER - ENGINEERING SERVICES

#### AUTOMATIC TRAFFIC COUNTS

2200-2300 SW MARINE DRIVE

2012

Excel

Print

Coordinates: 830078 Location: 2200-2300 SW MARINE DRIVE

DIRECTION: EB

ID	Date	Hour	12-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	24 Hours	9AM-4PM	7-9AM	4-6PM
81934	Mar-12, 13	A.M.	82	24	18	22	37	100	265	650	1038	883	675	869	13058	6018	1688	2178
		P.M.	852	801	932	1006	1145	1033	791	592	446	415	239	143				
81936	Mar-13, 13	A.M.	78	43	23	15	46	86	265	648	1000	878	765	798	14813	6251	1648	3115
		P.M.	823	795	1012	1180	1754	1361	1281	617	469	424	312	140				
81938	Mar-14, 13	A.M.	95	56	57	45	42	106	274	636	965	928	776	869	13668	6485	1601	2121
		P.M.	916	925	977	1094	1065	1056	827	639	498	415	271	136				

DIRECTION: WB

ID	Date	Hour	12-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	24 Hours	9AM-4PM	7-9AM	4-6PM
81935	Mar-12, 13	A.M.	66	40	22	7	47	187	529	948	944	1049	806	699	12051	5552	1892	1608
		P.M.	708	740	713	837	775	833	645	437	332	346	223	118				
81937	Mar-13, 13	A.M.	70	59	17	13	42	194	531	983	1118	950	730	759	12524	5581	2101	1604
		P.M.	672	763	818	889	810	794	644	508	378	383	249	150				
81939	Mar-14, 13	A.M.	79	30	20	15	39	184	556	903	955	849	855	631	12096	5470	1858	1633
		P.M.	790	724	797	824	798	835	654	422	341	405	254	136				

Figure 24



# CITY OF VANCOUVER - ENGINEERING SERVICES

## AUTOMATIC TRAFFIC COUNTS

3200 SW MARINE DRIVE  2011

Coordinates: 830050 Location: 3200 SW MARINE DRIVE																		
DIRECTION: EB																		
ID	Date	Hour	12-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	24 Hours	9AM-4PM	7-9AM	4-6PM
76395	Feb-14, 12	A.M.	88	32	18	14	23	84	248	684	1212	894	741	845	14831	6741	1896	2977
		P.M.	854	824	1069	1514	1443	1534	850	552	469	401	278	180				
76396	Feb-15, 12	A.M.	118	38	29	14	27	87	264	689	1301	943	845	804	15341	7225	1990	2696
		P.M.	986	873	1187	1587	1343	1353	849	612	492	466	277	157				
76397	Feb-16, 12	A.M.	98	48	23	16	41	102	239	754	1177	832	786	853	15264	6878	1931	2883
		P.M.	1017	846	1009	1535	1448	1435	904	593	452	543	316	197				
DIRECTION: WB																		
ID	Date	Hour	12-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	24 Hours	9AM-4PM	7-9AM	4-6PM
76398	Feb-14, 12	A.M.	67	31	17	12	33	160	726	1329	1408	1244	1148	713	15221	6872	2737	2073
		P.M.	844	919	834	1170	988	1087	820	515	373	342	277	186				
76399	Feb-15, 12	A.M.	88	41	25	14	34	191	708	1368	1260	1368	1045	981	15887	7404	2628	2228
		P.M.	883	974	969	1184	1165	1063	873	608	386	354	260	147				
76400	Feb-16, 12	A.M.	76	47	25	17	37	190	715	1344	1382	1398	1119	915	16372	7748	2726	2294
		P.M.	1045	1017	968	1286	1194	1100	782	470	408	368	292	177				

Figure 25

## **Appendix 2 - A Current Route Evaluation (proceeding east to west):**

Ride notes from a HUB Cycling assessment ride conducted on May 16, 2015.

### **From Granville to UBC (Totem Park Residences).**

Requires physical separation of the bicycle lanes given volumes and speeds of motor vehicles. Significant heavy truck traffic. Vehicles were frequently observed to be passing on the right using the shoulder or painted bike lane where it exists. Many sections do not have sidewalks.

### **Granville, Marine Drive, Milton Street.**

Currently designated as a local street bikeway.

Eastbound connection to the Arthur Laing Bridge is poor.

Requires a better crossing of Granville St.

Connections to Arbutus are close by.

Requires a connection to Kent Avenue for east-west connections (using Milton Street.)

### **Between Milton St. and 71st Ave.**

Currently designated as a local street bikeway.

No visible lane markings of any type.

There is a high speed curve at a narrow section. Review parking on the North side.

Requires a count of traffic volumes, as traffic appears to be heavy at times.

30 km/h speed limit is not followed.

### **71st and SW Marine Drive.**

Requires wayfinding signage indicating directions to other cycle routes in the area.

### **70th and Cornish St.**

Cornish is designated as a local street bikeway.

There is an existing traffic diverter.

Northbound onto the Cypress route is relatively good.

Southbound bicycle connection is poor due to turning vehicles and lack of intersection markings.

Requires a separate signal phase for walking and cycling.

Suggest green paint and crosswalk/crossbike lines to cross SW Marine.

### **Barnard St. and SW Marine Dr.**

No cycling infrastructure exists from Cornish St. to Wiltshire St.

### **Between Wiltshire St. and 63rd Ave on SW Marine Dr.**

From Wiltshire St eastward, SW Marine is designated as a Painted Bike Lane

There is a painted bike lane currently on this section.

Car parking observed in the bike lane.

Constant debris observed in the bike lane. Eroding edges observed on the asphalt.

Suggest that the need for vehicle parking be reviewed.

Arbutus Park

Additional lane width available near the park.

Yew and SW Marine Dr.

Observed rocks scattered on the south side of the road.

Maple Grove Park

There is no sidewalk to access the park.

Marine Crescent to McDonald

Drainage issues on the north side cause hazardous conditions, especially in winter.

49th and SW Marine Dr.

Southbound, painted bicycle lane disappears.

Due to the angle of SW Marine, there are large radius turns which result in high vehicle speeds.

Observed vehicle turning left onto SW Marine Dr. from 49th Ave.

Additional issue with transit buses travelling on 49th and merging onto SW Marine.

This is a poor intersection for all modes of travel..

Between 49th Ave. and Balaclava.

No bicycle lane.

Parking lane is used as travel lane.

Balaclava and SW Marine Dr.

This is the access to the 45th Ave. bicycle route. This needs to be indicated.

Blenheim and SW Marine Dr.

There are two schools a few blocks to the north on Blenheim: Kerrisdale Elementary Annex and Crofton House.

Most drivers coming south on Blenheim observed to be turning left at the intersection.

Between 49th Ave. and Dunbar St.

49th has a painted bicycle lane.

At Blenheim, the bike lane on SW Marine was observed being use by motor vehicles as a travel and right-side passing lane.

Collingwood and SW. Marine Dr.

There are no sidewalks on this section.

There are stairs going north. There is room on the side of the stairs to install a ramp for cycling or strollers.

There is a bus stop at this point. Any new bicycle lane should run behind it.

Dunbar St. and SW Marine Dr.

Unmarked shoulder.



Most drivers observed coming south on Dunbar were turning left at the intersection. Many vehicles travelling west on Marine turn right up Dunbar; the large radius corner results in little slowing by cars on turns. Recommend separated light phases for the various modes.

*Camosun St., 41st Ave. and SW Marine Dr.*

This intersection does not appear to work well for any mode.

This location is a block away from Southlands Elementary School that draws students from both sides of Marine Drive.

West of Camosun there are no street lights.

There are no sidewalks. People observed parking and walking on the road. Cars are parked in the shoulder. The bike lane is in the door zone for the parked vehicles. The road design promotes freeway speeds for motor vehicles.

*Kullahun Dr.*

There is no crosswalk or crossbike.

This point is currently used by people cycling eastbound recreationally to turn around and return to UBC.

The road design encourages motor vehicle speeds to travel at highway speeds.

Cars have been observed racing.

*Fraser River Exploration Monument lookout.*

There is no crosswalk or crossbike. No lights or crossing signs.

*Between Imperial Trail and the parking lot west of Westbrook Mall.*

There is room on the north side and an elevated berm for an off-road path.

*Westbrook Mall and SW Marine Dr.*

The bicycle lane crosses the turn lane.

The push button cannot be reached without dismounting.

Requires a better walking route to get to bus stop.

*Parking lot, north side, west of Westbrook Mall.*

An elevated off-road path starts here. It needs more connections. It should start east of here.

*Old Marine Drive Rd. entrance and SW Marine Dr.*

There is no way to get from the elevated off-road path on the north side to Old Marine Drive Rd. due to the deep ditch

There should be a crosswalk and crossbike here.

*16th Ave. and SW Marine Dr.*

The intersection is of a highway design currently. There is no painted lane.

Intersection requires a complete redesign.

*Stadium Rd and SW Marine Dr.*

The pedestrian crossing to access the botanical gardens across 5 lanes + shoulder lanes of signed 60 km/hr traffic is dangerous and requires a proper pedestrian signal crossing.

Thunderbird Blvd. and SW Marine Dr.

These are very close together and there could easily be cycling and walking connections.

Needs crosswalk and crossbike to get to Old Marine Drive Road.

There is a shared use path on the north side for a short section. This could be extended and connected to be more useful.

### **Appendix 3 - Bicycle Collision Statistics**

There is a lack of comprehensive historical data on bicycle crashes on routes in Vancouver.

ICBC does provide the Cyclist Crash Map, which includes bicycle collisions involving motor vehicles and claims made against ICBC insured drivers. This is not a total count of bicycle collisions, due to the number of collisions that are unreported or which do not result in insurance claims against drivers. The same ICBC data is available on Bike Maps, which also provides the ability for cyclists to enter their own incident data.

Figure 26 shows the ICBC Crash Map for cyclists, indicating that in the area of SW Marine, the bulk of cyclist crashes occur on SW Marine itself.

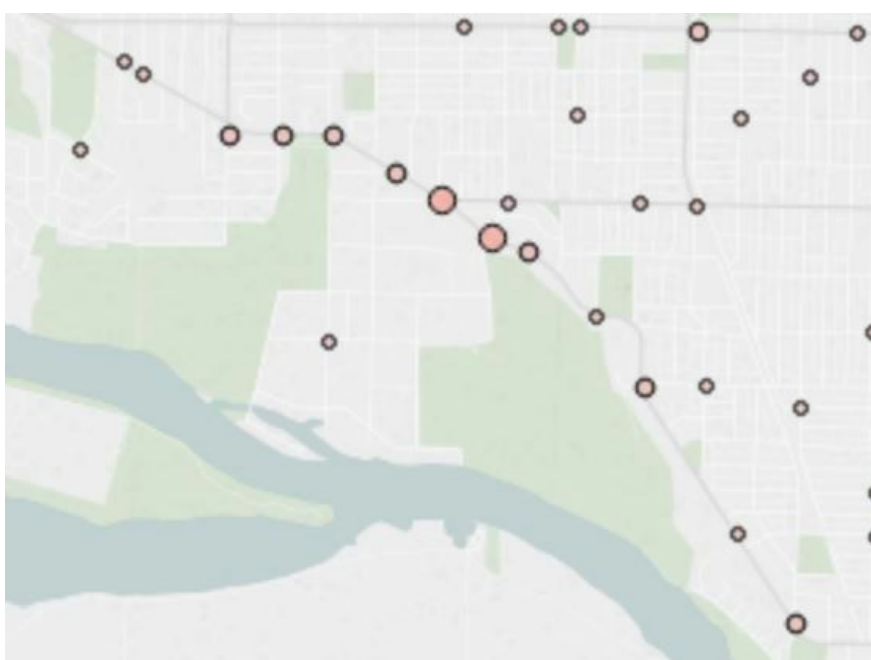


Figure 26



## **Data Sources**

All street and bike route photos taken by HUB Cycling on May 16, 2015

Vancouver traffic volumes extracted from Van Map

[http://vanmapp.vancouver.ca/pubvanmap\\_net/default.aspx](http://vanmapp.vancouver.ca/pubvanmap_net/default.aspx)

ICBC Collision Statistics extracted from

<http://www.icbc.com/about-icbc/newsroom/Pages/Lower-Mainland-Crash-Map.aspx>

ICBC Bicycle Collision Statistics extracted from

<http://www.icbc.com/about-icbc/newsroom/Pages/Cyclists.aspx>

Bike Map application utilizing ICBC Bicycle Collision Statistics

<https://bikemaps.org>

Vancouver Transportation 2040 Plan

[http://vancouver.ca/files/cov/Transportation\\_2040\\_Plan\\_as\\_adopted\\_by\\_Council.pdf](http://vancouver.ca/files/cov/Transportation_2040_Plan_as_adopted_by_Council.pdf)

## **More Information**

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