

3.2 Second Narrows Movement Restriction Area Procedures

3.2.1 Introduction

The Second Narrows forms a natural bottleneck of water in Burrard Inlet, between the main port area of Vancouver harbour to the west and the Central Portion of Vancouver harbour to the east. The Vancouver Fraser Port Authority (VFPA) has established the Second Narrows Movement Restriction Area (MRA) and has developed the Second Narrows MRA Procedures, hereinafter the “MRA Procedures”, in consultation with pilots and marine industry. The purpose of the MRA Procedures is to facilitate the safe navigation and efficient operation of vessels in this area of Vancouver Harbour and they are part of the VFPA’s Harbour Practices and Procedures.

3.2.2 Definitions

Barge	Means a vessel designed with no means of self-propulsion.
Bollard Pull	Means the sustained useful pulling capability of the towing vessel.
Clear Narrows	Means the unimpeded transit of a vessel through the MRA, including not met, overtaken, or crossed ahead by any other vessel.
Clearance	Means an authorization from MCTS for a vessel to enter, move within or depart from the MRA subject to any conditions specified in the MRA Procedures.
Dangerous Goods	Means polluting and dangerous cargoes in liquid bulk, explosives and highly toxic cargoes, as identified by applicable Canadian and International standards.
Harbour Master’s Office	Means the VFPA department that governs port practices and procedures and has responsibilities related to the safety of navigation and marine operations in the port jurisdiction.
Holding Area	Means a designated area in which vessels can hold themselves in readiness until conditions are such that a transit of the Second Narrows Bridges can be made.
Master	'Master' means person in charge of a ship.
MRA	Means the Second Narrows Movement Restriction Area and comprises the area enclosed within lines drawn 000o from the fixed light on the north-eastern end of Terminal Dock to the North Vancouver Shoreline at Neptune Terminals and a line drawn 000o from Berry Point Light (approximately 1.5 miles east of the CN Bridge on the South Shore of Vancouver Harbour) to the North Shore on the opposite side of the channel
MRA Vessel	Means a vessel restricted by these regulations during its transit of the

	Second Narrows Bridges.
Day-Time	Means the hours between dawn and dusk as defined by the nautical twilight.
Non MRA Vessel	Means a vessel that at the time of its transit through the Second Narrows Bridges is not restricted by these regulations.
Piloted Vessel	Means a vessel that is under the conduct of a pilot in accordance with the Pacific Pilotage Regulations.
Recreational Vessel	Means a non-MRA vessel that has the primary role of recreation (i.e. not intended for commercial use or hire).
Second Narrows Bridges	Means the Canadian National Railways Bridge (CN Bridge) and the Ironworkers Memorial Second Narrows Bridge (Ironworkers Bridge).
Slack Water	Means tidal currents not greater than ½ knot.
Tractor tug	Means a tug capable of creating forces in multiple directions (generally equipped with cycloid or 360° azimuth drive propulsion)
Under Keel Clearance (UKC)	Under Keel Clearance, means the depth of water between a vessel's keel and the waterway bottom.
Vancouver MCTS	Means the Canadian Coast Guard's Marine Communications and Traffic Services Centre in Vancouver.

3.2.3 Application

- 1) The MRA Procedures apply to all marine traffic in the MRA, except vessels that are engaged in law enforcement, security, or search and rescue.
- 2) Non-MRA vessels shall transit or move within the MRA only when safe to do so and must take into account all factors influencing safe of navigation including tidal current, weather conditions and their knowledge of the MRA.
- 3) The MRA Procedures do not relieve the Master from compliance with the Canada Shipping Act Collision Regulations or other regulations, requirements or standards in respect of vessels operating in Canadian ports.
- 4) Further, these Procedures do not lessen in any way, the responsibility of the Master for the safe navigation, prudent manoeuvring of the vessel and preparation for unforeseen circumstances affecting the normal operation of the CN Bridge.
- 5) These MRA procedures may be further operationalised with Standard Operating Procedures developed by the pilotage company and the Pacific Pilotage Authority.
- 6) These procedures may be varied by the Harbour Master in the event of an emergency, which causes (or is likely to cause) loss of life, personal injury, serious environmental pollution or contributes to unsafe navigation in the harbour.

3.2.4 Second Narrows Bridges Vertical and Navigation Clearances

Vertical clearances are given as distances measured from the Higher High Water, Large Tide datum to the lowest member of the bridge structure, in way of navigation channel.

- 1) The limiting height factor for a complete transit of the Second Narrows Bridges is 44 metres which is the vertical clearance at the central fixed span of the Ironworkers Bridge.
- 2) The vertical span clearances of the CN Bridge are:
 - a) Main lift span fully raised (open position) 46 metres
 - b) Main lift span at lowest level (closed position) 10.8 metres, and
 - c) First fixed span immediately south of the south tower, 10.8 metres.
- 3) The central portion of the Ironworkers Bridge shipping channel where the maximum vertical clearance is available is 110 metres wide.
- 4) The vertical lift section of the Second Narrows Railway Bridge provides 137 meters clear navigation width between rubbing fenders.

3.2.5 Transit Restrictions

3.2.5.1 Operational Periods

- 1) Operational Periods are established on either side of high and low water slack tides and are based on slack water or stemming 1 and 2 knot limiting current.
- 2) When available, real time tide and current information should be used in conjunction with predicted Operational Periods to improve the safety and efficiency of operations in the MRA.

3.2.5.2 Vessel Restrictions

- 1) The following vessels are subject to observing the Operational Periods during their transit of the Second Narrows Bridges:
 - a) Vessels carrying over 6,000 tonnes of cargo and,
 - b) All piloted vessels, regardless of tonnage
- 2) Tug and barge combinations specifically designed for pushing and tractor tugs towing alongside, may transit with a barge carrying 6,000 to 10,000 tonnes of cargo, regardless of current direction, when not employing a pilot.
- 3) Vessels with Length Overall plus Breadth (LOA + B) greater than 265 meters require two pilots and are subject to daylight passage of the MRA.
- 4) Tanker vessels greater than 185 meters are restricted to daylight transit through the MRA when in product.
- 5) Vessels with LOA+B greater than 295 meters are restricted from transiting 2nd Narrows without prior approval of the Harbourmaster.
- 6) Tankers loaded to 12.5 m or greater shall be trimmed 15 cm by the stern.
- 7) Vessels found by the pilots to have unacceptable manoeuvring characteristics may be refused permission to transit or subjected to special restrictions.

3.2.5.3 Navigation Channel Clearances

1. The following guidelines apply to the transit of vessels through the Second Narrows:
 - a. The minimum channel width required for transiting the MRA is 2.85 times the vessel beam.
 - b. A minimum 10% UKC clearance is required as a safety factor.
 - c. The pilot in conjunction with the master should evaluate these conditions prior to the transit.
2. Vessels with an air draught in excess of 42 metres must report the maximum air draught of the ship or floating equipment at least 24 hours in advance to the Harbour Masters Office. The Harbour Master may approve the transit based on calculation of the air draught clearance or require verification of the air draught by a competent surveyor prior to transit.

3.2.5.4 Transit Speed

1. MRA vessels shall transit within the MRA at a speed through water no greater than 6 knots, except when safety of navigation requires otherwise.
2. All other vessels within the MRA shall proceed at a safe speed that will allow them to properly react according to the prevailing circumstances and condition.

3.2.5.5 Clear Narrows

- 1) A Clear Narrows order is required for:
 - a) MRA tanker vessels carrying dangerous goods or pollutant cargoes in bulk.
 - b) Other vessels with special transit requirements that require the approval of the Harbour Master.
- 2) Light tugs are permitted to transit through the Second Narrows bridges during a Clear Narrows condition providing a ship to ship agreement has been reached with the vessel(s) for which a clear Narrows has been announced. All other vessels shall observe the Clear Narrows order and not interfere in any way with the passage of a vessel for which a Clear Narrows has been issued.

3.2.5.6 Order of Transit

The following order of priority applies to vessels transiting the MRA:

- 1) MRA vessels have priority over Non-MRA vessels when transiting the MRA
- 2) Vessels carrying dangerous goods have priority over other vessels within their respective group when transiting the MRA

3.2.5.7 Wind Restrictions

There are no standing wind restrictions for the MRA. However, when wind warnings are in effect, the Master and/or Pilot shall take into consideration such factors as light vessel draught and/or high freeboard, when planning to transit the MRA.

3.2.5.8 Visibility

Reduced visibility limits the ability to see aids to navigation and other vessels or landmarks. These procedures outline safety requirements to be followed when transiting under the Second Narrows Bridges during periods of reduced visibility.

- 1) Piloted vessels or vessels carrying over 6,000 tonnes of cargo, intending to transit under the Second Narrows Bridges are restricted to a clear range of visibility, through the entire portion of the passage that falls within the MRA, as observed from the CN Bridge.
- 2) Pusher tug-barge combinations or tractor tugs towing alongside carrying between 6,000 tonnes and 10,000 and vessels carrying up to 6,000 tonnes of dangerous goods, may transit during conditions of restricted visibility subject to the following conditions:
 - a) An additional tug to assist with the transit is employed
 - b) Each tug's shipboard navigation equipment include
 - i) An operational Electronic Chart Display and Information System (ECDIS), as approved by IMO or meeting local industry guidelines,
 - ii) One operational radar.
 - c) The transit is restricted to a reduced MRA Operational Period limited to 1 Knot current.
 - d) The vessel operator has provided the Harbour Master's Office in advance with documentation which demonstrates to satisfaction of the Harbour Master adequate internal safety systems that have been put in place for a safe transit of the MRA and the degree of local knowledge of the MRA.
- 3) Nothing in this section shall be construed to require the Master of a vessel to commence a transit in reduced visibility.

3.2.6 Communications

3.2.6.1 Harbour Master

The Harbour Master has overall authority in interpreting and overseeing the implementation of these procedures. In doing so, the Harbour Master consults with other partners in safety including pilots, other statutory agencies and industry experts, as required.

3.2.6.2 MCTS

1. Communication with vessels transiting or intending to transit the Second Narrow MRA is provided, on behalf of the Harbour Master's Office, by the Vancouver MCTS.
2. MCTS provides clearance to enter, move within or depart from the MRA subject to conditions specified in these MRA Procedures. When a "clearance" is given to a vessel to transit the Second Narrows MRA, MCTS shall provide information of any other known traffic intending to transit within 20 minutes of the transit time for which the clearance is given.
3. MCTS shall also, at this time, advise of any specific orders regarding the transit which may be issued by the Harbour Master's Office.
4. Where certain vessels are required to wait pending the transit of another vessel, they shall be so advised prior to leaving berth, weighing anchor, or entering the MRA.

5. Vessels requiring tugs shall indicate to MCTS that such tugs will be in place prior to proceeding into or moving within the MRA.

3.2.6.3 CN Bridge

The CN Bridge Operator, on receipt of an MRA vessel's ETA, shall endeavour to make the CN Bridge available with the lift span elevated 30 minutes prior to the ETA.

- 1) All vessels requiring the CN Bridge lift span be raised shall establish communication on VHF Channel 12 with the CN Bridge Operator, immediately prior to approaching the Second Narrows Bridges, indicating their intention to request for the lift span to be raised.
- 2) The communication of the MRA Vessels shall include:
 - a) A statement of intentions, prior to departing from a Vancouver Harbour location or upon entering English Bay, when underway
 - b) ETA at the CN Bridge; and
 - c) Confirmation of such ETA on reaching the MRA.
- 3) In the absence of clear verbal communication between vessel and bridge operator, the vessel shall sound three (3) prolonged blasts, repeating this signal until acknowledgement has been received from the bridge operator.
- 4) All vessels shall remain at a safe distance from the CN Bridge until the lift span is in a fully raised position.
- 5) The CN Bridge Operator, when the vessel's request has been received, shall:
 - a) Verbally confirm his understanding on VHF Channel 12;
 - b) Display one (1) flashing red light on that side of the lift span facing the approaching vessel which indicates that the lift span is in the process of being raised to the fully raised position, or to the requested height; and
 - c) Display one (1) flashing green light on that side of the lift span facing the approaching vessel which indicates that the lift span has been raised to the fully raised position, or to the requested height.
- 6) No vessel shall approach the CN Bridge when the following signals are displayed:
 - a) Two (2) flashing red lights on that side of the lift span facing the approaching vessel which indicates that the vessel is to stop at once or, if necessary, go astern; or
 - b) A vertical row of four (4) fixed white lights on the centre of the main lift span which indicates that another vessel is approaching from the opposite direction.

3.2.7 Vessel Traffic within the MRA

- 1) A non-MRA vessel may overtake another non-MRA vessel that is proceeding at a speed of less than 6 knots in the MRA, provided the vessels concerned:
 - a) The passage does not occur within two cables of either side of the Second Narrows Bridges
 - b) Have satisfactorily exchanged communication and signals between them

- 2) Under no circumstances shall a vessel attempt to overtake, or otherwise obstruct a vessel that has approached the CN Bridge and has signalled or requested for the lift span to be raised.
- 3) An MRA vessel shall not commence its transit until an MRA vessel transiting in the opposite direction has completed its transit.
- 4) MRA vessels transiting in the same direction shall maintain a safe separation distance between them.
- 5) MRA vessels proceeding to or departing from berths within the MRA shall give way to and not interfere with the movement of MRA vessels transiting the MRA.
- 6) Non-MRA vessels shall plan their movements to give MRA vessels as unobstructed a passage as is practicable and consistent with good seamanship.
- 7) All vessels, including sailing vessel, transiting the MRA shall be under adequate mechanical power.
- 8) A vessel having a defect in the hull, main propulsion machinery, steering system, or other communication or navigation system, that is detrimental to safe navigation, require prior approval of the Harbour Master's Office to transit the MRA.
- 9) Personal watercraft or jet skis are not permitted to move within or travel through the MRA due to risks associated with commercial marine traffic and the narrow channels.

3.2.8 MRA Vessels Tug Requirements

3.2.8.1 General Requirements

- 1) All tugs employed at the stern of a vessel transiting the Second Narrows MRA must be tethered tractor tugs.
- 2) Escort tugs shall be in attendance prior to entering the MRA until clear of the Second Narrows Bridges by 3 cables unless otherwise specified in these rules.
- 3) Tugs capable of generating more than 40 tonnes of bollard pull force shall have an operational tension meter that the tug operator can easily read from the conning position.
- 4) Loaded (in product) tankers vessels greater than 40,000 DWT intending to transit the Second Narrows MRA require a minimum of two tugs through the First Narrows when inward or outward bound.

3.2.8.2 Vessels - Tug Matrix

- 1) MRA vessels transiting through the Second Narrows MRA, must comply with the standards for tug requirements outlined in Table 1: MRA Vessels Tug Matching Matrix, which summarises the bollard pull requirements and the configuration of the tug package for such vessels.
- 2) Transit of vessel with a LOA + B > 265 and draught greater than 13.5 meters, is subject to tug requirements and other aids to navigation system enhancement presently not in place at the MRA.

- 3) Vessels with additional levels of redundancy in their propulsion and control systems, which provide such vessel with extra manoeuvrability and safety features, may be allowed to reduce the number of tugs required in accordance with Table 1: MRA Vessels Tug Matching Matrix.

Vessel Draught (meters)	Number of Tugs		Bollard Pull (tonnes)		
	Bow	Stern	Bow	Stern	Total
> 12	1	2	30	110	140
> 10 <12	1	1 or 2	30	80	110
> 8 <10 – (> 200 m)	1	1 or 2	30	65	95
> 8 <10 – (< 200 m)	1	1 or 2	20	30	50
< 8	1	1	20	20	40

Table 1: MRA Vessels Tug Matching Matrix

3.2.9 Towing and Barge Traffic

3.2.9.1 General

- 1) A vessels towing another vessel through the MRA, shall limit the length of her towline, measured from the stern of the towing vessel to the nearest portion of the vessel being towed, to not more than 60 metres. Such towline may not be lengthened until both vessels are completely clear of the bridge piers.

3.2.9.2 Tug Requirement for Barges

- 1) Barges moving within the Second Narrows MRA, must comply with the standards for tug requirements outlined in Table 2: Barges– Tug Requirements, which summarises the bollard pull requirements and the number of required tugs to transit through the MRA.
- 2) A towed vessel carrying dangerous goods requires an assist tug of adequate power in addition to the tug requirements set in Table 2: Barges– Tug Requirements.

Capacity (Metric Tonnes)	Number of Assist Tugs	Total BP (tonnes)
<6,000	-	-
>6,000 – <10.000	1	20
10,000 or greater	2	40

Table 2: Barges– Tug Requirements

3.2.9.3 Log Towing

- 1) The overall width of log booms within the MRA shall not exceed two sections wide. The standard overall length of the log boom is 10 sections long.
- 2) When transiting the MRA with more than 10 sections overall length, the Master or Person-in-Charge of a log boom shall engage, in addition to tugs required in the towing operation, one or more tugs of adequate power, to:
 - a) Remain close inshore off the main channel, and
 - b) Be able to maintain such boom in the designated holding areas located on both sides of the Second Narrows Bridges as shown on chart # 4964.