Janet Hodder Ph.D.
63840 Fossil Point Road
Coos Bay
OR 97420

March 18, 2019

Concurrent Land Use Applications by Jordan Cove Energy Project L.P.
Coos Bay Estuary Navigation Reliability Improvements
City of Coos Bay File Nos. ____ _

Dear Hearings Officer:
Please accept these comments from Dr. Janet Hodder to be included in the evidentiary record for the application from Jordan Cove Energy Project (JCEP) to the City of Coos Bay which includes:

1) Map Amendment to the Coos Bay Estuary Management Plan (CBEMP) to Change the Designation of Approximately 3.3 Acres from 52-NA to DDNC-DA;
(2) Text Amendment to the City of Coos Bay Comprehensive Plan to take a Reasons Exception to Statewide Planning Goal 16 to Authorize this Map Amendment;
(3) Estuarine and Coastal Shoreline Uses and Activities Permit For "New And Maintenance Dredging" in the DDNC-DA Estuarine Zone; and
(4) Estuarine and Coastal Shoreline Uses and Activities Permit to Allow an Accessory Temporary Dredge Transport Pipeline in the 52-NA, 53-CA, 54-DA, and 55-CA Estuarine Zones and an Accessory Buoy in the 52-NA Estuarine Zone.

COMMENTS ON THE NAVIGATION RELIABILITY IMPROVEMENT #4

The NRI 4 site is currently zoned 52-NA (a natural aquatic unit) which does not allow for dredging. The applicant seeks to amend the Coos Bay Estuary Management Plan to rezone to apply a DDNC-DA (a development aquatic) management unit to the NRI 4 site in order to allow dredging.

The applicant's response to several State wide planning goals are insufficient. OAR 660-004-0022(1)(a) requires the Applicant to establish a "demonstrated need" for the proposed use or activity based on the requirements of one or more of Oregon Statewide Planning Goals 3 to 19. The Applicant asserts the "demonstrated need" for the NRIs is based primarily on Goals 9 (Economic Development) and 12 (Transportation).

GOAL 9: ECONOMIC DEVELOPMENT.
To provide adequate opportunities throughout the state for a variety of economic activities vital to the health, welfare, and prosperity of Oregon's citizens.
***APPLICANT'S RESPONSE**: The purpose of the Application is to complete the NRIs, which in turn will facilitate a broader operational window, and increase safety and efficiency of transit, in the Channel. This will be a boon to the economic prospects for the City and the state because it will make the Channel safer and more efficient for productive economic enterprises of the kind that provide opportunities to Oregonians.*

AND

GOAL 12: TRANSPORTATION.
To provide and encourage a safe, convenient and economic transportation system.
***APPLICANT'S RESPONSE**: Goal 12 directs local governments to plan transportation systems that consider all modes of transportation, including water, that facilitate the flow of goods and services so as to strengthen the local and regional economy, that conserve energy, and that avoid principal reliance on one mode of transportation. The Application furthers these goals by supporting safer and more efficient use of the Channel for water transportation. This safer and more efficient use of the Channel will conserve energy that is currently wasted when, outside the Channel's operational window, vessels wait outside the Channel, using fuel and adding time and expense to transit.*

There are several pieces of evidence provided in the application that do not support the need for dredging the NRI4 area to make the channel safer, or more convenient, or more efficient. Page 4 of the application, when referring to the NRIs states, "*Notably, these improvements have been identified by the USCG as a required navigation risk mitigation measure for the JCEP terminal operations. See Letter of Recommendation from USCG dated May 10, 2018 in Exhibit 4.*" There is no evidence for such an identification by the USCG as to risk mitigation measure in the application. Exhibit 4 has three incidences where the US Coast Guard equivocally states that the current Coos Bay Channel is adequate for the proposed LNG ship transit.
They are:

1. The Coast Guard Letter of Recommendation to FERC signed by USCG Captain W.R. Timmons, dated May 10, 2018 in response to JCEP's Letter of Intent and based on the comprehensive review of JCEP's Waterway Suitability Assessment (WSA). It states, *"I recommend the Coos Bay Channel be considered suitable for LNG marine traffic".* This letter is appended as a reference.

2. A subsequent letter to Jordan Cove Energy project dated November 7, 2018 from USCG Commander J. C. Smith, Captain of the Port, Sector Columbia River documenting that simulated transits by Coos Bay pilots demonstrated that they could safely and successfully maneuver LNG carriers up to 299.9 meters (983.3 feet) in length and 49 meters (160.8 feet) in beam and 11.9 meters (39 feet) in draft. This is the proposed size of the LNG ships that will call at the JCEP terminal. This letter is appended as a reference.

3. An analysis supporting the letter of recommendation issued by COTP sector Columbia River on May 10, 2018. In this analysis a WSA team, which included several Coos Bay based participants, met in Coos Bay on November 1, 2017 to analyze the suitability of the Coos Bay Channel to support marine traffic. The results of this meeting are included as a supplement to the aforementioned Captain of the Port's May 10, 2018 recommendations. This analysis states on Page 9 of Exhibit 4 in the Coos Bay City application, *"Based on my review of the completed on November 1, 2017, and input from state and local port stakeholders, and taking into account previously reviewed expansion projects, I recommend to the Federal Energy Regulatory Commission that the waterway in its current state be considered suitable for the LNG marine traffic associated with the proposed project."*

Additionally, two other documents produced by JCEP have information pertinent to the adequacy of the current Federal Navigation Channel. Page 24 of Resource Report 11 for the JCEP terminal project submitted to the Federal Energy Regulatory Commission in Docket No. PF17-4-000 dated May 2017 states," *The LNG Transit Management Plan will establish a specific set of weather conditions during which the entry or departure of LNG carriers will not be allowed. JCEP has determined, with the assistance of the local harbor pilots that these conditions occur approximately* ***10 days per year*** *and when these conditions do occur, they are only in place for a period of approximately 12 hours.*

The clear majority of these conditions is caused by ebb tides and last a short duration." Page 24 of Resource Report 11 for the JCEP terminal project submitted to the Federal Energy Regulatory Commission in Docket No. PF17-4-000 dated May 2017 is appended as a reference.

The applicant recently (November 7, 2018) submitted a joint permit request to the Oregon Department of State Lands (DSL) and the US Army Corps of Engineers (ACE), who have yet to rule on the permit request. Page 2 of this permit provides further information from JCEP that refutes the "demonstrated need" for the Navigation Reliability Improvements. It notes that the Navigation Reliability Improvements were determined to be necessary by the 2015 Asian customers. This fails to demonstrate Goal 9's requirement that the economic activities are vital to the health, welfare, and prosperity of **Oregon's** citizens.

Further the JCEP DSL/ACE permit request on page 2 also states," *Modeling showed that without the NRIs in place, the greater delays imposed by the Pilots on LNG ship transits of the channel due to environmental conditions would result in a potential annual loss of production at the facility equal to about 38,000 tonnes of LNG. This would equate to a direct loss of revenue of about $8.0 million per year for the facility*". JCEP proposes to export 7.8 million tons of LNG/year. Without the NRI dredging they can export 7,762,000 tons (7,800,000 minus 38,000) which amounts to 99.51% of their anticipated output. The applicant's assertion that dredging NRI4, *" will be a boon to the economic prospects for the City and the state because it will make the Channel safer and more efficient for productive economic enterprises of the kind that provide opportunities to Oregonians*" is not supported by this detail. Page 2 of the DSL/ACE permit is appended as a reference.

JCEP has not provided sufficient evidence that the dredging of NRI4 will be a, *"boon to the economic prospects for the City and the state because it will make the Channel safer and more efficient for productive economic enterprises of the kind that provide opportunities to Oregonians*." Neither has it provided evidence for details of how NRI4 will, *"conserve energy that is currently wasted when, outside the Channel's operational window, vessels wait outside the Channel, using fuel and adding time and expense to transit."* JCEP fails to establish a "demonstrated need" sufficient to justify a Reasons Exception to Goal 16.

GOAL 16: ESTUARINE RESOURCES.

To recognize and protect the unique environmental, economic, and social values of each estuary and associated wetlands; and to protect, maintain, where appropriate develop, and where appropriate restore the long-term environmental, economic, and social values, diversity and benefits of Oregon's estuaries.

In the CBEMP the NRI 4 site is zoned 52-NA (a natural aquatic unit). Natural units are designated to assure the protection of significant fish and wildlife habitats, of continued biological productivity within the estuary, and of scientific, research, and educational needs. These shall be managed to preserve the natural resources in recognition of dynamic, natural, geological, and evolutionary processes. Thus in the development of the Coos Bay Comprehensive Plan the proposed NRI4 region was recognized as having significant fish and wildlife habitats including but not limited to crabs, clams, a large variety of juvenile fish, and a large variety of benthic invertebrates.

Goal 16 has a requirement that the proposed uses are compatible with other adjacent uses or will be so rendered through measures designed to reduce adverse impacts. The applicant fails to address this requirement as they only cite the Federal Navigation Channel (FNC) as an adjacent use, and

do not address the impacts on the 52-NA area that would be adjacent to the proposed NRI4. It is feasible to suggest that by removal of sediment as a result of the NRI4 dredging the adjacent 52-NA area will experience an alteration of the hydrological regime. This may include a change in water flow velocity which would impact habitat characteristics, or a movement of sediment from the 52 – NA area into the NRI4 dredged area thus altering the characteristic of the adjacent area and the organism that it would support. Additionally the activities associated with building the entrance slip to the JCEP terminal will take place on the western side of the FNC adjacent to the NRI4 region. The changes in the hydrographic regime and associated sediment transport associated with this activity, and any influence that it will have on the 52-NA area under consideration has not been addressed by the applicant.

The CBEMP states that," In a natural management unit, a use or activity is consistent with the resource capabilities of the area when either the impacts of the use on estuarine species, habitats, biological productivity and water quality are not significant or that the resources of the area are able to assimilate the use and activity and their effects and continue to function in a manner to protect significant wildlife habitats, natural biological productivity, and values for scientific research and education." Dredging will be the primary activity that will impact estuarine species, habitats, biological productivity and water quality. The application does not provide sufficient information about the techniques that will be used for dredging and although they state they will use best management practices associated with dredging to reduce turbidity effects, it is not possible to determine if the activity is consistent with this part of the CBEMP as insufficient information is provided in the application.

The application has a flaw in its use of Exhibit 5 Federal Navigation Channel Dredge Areas – Coos County Land Use Permit Support. Attachment 2: Responses to CBEMP Policies 4 and 5.
This document deals only with NRIs 1, 2, and 3 which are located within Coos County. There is no specific information included that pertains to the NRI4, the subject of this application. One example is on page 12 of Exhibit 5 where information on the dredging volumes and types are not included for NRI4. Thus statements such as, *"JCEP's environmental consultant has further evaluated potential adverse impacts associated with the dredging activities and describes ways by which JCEP will minimize such adverse impacts. See DEA memorandum in Exhibit 5."* and, *"As required by CBEMP Policy #5, "[i]dentification* (sic) *and minimization of impacts shall follow the procedure set forth in Policy #4. JCEP has addressed the provisions of this policy in the DEA memo included in Exhibit 5."* cannot be evaluated as the information is not provided in the application.

Information contained in the Final Report of the Estuary Inventory Project – Oregon Technical Assistance to Local Planning Staffs in Fulfilling the Requirements of the LCDC Estuarine Resources Goal – Natural Resources of the Coos Bay Estuary February 1978 – June 1979 prepared by Cyndi Roye, Oregon Department of Fish and Wildlife provides limited details of the area of the 52-NA region under consideration for NRI4 development. The most specific is that, " The large flats southwest of the North Bend airport and the Jordan Cove area should be considered major tracts and protected accordingly. " This no doubt led to the current designation of the area as Natural Aquatic.

The impact of dredging NRI4 may seem somewhat inconsequential when looked upon as an individual action. It is just because the NRI4 area is within Coos Bay's city limits that the planning commission is having to deal with this issue. It does not allow for a consideration of the cumulative impact of dredging all four of the NRI areas, the other three of which are in Coos County's jurisdiction. Although the Coos Bay planning committee cannot rule on the merits of dredging for NRI 1, 2 and 3, I encourage them to think of the "bigger picture" of the impact of dredging NRI4 has on the estuary as a whole.

Respectably submitted,

Janet Hodder Ph.D.

Attachments

1. The Coast Guard Letter of Recommendation to FERC signed by USCG Captain W.R. Timmons, dated May 10, 2018 in response to JCEP's Letter of Intent and based on the comprehensive review of JCEP's Waterway Suitability Assessment (WSA).

2. Letter to Jordan Cove Energy project dated November 7, 2018 from USCG Commander J. C. Smith, Captain of the Port, Sector Columbia River.

3. Page 24 of Resource Report 11 for the JCEP terminal project submitted to the Federal Energy Regulatory Commission in Docket No. PF17-4-000 dated May 2017.

4. Page 2 of the DSL/ACE permit

Attachment 1. Janet Hodder

U.S. Department of Homeland Security
United States Coast Guard

Captain of the Port
U. S. Coast Guard
Sector Columbia River

2185 SE 12th Place
Warrenton, Oregon 97146-9693
Staff Symbol: s
Phone: (503) 861-6211

16611
May 10, 2018

Director of Gas Environment and Engineering, PJ 11
Attn: Mr. Rich McGuire
Federal Energy Regulatory Commission
888 First Street NE
Washington, DC 20426

Dear Mr. McGuire:

This Letter of Recommendation (LOR) is issued pursuant to 33 Code of Federal Regulations (CFR) 127.009 in response to the Letter of Intent submitted by Jordan Cove Energy Project. L.P. (Jordan Cove) on January 9, 2017. Jordan Cove proposes to construct and operate the Jordan Cove LNG facility in Coos Bay, Oregon from which Liquefied Natural Gas (LNG) is proposed to be transferred in bulk to a vessel for export. This LOR conveys the Coast Guard's recommendation on the suitability of the Coos Bay Channel for LNG marine traffic as it relates to safety and security. In addition to meeting the requirements of 33 CFR 127.009, this LOR fulfills the Coast Guard's commitment for providing information to your agency under the Interagency Agreement signed in February 2004.

After reviewing the information in the applicant's Letter of Intent (LOI) and Waterway Suitability Assessment (WSA) with subsequent annual updates and completing an evaluation of the waterway in consultation with a variety of state and local port stakeholders, I recommend that the Coos Bay Channel be considered suitable for LNG marine traffic. My recommendation is based on review of the factors listed in 33 CFR 127.007 and 33 CFR 127.009. The reasons supporting my recommendation are outlined below.

On November 1, 2017, I completed a review of the WSA for the Jordan Cove Energy Project, submitted to the Coast Guard by KSEAS Consulting on behalf of Jordan Cove in February 2007. This review was conducted following the guidance provided in U.S. Coast Guard Navigation and Vessel Inspection Circular (NVIC) 01-2011, dated January 24, 2011. In conducting this review and analysis, I focused on the navigation safety and maritime security aspects of LNG vessel transits along the affected waterway. My analysis included an assessment of the risks posed by these transits and validation of the risk management measures proposed by the applicant in the WSA. During the review, I consulted a variety of stakeholders including the Area Maritime Security Committees, Harbor Safety Committees, State representatives, Pilot Organizations, and local emergency responders.

Based upon a comprehensive review of Jordan Cove's WSA, and after consultation with State and Local port stakeholders, I recommend that the Coos Bay Channel be considered suitable for accommodating the type and frequency of LNG marine traffic associated with this project.

The attached LOR Analysis contains a detailed summary of the WSA review process that has guided this recommendation. It documents the assumptions made during the analysis of Jordan Cove's WSA. It discusses details of potential vulnerabilities and operational safety and security measures that were analyzed during the review. The portion of the LOR Analysis which

addresses matters that affect maritime security is marked as Sensitive Security Information and is withheld from distribution.[1] The LOR Analysis sets forth the navigational safety and maritime security resource gaps that currently exist in, on, and adjacent to the waterway, including the marine transfer area of the proposed facility, and which, to the extent allowable under FERC's existing legal authority, may be addressed in its Commission Order if one is issued. To the extent implementation of specific mitigation measures fall outside the scope of FERC's legal authority, the applicant is expected to examine the feasibility of implementing such mitigation measures, in consultation with the Coast Guard and State and Local agencies as applicable.

This recommendation is provided to assist in the Commission's determination of whether the proposed facility should be authorized. This Letter of Recommendation is not an enforceable order, permit, or authorization that allows any party, including the applicant, to operate a facility or a vessel on the affected waterway. Similarly, it does not impose any legally enforceable obligations on any party to undertake any future action be it on the waterway or at the proposed facility. It does not authorize, nor in any way restrict, the possible future transit of properly certificated vessels on the Coos Bay Channel. As with all issues related to waterway safety and security, I will assess each vessel transit on a case by case basis to identify what, if any, safety and security measures are necessary to safeguard the public health and welfare, critical marine infrastructure and key resources, the port, the marine environment, and vessels. In the event the facility begins operation and LNG vessel transits commence, if matters arise concerning the safety or security of any aspect of the proposed operation, a Captain of the Port Order could be issued pursuant to my authority under the Ports and Waterways Safety Act of 1972, as amended by the Port and Tanker Safety Act of 1978, 33 U.S.C. § 1221 – 1232, among other authorities, to address those matters.

Please note that Enclosures (4) is Sensitive Security Information (SSI) and shall be disseminated, handled and safeguarded in accordance with 49 CFR Part 1520, "Protection of Sensitive Security Information."

If you have any questions on this recommendation, my point of contact is Lieutenant Commander Laura Springer. She can be reached at the address listed above, by phone at (503) 209-2468, or by email at Laura.M.Springer@uscg.mil.

Sincerely,

W. R. TIMMONS,
Captain, U. S. Coast Guard
Captain of the Port, Sector Columbia River

Enclosure (1) LOR Analysis
(2) LOR issued by Sector Portland on April 24, 2009
(3) U.S.C.G.'s Waterway Suitability Report for the Jordan Cove Energy Project
(4) LOR Analysis (SSI Portion)

[1] Documents containing SSI may be made available upon certification that the requestor has a need to know and appropriate document handling and non-disclosure protocols have been established.

Attachment 2

Janet Hodder

U.S. Department of Homeland Security
United States Coast Guard

Captain of the Port
United States Coast Guard
Sector Columbia River

2185 SE 12th Place
Warrenton, OR 97146-9693
Staff Symbol: s
Phone: (503) 861-6206
Fax: (503) 861-6355

16611

NOV 07 2018

Tony Diocee, Vice President, Projects
Jordan Cove Energy Project, L. P.
5615 Kirby, Suite 500
Houston, TX 77005

Dear Mr Diocee:

The USCG Waterways Suitability Report provided to the Federal Energy Regulatory Commission (FERC) on July 1, 2008 and a subsequent Letter of Recommendation provided to FERC on May 10, 2018 required the applicant, Jordon Cove Energy Project, L.P. (JCEP), to conduct additional ship transit simulator studies for liquid natural gas (LNG) carriers that exceed a 148,000 m^3 spherical containment class vessel or for any increase in physical dimensions.

Since the initial Waterway Suitability Analysis was submitted to the USCG in 2007 LNG Tanker technology has improved and tanker sizes and capacities have changed. As a result, additional simulator studies were required. In response, JCEP conducted additional vessel transit simulations during September 26-27, 2018 using modern ship design and carrying capacities.

The simulated transits were piloted by the Coos Bay Pilots and witnessed by the USCG. They were conducted at California Maritime Academy in Vallejo, CA using a Transas Simulator. They were conducted to demonstrate that the Coos Bay Pilots can safely and successfully maneuver LNG carriers up to 299.9 x 49m x 11.9m dimensionally while transiting the channel.

These successful simulations expand the ability for Jordan Cove LNG to use any class of LNG carrier (membrane, Moss, or SBT) with physical dimensions equal to or smaller than observed during the simulated transits. JCEP will continue development of the Transit Management Plan and work with the Coos Bay Pilots in establishing any other operating parameters.

Sincerely,

J. C. SMITH
Commander, Sector Columbia River
Captain of the Port
Captain, U. S. Coast Guard

Enclosure: 1) Jordon Cove LNG Terminal Simulation Plan, September 2018
2) TRANSAS Simulation Printouts

Copy: FERC
Commander, Coast Guard District Thirteen (dp)
Commander, Pacific Area (PAC-54)
Commandant (CG-OES), (CG-ODO), (CG-FAC), (CG-741), (CG-CVC), (CG-ENG), (LNGNCOE)
Marine Safety Center (CG MSC)

for both safety and security issues. This process has also been briefed to the projects Emergency Response Development group on a regular basis.

As part of the LNG Transit Management Plan, JCEP is proposing that LNG carriers would not be allowed to move past the 50-mile voluntary traffic lanes offshore unless all conditions are acceptable for them to continue into the LNG Terminal. LNG carriers will only be allowed to enter closer than 50 miles when all conditions are suitable to enter the Port of Coos Bay (the "Port"). JCEP is also proposing that LNG carriers will not be allowed to anchor offshore of the Oregon coast, based on the recommendation contained in the National Oceanic Atmospheric Administration's ("NOAA") United States Coast Pilot 7 (2009). Due to the lack of a safe anchorage suitable for ocean-going ships in Coos Bay, JCEP is proposing, in addition to the LNG carrier loading berth, to construct an emergency lay berth on the west side of the slip that could be utilized for the safe mooring of a LNG carrier that is temporarily disabled. Further, JCEP has committed in the WSA to providing tractor tugs to escort each LNG carrier into the Port and to the berth. This type of tug has not been previously available in the Port. These tugs are capable of fully controlling and maneuvering the LNG carriers even without ships power and will also have extensive firefighting capability, as recommended by industry best practice guidelines.

The LNG Transit Management Plan will establish a specific set of weather conditions during which the entry or departure of LNG carriers will not be allowed. JCEP has determined, with the assistance of the local harbor pilots that these conditions occur approximately 10 days per year and when these conditions do occur, they are only in place for a period of approximately 12 hours. The clear majority of these conditions is caused by ebb tides and last a short duration.

Oil Spill Contingency Plans, required by federal and state regulations, are to be submitted and approved by the USCG and Oregon Department of Environmental Quality ("ODEQ") prior to entry of the LNG carriers to the Port. Before arrival of any LNG carrier to the Port, a "Qualified Individual" will be present and will have the clear authority to perform the following duties on behalf of the ship owners:

- Have full authority to immediately implement emergency actions;
- Commit the financial resources of the company to respond to an incident;
- Communicate with the appropriate federal and state officials and the incident response teams; and
- Ensure that the response resources identified by the ERP will be allowed to commence appropriate response actions in a timely manner.

The ship traffic in the area is controlled by the harbor pilots. It is their decision when it is safe to bring ships into and out of the Port. JCEP has recommended that two systems be added to assist the pilots in making proper decisions. One system, a Vessel Traffic Information System ("VTIS"), would allow ships' agents, ships, pilots, and other harbor users to make information more readily available on very short notice. As a ship approaches the 50-mile mark, the ship's agent would communicate with the authorities, the LNG Terminal, and Pilots, and would discuss the proper timing of the ship's arrival. If necessary, a ship could increase speed or decrease speed to arrive at the proper time. Otherwise, the ship will be held in a waiting area beyond the 50-mile mark offshore. The second system, a NOAA, Physical Oceanographic Real-Time System ("PORTS"), would allow oceanographic information to be made readily available to the maritime public, ships, and pilots, thereby reducing the possibility for error in predicting tides and currents. All of the above measures will be included in the LNG Transit Management Plan. The LNG Transit Management Plan will be the operational guidance by which all LNG carrier arrivals and departures will be undertaken.

Attachment 4

Janet Holder

(2) PROJECT INFORMATION

C. Indicate the project category. (Check all that apply.)

☐ Commercial Development	☐ Industrial Development	☐ Residential Development
☐ Institutional Development	☐ Agricultural	☐ Recreational
☑ Transportation	☐ Restoration	☐ Bank Stabilization
☑ Dredging	☐ Utility lines	☐ Survey or Sampling
☑ In- or Over-Water Structure	☐ Maintenance	☐ Other:

(3) PROJECT PURPOSE AND NEED

Provide a statement of the purpose and need for the overall project.

The entities constructing the project are Jordan Cove Energy Project, LP and Pacific Connector Gas Pipeline L.P. Both together are referred to as Jordan Cove. JCEP is constructing a liquefied natural gas terminal to be located on the North Spit of Coos Bay (LNG Terminal) and PCGP is constructing a pipeline from the intersection of the GTN and Ruby pipelines to Coos Bay (the Pipeline). The LNG Terminal and the Pipeline are together referred to as the Project

The Project is a market-driven response to the burgeoning and abundant natural gas supply in the U.S. Rocky Mountains and Western Canada markets, and the growth of international demand, particularly in Asia. The overall Project purpose and need is to construct a natural gas liquefaction and deep-water export terminal capable of receiving and loading ocean-going Liquefied Natural Gas (LNG) carriers, in order to export natural gas derived from a point near the intersections of the GTN Pipeline system and Ruby Pipeline system.

The pipeline origin near the intersection of the GTN Pipeline system and Ruby Pipeline system is strategically located to give reliable and secure supplies of natural gas from two natural gas supply basins – one in the U.S. Rocky Mountains (through the existing Ruby Pipeline) and a second in western Canada (through the existing GTN Pipeline) – capable of delivering volumes of at least 1,200,000 dekatherms (a unit of energy used to measure natural gas, approximately equal to one thousand cubic feet) per day (dth/d) in order to support export of 7.8 million tonnes per annum (mtpa) of LNG.

The LNG Terminal, proposed to be located on the bay side of the North Spit of Coos Bay, would support receipt, liquefaction, storage, and loading of LNG onto ocean-going LNG carriers for delivery to export markets giving those supplies an efficient and cost-effective outlet. The Pipeline is needed to transport natural gas from near the intersection of the GTN Pipeline system and Ruby Pipeline system to the LNG Terminal. The Navigation Reliability Improvements (NRIs) enhancements that are planned as part of the Project will allow for transit of LNG vessels of similar overall dimensions to those listed in the July 1, 2008 U.S. Coast Guard (USCG) Waterway Suitability Report and as approved in the USCG Letter of Recommendation dated 10 May 2018., but under a broader range of weather conditions, specifically higher wind speeds. This allows for greater navigational efficiency and reliability to enable JCEP to export the full capacity of the optimized design production of 7.8 million metric tonnes per annum from the LNG Terminal. Although the depth of the FNC is suitable for vessel transit as determined by the USCG Waterway Suitability Assessment, without the NRIs, the LNG facility would not be able to optimize its production capacity and export 7.8 mtpa of LNG and therefore would not fully satisfy the Project purpose. JCEP conducted an extensive evaluation of the existing channel geometry with the Coos Bay Pilots Association (Pilots) and LNG navigation experts from JCEP's Asian customers during 2015 at the simulator located at the California Maritime Academy (Schisler 2015). Based on these evaluations, it was determined that without the NRIs, the number and duration of LNG carrier transits would be limited by the Pilots' environmental condition requirements for transit, such as wind speed, channel currents and fog. JCEP modeled the LNG Terminal, LNG production, and transportation throughput, both with and without the NRIs in place. Modeling showed that without the NRIs in place, the greater delays imposed by the Pilots on LNG ship transits of the channel due to environmental conditions would result in a potential annual loss of production at the facility equal to about 38,000 tonnes of LNG. This would equate to a direct loss of revenue of about $8.0 million per year for the facility.