
4.7 LAND USE, RECREATION, AND VISUAL RESOURCES

4.7.1 Waterway for LNG Marine Traffic

4.7.1.1 Land/Waterway Use

The waterway for LNG marine traffic would be mainly within the existing Coos Bay navigation channel, up to about CM 7.5. This channel is included in the Coos Bay Estuary Management Plan (CBEMP) and is zoned Deep-Draft Navigation Channel (37-foot authorized draft). The navigation channel is bounded by the North Spit on the west and the mainland to the south and east (figure 2.1-2). On the southern and eastern shore of Coos Bay along the waterway are several communities, including Charleston, Barview, Empire, and the cities of Coos Bay and North Bend (these communities are further discussed in section 4.7.1.2 and 4.8).

The North Spit is a point of land between the Pacific Ocean and Coos Bay, comprised of narrow sandy beaches along the ocean, and a combination of sand dunes, wetlands, and upland forested areas. The North Spit is unoccupied, containing no residences, and includes a mixture of industrial, recreational and open space land uses. Portions of the North Spit are owned by the Port, the State of Oregon, COE, BLM, and private industries. Coos County's zoning designations for the North Spit include Conservation Shorelands, Natural Shorelands, Water-dependent Development Shorelands, and Development Shorelands.

The Port has promoted industrial development on the bay side of the North Spit, including properties owned by Roseburg, Southport, and D.B. Western. The Oregon Parks and Recreation Department (OPRD) manages the beaches along the Pacific Ocean below the high tide level. The OPRD guidelines for the land it controls along the North Spit are outlined in its Ocean Shore Management Plan (OPRD 2005). The ODSL controls lands below the means low tide, including submerged lands.

The COE administers 245 acres on the North Spit, and maintain the North Jetty at the mouth of Coos Bay. The COE allows public access to its lands, but the North Jetty is not designed for public use. The Coos Bay District of the BLM administers about 1,864 acres on the North Spit that it acquired from the U.S. Army in 1984. The BLM manages its lands according to its Final North Spit Plan (BLM 2005).

South of the entrance to the Coos Bay navigation channel are Coos Head, Gregory Point, and Cape Arago. A portion of Coos Head is overlapped by Zone 1, while Gregory Point and the northern part of Cape Arago are within Zone 3.

At Coos Head, at the mouth of Coos Bay, was a U.S. Navy facility that was commissioned in 1958, and decommissioned in 1987. During the 1990s Coos Head was utilized by the Oregon Air National Guard and U.S. Air Force Reserves. The air station was closed in 1996, and the 43-acre site turned over to the U.S. General Services Administration. Since then, there have been several bidders for the property, including the Coos Tribes (Naval Facility Station History 2008). Between 1915 and 1968 the Coast Guard Station was located at Coos Head. In 1968 it relocated to the Charleston Marina.

A lighthouse was first established on Chief's Island at Gregory Point in 1866 and a bridge from the mainline to the island was completed in 1898. The present structure on the island was

constructed in 1934, and was decommissioned in 2006. There is a debate over the future disposition of this land. The BLM is considering a plan to transfer land at Gregory Point to the Coos Tribe for the proposed Bal'diyaka Interpretive Center.

Outside of the Coast Guard parcel at Cape Arago, part of Gregory Point is owned by the state of Oregon, and part is administered by the BLM. In 1975 the Coos Tribes obtained an easement for an Indian burial ground on the mainland opposite the Cape Arago lighthouse. Gregory Point is part of the Cape Arago headland research reserve complex. While the OPRD owns the beach and most uplands in this area, the ODSL owns the submerged and intertidal lands. The OPRD has a series of state parks along the shoreline south from the mouth of Coos Bay. The FWS manages some of the offshore rocks and reefs along the Cape Arago headlands as part of the Oregon Coast National Wildlife Refuge (see discussion on parks below).

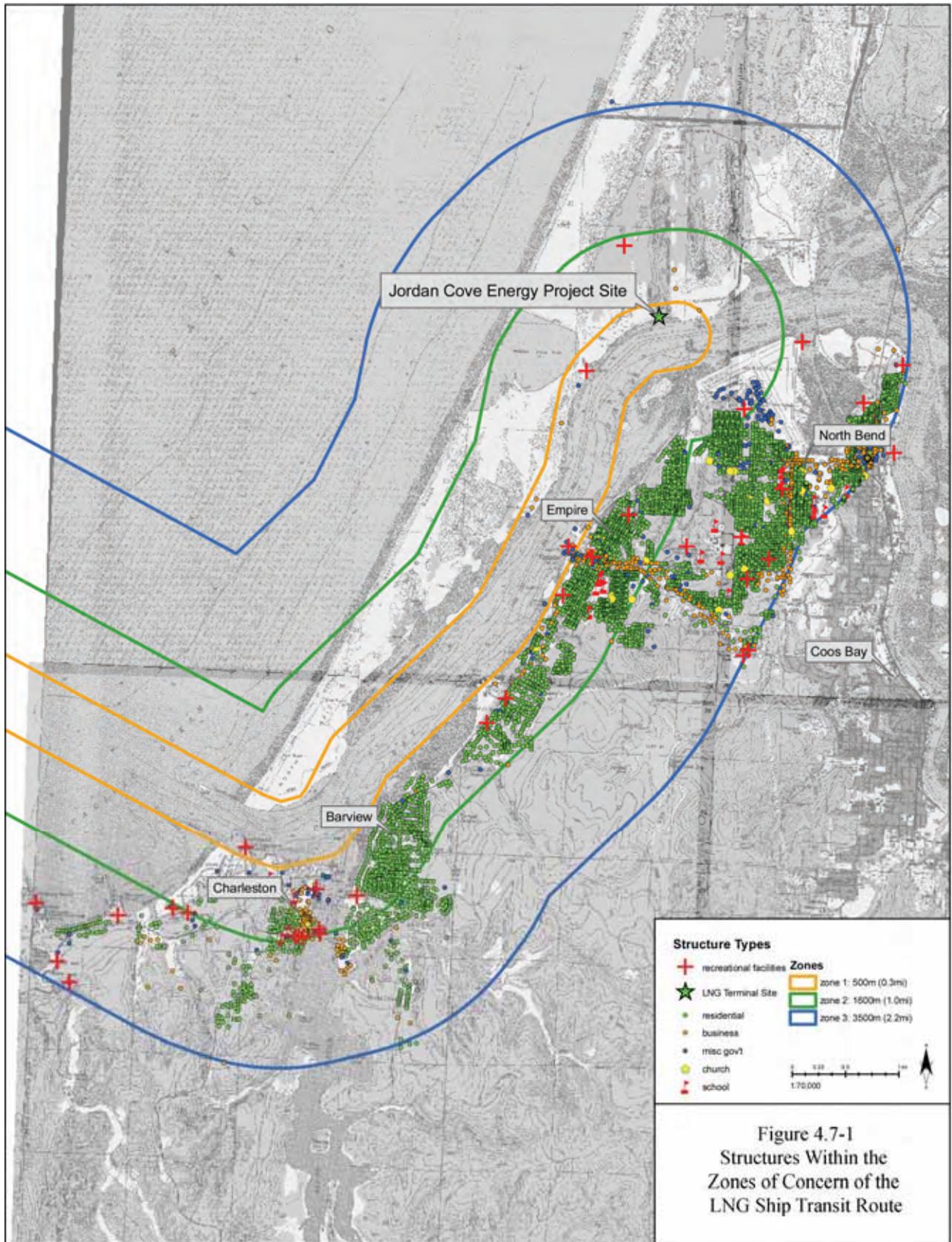
Use of the waterway by LNG carriers heading to the Jordan Cove terminal should have no significant adverse impacts on existing land use, and would require no zoning changes. The use of the navigation channel by LNG carriers would be consistent with its current use by other commercial ships. Potential impacts related to LNG marine traffic in the waterway on residences, businesses, and recreational facilities are discussed below.

4.7.1.2 Existing Residences, Commercial Buildings, and Planned Development

No residential structures currently exist within Zone 1 of the Zones of Concern along the waterway for LNG marine traffic. There are approximately 2,588 residential structures overlapped by Zone 2, and 2,869 residential structures within Zone 3, including single family houses, apartments, and mobile homes. There are no hotels or motels within Zone 1. However, there are 5 hotel/motels are located within Zone 2, and 4 hotels/motels would be overlapped by Zone 3. There are 3 commercial business within Zone 1, 159 commercial structures within Zone 2, and 336 commercial enterprises within Zone 3. Structures within the Zones of Concern are illustrated on figure 4.7-1.

Several planned future developments have also been identified within the Zones of Concern. The cities of Coos Bay and North Bend have several residential developments that are under various stages of planning, approval, and construction. The closest of these developments to the waterway for LNG marine traffic is a multi-unit condominium located in the City of Coos Bay on the shoreline of Coos Bay off Fenwick Street near Maxwell Road. This condominium is currently in the planning phase. Additionally, a cluster of single-family residences have been approved and are under construction in an area near the northwest boundary of the City of North Bend and the northeast boundary of the City of Coos Bay. A condominium complex is also planned in the northeast area of the City of Coos Bay, and a new museum is planned just south of the condominium complex. A mixed-use development known as Hollering Point is also planned at the west end of Newmark Avenue in the city of Coos Bay.

The only way LNG marine traffic in the waterway could affect existing residences, commercial structures, and planned developments would be in the unlikely case where an LNG carrier has a spill, with an associate pool fire. The effects of an LNG spill would depend on location, extent, and duration. Damage to structures could be severe within Zone 1, with the level of impacts decreasing outward through Zone 3. However, with the precautions mandated by the Coast Guard, the likelihood of an incident resulting in a spill and fire are extremely remote, and therefore, there should be no significant impacts on residences and commercial buildings overlapped by the Zones of Concern.



4.7.1.3 Recreation, Public Interest, and Special Use Areas

Boating, Fishing, Crabbing, and Clamming

According to a 2005 study by the Oregon State Marine Board (OSMB) recreational boaters in Coos Bay took a total of 30,996 boat trips the previous year. Nearly 90 percent of the boat use-days involved fishing, 9 percent was for pleasure cruising, and the remainder was for sailing and water skiing. Forty percent of the boating activities in Coos Bay originated from the Charleston Marina, and 20 percent at the Empire ramp. The BLM counted 420 boats being launched from its North Spit ramp during fiscal year (FY) 2004. Most of the recreational boating activities in Coos Bay occur during the summer. The BLM North Spit boat ramp and the Empire boat ramp are located within Zone 1. The Charleston Marina and fishing pier are overlapped by Zone 2. The Pony boat ramp is within Zone 3.

The most popular fish species caught by recreational fishing boats out of Coos Bay include coho and Chinook salmon. Other recreational catch species include various species of perch, rockfish, flatfish, sturgeon, and shellfish. Section 4.5.4, Aquatic Resources, discusses the fish species of Coos Bay in more detail.

Much of the recreational angling for salmon in Coos Bay occurs in late summer and fall. It usually begins in late summer at jetty areas and moves up the bay as fish move upstream. Bank angler access on the North Spit is limited. Boat angling occurs throughout the bay, but angling is limited in some areas at times by exposure to winds. For example, the Roseburg dock area gets less boat angling use due to exposure to wind and tidal action. Much of the boat angling for Chinook and coho salmon in the fall is concentrated around the railroad bridge and downstream. Marshfield Channel can be an area of concentrated angling for fall salmon.

Perch fishing begins in Coos Bay in late February to early March, depending on freshwater runoff into the bay, and can continue through July. Rocks around bridge abutments are targeted by anglers on the outgoing tide.

Recreational fishing for sturgeon in Coos Bay generally occurs above the railroad bridge. White sturgeon can be taken year round, but the best angling is during December through March, and when there is a heavy freshwater plume in the bay.

Recreational clamming and crabbing occurs year-round and brings tourism based revenue to the region. Crabbing occurs in the main channel areas from the Southern Oregon Regional Airport to the mouth of the bay around slack tides. Clamming occurs year-round in the mud flats of Coos Bay, but is subject to closure as necessary by the ODA Food Safety Division for reasons of public health (Oregon Department of Agriculture Food Safety Division 2008).

Use of the crabbing, clamming, and fishing areas in Coos Bay should not be any more affected by the passage of LNG carriers than they are currently affected by the passage of deep draft ships. Crabbing and clamming areas are outside the navigation channel and are unlikely to be affected by the passage of an LNG carrier in transit in the waterway to the terminal. However, if crabbing, clamming, fishing, or scuba diving activities were to occur in the channel, that activity would have to cease for a brief time and temporarily move out of the way of an LNG carrier while it passes by. The Coast Guard and OSMB would presumably continue to remind boaters of their obligation not to impede the deep draft ships, whether they carry LNG or wood chips.

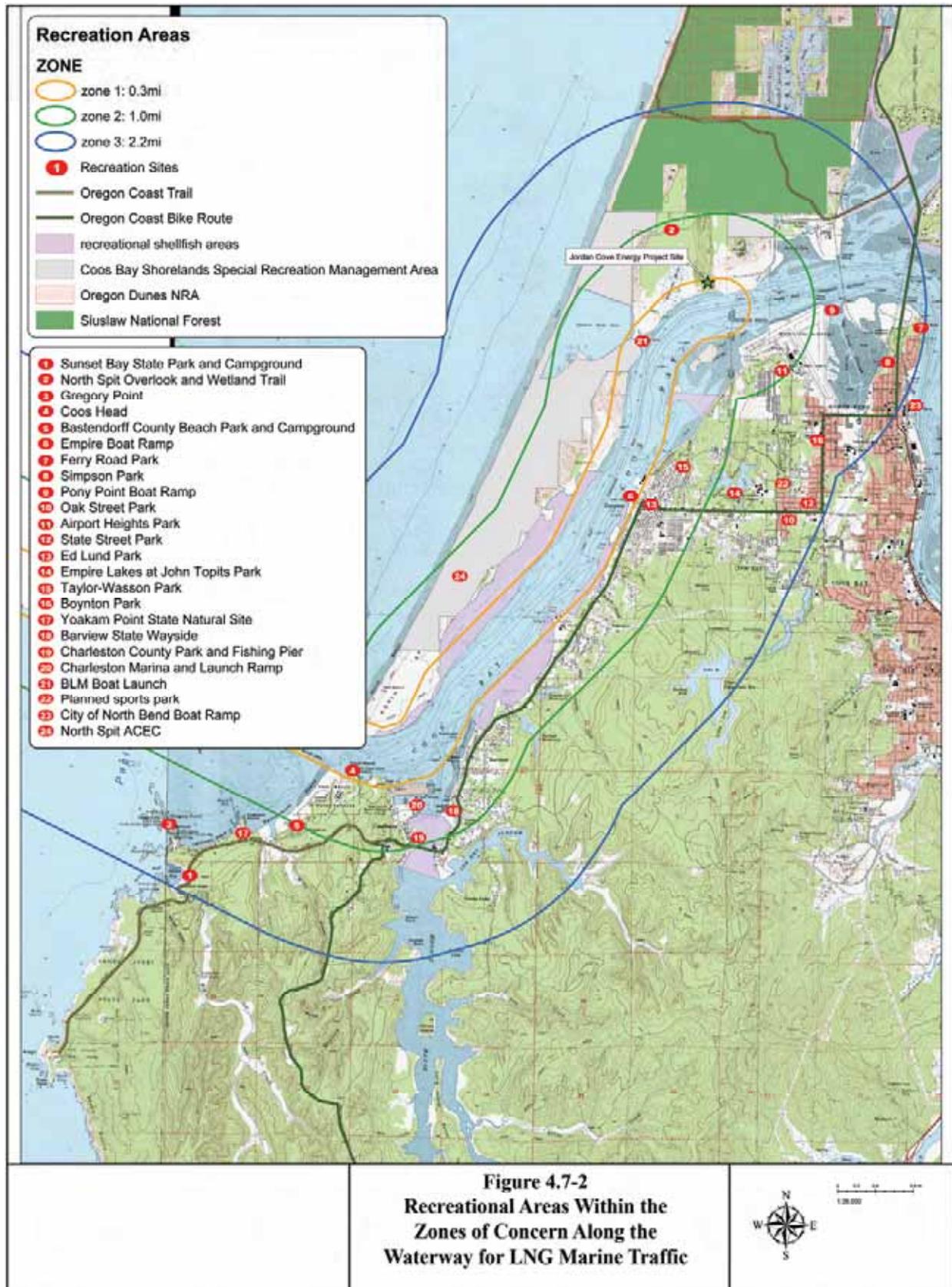
Pilots guiding commercial ships in the Coos Bay navigation channel currently encounter approximately six recreational boats during the transit into and out of the Port. These numbers are typically lower in winter and on weekdays than during the summer and on weekends. Recreational boaters may encounter delays due to the moving safety/security zone requirements around LNG carriers in transit to the terminal. Jordan Cove estimated that it may take LNG carriers up to 90 minutes to transit the waterway from the buoy to the terminal as speeds between 4 and 10 knots. The worst case scenario waiting for an LNG carrier to pass would be 30 minutes. The sum of the periods in which the LNG carriers would have a potential impact on recreational and other boating activity is about 1.3 percent of all daylight hours (ECONorthwest 2006a).

Recreational boaters, fishermen, crabbers, and clambers could be affected in the unlikely event of an incident resulting in an LNG spill from a carrier in transit in the waterway, and an associated pool fire if there was ignition. Impacts for such an event would be greatest within Zone 1 and lessen through Zone 3. The potential of such an incident to affect recreational users of Coos Bay would depend on its location, duration, and extent. However, with the security measures recommended in the Coast Guard's WSR, the possibility of such an incident is remote, and affects on recreational water uses would be less than significant. For example, the safety and security zone imposed by the Coast Guard would keep recreational boaters away from the LNG carriers in transit in the waterway to the terminal, and escort vessels would be able to assist small craft.

Parks and Other Recreational Use Areas

The southern Oregon coast sees less recreational beach use than the central and north coast beaches. There is a 6-mile stretch of publicly-owned beach along the ocean side of the North Spit. This beach contains no built or developed recreational facilities. The area is open for street legal vehicles driving on the beach, with the exception of a segment of the beach between the FAA tower and the southern boundary of BLM land, which is closed to public access during the Western snowy plover nesting season. The BLM estimated that an average of 200 vehicles per month drive out to the North Jetty, and that about 6,150 people each year travel on the sand road out to the North Jetty in OHVs. Between October 1, 2003 and September 31, 2004, the BLM counted 27,100 visits to the North Spit, over 9,774 visitor days (BLM 2005). The OPRD counted an average of 98 people using the beach between Tenmile Creek and Coos Bay on a weekend day, and an average of 38 visitors on a weekday, with a density of four people per mile on weekends and three people per mile on weekdays. The top five recreational activities along southern Oregon beaches include walking (43 percent), relaxing in a stationary location (24 percent), walking dogs (10 percent), driving OHVs (8 percent), and beachcombing (3 percent) (OPRD 2002).

In addition to the general recreational use of the beach on the North Spit, 24 recreational sites or special interest areas are located within the three Zones of Concern along the waterway for LNG marine traffic (figure 4.7.2). Those areas are summarized below.



In May 1995, through its Coos Bay District RMP, the BLM designated the North Spit as a Special Recreational Management Area (SRMA). The BLM's goal is to manage the 1,726 acres of the Coos Bay Shorelands SRMA to sustain outdoor recreation in a manner compatible with protection of wildlife and cultural resources. Towards that goal, the BLM built and maintains its North Spit boat ramp, and is in the planning stages for development of a hiking and equestrian trail system up to 14-miles-long. The Coos Bay Shorelands SRMA also includes 725 acres designated as the North Spit ACEC, at the southern end of the North Spit, north of the North Jetty, between the Pacific Ocean and Half Moon Bay on the bay side. The purpose of this designation was to protect outstanding biological and cultural resources, and scenic values.

The North Spit boat ramp was developed by the BLM in 1992, with funding from the OSMB, ODFW, Coos County, and Northwest Steelheaders. The facilities include a paved parking lot, restrooms, and interpretive wayside exhibits. In FY 2004, the BLM counted 7,250 people using the boat ramp restrooms, and 13,100 vehicles at the parking lot (BLM 2005).

A portion of the Coos Bay Shorelands SRMA including the BLM boat ramp, and the North Spit ACEC are overlapped by Zone 1 along the waterway to be used by LNG marine traffic. Other portions of the North Spit SRMA are overlapped by Zone 2. Figure 4.7-2 illustrates recreational areas overlapped by the Zones of Concern.

Overlapped by Zone 3 are portions of the Cape Arago headlands research reserve, Yoakam Point State Natural Site, Sunset Beach State Park, and part of the Oregon Islands National Wildlife Refuge. The state of Oregon designated the headlands from Gregory Point to South Cove as an intertidal marine protected area for public awareness value. The goal of the designation is to maintain the ecological integrity of the area for long term research projects. This can be accomplished by limiting access, requiring permits for scientific research, prohibiting commercial and recreational harvesting of shellfish, including red sea urchins, and prohibiting the harvest of seaweed and kelp. Seabirds nest on Lighthouse Island, and harbor seals and other pinnipeds use rocks in the Cape Arago area for haulout sites.

Sunset Bay State Park includes a beach, picnic tables, hiking trails, 27 full recreational vehicle (RV) hookups, 66 tent spaces, and eight yurts. A public golf course is next to the park. An OPRD study indicated that Sunset Bay State Park receives 800,000 visitors a year (Hillmann 2006).

The Oregon Islands National Wildlife Refuge is administered by the FWS, and covers 1,850 rocks, reefs, islands, and two headlands, spanning a total of 320 miles along the Oregon coast. The Oregon Islands National Wildlife Refuge provides sanctuary for seabirds and marine mammals. At Gregory Point, the refuge includes Gregory Point Rocks, Qochyax Island, and Simpson Reef. Simpson Reef is the only place in Oregon where extensive beds of giant kelp (*Marcocystis intergrifolia*) are found. Shell Island in North Cove, south of Gregory Point, has the only breeding population of elephant seals in Oregon. There is no public access to the coastal rocks and islands making up the refuge, or the Crook Point Unit, as these areas have been designated as National Wilderness, with the exception of Tillamook Rock.

There are two Coos County parks overlapped by Zone 2 south of the waterway. The Charleston County Park is located in Charleston. Facilities include the Charleston Information Center, restrooms, parking area, and concrete fishing dock. Activities at this park include fishing, crabbing, picnicking, and sightseeing. Further along the Cape Arago Highway, about 2 miles southwest of Charleston, is Bastendorff Beach County Park. This 89-acre park is located on a

hill overlooking the Pacific Ocean. The park is open year-round and includes 56 RV hookups and 35 tent spaces, with restrooms and showers. Other facilities include a fish cleaning station, two picnic shelters, playground, and basketball court.

There are a number of city parks overlapped by the Zones of Concern on the east side of the waterway. Within Zone 2 is Ed Lund and Taylor-Wasson Parks in Empire, and Airport Heights Park in North Bend. Within Zone 3 is Empire Lakes at John Topits Park in the City of Coos Bay, State Street Park, Boynton Park, and Simpson Park.

LNG marine traffic within the waterway to the Jordan Cove terminal should not have adverse impacts on parks and recreational areas overlapped by the Zones of Concern. Some park users would have views of the waterway, and could see the LNG carriers in transit. However, the carriers would quickly move out of the viewshed (as discussed below under section 4.7.1.4). There is also the remote possibility that an incident involving an LNG carrier could result in an LNG spill and associated pool fire if vapors are ignited that may affect parks and recreational areas overlapped by the Zones of Concern. In that situation, impacts would be greatest on parks within Zone 1, and least for parks within Zone 3. However, because of the safety and security measures to be required by the Coast Guard, it is highly unlikely that a spill would occur, and impacts on parks should not be significant.

Other Public Interest Areas

There are no schools within Zone 1 along the waterway for LNG marine traffic. Within Zone 2 are 2 public schools operated by the Coos Bay School District, with a total of 1,028 students. Also within Zone 2 is an Alternative Youth Activities school with about 28 students, and the University of Oregon Institute of Marine Biology at Charleston with about 100 students. There are 3 public schools operated by the North Bend School District overlapped by Zone 3, with a combined enrollment of about 1,582. Zone 3 also overlaps Southwest Oregon Community College in North Bend, with about 14,500 students.

There are no government offices within Zone 1. Within Zone 2 are the Coos Bay Fire Department, and the Coos Bay District office of the BLM. The Southwest Oregon Regional Airport is also overlapped by Zone 2. Within Zone 3 are the Coos County Courthouse, North Bend Fire Department, and the North Bend Police Department.

Normal LNG marine traffic in the waterway would not have any adverse effects on public facilities overlapped by the Zones of the Concern. Impacts might occur if there is an accidental or intentional breach of an LNG carrier, causing a spill or a fire if the vapors were to be ignited. Effects would be greatest within Zone 1, and lessen through Zones 2 and 3. However, with the safety and security measures to be enforced by the Coast Guard, an LNG spill and pool fire would be highly unlikely, therefore there would be no significant impacts on schools, or government offices, or public facilities.

4.7.1.4 Visual Resources

Traveling between 4 to 10 knots, an LNG carrier would cross through the viewshed of points along the shoreline of the waterway in a few minutes. While the LNG carriers are indeed large vessels, when compared to other vessels using Coos Bay, they are relatively close in size to those cargo ships that frequent the bay for the purpose of loading and hauling wood products, which average around 190 meters in length. Because ships of this scale are already a regular

occurrence in the waterway, the presence of LNG carriers would not be a new impact to the visual resources of the waterway.

4.7.2 Jordan Cove LNG Terminal

4.7.2.1 Land Use

The proposed Jordan Cove LNG import terminal would be located on the bay side of the North Spit along Coos Bay, about 7.5 miles up the navigation channel, within the jurisdiction of Coos County, approximately 1,000 feet north of the city limit of North Bend. The LNG terminal facilities are identified on Coos County Assessor's map as tax lots 100/200/300, within Sections 4, 5, and 8, Township 25 South, Range 15 West. The Port Commercial Sand Stockpile Area is in Section 18, T25S,R15W, while its associated dredge slurry pipeline would follow the Trans-Pacific Parkway through Sections 5, 8, and 7. The Weyerhaeuser Linerboard Dredge Material Storage Area is partly located in Section 3, T25S, R15W.

The terminal would be located within a parcel that would be leased and purchased from the Port and Roseburg. The slip would be owned by the Port, and leased to Jordan Cove. The Port has recently acquired a tract of 1,100 acres from Weyerhaeuser. Jordan Cove would purchase 149 acres of this land, which is currently vacant, from the Port. Historically, this area was used for the Henderson Ranch. The western portion of the tract to be obtained from the Port is relatively flat, is covered by brush and grasses, and was formerly used by the COE to deposit materials dredged during maintenance of the Coos Bay navigation channel. The eastern portion includes a forested dune. Jordan Cove would also purchase about 10 acres of industrial land from Roseburg. In addition, Jordan Cove would temporarily use about 32.8 acres of industrial land within the existing Roseburg property for construction staging activities. Jordan Cove would acquire an operational easement over 14.4 acres of Port land to cover the full extent of the LNG terminal thermal radiation and vapor exclusion zones, and an easement of 6.4 acres from Roseburg for the access road to the terminal. About 82.2 acres within the tract Jordan Cove acquired from the Port would not be affected by terminal construction or operation of the facilities, and would be preserved as open vacant lands, dunes, or protected wetlands. A complete list of acres and land use covered by the Jordan Cove LNG terminal facilities is in table 4.7.2.1-1.

	Land Area (acres)	Acres Affected During Construction	Acres Affected During Operation	Current Land Use
LNG TERMINAL FACILITIES				
Batch Plant and Roof Assembly Area (1)	13.9	4.0	13.9 <u>a/</u>	Vacant/Open
Access/Administration (2)	18.1	6.2	6.2	Vacant/Open
Marine Access/Pipeway (3)	15.7	14.7	12.4	Vacant/Open
Process Area (4)	20.3	20.3	17.6	Vacant/Open
LNG Tank Area (5)	19.3	19.3	9.4	Vacant/Open
Firewater Pond (6)	3.7	3.7	1.8	Industrial/Open
Wetland Area (E1)	28.4	0.0	0.0	Vacant/Open
Sand Dune Area (E2)	20.2	0.0	0.0	Vacant/Open
LNG Unloading Berth Dune (E4)	13.2	2.0	0.0	Vacant/Open
Sand Dune Area (E5)	6.0	0.0	0.0	Vacant/Open
Total LNG Terminal Property	158.8	70.2	61.3	

TABLE 4.7.2.1-1

Land Use at the Proposed Jordan Cove LNG Import Terminal

	Land Area (acres)	Acres Affected During Construction	Acres Affected During Operation	Current Land Use
EASEMENT AREA				
Wetland Area (E3)	14.4	0.0	0.0	Vacant/Open
Access Road (R1)	6.4	6.4	6.4	Industrial
Total Easement Area	20.8	6.4	6.4	
CONSTRUCTION AREAS				
Construction Staging Area	31.7	31.7	0.0	Industrial/Open
<u>Temporary Off-Site Parking Areas</u>				
Roseburg Facility Parking Area <u>b/</u>	11.0	11.0	0.0	Industrial/Open
McCullough Bridge Parking Area (2) <u>c/</u>	117.0	8.0	0.0	Industrial/Open
Total Construction Areas	159.7	50.7	0.0	
PORT FACILITIES				
Slip	47	47	47	Vacant/Open
Access Channel	25	25	25	Vacant and Open Water
Total Port Facilities	72	72	72	
DREDGED MATERIAL FACILITIES				
<u>Weyerhaeuser Site</u>				
Haul Road and Dredge Slurry Pipeline Corridor to Linerboard Stockpile Areas <u>d/</u>	6.3	6.3	0.0	Industrial
Weyerhaeuser Linerboard Excavated and Dredged Material Stockpile Area	110	66	66	Industrial
<u>Port Site</u>				
Dredge Slurry Pipeline to Port Sand Stockpile Area <u>e/</u>	3	3	0	Industrial or Open Water
Port Commercial Sand Stockpile Area <u>f/</u>	68	68	0 <u>g/</u>	Vacant/Open
Total Dredged Materials Facilities	187.3	143.3	66	
NONJURISDICTIONAL FACILITIES				
NGL Storage and Rail Load Out Facility	0.5	0.5	0.5	Industrial
Total Nonjurisdictional Facilities	0.5	0.5	0.5	
Grand Total:	599.1	343.1	206.2	

a/ After the Batch Plant is removed, up to 500,000 cy of dredged material from the port facilities would be placed in this site. It would be contoured to match surround sand dunes and vegetated with native grasses to discourage use of the site by snowy plovers.

b/ Parking area located on gravel/cemented area on the adjacent Roseburg Forest Products Site.

c/ Applicant has not confirmed site for this parking area. The largest of two possible sites chosen for analysis in the draft EIS.

d/ Access Road (R1) acreage excluded to avoid double-counting affected area. Pipeline to be laid on two access roads shoulder. Only 0.97 acres off of access roads.

e/ Approximate 10 foot right-of-way; pipe would be laid on the ground and stabilized with sandbags to prevent pipe movement; post-construction area would be revegetated as necessary.

f/ Dredged material to be sold from site over seven years.

g/ After dredged material is removed, Port would determine future use of site. Applicant is prepared to rehabilitate/revegetate site to pre-construction conditions.

The Jordan Cove terminal, slip, access channel, and associated facilities are located primarily on open vacant land (including wetlands and forested dunes) and open water (figure 4.7-3). Construction of the LNG terminal would affect a total of about 343 acres, while operational facilities would cover 206 acres, including excavated and dredged material disposal areas. It is estimated that after the terminal is constructed, structures would cover a total of about 3.5 acres, while about 10.7 acres would be paved roadways.

The LNG terminal, slip and access channel are located within the aquatic and shoreline segments of the CBEMP. The access channel and inter-tidal portion of the slip fall within zoning district 6 – Development Aquatic (6-DA). The purpose of the 6-DA zone is to provide areas for navigation and other water-dependent uses. The upland portions of the LNG terminal are located within the Coastal Shorelands Boundary and are designated 6-WD (Segment 6 – Water Dependent). This segment is planned and zoned for water dependent and water related commercial and industrial development, including port and docking facilities. Fill for development is allowed, provided that necessary permits from the COE and ODSL are obtained.

Jordan Cove applied for an Administrative Conditional Use (ACU) permit from Coos County in March 2007. The County deemed the land use application complete on April 3, 2007. After the filing of supplemental data, and public hearings, on October 31, 2007 the Hearing Officer made her recommendations to the Board of County Commissioners. The Board voted to approve the ACU application on November 7, 2007, and on December 4, 2007 voted to accept its staff's recommended conditions to the permit. Also on December 4, 2007, the Board of County Commissioners tentatively approved a land use permit application submitted by the Port for its access channel and slip at the LNG terminal. The Board of County Commissioners' decision on the ACU was taken to the Oregon Land Use Board of Appeals (LUBA) and on July 16, 2008, the LUBA remanded the case back to Coos County, citing concerns over safety, wetlands and cultural resources (LUBA 2008).

Coastal Zone Management

The Jordan Cove LNG terminal would be located within the Oregon coastal zone (figure 4.7-4). The coastal zone is formally defined as extending from the Washington border on the north to the California border on the south; seaward to the extent of state jurisdiction as recognized by federal law (i.e., the territorial sea, extending 3 nautical miles offshore); and inland to the crest of the Oregon Coast Range. Management of the coastal zone is addressed in the OCMP that combines the state laws for managing Oregon's coastal lands and waters into a single, coordinated package approved by the federal government under the CZMA.

Staff at the ODLCD, Ocean and Coastal Services Division participates in reviews for projects proposed in Oregon's coastal zone. Procedures for ODLCD coastal zone reviews are specified in federal regulations (15 CFR 930) and state regulations (OAR 660-035). As the state's designated coastal management agency, the ODLCD is responsible for reviewing projects for consistency with the OCMP and issuing coastal management decisions. ODLCD's reviews involve consultation with local governments, state agencies, federal agencies, and other interested parties in determining Project consistency with the OCMP.



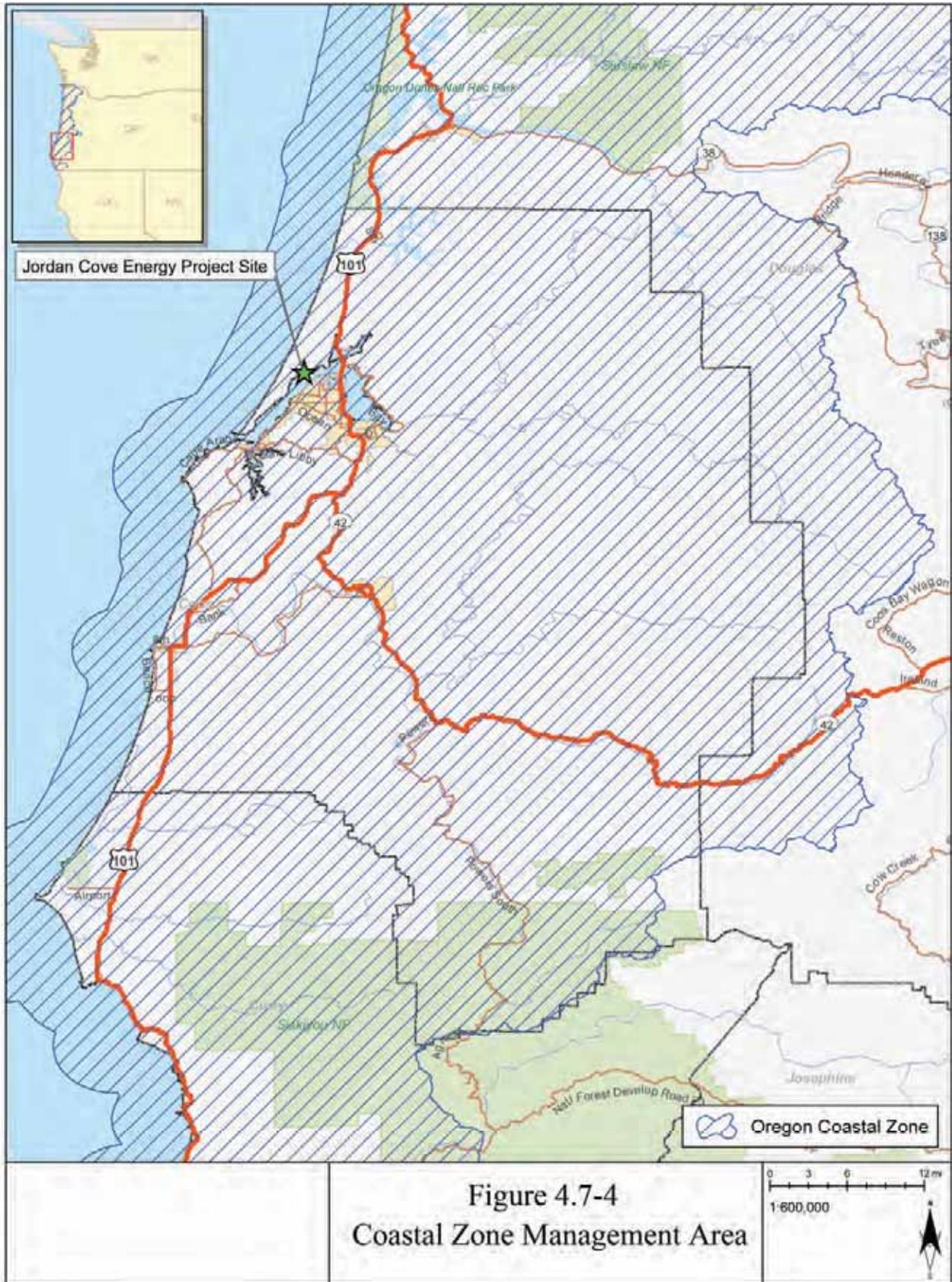


Figure 4.7-4
Coastal Zone Management Area

Jordan Cove filed its request for a consistency determination with the ODLCD in September 2007, but was found by ODLCD to be incomplete in October 2007.

We recommend that:

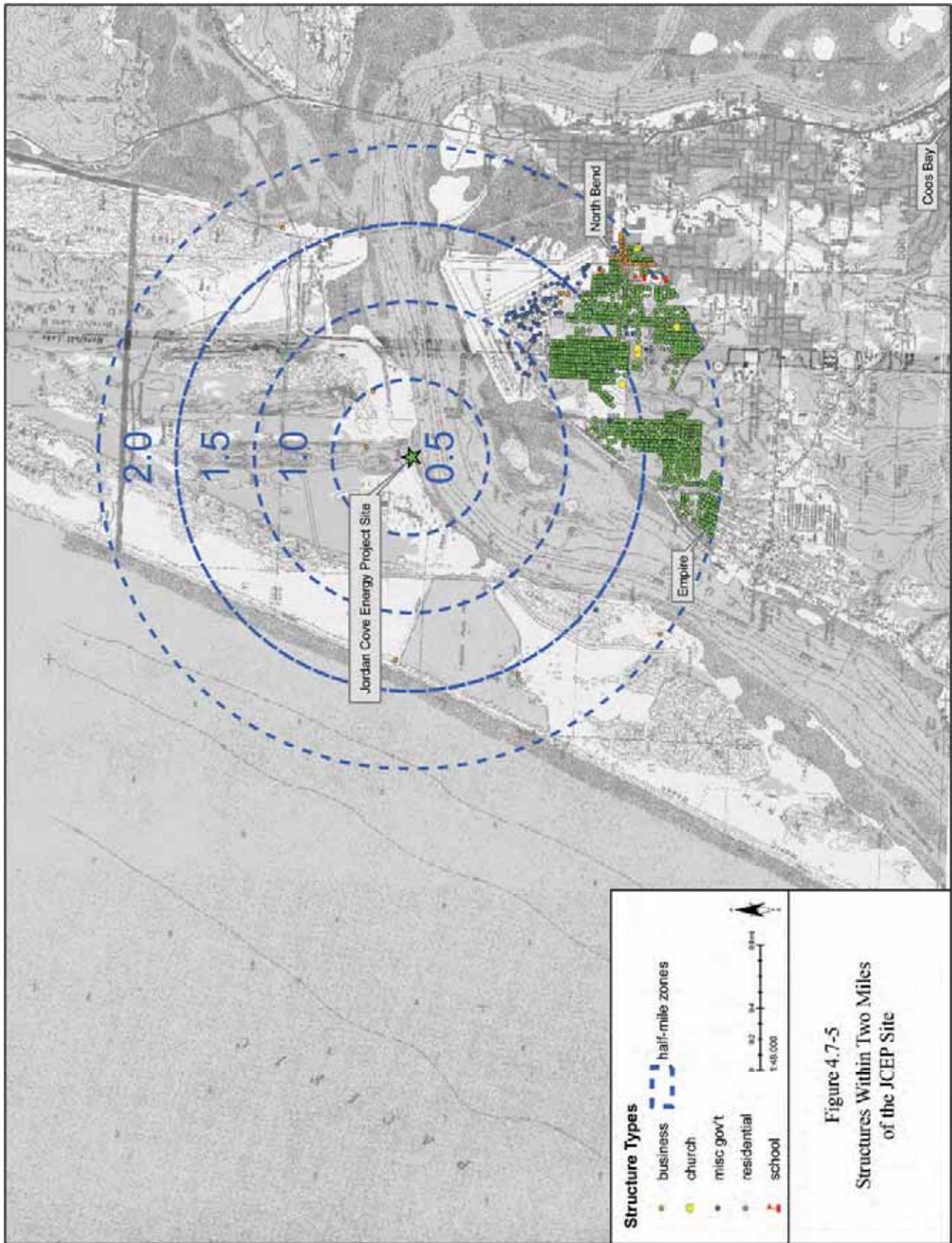
- **Prior to construction of the LNG terminal, Jordan Cove should file with the Secretary documentation of concurrence from the ODLCD that the proposed LNG terminal and slip would be consistent with the CZMA.**

4.7.2.2 Existing Residences, Commercial Buildings and Planned Developments

The nearest residential structure to the proposed LNG terminal is 1.06 miles to the southeast. The closest commercial buildings are part of the Roseburg industrial facility adjacent to the Jordan Cove LNG terminal. All structures, including businesses, residences, schools, churches, and government buildings within 2 miles of the LNG terminal site are summarized in table 4.7.2.2-1 below and shown on figure 4.7-5.

Structure Type	Number of Structures
Businesses	49
Residences	1,438
Schools	2
Churches	6
Government Buildings	70
Total Structures within 2 miles	1,565

There are currently no planned residential or commercial developments identified within 1.0 mile of the proposed LNG terminal. The cities of Coos Bay and North Bend have several residential developments that are under various stages of planning, approval, and construction. The closest of these developments to the LNG terminal is a multi-unit condominium located in the City of Coos Bay on the shoreline of Coos Bay off Fenwick Street near Maxwell Road, approximately 1.1 miles to the south of the site. This condominium is currently in the planning phase. Additionally, a cluster of single-family residences have been approved and are under construction in an area near the northwest boundary of the City of North Bend and the northeast boundary of the City of Coos Bay, more than 1 mile south of the proposed LNG terminal.



4.7.2.3 Recreation, Public Interest, and Special Use Areas

Parks and Other Recreational Use Areas

The proposed Jordan Cove LNG terminal would not have any facilities sited on, and would not directly affect any:

- designated federal or state wild or scenic rivers;
- federal, state or local designated trails;
- nature preserves;
- game management areas;
- remnant prairie, old-growth forest, or state forests;
- parks or golf courses; or
- federal wilderness areas.

The Jordan Cove terminal facilities would be located near the Oregon Dunes National Recreation Area (managed by Siuslaw National Forest), Coos Bay Shorelands SRMA (administered by the Coos Bay District of the BLM), and the Coos Bay estuary. These recreation areas are shown on figure 4.7-2.

About 0.5 mile west of the proposed LNG terminal, on the north side of the Trans-Pacific Parkway, is the North Spit Overlook and nature trail. These facilities are maintained by Weyerhaeuser, to provide the public an opportunity to observe wildlife and birds in the vicinity of its former wastewater lagoon on the North Spit. The Coos Bay Shorelands SRMA was discussed in section 4.7.1.1.

The Siuslaw National Forest administers the Oregon Dunes National Recreation Area (NRA). It extends 40 miles along the Oregon Coast between Florence and Coos Bay. The Oregon Dunes NRA contains the largest expanse of coastal sand dunes in North America, as well as a coastal forest and over 30 lakes and ponds. Recreational opportunities at the NRA include OHV use, hiking, camping, horseback riding, fishing, canoeing, sailing, water-skiing, and swimming. Thousands of OHV owners take advantage of the three main off-highway riding areas within the Oregon Dunes NRA. The day use and overnight camping facilities are used by over 400,000 visitors a year. The southern boundary of Oregon Dunes NRA is about 1.8 miles north of the Jordan Cove LNG terminal site.

The proposed Jordan Cove LNG import terminal would be within 0.5 mile of the Oregon Coastal Trail where it follows Horsfall Beach Road and joins the Trans-Pacific Parkway. The Oregon Coastal Trail is a 360-mile hiking trail from the Columbia River to the California border. The trail was created by the Oregon Recreation Trails Advisory Council and is managed by the OPRD as part of the state park system. The trail crosses beaches, follows roads, passes through forests, and hugs coastal headlands. North of Coos Bay the trail leaves the beach and follows Horsfall Beach Access Road where it eventually connects with Highway 101, passes through the cities of North Bend and Coos Bay, and reaches the Pacific again near Cape Arago (OPRD 2001).

The access channel to the LNG terminal would be within Coos Bay, which forms the major part of the broader Coos Bay estuary. The Coos Bay estuary covers 54 square miles of open channels and periodically flooded tidal flats. Submerged waters and tidelands in the bay are the property

of the state of Oregon, managed by the ODSL. The COE is responsible for the maintenance of the Coos Bay navigation channel. Please see section 4.3 for a thorough discussion on water resources.

The Coos Bay estuary is utilized for recreational boating, fishing, clamming and crabbing, as well as commercial fishing, oyster farming, and commercial shipping. Commercial shipping and fishing are discussed in section 4.8. Recreational boating and fishing (including clamming and crabbing) in Coos Bay were discussed in section 4.7.1.3.

Coos Bay is the largest commercial producer of shellfish in the state of Oregon. Oysters are commercially raised in the mudflats of South Slough and Haynes Inlet and the upper bay east of McCullough Bridge. Clamming occurs at Haynes Inlet. Recreational crabbing occurs throughout the lower and mid-bay. Aquatic resources are more fully discussed in section 4.5.

Hunting areas are administered by the ODFW, and are located in the Siuslaw National Forest and along the North Spit. Big game, waterfowl, and furbearing animals are pursued in the public areas of the North Spit and most areas are open for hunting during the legal seasons.

Construction and operation of the Jordan Cove LNG terminal would have no direct adverse effects on nearby parks or disbursed recreational activities, such as hunting or OHV use, on the North Spit. The terminal would be on private property, with no public access allowed. There may be some conflicts between recreational drivers on the Trans-Pacific Parkway on the North Spit and construction traffic to the LNG terminal. Jordan Cove filed a Transportation Impact Analysis, and this issue is addressed in section 4.9.

Jordan Cove and the Port would construct the slip in two phases. During the first phase, the upland portion being excavated for the slip would be kept isolated from Coos Bay by an earthen berm. During this phase of construction, there would be no limits on recreational boating in the bay adjacent to the terminal. Recreational boating would be discouraged around the final construction phase, when the berm would be removed, and the remainder of the slip area and access channel would be dredged out about 800 feet from the shoreline to the existing navigation channel. Notices would be provided to boaters by the Coast Guard and the OSMB to avoid this area during the second construction period. Signs would be posted at the shoreline and at the boat ramps and marinas, and on buoys in the bay, in advance of this final task to notify boaters of the planned construction activity and the duration of the activity. If the signage and notices are not sufficient to prevent recreational boating from avoiding the construction areas, some form of physical barrier, like a continuous string of highly visible soft material floats may be extended across the mouth of the slip or around the construction area. Construction safety inspectors would also be responsible to warn any recreational boaters who insist on endangering themselves by coming into the construction area. Boaters could avoid the construction area merely by moving to the east side of the bay.

During operation of the terminal, recreational boaters would have to avoid the slip when a carrier is at berth, and stay out of the safety and security zone established by the Coast Guard.

Potential short term impacts from construction noise would occur to recreational users in the immediate vicinity of the LNG terminal facilities. This includes recreational users in the Coos Bay Shorelands SRMA and Oregon Dunes NRA. Modeling of noise levels from general construction activities and from pile driving activities were conducted and are discussed in

section 4.11. Based on the results of the modeling, hikers, bird watchers, and other pedestrian recreations near the North Spit Overlook within approximately one mile of construction activities and may experience increases in the ambient sound environment. Predicted levels beyond one mile are 55 dBA for both general construction and pile driving. Pile driving related noise is predicted to be approximately 48 dBA at distances of 1.5 miles from the slip area. Recreational users on sand roads in the SRMA may also experience temporary background noise from the construction. OHVs that are allowed in these areas would also contribute to the ambient noise levels. Typical noise from OHVs is about 93 decibels, which exceeds and would overshadow the predicted construction noise levels.

Distance, topography and vegetation would help to minimize construction noise in the portions of the Oregon Dunes NRA where OHVs are not allowed (between the Trans-Pacific Parkway and Horsfall Beach Access Road). Construction of the LNG terminal would last for approximately 36 months. During construction, Jordan Cove intends to comply with the City of North Bend's noise ordinance that prohibits the "making of unnecessary noise," although the ordinance has no specific numerical limits (North Bend City Code, Section 9.04.030). Daytime construction noise between the hours of 7 a.m. to 6 p.m. is exempt. Coos County does not have a noise ordinance. In addition, Jordan Cove would limit construction activities primarily to daylight hours. The anticipated shift time that pile driving would be conducted is 7 a.m. to 4 p.m. The duration of this activity is expected to be approximately 32 weeks and would likely start in the late summer or fall of the year, pending the timing of the regulatory approval process. Nighttime noise levels would normally be unaffected by construction activities. With construction restricted to daytime hours, and given the temporal nature of construction, adjacent recreational users would not be adversely affected. Details on potential air and noise related effects are presented in section 4.11.

Other Public and Special Land Uses

The proposed Jordan Cove LNG terminal would not be sited on, directly affect, or be located within 0.25 mile of orchards, nurseries, landfills, operating mines, or hazardous waste sites. The LNG terminal would be approximately 0.7 mile from the Southwest Oregon Regional Airport. Potential impacts of the proposed LNG terminal on the airport are addressed in sections 4.8 and 4.9.

4.7.2.4 Visual Resources

Procedures for describing the existing visual condition of the landscape and visual impact assessment used for the LNG terminal are consistent with methodologies developed by the BLM (1981), USFS (1973, 1995), the Federal Highway Administration (1981), and the COE (Smardon et al. 1988). The following section describes the techniques for assessing potential terminal visibility.

Visual Assessment Points

A visual impact assessment was conducted to determine the potential impacts on the visual resources associated with the LNG terminal. Representative viewing points (hereafter referred to as key observation points or KOPs) were identified within the terminal viewshed, or the area from which the terminal would be potentially visible. Objects typically become apparent to the viewer when they are seen in the foreground, at a distance of one-half mile or less, but may affect viewers when they are present in the middleground (up to 4 miles from the viewer)

depending on the extent of landscape modification. In the case of the proposed LNG terminal, the viewshed for the terminal extends to a distance of approximately 2 miles from the LNG terminal site and was defined using aerial and ground photography, local planning documents, computer modeling, and field reconnaissance. Site visits to document existing visual conditions in the terminal area and to identify potentially affected sensitive viewing locations were conducted in April 2006 at the proposed LNG terminal site. These KOPs were selected to characterize the visibility of the proposed facility and its impact on potential viewers and the landscape in which it would be constructed and operated. From much of the terminal viewshed, it is anticipated that views of the LNG terminal would be partially or fully screened by existing trees, landforms, or intervening development.

The types of viewing points included in the assessment consisted of locations with concentrations of viewers such as major roadways or housing developments, visually sensitive land uses such as parks and recreation areas, culturally sensitive locations such as historic sites, and places designated as having scenic importance such as highways and overlooks. Figure 4.7-6 indicates the locations of the KOPs and the individual KOPs are described in detail below.

Analyzing potential visual impacts from a series of viewing points allows the experience of actual viewers to be taken into account. Potential impacts from these locations can then be evaluated by superimposing the proposed LNG terminal structures and other developmental impacts (e.g., vegetation removal) as viewed from these locations.

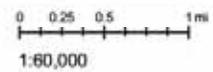
LNG Terminal – Existing Visual Conditions

The proposed LNG terminal site is located on an approximately 173-acre undeveloped site on the bay side of the North Spit of Coos Bay, Oregon. The site is bordered on the south by Coos Bay and on the west by Henderson Marsh. East of the site is a wood chip facility owned and operated by Roseburg, which includes a dock for mooring ships, infrastructure for loading ships that includes a 190-foot high loading tower, large wood chip piles with associated heavy equipment used for transport of the piles, two large buildings, several small outbuildings, and two large water tanks. The site is bordered on the north by the Trans-Pacific Parkway and the Central Oregon and Pacific Railroad, beyond which lies the Oregon Sand Dunes NRA. The recreation area is within the Siuslaw National Forest and is characterized by both exposed sand and forest-covered sand dunes; forested areas occur on stabilized dune ridges, troughs, and dry basin areas adjacent to the Trans-Pacific Parkway.

Other commercial/industrial facilities are located southwest of the terminal site along the North Spit including a Southport Forest Products facility, approximately 1 mile from the proposed LNG terminal site, and the buildings and yards of D.B. Western Inc. Design Engineering, International Contractors, Inc., and International Marine Contractors, approximately 2 miles from the LNG terminal site. Other developed, urbanized areas (e.g., commercial and residential) are located across Coos Bay in the Cities of North Bend and Coos Bay. The North Bend Municipal Airport is on the northern most point of the City of North Bend along the shoreline of Coos Bay. The presence of this highly visible development and infrastructure, in combination with the relative openness of the site, results in a landscape setting that has a mix of both natural and man-made elements.



Figure 4.7-6
Visual Simulation Photo
Viewpoint Locations



Topography on the west side of the proposed LNG terminal site is generally flat and was formed by the placement of fill into Henderson Marsh. On the east site the site is primarily forested sand dune ridges reaching elevations that exceed 100 feet above mean sea level. The vegetation patterns in the vicinity of the proposed LNG terminal site are dominated by forested and woodland communities. Shrubland and herbaceous communities are also present, primarily in the western portion of the proposed LNG terminal site. The forested and woodland communities are dominated by shore pine and Douglas-fir, and also include Sitka spruce, western hemlock and scattered Port-Orford cedar. The forested areas on the North Spit contrast strongly with the exposed sands of the dunes and the areas containing the lower growing shrubby and herbaceous vegetation.

Visual Simulations

To document the proposed visual changes, computer-based visual simulations were prepared to show the LNG terminal from the ten KOPs. The visual simulations are presented as existing views (e.g. before) and visual simulation (e.g. after) images from these KOPs. The visual impact assessment was based on evaluation of the changes to the existing visual resources that would result from construction and operation the proposed facilities based on the results of the simulation.

The computer-generated visual simulations are the result of an objective analytical and computer modeling process and are accurate within the constraints of the available site and LNG terminal data. Existing GIS and engineering data, and digital aerial photographs provided the basis for developing three-dimensional digital models of the LNG storage tanks and of the pipeline right-of-way in a pre-determined real world coordinate system.

Once the KOPs were established, site photographs were taken. For each of the KOPs, viewer location was obtained by acquiring global positioning system coordinates. Other information such as the compass bearing of the photograph orientation, time of day, ground elevation, and weather conditions were noted for later use in the computer models and renderings. Digital visual simulations of proposed facilities were then produced based on computer renderings of the three-dimensional models combined with the associated GPS field data.

Visual Impact Assessment

An adverse impact on visual resources was considered significant and would require mitigation if construction or operation of the LNG terminal facilities would:

- cause inconsistency with adopted Visual Resource Management (VRM) Plans of the USFS and/or BLM;
- conflict with existing plans, policies, or regulations, and/or ordinances regarding aesthetics and visual resources established by a jurisdiction (state, county, or local governments) directly affected by the LNG terminal. In those areas where no VRM Plans exist, significant impacts are determined by examining the study area for sensitive viewsheds, areas of high user volumes, and areas of unique visual resources. Sensitive resources are then examined on a case-by-case basis to determine level of impact. Significant impacts are those that dominate the viewshed from sensitive locations and change the character of the landscape both in terms of physical characteristics and land uses;

-
- displace or destroy a sensitive receptor location (business or permanent residence) from its established location;
 - visually and/or physically divide an established community;
 - result in reductions in the quality of the recreation experience for more than one visitor use season (such as from increased noise and dust, reduced visual quality from landscape modifications and night illumination, reduced visibility to valued landscape features, and/or reduced water quality);
 - result in a substantial adverse effect on a scenic area or vista;
 - substantially damage scenic resources (including, but not limited to, trees, rock outcroppings, and/or historic buildings) visible from a state or federal scenic area, National Recreation Area, Scenic Byway, or Scenic Highway;
 - substantially degrade the existing visual character or quality of the site and its surroundings; or
 - create a new source of substantial light or glare that would adversely affect day or nighttime views in the area.

Short-term Visual Impacts During Construction

Construction of the LNG terminal would be noticeable to recreational users on Coos Bay, in portions of the Oregon Dunes National Recreation Area, in portions of the North Spit Overlook, and in the North Spit SRMA including the boat launch. Some residences in both the Cities of North Bend and Coos Bay would also have views across the bay to the terminal and slip site. Construction activities would also be noticeable to motorists using the Trans-Pacific Parkway and the Pacific Coast Scenic Byway, US Highway 101. Visual effects from construction activities would include dust as well as the presence of construction equipment on the LNG terminal site. These effects would be temporary and limited to the construction period.

Long-term Visual Impacts

Based on the visual simulations the LNG terminal would be visible to the public and would alter the existing visual character and quality of the site and, in some instances, the surrounding area. In addition to installation of the tanks, another permanent impact includes the removal of portions of a forested hill located on the eastern portion of the LNG terminal site. This hill is a prominent topographic feature and its removal was incorporated in the computer-aided drawings for the visual simulation.

The Jordan Cove LNG terminal and slip would have a moderate to high visual impact on the surrounding residential communities due to proposed vegetation removal, landform modifications, and introduction of the LNG facilities in a previously undeveloped area. Many of the residences in the cities of Coos Bay and North Bend are sited on hillsides or along the shoreline with views of Coos Bay and the North Spit. These residences would have views of the Jordan Cove site and the slip site from middle ground view distances of over one mile. Moderate visual impacts are anticipated for residences that would have views of the Jordan Cove and slip site as seen when looking out over or between other residences and vegetation. This scenario generally applies to residences on hillsides. Residences located along the shoreline of Coos Bay off Maxwell Road, Seagate Avenue, and to a lesser extent, Fenwick Street would have greater visual impacts than the hillside residents. This is due to the existing scenic quality along the shoreline and the generally unobstructed views of the Jordan Cove terminal. The visual impact

for these residences is considered high even when coupled with the fact that the shoreline residences currently have views of the industrial and commercial activities to the east of the Jordan Cove and the slip sites.

The Jordan Cove LNG terminal facilities would be visible to recreational users on Coos Bay, in portions of the Oregon Dunes National Recreation Area, in portions of the North Spit Overlook, and in portions of the North Spit SRMA including the boat launch. Visual impacts to recreational users in these areas with views of the Jordan Cove terminal would be moderate. LNG facilities would also be noticeable to motorists using the Trans-Pacific Parkway and the Pacific Coast Scenic Byway, US Highway 101. Visual impacts to travelers on these roadways would be low. The visual impact assessment from each of the KOPs is addressed below.

KOP-T1 Weyerhaeuser North Spit Overlook—Located approximately 0.6 mile north of the two proposed LNG storage tanks, this point represents views of recreationists using the North Spit Overlook and nature trail. There would be an unobstructed view of the LNG terminal site from this location. Additionally, once the forested sand dune is removed, as shown in figure 4.7-7, facilities at the adjacent Roseburg site would become visible from this vantage point.

KOP-T2 Trans-Pacific Parkway—Located approximately 0.3 mile north of the two proposed LNG storage tanks, this point represents views from the Trans-Pacific Parkway. As shown in figure 4.7-8, there would be an unobstructed view of the LNG terminal site from location. Additionally, facilities at the adjacent Roseburg site would become visible after the forested sand dune is removed.

KOP-T3 Horsfall Beach Campground, Parking, and Staging Area—Located approximately 1.6 mile northwest of the two proposed LNG storage tanks, this point represents views seen by recreationists using the Oregon Dunes National Recreation Area. The simulation indicates that the domes of the LNG storage tanks would be visible above the existing tree line (figure 4.7-9). Intervening topography and vegetation obstructs views to other LNG terminal facilities from this vantage point.

KOP-T4 Highway 101 North of the Intersection with the Trans-Pacific Parkway—Located approximately 2.3 miles east of the two LNG storage tanks this point represents views seen by motorists on the Trans-Pacific Parkway. From the point the 190-foot high loading tower at the Roseburg facility can barely be seen above the tree line at the far left side of the photographs. As shown in figure 4.7-10, the LNG storage tanks, located behind and to the right of the Roseburg structure, would be obstructed by intervening landforms and vegetation.

KOP-T5 Highway 101 on the North Side of the McCullough Bridge—Located approximately 2.3 mile east of the two LNG storage tanks, this point is representative of the views seen by motorists on Highway 101 and residents in the City of North Bend. The simulation shows the forested sand dune that will be removed. The LNG storage tanks are located behind another forested hill and therefore would not be visible from this location (figure 4.7-11). Additionally, buildings and other aboveground facilities/materials located on the Roseburg site will obscure views of most of the LNG terminal facilities.



Figure 4.7-7. KOP-T1. Weyerhaeuser North Spit Overlook. Existing and Simulated Views of the LNG Terminal from the Weyerhaeuser North Spit Overlook



Figure 4.7-8. KOP-T2. Trans-Pacific Parkway. Existing and Simulated Views of the LNG Terminal from the Trans-Pacific Parkway



Figure 4.7-9. KOP-T3. Beach Campground, Parking, and Staging Area. Existing and Simulated Views of the LNG Terminal from the Horsfall Beach Campground

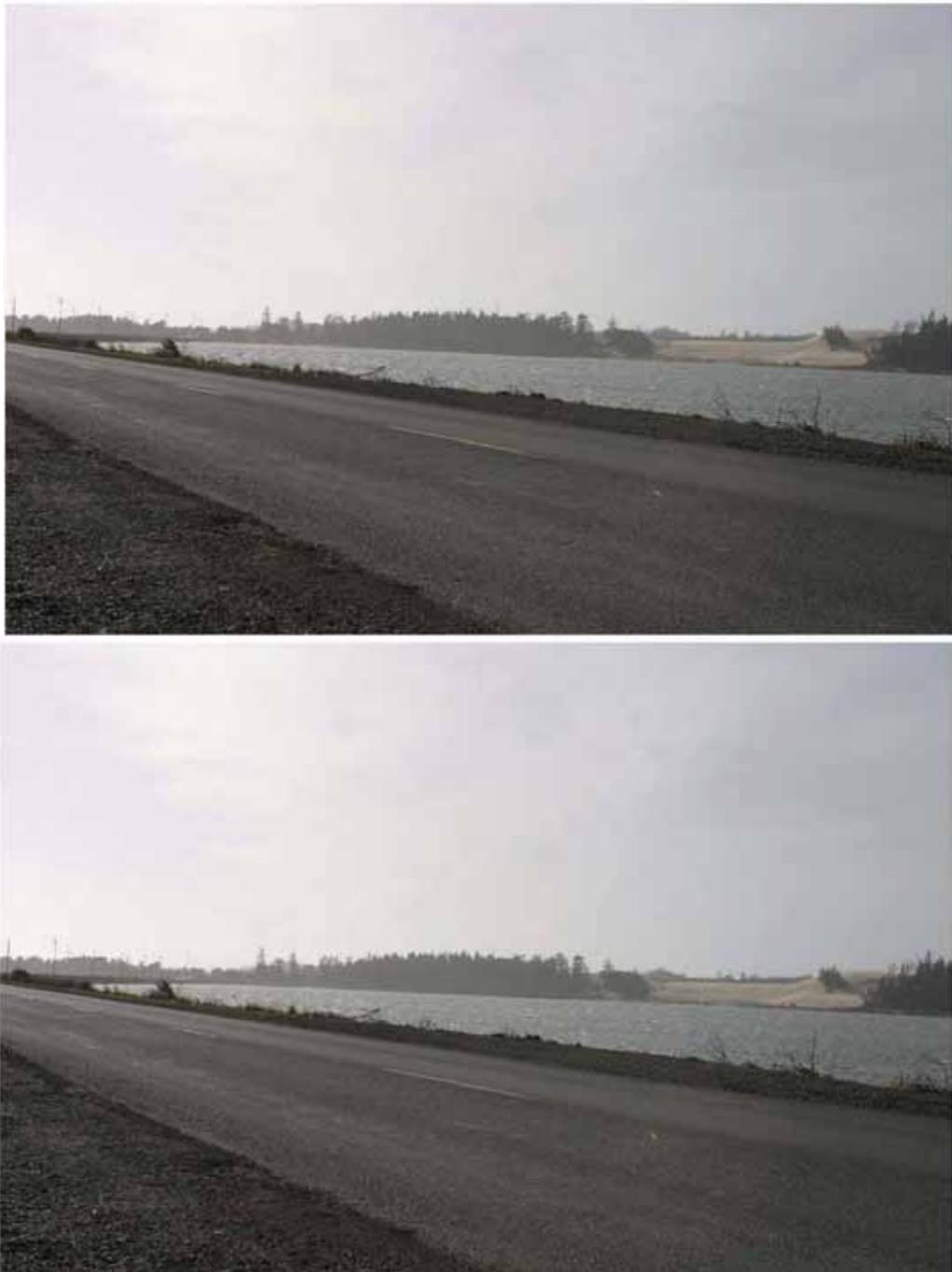


Figure 4.7-10. KOP-T4. Highway 101 North of the Intersection with the Trans-Pacific Parkway.
Existing and Simulated Views of the LNG Terminal from Highway 101



Figure 4.7-11. KOP-T5. Highway 101 on the North Side of the McCullough Bridge. Existing and Simulated Views of the LNG Terminal from Highway 101 on the North Side of McCullough Bridge

KOP-T6 Highway 101 on the South Side of the McCullough Bridge—Located approximately 2.3 mile east of the two proposed LNG storage tanks, this point is also representative views seen by motorists along Highway 101 and people in the City of North Bend. The LNG storage tanks would be visible from this location (figure 4.7-12).

KOP-T7 Airport Lane in North Bend—Located approximately 1.3 mile south of the two LNG storage tanks, this point represents views seen by North Bend residents. The LNG storage tanks and carriers docking at the slip would be visible from this location (figure 4.7-13).

KOP-T8 Boat Launch near Michigan Avenue in Empire—Located approximately 6.5 miles south of the two proposed LNG storage tanks, this point represents views seen by residents in the City of Empire. The simulation indicates that the LNG storage tanks would be visible from this location, as would ships docking at the slip (figure 4.7-14).

KOP-T9 Pier Near Industrial Facilities Near the South End of the Trans-Pacific Parkway—Located approximately 2.3 miles south of the proposed LNG storage tanks, this point represents views from the industrial area. The LNG storage tanks and carriers docking at the slip would visible from this location (figure 4.7-15).

KOP-T10 BLM North Spit Boat Launch Area—Located approximately 2.3 miles west of the two proposed LNG storage tanks, this point represents the view seen by recreationists using the North Spit Special Recreation Management Area. The simulation indicates that the LNG storage tanks and carriers docking at the slip would be visible from this location (figure 4.7-16).



Figure 4.7-12. KOP-T6. Highway 101 on the South Side of the McCullough Bridge. Existing and Simulated Views of the LNG Terminal from Highway 101 on the South Side of McCullough Bridge



Figure 4.7-13. KOP-T7. Airport Lane in North Bend. Existing and Simulated Views of the LNG Terminal from Airport Lane



Figure 4.7-14. KOP-T8. Boat Launch near Michigan Avenue in Empire. Existing and Simulated Views of the LNG Terminal from the Boat Launch near Michigan Avenue in Empire, Oregon



Figure 4.7-15. KOP-T9. Pier Near Industrial Facilities Near the South End of the Trans-Pacific Parkway. Existing and Simulated Views of the LNG Terminal from the Pier near the Southern End of the Trans-Pacific Highway



Figure 4.7-16. KOP-T10. Pier Near Industrial Facilities Near the South End of the Trans-Pacific Parkway. Existing and Simulated Views of the LNG Terminal from the BLM North Spit Boat Launch Area

Proposed Mitigation

Jordan Cove has proposed several measures that may mitigate visual impacts. The LNG storage tanks would be left the light grey-white color of the unpainted concrete, which, given the sand dunes in the area, would blend in with the background. Various tank profiles and locations were evaluated in order to minimize visual effects with the conclusion that the proposed size, profile, and location would be the optimum considering other environmental factors, safety, and reliability. The final design would include provisions to contour and stabilize landforms not affected by construction to provide some level of screening. The use of native plants for restoration and stabilization of the landforms would also be incorporated into the final design to the extent practical.

Only lighting required for operation and maintenance, site safety and security, and to meet Federal Aviation Administration requirements would be used on the LNG storage tanks and whenever possible, the light would be localized to minimize offsite effects. The lighting levels would be based on API standards. Lighting around equipment and facilities where routine maintenance activities could occur on a 24-hour basis would range from 1 to 20 foot-candles, with 20 foot-candle lighting levels within the compressor enclosures. General process area lighting would be kept to a minimum, on the order of 2 foot-candles. LNG terminal access road lighting would be 0.4 foot-candles. Perimeter security would be on the order of 1.3 foot-candles, using evenly spaced 400-watt floodlights. As a frame of reference, 20 foot-candles is close to the indoor lighting in a typical home, 2 foot-candles is typical of that found in a store parking lot, and 0.4 foot-candles is typical of residential street lighting. The FWS has not identified any concerns regarding the impacts of facility lighting on bird migration.

4.7.3 Pacific Connector Pipeline and Associated Facilities

4.7.3.1 Existing Land Use and Zoning

Approximately 61.4 percent of the land that would be crossed by the proposed pipeline is classified as forested land; 14.0 percent is classified as agricultural lands; 10.4 percent as rangelands and 6.0 percent as urban or built-up lands. The other land classifications combined (water, wetlands, and barren lands) comprise about 8.0 percent of the proposed pipeline corridor route. A summary of existing land uses crossed by the pipeline is presented in table 4.7.3.1-1.

The pipeline would cross a combined total of about 144.0 miles of forest, include deciduous forest, evergreen forest, mixed forest (containing both deciduous and evergreen trees), clearcut forest, and regenerating forest. About 32.4 miles of agricultural lands would be crossed, including cropland and pasture. The pipeline would cross about 22.4 miles of range, including herbaceous (grassy) rangelands, shrub and brush rangelands, and mixed (both grassy and brush) rangelands. Urban and built-up lands include residential areas, commercial areas, industrial areas, and transportation, communication and utility corridors (including roads, railroads, telephone lines, powerlines, and pipelines). The pipeline would cross about 13.9 miles combined of residential/commercial/industrial lands. Water includes oceans, bays and estuaries, lakes and reservoirs, rivers and streams, and ditches and canals. Wetlands include forested and non-forested wetlands. The pipeline would cross about 15.0 miles of water and wetlands combined. Less than 2 miles of barren lands would be crossed, including sandy areas other than beaches,

exposed bedrock, strip mines, quarries, and gravel pits, transitional areas, and mixed barren lands (table 4.7.3.1-1).

Installation of the pipeline would require the clearing of trees within the construction right-of-way. Excluding areas along the pipeline route that have already been clear cut (10 miles), about 2,653 acres of upland forest would need to be cleared during pipeline construction activities. In addition, about 9.4 acres of forested wetlands would be cleared. Restoration and revegetation of forest was previously discussed in section 4.4. A 30-foot wide corridor centered on the pipeline would be kept permanently in an herbaceous state, resulting in a permanent loss of about 525 acres of forest. In addition, trees taller than 15 feet would not be allowed within 15 feet on either side of the pipeline centerline. Outside of that 30-foot-wide corridor, forest would be restored within the remainder of the construction right-of-way, including TEWAs. Pacific Connector would mitigate impacts on forest by following its ECRP. However, even with restoration, this would be a long-term impact, as it takes trees many years for trees to mature. About 6 acres of forest would be permanently removed as a result of the proposed Butte Falls Compressor Station.

About 587 acres of agricultural land would be affected by pipeline construction. After the pipeline is installed, these lands can be restored and returned to their original condition and use. Crops or pasture grasses may be grown within the permanent right-of-way, including on top of the pipeline. Therefore, there should be no permanent long-term impacts on agricultural lands. Impacts on agricultural lands would be temporary and short term, during construction, as Pacific Connector would use its ECRP to restore those lands. To lessen and mitigate impacts on agricultural lands, Pacific Connector would segregate topsoil and repair any damaged irrigation systems or drain tiles. The segregation of topsoil is discussed in section 4.2. The largest proportion of agricultural lands crossed by the pipeline, a total of about 30 miles of privately irrigated cropland, would be in Klamath County. Pacific Connector would reduce or mitigate impacts by using a winter construction schedule between MPs 188 and 230, when many of the irrigation canals are dry or unused, and water tables are low. Payments for crop losses and damages would be negotiated between Pacific Connector and individual private landowners. Almost 7 acres of agricultural land would be permanently taken out of production by the operation of the Tule Lake, Russell Canyon, and Buck Butte Meter Stations, which would be mitigated through the purchase of the land from the owner.

The primary impact on pasture and rangelands use for grazing of livestock would be temporary removal of fences during construction of the pipeline. To mitigate those impacts, Pacific Connector would erect temporary fences and gates. Fences cut would be braced and secured to prevent slack wires. After construction, fences, gates, and cattle guards would be restored to their original state as soon as practical. Prior to construction, Pacific Connector would notify landowners, providing them with an opportunity to remove livestock from the construction right-of-way.

We discuss impacts and mitigation for the crossing of residential and commercial lands below in section 4.7.3.2. The crossing of roads by the pipeline is discussed in section 4.9. When crossing other underground utilities, Pacific Connector would follow standard pipeline construction procedures, such as calling the One-Call underground utility number prior to construction in a specific area, and contacting the utility companies to coordinate the crossing. The crossing of waterbodies and wetlands is discussed in section 4.3.

TABLE 4.7.3.1.1

Acres of Land Affected by Construction and Operation of the Pacific Connector Project

Facility	Agriculture/ Rangeland <u>d/</u>		Residential		Industrial/ Commercial <u>e/</u>		Open Lands <u>f/</u>		Water <u>g/</u>		Total	
	Construction	Operation	Construction	Operation	Construction	Operation	Construction	Operation	Construction	Operation	Construction	Operation
Pacific Connector Pipeline <u>b/</u>	628.76	476.46	8.10	6.18	138.80	93.59	1784.80	1132.80	202.34	67.59	2762.80	1776.62
Jordan Cove Meter Station, MLV #1 and Comm. Tower	0.00	0.00	0.00	0.00	0.24	0.24	2.01	2.01	0.00	0.00	2.25	2.25
MLV #2	0.06	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.06
MLV #3	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.06	0.00	0.00	0.06	0.06
MLV #4	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.06	0.00	0.00	0.06	0.06
MLV #5	0.06	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.06
MLV #6	0.06	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.06
Clarks Branch Meter Station, MLV #7 and Comm. Tower	0.90	0.90	0.00	0.00	0.02	0.02	0.10	0.10	0.00	0.00	1.02	1.02
MLV #8	0.06	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.06
MLV #9	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.06	0.00	0.00	0.06	0.06
Shady Cove Meter Station and Comm. Tower	2.38	0.00	0.00	0.00	0.00	0.00	0.60	0.60	0.10	0.10	2.08	2.08
Butte Falls Compressor Station, MLV #10 & Launcher/Receiver and Comm. Tower	1.30	0.00	0.05	0.05	0.00	0.00	5.95	5.95	0.09	0.09	7.39	7.39
MLV #11	0.06	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.06
MLV #12	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.06	0.00	0.00	0.06	0.06
MLV #13 and Launcher/Receiver Site	0.00	0.00	0.00	0.00	0.00	0.00	0.46	0.46	0.00	0.00	0.46	0.46
MLV #14	0.06	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.06
MLV #15	0.06	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.06
Tule Lake, Russell Canyon Meter Stations, MLV #16, Receiver and Comm. Tower	6.60	6.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.60	6.60
Subtotal Pacific Connector Aboveground Facilities	11.60	11.60	0.05	0.05	0.26	0.26	9.36	9.36	0.19	0.19	21.46	21.46
Access Roads	3.14	0.71	0.00	0.00	18.45	1.42	3.73	0.66	1.42	0.01	26.74	2.8
Additional Temporary Workspace	345.60	0.00	6.18	0.00	274.41	0.00	1367.81	0.00	61.71	0.00	2085.71	0.00
Extra Space, OTHER <u>g/</u>	2.90	0.00	0.00	0.00	30.69	0.00	22.81	0.00	0.14	0.00	56.54	0.00
Total Acres <u>h/</u>	1022.00	488.77	14.33	6.23	515.61	105.57	3325.11	1235.72	290.8	92.79	5167.85	1929.08

a/ Includes land that would be removed to create the slip.

b/ Includes 95-foot-wide standard construction right-of-way for the pipeline, and an operational right-of-way of 53, 60, or 75 feet depending on land ownership.

c/ Includes hydrostatic discharge and rock source/disposal sites.

d/ Includes tree plantations

e/ Includes transportation and utility lands.

f/ Includes wetland, forestland, beaches and barren land.

g/ Includes open water, streams and ditches.

h/ Totals do not include acreage for contractor and pipe storage yards required during construction.

During scoping we received a number of comments from landowners that would be affected by the Pacific Connector pipeline. Concerns expressed included potential impact on private landowner rights, use of eminent domain to acquire rights-of-way, allowed future land uses, property values, construction disturbance, potential damage to wells and septic systems, potential loss of trees and fencing and as a result of those, privacy. We have addressed these issues below. Several commentors and affected landowners also suggested possible route variations that would avoid or minimize impacts on specific properties. Pacific Connector has incorporated some minor route changes into its proposed route as a result of landowner requests (see table 3.1.4.4-1). We have also evaluated several route variations in this EIS that were suggested by affected landowners, or that Pacific Connector identified as a result of landowner concerns (see section 3.1.4.2). Douglas County expressed concerns about the impact of the Pacific Connector pipeline on private landowners that would be crossed by or adjacent to the pipeline. Impacts on private landowners are discussed below.

The pipeline would cross 45.7 miles within Coos County, between MPs 0.0 and 45.7; 63.4 miles in Douglas County between MPs 45.7 and 109.1; 57.3 miles within Jackson County between MPs 109.1 and 166.4, and 64.5 miles within Klamath County between MPs 166.4 and 230.9. In Coos County the pipeline would cross lands zoned predominantly Farm (F) and Exclusive Farm Use (EFU) as well as some Rural Residential (RR-5). In Douglas County the pipeline would cross lands zoned predominantly Timberland Resource (TR) and Exclusive Farm Use (FG), and to a lesser extent Farm Forest (FF), Agriculture and Woodlot (AW), and Rural Residential (5R). In Jackson County the pipeline would cross lands zoned predominantly Forest Resource (FR), a substantial length of Exclusive Farm Use (EFU), as well as some Open Space Reserve (OSR) and also possibly a small amount of land zoned Rural Residential (RR-5). In Klamath County the pipeline would cross primarily lands zoned for Forest (F) and Exclusive Farm Use (EFU), but also some Residential (R2) and Heavy Industrial (IH).

Pacific Connector has not requested that any of the land crossed by the pipeline be rezoned by any of the affected counties. Pacific Connector stated that it intends to respect county land use and zoning restrictions. Pacific Connector has filed with the Commission memos or letters from Jackson and Klamath Counties stated that because the proposed pipeline is regulated by FERC, the pipeline would be considered exempt from their respective county land use regulations. Douglas County has indicated the same; however, an application to the land use commission may be required because a portion of the pipeline within Douglas County would be within the designated Coastal Zone. The Coos County land use commission would review the proposed project because the entire length of the pipeline within Coos County would be within the Coastal Zone. Pacific Connector has not yet filed applications with the Coos County or Douglas County land use commissions. County building permits would be required for aboveground facilities.

We received a comment during scoping asking how Oregon Measure 37 (codified as ORS 197.352) would affect land access agreements or rights-of-way acquired by Pacific Connector. The law enacted in 2004 by Measure 37 allows property owners whose property value is reduced by environmental or other land use regulations to claim compensation from state or local government. In 2007, Measure 49 was also passed that overturns and modifies many of the provisions of Measure 37. Because Measure 37 was intended to apply to cases where local land use regulations affect property value we do not think it is applicable to this Project. Pacific Connector would compensate landowners for losses or damages based on negotiated easement agreements.

Land Ownership

A variety of public and private lands would be crossed by the Pacific Connector pipeline, as is summarized in table 4.7.3.2-1. Land ownership along the proposed pipeline route is approximately 30.5 percent federal and 66.2 percent private. State lands constitute 3.2 percent of all lands crossed by the proposed pipeline and county-owned lands would constitute less than 0.01 percent. The pipeline would cross property owned in fee by the Cow Creek Band of Umpqua Tribe of Indians from MP 70.63 to 71.22. Land uses regarding visual impacts on federal lands are discussed in section 4.7.4.

TABLE 4.7.3.2-1

Land Ownership Crossed by the Pacific Connector Pipeline ^{a/}						
County	Federal Land	State Land	County Local Land	Private Land	Tribal Land	Total
Coos	10.74	7.13	0.00	28.04	0.00	45.91
Douglas	21.15	0.00	0.02	42.27	0.00	63.44
Jackson	31.06	0.20	0.00	25.50	0.00	56.76
Klamath	9.28	0.53	0.00	53.59	0.00	63.40
Total	72.23	7.86	0.02	149.40	0.00	229.51

^{a/} In the GIS database, 0.29 mile in Klamath County were identified as "unknown" and have been added to the State Land column.

Coastal Zone Management

Coos County and a portion of Douglas County, up to the crest of the Coastal Range, are within Oregon's coastal zone. Therefore, Pacific Connector would need to obtain a finding from the ODLCD that the portion of its pipeline within the coastal zone is consistent with the CZMA. Pacific Connector submitted an application with the ODLCD on September 4, 2007. However, in a letter dated October 4, 2007, the ODLCD found the application incomplete, because it lacked the following:

- a copy of its application to the FERC;
- a matching application to the ODLCD from Jordan Cove and the Port covering all pipeline components;
- information required by the FWS and NMFS for compliance with the ESA;
- findings that provide a clear description of the applicable and enforceable policies of the OCMP, together with information about the affected environment and potential environmental impacts associated with pipeline construction and operational activities. These findings need to explain how the pipeline would be consistent with NOAA-approved enforceable policies;
- supporting information demonstrating compliance with state and local effects based on enforceable policies;
- copies of complete applications for state and local permits required by OCMP agencies;
- an explanation of how Pacific Connector would obtain permission to cross state-owned lands, and how those state lands would be managed in compliance with the OCMP; and
- an evaluation of transportation impacts of the pipeline consistent with the transportation planning requirements of the OCMP.

We recommend that:

- Pacific Connector should file with the Secretary, prior to construction of the pipeline, documentation of concurrence from the ODLCD that the proposed pipeline would be consistent with the CZMA.

4.7.3.2 Existing Residences, Commercial Buildings, and Planned Developments

Existing Residences and Commercial Buildings

Pacific Connector indicated that there were 15 residences observed during civil surveys within 100 feet of the edge of the proposed construction right-of-way, including TEWAs (table 4.7.3.3-1). Pacific Connector did not identify any commercial buildings within 100 feet of the construction right-of-way for its pipeline and ancillary facilities.

Milepost	Distance from Pipeline (feet)	Distance from Edge of Construction Right-of-Way or TEWA (feet)
14.25	100	28
14.25	103	33
57.51	57	17
65.64	112	47
68.95	180	4
69.80	94	64
68.98	130	82
70.08	49	19
70.50	95	30
132.50	78	13
189.80	92	27
189.80	111	46
189.80	145	50
199.65	150	30
200.30	310	22

The owners and users of one residential parcel in particular, the Oregon Women’s Land Trust (MP 85.44), voiced concerns during the scoping period regarding impacts of the pipeline on the use of this land. Pacific Connector met with representatives of the Oregon Women’s Land Trust and identified a possible pipeline route change that would reduce impact on the property. This potential route variation is discussed in section 3.1.4.2.

For residences or other privately held land (farm or ranchland and undeveloped parcels), an easement would be used to convey right-of-way to Pacific Connector. In this case, the easement would give the pipeline company the right to operate and maintain the pipeline and the permanent pipeline right-of-way, and in return compensates the landowner for the use of the land. The easement negotiations between Pacific Connector and the landowner would also include compensation for loss of use during construction, loss of nonrenewable or other resources, and damage done to property during construction. Typical easement agreements include monetary compensation for loss of timber in woodlots or other forested areas; loss of fruit-producing trees; and damage to or removal of fencing or other specialized landscaping, driveways, drain tiles, or water wells or septic systems. Monetary compensation for areas where improvements have been made by the landowner may be negotiated in the easement agreement. Easement agreements also typically specify activities or uses of the right-of-way that are not allowed following construction. In areas where use by off road vehicles is a concern,

landowners could also negotiate for Pacific Connector to install and maintain barriers across the right-of-way. Additional issues addressed during these negotiations would include company and FERC contact information, including a toll free telephone number, and fence specifications, in case of removal and replacement by Pacific Connector.

If an easement cannot be negotiated with a landowner and the pipeline has been certificated by the FERC, Pacific Connector may use the right of eminent domain granted to it under section 7(h) of the NGA and the procedures set forth under the Federal Rules of Civil Procedure (Rule 71A) to obtain the right-of-way and extra workspace areas. Pacific Connector would still be required to compensate the landowner for the right-of-way and damages incurred during construction. However, the level of compensation would be determined by a court according to state or federal law.

We received comments during the scoping process regarding potential property devaluation caused by construction and operation of proposed pipeline. Appraisal methods used to value land are based on objective characteristics of the property and any improvements. The impact that a pipeline or compressor station may have on the value of a tract of land depends on many factors, including the size of the tract, the values and land use 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 a pipeline or compressor station would not affect resale values. A potential purchaser of property may make a decision to purchase 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.

The effect that a pipeline easement may have on property values is a damage-related issue and should be negotiated between the parties during the easement acquisition process, or would be determined during condemnation proceedings. This negotiation is beyond the scope of this EIS.

Pacific Connector has proposed the following measures to reduce impact on residential properties:

- Construction would proceed quickly through residential areas, thus minimizing exposure to nuisance effects, such as noise and dust, and limiting the hours of operations that high decibel noise levels can be conducted. Landowners would be notified prior to construction and access and traffic flows would be maintained during construction activities, particularly for emergency vehicles. Pacific Connector has developed and would implement Landowner Complaint Resolution Procedures.
- Dust minimization techniques such as watering would be used on-site and all litter and debris would be removed daily from the construction site. Pacific Connector does not currently plan to work on Sundays; however, certain activities may require a 24-hour work schedule. Pacific Connector would attempt to schedule activities during normal working hours.
- After project construction, landowners affected by the Project would have use of the right-of-way, provided it does not interfere with the easement rights granted to Pacific Connector for construction and operation of the pipeline system. Such activities and uses would be spelled out explicitly during easement negotiations.

-
- Mature trees, vegetation screens and landscaping would be preserved to the extent possible. Landowners would be compensated for the removal of any trees.
 - Immediately after backfilling the trench, all lawn areas and landscaping within the construction work area would be restored.
 - Pacific Connector would compensate landowners for damage to homes should the home be damaged by pipeline construction.
 - Depending on the specific circumstances, Pacific Connector may choose to temporarily relocate residents during construction activities. Arrangements would be determined through negotiations between the landowner and Pacific Connector's Land Representative prior to construction.
 - Within 50 feet of residences, the edge of the construction work area would be fenced for a distance of 100 feet on either side to ensure that construction equipment and materials, including the spoil pile, remain within the construction work area. Fencing would be maintained, at a minimum, throughout the open trench phases of pipeline installation. Pacific Connector would also limit the period of time the trench remains open prior to backfilling.
 - For the residences within 50 feet of the proposed right-of-way, Pacific Connector has developed site-specific drawings depicting the temporary and permanent rights-of-way and has noted special construction techniques and mitigation measures.

However, Pacific Connector failed to mention how it would avoid affecting domestic wells, water systems, or septic systems associated with residences in close proximity to the pipeline or ancillary facilities. In addition, Pacific Connector did not provide site-specific plans for the 5 residences identified within 25 feet of TEWAs. Because the entire pipeline route has not yet been surveyed, there is the potential that other houses that could be affected by the pipeline would be identified after the FERC issues a Certificate and Pacific Connector gains access to property previously denied through eminent domain proceedings in accordance with section 7h of the NGA. Therefore, **we recommend that:**

- **Before pipeline construction begins, Pacific Connector should file with the Secretary, for the review and written approval of the Director of OEP:**
 - a. **the results of a civil survey of the entire pipeline route that identifies all residences and commercial structures within 50 feet of the construction right-of-way;**
 - b. **a plan outlining measures that should be implemented to mitigate pipeline construction impacts on domestic water supply systems and septic systems; and**
 - c. **For any residence closer than 25 feet to the construction work area, Pacific Connector should file a site-specific plan with the Secretary for the review and written approval of the Director of OEP before pipeline construction. The plan should include:**
 1. **a description of construction techniques to be used (such as reduced pipeline separation, centerline adjustment, use of stove-pipe or drag-section techniques, working over existing pipelines, pipeline crossover, bore, etc.), and include a dimensioned site plan that shows:**
 - A. **the location of the residence in relation to the new pipeline and, where appropriate, the existing pipelines;**

-
- B. the edge of the construction work area;
 - C. the edge of the new permanent right-of-way; and
 - D. other nearby residences, structures, roads, or waterbodies.
2. a description of how Pacific Connector would ensure the trench is not excavated until the pipe is ready for installation and the trench is backfilled immediately after pipe installation; and
 3. evidence of landowner concurrence if the construction work area and fencing would be located within 10 feet of a residence.

Planned Developments

According to Pacific Connector, planning agency officials at each of the individual counties indicated that no other large-scale projects were being developed, permitted or constructed in the vicinity of the proposed pipeline. Pacific Connector's land representatives are also not aware of any planned developments based on their discussions with individual landowners. No planned projects have been identified by other local, state, or federal agencies other than small scale timber sales (see section 4.13). None of the chambers of commerce and economic development councils in the four counties are aware of any large-scale development proposals in the vicinity of the pipeline.

4.7.3.3 Recreation and Special Interest Areas on Non-federal Lands

With the exception of the Coos Bay estuary, no recreation or special interest areas on non-federal lands would be crossed or directly affected by the Pacific Connector pipeline. From about MPs 0.5 to 7.5 the Pacific Connector pipeline would be within the Coos Bay estuary. The estuary was previously discussed in sections 4.3 and 4.7.2.2. Recreational activities in the estuary included boating, canoeing, kayaking, fishing, crabbing, and clamming. The Coos Regional Trails Partnership, a consortium of land management agencies and economic development groups developed a brochure that maps Coos Bay's water trails for various user groups. Portions of two water trails are in proximity to the proposed pipeline alignment. One trail, identified as Trail 2, follows the ship channel from North Bend south to the Marshfield channel, ending at Eastside near the Coos River Highway. The pipeline alignment would parallel this water trail from approximately MP 2.8 to MP 5.8. Water Trail 4 begins on the Cooston Channel north of the mouth of Coos River and courses down the channel and up the Coos River for about 5 miles. The pipeline alignment construction would intersect this trail at approximately MP 7.5 after crossing the Millacoma Marsh wetlands. Near MP 8.18, the pipeline alignment would cross under the Coos River and water trail using a horizontal directional drill. If Pacific Connector used Alternative Route WC1-A (see section 3.1.4.2), pipeline related impacts on water trails and recreation use of Coos Bay would be avoided. As a result of our analysis, we have recommended that Pacific Connector incorporate Alternative Route WC1-A.

There are five county parks near the proposed pipeline alignment, three of which are in Coos County and accessed by the Coos Bay Wagon Road. Middle Creek Park lies approximately 0.5 mile west of the pipeline alignment at about MP 27.5. Middle Creek is an unimproved, day use park. Cherry Creek Park, with about eight primitive campsites and fishing on Cherry Creek, is located less than a mile northwest of the pipeline alignment at MP 28.5. Frona County Park, offering a primitive group campground and fishing area along the East Fork of the Coquille River, is approximately 0.5 mile northwest of the proposed pipeline alignment at MP 30.0 (CBN 2006; CCPR 2006).

The Ben Irving Reservoir, in Douglas County, is located about 1.5 miles south of the proposed pipeline alignment near the town of Tenmile and State Highway 42 (near MP 55.80), is a large man-made water body used for fishing, boating, and other water related recreation. The day-use park has a picnic site and boat launch. The reservoir could be a source of water for pipeline hydrostatic testing. Impacts of hydrostatic testing on waterbodies are addressed in section 4.3.

Also, in Douglas County, near Milo, the Carl C. Hill Wayside provides a picnic area and fishing along the South Umpqua River. This day-use area is approximately 0.7 mile southwest of the proposed pipeline alignment at MP 94.73, where the proposed route crosses the South Umpqua using open-cut construction methods.

The Klamath Wildlife Area is managed by the ODFW to provide habitat for wintering and nesting waterfowl, upland game birds and a variety of other wildlife. Bald eagles, white pelicans, and ospreys are among the bird species present during certain times of the year. The area, along the Klamath River south of West Klamath, also serves as a recreation spot for fishing, hunting and boating (ODFW 2004). The pipeline right-of-way would pass within 0.3 mile along the north side of the Klamath Wildlife Area. Construction in this area would be limited to the ODFW-recommended work period of July 1 through January 31 in order to avoid adversely impacting the wildlife populations the area supports.

Pacific Power's Keno Recreation Area consists of a large, developed campground, boat launch, dock and picnic area along the Keno Reservoir of the Klamath River. Fishing and water sports are common activities at this recreation site near the town of Keno. The pipeline alignment passes less than 0.5 mile north of the reservoir at MP 192.53 utilizing an existing powerline corridor. Recreation and access to the Keno Recreation Area would not be impacted by construction and operation activities. Additionally, the reservoir could be a source of water for pipeline hydrostatic testing. The water impoundment is not expected to significantly draw down the reservoir or impact boating or other day-use activities. Impacts of hydrostatic testing on waterbodies is further addressed in section 4.3.

4.7.3.4 Visual Resources

Short-term Visual Impacts during Construction

Construction impacts to visual resources would result from the presence of equipment, materials, and work force along the pipeline right-of-way, at TEWAs and staging areas, and along access roads. Construction impacts on visual resources would also result from the temporary alteration of landforms and vegetation along the right-of-way. Vehicles, heavy equipment, helicopters, pipeline components, and workers would be visible during site clearing, grading, trenching, pipeline transport, welding, laying in, backfilling, and site/right-of-way cleanup and restoration. Construction equipment and activities would be seen by various viewers in close proximity to the sites and pipeline corridor including adjacent and nearby residents, recreationists on trails and roads, general motorists on public roadways, and in some cases, pedestrians. View durations would vary from brief to extended periods. Construction activities would be most visible for those elements of the proposed pipeline through residential neighborhoods and adjacent to major travel corridors, including highways and the Pacific Crest Trail. However, these effects would be temporary and would be limited to the construction period.

Long-term Visual Impacts

Operation and maintenance of the proposed pipeline would affect visual resources by altering the terrain and vegetation patterns associated with the maintained right-of-way and from the presence of new aboveground facilities. Example aboveground facilities are shown for reference in figures 2.1-15 and 2.1-16. No visual impacts are expected from the operation of the Butte Falls Compressor Station. This facility has been located on private lands approximately 1,000 feet north of the Butte Falls Highway to minimize intrusion to local residences. Existing tree cover is also expected to effectively screen the facility from the casual viewer. Potential impacts associated with night lighting at the compressor station would be minimized by reducing the number of continuous outside lights necessary to operate the facility and by using shrouds to direct light to the specific work areas within the station. An aviation safety strobe would be installed on the tower, which would be evident to rural residents as well as night traffic on the Butte Falls Highway and Highway 140.

Pacific Connector also proposes to construct five new gas control communication towers, which would be installed at the four meter station sites and the Butte Falls Compressor Station. The highest tower at the Butte Falls Compressor Station would stand on a knoll slightly higher than the immediate surrounding area but within the facility footprint, which is surrounded by a grove of oak trees. The tower would be seen from various locations along the Butte Falls Highway as well as from nearby locations and residences within the valley. All of the communication towers would be on private land. The towers located at the Jordan Cove Meter Station and Butte Falls Compressor Station would be approximately 140 and 160 feet high, respectively. The towers at the Clarks Branch, Shady Cove, and Tule Lake Meter Station sites would each be approximately 26 feet high.

The Clarks Branch and Tule Lake Meter Station towers would blend in with the surrounding meter station facilities and would be unobtrusive. The Jordan Cove tower would be located in an area with a long history of industrial land use. The meter station and communication tower would be located immediately adjacent to Roseburg Forest Products facilities, including wood chip piles, a 190-foot tall loading tower, and shipping docks, where such a relatively small industrial feature would not likely be noticed or detract from the visual setting.

The landscape setting along the proposed pipeline route is varied, ranging from flat valley floors and agricultural fields, to rolling hillsides covered with oak and madrone woodlands, to steep mountainsides and sharp ridgelines covered with mixed conifer timberlands. On flat terrain in agricultural settings, following construction, the right-of-way would be restored and ranchers/farmers would be allowed to grow crops over the pipeline. Construction work areas would normally be difficult to distinguish from surrounding areas. Therefore, no long-term visual impacts would result from construction and operation of the pipeline in agricultural areas.

In the mountainous terrain of the Coastal Range, many of the existing landscapes that would be traversed by the pipeline are already heavily impacted by existing timber harvests, including many large clearcuts. Existing scenic integrity in these areas is low, and the introduction of the pipeline would not create long-term visual contrasts in these settings. Impacts on visual resources due to the pipeline operation and maintenance would be short-term, based on the cleared and graded right-of-way through existing clearcuts and along existing transmission line rights-of-way.

The greatest long-term visual effects would occur where the new right-of-way would create new clearings through forestlands. On federal lands, straight-edged right-of-way clearings with parallel edges are deemed visually Unacceptable Modification by the USFS Visual Management System (USFS Agricultural Handbook 462) but achieve the standards of BLM-VRM Class IV (Major

Modification). The type of right-of-way clearing proposed by Pacific Connector, with straight, geometric, parallel edges, draws attention and does not blend in with natural occurring form, line, color or texture in the landscape.

Visual Impact Assessment

As described above for the LNG terminal, a visual impact assessment was conducted to determine the potential impacts on the visual resources associated with the pipeline facilities. The viewshed for the pipeline, within which representative KOPs were identified, extends to within 5 miles of the pipeline (per ODE direction OAR 345-021-0010(r)) and was defined using aerial and ground photography, local planning documents, computer modeling, and field reconnaissance. Site visits were conducted between August and September 2007 to document existing visual conditions along the pipeline route and to identify potentially affected sensitive viewing locations along the proposed pipeline route. From much of the pipeline route viewshed, it is anticipated that views of the pipeline facilities would be partially or fully screened by existing trees, landforms, or intervening development. Figures 4.7-17 to 4.7-19 show the pipeline route as it moves through the various BLM and USFS Visual Resource Management Classes as well as the KOP locations.

KOP-P1 Highway 42 near Camas Mountain State Park (MP 51.7)

This location illustrates impacts to a landscape enjoyed mostly by passing motorists on a scenic stretch of Oregon State Highway 42 above the Camas Valley. The intersection of Highway 42 and Quiet Mountain Road can provide observers with both foreground and middleground perspectives of the pipeline right-of-way. In this location the pipeline intersects a BLM VRM Class II viewshed. The pipeline would traverse Camas Valley in a west-to-east alignment and would be on the flat valley at the bottom of the tree covered knolls (figure 4.7-20).

KOP-P2 Trail Post Office (Near MP 123.0)

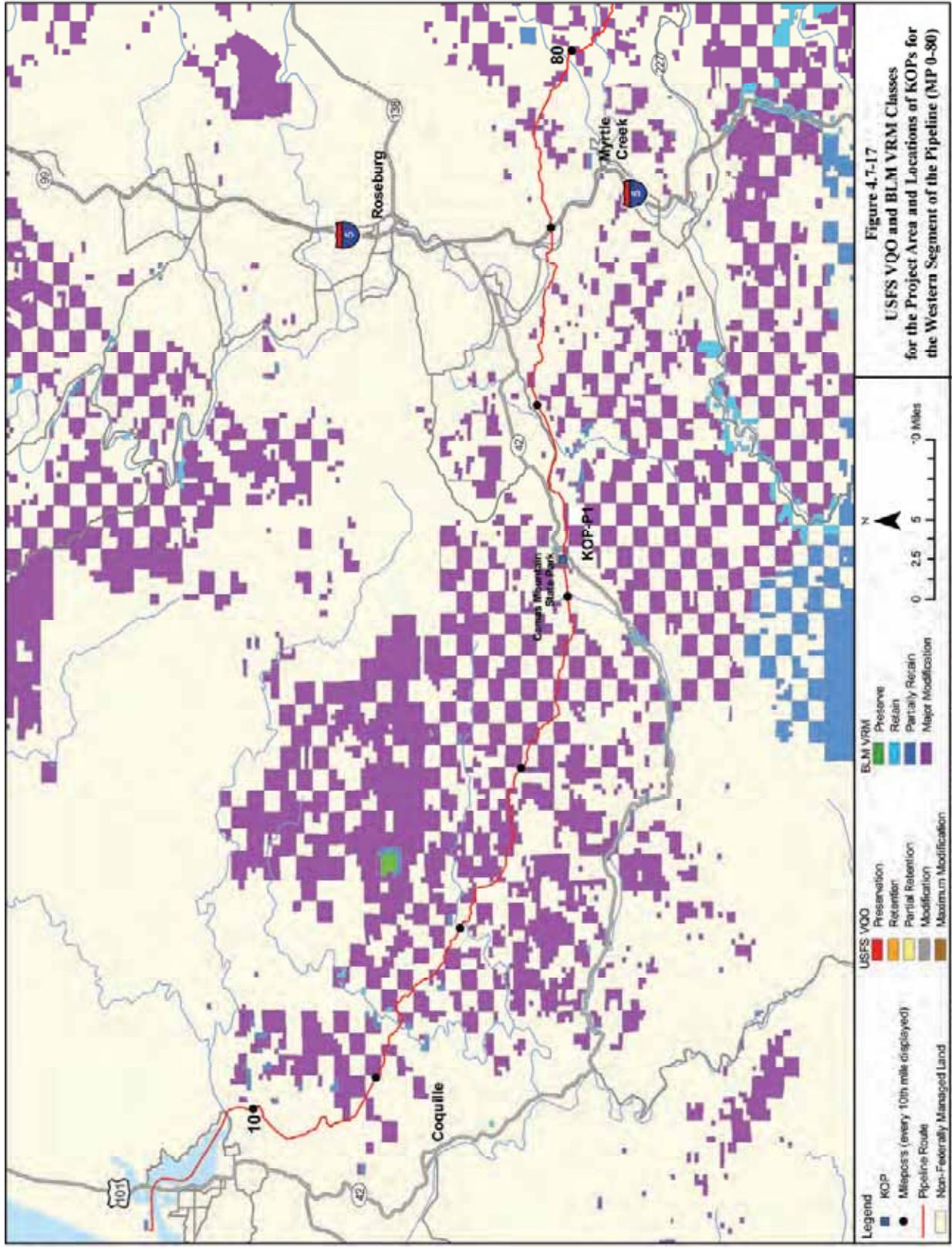
This point is located at the Trail Post office. Simulations show the view looking southeast toward the pipeline crossing of BLM-administered lands. The pipeline intersects BLM VRM Class II and III viewsheds and follows ridge tops in the background of the photo (figure 4.7-21).

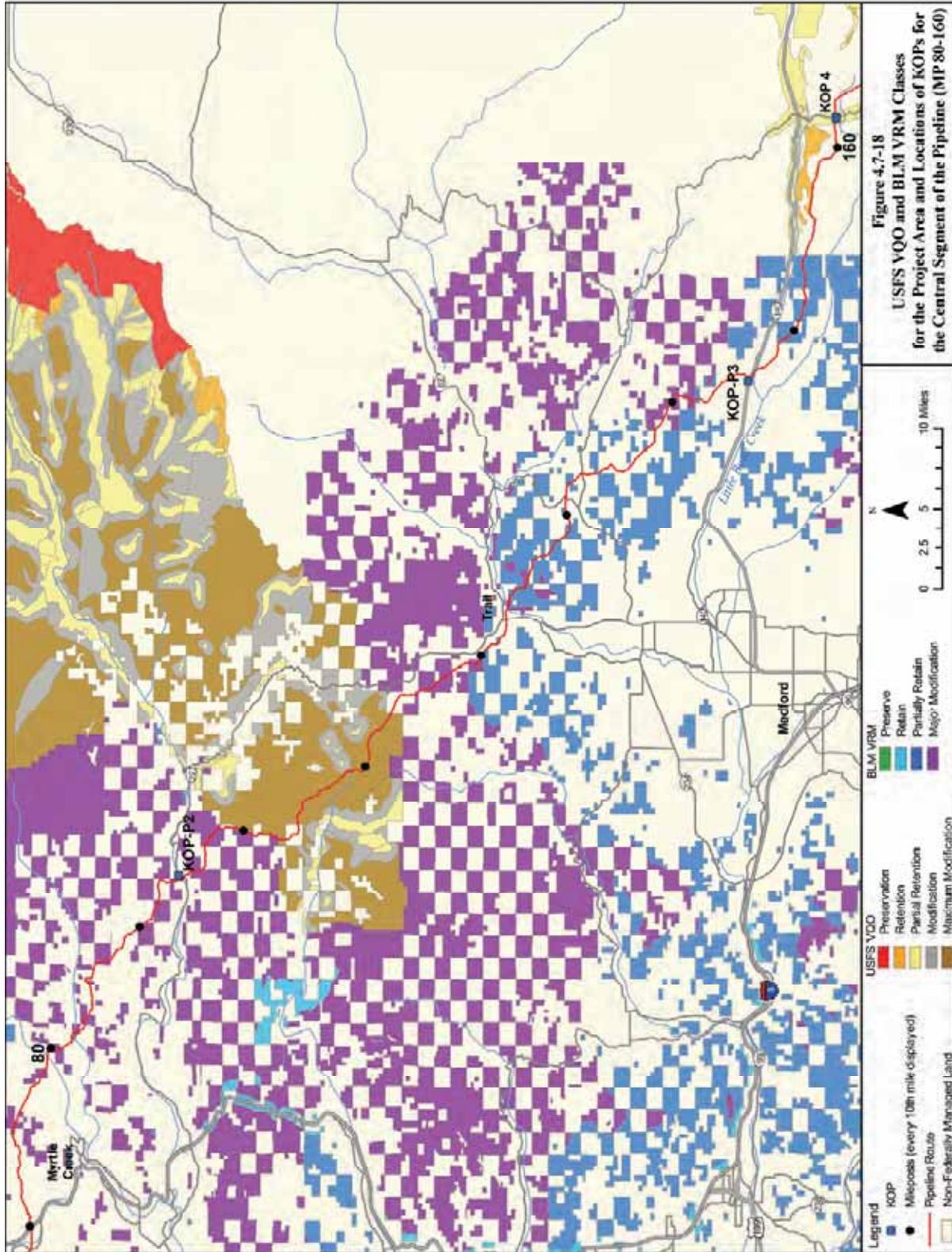
KOP-P3 Highway 140 near Little Butte Creek (MP 145.6)

This point is located at the pipeline crossing of Highway 140 near Little Butte Creek and onto BLM-administered lands. The pipeline crosses a BLM VRM Class III viewshed (figure 4.7-22).

KOP-P4 Big Elk Road (Forest Road 37) (MP 161.4)

This location represents a view from the Big Elk Road (Forest Road 37), looking north on the Dead Indian Plateau in a dense stand of mixed conifer forest. The pipeline would cross the road at this location in a west-east alignment, as the road travels south-north, and the clearing would be noticeable to travelers on this forest road. Simulations of the pipeline crossing of Big Elk Road show the long-term visual effects of the permanently cleared 30-foot wide right-of-way and the creation of an UCSAs on the west side, but visible from the road. Big Elk Road (FS 37) provides access for snowmobilers as well as paved summer access to anglers, hikers and others traveling through to Lake of the Woods (figure 4.7-23). USFS landscape architect Gary Bartlett recommended using two existing roads for pipeline construction access, plus operation and maintenance, in lieu of creating access from Forest Road 37 at the pipeline right-of-way. These roads are FS-3700-130 (westbound) from the north and FS-3705 or FS3700-120 (east-side) from





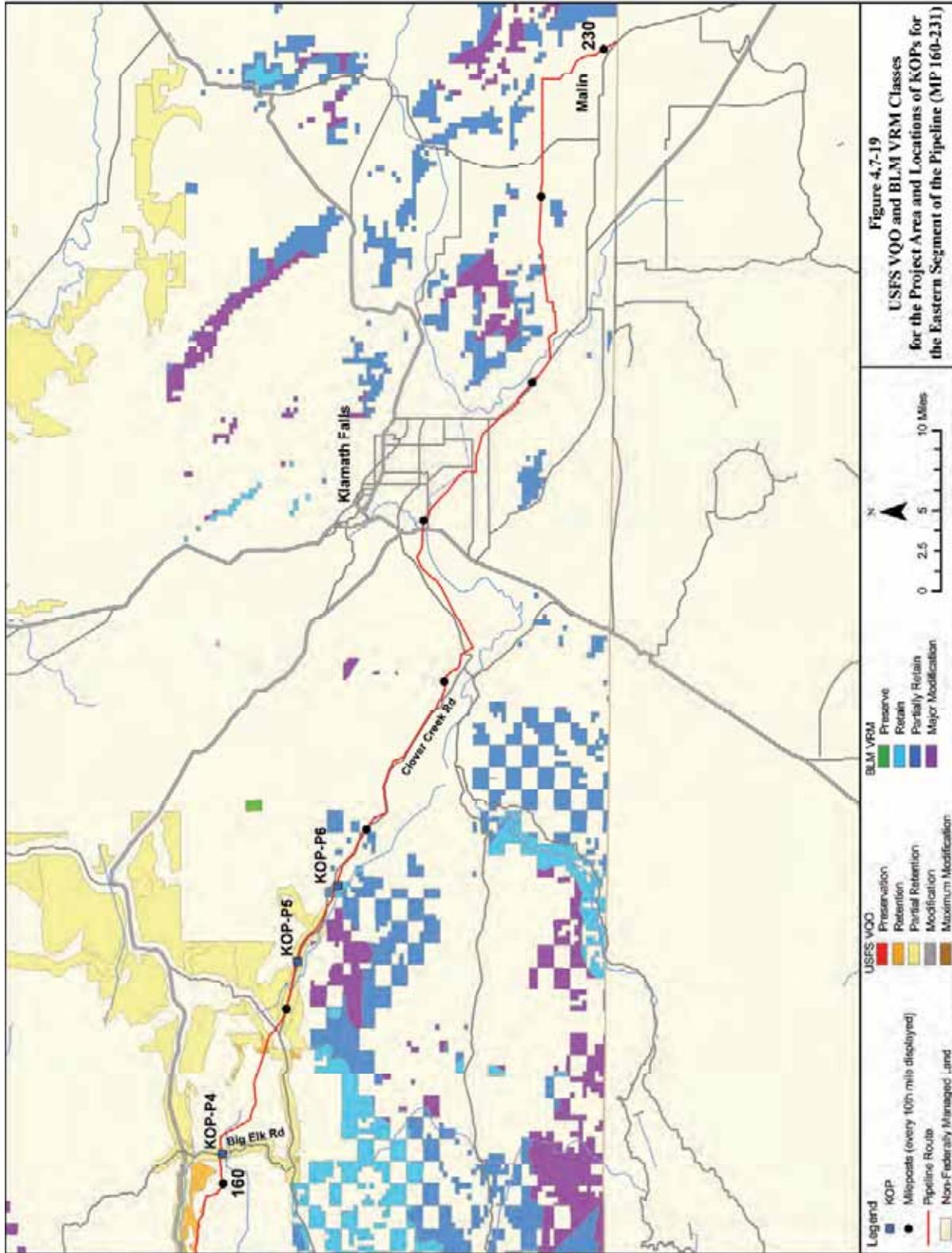




Figure 4.7-20. KOP-P1. Highway 42 near Camas Mountain State Park (MP 51.7). Existing and Simulated Views of the Pipeline Right-of-Way at the Highway 42 Crossing



Figure 4.7-21. KOP-P2. Trail Post Office (Near MP 123). Existing and Simulated Views of the Pipeline Right-of-Way from the Trail Post Office



Figure 4.7-22. KOP-P3. Highway 140 near Little Butte Creek (MP 145.6). Existing and Simulated Views of the Pipeline Right-of-Way at the Highway 140 Crossing



Figure 4.7-23. KOP-P4. Big Elk Road (Forest Road 37, MP 161.4). Existing and Simulated Views of the Pipeline Right-of-Way at the Big Elk Road (Forest Road 37) Crossing



Figure 4.7-24. KOP-P5 Clover Creek Road (MP 172.2). Existing and Simulated Views of the Pipeline Right-of-Way from along Clover Creek Road, long view

the south. This would eliminate construction activity and site-hardening at the pipeline right-of-way intersection of the road and could possibly reduce illegal OHV usage of the right-of-way.

KOP-P5 Clover Creek Road (long view) (MP 172.2)

Simulations from this point represent a long distance view of the pipeline right-of-way from along Clover Creek Road. This shows the extent of visual impacts of the pipeline in the immediate foreground (figures 4.7-24 and 4.7-25).

KOP-P6 Clover Creek Road (Near Spencer Creek) (MP 176.8)

This location represents a view from Clover Creek Road, looking uphill. Within a quarter mile of Spencer Creek the viewshed is classified as BLM VRM Class II near this location (figures 4.7-26 and 4.7-27).

We received comments from the USFS and BLM suggesting that the pipeline right-of-way be moved closer to Clover Creek Road to eliminate the strip of trees between the road and pipeline right-of-way because of possible windthrow damage to such a long and narrow strip of trees. This would make the pipeline right-of-way immediately adjacent to the road, as shown in figure 4.7-24 for KOP-P5 and figure 4.7-26 for KOP-P6, and would be considered a variation in alignment as filed by Pacific Connector in February 2008. We have also evaluated this modification as a route variation (see section 3.1.4.2).



Figure 4.7-25. KOP-P5. Clover Creek Road (MP 172.2). Simulated Views of the Pipeline Right-of-Way, incorporating the pipeline route variation that would move the pipeline to be adjacent with Clover Creek Road, long view



Figure 4.7-26. KOP-P6. Clover Creek Road (MP 176.8). Existing and Simulated Views of the Pipeline Right-of-Way from along Clover Creek Road near Spencer Creek



Figure 4.7-27. KOP-P6. Clover Creek Road (MP 176.8). Simulated Views of the Pipeline Right-of-way from along Clover Creek Road near Spencer Creek, incorporating the pipeline route variation that would move the pipeline to be adjacent with Clover Creek Road

General Mitigation for All Sensitive Viewsheds

Following are general mitigation measures designed and described to fit as many visual impacts as possible. Several locations along the pipeline would require more detailed and site-specific mitigation techniques, and these techniques and measures would be addressed in Pacific Connector's Plan of DOD.

To minimize potential visual effects at all sensitive viewsheds, the construction right-of-way would be reduced to 75 feet wide, and any required TEWAs would be set back from these road crossings to minimize clearing and associated impacts. These measures would maximize the retention of pre-existing vegetation cover, which would ease the landscape contrast during and after construction. During restoration, a row of trees/shrubs would also be planted across the right-of-way to provide a visual screen at road crossings.

To the extent feasible, Pacific Connector would use revegetation efforts to shape and blend the pipeline easement, enhance the setting, and mimic the natural features of the landscape. These revegetation measures would consist of revegetating all disturbed areas and replanting trees in TEWAs and any other areas of the temporary construction right-of-way that were forested prior to construction. The 30 foot wide corridor would be maintained, including the removal of trees greater than 15 feet in height and any vegetation greater than 6 feet in height. This would allow trees to naturally reestablish along the edges of the permanent easement at a staggered, more

natural-looking interval, helping to soften the edge of the construction right-of-way and permanent easement over time.

Pacific Connector would provide OHV control measures at right-of-way road and trail crossings, as well as other appropriate locations, to minimize potential visual impacts associated with OHV use of the right-of-way. Pacific Connector would coordinate the OHV control measures and locations with the federal land-managing agencies to ensure these measures would be effective and would be compatible with the visual management objectives.

The contractor and pipe storage yards would be located in existing industrial facilities, on pasture lands, and in vacant lots in towns near the proposed pipeline alignment. Their use during construction of the pipeline would not create any adverse long-term visual impacts.

4.7.4 Environmental Consequences on Federal Lands

The proposed Pacific Connector pipeline would cross about 28 miles of NFS lands and 42 miles of BLM lands. Between MPs 200.5 and 214.2 the pipeline would cross 25 irrigation facilities that fall under the jurisdiction of the BOR (table 4.7.4-1).

Temporary impacts of the pipeline on federal lands could include timber and brush clearing, grading, trenching, soil compaction as a result of equipment driving and storage of logs, slash, pipe lengths and other supplies. Long term impacts include the time it would take trees to grow back within the temporary construction right-of-way. Permanent impacts would include the transition from forest to herbaceous vegetation within a 30-foot-wide corridor kept clear of trees, and prohibitions of use of the operating pipeline easement. It should be noted that the pipeline will not cross, and therefore no acreage would be removed from any federally designated wilderness, wildlife refuge areas, or inventoried roadless areas.

Pipeline Facility/Component	Jurisdiction		
	BLM	Forest Service	BOR
Miles Crossed by Pipeline	41.03	30.89	0.45 ¹
Temporary Construction Acreage Requirements			
Construction Right-of-Way	469.68	354.76	4.87
Hydrostatic Discharge Locations Outside the ROW	0.12	0.00	0.00
TEWAs	182.27	111.80	0.48
UCSAs	205.86	135.49	0.00
Off-site Source/Disposal	8.10	2.33	0.00
Contractor and Pipe Storage Yards	0.00	0.00	0.00
Existing Roads Needing Improvements in Limited Locations a/	6.07	2.61	0.00
Temporary Access Roads (TAR)	0.42	0.00	0.00
Total Temporary Impacts	866.45	604.38	5.35
Permanent Easement	264.99	198.49	4.09
Permanent Access Roads (PAR)	0.10	0.00	0.00
Aboveground Facilities	0.17 ³	0.00	0.00
30-Foot Maintained	149.58	112.34	1.64

a/ In the 2007 FERC Certificate application, Pacific Connector calculated that 0.31 mile of BOR land was crossed by the pipeline using the BLM LLID_poly coverage. Subsequently 24 ditches were identified by the BOR to be under BOR jurisdiction. The 24 ditches increased the pipeline crossing length on BOR-administered lands by 0.14 mile for a total of 0.45 mile. ² Includes those existing roads requiring widening in specific locations; does not include limbing/brush clearing or blading/grading for potholes. ³ BVA #3, #4, and #9 are located on BLM lands.

4.7.4.1 Federal Land Administering Agencies

BOR Lands

Land use in the Klamath Basin is a combination of cropland and pasture, rangeland, streams and canals, and transportation related facilities. The pipeline would cross through various portions of the Klamath Project, which is administered by BOR's Klamath Basin Area Office of the Mid-Pacific Region (table 4.7.4.1-1). At MP 200.52, in Section 20 of T39S,R9E, the pipeline right-of-way would cross the southwest corner of BOR withdrawn land for about 105 feet. The BOR would not allow the pipeline to be installed across its features until after the irrigation season has ended and most of the facilities have been dewatered, so as not to interfere with Klamath Project operations. During construction across BOR lands and features (between October 15 and March 15), uses of these lands would be temporarily interrupted. However, after pipeline installation, Pacific Connector would restore those lands to their original condition, and they could continue to be used for crops, rangeland, irrigation, and access, as they were prior to construction.

	Ditches (512)	TOTAL
Construction	5.35	5.35
Operation	4.09	4.09

Note: the land use classification system used is that of the USGS.

BLM Lands

The pipeline would cross four BLM districts totaling approximately 41 miles. From west to east, approximate miles crossed through the Coos Bay, Roseburg, Medford, and Lakeview BLM districts would be, respectively: 10.7, 14.0, 14.9 and 2.0 miles. Of the proposed aboveground facilities, three MLVs would be located within BLM lands (listed in table 2.3-2). Pacific Connector also proposes to construct two new temporary access roads on BLM lands to support construction, and two new permanent access roads on BLM lands to support construction and operation (see table 2.3.3.1-1). Acres of BLM-administered lands, by land use classification, that would be affected by pipeline construction and operation are listed in table 4.7.4.1-2, while a summary of BLM land requirements for the pipeline are listed in table 2.3.4-1.

TABLE 4.7.4.1-2

Acres of BLM Lands Required for Construction and Operation of the Pacific Connector Pipeline

BLM District	Industrial (13)	Transportation / Communication (14)	Orchards, Groves, Vineyards, Nurseries (22)	Herbaceous Rangeland (31)	Shrub/Brush Rangeland (32)	Mixed Rangeland (33)	Deciduous Forest Land (41)	Evergreen Forest Land (42)	Mixed Forest Land (43)	Clearcut Forest Land (421)	Regenerating Forest Land (422)	Streams (51)	Ditches (512)	Forested Wetlands (61)	Nonforested Wetlands (62)	Strip Mines, Quarries, Gravel Pits (75)	Mixed Barren Land (77)	TOTAL a/
Coos Bay																		
Construction	0.08	16.74	1.15	0.00	0.00	0.00	0.00	48.80	0.00	1.41	104.88	0.24	0.00	0.45	0.01	0.58	0.00	174.35
Operation	0.00	7.52	0.23	0.00	0.00	0.00	0.00	21.62	0.00	0.21	39.19	0.14	0.00	0.23	0.01	0.00	0.00	69.16
Roseburg																		
Construction	0.00	28.67	0.00	2.73	0.00	2.05	0.00	189.23	27.84	32.80	105.53	0.21	<0.01	0.00	0.29	0.00	0.00	389.81
Operation	0.00	10.23	0.00	0.91	0.00	0.44	0.00	43.50	6.67	4.30	24.11	0.12	0.00	0.00	0.18	0.00	0.00	90.46
Medford																		
Construction	0.00	5.62	0.00	12.80	22.92	6.64	38.82	60.88	60.36	2.45	68.27	0.48	0.01	0.06	0.18	2.25	0.55	282.29
Operation	0.00	1.80	0.00	4.31	8.60	3.08	13.95	20.52	20.57	0.85	22.56	0.19	0.01	0.03	0.00	0.07	0.21	96.75
Klamath Falls Resource Area (Lakeview District)																		
Construction	0.00	1.12	0.00	0.00	<0.01	0.00	0.00	6.78	0.00	0.00	12.09	<0.01	0.00	0.00	0.00	0.00	0.00	20.00
Operation	0.00	0.64	0.00	0.00	<0.01	0.00	0.00	3.08	0.00	0.00	5.16	<0.01	0.00	0.00	0.00	0.00	0.00	8.88

Note: the land use classification system used is that of the USGS.

a/ Total acreage does not include 6.1 acres required for existing roads needing improvements in limited locations.

NFS Lands

The proposed pipeline would cross through approximately 31 miles of NFS lands. This includes approximately 11.2 miles through the Umpqua National Forest, 13.5 miles through the Rogue River-Siskiyou National Forest, and 3.4 miles through the Fremont-Winema National Forest (table 2.3-3). Acreages of USFS-administered lands, by land use classification, that would be affected by pipeline construction or operation of the proposed Pacific Connector pipeline and associated aboveground facilities are included in table 4.7.4.1-3.

TABLE 4.7.4.1-3
Acreages of USFS Lands Required for Construction and Operation of the Pacific Connector Pipeline

National Forest	Transportation / Communication (14)	Herbaceous Rangeland (31)	Shrub/Brush Rangeland (32)	Mixed Rangeland (33)	Evergreen Forest Land (42)	Clearcut Forest Land (421)	Regenerating Forest Land (422)	Streams (51)	Ditches (512)	Forested Wetlands (61)	Nonforested Wetlands (62)	Strip Mines, Quarries, Gravel Pits (75)	TOTAL
Umpqua National Forest													
Construction	13.93	0.00	0.00	0.00	147.66	0.00	58.69	0.09	0.09	0.00	0.15	9.37	229.98
Operation	3.86	0.00	0.00	0.00	44.31	0.00	23.72	0.04	0.05	0.00	0.11	0.00	72.09
Rogue River-Siskiyou National Forest													
Construction	12.51	3.39	4.02	7.71	103.56	40.36	94.76	0.23	0.00	0.00	0.00	11.27	277.82
Operation	2.16	0.00	1.19	1.24	37.88	10.32	34.31	0.07	0.00	0.00	0.00	0.00	87.17
Fremont-Winema National Forest													
Construction	2.65	0.00	0.00	0.00	39.18	0.00	53.97	0.01	0.00	0.27	0.49	0.00	96.58
Operation	0.58	0.00	0.00	0.00	15.57	0.00	22.60	0.01	0.00	0.19	0.28	0.00	39.23

Note: the land use classification system used is that of the USGS.

4.7.4.2 Federal Land Use Plans and Land Allocations

Federal land management agencies are mandated by law to prepare land use plans for managing federal lands under their jurisdiction. These laws also require federal agencies to analyze the environmental impacts of implementing their land use plans. To comply with these laws, BLM prepares RMPs and EISs for lands under its jurisdiction. The USFS prepares forest land and resource management plans (forest plans and RMPs) and EISs for lands under its jurisdiction.

According to federal law and corresponding BLM and USFS policy, all actions authorized subsequent to the plans (RMPs and forest plans) must conform with the approved land use plans. To be in conformance, an action must be specifically mentioned in the plan, or the BLM or USFS must determine the action to be consistent with the plan. In addition, to be consistent an action must comply with: 1) all stipulations, constraints, standards, and guidelines listed in a plan; and 2) all stipulations developed specifically for a proposed Project for the purpose of avoiding or reducing impacts on sensitive resources in the plan.

The Northwest Forest Plan

In 1993, a comprehensive NWFP was initiated to end the impasse over management of federal forest lands in the Pacific Northwest within the range of the NSO. With the signing of the 1994 Record of Decision for Amendments to the USFS and BLM Planning Documents within the range of the northern spotted owl (commonly referred to as the 1994 ROD) a framework and system of Standards and Guidelines were established, using a new ecosystem approach to address resource management. The signing of the 1994 ROD by the Secretaries of Agriculture and Interior amended the planning documents of 19 National Forests and 7 BLM Districts within the range of the NSO. Currently, the BLM has started a planning process to revise all of the resource management plans for western Oregon, which is to be completed in 2008. The current RMPs were completed in 1995, shortly after the writing of the NWFP, and incorporate the ROD's standards and guidelines. These current and future resource management plans will be used to guide BLM's management decisions on all lands administered by the agency. Similarly, all National Forests revise their Forest Plans every 10 to 15 years to ensure that the plans are current and effective tools for managing public lands.

Federal Land Allocations

The management direction of the 1994 ROD consists of extensive standards and guidelines, including land allocations that comprise a comprehensive ecosystem management strategy. These land allocations include areas set aside by an Act of Congress (Congressionally Reserved Areas), LSRs, Adaptive Management Areas, Managed Late-Successional Areas, Administratively Withdrawn Areas, Matrix and Riparian Reserves. These land allocations have differing management directions and are located and configured in the landscape to support overall ecosystem function and to meet the vision for management of federal lands.

Standards and guidelines for each land allocation provide a coordinated ecosystem management approach to the planning area and involve the use of ecological, economic, social and managerial principles to achieve healthy and sustainable natural systems. Ecosystem management emphasizes the complete ecosystem instead of individual components and looks at sustainable systems and products that people want and need. The NWFP land allocations that would be crossed by the proposed pipeline are LSR, Matrix and Riparian Reserves (table 4.7.4.2-1). The management direction or objective of the land allocations outlined in the 1994 ROD and in all of the BLM RMPs and USFS forest plans are described below for each of the land allocations crossed by the pipeline route. Descriptions of the other land allocations that are not crossed by the pipeline route are described in the 1994 NWFP ROD. These land allocations are described below.

Jurisdiction	Late Successional Reserves	Matrix	Riparian Reserves <u>a/</u>
BLM – Coos Bay District	0.97	9.77	0.86
BLM – Roseburg District	4.03	10.01	0.74
BLM – Medford District	0.00	14.89	2.00
BLM – Lakeview District	0.00	1.36	0.08
USFS – Umpqua	5.89	5.33	0.55
USFS – Rogue River-Siskiyou	13.58	0.00	0.25
USFS – Fremont-Winema	0.00	6.09	0.08

a/ Riparian Reserves overlay other land use allocations.

Late Successional Reserves

LSRs are areas that are managed to protect and enhance habitat for late-successional and old-growth related species including the northern spotted owl. Limited silvicultural treatments are permitted to benefit late-successional characteristics or to reduce the risk of catastrophic loss. Limited salvage is also permitted. Late-successional forests are typically 80 years old or older and are those forest seral stages that include mature and old-growth age classes of Douglas-fir with four major structural attributes: live old growth trees, standing dead trees (snags), fallen trees or logs on the forest floor, and logs in streams. One goal of the 1994 ROD is to maintain late-successional and old-growth species habitat and ecosystems on federal lands. A second goal is to maintain biological diversity associated with native species and ecosystems in accordance with laws and regulations. The proposed pipeline would cross about 24.5 miles total of LSRs. Specific LSRs crossed are listed in table 4.5.1.4-1.

Matrix

Matrix areas consist of all other federal lands outside of Congressionally Reserved Areas, LSRs, Adaptive Management Areas, Managed Late-Successional Areas, Administratively Withdrawn Areas, and Riparian Reserves. These areas include conifer and hardwood forests, brushfields, and open areas. Approximately 65 to 75 percent of the matrix contains forest lands available for regularly scheduled timber harvests. Production of timber and other commodities is an important objective for the matrix. However, forests in the matrix function as connectivity between LSRs and provide habitat for a variety of organisms associated with both late-successional and younger forests. The matrix also adds ecological diversity by providing early-successional habitat and serves as a protection buffer for specific rare and locally endemic species. The proposed pipeline would cross about 47.5 miles of matrix in total.

Riparian Reserves

Riparian Reserves are a key element of the Aquatic Conservation Strategy. Riparian Reserves provide an area along all streams, wetlands, ponds, lakes, reservoirs, and unstable and potentially unstable areas where riparian-dependent resources receive primary emphasis. The main purpose of these reserves is to protect the health of the aquatic system and its dependent species. These Riparian Reserves also provide important habitat to terrestrial species. They help maintain and restore riparian structures and functions, benefit fish and riparian dependent non-fish species, enhance habitat conservation for organisms dependent on the transition zone between upslope and riparian areas, improve travel and dispersal corridors for terrestrial animals and plants, and provide for greater connectivity of late-successional forest habitat. Section 4.3 provides further discussion of the Aquatic Conservation Strategy. The proposed pipeline would cross a total of 4.6 miles of Riparian Reserves on federal lands (table 4.4.1.2-1).

Critical Habitat Units

In an effort to encourage recovery of listed species, Critical Habitat designations were added to the ESA and are applied to protect habitat for all listed species. In the case of the Pacific Connector project area, Critical Habitat has been designated for coho salmon and the northern spotted owl. Section 4.6 includes a detailed discussion of the ESA and Critical Habitat designations as they apply to coho salmon and northern spotted owl.

Oregon and California and Coos Bay Wagon Road Lands

Oregon and California Lands (O&C Lands) and Coos Bay Wagon Road Lands (CBWR Lands) are a unique category of federal lands crossed by the Pacific Connector pipeline that are managed by the various BLM Districts and National Forests (table 4.7.4.2-2). These federal lands and their management are described below.

TABLE 4.7.4.2-2

Federally Managed O&C Lands, Coos Bay Wagon Road Lands and Reserved Public Domain Land Crossed by the Pacific Connector Pipeline

Jurisdiction	O&C Lands	Coos Bay Wagon Road Lands	Reserved Public Domain Lands <u>a/</u>	Total
BLM – Coos Bay District	1.15	9.59	0.00	10.74
BLM – Roseburg District	10.55	2.83	0.66	14.04
BLM – Medford District	11.89	0.00	3.00	14.89
BLM – Lakeview District	1.10	0.00	0.26	1.36
Total BLM	24.69	12.42	3.92	41.03
USFS– Umpqua	3.65	0.00	7.57	11.22
USFS– Rogue River-Siskiyou	0.00	0.00	13.58	13.58
USFS– Fremont-Winema	0.00	0.00	6.09	6.09
Total USFS	3.65	0.00	27.24	30.89
Total	28.34	12.42	31.16	71.92

a/ Reserved Public Domain Lands are the remaining lands not classified as O&C or Coos Bay Wagon Road lands.

The Oregon and California Railroad Grant lands were designated by Congress in 1866 to support the construction of a railroad in the State of Oregon. The O&C Lands, which were to be sold by the Oregon and California Railroad Company to aid in offsetting the cost of building the railroad between Portland and the California border, included all odd-numbered sections of land for a distance of 20 miles on both sides of the railroad. Oregon O&C Lands comprised a total of 4,220,000 acres in 1866. The railroad ended its sales of O&C Lands to private citizens in 1903. In 1916, Congress passed the O&C Revestment Act, after the company failed in its obligations under the terms of the grant, which returned over 2.4 million acres of Oregon’s O&C Lands to federal ownership and management (BLM with 2,084,107 acres and the USFS with 492,399 acres).

The CBWR Lands were established by a land grant in 1869 to the Southern Oregon Company, a decade after Oregon entered the United States. These lands were also subsequently reconveyed to the United States. The O&C Lands Act of 1937 requires the Secretary of the Interior to manage O&C and CBWR Lands for permanent forest production in conformity with the principle of sustained yield. By managing for sustained yield, protection for watersheds, regulation of stream flow, recreational facilities, and contribution to the economic stability of local communities and industries would be provided. These lands must also be managed in accordance with other environmental laws such as the ESA and the CWA.

Standards and Guidelines

As defined by the 1994 NWFP ROD, all land allocations have specific management direction regarding how they are to be managed. This management direction is known as “standards and guidelines.” The standards and guidelines provide the rules and limits governing actions and the principles specifying the environmental conditions or levels to be achieved and maintained. In some areas, land allocations overlap. For example, Riparian Reserve standards and guidelines

apply and are added to the standards and guidelines of other land allocations. When Riparian Reserves occur within LSRs, the standards and guidelines of both designations apply. Key Watershed designations (see section 4.5.2) may overlap any of the land allocations (Congressionally Reserved Areas, LSRs, Adaptive Management Areas, Managed Late-Successional Areas, Administratively Withdrawn Areas, or Matrix), and then the standards and guidelines for the allocations apply, and the Key Watershed designation adds additional requirements. In all allocations, standards and guidelines in current plans and draft plan preferred alternatives apply where they are more restrictive or provide greater benefits to late-successional forest related species. The standards and guidelines that address survey and manage species are provided in section 4.6.

Standards and Guidelines for Multiple Use Activities Other than Silviculture

The 1994 ROD provides standards and guidelines for multiple use activities other than silvicultural practices such as road construction and maintenance, fuel wood gathering, mining, land exchanges, range management, fire suppression and prevention as well as for development of new facilities and rights-of-way and easements. As a general guideline, nonsilvicultural activities located inside an LSR that is beneficial to the creation and maintenance of late-successional habitat are allowed. According to the 1994 ROD, the proposed pipeline would be considered a new development project that would require rights-of-way and special use permits. The Standards and Guidelines for Development of New Facilities and Rights-of-Way, Contracted Rights, Easements and Special Use Permits as they relate to the Pacific Connector pipeline are discussed below.

LSRs – Development of New Facilities

The Standards and Guidelines for development of new facilities that may adversely affect LSRs indicate that development should not be permitted. However, the standards and guidelines specify that new development proposals that address public needs or provide significant public benefits, such as powerlines, pipelines, reservoirs, recreation sites or other public works projects would be reviewed on a case-by-case basis and may be approved when adverse effects can be minimized and mitigated.

The proposed pipeline route would affect LSRs on the BLM's Coos Bay and Roseburg Districts as well as on the Umpqua and Rogue River-Siskiyou National Forest. Therefore, in order for the proposed pipeline route to conform with the Standards and Guidelines so that a Right-of-Way Grant can be acquired on federal lands, it would be necessary to make certain that the pipeline has a public need and provides a significant public benefit. Pacific Connector must apply for, and receive, a Certificate of Public Convenience and Necessity from FERC. A FERC Certificate would verify that the pipeline has a public need and provides significant public benefit.

In designing the pipeline, Pacific Connector would follow the principles outlined in the Regional Interagency Executive Committee memorandum dated January 3, 2001, regarding New Developments in Late Successional Reserves. Refer to section 4.5 for the Late-Successional Reserves Avoidance Alternative. However, the extent of the LSR land allocation in the pipeline route area and the checkerboard landownership pattern of BLM lands cause this alternative to be infeasible. To comply with the principles of the 2001 Regional Interagency Executive Committee memorandum regarding New Developments in Late-Successional Reserves, this

alternative analysis discusses how the proposed pipeline route has been designed to have the least possible adverse impacts on LSRs. This alternative analysis discusses:

1. the pipeline route design measures that were implemented to avoid LSRs, where feasible;
2. the pipeline route design procedures that minimize impacts to LSRs;
3. the measures that would be implemented to rectify pipeline route related impacts to LSRs;
4. the pipeline route design measures that would be applied to reduce impacts over time by maintenance operations during the life of the action; and
5. the compensatory mitigation that Pacific Connector proposes to mitigate for unavoidable impacts to LSRs.

In addition, Pacific Connector has studied proposed alternative routes recommended by the Umpqua and Rogue River-Siskiyou National Forests, which primarily followed existing roads and which the USFS predicted would have fewer impacts to LSRs. Pacific Connector met with representatives the National Forests to discuss the proposed routes and the goals of minimizing impacts to LSRs and fragmentation among others issues as well as pipeline's objectives to ensure constructability and long-term safety, stability, and integrity. These alternative routes are discussed in section 3.0. Pacific Connector would also develop mitigation measures in coordination with the land management agencies where necessary to mitigate effects of the pipeline on LSRs.

The proposed pipeline project would likely have short term adverse impacts on LSR lands where the route would cross these areas. As the forest is allowed to regenerate and the trees and habitat to mature, the pipeline may have an overall neutral impact, though it is possible that even taking into account the compensatory mitigation measures already mentioned, that the overall impact would be adverse.

Rights-of-Way, Contacted Rights, Easements, and Special Use Permits

The Standards and Guidelines for rights-of-way, easements, and special use permits specify that access to non-federal lands through LSRs will be considered. New access proposals may require mitigation measures to reduce adverse effects on LSRs. In these cases, alternate routes that avoid late successional habitat should be considered. Although the pipeline has been routed through LSRs, as previously stated, no new roads have been proposed through LSRs. Pacific Connector's methods for identifying proposed mitigation measures as described in Development of New Facilities would ensure that adverse effects to LSRs are minimized.

Riparian Reserves

As a general rule, standards and guidelines for Riparian Reserves prohibit or regulate activities in Riparian Reserves that retard or prevent attainment of the ARS objectives. Through Pacific Connector's routing efforts, impacts to Riparian Reserves have been minimized by aligning the pipeline route primarily along ridgelines across the steeply dissected Coast and Cascade mountain ranges. This alignment places the pipeline in the most stable landscape features and avoids streams in most areas. The Federal Consistency Analysis, describes the measures that have been implemented to address the Aquatic Conservation Strategy and to minimize impacts to Riparian Reserves.

Transportation and Utility Corridors

Existing or designated transportation or utility corridors are not available on federal lands between the proposed Jordan Cove LNG terminal at Coos Bay to the pipeline terminus near Malin, Oregon. The proposed pipeline route is not currently being analyzed in the West-wide Energy Corridor Programmatic EIS being completed by the DOE, DOD, BLM, and the USFS. Therefore, to be in conformance with the applicable existing BLM and USFS land use plans, these plans may need to be amended during the NEPA process for the proposed Pacific Connector pipeline.

4.7.4.3 Recreation, Public Interest, and Special Use Areas on Federal Lands

National Parks and Monuments

The closest national park to the proposed Pacific Connector pipeline is Crater Lake National Park, located approximately 26 miles northeast of MP 132.0 near the proposed Butte Falls Compressor Station. The Cascade-Siskiyou National Monument is the closest monument to the pipeline at approximately 8.9 miles southwest of MP 175.0. Because of their distance from the pipeline route area, no national parks or monuments would be directly impacted by the proposed pipeline. Indirect impacts on nearby National Parks may include air quality effects on Class I areas (see section 4.11).

National Wild and Scenic Rivers

The Pacific Connector pipeline would not impact any federally designated Wild and Scenic Rivers. The Rogue River, which the pipeline would cross near the community of Trail, is a designated Wild and Scenic River from the Crater Lake National Park boundary downstream to Prospect, approximately 20 miles north of the proposed pipeline crossing. Additionally, an 84-mile section of the Rogue River is designated as Wild and Scenic starting about 7 miles west of the city of Grants Pass and proceeding west toward the town of Gold Beach (NPS 2005). Indirect impacts could occur if the pipeline crossing were to cause sedimentation that could run downstream and affect water quality of the federally designated Wild and Scenic River portion of the Rogue River. However, Pacific Connect proposes to cross under the Rogue River using an HDD, which would avoid direct impacts on this river. Also, while this segment of the Rogue River was found eligible by the BLM Medford District (BLM 1995c), its river-related values are only protected on BLM-managed lands, which are approximately 1 mile from the pipeline crossing. The values for which the river was found eligible are not expected to be impacted by the pipeline construction and operation.

Refuges, Reserves, and Wilderness Areas

There are several federally-designated Wilderness Areas in the Umpqua, Rogue River-Siskiyou and Fremont-Winema National Forests, but none of them would be crossed by the proposed Pacific Connector pipeline. Two Wilderness Areas, however, are in proximity to the proposed alignment: Sky Lakes Wilderness (113,590 acres) is in both the Fremont-Winema and Rogue River-Siskiyou National Forests and its southern tip is approximately 3.7 miles north of the pipeline alignment at MP 162.0; and Mountain Lakes Wilderness (23,071 acres), in the Fremont-Winema National Forest, is approximately 2.3 miles north of MP 172.0. These distances, over forested land, are considered to be far enough removed from the pipeline so as to not be impacted by pipeline construction or operation.

The Klamath Basin hosts a complex of six National Wildlife Refuges in the Klamath Falls region of Southern Oregon and Northern California. The refuges, managed by the FWS, consist of a variety of habitats including freshwater marshes, lakes, meadows, coniferous forests, sagebrush and juniper grasslands, agricultural lands, and rocky cliffs and slopes. The habitats support diverse and abundant populations of resident and migratory wildlife with 433 species having been observed on or near the refuges. Each year the refuges serve as a migratory stopover for about 75 percent of the Pacific Flyway waterfowl, with peak fall concentrations of more than 1 million birds (FWS 2006).

At MP 204.0, the pipeline would be approximately 5.7 miles north of the Lower Klamath National Wildlife Refuge and approximately 3.20 miles northeast of the Bear Valley National Refuge and MP 192.56. Some USGS topographic maps show old Lower Klamath Refuge boundaries on lands that were withdrawn from consideration in the 1920s (Coles 2006). Pacific Connector confirmed with the FWS in June 2006 that the pipeline would not impact any lands within the Klamath Basin Refuge boundaries.

Inventoried Roadless Areas

The proposed pipeline route and related facilities would not be located in any Inventoried Roadless Areas (IRA). The nearest IRA is the Brown Mountain IRA, located on the Rogue River-Siskiyou National Forest approximately 0.6 mile north of MP 162.0. On the Fremont-Winema National Forest, the West Boundary IRA is about 2.4 miles northeast of MP 171.0.

National Recreational Areas and Trails

Coos Bay Shorelands SRMA and Oregon Dunes NRA

The Oregon Dunes NRA, administered by the USFS as part of the Siuslaw National Forest is located just north of the Trans-Pacific Parkway and the proposed pipeline route between MPs 0.0 and 1.25. The BLM has designated part of the North Spit as the Coos Bay Shoreline SRMA, about 0.5 mile north of the beginning of the pipeline at the Jordan Cove LNG terminal meter station. The Coos Bay Shorelands SRMA and Oregon Dunes NRA were previously discussed in sections 4.7.1.3 and 4.7.2.3 in relationship to the waterway for LNG marine traffic and the Jordan Cove LNG import terminal. In this area the pipeline would be installed in Coos Bay and should not have any direct affects on the Oregon Dunes NRA or the Coos Bay Shorelands SRMA. We address potential impacts construction-related traffic may have on the Trans-Pacific Parkway and recreational users of the Coos Bay Shorelands SRMA and the Oregon Dunes NRA in section 4.9.

Pacific Crest National Scenic Trail

The PCT is a 2,650-mile hiking and equestrian trail stretching from the Canadian border in Washington to the Mexican border in California. With the passage of the National Trails System Act of 1968, Congress designated the PCT as one of the first scenic trails in the nation (USDA 1982). From desert valleys in Southern California to rain forests in the Pacific Northwest, the PCT offers users a unique and varied experience and is considered by many the “Crown Jewel” of American hiking trails. Thousands of hikers and horse riders use the trail each year (USFS 2006). Approximately 430 miles of the trail runs along the mostly forested crest of the Cascade

Mountain Range in Oregon. The PCT in Oregon is very popular among hikers of all abilities and is considered to contain many of the easiest sections of the trail (PCTA 2002).

Northeast of the pipeline route area near MP 162.0, the PCT skirts the western flank of Brown Mountain and the lava beds to its south in the Rogue River-Siskiyou National Forest. Trail users can access the trail in several locations near the pipeline route area, including a registered trailhead on the Dead Indian Memorial Highway (County Road 533). This trailhead is about 1.3 miles west of where the pipeline crosses this road (MP 168.8). The trail can also be accessed using Forest Road 700 or using the Brown Mountain trail accessed by Forest Road 3705. This section of the trail can be used year round by hikers, equestrian users, cross-country skiers, and snowshoers. The proposed pipeline alignment crosses the PCT at approximately MP 167.86.

Upon completion of construction in the area, Pacific Connector would revegetate the right-of-way using large native trees, shrubs, and plants. A buffer of vegetation would skirt the right-of-way at the PCT crossing, and within 3 to 5 years the right-of-way would be expected to be visually subordinate (Partial Retention) to casual trail users, although evidence of forest harvest and alteration would be evident to trail users for several more years. However, the Partial Retention VQO states that management activities must remain subordinate to the characteristic landscape, and that visual impacts must be reduced within one year. Because of the undisturbed setting of the foreground area at the proposed PCT crossing, Pacific Connector anticipates that for the short- and mid-term these objectives would not be attainable.

The USFS has suggested a pipeline route variation it believes would further reduce impacts on the PCT, in addition to those measures proposed by Pacific Connector. Use of the variation would reduce the view of the cleared right-of-way at the trail crossing from an estimated 4,000 feet to 1,000 feet. We have recommended that Pacific Connector incorporate this variation into its proposed route. This route alternative is discussed in section 3.1.4.2.

South Brown Mountain Shelter

The South Brown Mountain Shelter is a small, fully enclosed log cabin about 200 yards off the PCT in Section 32, T 37 S, R 5 E. The shelter, located in the Rogue River-Siskiyou National Forest near its boundary with the Fremont-Winema National Forest, is used year-round by hikers, skiers, snowmobilers, and others. The cabin contains a wood stove and primitive storage and counter spaces. In the fall of 2005, it was significantly repaired and updated by a group of volunteers (PCTA 2006). Potable well water is also available using a hand pump that is operational from mid-May to late-October. The shelter is approximately 600 feet north of the proposed pipeline route near MP 167.7 and would not be impacted by operation of the pipeline. Short-term and temporary pipeline construction activities would be audible but are not expected to be visible because of the existing vegetation screen between the shelter and the proposed right-of-way.

Brown Mountain Trail

The Brown Mountain Trail is a path for non-motorized users on the Fremont-Winema and Rogue River-Siskiyou National Forests. The trail is linked by two short sections of forest roads and circles Brown Mountain. One access point is near the proposed pipeline at a trailhead on Forest Road 3705, near South Fork Little Butte Creek about a mile north of MP 165.0. The Brown

Mountain Trail and access on Forest Road 3705 are not expected to be impacted by pipeline construction and operation.

Keno Recreation Area and John C. Boyle Reservoir

Boat launches and the Topsy Recreation site, operated by the BLM, provide camping, picnicking, fishing, boating, and swimming for visitors to this section of the Klamath River south of MP 184.31. The recreation area and access to the reservoir should not be adversely impacted by operation of the pipeline. However, during construction, there could be some delays on the Keno Access Road. Potentially, the reservoir could be a source of water for pipeline hydrostatic testing. Section 4.3.2.5 includes a discussion of pipeline hydrostatic testing and potential impacts.

Research Natural Areas and Areas of Critical Environmental Concern

An RNA is an area dedicated to the preservation of significant ecosystems, to providing areas for educational activities and ecological research, and the preservation of gene pools of native species. In addition to RNAs, the BLM has established ACECs that have significant natural area values. To be designated as an ACEC, an area must require special management attention to protect its important and relevant values. Special management attention refers to management prescriptions developed expressly to protect the important values of an area from potential effects of management actions that would otherwise be permitted by a RMP.

North Spit Area of Critical Environmental Concern

The North Spit ACEC is discussed in section 4.7.1.3. It is located about 3.5 miles southwest of where the pipeline would begin (MP 0.0) at the Jordan Cove LNG terminal meter station. Construction and operation of the Pacific Connector pipeline should have no impacts on the North Spit ACEC.

Round Top Butte Research Natural Area

The proposed alignment near MP 135.6 would be less than 0.25 mile from the Round Top Butte RNA, which is managed by the BLM's Medford District. This 604-acre area was designated as an RNA because of its natural systems, vernal pools, Ponderosa pine, oak woodland, chaparral, and grassland communities. The RNA has also been proposed as an ACEC and recommended for further analysis because of the RNA's existing status and because it can be managed in conjunction with adjacent Nature Conservancy lands. The Nature Conservancy lands adjacent to Round Top RNA fill ONHP Klamath Mountain Ecological Cell 59. The ecological elements represented in cells are generally one or more ecological assemblages of plant associations, defined by the dominant native plants that characterize the environment. Unique or local ecosystems are only included in the ONHP when they appear to make a significant contribution to biodiversity within the ecoregion. The proposed pipeline would not cross or directly affect this RNA.

Upper Rock Creek ACEC

The proposed pipeline alignment near MP 43.85 has been routed to avoid impacts to the BLM Coos Bay District Upper Rock Creek ACEC. This 472-acre ACEC located in Section 5 of T 29 S, R 9 W was designated to preserve the area's natural systems and botanical values which

include western redcedar, western hemlock, and skunk cabbage as well as sedge-dominated wetlands. The area also fills ONHP Coast Range Ecological Cell 108 (ONHP 2003).

In an effort to avoid the ACEC, Pacific Connector rerouted the pipeline following a ridgeline that trends in a southeasterly direction into Section 8, T29S,R9W and away from the ACEC. To avoid aligning the pipeline on side slopes in this area, the construction right-of-way was co-located in North Rock Creek Road BLM Road 30-10-3 for approximately 875 feet along the crest of the ridgeline. This road is also the eastern boundary of the ACEC. However, this road abruptly curves to the south near MP 43.45 immediately north of the section line in a side sloping area. Therefore, to avoid the side slopes, the alignment continues along the stable ridgeline for approximately 300 feet within the ACEC. The area of the ACEC that is crossed by the alignment is in the extreme southwest corner and is located in a regeneration forest stand that is approximately 30 years old according to BLM records. Although impacts to the ACEC would be minimized through this alignment, the pipeline would impact 1.10 acres of this regenerating forest within the ACEC. Pacific Connector has proposed no specific measures to mitigate the impacts on the ACEC. **Therefore, we recommend that:**

- **Pacific Connector should continue to consult with the BLM as necessary to ensure that appropriate site-specific mitigation measures are included in the POD, including revegetation, to reduce or mitigate impacts on the Upper Rock Creek ACEC at MP 43.85. The results of these consultations should be filed with the Secretary before pipeline construction begins.**

4.7.4.4 Visual Resources on Federal Lands

Regulatory Setting and Visual/Scenic Management Systems

The responsibility of protecting visual resources on lands owned or under the jurisdiction of the federal government is established by the Federal Land Policy and Management Act (1976), which places emphasis on the protection of scenic resources on public land, and the Forestland and Rangeland Renewable Resources Planning Act (1974) which empowers the USFS to manage scenery resources.

NFS Lands

NFS lands are managed in accordance with the USFS Scenery Management System (previously known as Visual Management System, SMS and VMS, respectively), which provides a means with which to inventory scenic resources and provide measurable scenic quality management standards. The SMS is based on the relative scenic quality of each portion of the landscape and its sensitivity based on the visibility from, and uses in, the surrounding areas. The SMS uses Scenic Integrity Objectives to establish the desired conditions for management of an area. The objective of the USFS VMS and SMS is to manage USFS lands to attain the highest possible quality of landscape aesthetics and scenery commensurate with other appropriate public uses, costs, and benefits. Scenic integrity is defined as “a measure of the degree to which a landscape is visually perceived to be ‘complete.’ The highest scenic integrity ratings are given to those landscapes that have little or no deviation from the character valued by constituents for its aesthetic appeal. Scenic integrity is used to describe an existing situation, standard for management, or desired future condition” (USDA 1995).

Under the former VMS system, management prescriptions and related VQOs were developed for all USFS lands. VQOs for each national forest crossed by the pipeline are identified in their respective LRMPs. VQOs are management standards that identify five degrees of alteration to the natural landscape based on a landscape's diversity of natural features and the public's concern for scenic quality. Because the aforementioned forest plans have not been amended to use the SMS, both VMS and SMS systems will be used in this section. A crosswalk between the two systems is described in *Landscape Aesthetics: a Handbook for Scenery Management* (USDA 1995) and is presented in table 4.7.4.4-1.

Where the pipeline would cross the Umpqua National Forest, the VQO is Modification and Maximum Modification. Pipeline construction, operation (including the cleared right-of-way), and maintenance are compatible with these VQOs. Where the pipeline would cross the Rogue River-Siskiyou and Fremont-Winema National Forests, the VQO is Retention or Partial Retention and the standard pipeline construction, operation, and maintenance is not compatible with these VQOs. Mitigation measures described below focus on these USFS lands. Table 4.7.4.4-2 displays the USFS VQOs that would be achieved by the pipeline after implementation of mitigation measures.

TABLE 4.7.4.4-1

Crosswalk Between Visual Quality Objectives, Scenic Integrity Objectives, and Scenic Integrity Levels ^{a/}

Visual Management System (VMS) 1973 Direction	Scenery Management System (SMS) 1995 Direction	Scenic Integrity Objective (SIO)	Definition of Scenic Integrity Levels
Visual Quality Objective (VQO)		Very High	<i>Unaltered:</i> Valued landscape character "is" intact with only minute if any visual deviations. The existing landscape character is expressed at the highest possible level.
Retention		High SIO	<i>Appears unaltered:</i> Landscapes where the valued landscape character "appears" intact. Visual deviations (human-made structures or activities) may be present but must repeat the form, line, color, texture, and pattern common to the landscape character so completely and at such a scale that they are not evident.
Partial Retention		Moderate SIO	<i>Appears slightly altered:</i> Noticeable deviations must remain visually subordinate to the landscape character being viewed.
Modification		Low SIO	<i>Appears Moderately Altered:</i> Visual deviations (human-made structures or activities) begin to dominate the valued landscape character being viewed but they borrow valued attributes such as size, shape, edge effect and pattern of natural openings, vegetative type changes or architectural styles outside the landscape being viewed. They should not only appear as valued character outside the landscape being viewed but compatible or complimentary to the character within.
Maximum Modification		Very Low SIO	<i>Appears Heavily Altered:</i> Visual deviations (human-made structures or activities) may strongly dominate the valued landscape character. They may not borrow from valued attributes such as size, shape, edge effect and pattern of natural openings, vegetative type changes or architectural styles within or outside the landscape being viewed. However deviations must be shaped and blended with the natural terrain (landforms) so that elements such as unnatural edges, roads, landings, and structures do not dominate the composition.
For Inventory and Scenic Effect Prediction Purposes Only			
Unacceptable Modification ¹		Unacceptably Low	<i>Extremely altered:</i> Landscapes where the valued landscape character being viewed appears extremely altered. Visual deviations (human-made structures or activities) are extremely dominant and borrow little if any form, line, color, texture pattern or scale from the landscape character. Landscapes of this level of integrity need rehabilitation. This level should only be used to inventory existing integrity. It must not be used as a management objective.
^{a/} Scenic Integrity Objectives establish desired conditions for management (equivalent to purpose of Visual Quality Objectives under former VMS); Scenic Integrity Levels describe the current condition of the scenic resource.			

TABLE 4.7.4.4-2

USFS Visual Management System USFS Visual Quality Objectives Crossed by Pacific Connector Pipeline, by Milepost

Forest Plan Adopted VQO, by Milepost of Pacific Connector Pipeline	VQO That Would be Achieved by Pacific Connector Pipeline Without Mitigation	Would be Achieved by Pacific Connector Pipeline With VRM Mitigation
VQO P: Preservation		
No occurrences	No occurrences	No occurrences
VQO R: Retention		
155.25 - 155.48	No occurrences	No occurrences
155.80 - 155.92		
156.09 - 156.11		
156.15 - 156.16		
156.21 - 156.23		
156.28 - 156.82		
157.13 - 157.40		
157.94 - 158.13		
158.33 - 158.41		
167.49 - 167.93		
VQO PR: Partial Retention		
161.07 - 161.64	No occurrences	No occurrences
167.93 - 168.40		
169.09 - 175.40		
VQO M: Modification		
108.47 - 108.69	108.47 - 108.69	155.25 - 155.48
		155.80 - 155.92
		156.09 - 156.11
		156.15 - 156.16
		156.21 - 156.23
		156.28 - 156.82
		157.13 - 157.40
		157.94 - 158.13
		158.33 - 158.41
		161.07 - 161.64
		167.49 - 167.93
		167.93 - 168.40
		169.09 - 175.40
VQO MM: Maximum Modification		
99.31 - 99.90	99.31 - 99.90	No occurrences
100.36 - 100.66	100.36 - 100.66	
101.21 - 101.92	101.21 - 101.92	
102.30 - 102.83	102.30 - 102.83	
104.08 - 108.47	104.08 - 108.47	
108.69 - 113.20	108.69 - 113.20	
VQO UM: Unacceptable Modification —Never an objective. Used only for inventory of existing conditions or effect predictions of proposed projects such as Pacific Connector pipeline.		
	155.25 - 155.48	No occurrences
	155.80 - 155.92	
	156.09 - 156.11	
	156.15 - 156.16	
	156.21 - 156.23	
	156.28 - 156.82	
	157.13 - 157.40	
	157.94 - 158.13	
	158.33 - 158.41	
	167.49 - 167.93	
	161.07 - 161.64	
	167.93 - 168.40	
	169.09 - 175.40	

Source: USFS Landscape Architecture and GIS Departments

BLM Lands

The BLM has a VRM system that is comparable to the former USFS VMS (table 4.7.4.4-3). In the BLM-VRM system, there are four VRM classes (table 4.7.4.4-4). These classes describe the different degrees of modification, or contrast, allowed to the basic visual elements of the landscape. Figures 4.7-17 to 4.7-19 provide a map of the USFS VQOs and BLM-VRM classes for the pipeline area.

For the most part, the pipeline crosses federal lands classified as BLM-VRM Class IV (Major Modification), and its construction, operation, and maintenance are consistent with the objectives of this classification. There are several locations where federal lands with a higher BLM-VRM class would be crossed. These include:

- MP 27, where the pipeline would cross lands administered by the BLM Coos Bay District that are classified as BLM-VRM Class III (partially retain the existing visual character of the landscape). However, this area, which is a hayfield, achieve VRM Class III because the pipeline would have a dogleg alignment (reducing its visual impact), and there is existing, vegetation that would provide visual screening along the road, and thus VRM Class III objectives would continue to be met (figure 4.7-17 to 4.7-19).
- MP 50.5, where the pipeline crosses Highway 42 and into lands administered by the BLM Roseburg District that are designated as BLM-VRM Class II. The objective of this class is to retain the existing visual character of the landscape. This crossing is illustrated with a visual simulation from KOP-P1 discussed above (figure 4.7-20).
- BLM lands along Clover Creek Road with VRM Class II where the pipeline would not comply with the adopted VRM standards. This area is shown above in the visual simulation of KOP-P5 (figure 4.7-24).

General Mitigation for Sensitive Viewsheds on Federal Lands

In addition to the applicable visual mitigation measures discussed above, in the areas where the pipeline would cross VRM Class III viewsheds, mostly on BLM's Medford District lands, the corridor route would be largely confined to ridgelines where a minimum area of the right-of-way would be visible from surrounding lower elevations. The ridgetop placement in many areas would also conform to the line and form of the landscape. In other areas, the viewing distances from major roads are such that contrast to the landscape would be minimized. Pacific Connector would consult with the USFS and BLM resource specialists regarding species selection to be used for the visual screen.

The permanent easement, which is 53 feet wide on federal lands, would be replanted with trees outside of the 30 feet centered over the pipeline centerline. Pacific Connector would coordinate operational maintenance activities to minimize impacts to sensitive viewsheds through the federal Right-of-Way Grant. This may be accomplished by minimizing the maintained corridor width and by appropriately treating the material (slash) from the maintenance operations. The federal Right-of-Way Grant may also stipulate other measures to ensure that the right-of-way maintenance operations would be conducted in a manner that minimizes impacts to other sensitive resources.

TABLE 4.7.4.4-3

BLM Visual Resource Management Classes

VRM Class	Definition
Class I Preserve Landscape Character	The objective of this class is to preserve the existing character of the landscape. This class provides for natural ecological changes; however, it does not preclude very limited management activity. The level of change to the characteristic landscape should be very low and must not attract attention. (This classification is usually applied to wilderness areas, wild and scenic rivers, and other similar situations.)
Class II Retain Landscape Character	The objective of this class is to retain the existing character of the landscape. The level of change to the characteristic landscape should be low. Management activities may be seen, but should not attract the attention of the casual observer. Any changes must repeat the basic elements of form, line, color, and texture found in the predominant natural features of the characteristic landscape.
Class III Partially Retain Landscape Character	The objective of this class is to partially retain the existing character of the landscape. The level of change to the characteristic landscape should be moderate. Management activities may attract attention but should not dominate the view of the casual observer. Changes should repeat the basic elements found in the predominant natural features of the characteristic landscape.
Class IV Major Modification Landscape Character	The objective of this class is to provide for management activities that require major modification of the existing character of the landscape. The level of change to the characteristic landscape can be high. These management activities may dominate the view and be the major focus of viewer attention. However, every attempt should be made to minimize the impact of these activities through careful location, minimal disturbance, and repeating the basic elements.

Except for the areas designated VRM Classes II and III, listed above, all other areas on the Roseburg District BLM and Medford District BLM have been designated VRM Class IV with which pipeline construction and the presence of a cleared right-of-way are compatible. Table 4.7.4.4-4 displays the BLM-VRM classes that would be achieved by the pipeline after implementation of all visual resource mitigation measures.

The proposed Pacific Connector pipeline's short-term impacts on visual conditions during construction would be unavoidable and there is no mitigation available to make vehicles, heavy equipment, helicopters, and other project components less visible during construction. Following construction, the pipeline right-of-way would be recontoured to as near pre-construction contours as possible, and all disturbed areas would be seeded to provide ground cover, and allowed to revegetate naturally. Pacific Connector has proposed a number of measures that would reduce long-term visual impact. Additional site-specific measures may be identified during Pacific Connector's ongoing consultations with the BLM and USFS during development of the POD that would be prepared prior to the start of construction. In addition, additional site-specific restoration measures (e.g. plantings) may be identified following construction based on assessment of post-construction visual resource conditions. **We recommend that:**

- **Pacific Connector should continue to consult with the BLM and USFS as necessary to develop visual resource protection design and mitigation measures that would be included in the POD for construction and operation of the proposed facilities on federally managed lands. Pacific Connector should file with the Secretary, before the end of the comment period on the draft EIS, the additional design or mitigation measures that result from the consultation.**

TABLE 4.7.4.4-4

BLM Visual Resource Management (VRM) Classes Crossed by Pacific Connector Gas Pipeline, by Milepost

VRM Class per GIS Data, by Milepost of Pacific Connector Pipeline	VRM Class That Would be Achieved by Pacific Connector Pipeline Without Mitigation	VRM Class That Would be Achieved by Pacific Connector Pipeline With VRM Mitigation
VRM Class I: Preserve Landscape Character		
No occurrences	No occurrences	No occurrences
VRM Class II: Retain Landscape Character		
23.74 - 28.87	No occurrences	No occurrences
51.43 - 51.79		
176.06 - 176.30		
176.55 - 176.70		
VRM Class III: Partially Retain Landscape Character		
27.06 - 27.08	133.21 - 133.47	27.06 - 27.08
120.27 - 120.46	136.82 - 137.13	
121.25 - 121.55	141.67 - 141.93	
123.79 - 124.22	148.77 - 149.90	
124.37 - 124.92	150.49 - 151.64	
125.52 - 125.55	152.19 - 153.81	
126.27 - 126.61	176.30 - 176.55	
126.87 - 127.12	176.70 - 176.93	
127.42 - 128.37	179.47 - 179.69	
128.75 - 129.48	216.48 - 216.74	
131.35 - 131.79		
VRM Class IV: Major Modification of Landscape Character		
17.03 - 17.31	64.64 - 64.83	No occurrences
17.39 - 17.44	74.95 - 75.49	17.03 - 17.31
18.80 - 18.86	75.99 - 76.10	17.39 - 17.44
20.04 - 20.55	78.15 - 78.78	18.80 - 18.86
21.22 - 21.81	79.59 - 80.59	20.04 - 20.55
23.19 - 23.74	81.50 - 81.58	21.22 - 21.81
24.00 - 24.37	81.71 - 82.32	23.19 - 23.74
25.53 - 25.59	82.74 - 83.38	23.74 - 24.00
26.82 - 27.06	84.93 - 85.21	24.00 - 24.37
27.11 - 27.48	86.40 - 87.49	25.53 - 25.59
28.40 - 28.80	89.86 - 90.49	26.82 - 27.06
31.58 - 32.33	91.26 - 91.91	27.11 - 27.48
33.77 - 34.22	93.01 - 93.06	28.40 - 28.80
35.12 - 38.89	93.65 - 93.93	31.58 - 32.33
40.04 - 40.09	95.19 - 95.84	33.77 - 34.22
41.35 - 42.01	97.07 - 98.49	35.12 - 38.89
43.19 - 43.50	99.92 - 100.38	40.04 - 40.09
44.63 - 45.70	101.93 - 102.33	41.35 - 42.01
46.87 - 47.72	115.12 - 116.77	43.19 - 43.50
48.14 - 49.20	116.85 - 117.81	44.63 - 45.70
51.28 - 51.43	118.92 - 119.77	46.87 - 47.72
52.05 - 52.30	123.33 - 123.79	48.14 - 49.20
53.10 - 53.70	124.92 - 125.52	51.28 - 51.43
54.37 - 54.43	139.88 - 140.58	51.43 - 51.79
60.84 - 61.68	140.84 - 141.67	52.05 - 52.30
64.31 - 64.47		53.10 - 53.70
		54.37 - 54.43
		60.84 - 61.68
		64.31 - 64.47
		64.64 - 64.83
		74.95 - 75.49
		75.99 - 76.10
		78.15 - 78.78
		79.59 - 80.59
		81.50 - 81.58
		81.71 - 82.32
		82.74 - 83.38
		84.93 - 85.21
		86.40 - 87.49
		89.86 - 90.49
		91.26 - 91.91
		93.01 - 93.06
		93.65 - 93.93
		95.19 - 95.84
		97.07 - 98.49
		99.92 - 100.38
		101.93 - 102.33
		115.12 - 116.77
		116.85 - 117.81
		118.92 - 119.77
		120.27 - 120.46
		121.25 - 121.55
		123.33 - 123.79
		123.79 - 124.22
		124.37 - 124.92
		124.92 - 125.52
		126.27 - 126.61
		126.61 - 126.87
		127.42 - 128.37
		128.75 - 129.48
		131.35 - 131.79
		133.21 - 133.47
		136.82 - 137.13
		139.88 - 140.58
		140.58 - 140.84
		141.67 - 141.93
		148.77 - 149.90
		150.49 - 151.64
		152.19 - 153.81
		176.06 - 176.30
		176.30 - 176.55
		176.55 - 176.70
		176.70 - 176.93
		179.47 - 179.69
		216.48 - 216.74

TABLE 4.7.4.4-4

BLM Visual Resource Management (VRM) Classes Crossed by Pacific Connector Gas Pipeline, by Milepost

VRM Class per GIS Data, by Milepost of Pacific Connector Pipeline	VRM Class That Would be Achieved by Pacific Connector Pipeline Without Mitigation	VRM Class That Would be Achieved by Pacific Connector Pipeline With VRM Mitigation
VRM Class V: Unacceptable Modification of Landscape Character		
No occurrences	17.03 – 17.31	89.86 – 90.49
	17.39 – 17.44	91.26 – 91.91
	18.80 – 18.86	93.01 – 93.06
	20.04 – 20.55	93.65 – 93.93
	21.22 – 21.81	95.19 – 95.84
	23.19 – 23.74	97.07 – 98.49
	23.74 – 28.87	99.92 – 100.38
	24.00 – 24.37	101.93 – 102.33
	25.53 – 25.59	115.12 – 116.77
	26.82 – 27.06	116.85 – 117.81
	27.11 – 27.48	118.92 – 119.77
	28.40 – 28.80	120.27 – 120.46
	31.58 – 32.33	121.25 – 121.55
	33.77 – 34.22	123.33 – 123.79
	35.12 – 38.89	123.79 – 124.22
	40.04 – 40.09	124.37 – 124.92
	41.35 – 42.01	124.92 – 125.52
	43.19 – 43.50	125.52 – 125.55
	44.63 – 45.70	126.27 – 126.61
	46.87 – 47.72	126.87 – 127.12
	48.14 – 49.20	127.42 – 128.37
	51.28 – 51.43	128.75 – 129.48
	51.43 – 51.79	131.35 – 131.79
	52.05 – 52.30	133.21 – 133.47
	53.10 – 53.70	136.82 – 137.13
	54.37 – 54.43	139.88 – 140.58
	60.84 – 61.68	140.84 – 141.67
	64.31 – 64.47	141.67 – 141.93
	64.64 – 64.83	148.77 – 149.90
	74.95 – 75.49	150.49 – 151.64
	75.99 – 76.10	152.19 – 153.81
	78.15 – 78.78	176.06 – 176.30
	79.59 – 80.59	176.30 – 176.55
	81.50 – 81.58	176.55 – 176.70
	81.71 – 82.32	176.70 – 176.93
	82.74 – 83.38	179.47 – 179.69
	84.93 – 85.21	216.48 – 216.74
	86.40 – 87.49	

Sources: <http://www.blm.gov/or/gis/index.php>

Note: Data obtained on July 22, 2008 from Oregon and Washington BLM Internet Web site at <http://www.blm.gov/or/gis/data-details.php?theme=dt000010&grp=VRI&data=ds000081>. This GIS data set was the best available at the time of Draft EIS publication.