

Scope of Work and Discussion for Gateway Pacific Terminal Vessel Traffic and Risk Assessment Study 2 December 2011

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Introduction

This Scope of Work (SOW) for the GPT Vessel Traffic and Risk Assessment (VTS) incorporates the Issues and Concerns presented by the Lummi Nation and additional requirements from Appendix G of the GPT Settlement Agreement. Not all specific items of scope requested by the Lummi Nation or included in Appendix G have been included in this draft revision. They may be addressed in separate studies; as elements of the EIS/Permitting process; or a direct exchange of information between the Lummi Nation and PIT.

Assumptions

The VTS scope of work assumes the following:

Vessel Traffic – The GPT will introduce a new source of vessel traffic to the regional traffic flow. Therefore the study is designed to predict and analyze the risk posed by vessels bound to or departing from the GPT (GPT-calling vessels). The study will include tugs assisting with docking and undocking maneuvers at GPT in its definition of GPT-calling vessels. The study will include the potential interactions (accidents) between GPT-calling vessels and all other types of vessels presently operating in the region. It will also analyze potential future traffic that may be operating in the region (cumulative impacts). It would also include single vessel accidents (groundings and allisions) and impacts to tribal fishing activities from GPT calling vessels.

It is not the intent of the GPT Vessel Traffic Study to evaluate the general risks of any and all potential future vessel movements throughout the region but rather to focus on the risks posed by the new GPT traffic.

Geographic Study Area – The geographic scope of the VTS or study area will include the designated Vessel Transit Lanes and the Local Maneuvering area as follows:

Vessel Transit Lanes - Commercial vessels of the size and type calling at the GPT will be required to operate within the United States Coast Guard’s (USCG) designated vessel traffic lanes (VTS transit lanes) until they reach the vicinity of the GPT where they will maneuver to moor at the GPT wharf or move to a local anchorage. Therefore the “geographic study area” for the vessel traffic study would

consist of the USCG VTS transit lanes to be used by GPT-calling vessels, the maneuvering area adjacent to the terminal, the local anchorage areas, and the local transit routes for tugs that are required to assist in maneuvering and mooring. The study would not analyze the risk or impacts of vessel movements outside the above listed areas. The boundaries of the Vessel Transit Lanes are shown on Figure 1 - Study Area.

Local Maneuvering Area – The local maneuvering area initially considered in the VTS will be that area through which GPT bound vessels transit from the point of departure from the Transit Lanes to the GPT terminal, the routes taken by assist tugs from Bellingham, and the local anchorages at Alden Bank and Vendovi. The boundaries of the Local Maneuvering Area are shown in grey shading on Figure 1 - Study Area.

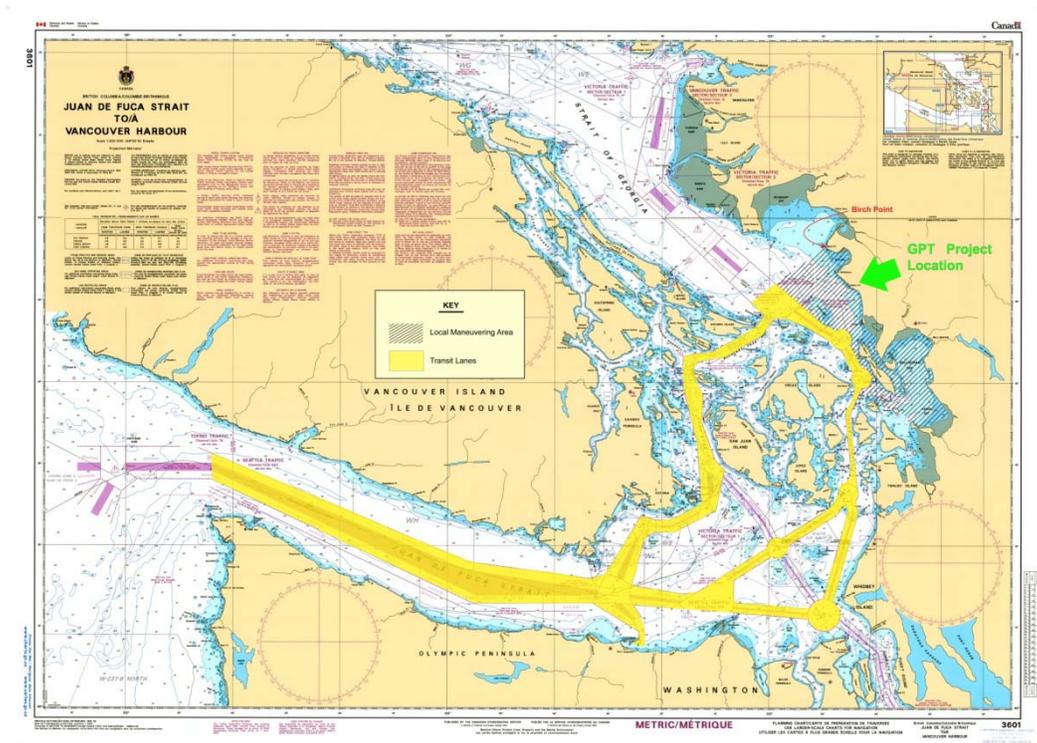


Figure 1 - Study Area

Original Scope of Work, Quoted from RFP Issued March 31, 2011

The bidder shall prepare a Vessel Traffic and Risk Study that meets the following objectives:

1. *Determines most probable routing and use of temporary moorages for vessels calling at the Terminal.*
2. *Analyzes projected Gateway Pacific Terminal traffic volumes at initial operation and at full capacity based at the Gateway Pacific Terminal.*
3. *Determines the risk of accident involving vessels call at the Gateway Pacific Terminal that may result in contaminant release. Accidents shall include collision, allision, power groundings and drift groundings. In evaluating these risks the study*

should consider all vessel traffic and reasonably foreseeable increases and decreases in vessel traffic along the entire pathway followed by vessels between Cherry Point and Buoy J, including but not limited to vessels calling in British Columbia, and vessels calling at the proposed Gateway Pacific Terminal Facility, as well as the BP Cherry Point Refinery, Conoco Phillips Ferndale Refinery, Alcoa-Intalco Works, and any other reasonably foreseeable future marine terminal facilities in the Cherry Point area.

4. *Determines the most likely geographic location where accidents may occur.*
5. *Determines the potential size of a contaminant release from an accident.*
6. *Identifies traffic management, anchoring, vessel mooring and servicing, spill containment and cleanup, and any other relevant protocols to reduce or minimize identified risks.*

New Scope of Work from “Appendix G”

7. Review the adequacy of existing designated anchorages along the protected portion of the route and provide recommendations for risk reduction, such as enhancements to anchorage regulations, and establishment of additional anchorage capacity. The USCG Captain of the Port and the current Harbor Safety Plan will be relied upon as an authoritative source of anchorage capacity. This effort shall include collection and reporting of anecdotal data from pilots, mariners and Coast Guard incident reports (if available) on incidents of dragged anchors and shall consider seasonal prevailing weather to assess trends and patterns, and any facility operational constraints affecting vessel movements within the local maneuvering area.¹

Comment: New scope not previously considered. It is not known whether data exist that could be used to undertake a statistical analysis of anchoring problems. Note: The scope will specifically exclude recommendations for siting of new anchorages.

8. Provide an overview of current traffic separation and management schemes in force on the approaches to GPT and recommendations for alternative traffic control mechanisms for risk reduction. In conjunction with task 7, provide qualitative,

¹ To address “Appendix G” questions:

- *Would changes to existing anchorage regulations ... contribute substantially to reducing the risk of groundings or collisions?[Page 2, under Traffic Safety and Traffic Management Analysis]*
- *What are the holding characteristics of existing anchorage grounds and what has been the past vessel experience on these grounds under different weather conditions? [Page 3, under Traffic Safety and Traffic Management Analysis]*
- *Will special anchorage rules or procedures be instituted to minimize risk of drift groundings or collisions in and around the anchorages? If not, why not? If yes, what will those measures be? [Page 2, under Traffic Safety and Traffic Management Analysis]*
- *What special navigational cargo loading, or anchorage management problems will be created by stronger than normal currents or winds (particularly during strong North Westerly winds produced by winter storms?[Page 2, under Traffic Safety and Traffic Management Analysis]*

relative assessment of the potential effectiveness of measures proposed in counteracting risks posed by increased traffic. .²

Comment: This study can evaluate alternative schemes for vessel traffic management. However any such recommended protocols would need to be implemented through regulatory action involving multiple agencies of the federal, state, and local government. The study will specifically exclude discussion or opinion on the regulatory process or requirements. The study will limit discussion on alternative traffic control measures to the likelihood of reducing casualty risks rather than the achievement of “minimum risk.”

9. Provide an estimate of the additional annual demand for fuel oil in Puget Sound that could be caused by vessels calling at GPT. Summarize the likely locations where such transfers could occur from information on historical bunkering activity provided by Washington State Department of Ecology.³

Comment: As written, the proposed scope item would provide a statistic that can be used by the state to determine the potential effect of GPT presence on bunkering activities in Puget Sound. It will be presumed that future increases in bunkering activities will occur at historically active locations because it remains difficult to predict the bunkering behavior of bulk carriers serving the spot markets, particularly when considering the prohibition on bunkering at the terminal.

10. Predict the potential size and geographic impact of a contaminant release from a bunkering or cargo transfer accident. Consequences of a spill during bunkering operations may be moderated if it is reasonable to assume that transfer operations can be effectively boomed off prior to commencing operations.⁴

Comment: Expanded scope. Within the capability of the Glosten team.

² To address “Appendix G” questions:

- *What additional or revised U.S. Coast Guard vessel traffic management protocols will be required to minimize the risk of collisions or groundings during peak traffic periods? Should these protocols be independent of cargoes or should they be cargo specific? [Page 2, under Traffic Safety and Traffic Management Analysis]*
- *Will special anchorage rules or procedures be instituted to minimize risk of drift groundings or collisions in and around the anchorages? If not, why not? If yes, what will those measures be? [Page 3, under Traffic Safety and Traffic Management Analysis]*

³ To address “Appendix G” question:

- *Will vessels waiting to berth at GPT bunker elsewhere in Puget Sound or the Strait of Juan de Fuca? If yes, what is the anticipated increase in bunker volume and frequency? [Page 5, under Spill Risk Analysis]*

⁴ To address “Appendix G” question:

- *The probability and impact of transfer related spills during bunkering or cargo transfer operations should be estimated. [Page 5, under Spill Risk Analysis]*

**New Scope of Work from Lummi Issues/Concerns summary document,
October 20, 2011**

11. Make key study team members available for orientation and review materials provided by Lummi Nation on tribal treaty rights to fishing.⁵

Comment: New scope not previously considered. Within the capability of the Glostén Team. However, Glostén neither possesses nor proposes to acquire the expertise to render opinions on whether any proposed terminal activities infringe on tribal treaty rights.

12. Traffic study shall include ships, tug boats, and barges and the Lummi fishing fleet (purse seiners, gill netters, skiffs).⁶

Comment: Expanded scope. To the degree that accurate statistics exist for the movement of smaller vessels, they will be incorporated in the traffic study. The team expects to receive data from the Lummi Natural Resources department regarding the existing fleet size, harvest timing, harvest areas, and volumes.

13. Study shall address impacts of GPT bound vessel traffic on tribal fishing fleet including gear loss, associated Homeland Security exclusion zones, and interference with fishing.⁷ The study shall assess the impact of increased vessel traffic on Lummi treaty rights to fish throughout the Lummi Nation's Usual and Accustomed grounds and stations. The statistical measure of impact shall be the area from which the Lummis are temporarily excluded from fishing multiplied by the expected duration of the temporary exclusion. Any such exclusionary zones will include moving security zones imposed by the Department of Homeland Security around commercial vessels in transit to and from GPT. In addition, the study shall assess the impact of increased vessel usage of anchorages on Lummi treaty rights to fish using the same statistical measure: exclusionary area multiplied by duration. Any such exclusionary zones will include security zones imposed by the Department of Homeland Security around commercial vessels at anchor, awaiting transit to or departure from GPT. Exclusionary zones may extend to the entire designated anchorage area, if the study finds that fishers are effectively excluded therefrom whenever the anchorage is occupied, as a matter of custom, practice or regulation.⁸

Comment: New scope not previously considered. This could be included in traffic study, but would require additional expertise from outside the Glostén team. The team expects to

⁵ From Lummi Issues/Concerns, "a. Contractor must be provided background information and orientation about tribal treaty rights to fish."

⁶ From Lummi Issues/Concerns, "b. Vessels considered in the study must include ships, tug boats, and barges and the Lummi fishing fleet (purse seiners, gill netters, skiffs)."

⁷ From Lummi Issues/Concerns, "c. Study must address impacts of vessel traffic on tribal fishing fleet including gear loss, associated Homeland Security exclusion zones, and interference with fishing."

⁸ Addressing Lummi Issues/Concerns, "m. The report must include a section explicitly addressing vessel traffic impacts (including cumulative effects) on Lummi treaty rights to fish throughout the Lummi Nation's Usual and Accustomed grounds and stations."

receive data from the Lummi Natural Resources department regarding current gear loss attributable to existing vessel traffic.

14. Study shall address increased risk of collision between GPT bound vessel traffic and tribal fishing vessels, vessels associated with the other industries along Cherry Point, and vessels from the Port of Vancouver (British Columbia).⁹

Comment: Expanded scope. To the degree that accurate data exist for the movement of smaller vessels, the effect of the presence of smaller vessels on the risk profile for collision will be incorporated in the traffic study. At present, it is not clear whether the data can be parsed to a level that would allow extraction of significant statistics for “classes” of small vessels (e.g. tribal fishing vessels).

15. Study shall report on ballast water management plans associated with cargo operations at GPT and the level of compliance they will achieve with existing and future regulations and international treaties.¹⁰

Comment: New scope not previously considered. The Glostén team has resources available to review any materials provided on ballast water treatment and management practices envisioned at the terminal and can provide an assessment of compliance with current and anticipated state and federal regulations.

16. The Vessel Traffic Study shall assess the impact of GPT bound vessel traffic on traditional cultural properties and underwater archaeology.¹¹ The statistical measures of impact will be:
 - a. the additional energy arriving at the shoreline from the wakes of passing vessels bound for or departing from GPT compared to the total energy at background levels (i.e. without GPT traffic).
 - b. The energy arriving at the shoreline from the most extreme event of passing vessels compared to the extreme event of a winter storm.

Comment: None.

17. In order to make efficient use of time for both study contractor personnel and Lummi tribal fishers, the contractor will provide questions to the Lummi Natural Resources Department Director in writing prior to any meeting with Lummi fishermen. Questions of a global nature seeking fleet wide statistics or information may be answered by the Lummi Natural Resources Department Director without further consultation. The LNR Director will assist with refining any questions seeking

⁹ From Lummi Issues/Concerns, “d. Study must address increased risk of collision with tribal fishing vessels, vessels associated with the other industries along Cherry Point, and vessels from the Port of Vancouver (British Columbia).”

¹⁰ From Lummi Issues/Concerns, “o. Ballast water management”

¹¹ Addressing Lummi Issues/Concerns, “k. The Vessel Traffic Study should address the impacts of increased vessel traffic on traditional cultural properties and underwater archaeology”

information from individual tribal fishers and with arranging meeting(s) with tribal fishers.¹²

Comment: None.

18. The contractor acknowledges that its work products will be subject to peer review by an expert to be identified by the Lummi Nation. The contractor shall make its study plan available to the peer reviewer.¹³ The contractor and the peer reviewer shall jointly prepare a Peer Review Plan that describes the process and its expected impact on schedule and budget. The Peer Review Plan will identify the responsibilities of each party to the other with particular regard to:

- a. Prompt review of submittals by the peer reviewer
- b. Action to be taken by the contractor in response to comments, questions and requests for additional information from the peer reviewer
- c. Protection and non-disclosure of intellectual property and proprietary analytical methods claimed by the contractor

The peer review will be conducted concurrently with the reviews of other parties.

Comment: None.

Items from “Appendix G” considered to be outside the scope of the Traffic Study

- *Would the implementation of new vessel traffic management or vessel anchorage protocols create significant land side traffic management problems?*¹⁴
- *Is there significant land side transportation capacity to handle peak demand associated with feed grain shipments?*¹⁵

Rationale: By definition, this effort is a Vessel Traffic Study. Land-side transportation issues should be handled separately. If land-side infrastructure changes are required, they are included elsewhere in the proponent’s project planning.

- *Would ... the creation of new anchorage areas contribute substantially to reducing the risk of groundings or collisions?*¹⁶

¹² Addressing Lummi Issues/Concerns, “l. As part of the information gathering component, the contractor will provide questions to the Lummi Natural Resources Department Director in writing prior to any meeting with Lummi fishermen. The LNR Director will assist with refining those questions and arranging meeting(s) with tribal fishers.

¹³ Attempting to address Lummi Issues/Concerns, “j. Any computer model(s) developed by the contractor must be transferable to a third party (Lummi contractor) with sufficient documentation of data sources, assumptions, calibration procedures and results, and any other necessary information to allow for the Lummi contractor to conduct “what if” scenarios as directed by the Lummi Nation.” and “i. The details of the study design and methodology must be provided to the Lummi Nation for review and comment by a third party contractor.

¹⁴ From “Appendix G” page 2, under “Questions raised about vessel traffic and anchorage management”

¹⁵ From “Appendix G” page 2, under “Questions raised about vessel traffic and anchorage management”

Rationale: The issues associated with creation of a new anchorage are regulatory in nature. Opinions or conclusions on the impact of a proposed new anchorage on the overall safety of marine traffic along the specific route would be highly speculative. A very limited review of anchorage capacity will be undertaken as part of Tasks 7 and 8.

Lummi Issues/Concerns considered to be outside the scope of the Traffic Study

1. *Study must identify and recommend safety procedures and equipment improvements that will reduce the risk of collision between vessels associated with the Cherry Point industries (existing and proposed), Port of Vancouver, and the Lummi fishing fleet, non-tribal, and recreational fishers.*

Rationale: To the extent such procedures and equipment modifications can be determined; they will be analyzed as part of the SOW included in item 6. Scope of effort cannot be determined to extend this analysis to vessels not calling at the GPT. Once particular risks are identified, separate studies should be undertaken that include the affected parties on means to reduce risk.

2. *Study must address increased use of general anchorage areas by vessels associated with all of the Cherry Point industries and March Point.*

Rationale: To the extent anchorages are predicted to be used by GPT calling vessels this is already included the SOW (see item 7). To the degree that the traffic forecasts are able to determine trends in use of anchorages by vessels not calling at the GPT, this will be reported but an analysis to predict anchorage use by other vessels is not within the capability of the analysis method proposed.

3. *Study must address the effects and cumulative effects of vessel traffic on marine mammals and fish.*

Rationale: The results of the VTS will provide information on the density and type of traffic within the routes traveled by GPT calling vessels. This information will be used in the analysis of impacts to marine mammals and fish normally included in the DEIS. Undertaking this analysis would require rendering opinions on biological processes. This is outside the expertise of the team selected to prepare the traffic study.

¹⁶ From "Appendix G" page 2, under "Questions raised about vessel traffic and anchorage management"

Lummi Issues/Concerns considered to be contractual issues rather than scope-of-work issues

- 1. The details of the study design and methodology must be provided to the Lummi Nation for review and comment by a third party contractor.*

Comment: Third party review of study design and methodology could affect schedule. Commentary could affect scope. Both must be addressed in the contract language.

- 2. Any computer model(s) developed by the contractor must be transferable to a third party (Lummi contractor) with sufficient documentation of data sources, assumptions, calibration procedures and results, and any other necessary information to allow for the Lummi contractor to conduct “what if” scenarios as directed by the Lummi Nation.*

Comment: The Glostén team expects to utilize proprietary software and databases in its work. It is not clear whether licensing rights can be acquired for or assigned to third parties. The effort required to deliver models with sufficient documentation for unidentified personnel to operate constitutes undefined scope, which is difficult to assess. Furthermore, the Glostén team is reluctant to provide instruction on its processes and software to other consultants with whom it may compete in the future. Language has been proposed that mandates the development of a peer review plan in Task 18 by the peer reviewer and the contractor.