



**PUGET SOUND PILOTS**  
Protecting Puget Sound Since 1935

January 27, 2015

To Puget Sound Shipping Agents and Ship and Terminal Operators:

These guidelines are offered for your assistance in planning your transits. They indicate what requirements the individual pilots are likely to set for specific transits and are offered to help you avoid unexpected and potentially lengthy delays.

These general guidelines are advisory in nature only and are not intended to supersede the authority or judgment of the individual pilot or pilots on the vessel. Every specific situation is unique with regard to the type and class of vessel, the existing weather and a number of other variable conditions. All decisions rest with the discretion of the pilot(s) dispatched to the vessel.

Sincerely

Puget Sound Pilots

Capt. David W. Grobschmit

President



**PUGET SOUND PILOTS**  
Protecting Puget Sound Since 1935

**GENERAL GUIDELINES  
FOR VESSELS TRANSITING  
RESTRICTED WATERWAYS OR PORTS  
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## GENERAL DEFINITIONS

1. **Tugs.** Unless a more specific requirement is expressed, any reference to “tugs” in these guidelines refers to tugs of suitable power and configuration for the transit.
2. **Minimum Requirements.** These guidelines are minimum recommendations and may be increased depending upon the circumstances of any particular transit.
3. **Tug Configuration and Rating.** Specific tug references in these Guidelines refers to:
  - a. Tractor Class tugs are tugs powered by two or more omni-directional propulsion units, being fitted with Voith Schneider or Azimuth Stern drive or Azimuth Tractor drive.
  - b. Conventional Class tugs are tugs powered by twin screw propellers.
  - c. Tug Ratings refer to the following minimum ahead bollard pull in metric tons:

### Tractor Class

Class Rating	Metric Tons
T8	≥75
T6	≥60
T5	≥45
T4	<45

### Conventional Class

C6	≥60
C4	≥40
C2	≥20

4. **Bow Thruster.** Unless a more stringent requirement is expressed, any reference to “Bow Thrusters” in these guidelines refers to fully documented and available bow thrusters of suitable power.
5. **4% Bow Thruster.** As used in these guidelines, the term “4% Bow Thruster” refers to bow thruster(s) with documented and 100% available metric horsepower (1.36 HP/KW) greater than or equal to 4% of the vessel’s DWT.

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## **VESSEL SPACING**

It is recommended that all final berthing positions provide for a minimum clearance of 30 meters between vessels or between vessels and shoal areas.

## **HORIZONTAL CLEARANCE**

With the exception of the Duwamish River and Hylebos Waterway, there should be net horizontal clearance available at all times to a transiting/maneuvering vessel of at least 140 feet, meaning a minimum of 70 feet clearance on each side when the vessel is in the center of the available waterway.

## **UNDER-KEEL CLEARANCE IN ALL PORTS and WATERWAYS**

1. Vessels exceeding 400 feet in length transiting restricted waterways and channels will be dispatched to maintain a minimum under-keel clearance of three (3) feet or 10% of draft, whichever is greater, during the transit, provided that vessels may have less under-keel clearance when berthing, un-berthing and alongside the dock. Vessels shall remain afloat at all times.
2. While the above guideline is general in nature, it is noted that the determination of an appropriate minimum under-keel clearance for a specific vessel transiting a specific waterway or channel must take into account many factors in addition to vessel draft and least depth, including but not limited to: vessel size, configuration, speed, trim, and list; the shape, size and hydrography of the waterway; and variations from predicted tide levels.

## **TANKERS UNDER ESCORT**

1. A second escort tug should be dispatched to oil tankers of 40,000 to 50,000 DWT transiting in any of the following areas if the vessel is not in ballast and if the deck fitting to which the escort tug is made fast has a Safe Working Load of less than 100 metric tons:
  - a. Rosario Strait between Davidson Rocks and Buoy CA
  - b. Transits to or from Vendovi Island anchorages;
  - c. Transits to or from Anacortes; or
  - d. Transits in the Haro Strait-Boundary Pass area.

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2. A second escort tug should be dispatched to oil tankers of greater than 50,000 DWT when transiting in any of the following areas if the vessel is not in ballast and if the deck fitting to which the escort tug is made fast has a Safe Working Load of less than 200 metric tons:
  - a. Rosario Strait between Davidson Rocks and Buoy CA
  - b. Transits to or from Vendovi Island anchorages;
  - c. Transits to or from Anacortes; or
  - d. Transits in the Haro Strait-Boundary Pass area.

## **VESSEL & TERMINAL GANTRY CRANE SAFETY**

It is recommended that all terminal operators with gantry cranes adopt the following Best Practices:

1. When vessels are berthing or unberthing at the terminal:
  - a. Prior to a vessel's arrival or departure from a berth, gantry cranes at the berth should be boomed up and positioned close together near the midships section of the vessel (avoiding the vessel's bow and stern flair).
  - b. Gantry cranes should not be moved when a vessel is berthing or unberthing.
  - c. It is recommended no person be allowed aloft on a gantry crane during berthing or unberthing operations.
2. When vessels using the waterway are passing the terminal
  - a. Gantry crane booms should be topped up over empty berths when a vessel is transiting/maneuvering past. If a boom cannot be topped up, advance notice should be given to PSP.
  - b. There should be net horizontal clearance available at all times to a transiting/maneuvering vessel of at least 140 feet, meaning a minimum of 70 feet clearance on each side when the vessel is in the center of the available waterway.
  - c. Gantry cranes over working berths can remain boomed down provided the net clearance conditions above are met. Exception: *At Pier 4 in Tacoma cranes southeast of the 700-foot mark should be raised for vessel passage.*

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## INCLEMENT WEATHER and WIND

1. Decisions relating to vessel movements requiring more than 50 tons of force to hold the vessel against a wind from any direction will be made on a case by case basis by the pilot depending on direction and force of wind and the type and characteristic of the vessel.
2. Wind on the beam is one of the factors used in evaluating the counter force necessary for tugs and or thrusters on a particular transit. The formula below calculates the approximate static tons of beam wind exerted upon a vessel based on its sail area. Agents and operators ordering pilots are encouraged to provide to the dispatcher the specific sail area of a vessel when ordering a pilot.

$$\text{Static Metric Tons of Wind on the Beam} = \frac{(V^2/18) \times \text{Sail Area}}{1000}$$

**Sail Area = Square meters determined by Length (m) x Height (m) (Height is freeboard plus highest container row)**

**V = Wind velocity in meters per second. (Knots of wind ÷ 1.944)**

## ANACORTES - PORT DOCKS

1. Vessels exceeding 400 feet in length arriving or departing berths port-side-to should plan to transit during flood current, at slack current, or when the ebb current is 0.5 knot or less.
2. Vessels exceeding 400 feet in length arriving or departing berths starboard-side-to should plan to transit during ebb current, slack current, or when the flood current is 0.5 knot or less.

## BELLINGHAM - SQUALICUM WATERWAY

1. Vessels exceeding 300 feet in length should plan to transit on a rising tide and be dispatched with at least two tugs. If the vessel has a Bow Thruster, one tug may be sufficient depending on vessel size.
2. Transits to Bellingham Cold Storage should be daylight only unless Squalicum Creek Waterway Buoy #2 is lighted and the lighted ranges are operational.

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## EVERETT

1. Vessels' greater than 550 feet in length and greater than 38,000 Gross Tons with a working Bow Thruster should be dispatched with a minimum of one T4 class tug and one C2 class tug.
2. Vessels of 60,000 Gross Tons or greater with a working Bow Thruster should be dispatched with a minimum of two T5 class tugs.

## FERNDALE - PHILLIPS REFINERY

1. Tankers berthing at the Conoco Phillips Refinery wharf will be starboard side alongside.
2. Docking of all vessels is based on adequate tugs and acceptable weather conditions, and should take place at the following times:
  - a. High water or low water slack current, or
  - b. During ebb currents, except during the two hours of maximum flow on an ebb current with a maximum velocity exceeding 3 knots.

*NOTE: Times of predicted slacks and maximum currents are based on Rosario Strait except that the slack water time before the ebb current will be Rosario Strait **plus** one and one-half (1-1/2) hours. Velocity refers to that published for Rosario Strait.*

3. Tankers may be dispatched with an additional tug(s) if dictated by the prevailing circumstances.

## GUEMES CHANNEL

Unless the predicted Rosario Strait current at Green Point is one knot or less, tankers inbound to Guemes Channel and not in ballast, should arrive at Green Point at predicted slack current, plus or minus 30 minutes.

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## **OLYMPIA**

1. Arriving vessels. Vessels with a draft of 25 feet or more should be limited to entering the channel on a rising tide at least 1 hour before high water. All vessels over 300 feet in length should be dispatched with at least two tugs except that a vessel may be dispatched with one tug if it has a 4% Bow Thruster and an unobstructed waterway and turning basin.
2. Departing Vessels. Vessels with a draft of 25 feet or more should depart on a rising tide. All vessels over 300 feet in length should be dispatched with a minimum of two tugs unless: 1) it has one tug and a 4% Bow Thruster and is departing bow out, or; 2) it has one tug and the vessel is departing an unobstructed waterway and turning basin, bow out, 1 to 2 hours before high water.
3. Vessels over 700 feet. All transits of vessels with a LOA over 700 feet should be discussed with the President of Puget Sound Pilots well in advance.

## **PORT ANGELES HARBOR**

The following vessels will be dispatched with at least one assist tug when underway in Port Angeles Harbor:

1. Laden petroleum tankers of any size and LPG/LNG cargo vessels exceeding 40,000 DWT.
2. Vessels exceeding 800 feet in length with a draft of 40 feet or more.
3. Any vessel exceeding 40,000 DWT when a laden petroleum tanker or LPG/LNG cargo vessel is already at anchor.
4. All oversized tank vessels that have been re-measured to less than 125,000 DWT.

## **PORT TOWNSEND HARBOR /INDIAN ISLAND**

1. Vessels exceeding 600 feet in length or 30 feet in draft should enter and exit Port Townsend Harbor within 1 hour of predicted slack current at "Point Wilson - .8 mile east of".
2. Vessels 600 feet and longer going to or from a berth should be dispatched with a minimum of two T5 class tugs.

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3. Vessels less than 600 feet in length going to or from a berth should be dispatched with a minimum of two tugs unless:
  - a. They have a 4% Bow Thruster in which case one tug may be used; or
  - b. The vessel has special characteristics and other arrangements have been made with the President of Puget Sound Pilots.
4. Ships exceeding 38 feet in draft going to or from anchor should have a minimum of one T4 class tug for assist.

## **SEATTLE - SHILSHOLE BAY TO LAKE WASHINGTON**

### ***ALL VESSELS:***

1. Vessels exceeding 500 feet in length or 68 feet in beam are not considered suitable for transit from Shilshole Bay through the Hiram Chittenden Locks and the Lake Washington Ship Canal. Exceptions to the above must be discussed with the President, Puget Sound Pilots well in advance of the intended transit date.
2. Tug assistance, time of transit, and other restrictions may be imposed during times of significant fresh water runoff or fish net congestion.
3. Adequate fenders, as specified by the Lockmaster, are required for transiting locks.

### ***VESSELS EXCEEDING 300 FEET IN LENGTH***

1. Transit of the Shilshole Bay Entrance Channel is to be made on a rising tide, height of tide zero (0) feet or greater.
2. All vessels should be dispatched with a minimum of two tugs except that one tug may be dispatched to a vessel with a 4% Bow Thruster.

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## **SEATTLE - ELLIOTT BAY DOCKS**

### *PIER 90 AND PIER 91*

1. All cargo vessels should be dispatched with a minimum of two tugs except that one tug may be dispatched to a vessel with a 4% Bow Thruster.
2. East Side of Pier 90. Vessels maneuvering around berthed vessels at Berths 2, 4 and 6 on the East Side of Pier 90 should be dispatched on a 6 feet or greater tide and if the combined beam of both vessels is greater than 140 feet, the transit should be discussed with the President, Puget Sound Pilots well in advance of the intended transit date.

### *TERMINALS 37, 42 AND 46.*

All inbound vessels should be dispatched with at least two T5 tugs except that vessels under 900 feet with a 4% Bow Thruster may be dispatched with one T4 tug if there is no lowered crane or ship at any other Terminal 37, 42 or 46 berth.

### *ALL OTHER ELLIOTT BAY DOCKS*

All cargo vessels should be dispatched with at least two tugs except that vessels with a 4% Bow Thruster may be dispatched with one tug if no adverse conditions of obstruction, wind, current or freshet runoff exist.

## **SEATTLE - EAST WATERWAY**

1. Vessels with a LOA of 900 feet or greater than 55,000 Gross Tons will be dispatched with a minimum of two T5 class tugs except that one T5 class tug may be dispatched to a vessel with a 4% Bow Thruster Departing T-18 berths 1 or 2 if berth 1 and Kinder Morgan are unoccupied and no cranes are down north of the vessel.
2. All other vessels will be dispatched with a minimum of two tugs except that one tug may be dispatched to: 1) a vessel that will not pass moored vessels on both sides of the waterway and that has a 4% Bow Thruster and a draft of less than 36.2 feet, or; 2) a vessel with a bow thruster departing Terminal 18 berths 1 or 2 if berth 1 and Kinder Morgan are unoccupied.
3. Vessels greater than 115,000 Gross Tons will be dispatched with a minimum of three T5 class tugs or two T6 class tugs.

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## SEATTLE - WEST WATERWAY

1. All vessels with a LOA of 900 feet or greater or more than 55,000 Gross Tons should be dispatched with a minimum of two T5 class tugs.
2. All other vessels should be dispatched with a minimum of two tugs except that one tug may be dispatched to a vessel with a 4% Bow Thruster.
3. Vessels greater than 115,000 Gross Tons should be dispatched with a minimum of three T5 class tugs or two T6 class tugs

## SEATTLE - DUWAMISH WATERWAY

### *All Vessels:*

1. Strong ebb currents caused by freshet conditions and/or extreme low waters may require waterway transits to begin between one and two hours before the predicted high water. At the discretion of the pilot, additional restrictions may be required depending on conditions.
2. Air draft clearance with the fixed West Seattle Freeway bridge span needs to be at least 2 meters (6.6 feet) at the time of transit.

**NOTE:** Air draft clearance may be determined by the following formula:

Clearance (in feet) = 150.4 - **Ht** - **Hb** + **D** where:

150.4 = 140 clearance + 10.4 mean high water datum

**Ht** is height of tide at time of transit

**Hb** is height of ship from base line to mast top, or highest point of ship

**D** is draft of ship in way of highest point on ship

3. All vessels transiting the Duwamish Waterway should be dispatched with a minimum of two tugs except that a vessel with a Bow Thruster may be dispatched with one tug, depending on vessel size and other prevailing conditions.
4. Waterway transits of vessels exceeding 400 feet in length should be dispatched with two tugs and are to begin 1 to 2 hours before the predicted high water or approximately 1 hour after the predicted low water.

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5. Vessels with a draft of 30 Ft. or more transiting the waterway stern-first should be dispatched with two tractor tugs of suitable power, except that if the vessel has a suitable bow thruster it may be dispatched with one tractor tug of suitable power and one conventional, twin-screw, ship assist tug.
6. Vessels Exceeding 80 Feet in Beam or 650 feet in length will be dispatched with two pilots and the transit may require discussion with the President, Puget Sound Pilots, well in advance of the intended transit date.
7. Vessels Greater Than 95 Feet in Beam are not considered suitable for transit through the Burlington Northern railroad bridge.
8. Fishing Season. All vessels during the fishing season should be dispatched for daylight transit only.

### **TACOMA - BLAIR WATERWAY NORTH OF 11th ST.**

1. All vessels with a LOA of 900 feet or greater should be dispatched with a minimum of two T5 class tugs except that one T5 class tug may be dispatched to a vessel with a 4% Bow Thruster departing when there are no other vessels or obstructions in the waterway.
2. All other vessels should be dispatched with a minimum of two tugs except that one tug may be dispatched to a vessel with a 4% Bow Thruster.

### **TACOMA - BLAIR WATERWAY SOUTH OF 11th STREET**

1. Vessels exceeding 130 feet in beam and transiting south of WUT or transiting stern first where forward visibility is restricted will be dispatched with two pilots. All vessels 140 feet in beam or greater will be dispatched with two pilots.
2. Vessels exceeding 130 feet in beam transiting south of WUT or stern first will be dispatched with a minimum of three T5 class tugs or two T6 class tugs. All vessels 140 feet in beam or greater will be dispatched with a minimum of three T5 class tugs. Vessels exceeding 115,000 Gross Tons will be dispatched with a minimum of two T8 class tugs and one T5 class tug. All other vessels will be dispatched with a minimum of two T5 class tugs.
3. Laden tankers exceeding 106 feet in beam will be dispatched with three tugs, two of which must be suitable tractor tugs, provided that vessels with a Bow Thruster and twin screws may be dispatched with two suitable tractor tugs.

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4. Vessels of unusual configuration and all tank vessels in excess of 750 feet in length may require daylight transit, as well as additional tugs or pilots. The transit of these vessels must be discussed with the President of Puget Sound Pilots well in advance of the intended transit date.

## TACOMA - HYLEBOS WATERWAY

1. All vessels should be dispatched with two tugs and must have air draft clearance with the overhead power cables of at least 3.1 meters (10.0 feet) at the time of transit.

*NOTE: Air draft clearance may be determined by the following formula:*

Clearance (in feet) =  $183.9 - Ht - Hb + D$  where:

**183.9** = 173 feet clearance + 10.9 mean high water datum

**Ht** is height of tide at time of transit

**Hb** is height of ship from base line to mast top or highest point of the ship

**D** is draft of ship in way of highest point on ship

2. Vessels may require additional tugs or pilots if the navigable channel is obstructed, provided that all transits should have a minimum unobstructed navigable channel (except for the 11th Street Bridge) of 70 feet plus the beam of the vessel.
3. At Schnitzer Steel port-side-to berthing is not considered suitable.
4. Vessels exceeding 23 feet in draft should plan to start transits between 1 and 1½ hours before predicted high water.
5. Vessels exceeding 106 feet in beam are not considered suitable for transit through the 11th Street Bridge.
6. Vessels exceeding 630 feet in length are not considered suitable for the upper turning basin.
7. Vessels of greater than 95 feet in beam and/or greater than 600 feet in length should transit during daylight hours if at all possible.
8. Vessels exceeding 80 feet in beam will be dispatched with two pilots.

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## TACOMA - SITCUM WATERWAY

1. Unless other more restrictive waterway guidelines apply, all vessels with a LOA of 900 feet or greater should be dispatched with a minimum of two T5 class tugs, except that one T5 class tug maybe dispatched to a vessel with a suitable Bow Thruster departing the outer berth at either APM Terminals or Terminal 7 when the berth directly across the waterway is unoccupied.
2. Unless other more restrictive waterway guidelines apply, all other vessels should be dispatched with a minimum of two T4 class tugs except that one T4 class tug may be dispatched to:
  - a. Vessels with a 4% Bow Thruster; and
  - b. Vessels with a Bow Thruster port-side-to at the APM Terminal when there is no vessel on the APM Terminal side of the waterway between the vessel and Commencement Bay.
3. At a minimum two T4 class tugs should be dispatched to vessels transiting when there is a vessel berthed at Terminal Seven and another vessel berthed directly or almost directly across the waterway at the APM Terminals. In addition, all of the following conditions should be met:
  - a. The beam of the vessels should be such that there is a net clearance available at all times to the maneuvering vessel of 140 feet, meaning a minimum of 70 feet clearance on each side when the vessel is in the center of the available waterway.
  - b. No bunker barges are alongside any vessel that the maneuvering vessel will have to pass; and
  - c. Two pilots will be dispatched to vessels with a beam of 105 feet or greater making this transit.
4. Be advised that an individual pilot might decide not to move a vessel under certain conditions; when the container booms are lowered and the pilot believes they should be raised or if the pilot believes the weather conditions are sufficiently adverse.

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