

# ***ROYAL VANCOUVER YACHT CLUB: COAL HARBOUR MARINA EXPANSION PROJECT***

## ***ROWING TECHNICAL MEMORANDUM***

---

<b>To:</b>	Emily Williamson (VFPA), Sean Baxter (VFPA), Dave Hart (VFPA), Jason Krott (VFPA), Elizabeth Harris (NPP)	<b>From:</b>	Russ Tyson
<b>cc:</b>	Chris Barnett (RVYC Marine Asset Manager), Norm Allyn (CMO),	<b>Date:</b>	February 10, 2020
<b>Subject:</b>	Multiuse Waterway Coal Harbour	<b>Project No:</b>	17-113

---

### **Royal Vancouver Yacht Club Coal Harbour Marina Expansion Project**

The Royal Vancouver Yacht Club (RVYC) has proposed to the Vancouver Fraser Port Authority (port authority) and the Navigation Protection Program (NPP) of Transport Canada (TC) a project to expand the existing RVYC Marina, in Coal Harbour, to increase the number of slips in the marina by 47. The reconfiguration significantly improves the current layout and incorporates best practices for marina design, making it more functional and operational. The area proposed for the lease expansion area is 9,040 m<sup>2</sup> based on the available water area outside of the navigational channel. In addition to accommodating commercial and recreational marine traffic the overall multiuse waterway includes an additional 27 m for rowing (e.g. two rowing lanes each 13.5 m wide).

To promote and accommodate all users within the waterway a benchmark review of similar multiuse waterways was undertaken, best practices identified, and various mitigative measures noted. Meetings with the Vancouver Rowing Club (VRC), identification of their concerns and potential mitigation was fundamental in the development of this technical memorandum, although VRC remain in opposition to this project.

### **Coal Harbour: A multiuse waterway**

Coal Harbour area represents a multiuse waterway in which recreational powerboats, sailboats, small cruise ships (e.g. commercial) and recreational rowers co-exist. The exhibit below sets out the current RVYC water lot, proposed water lot expansion area, and the overall administrative channel.



### **Port Authority “Port Information Guide”**

Coal Harbour represents a multiuse recreational waterway that has evolved from its industrial beginnings 150 years ago. The port authority document “Port Information Guide” (Guide), and the related “Safe Boating Guide”, define permitted marine use in Coal Harbour.

The Guide was created pursuant to Section 56 of the Canada Marine Act and is aligned with the standards of the International Harbour Masters Association. It contains a set of localized practices and procedures designed to promote safe and efficient navigation within the Port of Vancouver and supports efforts to protect the marine environment. The practices and procedures contained in the Guide apply to all vessels in the port, including pleasure craft and recreational vessels.

Section 8 Port Navigation, Sub section 8.19 Recreational Vessels states:

*“For safety reasons, vessels engaged in fishing, personal watercraft such as jet skis, row boats, canoes, and vessels, sailing or proceeding without mechanical power, are not permitted within the boundaries of First Narrows Traffic Control Zone (TCZ-1), Second Narrows Traffic Control Zone (TCZ-2) and all areas of Vancouver Harbour in between.... No person shall operate any pleasure craft under the power of oars or paddles”.*

While the Guide infers that rowing is not permitted in Coal Harbour, the port authority and all stakeholders acknowledge that rowing has been, and will continue to be, a valued user of this multiuse waterway, and regulators will continue to pursue the preservation of rowing. The exhibit below illustrates the Burrard Inlet portion of the “Safe Boating Guide”.



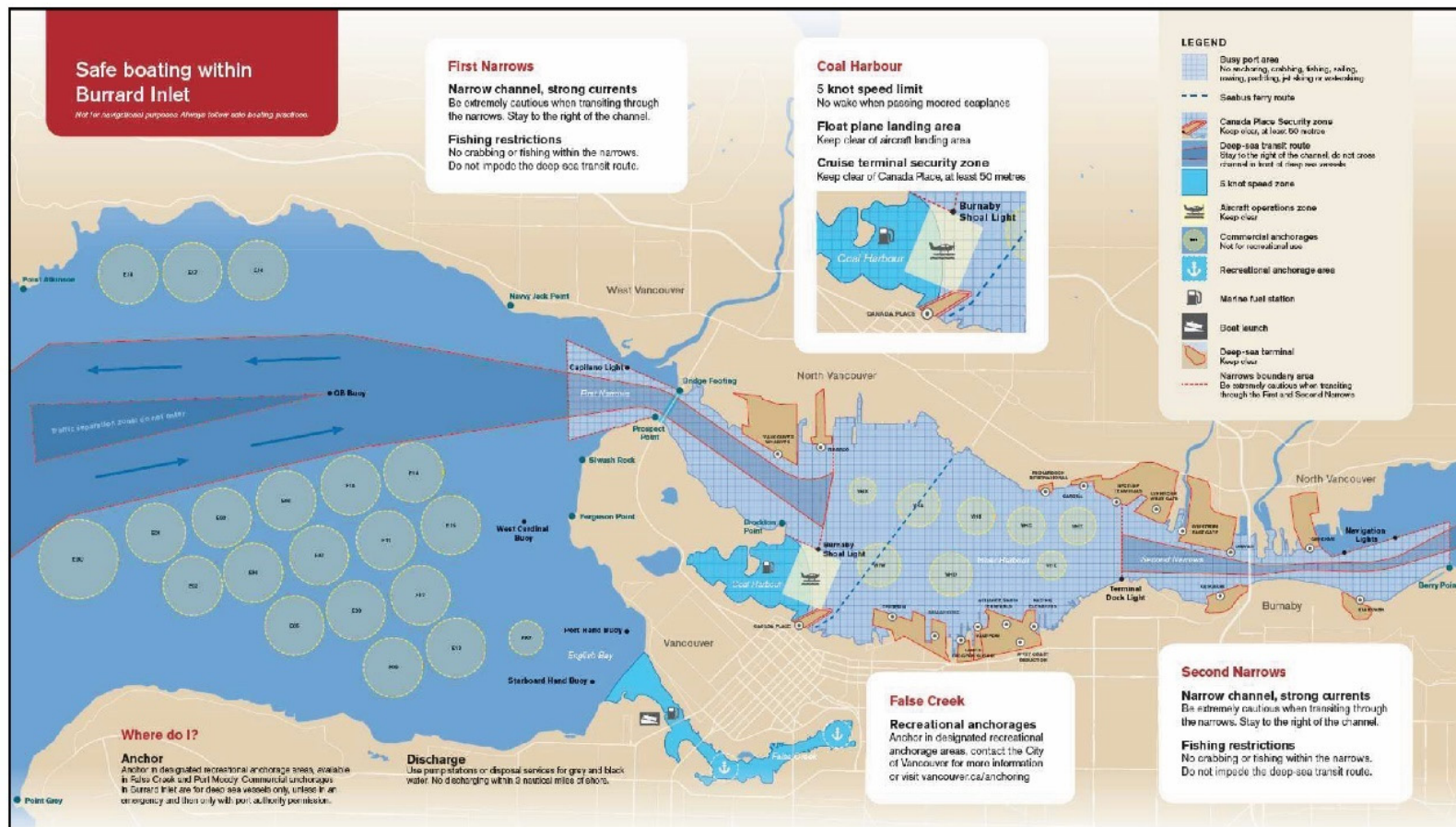


Image: Safe Boating Guide – Burrard Inlet

According to the “Safe Boating Guide – Burrard Inlet Coal Harbour”, Coal Harbour is restricted to a 5-knot limit within the harbour, boaters are to keep clear of the float plane landing area, and 50 m away from the cruise terminal’s security zone.

The legend notes that the Coal Harbour is within a “busy port area” in which **no** anchoring, sailing, fishing, rowing, paddling, or jet skiing is allowed.

### **Creation of a Multiuse Waterway**

As part of the Coal Harbour Marina Expansion Project (project), the continued accommodation of rowing has been considered as part of the RVYC Coal Harbour feasibility and planning process. The document “A Guide to Multiple Use of Waterway Management”, Second Edition, National Water Safety Congress, has been referenced to guide the discussions and planning underlying multiuse channel design, and certain principles have been integrated into the technical aspects of the proposed multiuse channel presented herewith.

### **Channel Design**

The evolution of the expansion project has occurred over ten years, with the initial planning in 2008. Pre-application meetings with the port authority confirmed the need to undertake channel design to verify that the expansion project was feasible.

At the time, RVYC issued a report entitled “Coal Harbour Expansion Project Master Plan (January 2012)” that referenced a channel design in accordance with The World Association for Waterborne Transport Infrastructure (PIANC) “Harbour Approach Channels – Design Guidelines (2007)”. While the PIANC guidelines were utilized to determine commercial and motorized recreational vessel channel width requirements, additional accommodation was required to support the continuation of rowing and support the Vancouver Rowing Club (VRC) current training practices. The port authority confirmed that additional channel width was to be included in the administrative channel design to accommodate rowing. It was suggested by VRC, that as an initial starting point, reference should be made to standard widths for rowing lane requirements.

From a design perspective, the Coal Harbour Marina Expansion Master Plan (January 2012) cites the International Rowing Federation (FISA) Rules of Racing and related Bylaws to support provision of rowing lanes for training.<sup>1</sup>

The Rules of Racing are referenced to provide the study team insight into potential width requirements for accommodating rowers within Coal Harbour. It is acknowledged that FISA rules are specific to international and world racing events, which do not occur within Coal Harbour, and that the VRC activities focus on training. VRC has noted such widths are not adequate as those beginners tend to wander throughout the entire channel. VRC has

---

<sup>1</sup> FISA was founded on June 25, 1892 in response to the growing popularity of the sport of rowing, and the consequent need for uniformity of regulations over such matters as race lengths, boat composition, and weight classes.

since confirmed that training requirements are significantly different than racing. However, for administrative design purposes international rowing lane width standards were utilized and used as a proxy associated with training requirements.

Appendix 1: Bylaws to Rules 35 to 37 – Courses; outlines course requirements in accordance with all international standards related to rowing championships and world stage events. Under Appendix 1: Bylaw to rules 35-37- Courses: Section 2.1 Stretches of Water it states for courses that host international events:

*“A standard international course (for international and world regattas) shall be straight and shall not have less than 6 lanes. The minimum length of water necessary to contain the standard course is 2,150 m.<sup>2</sup> For a course for master’s the minimum length is 1,150 m, the standard international course should be at least 108 m wide **and the average width per rowing lane of 13.5 m.**”*

Obviously, such a course cannot be accommodated in Coal Harbour, however the FISA Rules of Racing also provide insight into the requirements for rowing training courses, as identified by Bylaw Rule 56, “Traffic Rules on the Course”, which states:<sup>3</sup>

*“The traffic rules for **training** shall identify at least one clear lane of water (13.5 m) as a neutral lane between crews travelling in opposite directions on the water. If it is not possible to provide the neutral lane, then the crews travelling in opposite directions must be separated by a “swimming lane” or equivalent, as a continuous physical barrier.”<sup>4</sup>*

As part of the Master Plan’s preparation the channel design considers two 13.5 m lanes (one for outbound and one inbound, to support a rotational traffic pattern (noted in the Multiple Use Waterway Management document and discussions with the VRC). The rowing lanes are separated by the designed navigational channel for commercial and recreational/motorized vessels, (i.e., which provides a separation between inbound and outbound skulls and equates to the suggested swimming lane noted in Rule 56).<sup>5</sup>

The VRC noted they did not accept the channel design to accommodate rowing, although the commercial and recreational motorized channel design reflected PIANC Guidelines and represented the separation between rowing lanes, and the channel widths for rowing were from international rowing standards.

---

<sup>2</sup> Appendix 1 Bylaws to Rules 35 to 37 – Courses Section 2 Stretches of Water General (Section 2.2)

<sup>3</sup> It must be emphasized that VRC is considered a rowing “training/learning facility” (by VRC mandate) and does not undertake organized events (i.e. status for international or world events) and therefore the Master Plan’s focus is on the related training requirements outlined in the Rules of Racing (Rule 56).

<sup>4</sup> Rules of Racing and Related Bylaws – Bylaw to Rule 56 Traffic Rules on the Course

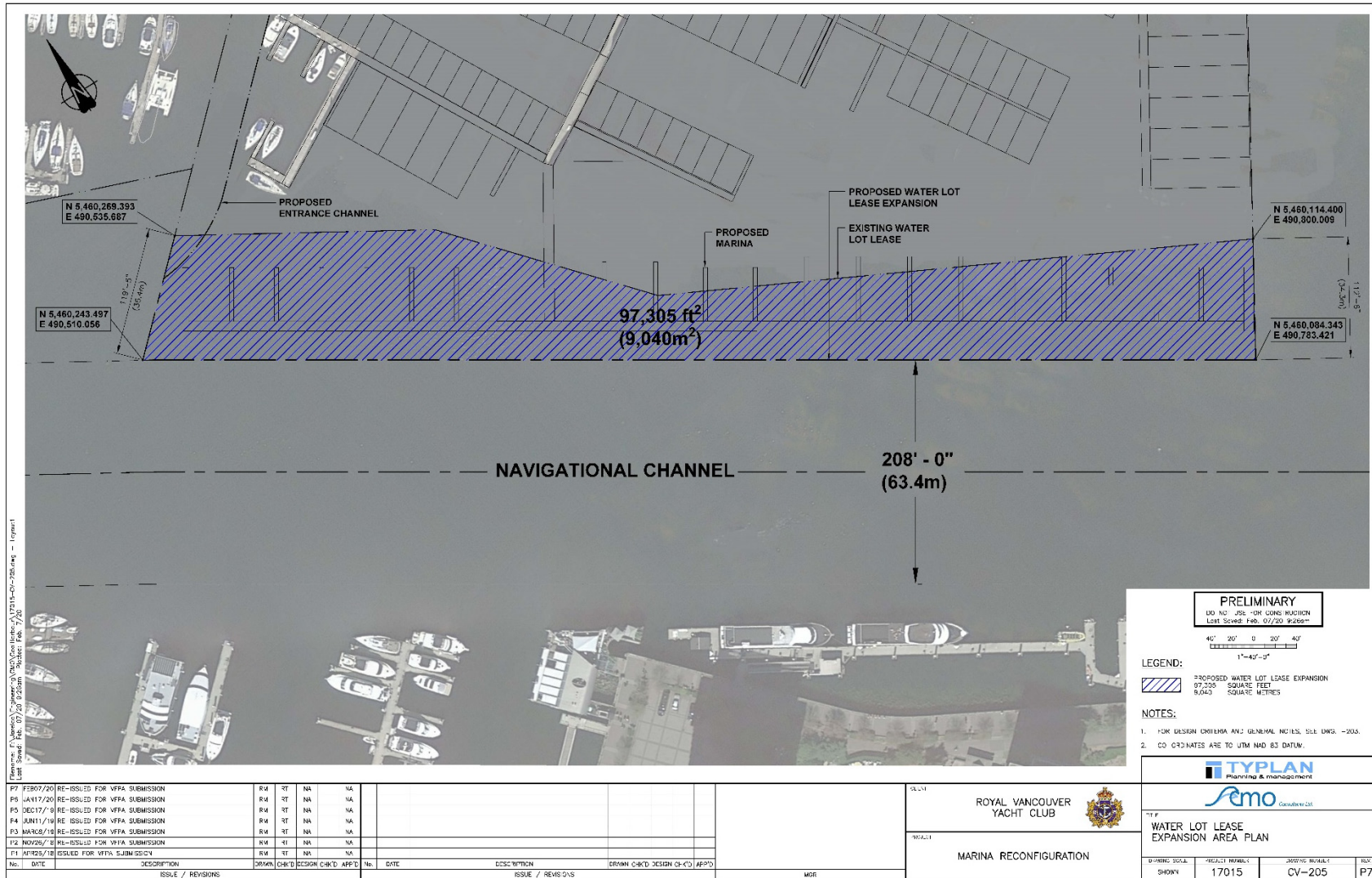
<sup>5</sup> A Guide for Multiple Use Waterway Management, Second Edition, National Water Safety Congress.

**Channel Design (2016)**

“Harbour Approach Channels – Design Guidelines”, PIANC 1997, were repealed and superseded by the PIANC 2014 revisions, and as continued discussions with the port authority were pursued regarding the project, the port authority requested the RVYC undertake a revised channel design to verify that the channel could be designed to accommodate both maritime vessels (based on PIANC 2014) and rowing lanes. RVYC worked directly with the port authority in preparing a new channel design. The revised channel design is presented in Appendix B Navigation Channel Design of the port authority Project Permit submission for reference. The design included the retention of two 13.5 m rowing lanes to accommodate rowing.

The exhibit below provides a conceptual outline of the administrative navigational channel inclusive of the proposed rowing lanes. It is noted that the channels are administrative only and that rowers can navigate anywhere within the 63.4 m channel width.







**Benchmark: Lake Washington Ship Canal and the establishment of a Rowing Traffic Pattern**

To further protect rowing in a multiuse waterway the RVYC study team investigated a similar waterway in Seattle that supports commercial, sail, power use and paddle sports, as a benchmark to better understand best practices that could be applied to Coal Harbour. The waterway is known as the Lake Washington Ship Canal (which has established a rowing traffic pattern) and specifically notes the Montlake Cut, a narrow portion of the waterway in which commercial, sail, power, and paddle sports (rowing) are accommodated for.

Over 100 years ago construction of Montlake Cut began connecting Lake Washington to Lake Union. Once constructed, a connection between Lake Washington, Lake Union, and the Pacific Ocean was established, accessible via a series of locks. The exhibit below illustrates:



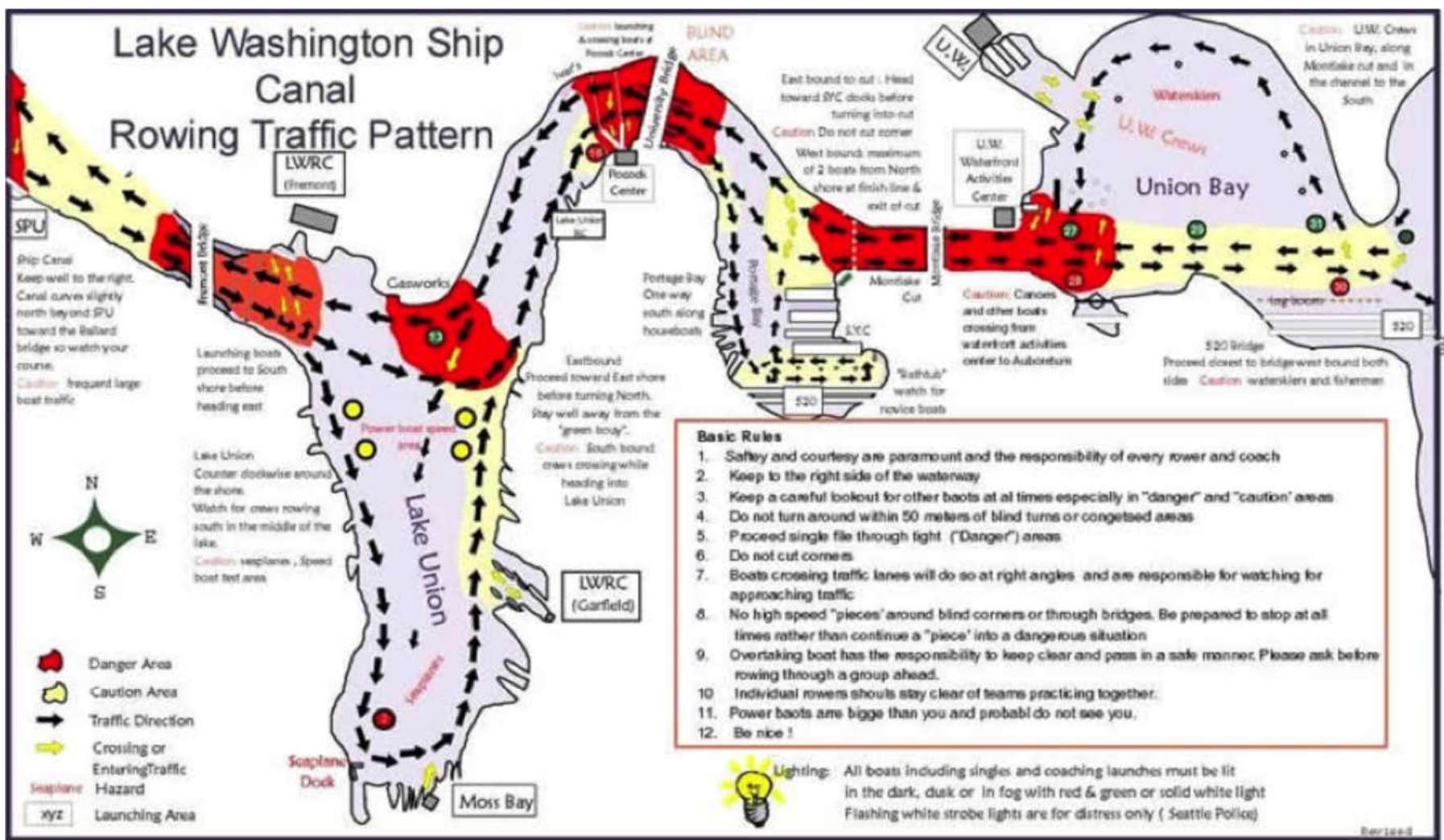
The Lake Washington Ship Canal was constructed primarily for commercial navigation. Since that time industrial maritime navigation has been partially replaced by recreational uses and has created a truly multiuse corridor supporting a vast variety of vessel types that share the waterway (similar to Coal Harbour). It is the site of the internationally known Windemere Rowing Race, an annual event, and other events such as the Head of the Lake Regatta. Continued commercial, motorboat, sailboat and rowers all transit the area, except for those periods in which the rowing races occur. It is also noted that the frequency of transits of motorized recreational and commercial use via the ship canal is significantly greater than Coal Harbour. For this reason, the area represents a benchmark regarding successful multiuse waterways and is discussed below, in relation to lessons learned (mitigation) that could potentially be adapted for Coal Harbour.

Existing commercial operations supporting barge movements, tug and tow operations, as well as sail and motorized transits, are generated from industrial operations and numerous marinas abutting the shores. The larger barges evident in the ship canal are not utilized in Coal Harbour. It is also noted that there are several rowing clubs located along the entire ship canal, that illustrate that multiple users coexist in such a multiuse waterway.

Reference to a short YouTube video is provided to provide context to the various uses along the waterway (<https://www.youtube.com/watch?v=ONmU-fWeOhw>). The YouTube video provides insight into the multipurpose nature of the waterway.

To accommodate continued rowing along the ship canal and promote multiuse, the Lake Washington Ship Canal Rowing Traffic Pattern scheme has been established to help facilitate and better understand rowing patterns and reduce potential conflict areas between competing uses.

While a number of regulatory and legislative issues arise regarding implementing such a plan in a Canadian context (i.e. Canada Marine Act, Navigation Protection Act), there appears to be potential to create something similar within Coal Harbour with the specific intent to educate and inform all stakeholders regarding rowing issues and improve user safety. The Lake Washington Ship Canal Rowing Traffic Pattern is illustrated on the exhibit below.



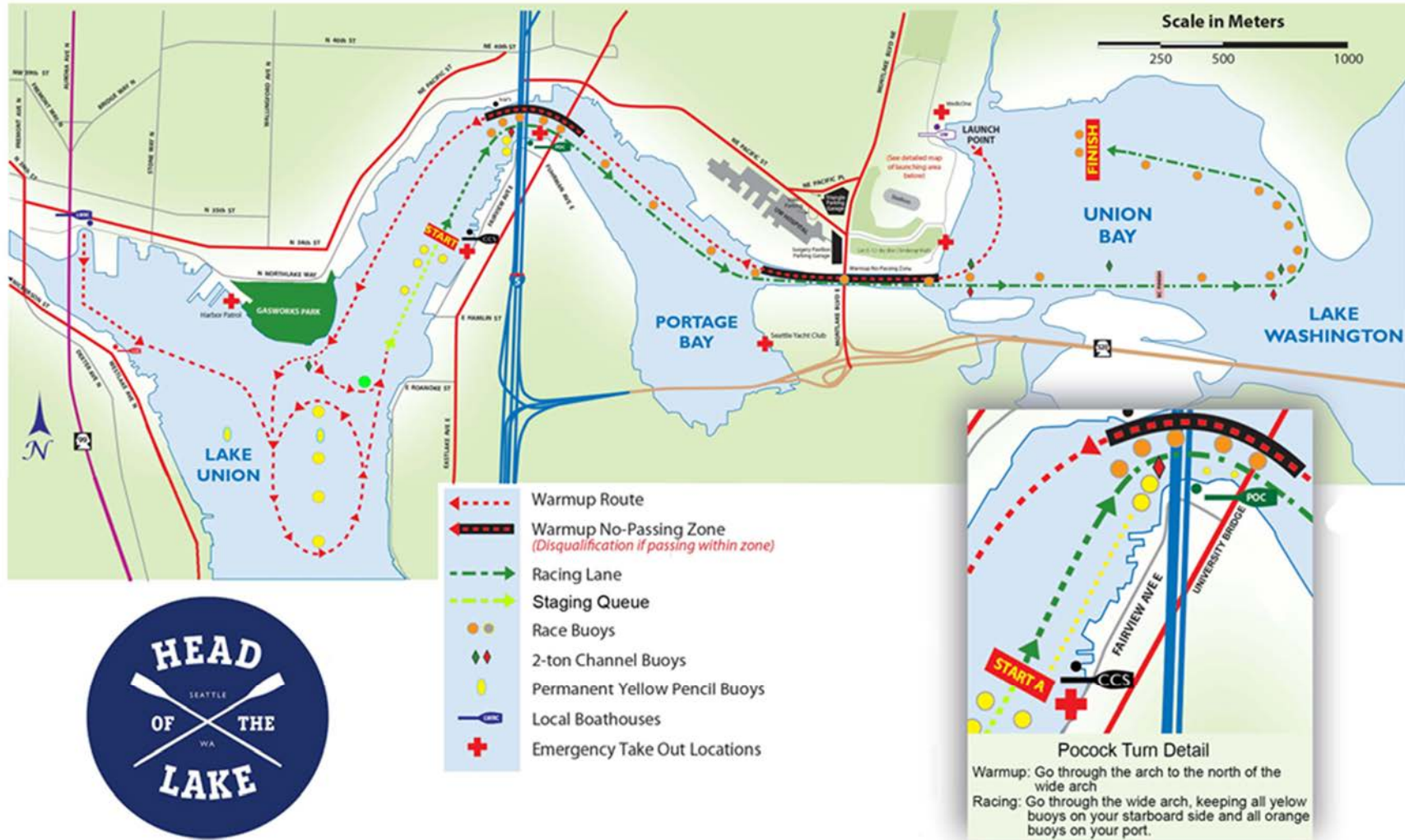


There are several organized and sanctioned races (noting racing does not occur in Coal Harbour) that occur along the length of the ship canal. For example, one race includes the three-mile course that starts in Lake Union along “boathouse row”. Rowers set beneath the University Bridge into Portage Bay and through the Montlake Cut to Lake Washington where the course takes a turn back toward Husky Stadium to the finish line near the entrance to Conibear Shell house at the University of Washington.

A portion of the course is presented in photographs below to illustrate the spatial context and multiuse nature of this waterway. The photographs reference the Montlake Cut. The Montlake Cut is one of the most photographed locations within the University of Washington and represents a finish line location to the world renowned Windemere Cup Race.

Refer to exhibits below that illustrate the multiuse nature of the Montlake Cut.





As illustrated in the exhibit above, a “warmup no passing” lane as well as a “racing lane” has been identified for transits through the Montlake Cut for non-competitive events.

In discussion with representatives from the Head of the Lake Rowing Club to ascertain the actual widths of the lanes for those transiting the Montlake Cut, Megan Ricci provided the following information. While not specifically designed for training, the widths provide insight into requirements in narrow locations and multiuse locations:

- No passing lane 10 m + rowing lane 12.5 m = total administrative width 22.5 m
- Total width of Montlake Cut: 45 m (shore to shore)

Due to the restrictive nature of the Montlake Cut and multiuse characteristics of the waterway questions were posed regarding mitigative measures that could potentially be applied to improve both boater and rowing safety. Channel widths, rowing widths were noted, the development of a rowing traffic pattern identified, improved safety and enforcement, educational information, as well as signage were all noted. The list of criteria is discussed below in context to what has been done along the Washington Ship Canal compared to Coal Harbour. Potential mitigative measures are also noted.

**Table 1: Multiuse Waterway Criteria: Montlake Cut and Coal Harbour Comparison**

Criteria	Montlake Cut	Coal Harbour (existing conditions)	Potential mitigative measure for Coal Harbour based on Proposed Design	Regulatory Implication	Suggested Mitigation for Coal Harbour
Multiuse Corridor	Yes. Commercial, recreational and paddle sports supported. Frequency: High Use	Yes. Commercial recreational and paddle sports supported. Frequency: Moderate Use	Apply multiuse waterway guidelines to Coal Harbour to further facilitate paddle-oriented recreation.	Principles of multiuse waterway could be incorporated with limited regulatory implications to port authority and NPP. Focus on safety, information and education. Reference to the City of Vancouver’s On Water Non-Motorized Watercraft Strategy would help define the program.	Multiuse channel principles could be adopted. Reference to the City of Vancouver’s On Water Non-Motorized Watercraft Strategy referenced.

Development of Rowing Traffic Pattern	<p>Yes.</p> <p>Rowing Traffic Pattern forms part of the Lake Washington Ship Canal navigational strategy - no regulatory implications.</p>	<p>No.</p> <p>No Rowing Traffic Pattern is in place for recreational user's in Coal Harbour.</p> <p>In relation to Coal Harbour Marina expansion project design was on an administrative channel design (width) in accordance with PIANC and FISA rowing standards to accommodate multiuse.</p> <p>Rowing traffic pattern derived from that administrative channel design could be utilized to develop a Rowing Traffic Pattern.</p>	<p>Yes.</p> <p>Potential establishment of a Rowing Traffic Scheme in Coal Harbour. Also reference to the City of Vancouver's On Water Non-Motorized Watercraft Strategy should be made.</p>	<p>Rowing Traffic Pattern would have to be combined with an education and awareness campaign supported by NPP and the port authority.</p>	<p>Mapping the scheme feasible for all stakeholders.</p> <p>Regulatory and legislative implications are a potential issue.</p>
User Communication and Education	<p>Extensive throughout the Ship Canal.</p> <p>Army Corps of Engineers, University of Washington Rowing Clubs and Port of Seattle were all part of the solution.</p>	<p>Currently VRC supports an awareness program</p>	<p>Port authority could implement through emerging safe boating program a more comprehensive and all-inclusive education and awareness program.</p>	<p>User communication and education needed to be expanded to further support safety.</p> <p>No legislative implications.</p>	<p>Undertake basin-wide user communication and education plan.</p>



Overall Navigational Channel Width	45 m (bank to bank).	81.5 m (varies pending location of skulls on waterway in relation to harbour headline).	Total channel width for all users 63.4 m. No restrictions to where rowing can occur.	Proposed rowing lane widths are only administrative in nature, intended to accommodate rowing in the administrative design process. Rowers can navigate throughout the entire channel (63.4 m) facilitating two inbound and two outbound rowing lanes with a 9.4 m swimming lane in between.	Channel lines will not be charted nor are rowers required to stay within the rowing lanes.
Rowing Channel Widths (No Passing lane /Training lane)	10 m no passing lane and 12.5 m rowing lane. (22.5 m total)	Two 13.5 m rowing lanes. (27 m total).	27 m. Rowers are not restricted to the lanes and can utilize 63.4 m, as they are able to use the 45 m in the Montlake Cut.	Proposed rowing lane widths are only administrative intended to accommodate rowing in the design process. Rowers can still navigate throughout the entire channel. The 63.4 m channel facilitates two inbound and two outbound rowing lanes with a 9.4 m swimming lane in between.	Channel lines will not be charted.
Racing lane	13.5 m.	No lanes.	27 m however acknowledge the rowers are not restricted to the lanes and can row throughout the 63.4 m width.	Proposed rowing lane widths are only administrative intended to accommodate rowing in the design process. Rowers can still navigate throughout the entire channel (63.4 m). The 63.4 m channel facilitates two inbound and two outbound rowing lanes with a 9.4 m swimming lane in between.	Neither channel nor rowing lanes will be marked.

Buoy Markings	Yes.	No.	While no racing occurs, rowers use line of sight to triangulate rowing backwards. Inbound rowers reference the existing cardinal buoys for direction. New directional buoys to support rowing should be considered.	To be determined with port authority and NPP, and the Marine Communication and Traffic Services (MCTS) of the Canadian Coast Guard.  MCTS of CCG have already confirmed requirements for navigational lighting on K float which may help rowers.	Not practical but line of sight key for rowers and should be discussed with rowers as part of the mitigation.
Speed Restrictions	7 knot restriction.	5 knot restriction.	5 knot restriction.	5 knot restriction in Coal Harbour, less than Seattle.	No change.
"No Wake" Signs	"No Wake" signs are posted. Rowing signs acknowledged.	"No Wake" signs are not posted on all fingers of all marinas. No "Caution Rowing" signs posted.	Signage at all points of marine access should be considered as mitigation.	No regulatory implication.	"No Wake" signs to be posted.
Scheduling	Schedule based on high usage periods (e.g. early mornings, midday, after work).	Training schedule established (e.g. use early, mornings, lunch, and after work).	Scheduling of rowing activities could be communicated with all marinas so that peak periods of rowing use are respected by all mariners.	Scheduling of rowing activities and schedules could be communicated with all marinas in the Coal Harbour basin.	If clearly delineated peak hour use times could be established, we could minimize motorized users' transits at those times.
Planning Emergency Stops	Yes.	Yes.	Internal Training.	Internal Training.	
90 Degree Turns	Yes.	Yes.	Internal Training.	Internal Training.	
Safety Lights / Rowing Safety Mirrors	Skulls equipped with starboard, port, and stern lights.	No.	Skulls could be retrofitted with mirrors and or starboard, port, and stern lights.	None.	Potential pending discussions with rowing community as to whether this is feasible.
Punitive Measures	Record vessel registration number and report to Coast Guard.	No measures in place. However incident reports filed with port authority.	Boaters must understand the rules and have consequences to large wakes and speed impacting rowers.	Port authority may be able to put in place pending Boater Safety Initiative.	Future potential based on port authority's role re enforcement.

### **Meetings with the Vancouver Rowing Club**

Three recent meetings were held with the executive of the VRC prior to the project application being submitted to the port authority. The meeting dates and key points of discussion are outlined below.

#### **Meeting Number 1: Vancouver Rowing Club; Wednesday, September 19, 2018: 5 pm – 7 pm**

A meeting was held at the VRC on September 19, 2018 at 5 pm. Those in attendance: Peter Powers (RVYC), Carmen Derricott (RVYC), Chris Barnett (RVYC Marine Asset Manager), Russ Tyson (TyPlan), Dan Tresa (VRC Past President), Dimas Craveiro (VRC Captain Rowing), Betsy Segal (VRC President), Keith Jolly (Past President).

In preparation for the meeting RVYC provided the VRC the following information, which compiled relevant navigational sections from the RVYC Project Permit submission to the port authority (that was ultimately to be forwarded to the port authority for permitting purposes). The data included the following:

1. Appendix B of the project description submitted to port authority: Navigation Channel Design Coal Harbour. As noted, the port authority requested that a comprehensive channel design study be undertaken for Coal Harbour channel that reflects the:
  - a) The World Association for Waterborne Transport Infrastructure “Harbour Approach Channels – Design Guidelines” (PIANC 2014) to ensure the channel is designed to current international standards.
  - b) Reference to multiple use of the waterway, referencing the document: A Guide for Multiple Use Waterway Management (National Association of State Boating Law Enforcement) with specific reference to planning for multiple use.
  - c) International standards outlined in the International Rowing Federation (FISA rowing lane standards were referenced and incorporated into the design) intended to further protect and reduce conflicts between boaters and rowers in the area.

RVYC has committed to an awareness and education plan to further outline and define means to reduce conflicts within the harbour and promote safety. RVYC anticipate working with VRC to deliver this program. It is noted that the port authority participated in the channel design process and have agreed in principle to the implementation of an education and awareness program to further reduce user conflicts.

The VRC noted concerns regarding RVYC continued use of a portion of the VRC water lot. To resolve this issue RVYC subsequently redesigned the marina and resubmitted the entire application to the port authority.

The RVYC team presented the proposed expansion area in relation to the overall administrative channel (that had been designed with the cooperation with port authority). The navigational channel as presented was administrative in nature and not intended to be represented on any navigational chart. Under the common law right to navigation rowers can continue to utilize the entire channel width. The channel lanes were simply a means of ascertain whether all users could be accommodated, based on best management practices and channel design standards.

In summary the key message presented by the RVYC was:

- The channel design includes current best practices for channel design and meets all the established guidelines for navigation.
- Rowing has been considered and provides for two non-designated 13.5 m rowing lanes (27 m total).
- When no commercial or motorized recreational activity is occurring, rowers are afforded the ability to row throughout the 63.4 m that provides for two inbound and two outbound lanes, and a separation lane.
- Port Authority supports from a technical perspective the design of the channel based on best practices.
- RVYC clarified that there were no designated rowing lanes and the illustration of the navigational channel was for administrative mapping purposes only. Rowers can navigate throughout the entire 63.4 m administrative channel without any restrictions.

The VRC response was:

- VRC indicated that such a plan would represent the death of rowing.
- The main concern voiced was the use of international rowing standards as the width for training purposes. Training has nothing to do with international course races, which are not held at the VRC, but it must be understood that in a training environment in which novices and intermediates row, they tend to manoeuvre all over the channel and by designating a rowing lane width upon which they are to navigate was a ridiculous assumption.

The VRC forwarded a letter of concern to RVYC.

Both parties agreed that a Rowing Traffic Scheme, like what has been established in the Port of Victoria would go a long way to educating boaters of rowers' needs and activities.

The key point of miscommunication was that all users have the right to navigate throughout the entire 63.4 m channel and are not restricted to any administrative lines depicted on the mapping.

The groups agreed to meet in the future to discuss the project.

#### **Meeting Number 2: Vancouver Rowing Club; Wednesday, October 24, 2018: 4 pm – 6 pm**

Dan Tresa (Past Commodore), Matthias Uhlenbruck (VRC Rowing), Dimas Craveiro (VRC Captain rowing invited but did not attend) graciously met with Russ Tyson, Chris Barnett (invited but did not attend), Carmen Derricott (invited but did not attend) at the VRC with the specific purpose to undertake a site visit on the water to provide first-hand experience of rowing in Coal Harbour. The following observations regarding rowing were noted:

- Novice rowers and those in training do not follow straight lines (observed at racing) but rather meander through the channel.



- There is an outbound and inbound route. The outbound follows the south shore of the Harbour. The inbound traffic aligns with the navigational markers at the entrance of Coal Harbour and row towards the VRC.
- Turns are most difficult for beginner rowers and turning usually requires two 90-degree turns to align themselves to return to the VRC.
- Rowers either row to the edge of the old Customs House Dock and then turn, or in difficult weather/ water conditions turn at the Westin Bayshore Hotel to avoid waves and winds.
- It is very apparent that vessel speed and the resultant wake are a significant safety concern to those in skulls and the general boating community is unaware of the potential safety issues that arise as a result of such wakes and speeds.
- There are numerous points of ingress and egress for vessels on the south side, areas of concern are the Westin Bayshore / Coal Harbour marina ingress and egress points. This is exacerbated when rowers are faced with winds and waves at the Coal Harbour inlet.

### **Meeting Number 3: Vancouver Rowing Club; Monday, November 5, 2018: 5 pm - 6:30 pm**

A meeting was held at the VRC 5:00 pm - 6:30 pm on November 5, 2018. Those in attendance included Carmen Derricott (RVYC General Manager), Robbie Hausch (Coal Harbour Expansion Project Steering Committee), Chris Barnett (RVYC Marine Asset Manager), Russ Tyson (TyPlan), Dimas Craveiro (VRC Rowing), and Keith Jolly (VRC Past President). The following key points were discussed:

VRC reiterated the importance of training in Coal Harbour, noting that they have been doing so for 103 years, have over 200 members, and are responsible for the safety of their members/users. Any reduction in the channel width would severely limit the ability for the club to row.

RVYC acknowledged that this is an issue, one which RVYC takes seriously and their attendance today was to continue to identify issues and resolve with VRC. RVYC stated that the navigational lines depicted on the exhibits originally forwarded to VRC were simply administrative in nature, not intended for navigation. Most importantly, they are not intended to restrict a rower's ability to navigate throughout the entire channel (63.4 m width at RVYC). The channel lines shown were simply outlined for the sole purpose of determining whether multiple uses could be accommodated from an administrative perspective, and if based on best practices for navigational channel design, a multiple use of the waterway could be accommodated. For commercial and recreational vessels that are motorized the channel design was determined via reference to the PIANC (2014) "Harbour Approach Channels - Design Guidelines" (the standard the port authority uses) and provision for two rowing lanes of 13.5 m as identified based on the International Rowing Federation (FISA), for racing as well as provision for a swimming lane.

VRC indicated that the width of the rowing lanes was irrelevant (e.g. the use of international racing regulations lane width,) as it does not reflect the training needs of the VRC membership as they do not tend to follow straight lines when training and learning how to row. RVYC reiterated not to focus on the navigational lanes depicted on the administrative exhibit but rather note the fact that rowers and all other stakeholders have the right to navigate within the 63.4 m width of the entire channel provided safe boating practices were observed. VRC indicated that

for training purposes they required a 40 m width either side of the channel, to undertake mock races, a total of 80 m would be required.

RVYC stated that the Montlake Cut, in Seattle, which forms part of the Lake Washington Ship Canal, represents a perfect benchmark upon which rowing training lanes could be referenced in relation to an existing multiuse waterway. The Lake Washington Ship Canal accommodates recreational, commercial and paddling sports. The location also supports several rowing clubs.

By Google map measurements, the Montlake Cut (shore to shore) width is 45 m (confirmed by VRC), whereas Coal Harbour will be 63.4 m. The actual channel widths for non-racing events in the Montlake Cut consists of a no passing lane of 10 m and a rowing lane of 12.5 m, totalling 22.5 m (whereas we have a rowing lane 13.5 m inbound and 13.5 m outbound totalling 27 m). This represents an additional 4.5 m width than the non-racing no passing and racing lane in the Montlake Cut. VRC did not comment on the width of these rowing lanes but noted that the area was highly restricted, and that for racing purposes, the Montlake Cut was sometimes closed for racing. RVYC noted that VRC confirmed that racing does not occur in Coal Harbour.

RVYC indicated that at the last meeting between VRC and RVYC the group spoke about the need to develop a "Rowing Traffic Scheme/Pattern" intended to provide insight to all stakeholders (i.e. small commercial operators, larger operators, sailboats, powerboats, paddling vessels) that could be used to improve safety and improve awareness. VRC agreed that this would be a good idea for Coal Harbour. Reference was made to the Victoria Rowing Scheme and the Washington Shipping Canal Rowing Traffic Pattern of which the Montlake Cut was part. VRC agreed that this should be pursued and would be beneficial for the entire Harbour and safety of users.

RVYC noted that based on their benchmark review of other jurisdictions and how multiuse waterways were managed, a key mitigative measure for addressing safety was via a robust communication and educational plan with all users. VRC agreed that this would be a good idea. RVYC has committed to such an educational and information plan as stated in the project description submitted to the port authority as part of this proposal.

It is RVYC's understanding that the port authority Harbour Master's office is taking a more proactive role in managing recreational boating safety within the Harbour to address increased marine recreational use conflicts. VRC agreed this is an issue. It is understood that the port authority plans to embark on a Recreational Boater Safety program to address this issue. VRC also agreed that this would be a good idea.

RVYC provided an illustration of a preliminary rowing traffic scheme for VRC consideration, based on both the Victoria Harbour Traffic Scheme and the Lake Washington Ship Canal rowing scheme. Interest was identified from the VRC side and noted the following comments:

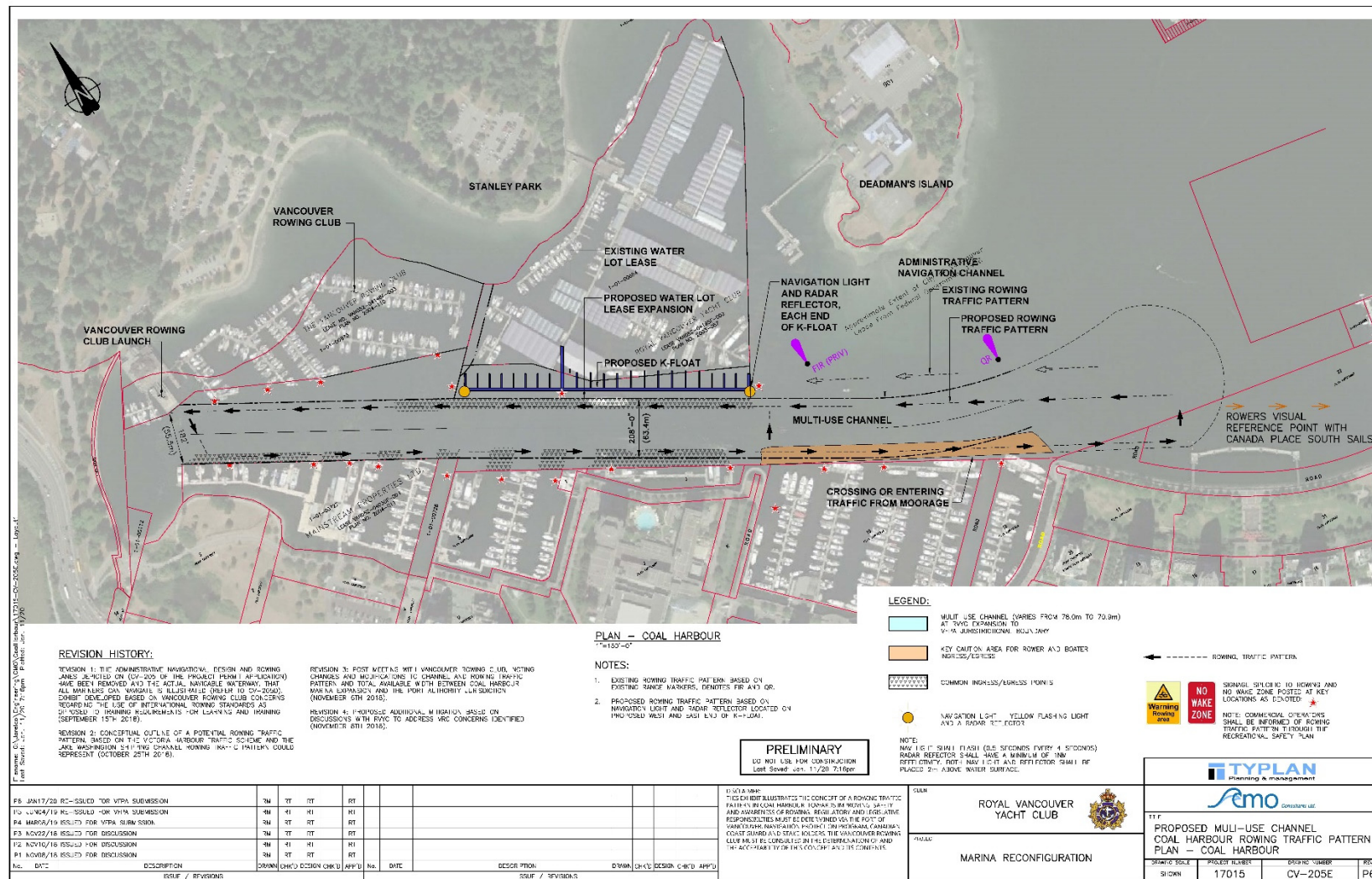
- Rowers do not row in the manoeuvring lanes west of the rowing club.
- VRC indicated that the expansion would reduce the available width and that they would lose the ability to align themselves with the Canada Place sails, range markers, the existing high point at Coal Harbour Marina (RVYC) and the VRC dock.
- VRC noted continued concern regarding the western end of K float being a blind spot and RVYC agreed to replace the proposed larger motorboats at both the west and east end of K float with smaller vessels.

Additional mitigative techniques identified by RVYC but not discussed at the meeting that could be potentially implemented as a result of discussions with VRC include:

- Work with stakeholders regarding ingress/egress patterns on K float to improve safety.
- Large mirrors will be placed on K float to better provide visual awareness of vessels in and abutting the rowing lanes.
- Permanent signage posted for members to remind them of rowing activity which will be in addition to what exists currently in the marina.
- Add rowing traffic plan of VRC showing rowing lanes to be posted in the Mermaid Inn café and on the RVYC website.
- Create a paper handout for all Coal Harbour moorage members.
- Establish mirrors and lights on the skulls so rowers would know what is in front of them and boaters would see the skulls' lights.

The preliminary rowing traffic pattern is meant for information only and must be fully vetted with the VRC. Other recommendations of this report, inclusive of the rowing traffic pattern, creation of a recreational boating safety plan (update), and educational and informational communication tools should be discussed between the VRC, NPP, and port authority.

A preliminary outline of the rowing traffic scheme is presented below.



## Conclusions and Recommendations

This memorandum outlines the measures undertaken by RVYC to address the Vancouver Rowing Club's (VRC) concerns voiced throughout three informational meetings held with VRC during the period of September to November 2018, regarding the proposed Coal Harbour Marina Expansion Project (Project). The memorandum outlined:

- the channel design methodologies used;
- the issues that have arisen;
- a benchmark that reflects successful multiuse waterway planning (the Lake Washington Ship Canal Rowing Traffic Scheme and rowing patterns via the Montlake Cut); and
- Proposed mitigation.

## Conclusions

From a RVYC perspective the provision of 63.4 m of navigational channel width in Coal Harbour has been recommended. While 27 m of the total 63.4 m is identified to support rowing, it is recognized that junior and intermediate rowers in training do not follow straight lines and will intrude into areas identified for motorized vessel transits. The administrative lines presented to the VRC were for illustration only and rowers can utilize the entire 63.4 m channel. Best management practices have been identified to further mitigate concerns

The VRC oppose the 63.4 m multiuse waterway.

## Recommendations

RVYC maintain that a 63.4 m wide channel supports the continued use of rowing in Coal Harbour. To facilitate improved safety throughout the Coal Harbour Basin, the following recommendations should be pursued by stakeholders and the regulators:

1. Creation of a multiuse strategy for Coal Harbour;
2. Define a rowing traffic pattern within the Harbour to facilitate and better define in a non-regulatory context non-motorized rowing in Coal Harbour;
3. User communication and education program (both motor craft sail and recreation (paddle boats);
4. Signage be utilized such as "Rowers Present", "No Wake", and speed limit postings in strategic locations; and,
5. Line of sight landmarks be highlighted to assist rowers in alignment for downstream and upstream transits (e.g., the new navigational lights on K float).



## **Next Steps**

The development of a plan specific to protecting the safety of the rowing community in perpetuity is the objective of this evolving process. While neither the RVYC nor VRC can deliver this plan in isolation of the regulatory environment in which they operate, this preliminary outline presents a conceptual rowing traffic scheme, that represents a starting point upon which the stakeholders (RVYC, VRC, Harbour Cruises, local marinas, etc.) can collaborate with the regulators (Navigation Protection Program (NPP) and the port authority) to better coordinate multiuse in Coal Harbour with the key objective towards improving safety.

RVYC has referenced guidelines and incorporated input from stakeholders to identify a preliminary plan of action and potential mitigative measures to ensure the safety of the rowing community and other users of the channel. The further development of any plans specific to the safety of the rowing community will always be of keen interest to the RVYC, however, to be fully effective, any planning process needs to include all other users of the channel and must recognize the regulatory environment for the area of operation. Neither the RVYC nor the VRC can deliver this plan in isolation.