4.8 SOCIOECONOMICS

The potential socioeconomic effects associated with the JCE & PCGP Project include impacts on employment, housing, public services, local tax revenues, and property values. These impacts are likely to occur primarily within Coos County for the Jordan Cove LNG terminal and Coos, Douglas, Jackson, and Klamath Counties along Pacific Connector's proposed pipeline route.

4.8.1 Waterway for LNG Marine Traffic

Potential socioeconomic effects associated with LNG marine traffic along the waterway would affect Coos County and more specifically the communities located within the immediate vicinity of the waterway. These communities and neighborhoods include Charleston, Barview, Empire (which is part of the city of Coos Bay), Coos Bay, and North Bend. For the purposes of this analysis, we discuss potential project impacts that may result from LNG carrier transit in the waterway to the terminal with regard to the three Zones of Concern (as further discussed in section 4.12). We have measured the zones from the center of the existing Coos Bay navigation channel as follows: Zone 1: 0 to 0.3 mile ; Zone 2: 0.4 to 1.0 mile ; and Zone 3: 1.1 to 2.2 miles.

4.8.1.1 Population

Population data are summarized for the communities within two miles of the waterway in table 4.8.1.1-1. Of the communities overlapped by the Zones of Concern, only Coos Bay and North Bend are incorporated cities for which population data is available from the U.S. Census, the State of Oregon Internet Web site, or the Portland State University Population Research Center. The unincorporated community of Barview had a population of about 1,872 people in 2000 (city-data.com).

Coos County had a population density of 39.2 persons per square mile in 2000, slightly higher than the state average of 35.6 persons per square mile (U.S. Census Bureau 2006a). The city of Coos Bay has a population density of about 1,490 people per square mile and the city of North Bend has a population density of about 2,516 people per square mile (city-data.com).

Population density along the waterway is graphically illustrated by zone in figure 4.8-1. Where Zone 3 overlaps parts of the cities of Coos Bay and North Bend, population densities range from 2,500 to 5,000 people per square mile. The population density within all three zones north and west of the LNG carrier transit route is less than 200 people per square mile.

TABLE 4.8.1.1-1.

Population in the Counties and Communities along the Waterway for LNG Marine Traffic

			1990 to 2006	
State/County/Community	**1990**	**2006**	**Net Change**	**Percent Change**
Oregon	2,842,321	3,700,758	858,437	30
Coos County	60,273	64,820	4,547	8
Coos Bay	15,076	15,999	923	6
North Bend	9,614	9,846	232	2

Source: U.S. Census Bureau 1990, 2007

Jordan Cove provided an estimate of the population within each of the Zones of Concern based on residential structures within each zone. No people were found to live within Zone 1. Approximately 7,411 people are estimated to live within Zone 2, and approximately 9,511 people reside within Zone 3.

The proposed LNG marine traffic in the waterway is not expected to affect the distribution of local population. LNG marine traffic would not, in and of itself, result in people moving into or out of the communities along the waterway. The LNG carriers are manned by seamen who come into port and out of port with the carrier. The only additional workers that would be newly employed as a result of LNG marine traffic would be the crews of the tug and escort boats. It is likely that most of the tug and escort boat operators would be local citizens.

The population within the Zones of Concern along the waterway could be affected if there were an accidental or intentional breach of an LNG carrier en route along the waterway to the proposed LNG terminal. The severity of the effect would depend on the location of the spill relative to the population area, the size of the spill, and whether the LNG vapor from the spill comes in contact with an ignition source. Potential effects would be greatest in those areas within the Zone 1, where no one lives, with the severity of the potential effects decreasing with distance from the spill. There would be no adverse impacts to populations residing outside of the zones. With the implementation of the safety and security measures recommended in the Coast Guard's WSR, an LNG release from a carrier transiting in the waterway would be highly unlikely, and potential impacts on population from LNG marine traffic should be less than significant.

4.8.1.2 Housing

Coos County had a total of 29,247 housing units in 2000, including houses, apartments, or mobile homes. About 3,064 of the housing units were vacant; and of these, 27.8 percent were for seasonal, recreational, or occasional use. There are 1,864 spaces in private and public campgrounds and RV parks in Coos County, with an average occupancy rate of 47 percent in the RV parks. In the city of North Bend there are about 4,300 housing units, with a 7.5 percent vacancy rate. Of the vacant housing in North Bend, about 5.6 percent were available for seasonal, recreational, or occasional use. In the city of Coos Bay in 2000 there were about 7,100 housing units, of which about 8.4 percent were vacant;11.6 percent of the vacant housing was available for seasonal, recreational, or occasional use.

No houses, apartments, motels, hotels, or any other residential structures occur within Zone 1. Approximately 2,588 residential structures, including houses, apartments, duplexes, multiplexes, and mobile homes/trailers, were identified by Jordan Cove in Zone 2. There are five hotels and motels within Zone 2, with a total of approximately 83 rooms available for rent. Approximately 2,869 residential structures are located within Zone 3. There are four hotels and motels within Zone 3, with approximately 135 rooms available for rent.

LNG marine traffic is not expected to result in changes in demand for housing in the communities along the waterway. There would be few non-local workers seeking housing in the project area because of LNG marine traffic.

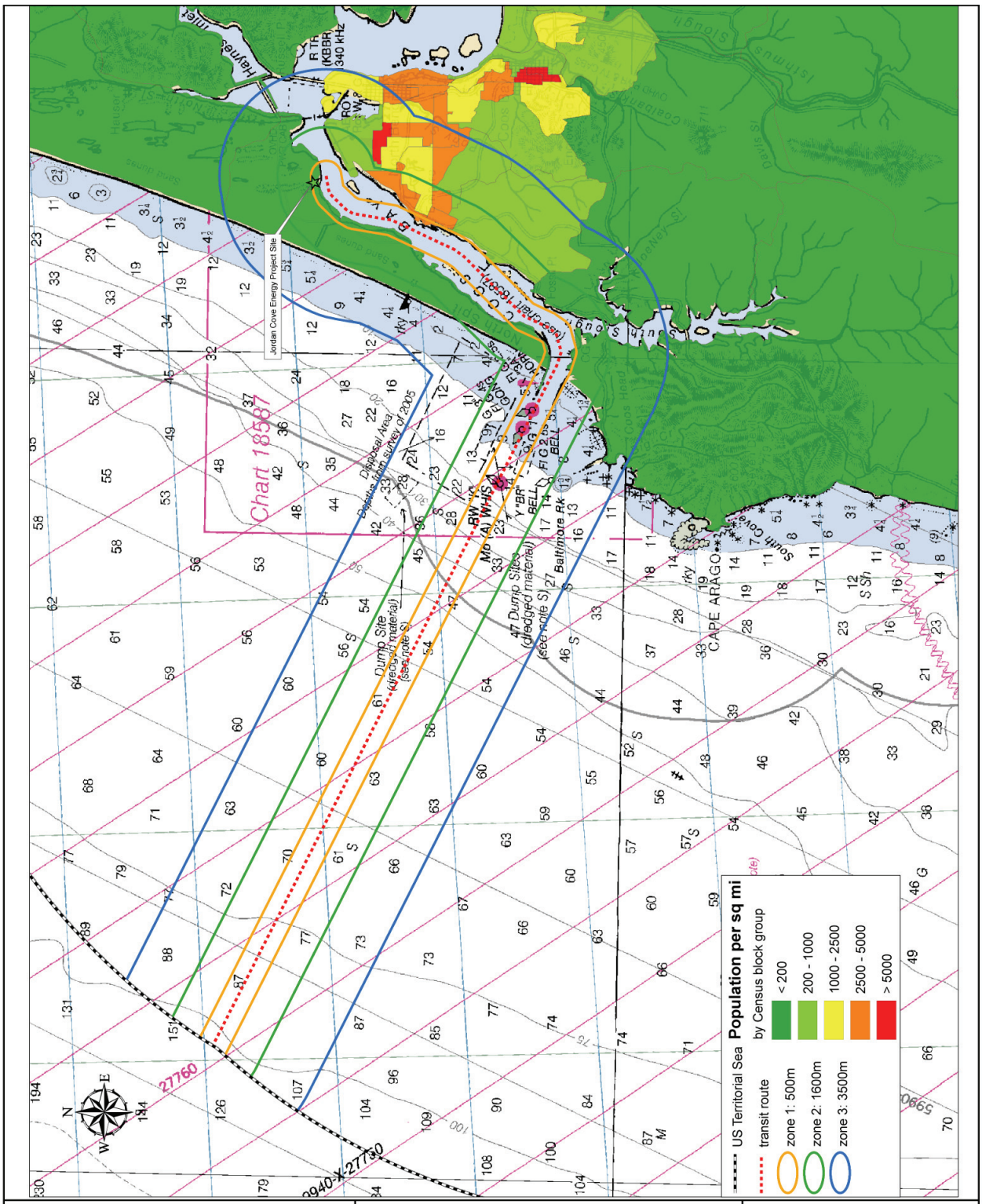

Figure 4.8-1
Population Density Along the Waterway

Residential structures, including motels and hotels, overlapped by the Zones of Concern could be affected in the event of an LNG spill from a carrier in transit to the terminal. However, with the implementation of the safety and security measures recommended by the Coast Guard in its WSR, an LNG release would be highly unlikely, and there should be no significant impacts on housing along the waterway.

4.8.1.3 Property Values

The real market value of property in Coos County in Fiscal Year 2006 to 2007 was $7.3 million (Oregon Department of Revenue 2007). The median value of owner-occupied housing in Coos County was $98,900 in 2001, compared to a statewide average of $152,100. In the city of Coos Bay, the median price for a vacant for sale house or condominium in 2000 was about $67,000. In the city of North Bend, the median price of vacant houses or condominiums for sale in 2000 was about $55,000 (city-data.com).

The addition of LNG marine traffic to current commercial cargo ships coming to port at Coos Bay would still be well below historical numbers. We are unaware of any studies that assess the impact of LNG marine traffic on property values along the waterway. While LNG carriers represent a potential hazard, there are commercial vessels that carry hazardous materials, including petroleum products, which currently call at the Port of Coos Bay. With the implementation of the safety and security measures outlined as conditions in the Coast Guard WSR, the chance of an LNG release would be highly unlikely, and LNG marine traffic should not have significant impacts on the future value of properties adjacent to the navigation channel.

4.8.1.4 Economy and Employment

The government and government enterprises sector was the largest employer in Coos County in 2004, followed by consumer services, producer services, and retail trade (table 4.8.3.4-1). The total labor force in Coos County in 2007 was 28,592 people, with an unemployment rate of 6.7 percent (U.S. Bureau of Labor Statistics 2007). In 2003, the per capita income of Coos County was $24,380. According to the U.S. Census, the per capita income for working citizens of the city of Coos Bay was $18,158 in 2000, and in North Bend it was $16,703. The median household income in Coos County in 2005 was $33,150, compared to an Oregon statewide average of $43,065. In 2000, the median household income for the city of North Bend was $33,333, while for the city of Coos Bay it was $31,212. Along the waterway for LNG marine traffic Jordon Cove counted 3 commercial businesses within Zone 1, 159 commercial businesses within Zone 2, and 336 commercial businesses within Zone 3.

Employment directly associated with LNG marine traffic in the waterway would include crews of the tugboats and other escort boats. The additional future carrier traffic may also have implications for the number of bay pilots employed.

The economy of the area could be negatively affected in the event of an accidental or intentional breach of an LNG carrier that resulted in a release of LNG, and an associated pool fire with ignition; especially if such an incident were to directly impact commercial structures or businesses. With the safety and security conditions outlined in the Coast Guard's WRS, the likelihood of an LNG spill would be highly unlikely, and LNG marine traffic in the waterway should not have significant adverse impacts on the local economy.

4.8.1.5 Tax Revenues

LNG marine traffic along the waterway would not affect or contribute to local tax revenues. Tax revenues would be generated through construction and operation of the proposed LNG terminal and associated pipeline, as discussed in sections 4.8.2.5 and 4.8.3.5.

4.8.1.6 Local Infrastructure and Public Services

Infrastructure within 2.2 miles of the LNG carrier transit route includes the Highway 101 bridge, also known as the McCullough Bridge, the railroad bridge crossing the bay, the bridge crossing South Slough to Charleston, the Southern Oregon Regional Airport, and the sewage treatment plant. There is also an overhead electric transmission line that parallels the west side of the McCullough Bridge. Besides the marina at Charleston, there are nine other commercial or recreational docks along the waterway.

Six docks are located within Zone 1: the Cape Arago Dock; D.B. Western, Inc.; North Bay Marine Industrial Park; Southport Forest Products Barge Facility; the BLM boat launch; and the Roseburg Forest Products Chip Terminal. The Charleston Marina is overlapped by Zone 2. The McCullough Bridge, transmission line parallel to the McCullough Bridge, and the railroad bridge are within Zone 3. The other infrastructure elements, including a portion of the airport, are overlapped by Zone 2.

There are no schools within Zone 1. Four schools occur within Zone 2: Sunset Middle School (641 students) and Madison Elementary School (387 students) in the Coos Bay School District; the Alternative Youth Activities school (approximately 28 students); and the University of Oregon, Institute of Marine Biology community college (less than 100 students). Eight schools occur within Zone 3, including the Hillcrest Elementary School (202 students), North Bend Middle School (606 students), and North Bend High School (774 students) within the North Bend School District. Also within Zone 3 are the Southwest Oregon Community College (approximately 14,500 students), Oregon Coast Culinary Institute within the Southwest Oregon Community college campus (approximately 60 students), and the Gold Coast Christian School (approximately 37 students). The Village Daycare and South Coast Head Start are also within Zone 3, but there is no data available on the number of students in attendance.

There are no government offices within Zone 1. Two government offices occur within Zone 2: the Coos Bay Fire Department and the BLM Coos Bay Division office. Three government offices occur within Zone 3, including the Coos County Courthouse, the North Bend Fire Department, and the North Bend Police Department.

There are no hospitals within the Zones of Concern. The nearest hospital is the Bay Area Hospital, located approximately five miles to the east of the waterway for LNG marine traffic.

LNG marine traffic in the waterway should not stress existing infrastructure or public services of Coos County. Jordan Cove filed a draft ERP in May 2007. In accordance with the EPAct, the ERP is supposed to include a Cost Sharing Plan to fill resource gaps for local first responders. We further discuss the ERP in section 4.12 of this EIS.

An ignited LNG spill could have an adverse impact on local infrastructure and public services depending on the location, extent, and timing of the spill. With the safety and security measures outlined in the Coast Guard's WSR, the likelihood of an LNG spill from a carrier while in transit

in the waterway to the Jordan Cove terminal would be extremely remote. Therefore, this action should not have significant impacts on infrastructure and public services.

4.8.1.7 Recreation and Tourism

The Zones of Concern along the waterway would overlap with federal and state recreational areas, marinas, boat ramps, city parks, RV parks, and campgrounds. Recreational facilities located within Zone 1 include the Empire boat ramp, and the BLM boat launch. Recreational facilities within Zone 2 include the North Spit Overlook and Wetland Trail, Bayview Wayside, Charleston Marina and fishing pier, the Airport Heights Park, Ed Lund Park, Taylor-Wasson Park, and Charleston County Park. Recreational facilities within Zone 3 include the Pony Point boat ramp, Yoakam Point State Natural Site, Sunset Bay Park and campground, Bastendorff Beach Park and campground, Ferry Street Park, Simpson Park, Oak Street Park, State Street Park, Empire Lakes at John Topits Park, Boynton Park, and Alder Acres RV Park. Dispersed recreation use occurs within the Coos Bay Shorelands SRMA. Potential Project-related impacts on parks and other recreational areas are more fully discussed in section 4.7 of this EIS.

A potential impact on users of recreation facilities would be visual effects as LNG carriers transit in the waterway to and from Jordan Cove's terminal. However, the number of LNG carriers would be below historic levels of commercial vessel traffic in the Coos Bay navigation channel. In addition, an LNG carrier would pass through the viewshed in a couple of minutes, traveling at speeds of between 10 and 4 knots. Visual impacts are more fully discussed in section 4.7 of this EIS.

An ignited LNG spill could affect recreational facilities within the Zones of Concern, depending on the location, extent, and timing of the spill. However, with the measures to be implemented to meet the conditions outlined in the Coast Guard's WSR, the likelihood of a spill would be extremely remote. Therefore, LNG marine traffic should not have significant impacts on users of recreational facilities along the waterway.

Recreational Boating

Recreational boaters took 30,996 boat trips in Coos Bay in 2005 and engaged in 36,547 use-days of boating activity. A use-day in this context represents one person engaging in the activity for all or part of one day. The majority of these use days (88 percent) were fishing related. Most of the remainder (9 percent) involved pleasure-cruising, with a small number involved sailing and waterskiing. In addition, boaters took 8,954 boat trips from Coos Bay to the ocean and engaged in 6,196 use-days of activity. All of these trips involved fishing (OSMB 2005).

During operation of the Jordan Cove LNG terminal, when an LNG carrier is transiting in the waterway to the terminal, other boats in or near the channel would be required to move away and those seeking to approach the channel would have to delay doing so until the LNG carrier had passed. The Coos Bay Pilots Association estimated that recreational boaters may be briefly inconvenienced by moving out of the safety and security zone around an LNG carrier for a period between 3 to 4 minutes while the carrier passes by. At present, recreational boaters already know to stay away from commercial ship traffic using the Coos Bay navigation channel. ECONorthwest (2006c) estimated that each LNG carrier visiting the terminal would, on average, affect about 6 pleasure craft per transit. Based on an estimated total of 80 LNG carriers visiting the proposed terminal each year, ECONorthwest concluded that operation of the terminal would impact recreational and other boating activity during about 1.3 percent of annual daylight hours.

4.8.1.8 Other Commercial Activities

Commercial Shipping and Fishing

In 2006, 36 deep-draft cargo ships called at Coos Bay. In addition, up to 400 tugs and barges per year use the Coos Bay navigation channel, carrying wood, petroleum, and other products. Current commercial traffic averages 4 ships per mouth.

A study done for Jordan Cove in April 2008 estimated that it would take a 148,000 m^3 capacity LNG carrier about 90 minutes to transit between the offshore buoy and the LNG terminal, at typical speeds between 10 and 4 knots.[1] Another consultant to Jordan Cove indicated that other ships using the navigation channel would not be delayed by more than 30 minutes during the passing of an LNG carrier (ECONorthwest 2006c). The Coast Guard's WSR recommends that Jordan Cove develop a Traffic Management Plan, to minimize conflicts between LNG carriers in route to and from the terminal and other vessels in the waterway. The likelihood of collisions between LNG carriers and other ships would be low, because of the presence of assisting tug boats and escort vessels as required by the WSR.

The addition of 80 LNG carriers per year transiting in the waterway to the Jordan Cove terminal should not have significant adverse impacts on other commercial ship traffic. Historically, commercial ship traffic in Coos Bay was much higher than the combined estimate of projected LNG carriers added to current ship traffic. In the late 1980s as many as 300 commercial ships came to call at Coos Bay. The Coos Bay Pilots Association filed a letter with the FERC dated July 12, 2006 stating that the effects of LNG marine traffic in the waterway on other commercial ship traffic would be negligible.

There is a commercial fishing fleet based in the marina at Charleston. The Port indicated that the marina has moorings available for 213 trollers and trawlers between 24 and 48 feet in length, and 65 boats of larger size (Dyer Partnership Engineers 2007).

Coos Bay is the third most important harbor in the state of Oregon in terms of total personal income generated from commercial fishing (exceeded only by Astoria and Newport). According to the ODFW (2007), a total of about 71 commercial fishing vessels called Coos Bay home in 2006. These ships landed 29.7 million pounds of fish in 2006, worth $21.3 million. About 22 percent of the landing volume at Charleston was for groundfish. Local landings for the commercial fishing fleet out of Coos Bay totaled about $30.1 million in personal income, with $3.8 million generated by distant water landings. The ODFW estimated that commercial fishing out of Coos Bay employed about 1,100 people, and generated about 1.3 percent of the total regional income for all sources in 2005.

ECONorthwest (2006c) estimated that each LNG carrier visiting the terminal would, on average, encounter two commercial fishing boats per transit. It is unlikely that LNG marine traffic in the waterway would have significant impacts on commercial fishing boats operating out of Coos Bay. The LNG marine traffic would only overlap with the portion of the navigation channel used by the fishing fleet from Charleston for about 2 miles. There may be slight delays resulting from meeting situations between an inbound LNG carrier and an out bound fishing vessel, because of the security and safety zones or other conditions imposed by the Coast Guard. Jordan

[1] Moffat & Nichol, 14 April 2008, *Jordan Cove LNG Terminal Coos Bay, Oregon, 148,000 m^3 Class LNG Carrier Transit and Maneuvering Simulations March 17-20, 2008.* This report was filed with the FERC by Jordan Cove on May 23, 2008.

Cove indicated that the passing of an LNG carrier may cause fishing boats based out of Charleston to wait about 20 minutes before they could enter the channel.

In the event of an LNG spill from an LNG carrier in transit to the Jordan Cove terminal, and a related pool fire if there was ignition, there could be impacts on commercial ships or fishing boats. However, with the conditions outlined in the Coast Guard WSR being implemented, the likelihood of an LNG carrier incident is extremely remote, and therefore, there should be no significant impacts on commercial ship traffic in the Coos Bay navigation channel.

Airport

The Southwestern Oregon Regional Airport is located in the city of North Bend, directly across the bay to the east from the proposed Jordan Cove LNG terminal. The end of runway 4-22 is about 1 mile from the middle of the Coos Bay navigation channel. It is estimated that by the year 2010, there would be 1,624 commercial flights, 750 general aviation flights, and 125 military flights annually using the airport.

Flights taking off or landing at the airport and using runway 4-22 would pass over the Lower Jarvis Range portion of the waterway that would be used by LNG carriers transiting to the terminal. Planes should be about 300 feet above the water after take off or during approach when crossing this portion of the navigation channel. The planes should fly above the air draft for an LNG carrier, which would be about 150 feet high. At a speed of 5 knots it would take an LNG carrier about 4 minutes to transit the entire Lower Jarvis Range, and about 4 minutes to pass by the airport runway. Based on 80 LNG carriers coming to the terminal in a year, these carriers would pass by the airport 4 times a week.

Jordan Cove believes it should be able to coordinate with the airport authority regarding the schedule for arrival of LNG carriers so that it would not disrupt air traffic using runway 4-22. The Coos County Airport District, which operates the airport, has stated that the airport would not have to stop operations while an LNG carrier was transiting in the waterway past the airport. Currently, commercial ships carrying petroleum products transit in the waterway by the airport without incident relating to air traffic, and the Coos Bay Pilots Association foresees no delays for airplanes using the airport resulting from LNG marine traffic in the waterway.

4.8.1.9 Environmental Justice

Executive Order 12898 requires federal agencies to address the adverse health or environmental effects of its programs, policies, and activities on minority or low-income populations. That Executive Order also requires that documents, notices, and hearings related to a project be made readily available to the public. As discussed in section 1.6, the FERC issued notices and held public meetings to inform local communities about the Project, and provide information about involving the public in the FERC review process. All documents that form the administrative record for these proceedings are available to the public through the eLibrary link on the FERC's Internet web page (at www.ferc.gov).

Table 4.8.1.9-1 describes the ethnic and racial composition and income distribution of the communities occurring within the Zones of Concern along the waterway for LNG marine traffic. Data are provided for the cities of Coos Bay and North Bend, and the unincorporated community of Barview, as well as Coos County and the State of Oregon. Data are also provided for the two census tracts located within 2 miles of the waterway and the Coquille Reservation Block Group

6, which consists of two reservation areas may be overlapped by the Zones of Concern. Approximately 61 percent of the population of the Coquille Reservation Block Group 6 identified as American Indian in the 2000 Census (table 4.8.1.9-1) and represents a community with a disproportionately high percentage of a minority when compared to the applicable county and census tract benchmarks. Approximately 2 percent of the Coos County population identified as American Indian in 2000. This percentage was slightly higher in the two census tracts overlapped by the Zones and Concern, with 4 percent and 3.1 percent of the population identifying as American Indian in Census Tracts 5.01 and 5.02, respectively (table 4.8.1.9-1).

The headquarters for the Coquille tribe is in the city of North Bend, while the headquarters for the Coos tribes is in the city of Coos Bay. The Coquille Economic Development Corporation manages the Mill Casino and Hotel in Coos Bay, and Coquille Cranberries operates in North Bend. We discuss these Indian tribes and their concerns about the Project in more detail in section 4.10 of this EIS.

Table 4.8.1.9-1

Race and Ethnicity in Communities along the Waterway for LNG Marine Traffic

		Percent of Total						
	Total	White a/	Hispanic or Latino	Black or African American a/	American Indian and Alaska Native a/	Asian a/	Other Race b/	Two or more races
Oregon	3,421,399	83.5	8.0	1.6	1.2	2.9	0.3	2.4
Coos County	62,779	90.2	3.4	0.3	2.2	0.9	0.3	2.8
Barview CDP	1,872	89.9	3.0	0.2	3.3	1.1	0.2	2.4
Coos Bay	15,374	88.4	4.5	0.3	2.1	1.4	0.4	2.8
North Bend	9,544	90.4	3.7	0.3	1.7	1.3	0.4	2.2
Census Tract 5.01 c/	7,238	85.0	5.6	0.5	4.0	1.4	0.3	3.2
Census Tract 5.02	2,935	89.5	2.4	0.2	3.1	1.5	0.2	3.1
Coquille Reservation Tribal Block Group 6 d/	198	22.7	9.6	0.5	60.6	0.0	0.0	6.6

Notes:
CDP = Census Defined Place
a/ Non-Hispanic only. The federal government considers race and Hispanic/Latino origin to be two separate and distinct concepts. People identifying Hispanic or Latino origin may be of any race. The data summarized in this table present Hispanic/Latino as a separate category.
b/ The "Other Race" category presented here includes census respondents identifying as "Native Hawaiian and Other Pacific Islander" or "Some Other Race."
c/ Data are presented here for the six block groups (Block Groups 1 to 6) in Census Tract 5.01 located within the three zones. Data for Census Tract 5.01 Block Groups 7 and 8 are excluded because these areas are not within the zones.
d/ The Coquille Reservation Tribal Block Group 6 consists of two reservation areas within the zones.
Source: U.S. Census Bureau 2000

No other communities with disproportionately high percentages of minorities have been identified within the Zones of Concern along the waterway for LNG marine traffic. The proportion of the population identifying as White in the 2000 Census exceeded the statewide average (83.5 percent) in Coos County, the cities of Coos Bay and North Bend, and Census Tracts 5.01 and 5.02 (table 4.8.1.9-1).

Coos County, and the cities of Coos Bay and North Bend, have lower per capita incomes than the state of Oregon, as a whole, and higher poverty rates. Coos County had a poverty rate in 2004 of 16 percent. Out of all Oregon counties, the Oregon Progress Board rated Coos County 14th on its economic index scale in 2007 (Oregon Progress Board 2007). LNG marine traffic

should not have adverse environmental impacts on communities with disproportionally high numbers of residents below the poverty line along the waterway.

4.8.2 LNG Terminal

LNG terminal construction and operation-related impacts are expected to occur within Coos County. As a result, the following analysis focuses on Coos County, although some construction workers may reside in surrounding counties.

4.8.2.1 Population

The Portland State University Population Research Center estimated that in July 2007, the population of Coos County was 63,050 people; which represented about a 4 percent increase since 2000. The two closest cities to the proposed Jordan Cove LNG terminal are North Bend, with a population estimated at 9,830 people, and Coos Bay, with a population of about 16,210 in July 2007 (Proehl 2008).

Construction of the terminal slip is expected to take approximately 20 months and employ an average workforce of 27 people for the duration of construction. The workforce would peak at 45 people during months 7 through 10. Employment would then decline until construction is completed 10 months later. Assuming that 41 percent of the slip construction workforce would commute daily from their homes to the job site (see the discussion below for the source of this percentage), the number of non-local workers would average 16 over the construction period, with a peak of 27 non-local workers in months 7 through 10.

Construction of the rest of Jordan Cove's LNG terminal is anticipated to last for 36 months. The construction labor force is expected to begin with 12 workers in the first month and rise to a peak of 929 workers in the 18th month. Employment would then decline until construction is completed. An average of 430 people would be working on site each month, with workers of different crafts required at different times.

An estimated 1,110 different jobs would need to be filled, with the average job lasting 14 months. According to the U.S. Department of Labor, 2.1 percent of construction workers quit their jobs each month. Applying that figure to the estimates developed for the Jordan Cove terminal suggests that the average worker employed during construction of the LNG terminal would be employed for 10.4 months or approximately 45 weeks.

Jordan Cove's economic consultant estimates that there is a construction labor pool of almost 72,000 people within a 4.5 hour commuting distance to Coos Bay. It is expected that about 41 percent of the employees working on construction of the Jordan Cove LNG terminal would commute between their homes and the job site. Black and Veatch, based on its past experience with other construction projects in mid-sized Oregon communities, assumes that 60 percent of the craft workers and 50 percent of staff employees would be "non-local" and require places to stay in Coos County. These workers would either temporarily move to the Coos Bay area or take-up overnight lodging on weekdays, commuting in from their permanent residences on Sunday nights and returning to their homes on Friday evenings. The number of non-local workers is estimated to average 255 people a month during construction, peaking at 549 employees mid-way through construction (ECONorthwest 2006b).

Combining the workers constructing the slip with the workers constructing the LNG terminal, an average of about 556 non-local employees per month would be working on the Jordan Cover project during peak periods. This would represent about a 9 percent increase in the total population of Coos County and a 21 percent increase in the combined populations of the cities of Coos Bay and North Bend. While these numbers indicate a large influx of new people into the local communities to work on the project, this influx would be relatively short term, with peak construction lasting for about ten months (between months 14 and 23 after project construction begins). At non-peak periods, we estimate an average of 241 non-local workers per month, or an increase of 4 percent over the present county total population and about a 9 percent increase in the combined populations of the cities of Coos Bay and North Bend. We believe that the local communities could absorb an increase of less than 10 percent of their populations without significant adverse impacts.

Operation of the proposed LNG terminal would require an estimated permanent staff of 56 employees. As many as 70 percent or 39 employees could be hired locally, with the remaining 17 workers hired from elsewhere and relocating to the area. The Port does not anticipate that additional staff would be needed to operate the slip. The permanent addition of 17 workers and their families to the local communities would not be a significant adverse impact to the regional population.

The construction and operation of the Jordan Cove LNG terminal should have positive economic benefits for the local communities, as the Project would generate income from wages, purchases, rental of housing, and taxes, as more fully discussed below. Negative impacts would include non-local workers competing with tourists for available housing.

4.8.2.2 Housing

In 2000, Coos County had a total of 29,247 housing units, with a 10.4 percent vacancy rate. There are 51 manufactured houses (mobile home) parks in Coos County, with 1,405 spaces. While there are no available statistics for occupancy rates at mobile home parks, Jordan Cove's economic consultant estimated that perhaps as many as half of those spaces could be vacant. There are 1,864 spaces in private and public campgrounds and RV parks in Coos County, with an average annual occupancy rate of 47 percent in 2006, and winter occupancy rates below 30 percent. The cities of North Bend and Coos Bay, combined, had 11,354 housing units in 2000. Within 35 miles of Coos Bay are more than 50 hotels with 2,358 rooms, with an additional 250 rooms to be found in small motels and bed-and-breakfast type facilities.

Because this region is a summer vacation destination for tourists, occupancy rates are lowest in the winter, averaging under 37 percent in January, and highest in the summer, with occupancy rates averaging almost 80 percent in August. However, even in August, there were an average of 868 unsold hotel/motel rooms available on a typical Sunday night (ECONorthwest 2006a).

Jordan Cove's economic consultant estimates that about 614 non-local employees would move to the Coos Bay area alone to work on construction of the LNG terminal and slip, combined, and 69 workers would move to the region with their families over the course of the 36 months it would take to build the terminal and slip. The analysis assumes that six percent of the non-local work force would share living quarters. During an average month, 27 additional families associated with the project would need local housing, with 56 non-local families moving to the area during peak months.

In total, during the 36-month-long construction period for the LNG project, it is estimated that about 600 temporary housing units would be needed for non-local labor and their families. The current and projected supply of vacant housing units, mobile homes, hotel and motel rooms, and RV sites should be adequate to accommodate this demand. There are about 30,000 housing units in Coos County, with a vacancy rate of 10.4 percent, and 2,608 rooms available at hotels and motels within 35 miles of Coos Bay, with vacancy rates ranging from 20 percent in August to almost 70 percent in January. In addition, there are about 3,270 mobile home and RV spaces in Coos County, with annual vacancy rates averaging almost 50 percent.

Labor supply data suggest that many of the projected workers would come from Eugene and Portland and commute home on weekends. The majority of non-local construction workers would be expected to need rooms Sunday through Thursday nights, freeing up hotel and motel rooms for Friday and Saturday overnight stays by tourists (ECONorthwest 2006a).

Operation of the LNG terminal would employ an estimated permanent staff of 56 employees, with an estimated 70 percent or 39 employees expected to be local hires. The permanent relocation of approximately 17 employees and their families to the local area is not expected to affect local housing markets. The Port does not anticipate that additional staff would be needed to operate the slip.

4.8.2.3 Property Values

The closest residences to the proposed LNG terminal site are located across Coos Bay in the cities of North Bend and Coos Bay. The proposed facility would be visible from these residential communities. Visual impacts are discussed in section 4.7 of this EIS.

Based on the findings of a previous study that assessed the impact of 11 LNG storage facilities on residential property values and a review of property values within 1 mile of the existing LNG "peak storage" facilities in Newport and Portland, Oregon, ECONorthwest (2006b) concluded that there is no basis to anticipate that the proposed facility would reduce nearby property values. The cited study (Clark and Nieves 1994) reportedly found that when adjusted for other factors, the presence of LNG storage facilities had a positive effect on annual housing rents. ECONorthwest found that property values around the Newport LNG plant were not depressed and 25 homes within 0.5 mile and overlooking the facility had above average market values. They also argue that the presence of many other industrial and commercial properties around the Portland LNG facility and the continued movement of a new business to the area indicate that property values in the area are not negatively affected.

4.8.2.4 Economy and Employment

In 2007, the U.S. Bureau of Labor Statistics estimated that the labor force in Coos County consisted of 28,592 people, with an unemployment rate of 6.7 percent (U.S. Bureau of Labor Statistics 2007). Health care, social assistance, and retail were the highest ranking sectors for total wages. In 2006, per capita income in Coos County averaged $26,031. Transfer payments in 2004, including government payments for retirement, disability, unemployment insurance benefits, income maintenance payments, and veteran benefits totaled $6,454 per person, or about 25 percent of the Coos County per capita income. This indicates the influence of retirement in the local community, since retirement and disability payments accounted for up to 48 percent of the transfer payments. The median household income for the county in 2005 was $33,150.

The Port does not anticipate that additional staff would be needed to operate the slip. The Port estimated it may charge Jordan Cove up to $60 million dollars for capital investment services. In addition, the Port may collect receipts from users of the terminal up to $5.5 million per year, and $2 million and year in maintenance fees.

Construction of the proposed LNG terminal should have short-term beneficial economic impacts on the local community in terms of employment, wages, purchases of materials, indirect expenditures, and taxes. Construction of the LNG terminal would involve an average monthly workforce of 430 workers with a projected peak of 929 workers midway through construction. The construction workforce for the slip would average 27 workers with a projected peak of 45 workers. Jordan Cove estimated that about 41 percent of its workforce would be local, and could commute from their homes to the job site. Total wages for construction of the terminal and slip would be about $119 million. Local expenditures for goods and services are estimated to total $74 million during construction of the Jordan Cove terminal and slip.

Jordan Cove projected that over the course of the construction of the LNG terminal and slip about 683 non-local workers would be employed, for an average of about 10.4 months. These non-local laborers would need transient lodging in or near Coos County, including renting houses, apartments, mobile homes, hotel or motel rooms, or staying in campgrounds or RV parks. During their stay, they would be paying rent for housing.

Jordan Cove estimates that the average monthly employment of 475 construction workers for the LNG terminal and slip would result in indirect and induced employment impacts of 66 jobs and 279 jobs, respectively, resulting in total (direct, indirect, and induced) average monthly construction employment of 820 jobs. Direct impacts may be defined as activities that occur primarily on site at the location of the terminal and slip. These direct impacts have downstream impacts that are felt elsewhere in the economy. Indirect jobs are those with the suppliers who would provide goods and services to the construction project (and the suppliers of suppliers, usually a small number). Induced jobs are those supported by the incomes earned by all the employees, as well as by the profits made by self-employed and small business owners directly and indirectly employed by the construction project.

The indirect jobs supported for the project would be relatively low because most of the supplies and services would come from outside Coos County. The induced employment impacts are relatively high because the payrolls associated with the project would represent the introduction of a large amount of new money into the local economy for the duration of the construction period. These impacts were estimated using multipliers derived from an IMPLAN model developed to assess the impacts of the proposed LNG terminal (ECONorthwest 2006b). IMPLAN is a commercially available data and software program that uses an input-output modeling approach to evaluate local and regional economic impacts based on the relationships between and among industries.

Operation of the proposed LNG terminal is expected to have beneficial impacts to the local economy and is not expected to cause a reduction in long-term economic productivity or local employment opportunities. Operation of the LNG terminal would employ an estimated permanent staff of 57 employees and Jordan Cove estimated it would spend about $4 million on salaries per year, and up to $10 million per year in direct expenditures for goods and services. These employees would reside within Coos County and support an additional indirect (128 jobs) and induced (63 jobs) in the county, and result in a total of $17.3 million in personal income

being paid in the county (table 4.8.2.4-1). In addition, the terminal would also support an estimated 11 direct jobs, and 167 indirect and 103 induced jobs elsewhere in Oregon, as well as an additional $19 million in personal income (table 4.8.2.4-1).

TABLE 4.8.2.4-1

Economic Impacts of the LNG Terminal Operation and Associated Vessel Services (Income and Jobs)

	Coos County		Oregon, including Coos County	
	Income (million $)	**Jobs**	**Income (million $)**	**Jobs**
LNG Operation				
Direct	7.1	57	8.1	68
Indirect	7.9	128	20.5	295
Induced	2.3	63	7.7	166
Total	**17.3**	**248**	**36.3**	**529**
Vessel Services				
Direct	2.8	26	8.8	26
Indirect	2.4	38	4.7	68
Induced	0.7	21	2	43
Total	**5.9**	**85**	**15.5**	**137**

Source: ECONorthwest 2008

Vessel services associated with operation of the terminal are expected to result in an estimated 26 direct jobs, and 38 indirect and 21 induced jobs in Coos County, with total associated personal income of approximately $5.9 million. Vessel services would also support an estimated 30 indirect and 22 induced jobs elsewhere in Oregon, as well as an additional $9.6 million in personal income (table 4.8.2.4-1).

ECONorthwest also estimated the economic impact of an increase in household and business expenditures that they assumed would occur as a result of decreases in local energy costs as a result of operation of the LNG terminal. They estimated that these savings would support total (direct, indirect, and induced) employment of 61 jobs in Coos County and a further 409 direct, indirect, and induced jobs elsewhere in Oregon, as well as total personal income of approximately $23 million in the state as a whole (ECONorthwest 2008).

4.8.2.5 Tax Revenues

Construction and operation of the proposed LNG terminal is expected to have beneficial impacts on property and corporate tax revenue in Coos County. One estimate developed for the South Coast Development Council concluded that operation of the proposed LNG terminal, the Pacific Connector pipeline, and LNG carrier operations would generate annual net tax revenues of approximately $34.4 million by 2016, with $13.6 million generated in Coos County and $20.8 million generated elsewhere in Oregon. Approximately 70 percent of these tax revenues would accrue to state and local government, with the remaining 30 percent accruing to the Federal government (ECONorthwest 2006b, 2008).

ECONorthwest also estimated the economic impact of an increase in household and business expenditures that they assumed would occur as a result of decreases in local energy costs as a result of operation of the LNG terminal. They estimated that increased economic activity associated with these savings would generate annual net tax revenues of approximately $9.7 million by 2016, with $1 million generated in Coos County and $8.7 million generated elsewhere

in Oregon. Approximately 50 percent of these estimated revenues would accrue to state and local government, with the remaining 50 percent paid to the federal government (ECONorthwest 2006b, 2008).

4.8.2.6 Local Infrastructure and Public Services

Coos County has one sheriff's office and seven police departments. The city of Coos Bay has 34 paid and reserve police officers and the city of North Bend has 28 police officers. Coos County has 17 fire departments. The city of Coos Bay has 64 volunteer and paid firefighters, the city of North Bend has 48 paid and volunteer firefighters, and the town of Charleston has 33 volunteer and paid firefighters.

There are three acute care hospitals located in Coos County, with a total of 218 beds. Within the city of Coos Bay is the Bay Area Hospital, with 172 beds licensed for acute care.

The Coast Guard determined, in its WSR, additional safety and security needs related to LNG marine traffic in the waterway to the terminal. Jordan Cove, in partnership with local agencies, would be responsible for any additional expenditures related to public safety and security of the LNG unloading facility. This would be addressed in the Cost Sharing agreement that is part of the ERP. The ERP is discussed in more detail in section 4.12.

Because of the safety and security measures in place at the LNG terminal, to protect the public from an emergency situation, and the location of the terminal more than one mile from any residences, there is a very remote likelihood that an accident could result in the need for additional hospital facilities in excess of what is currently available in the county. Taking into consideration the low number of permanent non-local employees at the LNG terminal, and the Cost Sharing Agreement provided in the ERP, the Project should not have significant adverse impacts on local fire, police, or hospital services.

Electric power is provided to the Coos Bay area by Pacific Power and Light. Northwest Natural provides natural gas as part of its local distribution network. Water is provided to the North Spit by the Coos Bay North Bend Water Board.

Access to the terminal would be by way of the Trans-Pacific Parkway, which adjacent to the northwest boundary of Jordan Cove's parcel. Potential effects to the Trans-Pacific Parkway are evaluated in section 4.9.

At its peak LNG terminal construction activities would result in an additional estimated 53 family households in Coos County. Based on statewide data, the average non-single household headed by a person with a full-time job had 1.202 children. Using these data and county-specific data from the 2000 Census, ECONorthwest estimates that the average non-single household headed by a person with a full-time job in Coos County has 0.915 children enrolled in public schools. These data indicate that during the peak month of construction there would be 49 more public school students spread over five of the county's six school districts (ECONorthwest 2006a). These districts currently have a combined enrollment of approximately 8,400 students. The projected increase represents less than 1 percent of the current enrollment and, as a result, the overall impacts would not be significant. A September 27, 2006 email from the Superintendent of the North Bend School District to a consultant for Jordan Cove indicated that

the district would have "no problems admitting the new students into our schools" resulting from the Project.[2]

Operation of the LNG terminal would employ an estimated permanent staff of 57 employees, with an estimated 70 percent or 39 employees expected to be local hires. The permanent relocation of approximately 17 employees and their families to the local area would result in an estimated increase of 19 public school students in Coos County. The projected increase would represent less than 0.01 percent of the current enrollment in the Coos County school system and the overall impact on the school system would not be significant.

4.8.2.7 Recreation and Tourism

Recreation

The proposed Jordan Cove LNG terminal may affect recreational use of Coos Bay in that boaters on the bay would have to avoid construction activities around CM 7.5 during the Port's dredging of the access channel and slip for the terminal. Likewise, during operation of the LNG terminal, recreational boaters would have to keep outside of the safety and security zone established by the Coast Guard around LNG carriers at berth. Construction and operation of the LNG terminal should not have significant effects on recreational boating in Coos Bay, as boaters should be able to go around the terminal location and avoid Project-related activities.

As discussed in section 4.7, the North Spit of Coos Bay experiences limited recreational use. A 2002 study indicated that the area between Coos Bay and Tenmile Creek averages four recreationists per mile on the weekends, and three people per mile on weekdays. Recreational activities in this region include beach-combing, clamming and crabbing, surf fishing, picnicking, wildlife viewing, hiking, horseback riding, and ORV use (ECONorthwest 2006c). Construction and operation of the proposed LNG terminal would not preclude these activities from continuing. The proposed LNG terminal is on private land, formerly owned by Weyerhaeuser, that is not open to the public for recreational activities. No parks, recreational areas, or developed facilities would be directly affected by construction or operation of the LNG terminal. The only potential for effects on recreational use of other portions of the North Spit would be from an incident at the LNG terminal that resulted in a closure of the Trans-Pacific Parkway, limiting access. However, if this should occur, there are alternative routes that could be used (see section 4.9).

Tourism

Tourism in Coos County generated retail sales of $172.7 million and supported an estimated total of 2,790 jobs (about 8 percent of total county employment) in 2005 (Dean Runyan Associates 2007). In 2002, tourism-related spending represented 27 percent of total retail sales in Coos County (ECONorthwest 2006c). Tourism in the area mainly occurs during spring break and summer, when families visit the area. The County has little tourism related to business and commercial customers. Lodging in Coos County, therefore, mostly consists of smaller establishments dependent on leisure travelers who visit during spring break and summer and come mostly for the outdoor recreation. The proposed LNG terminal is not expected to adversely affect tourism in Coos County (ECONorthwest 2006c).

[2] This correspondence was included in Appendix A.5 of environmental Resource Report 5, filed as part of Jordan Cove's application to the FERC.

One way that construction of the LNG terminal could affect tourism, would be that out-of-town workers would compete with tourists for housing. Housing is discussed in section 4.8.2.2.

4.8.2.8 Other Commercial Activities

Industries

There are several industrial enterprises in proximity to the proposed Jordan Cove LNG terminal on the North Spit. Adjacent to the terminal on the northeast is the Roseburg wood chip facility. During construction of the slip for the LNG terminal, excavated materials would be trucked to the Weyerhaeuser Linerboard sites through the Roseburg property, and the slurry pipeline from dredge material and return water pipeline would also be located on Roseburg land. During operation of the Jordan Cove LNG terminal, access would come across the Roseburg tract. Also, certain facilities for the removal of NGLs would also be located on Roseburg property. The Port believes it is possible for Roseburg to relocate its wood chip ship berth to the commercial cargo side of the Jordan Cove terminal slip.

The Southport Lumber Company operated a sawmill and barge facility, at CM 6.3, about 1.2 miles south of the proposed Jordan Cove LNG terminal on the North Spit. It is adjacent to the north of the proposed Port Sand Storage site for dredged material from the creation of the terminal slip. The barge facilities at Southport would be utilized by barges taking sand away from the Port storage site for distance commercial uses.

At CM 5.6 on the North Spit is the D.B. Western Inc. berth, about 2 miles south of the proposed Jordan Cove LNG terminal. This company engages in vessel repair and construction work. The property is located on the south side of the Port Sand Storage site.

Airport

The Southern Oregon Regional Airport is located in the city of North Bend, directly across the bay to the east from the proposed Jordan Cove LNG terminal. The airport has three asphalt runways. Runway 4-22 is the primary instrument runway, and is 5,330 feet long and 150 feet wide. Currently, Horizon Air schedules five commercial passenger flights daily to and from Portland and Seattle into the North Bend airport. Federal Express and Ameriflight operate cargo flights into and out of this airport. The Coast Guard has five helicopters based there. The airport also houses up to 70 private planes. Potential impacts to this airport are addressed in section 4.9.

4.8.2.9 Environmental Justice

Given the setting at the proposed LNG import terminal, in an area of industrial zoned vacant land on the North Spit, neither low-income or minority groups would be disproportionately affected by construction or operation of the LNG terminal and slip. There are no residences within one mile of the LNG terminal. The closest city to the proposed Jordan Cove LNG terminal is North Bend. In 2000, the city of North Bend had an unemployment rate of 3.2 percent, compared to a state average of 4.2 percent. Approximately 90 percent of the population in North Bend identified as White in 2000, compared to a state average of 83.5 percent (table 4.8.1.9-1). Native Americans comprised 1.7 percent of North Bend's population compared to 1.2 percent statewide and 2.2 percent in Coos County.

The closest minority community identified near the LNG terminal is the Coquille Reservation Block Group 6, which consists of two reservation areas located approximately 5 miles south of

the terminal site. The headquarters for the Coquille Tribe is in the city of North Bend., while the Coos Tribe's headquarters is in the city of Coos Bay.

We know through scoping, that the Coos Tribes consider the area around the geographic location known as Jordan Cove, where the Weyerhaeuser Linerboard dredge disposal sites would be situated, to be a traditional cultural property because this area was the former location of historic Indian villages and cemeteries. This issue is discussed in more detail in section 4.10 of this EIS.

Jordan Cove did not pick the location for its proposed LNG terminal based on what percentage of minorities or low-income populations may or may not reside in the region. It selected Coos Bay because it is the largest deep draft port on the Pacific Coast between San Francisco and Puget Sound. The criteria used by Jordan Cove in its LNG terminal location selection process are discussed in detail in section 3.

4.8.3 Pacific Connector Pipeline

4.8.3.1 Population

Population data for the four counties that would be crossed by the proposed pipeline are summarized in table 4.8.3.1-1. The following section discusses the potential impact of construction and operation proposed pipeline on the regional population.

TABLE 4.8.3.1-1.

Selected Socioeconomic Characteristics for the Project Area

State/County	Population 2006	Percent Change in Population 2000-2005 a/	Persons per Square Mile 2000	Average Per Capita Income ($) 2000	Median Household Income ($) 2000	Civilian Labor Force 2000	Unemployment Rate (%) 2006
Oregon	3,700,758	6.4	35.6	$20,940	$40,916	1,742,638	5.4
Coos	64,820	3.1	39.2	$17,547	$31,542	27,700	6.9
Douglas	105,117	3.8	19.9	$16,581	$33,223	45,166	7.6
Jackson	197,071	7.7	65.1	$19,498	$36,461	87,189	5.8
Klamath	66,438	3.8	10.7	$16,719	$31,537	29,324	6.8

a/ These data represent the change from April 1, 2000 to July 1, 2005.
Sources:
Population 2006: U.S. Census Bureau 2007.
Percent Change in Population 2000-2005 and Persons per Square Mile 2000: U.S. Census Bureau 2006a.
Annual Unemployment Rates 2006: Oregon Employment Department 2007.

The pipeline traverses through a mainly rural region, with population densities ranging from 10.7 people per square mile in Klamath County to 65.1 people per square mile in Jackson County. In 2006, the combined populations of Coos, Douglas, Jackson, and Klamath Counties was nearly 433,500 people, or approximately 12 percent of the entire state of Oregon. Jackson County is the fastest growing county along the proposed pipeline route, with a 7.7 percent population increase between 2000 and 2005, while Coos County had the slowest growth rate.

The largest city in Douglas County is Roseburg, the county seat of government, with a population of 21,255 people in 2007. The pipeline in Douglas County would also pass in the vicinity of the cities of Winston, with a population of 5,780 people, and Myrtle Creek, with a population of 3,630 people in 2007.

The largest city in Jackson County is Medford, the county seat, with a population of 75,675 people in 2007. The pipeline in Jackson County would pass nearby the city of Shady Cove, with a population of 2,820 people in 2007.

The largest city in Klamath County is the county seat of Klamath Falls, with a population of 21,040 people in 2007. Near the terminus of the pipeline is the city of Malin, with a population of 800 people in 2007 (Proehl 2008).

Construction of the pipeline would extend over 2 years. Most of the work would be done between April and November, with the workforce expected to peak during the middle of each season and then gradually taper off toward the end of the season. The pipeline would mostly be installed during the second year, with a peak workforce of 1,844 people spread over five construction spreads. The average workforce for each construction spread would be about 280 workers per month, with a peak of 369 workers mid-season. The average construction-related job for the Pacific Connector pipeline would last between 3 to 8 months per season, with some functions working for longer periods.

Pacific Connector estimates that approximately 50 percent of the construction jobs for its pipeline would be filled by local workers. The average local union hiring for this Project would be about 700 people. Local firms would be hired to perform some specific tasks, such as logging, surveying, and environmental protection and restoration. The number of non-local hires would peak at approximately 922 workers, or 184 per construction spread, with an average monthly total of 140 non-local workers.

Long-term operation of the proposed pipeline would require an estimated permanent staff of five employees. These permanent operational employees would be stationed and reside at different locations along the pipeline corridor, but would report to a main office in Eugene, Oregon.

The construction and operation of the Pacific Connector pipeline should not have significant adverse impacts on the populations in the counties along the pipeline route. Half the construction crew would be local hires. At its peak, pipeline construction would bring in about 922 non-local workers. Based on its experience building other large pipeline projects in the West, Williams does not expect many of the out-of-town laborers to bring their families with them to the job site. This is because, in part, the jobs are short-term in duration, lasting less than 8 months, and broken into two seasons. We estimate that if 10 percent of the non-local workers brought their families to the project area, and each family averaged 3 people, there could be a total influx of not more than 1,200 people directly related to project construction relocating to the region. This represents a less than 3 percent increase in the total population of the four counties over which the pipeline would pass. The project workforce would be distributed throughout the four counties, over at least five construction spreads. The local communities near the pipeline route should easily be able to absorb this influx of out-of-town workers.

The construction and operation of Pacific Connector's pipeline would have some economic benefits for the region, because of expenditures for wages, supplies, room rentals, and taxes. Negative impacts would include workers competing with tourists for housing, as discussed below.

4.8.3.2 Housing

Approximately 55,650 rental housing units were identified in the 2000 Census from the four counties that would be crossed by the proposed pipeline. About 4,000, or 8.5 percent, of these units were identified as vacant and available for rent (table 4.8.3.2-1). Available rental units in 2000 ranged from about 750 in Klamath County to 1,250 in Jackson County.

TABLE 4.8.3.2-1.

Project Area Housing Units, 2000

	Coos	Douglas	Jackson	Klamath	Project Area Total
Total Housing Units	29,247	43,284	75,737	28,883	177,151
Occupied	26,213	39,821	71,532	25,205	162,771
Vacant or Vacant Part-Year:	3,034	3,463	4,205	3,678	14,380
Seasonal use	843	734	834	1,473	3,884
Rented/sold, unoccupied	163	241	349	157	910
For rent	949	1,060	1,250	747	4,006
For sale, other	1,079	1,428	1,772	1,301	5,580
Total Rental Housing a/	9,298	12,320	25,218	8,814	55,650
Rental Vacancy Rate b/	10.2%	8.6%	5.0%	8.5%	8.5%

Note:
a/ This total includes both occupied and vacant rental housing.
b/ This rate is based on the number of vacant units available "For rent" divided by the total number of rental units.
Source: U.S. Census Bureau 2006b.

Pacific Connector developed partial estimates of the number of motel rooms and RV hookups for communities within the vicinity of the proposed pipeline route (table 4.8.3.2-2). These data should be considered partial estimates because they were gathered from the Oregon State Tourism Web site and local chamber of commerce organizations. These sources vary in level of detail and in some cases are likely based on subscription. In addition, this data collection effort focused on those communities in the immediate vicinity of the pipeline corridor and, as a result, excludes other potential commercial lodging and RV facilities that not in the immediate vicinity of the proposed pipeline but would be within commuting distance. Pacific Connector would not allow for the use of temporary construction camps along the pipeline route to house non-local employees.

Pacific Connector developed general estimates of use by housing type and estimated how many units of each type would be required per county (table 4.8.3.2-3).

The number of non-local construction workers would peak at approximately 922 workers or 184 per construction spread with an average monthly total of 140 workers. Based on its previous pipeline construction experience, Williams estimated that about 30 percent of the non-local workers would provide their own temporary housing by bringing in RVs or pop-up trailers, or setting up tents in campgrounds (table 4.8.3.2-3). They would need to find hook-ups at RV camps or vacant sites in campgrounds. Pacific Connector estimated that at peak construction periods, about 277 RV hookup sites may be needed for construction crew housing across the entire four county pipeline route, out of a total universe of 3,764 existing RV hookups in those counties. The demand for RV hookups would range from about 9 percent of the available spaces in Jackson County to 61 percent of the estimated available hookups in Klamath County.

TABLE 4.8.3.2-2.

Project Area Rental Housing, Motel Rooms, and RV Hookups

Housing/County a/	Coos	Douglas	Jackson	Klamath
Available Rental Housing b/	606	488	693	408
Total Motel Rooms c/	1,064	1,537	3,830	1,089
Total RV Hookups c/	1,166	1,170	1,247	181
Estimated Available Motel Rooms d/	213	307	766	218
Estimated Available RV Hookups e/	583	585	624	91

Notes:
a/ Data are provided for the communities in each county in the vicinity of the pipeline. These communities are as follows: Coos County—Bandon, Charleston, Coos Bay, Coquille, North Bend; Douglas County—Canyonville, Green, Myrtle Creek, Roseburg/Roseburg North, Winston/Dillard; Jackson County—Ashland, Central Point, Eagle Point, Medford, Phoenix, Shady Cove, Talent, White City; Klamath County—Bonanza, Klamath Falls, Merrill-Malin.
b/ Data are for vacant housing units that were identified as available for rent in the 2000 Census (U.S. Census Bureau 2006a).
c/ These data should be considered partial estimates because they were gathered from the Oregon State Tourism Web site and local chamber of commerce organization and are variable in level of detail and in some cases likely based on subscription.
d/ The number of available rooms is assumed to be 20 percent of the total based on the peak monthly occupancy rate of 80 percent estimated for Coos County in August (ECONorthwest 2006b).
e/ The number of available RV hookups is assumed to be 50 percent of the total based on an average annual occupancy rate of 50 percent estimated for Coos County (ECONorthwest 2006b).

TABLE 4.8.3.2-3

Estimated Housing Demand by Pacific Connector Workers by Housing Type

Temporary Housing	Estimated Use (Percent)	Estimated Numbers Per County
Rental Houses	10	23
Mobile Homes	5	12
Apartments	25	58
Hotel Rooms	30	69
Camp Sites	0	0
RV hook-ups	30	69
Total	**100**	**231**

Subtracting the non-local workers who find accommodations at RV camps and campgrounds, there would be about 645 non-local workers who would need standard temporary accommodations. Pacific Connector estimated that across the entire four counties crossed by the pipeline, during peak construction periods there may be a total of about 65 rental houses, 33 mobile homes, 162 apartments, and 194 hotel/motel rooms needed to house out-of-town employees. Those counties combined contain a total of about 2,195 rental housing using and 7,520 motel rooms. It is assumed that about 129 units would be required for each of its pipeline spreads to house non-local workers. By county, Pacific Connector expects to need an average of 23 rental houses, 12 mobile homes, 56 apartments, and 70 hotel rooms for construction employee housing. There may be some counties where two spreads are operating at the same time. There would also be competition for housing from tourists who seek accommodations in the region during the summer.

Nevertheless, the Project should not result in significant adverse impacts on housing in the four counties crossed by the proposed pipeline. There should be sufficient housing units to accommodate the peak estimated non-local workforce, even during the tourist season. In the worse case scenario of two construction spreads within one county at the same time, there would

be a total demand for about 258 rooms for both spreads combined at peak construction periods. This would represent less than 18 percent of the available vacant rental housing and hotel rooms in Jackson County, and 41 percent of the available standard housing in Klamath County. Because there would be five construction spreads distributed over four counties, and construction would divided between 2 years, the impacts of pipeline construction on housing would be minimized. In the event that temporary housing should become limited in the immediate vicinity of a particular spread, workers would have to commute greater distances from other cities in the project vicinity. Operation of the proposed pipeline would require five permanent employees who would be stationed and reside at different locations along the pipeline. This small number of operational employees would have no impact on the local housing markets.

4.8.3.3 Property Values

Approximately 151 miles, or 66 percent, of the proposed pipeline route would cross private property. The remaining 79 miles (34 percent) of pipeline route would cross public lands administered by the BLM (18 percent), USFS (12 percent), BOR (0.14 percent), State of Oregon, and various counties and cities (3 percent). Pacific Connector would need to obtain a Right-of-Way grant from the BLM, also representing the BOR and USFS, in order to cross federal lands.

For private and non-federal public lands, Pacific Connector would need to negotiate a mutually agreed upon easement for its pipeline with the landowners. The agreement between Pacific Connector and the landowner would specify compensation for the easement, and for damages, loss of use during construction, and loss of renewable and nonrenewable or other resources. In situations where Pacific Connector is unable to reach an agreement with a landowner, and the Project is authorized by the FERC, the Certificate for the pipeline conveys with it the right of eminent domain under section 7h of the NGA. Pacific Connector could initiate condemnation proceedings, and the value of the easement and the amounts for compensatory damages would be determined by a local state or district court.

The impact a pipeline may have on the value of a tract of land depends on many factors, including the size of the tract, the values of adjacent properties, the presence of other utilities, the current value of the land, and the current land use. Subjective valuation is generally not considered in appraisals. This is not to say that the pipeline would not affect resale values. A potential purchaser of property may make a decision to purchase land based on his or her planned use, such as agricultural, future subdivision, or second home on the property in question. If the presence of a pipeline renders the planned use infeasible, it is possible that a potential purchaser would decide not to purchase the property. However, each potential purchaser has different criteria and differing capabilities to purchase land.

INGAA conducted a national case study to determine if the presence of a pipeline on a piece of property affected the property value or sales price of the property. The INGAA Foundation Natural Gas Pipeline Impact Study (INGAA 2004) found that there was not a significant impact on the sales price of properties located along natural gas pipelines. It was further determined that neither the size of the pipeline (diameter) nor the product carried by a pipeline has any significant impact on sales price. Whatcom County, Washington also analyzed the impacts on property values associated with pipelines to determine the effect the Olympic pipeline explosion had on sales of real estate on or near the pipeline route. Its analysis determined that the

explosion of the pipeline, which transported liquid petroleum fuel, had little effect on property values (Whatcom County 2001).

4.8.3.4 Economy and Employment

Tables 4.8.3.4-1 and 4.8.3.4-2 present data on the current affected environment for the counties crossed by the Pacific Connector pipeline, in terms of employment by economic sectors, and per capita income. According to the U.S. Bureau of Labor Statistics, in 2007 the total work force of the four counties crossed by the pipeline combined was 209,123 people. Outside of the government, the sectors of private industry employing the most people in Douglas County in 2004 were manufacturing, consumer services, retail trade, and social services. In Jackson County the leading private employment sectors were consumer services, retail trade, producer

TABLE 4.8.3.4-1.

Project Area Employment by Economic Sector, 2004

	Oregon	Coos	Douglas	Jackson	Klamath
Total Employment a/	2,136,790	32,001	53,763	113,069	32,626
	Percent of Total Employment				
By Type:					
Wage and salary employment	79	76	76	75	75
Proprietors employment	21	24	24	25	25
By Industry:					
Farm employment	3	3	5	2	6
Nonfarm employment	97	97	95	98	94
Private Employment	84	78	80	87	77
Forestry, fishing, related activities, and other	2	6	4	3	(D)
Mining	0	1	0	0	(D)
Utilities	0	0	0	0	0
Construction	6	5	5	7	5
Manufacturing	10	5	13	7	9
Wholesale trade	4	2	2	3	2
Retail trade	11	13	12	15	12
Transportation and warehousing	3	4	4	3	3
Finance, insurance, and real estate	8	6	6	8	7
Consumer services b/	14	15	13	16	15
Producer services b/	14	13	9	13	(D)
Social services b/	12	9	11	13	11
Government and Government Enterprises	13	19	15	10	17
Federal, civilian	1	1	3	1	3
Military	1	1	1	1	1
State and local	11	16	12	8	13

Notes:

(D) Not shown to avoid disclosure of confidential information. Estimates for these items are, however, included in the totals.

a/ Total employment includes self-employed individuals. Employment data are by place of work, not place of residence, and, therefore, include people who work in the area but do not live there. Employment is measured as the average annual number of jobs, both full- and part-time, with each job that a person holds counted at full weight.

b/ Nine 2-digit North American Industry Classification System categories are combined into these three divisions for ease of presentation. Consumer service includes other services; arts, entertainment, and recreation; and accommodation and food services. Producer services includes information; professional and technical services; management of companies and enterprises; and administrative and waste services. Social services includes educational services; and health care and social assistance.

Source: U.S. Bureau of Economic Analysis 2006.

TABLE 4.8.3.4-2.

Components of Per Capita Income, 2004

	Oregon	Coos	Douglas	Jackson	Klamath
Per Capita Income a/	$30,561	$26,031	$25,623	$28,531	$24,917
Earnings b/	$20,334	$13,737	$14,880	$17,478	$14,207
Transfer Payments c/	$4,630	$6,454	$6,342	$5,009	$5,951
Dividends, interest, and rent	$5,597	$5,840	$4,401	$6,044	$4,759
Percent of Total					
Earnings	67%	53%	58%	61%	57%
Transfer Payments	15%	25%	25%	18%	24%
Dividends, interest, and rent	18%	22%	17%	21%	19%

Notes:
a/ Total per capita income consists of earnings, transfer payments, and dividends, interest, and rent.
b/ Earnings includes wages and salaries, other labor income, and proprietors' income.
c/ Transfer payments consist mainly of government payments to individuals, including retirement, disability, and unemployment insurance benefit payments, income maintenance payments, and veterans benefit payments.
Source: U.S. Bureau of Economic Analysis 2007.

services, and social services. In Klamath County, the highest percentages of people were employed in consumer services, retail trade, and social services. Per capita income for the entire state of Oregon in 2004 averaged $30,561, while in the project area it ranged from $28,531 in Jackson County to $24,917 in Klamath County. In Douglas County, 25 percent of the per capita income was derived from transfer payments, while 18 percent of the per capita income came from that source in Jackson County. Median household income for the entire state of Oregon in 2005 averaged $43,065, while in the project area it ranged from $40,997 in Jackson County to $33,150 in Coos County (USDA Economic Research Service). Out of 36 counties in the state, the Oregon Progress Board rated Jackson County 4th, Douglas County 15th, and Klamath County 27th on its economic index scale.

Construction of the pipeline would involve an average monthly workforce of 1,400 workers with a projected peak of 1,844 workers in the middle of the second construction season. Pipeline construction crew would be spread over the length of the pipeline in five construction spreads. Operation of the proposed pipeline would require five permanent employees.

Construction of the proposed pipeline is expected to have beneficial impacts on the local economy. The entire cost of the Pacific Connector pipeline project is estimated to be about $900 million. Of this amount, the total construction payroll is assumed to be almost $166 million. Costs for materials and equipment bought or brought to Oregon are estimated at about $320 million. About $14 million would be spent during construction for local professional contracted services, such as logging and hauling. Out-of-town employees are expected to spend over $7.8 million total for housing, including hotel/motel rooms and camper spaces. Using an IMPLAN model, Pacific Connector's economic consultant[3] projected that indirect expenditures related to construction of the proposed pipeline would total more than $24.2 million.

[3] On March 11, 2008 Pacific Connector filed with the FERC an *Economic Impact Analysis* produced by Lloyd Levy Consultants, LLC. This document is available to the public on the FERC's Internet Web site at www.ferc.gov. Using the "eLibrary" link, select "General Search" and enter the docket number (CP07-441) and date range.

Pacific Connector would hire five permanent employees to operate the pipeline. Total compensation for these operational workers would be about $345,000 per year. A. economic consultant to Pacific Connector estimated that indirectly operation of the pipeline would generate a total of about $137,000 (Levy 2008a).

A report produced in 2006 by REMI Northwest for the Southwest Oregon Economic and Transportation Team[4] forecasts the creation of around 400 jobs in counties crossed by the pipeline, and generation of about $50 million in Gross Regional Project by 2020 as a result of the Pacific Connector project. The results of an economic impact study of the Jordan Cove Project prepared by ECONorthwest (2006b) for the South Coast Development Council are discussed in section 4.8.2.4.

4.8.3.5 Tax Revenues

The proposed pipeline would generate tax revenues for the local economy during both the construction and operation phases of the Project.

During construction, the Pacific Connector pipeline would generate approximately $13.2 million in state income tax based on an estimated construction payroll of $165.5 million and an average state income tax rate of 8 percent. Temporary workers associated with pipeline construction would generate approximately $45,000 in state lodging taxes. Personal property taxes on approximately $320 million worth of equipment and materials either purchased in or brought into Oregon would generate $4.8 million in tax revenues (table 4.8.3.5-1). Pacific Connector estimates that the construction phase of the pipeline project would generate approximately $18 million in state tax revenues.

During operation, the proposed pipeline would generate approximately $32.5 million in annual federal taxes based on projected income during the first year of operation. The proposed Pacific Connector pipeline would not involve federal land disposal, acquisition, or exchange and is,

TABLE 4.8.3.5-1.

Estimated Tax Revenues from Construction of the Pacific Connector Pipeline

Tax	Estimated Tax Revenues
Federal Taxes	TBD
State Income Tax a/	$13,240,000
Lodging Tax b/	$44,835
Personal Property c/	$4,800,000
Total	**$18,084,835**

Notes:
TBD—To be determined
a/ Based on a state income tax rate of 8 percent applied to a total estimated construction payroll of $165,500,000.
b/ Based on a 1 percent lodging tax on an estimated $4,483,500 dollars spent on lodging (assumes $35 per day for 183 days for 700 workers [assuming that half the projected labor force temporarily relocates to the state]).
c/ Personal Property Tax is based on an estimated $320,000,000 of equipment and materials either purchased in Oregon or brought into Oregon. This is an annual tax based on $15 on $1,000 of value. Note: this number is overstated because some of the cost of materials and equipment is for supplies that are expendable.

[4] The final report by REMI Northwest, 31 December 2006, *Transportation Investment Economic Impact Analysis*, was included as Appendix 5B in environmental Resource Report 5 filed with Pacific Connector's application to the FERC. This report is available to the public on the FERC's Internet Web site at www.ferc.gov. Using the "eLibrary" link, select "General Search" and enter the proper docket number (CP07-441) and date range (September 2007).

therefore, not expected to affect existing Payment in Lieu of Taxes (PILT) payments to the affected counties.[5]

During operation the proposed pipeline would generate approximately $6.6 million in annual state taxes based on projected income during the first year of operation (table 4.8.3.5-2).

TABLE 4.8.3.5-2.

Estimated Annual Tax Revenues from Operation of the Pacific Connector Pipeline

Tax a/	Estimated Tax Revenues
Federal Income Tax on Earnings	$32,500,000
State Income Tax on Earnings	$6,600,000
Personal Property Tax	$8,400,000
Total	**$47,500,000**

Notes:
a/ Based on projected income during the first year of operation.

Following construction of the proposed pipeline Pacific Connector would provide estimates of the value of the installed facilities in each county to the Oregon Department of Revenue. Personal property taxes would be levied by the Oregon Department of Revenue based on these values with a portion of the associated revenues returned to the affected counties. The proposed Pacific Connector pipeline would generate an estimated $8.4 million in property tax revenues in its first year of operation. These revenues would be distributed among the affected counties as follows: Coos County - $2.1 million; Douglas County - $1.8 million; Jackson County - $2.3 million; and Klamath County - $2.2 million.

4.8.3.6 Local Infrastructure and Public Services

Law Enforcement and Fire Protection

There are approximately 30 police departments and 541 police officers located in the counties that would be crossed by the proposed pipeline, with the number of police officers ranging from an estimated 62 in Klamath County to 244 in Jackson County (table 4.8.3.6-1).

Approximately 61 fire departments, 429 full-time firefighters, and 876 volunteer firefighters are located in the counties that would be crossed by proposed pipeline, with the total number of firefighters (full-time and volunteer) ranging from an estimated 184 in Klamath County to 514 in Jackson County.

The DOT is mandated to provide pipeline safety, and the DOT pipeline standards are published in 49 CFR Parts 190-199. Part 192 of 49 CFR specifically addresses natural gas pipeline safety issues. Part 192 requires that each operator must establish and maintain liaison with appropriate fire, police, and public officials to learn the resources and responsibilities of each organization that may respond to a natural gas pipeline emergency, and to coordinate mutual assistance. The operator must also establish a continuing education program to enable customers, the public, government officials, and those engaged in excavation activities to recognize a gas pipeline emergency and report it to appropriate public officials. Pacific Connector would provide the appropriate training to local emergency service personnel before the pipeline is placed in service. No additional specialized local fire protection equipment would be required to handle pipeline

[5] The PILT program is designed to compensate local governments for lost property tax revenue associated with federal lands.

TABLE 4.8.3.6-1.

Law Enforcement and Fire Protection Resources by County

County a/	Police Departments	Police Officers	Fire Departments	Full-time Firefighters	Volunteer Firefighters
Coos	7	82	17	48	262
Douglas	8	153	19	59	238
Jackson	11	244	13	239	275
Klamath	4	62	12	83	101
Total	**30**	**541**	**61**	**429**	**876**

Note:

a/ Data are provided for the communities in each county in the vicinity of the pipeline. These communities and Rural Fire Protection Districts (RFPDs) are as follows:

Coos County—Bandon, Charleston RFPD, Coos Bay, Coquille, Dora-Sitkum Rural Fire Department, Fairview RFPD, Hauser RFPD, North Bend, Myrtle Point, Powers;

Douglas County—Days Creek, Douglas County Sheriff, Glide, Myrtle Creek, North Douglas County Fire and EMS, Oakland, Reedsport Volunteer RFPD, Roseburg/Roseburg North, Roseburg VA, Sutherlin, Tri City RFPD, Winston/Dillard;

Jackson County—Applegate RFPD, Ashland, Butte Falls, Central Point, Colestin RFPD, Eagle Point, Jackson County Fire District, Jackson County Sheriff, Jacksonville, Medford, Phoenix, Rogue River, Rogue River RFPD, Rogue Valley International Airport, Shady Cove, Talent, White City;

Klamath County—Bly RFPD, Bonanza RFPD, Crescent RFPD, Crater Lake National Park, Harriman RFPD, Klamath County Fire Districts #1 and #5, Klamath County Sheriff, Klamath Falls, Malin, Merrill.

emergencies. In addition, to offset potential demands on local services Pacific Connector has stated that it would consider implementing a fire prevention and control program consistent with the Oregon Department of Fire Protection Program, as well as BLM and USFS requirements. See additional discussion of pipeline safety in section 4.12 of this EIS.

Medical Facilities

There are eight hospitals in the four counties that would be crossed by the Pacific Connector pipeline, with a total of 1,094 beds (table 4.8.3.6-2). There are emergency medical providers with helicopter medical evacuation services available in Medford, Oregon. In addition, there are five Level III Trauma System Hospitals that can receive helicopter transport and two level IV Trauma Hospitals in the Project area.[6]

To offset potential demands on local services, Pacific Connector has stated that it would consider implementing a health and safety program that would include training on-site personnel in first aid and cardio-pulmonary resuscitation (CPR).

The Pacific Connector pipeline should not have significant adverse impacts on local police or fire departments or regional hospitals. The pipeline would be safely installed and operated according to DOT regulations, and would not be a threat to public safety. In addition, Pacific

[6] Trauma hospitals differ from other hospitals in that they guarantee the immediate availability of surgeons, anesthesiologists, physician specialists, nurses, ancillary services, and resuscitation life-support equipment 24 hours a day and are dedicated to the care of trauma patients. Trauma facilities in Oregon are designated as Level I, II, III, or IV, with Level I and II centers offering the highest level of care (ODHS 2008).

TABLE 4.8.3.6-2.

Number of Hospitals and Beds in the Project Area

County	Number of Hospitals	Number of Beds
Coos	3	218
Douglas	1	153
Jackson	3	547
Klamath	1	176
Total	**8**	**1,094**

Connector would have an emergency response plan in place. Existing police, fire protection, and medical services should be adequate to handle issues resulting from the influx on non-local employees working on pipeline construction. During peak construction periods, we estimated that not more than 1,200 people directly related to the pipeline project (including out-of-town employees and their families) may move into the project area. But these people would be spread out over five construction spreads over 2 years.

Schools

The number of school districts and school enrollment by district within the four counties that would be crossed by the Pacific Connector pipeline are summarized by county in table 4.8.3.6-3. Because of the short duration of pipeline construction, non-local pipeline construction workers that may move to the area for the project typically do not relocate with their families. The project will be built in the spring, summer and fall when school is out or when it is inconvenient to relocate because of school schedules. Williams past experience with similar projects suggests that most workers work for 6 weeks to 3 months and then move to the next job. Therefore, the temporary influx of construction workers to the area during pipeline construction would not measurably impact local school enrollment.

Pacific Connector estimates that operation of the proposed pipeline would require five permanent employees who would be stationed and reside at different locations along the pipeline. The permanent relocation of five employees and their families to the area, spread over the four counties crossed by the pipeline, would not be expected to measurably affect enrollment of local schools.

Utilities

The basic utilities for each county crossed by the pipeline are listed on table 4.8.3.6-4. In Coos County Pacific Power provides electricity, Northwest Natural provides natural gas, Coos Bay-North Bend Water Board provides water, and Coos Bay Sanitary Service and North Bend Sanitation do trash removal. In Douglas County, Pacific Power and Douglas County Cooperative provide electricity, Avista provides natural gas, there are several water districts. In Jackson County, Pacific Power provides electricity, Avista natural gas, several water companies. In Klamath County Pacific Power provides electricity, Avista natural gas, several water services.

TABLE 4.8.3.6-3.

Number of School Districts and Student Enrollment in the Project Area for the 2006-2007 School Year

County	Number of School Districts	Enrollment
Coos	6	8,393
Douglas	14	16,299
Jackson	9	28,966
Klamath	2	10,511
Total	**31**	**64,169**

TABLE 4.8.3.6-4

Utilities Crossed by the Pipeline by County

County	Water & Sanitation	Electric & Heat
Coos	Coos Bay-North Bend Water Board Bandon Utility Department Lakeside Water District SRCA Water District Glide Water Association Coos Bay Sanitary Service North Bend Sanitation	Pacific Power Coos Curry Electric Cooperative, Inc. Bandon Utility Department Ferrellgas Northwest Natural Gas
Douglas	City of Roseburg Roberts Creek Water District Winston-Dillard Water District South Umpqua Water Association Umpqua Basin Water Association Incorporated Roseburg Disposal Roseburg Urban Sanitary Douglas County Landfill Douglas County Public Works	Avista Utilities Douglas Electric Cooperative Pacific Power AmeriGas Suburban Propane
Jackson	Rogue Valley Sewer Services Shady Cove Water Works Southern Oregon Sanitation Inc. Medford Water Commission Big Butte Springs Reservoir Rogue Disposal & Recycling City of Ashland Water	Avista Utilities Pacific Power City of Ashland Electric Department W P Natural Gas
Klamath	Crescent Water Association Bly Water & Sanitary District Garbage & Rubbish Collection	Avista Utilities Pacific Klamath Energy Inc. Pacific Power Klamath Natural Gas Service AmeriGas Cascade Natural Gas Ed Staub & Sons Petroleum Incorporated

Pacific Connector's application claimed that construction of the pipeline would have only minor, temporary impacts on local community facilities, services, and infrastructure. Pacific Connector would need to hook up to local utilities, including electric and telephone lines, at its proposed Jordan Cove Receipt Meter Station, Clarks Branch Delivery Meter Station, Shady Cove Delivery Meter Station, Tule Lake Meter Station, Russell Canyon Meter Station, Buck Butte Meter Station, and Butte Falls Compressor Station. Pacific Connector would also need electric power and telephone lines at its proposed contractor yards.

Other than water required for hydrostatic testing and dust control, Pacific Connector claims it does not require public water or sewer services. The pipeline would not require wastewater treatment or the construction or expansion of wastewater facilities and stormwater drainage systems.

Construction and operation of the proposed pipeline would generate minimal amounts of solid waste that would be accommodated by existing landfills and recycling programs.

Pacific Connector has estimated that approximately 2,700 cubic yards of solid waste would be removed from each construction spread during the 2 years of construction. For five construction spreads, the total estimated volume is approximately 13,500 cy. Pacific Connector would require that the construction contractor(s) remove and dispose of all solid waste generated from the pipeline project at approved solid waste disposal facilities. Pacific Connector has identified potential landfills and recycling facilities that may be utilized during construction (see table 4.8.3.6-5) and would require the contractor to identify all disposal locations proposed for use prior to construction. Solid waste generated by the project would be disposed of throughout the 2-year construction duration at multiple small-load intervals. Pacific Connector would comply with all federal, state, and local statutes and regulations related to wastewater, stormwater, and waste disposal.

TABLE 4.8.3.6-5

Potential Landfills and Recycling Facilities Available for Solid Waste Disposal During Construction of the Pacific Connector Pipeline

Coos County Solid Waste 55722 HWY 101 Coos Bay, OR 97420	Ashland Sanitary Services 170 Oak Street Ashland, OR 97520
City of Coos Bay Recycling Center 1210 S Broadway Coos Bay, OR 97420	Ashland Sanitary & Recycling Service 170 Oak St Ashland, OR 97520
Douglas County – Roseburg Landfill McClain Avenue – Exit 121 Roseburg, OR 97470	Valley View Landfill & Recycling 3000 N Valley View Rd Ashland, OR 97520
Roseburg Disposal Co 835 Se Sheridan St Roseburg, OR 97470	Rogue Disposal Services 20 South Grape Street Medford, OR 97501
Douglas County Public Works 1036 SE Douglas Roseburg, OR 97470	North Pacific Recycling and Textiles 407 Boardman St Medford, OR 97501
Sunrise North Side Donation & Recycling Center 2244 NE Stephens St Roseburg, OR 9747	Klamath County 343 Main Street Klamath Falls, OR 97601

4.8.3.7 Recreation and Tourism

Recreation

The proposed Pacific Connector pipeline would cross or pass within the vicinity of federal, state, and county lands designated for recreation use, as well as lands that offer dispersed recreation opportunities. These areas and the potential impact of the proposed pipeline on these areas are discussed in section 4.7 of this EIS. The primary impact on recreation would be from construction activities, including construction traffic on public roadways. Transportation is discussed in section 4.9 of this EIS. During operation of the pipeline, the right-of-way through forested areas would be a new visual impact for recreational users of these areas. Visual impacts are addressed in section 4.7 of this EIS.

Tourism

Travel spending in the four potentially affected counties in 2005 was approximately $859 million, ranging from $118 million in Klamath County to $335 million in Jackson County (table 4.8.3.7-1). Travel spending generated earnings of approximately $221 million and supported approximately 12,400 jobs, accounting for 2.7 percent of total earnings and 5.1 percent of total employment in the four-county area (table 4.8.3.7-1). Construction of the proposed Pacific Connector pipeline would have short-term, temporary effects on recreation during Project construction, and therefore could have related impacts on recreational tourism in the region (see section 4.7 of this EIS).

TABLE 4.8.3.7-1.

Travel Spending, Earnings, and Employment, 2005

State/County	Travel Spending ($ million)	Earnings		Employment	
		$ million	Percent of State/County Total	Jobs	Percent of State/County Total
Oregon	7,367.2	1,793.9	2.0	87,590	4.0
Coos	172.7	45.2	4.3	2,790	8.2
Douglas	234.1	59.9	3.3	3,620	6.5
Jackson	334.5	84.0	2.1	4,250	3.6
Klamath	117.6	32.3	2.9	1,720	5.0
Project Area Total	**858.9**	**221.4**	**2.7**	**12,380**	**5.1**

Source: Dean Runyan Associates 2007.

The major impact that the proposed Pacific Connector pipeline would have on tourism is competition for lodging when peak construction periods overlap peak visitor seasons. At the peak of pipeline construction about 922 non-local workers, spread over four counties along the pipeline route, would need housing. As discussed in the section (4.8.3.2) above on housing, these out-of-town construction workers would compete with tourists for hotel/motel rooms and spaces at RV camps in the region. The four counties crossed by the pipeline have 3,764 RV hook-ups and 7,520 motel rooms available.

Using the Oregon Coast as an example, the peak visitor season lasts from June to October. The highest demand for hotel/motel rooms by tourists would be in August, where occupancy rates are over 93 percent on a Saturday night and 63 percent on a Sunday night. In January, average occupancy rates along the Oregon Coast fall to less than 37 percent (ECONorthwest 2006a). The impact on tourist accommodations would be minimized by the Project having only temporary peaks in construction; construction of the pipeline over a 2-year period; working in off-seasons when fewer tourists come to southern Oregon; using multiple construction spreads over several counties; and having workers commute longer distances from cities with more housing to areas where housing is mostly filled.

4.8.3.8 Other Commercial Activities

Approximately 64 percent of the land that would be crossed by the pipeline is classified as open, which includes forested land, wetlands, beaches, and barren lands; 27 percent is classified as agricultural lands; 0.3 percent residential, 5.3 percent industrial/commercial, and 3 percent water. Impacts to land use are addressed in section 4.7.

Construction and operation of the proposed pipeline would not result in the displacement of any businesses. Potential effects on existing residences and businesses are discussed in more detail in section 4.7 of this EIS.

4.8.3.9 Environmental Justice

The Pacific Connector pipeline traverses a mostly rural region. We did not identify any communities in close proximity to the pipeline that has a disproportionately high percentage of low-income or minority populations. Comments received during public scoping were concerned that the proposed pipeline was being located in Oregon because the affected communities are less affluent than the population in California that would be directly served by the project.

Race and ethnicity data are summarized for the four counties that would be crossed by the proposed pipeline in table 4.8.3.9-1. These data compiled as part of the 2000 Census indicate that the population in all four counties is predominantly White. Persons of Hispanic or Latino origin make up the largest share of the non-White population in all four counties in the four counties and Oregon as a whole. The percentage of the population that is American Indian is slightly higher than the state average in Coos, Douglas, and Klamath counties (table 4.8.3.9-1).

Approximately 2.2 percent of the population of Coos County is Native American, with the Coquille Tribe headquartered in the city of North Bend and the Coos tribes headquartered in the city of Coos Bay. About 1.4 percent of the population of Douglas County is Native American. The Cow Creek tribe is headquartered in Douglas County in Roseburg and operate a hotel and casino in Canyonville also in Douglas County. Pacific Connector mapped Native American populations by census blocks for the four counties crossed by the pipelines, and found the highest concentration of Native Americans in Douglas County residing in the southwestern portion of the county where the proposed pipeline corridor is located. Native Americans represent 3.8 percent of the population of Klamath County, with the Klamath tribes headquartered at Chiloquin. American Indian populations in Coos and Klamath Counties comprise a larger share of the total population in areas that would not be affected by the proposed pipeline corridor.

Some economic indicators are lower in the four counties crossed by the pipeline than for the state of Oregon as a whole. In 2007, the state of Oregon had an unemployment rate of 5.2 percent, while the unemployment rate for Coos County was 6.7 percent, 7.8 percent in Douglas County, 5.7 percent in Jackson County, and 7.0 percent in Klamath County. The median household income for the entire state of Oregon in 2005 was $43,065, while in Coos County it was $33,150, $36,678 in Douglas County, $40,997 in Jackson County, and $35,664 in Klamath County (USDA Economic Research Service 2007). Douglas and Jackson Counties had the same poverty rate as the state average in 2006 of 14 percent, while Coos and Klamath Counties had poverty rates of 20 percent (Northwest Area Foundation 2008).

However, the route for the Pacific Connector pipeline was not selected taking into consideration either regional income or ethnic settlement patterns. We discuss the route selection process in section 3. Pacific Connector needed to find the shortest, buildable route between Coos Bay, when the pipeline would begin at the Jordan Cove LNG import terminal, and Malin, Oregon, where the pipeline would terminate at interconnections with GTN, Tuscarora, and PG&E. Along the way, the pipeline tended to follow ridges in the mountains, and existing rights-of-way, where possible.

Table 4.8.3.9-1

Race and Ethnicity in Counties Crossed by the Pacific Connector Pipeline

		Percent of Total						
	Total	White a/	Hispanic or Latino	Black or African American a/	American Indian and Alaska Native a/	Asian a/	Other Race b/	Two or more races
Coos County	62,779	90.2	3.4	0.3	2.2	0.9	0.3	2.8
Douglas County	100,399	91.9	3.3	0.2	1.4	0.6	0.2	2.4
Jackson County	181,269	88.7	6.7	0.4	1.0	0.9	0.3	2.1
Klamath County	63,775	84.1	7.8	0.6	3.8	0.8	0.3	2.7
Oregon	3,421,399	83.5	8.0	1.6	1.2	2.9	0.3	2.4
United States	281,421,906	69.1	12.5	12.1	0.7	3.6	0.3	1.6

a/ Non-Hispanic only. The federal government considers race and Hispanic/Latino origin to be two separate and distinct concepts. People identifying Hispanic or Latino origin may be of any race. The data summarized in this table present Hispanic/Latino as a separate category.
b/ The "Other Race" category presented here includes census respondents identifying as "Native Hawaiian and Other Pacific Islander" or "Some Other Race."
Source: U.S. Census Bureau 2000

4.8.4 Environmental Consequences on Federal Lands

Potential socioeconomic impacts of the proposed Project on federal lands would be related to impacts on recreation and visual resources, and transportation. These are discussed in sections 4.7 and 4.9 of this EIS.

4.8.4.1 Financial Efficiency Analysis

Pacific Connector has prepared a Financial Efficiency Analysis that assesses the net present value of costs and benefits that would accrue to the federal government as a result of construction and operation of the proposed project (Levy 2008b, 2008c). This analysis was prepared in general accordance with direction contained within the USFS Handbook. The analysis is limited to those costs and revenues that would result from the direct use of federal assets (land, timber, and roads) and can be directly quantified based on existing fee schedules. The analysis does not include government administrative revenues that would be generated from the fees charged to process the project application and monitor the right-of-way. In addition, the analysis does not include non-market economic costs or benefits that are not part of federal monetary transactions.

Costs and benefits were projected over a 50-year time period, where appropriate, and discounted using a real discount rate of 4 percent. The analysis identifies two sources of direct government revenue: 1) Pacific Connector's payment for timber that would need to be cut, and 2) Pacific Connector's rental payments for construction access and the pipeline right-of-way. The analysis also identifies three sources of government costs: 1) the value of lost timber productivity along the new right-of-way, 2) the value of non-merchantable trees that would need to be cut prematurely (lost timber growth), and 3) the incremental cost of future maintenance for existing roads that Pacific Connector may upgrade above their existing federal maintenance level (Levy 2008b, 2008c). The present values of these projected revenues and costs are summarized in table 4.8.4.1-1. The projected net present value of the project based on this analysis is $2.91 million in 2007 dollars (table 4.8.4.1-1).

TABLE 4.8.4.1-1

Financial Efficiency Analysis of the Pacific Connector Project

	Timing	Present Value in 2010 (2007$ millions)
Revenues		
Timber Revenue a/	2010	3.7
Temporary Use Permit and Right-of-Way Revenue b/	2010	0.66
Costs		
Lost Timber Productivity c/	2010	-0.004
Lost Timber Growth d/	2010	-$0.051
Incremental Road Maintenance e/	2012 to 2062	-1.4
Net Present Value		2.91

a/ Timber revenue was calculated based on the pond value of the estimated timber volume, less the costs of logging and hauling the timber to the mill, slash disposal, and road work. Timber volumes and other values used in this estimate are based on preliminary estimates prepared by Pacific Connector.

b/ This analysis assumes that Temporary Use Permits will be required for construction for 2 years and the right-of-way will be required for 50 years. Revenues are estimated based on the federal 2008 Linear Right-of-Way Rental Schedule values per acre for the affected counties. The analysis assumes that Pacific Connector would make a one-time payment, rather than make annual payments over the life of the project.

c/ Lost timber productivity was estimated based on the soil expectation value of the lands that would be permanently lost to timber production and is based on an average soil expectation value of $14.30 per acre.

d/ Lost timber growth accounts for the value of non-merchantable trees that would be cleared in the right-of-way. This value is based on the projected value of these trees at merchantable age. Premature harvest of these trees represents foregone revenue for the federal government and is, therefore, counted as a cost here.

e/ Non-design improvements, such as turn-outs, widening, or blading/grading, to existing roads on USFS and BLM lands would likely be necessary as part of this project and may change the maintenance level of the existing road (by, for example, adding base and gravel to an existing road surface of native materials) and, as a result, impose an incremental maintenance cost on the government. This analysis assumes that all roads on federal lands used by Pacific Connector for construction access would be upgraded from native materials to gravel and, therefore, result in costs at the upper end of the range of possible outcomes. Incremental cost increases are assumed to be $343 per mile per year.

Source: Levy 2008b, 2008c

This analysis does not, however, as noted above, account for other costs and benefits that are not assigned monetary values by the federal government. Other potential impacts (not valued) to federal lands include impacts to recreation, the Pacific Crest National Scenic Trail, grazing, Late Successional Reserves, and Riparian Reserves (Levy 2008b). While no monetary value is assigned to these potential impacts they are considered in detail elsewhere in this document.

4.8.4.2 Mitigation of Impacts on Federal Lands

General Project mitigation measures would apply to federal lands crossed by the Pacific Connector pipeline. In addition, Pacific Connector would develop a POD for activities on USFS and BLM lands that would identify the specific areas where mitigation measures or BMPs would be employed to minimize potential impacts. Pacific Connector intends to submit the POD in 2008.