

Pipeline and Facilities Infrastructure

Existing	Planned (Additional)
<p>Dock</p> <ul style="list-style-type: none"> Existing dock is capable of loading one Aframax-size or smaller vessel and will continue operations during construction of the proposed expansion The existing berth will be deactivated and eventually part or all of it will be demolished after new berths enter service Restrictions: Due to PMV draft restrictions in the Second Narrows, Aframax vessels calling at Westridge can load no more 660,000 bbls although they typically load no more than 585,000 bbls and often load less 	<p>Docks</p> <ul style="list-style-type: none"> One new dock complex (located near the centre of the Westridge Marine Terminal foreshore) having three berths each capable of accommodating Aframax-size tankers Construction will include the installation of approximately 200 piles – the installation method will be determined once geotechnical study work has been completed in 2014 Post-expansion Aframax tankers will be subject to the same draft restrictions; it is expected that the average cargo will be about 550,000 bbls (about 75% of maximum capacity) Approximately 80% of the time, either one or two of the three berths will be in use for loading purposes Each berth will have its own spill containment boom One new utility dock for tugs, boom boats and emergency response vessels
<p>Anchorage</p> <ul style="list-style-type: none"> Four PMV designated anchorage locations 	<p>Anchorage</p> <ul style="list-style-type: none"> Additional anchorage locations are not planned
<p>Pipe</p> <ul style="list-style-type: none"> One 24-inch pipe from Burnaby Terminal to Westridge Marine Terminal (Westridge Line) which will remain in service 	<p>Pipe</p> <ul style="list-style-type: none"> Two additional new 30-inch delivery lines from Burnaby Terminal to the Westridge Marine Terminal Manifold system that allows any of the three incoming pipelines to deliver to any of the three berths Delivery system will include automated and manual flow control devices and isolation valves
<p>Vapour Combustion Unit (VCU)</p> <ul style="list-style-type: none"> Existing unit will remain in operation during the construction period and will be decommissioned after the new berths enter service 	<p>Vapour Recovery Units (VRU)</p> <ul style="list-style-type: none"> Two new VRUs – these units do not combust (or burn) hydrocarbon vapours but collect them for reinjection back to the vessels being loaded <p>Vapour Combustion Unit (VCU)</p> <ul style="list-style-type: none"> One new VCU for occasional use during periods of high berth utilization (less than 5% of the time) and as back up to the VRUs during maintenance activities
<p>Existing Foreshore</p> <ul style="list-style-type: none"> Currently available foreshore area does not provide adequate area for proposed infrastructure 	<p>Foreshore Extension</p> <ul style="list-style-type: none"> Extension of the foreshore further into the water will be necessary to accommodate new equipment, primarily the VRUs Compensation (in the form of new habitat) in accordance with Department of Fisheries and Oceans (DFO) requirements will be made to replace the habitat lost along the foreshore



TRANSMOUNTAIN

WESTRIDGE MARINE TERMINAL

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<p>Existing Infrastructure</p> <ul style="list-style-type: none"> The three existing jet fuel tanks will remain in their current configuration, with no anticipated change in volume received 	<p>New Foreshore Infrastructure</p> <ul style="list-style-type: none"> Piping manifold Metering Pressure relief tank (may be eliminated through the use of higher pressure piping) Odour management system (to handle H₂S and other sulfurous compounds prior to reinjection) VRUs/VCU Fire-water pumping system Electrical systems (switch gear, transformers, buildings, motor control centres and lighting) Space for possible future installation of shore power facilities (only 5% of the world-wide tanker fleet has the ability to take shore power) Control room for the dock Storage for oil spill response equipment
<p>Storm Water Treatment System</p> <ul style="list-style-type: none"> Storm water from facilities (e.g., tank secondary containment, docks, pump area, manifolds, vapour recovery unit) flows to an oil/water separator, where it is then inspected and discharged onto adjacent land or to Burrard Inlet as per BC Ministry of Environment permit requirements Surface run-off from other existing areas within the terminal (e.g., treed areas) flows to Burrard Inlet <p>Terminal storm water discharge treatment system will be evaluated and upgraded as required to meet new permit requirements at the expanded terminal.</p>	<p>Storm Water Treatment System</p> <p>Storm water run-off will be collected from:</p> <ul style="list-style-type: none"> Dock loading platforms Tank containment areas Manifold areas VRU and related equipment areas <p>Collected storm water will be directed through separators and released in accordance with permit requirements.</p>
<p>Fire Protection System</p> <ul style="list-style-type: none"> Remotely controlled by Operator Dependent upon water supply, no back up Portable foam system Designed for one Aframax at dock 	<p>Fire Protection System</p> <ul style="list-style-type: none"> Two high-capacity submersible pumps taking water from Burrard Inlet New central foam tank and proportioning system New fire-water/foam distribution systems