Chapter 7
Economics, Social Policy, and Cost-Benefit Analysis

The City of Hoquiam State Environmental Policy Act (SEPA) policies and procedures (Hoquiam Municipal Code [HMC] 11.10.160) require that, in addition to the state rules adopted by reference (HMC 11.10.140), an environmental impact statement must address economic considerations, social policy implications, and the costs and benefits associated with the proposed action and the no-action alternative. Based on this regulatory requirement, this analysis focuses primarily on resources under the purview of the City of Hoquiam that could be affected by the proposed action alone.

This chapter is organized as follows.

- Section 7.1, *Economics,* provides the regional (state- and countywide) economic context for the proposed action and economic impacts.
- Section 7.2, *Social Policy,* presents impacts on elements related to social elements.
- Section 7.3, *Cost-Benefit Analysis*, provides an analysis of the costs and benefits of the proposed action, relevant to the City of Hoquiam.

7.1 Economics

This section describes the regional (state- and countywide) economic conditions in the study area, as well as the economic impacts that could result under the no-action alternative or as a result of construction and routine operation[1] of the proposed action.

7.1.1 What is the study area for economics?

The study area for economics consists of the Washington State economy and the Grays Harbor County[2] economy that could be affected by construction[3] and routine operation of the proposed action. Routine operation of the proposed action encompasses onsite operations, rail transport along the Puget Sound & Pacific Railroad (PS&P)[4] rail line, and vessel transport through Grays Harbor out to 3 nautical miles from the mouth of the harbor.

7.1.2 How were impacts on economic conditions evaluated?

This section describes the methods used to evaluate impacts.

[1] Chapter 4, *Environmental Health and Safety*, addresses the potential environmental impacts from increased risk of incidents (e.g., storage tank failure, train derailments, vessel collisions) and related consequences (e.g., release of crude oil.

[2] For operation of the proposed action, the economic region was defined as Grays Harbor County, because most economic activity associated with operation is expected to occur there.

[3] For the construction phase, the economic region was defined as Washington State because most construction-related purchases are likely to occur within the state, but many of them would occur outside Grays Harbor County and the adjacent counties.

[4] The PS&P rail line refers to the rail line between Centralia and the project site.

Regional economic impacts of the proposed action were analyzed by ECONorthwest using the Impact Analysis for Planning Model (IMPLAN) as presented in Appendix O, *Census Block Group Data.* This analysis focused on the employment, income (including benefits), and economic output that would be generated in the region by the proposed action during construction and operation. Economic output measures the total value of economic transactions related to the proposed action. IMPLAN is a leading input-output modeling system that describes the flow of goods and services between industrial sectors in regions usually defined as a county, a group of counties, or a state. The IMPLAN databases contain county-level, inter-industry trade flows for hundreds of commodities estimated based on nationwide production functions; that is, relationships showing the average amounts of various goods and services required to produce a unit of each commodity. ECONorthwest customized the IMPLAN data based on proprietary information describing trade flows in Washington State and Grays Harbor County and on information about the proposed action provided by the applicant.

Input-output models estimate not only the employment and income generated to construct and operate a project (*direct* effects) but also the increased employment and income in industries linked to the project (*indirect* effects). The model also estimates the increased purchases that workers in the directly and indirectly affected industries make due to their increased income (*induced* effects). The sum of the direct, indirect, and induced effects is called the *total* effect, and the ratio of the total effect to the direct effect is called a *multiplier*.

7.1.3 What are the economic conditions in the study area?

This section describes the regional economic conditions that could be affected by construction and routine operation of the proposed action.

7.1.3.1 Regional Population

Between 2000 and 2012, the state population increased by 17% (Table 7-1). In 2010, Grays Harbor County ranked 17th in population out of Washington's 39 counties (U.S. Census Bureau 2014a). Although the county population increased by 6.7% between 2000 and 2012 (Table 7-1), it actually decreased by 1,105 individuals during the last 2 years of that period (U.S. Census Bureau 2014a). Table 7-1 presents regional population, labor force, income, unemployment, and poverty rates for 2000 and 2012.

Table 7-1. Population, Labor Force, Median Household Income, Unemployment Rate, and Poverty Rate for Washington and Grays Harbor County (2000 and 2012)

	Washington State			Grays Harbor County		
Statistic	2000	2012	Percent Change	2000	2012	Percent Change
Population	5,894,121	6,897,012	17.0	67,194	71,692	6.7
Labor force	2,979,824	3,556,836	19.4	30,120	31,514	4.6
Median household income ($)	45,776	57,573	25.8	34,160	42,057	23.1
Unemployment rate (%)	6.1	8.6	39.3	8.3	16.4	97.6
Poverty rate (%)	10.6	13.5	27.3	16.1	20.9	37.7

Source: U.S. Census Bureau 2014a and 2014b

7.1.3.2 Regional Income, Poverty, and Unemployment

In 2012, Washington ranked eighth in median household income among the 50 states. Its median household income exceeded that of all non-eastern-seaboard states, except Alaska (U.S. Census Bureau 2013). Although Washington is relatively affluent, its unemployment and poverty rates increased substantially between 2000 and 2012 (Table 7-1).

In 2012, Grays Harbor County ranked 34th in median household income among the state's 39 counties (Washington State Office of Financial Management 2014). Unemployment and poverty have recently become more prevalent in the County: approximately one in five County residents lived in poverty, and one in six members of the work force was unemployed in 2012 (Table 7-1). Grays Harbor County's per-capita income is substantially less than the statewide average, and it increased more slowly than in Washington between 2000 and 2012 (Table 7-2).

Table 7-2. Per-Capita Income in Washington State and Grays Harbor County (2003–2012)

Year	Washington State	Grays Harbor County
2003	34,620	24,663
2004	36,715	25,315
2005	37,651	26,150
2006	40,139	27,132
2007	42,845	28,566
2008	44,162	29,903
2009	42,112	29,391
2010	42,521	29,645
2011	44,420	30,963
2012	46,045	31,848
Percent change 2003–2012	33.3	29.1

Source: U.S. Bureau of Economic Analysis 2014

7.1.3.3 Regional Employment and Wages

Between 2002 and 2012, the state industries that increased fastest in statewide employment level were educational services; health care and social assistance; and professional, scientific, and technical services (Table 7-3). The industries that declined the fastest in employment in the state were mining, construction, and finance and insurance.

In Grays Harbor County, the industries that increased fastest in employment between 2002 and 2012 were management, administrative and waste management, and real estate and rental and leasing services (Table 7-3). The industries in which employment declined most rapidly were construction, military, and other services. More industries had declining employment than increasing employment.

Table 7-3. Employment[a] by Place of Work in Washington State and Grays Harbor County by Industry (2002 and 2012)

	Washington State			Grays Harbor County		
Sector	**2002**	**2012**	**Percent Change[b]**	**2002**	**2012**	**Percent Change[b]**
Farming	44,116	52,776	19.6	590	766	29.8
Forestry, fishing, and related activities	24,924	27,696	11.2	(D)	(D)	--
Mining	3,063	2,158	(29.6)	(D)	(D)	--
Utilities	4,524	4,913	8.6	16	(D)	--
Construction	160,441	143,496	(10.6)	1,705	1,339	(21.5)
Manufacturing	286,033	280,554	(1.9)	3,574	3,079	(13.9)
Wholesale trade	116,491	124,363	6.7	852	765	(10.2)
Retail Trade	309,158	322,363	4.3	3,969	3,425	(13.7)
Transportation and warehousing	85,295	89,301	4.7	902	(D)	--
Information	93,555	105,535	12.8	222	275	23.9
Finance and insurance	101,513	94,517	(9.3)	922	1,055	14.4
Real estate and rental and leasing services	48,565	45,918	(5.4)	841	1,128	34.1
Professional, scientific, and technical services	140,060	173,116	23.6	1,005	1,007	0.2
Management	30,286	36,318	19.9	36	92	155.5
Administrative and waste management	123,101	143,031	16.2	628	925	47.3
Educational services	41,954	52,981	26.3	112	117	4.5
Health care and social assistance	271,964	340,181	25.1	2,390	2,831	18.4
Arts, entertainment, and recreation	41,986	46,452	10.6	483	424	(12.2)
Accommodation and food services	206,171	232,890	12.9	2,432	2,317	(4.7)
Other services	145,889	146,708	0.6	2,118	1,815	(14.3)
Federal civilian	69,300	73,258	5.7	215	212	(1.4)
Military	75,587	81,956	8.4	288	240	(16.7)
State government	141,344	149,352	5.7	1,243	1,256	1.0
Local government	300,536	319,886	6.4	4,844	4,720	(2.6)
Total	**2,865,856**	**3,089,759**	**7.8**	**31,203**	**29,872**	**(4.3)**

Notes:
Source: U.S. Bureau of Economic Analysis 2014
(D) Not shown to avoid disclosure of confidential information
[a] Includes full- and part-time employees and proprietors.
[b] Negative changes shown in parentheses.

Countywide average wages are lower than the statewide average, and they increased more slowly between 2004 and 2012 compared to statewide (Table 7-4).

Table 7-4. Average Weekly Wages for Washington and Grays Harbor County (2004 and 2012) ($)

Year	Washington State	Grays Harbor County
2004	757	574
2012	999	686
Percent Change 2004–2012	32.0	19.5

Source: U.S. Bureau of Labor Statistics 2015

7.1.4 What are the potential impacts on economic conditions?

This section describes impacts on economic conditions that could occur in the study area. Potential impacts of the no-action alternative are described first, followed by potential impacts of the proposed action.

7.1.4.1 No-Action Alternative

Under the no-action alternative, the applicant would continue to operate its existing facility as described in Section 2.1.2.2, *Existing Operations*. Although the proposed action would not occur, it is assumed that growth in the region would continue under the no-action alternative, which could lead to development of another industrial use at the project site within the 20-year analysis period (2017 to 2037). Such development could result in in impacts similar to those described for the proposed action.

7.1.4.2 Proposed Action

This section describes the impacts that could occur in the study area as a result of the construction and routine operation of the proposed action. First, this section describes impacts from construction of the proposed action. It then describes impacts of routine operation of the proposed action.

Construction

As described in Chapter 2, *Proposed Action and Alternatives*, construction of the proposed action would likely be completed in two phases. It is anticipated that Phase 1 could begin in 2016 and would last 10 to 12 months. The start date for Phase 2 is unknown but is anticipated to last approximately 10 months. Construction of Phase 1 is anticipated to cost $38.3 million and Phase 2 is estimated to cost an additional $20.4 million for a total construction cost of $58.7 million.

Construction of the proposed action would temporarily stimulate the economy through purchases of materials, supplies, equipment, and services; payroll to construction workers; and related indirect and induced effects. Direct purchases of goods and services used to construct the proposed facilities would require the vendors providing these products to increase spending on the inputs they need to operate. For example, construction companies engaged in building industrial infrastructure would probably need to buy additional heavy equipment. Such purchases by directly affected businesses represent the *indirect effects* of the proposed action. *Induced effects* result when workers and proprietors who receive additional income from work generated by the proposed action spend that additional income on consumer goods and services within the region.

As indicated by the IMPLAN analysis (Appendix O, *Census Block Group Data*), approximately $10.9 million of Phase 1 total construction costs ($38.3 million) would go to labor spending (e.g., construction worker salaries and benefits) associated with the creation of approximately 82 direct construction jobs and a total of 293 jobs in the state (Table 7-5). Of the total Phase 1 construction costs, the remaining $27.4 million would go to nonlabor spending (e.g., equipment and materials purchases). Businesses classified by IMPLAN as "the construction of other new nonresidential structures industry" would receive most of the construction spending.

Of the $10.9 million to go to labor spending, approximately $10.4 million (95%) is estimated to be spent in Washington (Table 7-5). Of the $27.4 million to go to nonlabor spending, it is estimated approximately $13.2 million (48%) would be spent on construction commodities such as materials, supplies, equipment, and services in Washington. The remaining $14.2 million (52%) would be spent out of state. The relatively low share of in-state nonlabor spending reflects the need to import specialized equipment manufactured outside Washington. The estimated direct, indirect, and induced employment, income (including benefits), and output effects associated with Phase 1 construction spending that would occur in Washington State are shown in Table 7-5. Income and output levels are expressed in 2013 dollars per year.

Table 7-5. Estimated Economic Impacts from Phase 1 Construction—Proposed Action (2013 dollars)

Impact	Employment (jobs)	Labor Income and Benefits	Economic Output
Direct	82	$10,398,000	$23,570,000
Indirect	111	$6,619,000	$17,157,000
Induced	100	$4,695,000	$13,407,000
Total	293	$21,712,000	$54,134,000
Multiplier[a]	3.57	2.09	2.30

Source: Appendix O, *Census Block Group Data*

[a] The employment multiplier (ratio of the total effect to the direct effect) for the construction is much larger than the labor income multiplier because, although the average nonresidential construction job results in 3.57 jobs in supporting industries, the average wage in those industries is substantially lower than in the nonresidential construction industry.

In addition to these economic impacts, construction of the proposed action would result in various tax revenues accruing to state and local governments As shown in Table 7-6, the first phase of construction was estimated to generate approximately $2.66 million in property, sales, and business and occupation tax revenues.

Table 7-6. Estimated Tax Revenues from Phase 1 Construction—Proposed Action (2013 dollars)

Property Tax	Sales Tax	Business and Occupation Tax	Total
$143,600	$2,453,700	$58,400	$2,655,700

Source: Appendix O, *Census Block Group Data*

As mentioned above, construction of Phase 2 is estimated to cost an additional $20.4 million. The economic impacts associated with Phase 2 construction would be similar to but slightly less than described for Phase 1.

Operations

The annual economic output of the proposed action in Grays Harbor County was estimated at $19.9 million (Table 7-7). This includes onsite operation of the proposed action and rail and vessel operations to and from the project site. This amount does not include the value of the commodities (e.g., crude oil) that would be shipped through the Port of Grays Harbor (Port), which, for this analysis, comprise pass-through costs with no economic impacts. The annual economic output includes annual operating costs of Westway Terminal Company LLC (applicant), PS&P, and vessel operators related to the proposed action, business taxes, and net business income.

At full buildout, the proposed action would generate an estimated 36 direct jobs in Grays Harbor County associated with onsite operations (by the applicant), rail transport (by PS&P), and vessel transport (by vessel operators). The proposed action would generate an estimated 73 jobs throughout the County's economy. These jobs would account for $3.6 million in annual direct labor income and benefits and $5.1 million in total labor income and benefits throughout the County's economy (Table 7-7).

The annual operating costs of the proposed facilities (by the applicant), and rail transport (by PS&P) and vessel transport (by vessel operators) related to the proposed action was estimated at $6.6 million. One-third of this spending ($2.2 million) would be attributed to the applicant, and two-thirds ($4.4 million) would be attributed to the rail and vessel transport operators. Of the total spending, $3.6 million (54.8%; Table 7-7) would be paid as income or benefits to employees and proprietors with the remainder going to non-labor expenditures.

The difference between the annual economic output and annual operating costs would consist primarily of business taxes and net business income. A substantial share of the applicant's net business income would probably be allocated to retire debt incurred during the construction phase. Essentially, all business taxes and net business income related to onsite operations and income earned by rail and vessel operators would leave Grays Harbor County and would not result in regional employment or income. The regional economic effects of operation of the proposed action are shown in Table 7-7, with income and output levels expressed in 2013 dollars per year.

Table 7-7. Estimated Economic Impacts in Grays Harbor County of Operations at Full Buildout—Proposed Action (2013 dollars)

	Employment (jobs)	Labor Income and Benefits	Economic Output
Direct	36	$3,620,000	$19,942,000
Indirect	20	$856,000	$2,961,000
Induced	17	$574,000	$1,951,000
Total	73	$5,051,000	$24,854,000
Multiplier[a]	2.58	1.40	1.25

Source: Appendix O, *Census Block Group Data*

[a] The multipliers for operation of the proposed action are smaller than those for construction primarily because the study area for operation is much smaller (Grays Harbor County) and the industries that would be most affected by operation are, on average, less labor-intensive and have lower wages.

In addition to these economic impacts, operation of the proposed action was estimated to generate $1.27 million in increased annual property, sales, and business and occupation tax revenues at full buildout (Table 7-8).

Table 7-8. Estimated Annual Tax Revenues Generated By Operations at Full Buildout—Proposed Action (2013 dollars)

Property Tax	Sales Tax	Business and Occupation Tax	Total
$1,083,500	$68,000	$116,300	$1,267,800

Source: Appendix O, *Census Block Group Data*

7.2 Social Policy

The social policy analysis considers elements of community and social structure that could be affected by the proposed action, including community cohesion, community welfare, population growth, and minority and low-income communities.

- **Community cohesion** is the ability of people to communicate and interact with each other in ways that lead to a sense of community, as reflected in a neighborhood's ability to function and be recognized as a singular unit (Washington State Department of Transportation 2014). In general, community cohesion is affected by elements that tend to divide communities, such as railroads, highways, and industrial facilities not accessible to the public.
- **Community welfare** refers to the physical health and mental well-being of individuals in a community.
- **Population growth** refers to the increase in the number of people that reside in a country, state, county, or city.
- **Minority and low-income communities** refer to those localized communities that have a higher percentage of residents in this category than the county in which they reside.

This section describes the existing conditions related to community cohesion, community welfare, population, and minority and low-income populations. It then describes impacts on these elements that could result under the no-action alternative or as a result of the construction and routine operation of the proposed action. This section also considers if impacts resulting from the proposed action could disproportionately affect minority and low-income communities.

7.2.1 What is the study area for social policy?

The study area for social policy consists of the communities surrounding the project site that could be affected by construction and routine operation of the proposed action. The study area also includes the communities that could be affected during routine rail transport along the Puget Sound & Pacific Railroad (PS&P)[5] rail line and vessel transport through Grays Harbor.

7.2.2 How were impacts on social policy evaluated?

This section describes the sources of information and methods used to evaluate impacts.

[5] The PS&P rail line refers to the rail line between Centralia and the project site.

7.2.2.1 Information Sources

The analysis used information from the following sources.

- Public scoping comments
- Relevant land use plans and mapping
- U.S. Census data
- Interviews with local land use planners

7.2.2.2 Impact Analysis

Impacts of the proposed action on social policy elements were evaluated qualitatively using information from the sources described above and the analysis of impacts on the natural and built environment in Chapter 3, *Affected Environment, Impacts, and Mitigation*.

- **Community cohesion.** The evaluation of impacts on community cohesion considered how the proposed action would divide a neighborhood, isolate part of a neighborhood, or separate residents from public services by changing accessibility.
- **Community welfare.** The evaluation of impacts on community welfare considered how impacts of the proposed action described in Chapter 3 could affect human health and welfare (e.g., physical health, mental well-being, property values) in the study area.
- **Population growth.** Impacts on population growth were evaluated based on projected employment from construction and operation of the proposed action described in Section 7.1, *Economics*.
- **Minority and low-income communities.** The analysis of impacts on minority and low-income communities involved compiling minority and low-income data for the U.S. census block groups in the study area and evaluating whether the impacts would affect minority and/or low-income communities. This means considering if impacts would occur or occur in greater magnitude in areas where these populations were concentrated.

  For the purposes of this analysis, a population was considered a minority or low-income population if the percentage of minority or low-income individuals in any given census block group was greater[6] than the percentage of that population at the county level[7], which provides for a conservative analysis. For this analysis, *minority* populations include all racial groups other than white (defined as not Hispanic or Latino), and *low-income* populations include those living below poverty.

[6] For comparison, the U.S. Environmental Protection Agency considers impacts on minority populations to be disproportionate if the minority population exceeds 50% of the study area population or if the minority population percentage of the study area is meaningfully greater than the minority population percentage in the general population or the reference area the study area (Council on Environmental Quality 1997).

[7] The study area spans three counties; the census block groups were evaluated against the county in which they are located.

7.2.3 What are the existing conditions related to social policy in the study area?

This section describes the existing conditions related to community cohesion, community welfare, population growth, and minority and low-income in the study area that could be affected by construction and routine operation of the proposed action.

7.2.3.1 Community Cohesion

This section describes existing dividing elements, such as railroads, highways, and industrial facilities not accessible to the public, near the project site, along the PS&P rail line, and along the shoreline of Grays Harbor.

Project Site

The project site is located within the city limits of Hoquiam and Aberdeen along the industrial waterfront at the Port. Land on and directly surrounding the project site is designated and zoned for industrial use (Chapter 3, Section 3.8, *Land and Shoreline Use*). The industrial area extends several miles north and south of the project site along the shoreline. The PS&P rail line borders this industrial area to the north and east, dividing the industrial area from high-density residential, recreational, and other uses to the north and northeast. The rail line and industrial area are dividing elements near the project site in that they separate these residential areas from the Grays Harbor shoreline. However, physical and visual access to Grays Harbor is provided via the 28th Street Boat Ramp and Viewing Tower located north of the project site.

US Route 101 (US 101) is north of the project connecting Hoquiam to the west and Aberdeen to the east. Local road access to the project site is provided via Port Industrial Road at the intersection with West 1st Street.

PS&P Rail Line

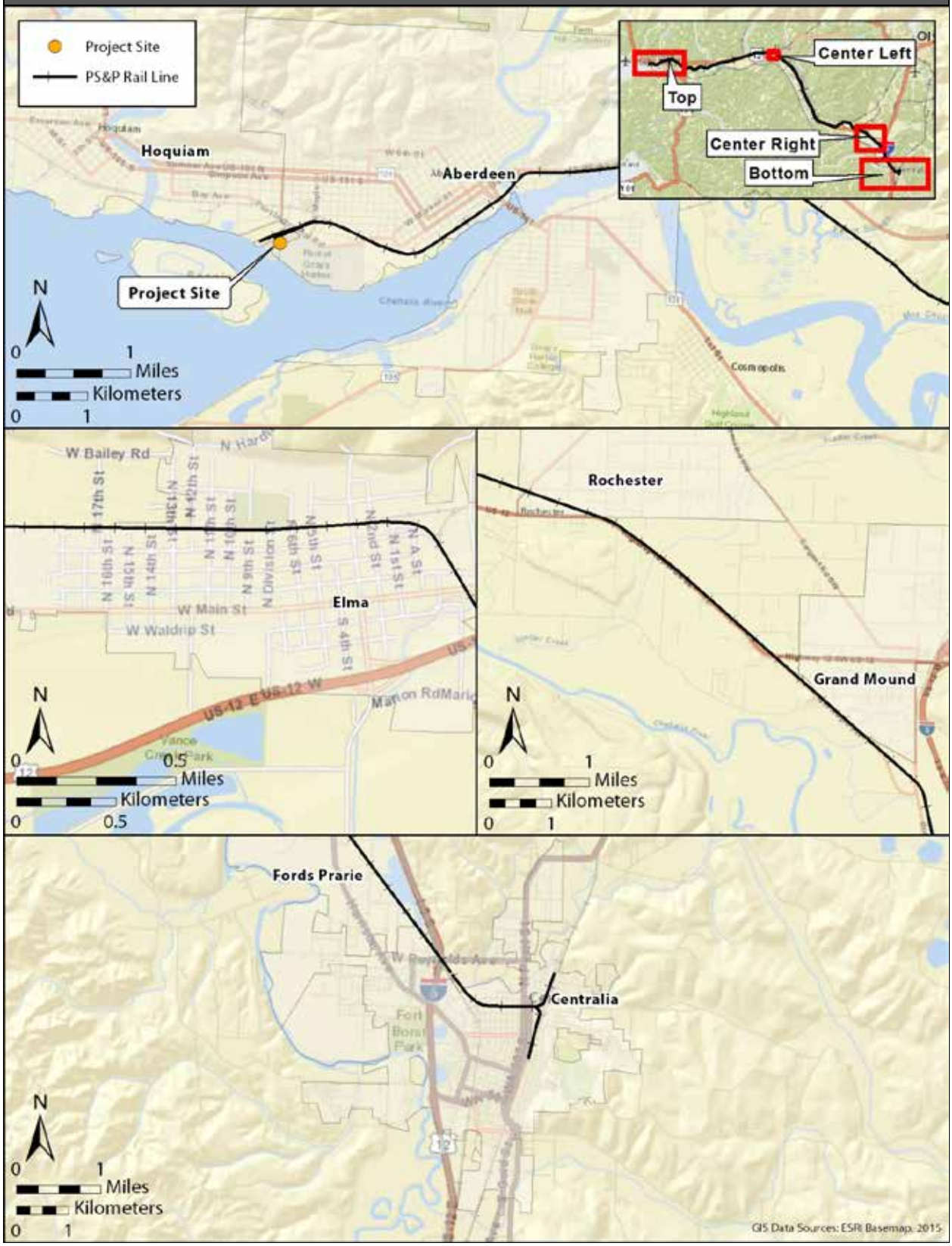
The PS&P rail line links the densely populated cities of Hoquiam and Aberdeen (to the west) and Centralia (to the south and east), largely following the Chehalis River; in between, development is much less dense. Land uses mostly consist of agricultural fields and forested open space interspersed with smaller cities and communities, including (west to east) Junction City, Central Park, Alder Grove, City of Montesano, Brady, Satsop, City of Elma, Malone-Porter, City of Oakville, the Chehalis Reservation, Rochester, Grand Mound, and Fords Prairie (Chapter 2, Figure 2-1).

The PS&P rail line travels along the outskirts of most communities; however, it intersects Centralia, Fords Prairie, Ground Mound, Rochester, Elma, and Aberdeen, where it divides portions of these communities. When a train is traveling through this corridor, access from one side of the town to the other can be temporarily blocked. With the exception of impacts in Aberdeen, the delay typically lasts the duration of the train passing (approximately 3 minutes with some periods of longer delay in Centralia due to slower speed restrictions).

Elsewhere along the rail line are additional locations where access is completely blocked by a passing train, meaning there are no alternative routes. These access limitations are summarized below (Figure 7-1).

- In Centralia, from north to south, the PS&P rail line cuts through an industrial district, crosses the Skookumchuck River, and traverses a variety of mid- to high-density residential and commercial uses. Interstate 5 also runs north-south along the western side of the city.
- In Fords Prairie, the PS&P rail line runs through the northern part of the city, bisecting a large commercial complex from some scattered residential development. During the passing of the train, access into the warehouse area to the north is temporarily blocked.
- In the Rochester and Grand Mound area, the PS&P rail line bisects scattered residential areas with most development occurring to the north of the rail line. Some isolated areas, including primarily agricultural development and rural residential uses, are temporarily blocked from access when trains pass.
- From Rochester to Elma, access is temporarily limited in some scattered areas. These areas mostly consist of agricultural development and rural residential land uses.
- In Elma, the PS&P rail line runs through the length of the community and separates the northern portions, primarily residential development, from the more concentrated residential and commercial development to the south. When a train is passing, access to the Lloyd Murray Park is temporarily blocked.
- From Elma into Aberdeen, a passing train temporarily blocks access to some smaller groupings of residential land uses.
- In Aberdeen, the PS&P rail line mostly splits industrial uses to the south and most other uses (mainly commercial and residential) to the north. East of the Wishkah River; however, the rail line divides residential and commercial uses on the north from a popular commercial area (Olympic Gateway Plaza) on the south. When a train is passing, access into the Olympic Gateway Plaza is blocked (Chapter 3, Section 3.16, *Vehicle Traffic and Safety*).

Figure 7-1. Communities Intersected by the PS&P Rail Line



Grays Harbor

Lands surrounding Grays Harbor are relatively sparsely populated outside of the cities and communities. Communities along the harbor include Cosmopolis, Westport, Cohassett Beach, and Ocean Shores. General land uses surrounding the harbor include residential, industrial, commercial, transportation/communications/utilities, recreation, resource production (i.e., agriculture, fishing, and mining activities and designated forest land), and undeveloped land (Chapter 3, Figure 3.8-1). Generally, development is more concentrated on the eastern and western sides of the harbor and most undeveloped land is located along the northern and southern sides.

Grays Harbor encompasses many recreational areas, including several state and local parks and designated wildlife areas. Fishing, shellfishing, bird and wildlife viewing, hiking, and boating are popular recreational activities throughout the harbor. Most of Grays Harbor's recreational areas are on the western half of the harbor in and near the northern and southern peninsulas.

Besides the industrial area along the eastern end of the harbor in which the project site is located and along where the rail line runs, there are no major dividing elements along the Grays Harbor shoreline. Although present, US 101 and State Route 109 (SR 109) are not dividing elements because they are accessible from local roadways.

As described in Chapter 3, Section 3.17, *Vessel Traffic*, Grays Harbor experiences many forms of vessel activity, including large commercial vessels that transit the harbor via the Grays Harbor Navigation Channel destined for Port terminals and other private wharves further east along the Chehalis River. Commercial fishing vessels also tend to congregate along the navigation channel east of the Hoquiam River, and recreational fishing and pleasure boats move throughout the harbor, mostly in the summer. The navigation channel could be considered a dividing element among commercial fishers and recreationalists using the harbor, because the latter vessels must make way for the large commercial vessels whose transit through the harbor is restricted to the navigation channel. As noted in Chapter 3, Section 3.10, *Recreation*, Section 3.12, *Tribal Resources*, and 3.17, *Vessel Traffic*, existing deep-draft vessel traffic currently does cause some disruption to recreation boaters and fishers and tribal and commercial (treaty and nontreaty tribal) fishing.

7.2.3.2 Community Welfare

Community welfare analysis identifies the factors that influence the existing sense of welfare in the study area, such as living in a healthy and safe environment and relatively easy access to public amenities and services.

Project Site

As noted in Chapter 3, *Affected Environment, Impacts, and Mitigation*, in general, project site does not have significant documented concerns with air quality or water quality. Easy access to the harbor and the Chehalis River provides recreational and commercial opportunities. There are also recreational facilities and public facilities in Hoquiam and Aberdeen, such as ballparks, boat launches, restaurants, and other businesses. However, closest to the project site, there are areas that experience some exposure to increased noise and environmental health and safety risks associated with the existing industrial facilities. These land uses are described in Chapter 3, Section 3.8, *Land and Shoreline Use*.

PS&P Rail Line

The PS&P rail line links the densely populated cities of Hoquiam and Aberdeen (to the west) and Centralia (to the south and east), largely following the Chehalis River. In between, land uses generally consist of agricultural fields and forested open space interspersed with smaller cities and communities. In general, environmental conditions along the PS&P are good. There are no known concerns with air quality or water quality. There are numerous recreational facilities and public facilities in the cities along the rail line. However, residents are exposed to noise and environmental health and safety risks associated with existing rail operations, primarily related to train horn noise and some risks of incidents. Existing noise conditions are discussed in Chapter 3, Section 3.7, *Noise and Vibration*, and existing safety risks are addressed in Chapter 4, *Environmental Health and Safety*. Additionally, there are areas where rail operations result in increased vehicle delay and limited vehicle access, primarily in East Aberdeen and around the project site. These limitations are discussed in Section 7.2.3.1, *Community Cohesion*, and in Chapter 3, Section 3.16, *Vehicle Traffic and Safety*.

Grays Harbor

As described in Section 7.2.3.1, *Community Cohesion*, lands surrounding the harbor are relatively sparsely populated outside of the cities and communities. In general, environmental conditions around the harbor are good. There are no known concerns with air quality or water quality. There are numerous recreational facilities and public facilities in the surrounding cities. Views of Grays Harbor are relatively intact and are available from land- and water-based vantages. Numerous recreational and wildlife areas are located around the bay with views of the water. Additionally, water-based views are available from recreational, commercial, and industrial vessels. Views in the region vary based on viewers' location in the landscape. Many views are of high visual quality, featuring the harbor and rivers, tidal areas, forested hillsides, and relatively low levels of development. However, other views are somewhat degraded and include industrial operations and infrastructure juxtaposed against the forested hillsides and waterfront.

The shoreline of Grays Harbor provides opportunities for hiking, biking, picnicking, wildlife viewing, bird watching, and hunting at the numerous state and city parks and designated wildlife areas that surround the harbor. Miles of public shoreline with multiple public access options provide opportunities for beachcombing and shellfishing; public boat launches provide access for recreational fishing and boating. Wave riding and surfing are other popular activities near the south jetty.

However, there is increased exposure to some risks associated with existing vessel operations. This includes the low potential for incidents, as discussed further in Chapter 4, *Environmental Health and Safety*, and some low level of disturbance to recreational boaters, commercial fishers, and tribal fishers in the study area, as discussed in greater detail in Chapter 3, Section 3.10, *Recreation*, Section 3.12, *Tribal Resources*, and Section 3.17, *Vessel Traffic*.

7.2.3.3 Population Growth

This section describes recent population growth in the study area. As noted in Section 7.1.3.1, *Regional Population*, Washington State's population increased between 2000 and 2012 by 17% and Grays Harbor County's population increased by 6.7% (Table 7-9). Over the same period, population increased in most of the cities and communities in the study area. The exceptions are Hoquiam

(-2.9%), Westport (-5.0%), Junction City (-77.5%), Elma (-0.6%), and Fords Prairie (-0.1%) (Table 7-9).

Table 7-9. Population Growth[a] in Washington, Grays Harbor County, and Surrounding Communities (2000 and 2012)

Population	2000	2012	Percentage Change
Hoquiam	8,987	8,726	-2.9
Aberdeen	16,461	16,896	2.6
Westport	2,137	2,030	-5.0
Ocean Shores	3,836	5,584	45.6
Cosmopolis	1,595	1,600	0.3
Junction City	80	18[a]	-77.5
Central Park	2,558	2,685[a]	5.0
Montesano	3,312	3,976	20.0
Brady	645	676[a]	4.8
Satsop	619	675[a]	9.0
Elma	3,049	3,030	-0.6
Malone-Porter	473	1,825[a]	285.8
Oakville	233	663	184.5
Rochester	1,829	2,388[a]	30.6
Grand Mound	1,948	2,981[a]	53.0
Fords Prairie	1,961	1,959	-0.1
Centralia	14,742	16,611	-13
Study area communities total	51,723	57,725	11.0
Grays Harbor County	67,194	71,692	6.7
Washington	5,894,121	6,897,012	17.0

Source: U.S. Census Bureau 2013 unless otherwise noted
[a] U.S. Census Bureau 2010

7.2.3.4 Minority and Low-Income Populations

This section identifies minority and low-income populations in the study area based on the census block group data (U.S. Census Bureau 2014c). Of the 57 census block groups in the study area, 31 have minority populations that exceed their respective county levels (minority populations account for 19.1% of the Grays Harbor population, 14.4% of the Lewis County population, and 21.9% of the Thurston County population), ranging from 15.5 to 56.8% of the total population. Table 7-10 presents the average percentage of populations for each element of the study area, project site, PS&P rail line, and Grays Harbor, compared to area counties. Appendix P, *Census Block Group Data*, presents minority and poverty data for each block group in the study area.

In addition, 25 of the 57 census block groups in the study area have low-income populations that exceed their respective county levels (low-income populations account for 19.0 % of the Grays Harbor population, 15.4% of the Lewis County population, and 11.7% of the Thurston County population), ranging from 17.0 to 57.6%. This information is also summarized in Table 7-10 with more information for all census block groups presented in Appendix P, *Census Block Group Data*.

Overall, 39 of the 57 census block groups in the study area are considered minority and/or low-income populations for the purposes of this analysis (Figure 7-2). Relative to the project site, PS&P rail line, and Grays Harbor shoreline, these populations occur as follows.[8]

- Nearest the project site, all three of the census block groups are minority and/or low income.
- Along the PS&P rail line, 31 of the 43 (or 72%) census block groups are minority and/or low income. These populations occur along almost the entire length of the line with the exception of a small portion of Rochester (in Thurston County) and the area between Satsop and Montesano.
- Along the shoreline of Grays Harbor, 15 of the 22 (or 68%) census block groups are minority and/or low income, primarily concentrated around Ocean Shores, Hoquiam, Aberdeen, Cosmopolis, and along the southern shore of the harbor.

[8] Some census block groups are considered with respect to more than one of the study area features (i.e., project site, PS&P rail line, and Grays Harbor shoreline).

Table 7-10. 2013 Minority Populations and Poverty Status

Census Block Groups or Area	Average Percentage of Population that is a Minority Population	Comparison to Grays Harbor County Average Minority Population	Comparison to Lewis County Average Minority Population	Comparison to Thurston County Average Minority Population	Comparison to Washington State Average Minority Population	Average Percentage of Population Below Poverty Level[a]	Comparison to Grays Harbor County Average Low-Income Population	Comparison to Lewis County Average Minority Population	Comparison to Thurston County Average Low-Income Population	Comparison to Washington State Average Low-Income
Study area	20.0	0.9% higher	5.6% higher	1.9% lower	2.7% lower	17.8	1.2% lower	2.4% higher	6.1% higher	1.4% lower
Project site	26.9	7.8% higher	12.5% higher	5.0% higher	4.2% higher	31.6	12.6% higher	16.2% higher	19.9% higher	12.4% higher
PS&P rail line	21.1	2.0% higher	6.7% higher	0.8% lower	1.6% lower	18.1	0.9% lower	2.7% higher	6.4% higher	1.1% lower
Grays Harbor shoreline	21.6	2.5% higher	7.2% higher	0.3% lower	1.1% lower	21.1	2.1% higher	5.7% higher	9.4% higher	1.9% higher
Grays Harbor County	19.1	--	4.7% higher	2.8% lower	3.6% lower	19.0	--	3.6% higher	7.3% higher	0.2% lower
Lewis County[b]	14.4	4.7% lower	--	7.5% lower	8.3% lower	15.4	3.6% lower	--	3.7% higher	3.8% lower
Thurston County	21.9	2.8% higher	7.5% higher	--	0.8% lower	11.7	7.3% lower	3.7% lower	--	7.5% lower
Washington State	22.7	3.6% higher	8.3% higher	0.8% higher	--	19.2	0.2% higher	3.8% higher	7.5% higher	--

Source: U.S. Census Bureau 2014c

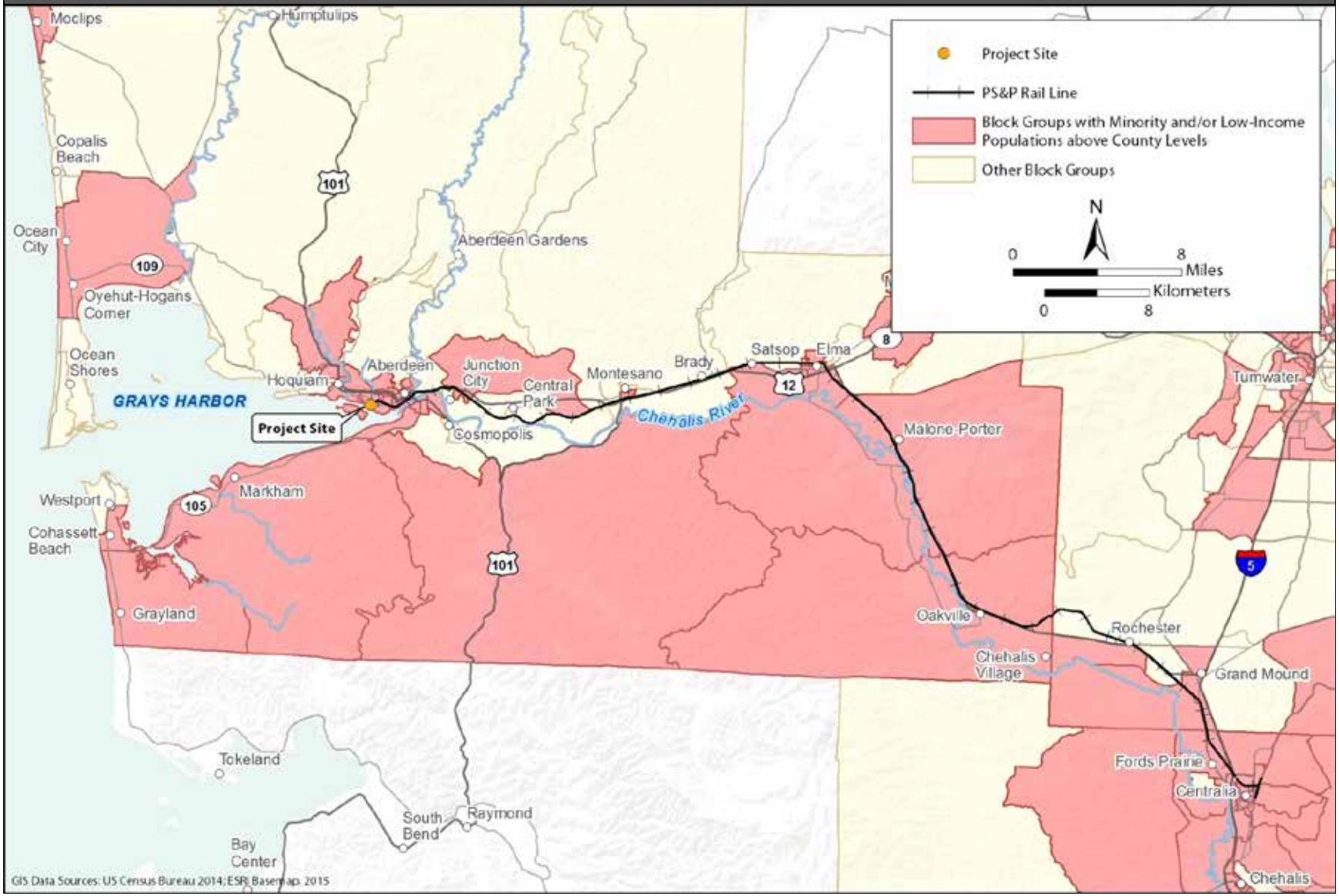
Table includes average percentage of populations for each element of the study area, project site, PS&P rail line, and Grays Harbor, compared to area counties.

[a] Percentage of individuals with incomes below poverty level, as established by the U.S. Census Bureau.

[b] Lewis County numbers are provided for comparison with census block groups in and near Centralia.

[c] Thurston County numbers are provided for comparison with census block groups in and near Rochester and Grand Mound.

Figure 7-2. Minority and Low-Income Populations in the Study Area



7.2.4 What are the potential impacts on social policy?

This section describes impacts on social policy that could occur in the study area. Potential impacts of the no-action alternative are described first, followed by potential impacts of the proposed action.

7.2.4.1 No-Action Alternative

Under the no-action alternative, the applicant would continue to operate its existing facility as described in Section 2.1.2.2, *Existing Operations*. Operations of this facility would continue to result in some levels of noise and air emissions and risk of hazardous materials releases (Chapter 3, *Affected Environment, Impacts, and Mitigation*). In addition, it is assumed that growth in the region would continue under the no-action alternative, which could lead to development of another industrial use at the project site within the 20-year analysis period (2017 to 2037). Although potential future uses were not analyzed, depending on the type of development, impacts similar to those described for the proposed action could occur.

7.2.4.2 Proposed Action

This section describes the impacts that could occur in the study area as a result of construction and routine operation of the proposed action. First, this section describes impacts from construction of the proposed action. It then describes impacts of routine operation at the project site and of rail and vessel transport to and from the project site.

Construction

Community Cohesion

The project site is located in an existing industrial area and construction of the proposed action would not bisect, disrupt, or isolate any established communities or change the existing community character, nor would it require relocating any residences or businesses. As described in Chapter 3, Section 3.16, *Vehicle Traffic and Safety*, transport of materials and workers to and from the project site during construction is not expected to result in a substantial increase in traffic that could adversely affect the level of service of area roadways. Moreover, increased traffic related to construction of the proposed action would occur over a relatively short period (approximately 10 to 12 months).

Community Welfare

Construction of the proposed action would affect community welfare if it were to substantially degrade air quality, increase noise, reduce access to parks and recreational uses, or reduce property values.

As described in Chapter 3, Section 3.2, *Air*, construction of the proposed action would result in emissions of criteria pollutants; however, these emissions are not expected to cause a significant contamination of the air and are unlikely to affect sensitive receptors surrounding the project site. Construction of the proposed action could result in emissions of toxic air pollutants, primarily associated with diesel particulate matter, a known human carcinogen. The construction-related emissions would be short-term and intermittent, with total diesel particulate matter emissions of less than 0.17 ton per year, which would be less than 0.2% of total 2011 diesel particulate matter

emissions for Grays Harbor County (9.5 tons per year) (Washington State Department of Ecology 2014). Off-site exposure would likely be well below any level of concern based on the level considered acceptable for permitting new stationary sources of toxic air pollutants in Washington State.

As discussed in Chapter 3, Section 3.7, *Noise and Vibration*, construction of the proposed action would result in a temporary increase in daytime[9] noise and vibration from construction equipment operations. While construction noise would likely be audible in nearby residential areas and recreational uses, the levels would relatively low level and are not expected to adversely affect the surrounding these areas.

As described in Chapter 3, Section 3.10, *Recreation*, construction activities, including the transport of workers and materials to the project site, would not disrupt access to nearby recreation uses, including the 28th Street Boat Ramp and Viewing Tower.

Construction can also affect community welfare by temporarily lowering property values during construction. Specifically, potential buyers may find a property less attractive if views are altered by the visible and audible presence of construction equipment and activity. However, as noted in Chapter 3, Section 3.9, *Aesthetics, Light, and Glare*, views of the project site by residents are relatively limited and consist of elements that are already industrial in nature (e.g., large storage tanks, rail-loading equipment).

Population Growth

Construction of the proposed action could affect population growth, housing, or relocation if construction workers were to move from outside of the area. Because the period of construction is relatively short (10 to 12 months), it is expected that construction workers would commute from nearby communities. Therefore, construction of the proposed action would not result in the permanent relocation of workers from outside the study area, displacement of local residents, or the requirement for additional housing.

Minority and Low-Income Populations

As shown in Table 7-10, minority and low-income populations in the census block groups near the project site are much higher (7.8 and 12.6%, respectively) than Grays Harbor County levels. Because construction-related impacts described above would be relatively low and would only last during the construction period, construction of the proposed action is not anticipated to significantly and adversely affect these populations.

Operations

Community Cohesion

Operation of the proposed action would affect community cohesion if activities were to bisect, disrupt, or isolate any established communities or change the existing community character, such as by requiring the relocation of residences or businesses.

[9] No nighttime construction is proposed.

Onsite

Onsite operation of the proposed action would not require acquisition of new properties that would require relocating any residences or businesses, nor would it change the existing community character. The project site is located in an existing industrial area and the proposed facilities are consistent with the existing facilities at the project site.

Onsite operation of the proposed action would affect community cohesion if it were to block or obstruct access to important community resources. Although onsite activities would occur within the boundaries of the existing industrialized site, loading of tank vessels at the Terminal 1 dock could disrupt fishing activities adjacent to the dock.

As described in Chapter 3, Section 3.12, *Tribal Resources*, and Section 3.17, *Vessel Traffic*, onsite operations would reduce access to fishing areas immediately adjacent to the dock as result of increased frequency of vessels docked at the Terminal 1 berth.

As described in Chapter 3, Section 3.16, *Vehicle Traffic and Safety*, onsite operation of the proposed action would result in additional employee vehicle trips to and from the project site. However, this increase would be minimal and would not noticeably affect surrounding roadways. Operations related to bringing rail cars onto the project site are addressed below under *Rail*.

Although there would be increased development and activity under the proposed action, the project site and surrounding area are already developed for industrial uses. In general, the increased activity occurring at the project site would be similar to the no-action alternative.

Rail

As described in Chapter 3, Section 3.15, *Rail Traffic*, operation of the proposed action at maximum throughput would add approximately one unit train trip[10] per day on average (458 per year maximum) along the PS&P rail line to approximately three train trips per day (1,235 per year) under the no-action alternative. Although the PS&P rail line is an existing facility, the increased traffic associated with the proposed action would affect community cohesion if it were to block or obstruct access to important community resources.

As discussed for existing conditions, the rail line is one of the primary dividing elements in the study area, especially in Centralia, Fords Prairie, Ground Mound, Rochester, Elma, and Aberdeen, Fords Prairie. Existing rail traffic already causes vehicle delay and temporary access limitations in these communities.

Increased unit train traffic related to the proposed action would result in increased occupancy of PS&P rail line grade crossings (Chapter 3, Section 3.15, *Rail Traffic*). As noted in Chapter 3, Section 3.16, *Vehicle Traffic and Safety*, these areas would result in increases in vehicle delay along the rail line. However, for the majority of the line (between Centralia and Aberdeen), although there would be an increase in the total number of minutes each grade crossing would be blocked for an average 24-hour period, the actual traffic impacts (level of service) would not notably worsen. This is primarily because existing (and future) vehicle traffic is projected to remain relatively low along the PS&P rail line. In other words, for an average driver, the chances of encountering and having to wait for a passing train would not notably change compared to the no-action alternative. However, as noted in Section 3.16, *Vehicle Traffic and Safety*, there are locations in Aberdeen and Hoquiam

[10] A trip represents one-way travel; in other words, an inbound trip and an outbound trip are counted as two trips.

where vehicle delay and access would notably worsen. As described in Section 3.15, *Rail Traffic*, this has to do with switching activity (i.e., delivering and removing trains from the project sites). Vehicles at grade crossings in Aberdeen would experience the most substantial increase in average vehicle delay with the addition of the proposed action trains (Chapter 3, Section 3.16, *Vehicle Traffic and Safety*, Table 3.16-5). These grade crossings are located in two general areas.

- **Port of Grays Harbor area:** Average vehicle delay would worsen in the Port area due to switching operations at the Poynor Yard to break down unit trains and the delivery of the rail cars across Industrial Road to the project site, as described in Chapter 3, Section 3.15, *Rail Traffic*. The Industrial Road crossing at the project site would degrade from LOS A to LOS D (Chapter 3, Section 3.16, *Vehicle Traffic and Safety*, Figure 3.16-3). The Port Industrial Road and West 1st Street crossings would degrade from LOS A to LOS D due to switching operations west of Port Industrial Road.
- **Olympic Gateway Plaza area:** Average vehicle delay would worsen in the Olympic Gateway Plaza area with the proposed action. Delays at grade crossings blocked by activities at the Poynor Yard under existing conditions would lengthen with the addition of proposed action trains (Chapter 3, Section 3.15, *Rail Traffic*). The level of service would degrade from LOS D to LOS E at the East Heron Street and Newell Street crossings (the western-most crossings in the plaza area) and from LOS B or C to LOS D at the four grade crossings east of Newell Street (Chapter 3, Section 3.16, *Vehicle Traffic and Safety*, Figure 3.16-4).

Additionally, as further noted in Chapter 3, Section 3.16, *Vehicle Traffic and Safety*, access into the Olympic Gateway Plaza and the industrial area near the project sites would also substantially worsen. Although the proposed mitigation in Section 3.16 could alleviate some of the impacts, the adverse impacts would likely remain unavoidable and significant.

Vessel

As described in Chapter 3, Section 3.17, *Vessel Traffic*, operation of the proposed action at maximum throughput would result in an average of approximately one additional tank vessel trip[11] every other day (a maximum of 238 per year) along the navigation channel compared to the 436 large commercial vessel trips under the no-action alternative.

Although the navigation channel is an existing transportation route, the increased traffic associated with the proposed action would affect community cohesion, if it were to block or obstruct access to important community resources. Because vessel operations are far from the shore, impacts on community cohesion related to increased vessel traffic would be limited to in-water uses. As described in Chapter 3, Section 3.10, *Recreation*, recreational fishing and pleasure boating occurs throughout the harbor and these vessels would be required to move out of the way of the tank vessels transiting the harbor via the navigation channel. Recreational fishing and pleasure boating occurs throughout the harbor and the small vessel could easily navigate away from tank vessels in transit. As described in Chapter 3, Section 3.12, *Tribal Resources*, and Section 3.17, *Vessel Traffic*, increased vessel traffic would disrupt commercial fishing and tribal fishing that occurs along the navigation channel. Transiting vessels related to the proposed action would limit the timing, duration, and physical area that could be fished. Proposed mitigation providing advance notice of incoming vessels related to the proposed action could help reduce potential conflicts, but would still likely result in some disturbances.

[11] A trip represents one-way travel.

Community Welfare

Operation of the proposed action would affect community welfare if it were to substantially degrade air quality, increase noise, reduce access to parks and recreational uses, or reduce property values.

Onsite

As described in Chapter 3, Section 3.2, *Air*, onsite operation of the proposed action would result in emissions of criteria air pollutants from stationary sources (e.g., emissions from storage tank cleaning, combustion of vapors from vessel loading) and from mobile sources (e.g., emissions from rail locomotives and vessel engines that would occur onsite), with the most potentially problematic air pollutant being nitrogen oxides (NO_X). Onsite operation of the proposed action would also result in emissions of toxic air pollutants, which would all be under regulated standards. Onsite operations of the proposed action are not expected to result in increased air emissions that would adversely affect the surrounding community.

As discussed in Chapter 3, Section 3.7, *Noise and Vibration*, noise and vibration levels related to onsite operations are anticipated to be similar to levels generated by other industrial sources and would not result in substantial increases that would be noticeable to surrounding recreational and residential uses. The impacts of air and noise emissions related to the movement of rail cars onto and off the project site are described below under *Rail*.

As described in Chapter 3, Section 3.10, *Recreation*, onsite operations would occur entirely within the boundaries of the project site and would not block access to offsite recreational facilities. Increased tank vessel calls under the proposed action would increase the number of days that a vessel would occupy the Terminal 1 berth. Impacts on recreational fishing and pleasure boats would be low because boaters could access other boating and fishing areas throughout the harbor.

As discussed in Chapter 4, *Environmental Health and Safety*, although the risks associated with incidents occurring on site would remain relatively low, the environmental outcome of larger incidents (e.g., oil spills associated with storage tank failures) would be substantially different compared to the no-action alternative. This is because of the potential for additional harmful substances (e.g., crude oil) to enter the environment. As indicated in Section 4.5.2.1, *Oil Spills*, depending on the circumstances of the event, the damage could vary widely; however, if crude oil entered the environment, environmental degradation could occur that could adversely affect humans and the natural environment.

As discussed in Chapter 4, numerous measures and protocols are in place to prevent and minimize the extent of a spill. These measures are aimed at minimizing the frequency of a potential spill and the extent of the spill and reduce the potential for a spill, fire, or explosion and adverse impacts on the environment and human health. However, no mitigation measures would eliminate the possibility of a large spill or explosion, nor would they eliminate the adverse consequences of a large spill or explosion. Additionally, the perception of increased risks and concerns over the potential for environmental damage may also cause some individuals concern they would otherwise not have related to these risks. The impacts on property values are discussed in Section 7.3.3.2, *Fiscal Revenues to the City of Hoquiam*.

Rail

As described in Chapter 3, Section 3.2, *Air*, onsite operations related to the proposed action are not anticipated to result in any exceedance of applicable air quality standards that could affect human

health. Although there would be some increases in diesel particulate matter emissions related to the proposed action, primarily in the areas where switching activities would be occurring (around the project site and in Poynor Yard), the extent of the risk would remain primarily around the industrially developed areas and would be adequately addressed through incorporation of mitigation measures. See Section 3.2, *Air*, for more information about the analysis of air toxics along the PS&P rail line.

As described in Chapter 3, Section 3.7, *Noise and Vibration*, increased frequency of rail traffic and the associated routine operational activities would increase noise primarily related to horn noise. Increased noise exposure would occur around grade crossings relatively evenly distributed along the PS&P rail line, with the most affected receptors in areas where residential development occurred closest to the rail line in the Elma–Satsop area (92), followed by Centralia (37), and the area west of Montesano and east of Aberdeen (23). A total of 170 receptors would be affected.

However, as noted previously, it is not possible to predict when trains would be traveling to and from the project site or what time of day a train may pass by and the potential impacts. All trains would continue to travel at the same speeds and would continue to sound horns consistent with existing operational practices. As noted above, the number of events per day would increase by approximately 1.25 trips per day on average, meaning on average, sensitive receptors would experience train horns sounding 1 additional times per day on average.

As described above under *Community Cohesion* (and detailed in Chapter 3, Section 3.16, *Vehicle Traffic and Safety*) increased rail traffic along the PS&P rail line related to the proposed action would result in increased vehicle delays at grade crossings with the most substantial increase in average vehicle delay in Aberdeen and closest to the project site. Implementation of the mitigation in Section 3.16 would offset some of the impacts; however, the potential for substantial delay in these areas would likely remain.

Increased rail traffic related to the proposed action could also affect local communities as the result of the increased risk of train incidents. The specific increases in risks and the potential environmental consequences are discussed in Chapter 4, *Environmental Health and Safety*. As indicated in Section 4.5.2.1, *Oil Spills*, and Section 4.5.2.2, *Fires or Explosions*, depending on the location of the incident and the specifics of the outcome (e.g., material spilled, volume, potential for ignition), such an event could result in extensive environmental damage.

As discussed in Chapter 4, numerous measures and protocols are in place to prevent and minimize the extent of a spill. These measures are aimed at minimizing the frequency of a potential spill and the extent of the spill and would reduce the potential for a spill or explosion and adverse impacts on the environment and human health. However, no mitigation measures would eliminate the possibility of a large spill, fire, or explosion, nor would they eliminate the adverse consequences of a large spill, fire, or explosion. These impacts, should they occur, could shape the perception that the communities in the study area are unsafe, unhealthy, or undesirable. These perceptions could affect community welfare whether or not there is a measurable impact on community resources or a substantial increase in risks related to the proposed action.

Vessel

As described in Chapter 3, Section 3.2, *Air*, emissions from vessel traffic related to the proposed action would not adversely affect public health because the emissions from transiting vessels do not affect the shoreline.

As described in Chapter 3, Section 3.7, *Noise and Vibration,* increased noise from vessel traffic related the proposed action is anticipated to be within levels similar to existing conditions and would not result in substantial increases that would be noticeable to surrounding recreational and residential uses.

As described in Chapter 3, Section 3.10, *Recreation*, Chapter 3, Section 3.12, *Tribal Resources*, and Section 3.17, *Vessel Traffic*, increased tank vessel traffic along the navigation channel under the proposed action would result in some conflict with commercial fishing, tribal fishing and recreational vessels accessing the harbor via the 28th Street Boat Ramp and Viewing Tower.

Increased vessel traffic related to the proposed action could also affect local communities as the result of increased risks of incidents (e.g., vessel collision) and associated spills compared to the no-action alternative. The specific increases in risks and the potential environmental consequences are discussed in Chapter 4, *Environmental Health and Safety*. As indicated in Chapter 3, Section 4.5.2.1, *Oil Spills*, depending on the location of the incident and the specifics of the outcome (e.g., material spilled, volume, potential for ignition), such an event could result in extensive environmental damage.

As discussed in Chapter 4, numerous measures and protocols are in place to prevent and minimize the extent of a spill. These measures aimed at minimizing the frequency of a potential spill and the extent of the spill would help to reduce the potential for a spill or explosion and adverse impacts on the environment and human health. However, no mitigation measures would eliminate the possibility of a large spill, fire, or explosion, nor would they eliminate the adverse consequences of a large spill, fire, or explosion. These impacts, should they occur, could shape the perception that the communities in the study area are unsafe, unhealthy, or undesirable. These perceptions could affect community welfare whether or not there is a measurable impact on community resources or a substantial increase in risks related to the proposed action.

Population Growth

Operation of the proposed action would have a limited potential to affect population demographics primarily associated with the creation of an estimated 36 direct jobs in Grays Harbor County. Although some of these jobs could be filled by new residents moving into the area, it is more likely they would be filled by current residents or by workers living outside the area (as would likely be the case with rail and vessel operators). Some additional indirect and induced jobs would also be created (estimated 73 additional jobs) throughout the county; however, the population is unlikely to increase noticeably to meet this need. Therefore, impacts of operation of the proposed action related to population growth—permanent relocation of workers from outside the study area, displacement of local residents, and the requirement for additional housing—would be low.

Minority and Low-Income Populations

Onsite

As shown in Table 7-10, minority and low-income populations in the census block groups near the project site are much higher (7.8 and 12.6%, respectively) than Grays Harbor County levels. However, as noted above, potential impacts from routine onsite operations are not anticipated to result in significant environmental impacts and would therefore, not be expected to significantly adversely affect minority and low-income populations around the project site.

As discussed in Chapter 4, *Environmental Health and Safety*, although the risks associated with incidents occurring onsite would remain relatively low, the environmental outcome of larger incidents (e.g., hazardous materials releases associated with storage tank failures) could result in significant environmental impacts should such an event occur. This is because of the potential for additional bulk liquids (e.g., crude oil) to enter the environment. For a discussion of the risks related to the risks of incidents and the associated environmental outcomes, see Chapter 4, *Environmental Health and Safety*.

As noted in Section 4.5.2.1, *Oil Spills*, depending on the circumstances of the event, the damage could vary widely; however, if crude oil entered the environment, environmental degradation could occur that could adversely affect humans and the natural environment. Additionally, the perception of increased risks and concerns over the potential for environmental damage may also cause some individuals concern they would otherwise not have related to these risks. Any large releases with the potential to enter the harbor from the project site could also disproportionately affect minority and low-income populations in these areas.

Although it is not possible to determine the specific outcome of any one event, any event that might adversely affect fisheries or natural resources within the harbor would cause impacts on tribal resources; namely, the Quinault Indian Nation's Usual & Accustomed Fishing Rights and the Chehalis Tribe recreational shellfish area. For additional details about impacts on tribal resources, see Section 3.12, *Tribal Resources.*

Rail

As discussed in Section 7.2.3.4, *Minority and Low-Income Populations,* 31 of the 43 census block groups along the PS&P rail line are considered minority and/or low-income populations for the purposes of this analysis. These populations occur primarily along the entire rail corridor with the exception of a small area near Rochester and between Satsop and Montesano.

As discussed in Chapter 3, Section 3.2, *Air*, increased rail traffic related to the proposed action would result in increases in air emissions. However, as discussed in that section, emissions are not anticipated to be high enough to materially affect the air quality in the air basin or Grays Harbor County. Additionally, the potential for increased rail traffic to result in localized exposure to potentially hazardous air pollutants would be low and would therefore, not result in disproportionate impacts.

As discussed in Chapter 3, Section 3.7, *Noise and Vibration,* there would be increases in noise along the rail line, primarily related to increase horn noise at grade crossings. These impacts are distributed relatively evenly along the line but would affect a greater number of individuals where the residential development occurs closest to the line. As shown in Figure 7-1, the census block groups are large and extend relatively far from the rail line. The impacts of increased horn noise are anticipated to affect only the first or second row of buildings from the rail line. While it is not possible to determine the status of individual residents, it is possible that minority and low-income populations closest to the rail line could be disproportionately affected by increases in noise depending on the proximity of noise-sensitive receptors (residents) to the line.

As discussed in Chapter 3, Section 3.16, *Vehicle Traffic and Safety*, and noted above, increased rail traffic related to the proposed action could result in significant increases in delay at certain intersections, primarily around the project site and in East Aberdeen. These impacts could

disproportionately affect minority and low-income populations in communities immediately surrounding the affected areas.

As discussed in Chapter 4, *Environmental Health and Safety*, the risks associated with incidents occurring along the PS&P rail line would be greater compared to the no-action alternative (although still low) and the environmental outcome of larger incidents (e.g., hazardous materials releases associated with train derailments) would be substantially different compared to the no-action alternative. In the event of a larger release of hazardous materials, significant environmental impacts could occur. This is because of the potential for additional bulk liquids (e.g., crude oil) to enter the environment. For a discussion of the risks related to the risks of incidents and the associated environmental outcomes, see Chapter 4, *Environmental Health and Safety*. Depending on the specific location of the event, there is the potential for minority and low-income populations to be disproportionately affected.

Vessel

As discussed in Section 7.2.3.4, *Minority and Low-Income Populations,* 15 of the 22 census block groups along the Grays Harbor shoreline are considered minority and/or low-income populations for the purposes of this analysis. These populations occur primarily in Ocean Shores, Hoquiam, Aberdeen, Cosmopolis, and along the entire southern shore of the harbor.

In general, the proportions of minority and low-income populations in the study area communities are higher than at the state and county level, with the most meaningful differences occurring closer to the project site and around the harbor. While any impacts would disproportionately affect minority and low-income populations, as stated previously, vessel-related impacts are anticipated to be relatively low with two exceptions: the potential for conflicts with tribal access to usual and accustomed fishing areas and the potential for environmental health and safety impacts. Impacts on tribal resources are discussed in Chapter 3, Section 3.12, *Tribal Resources.* As noted in that section, the potential adverse impacts on tribal resources related to access to usual and accustomed fishing areas, would be unavoidable and significant.

As discussed in Chapter 4, *Environmental Health and Safety*, the risks associated with incidents occurring along the navigation channel through the mouth of the harbor would be greater compared to the no-action alternative (although still low) and the environmental outcome of larger incidents (e.g., hazardous materials releases associated with vessel collisions) would be substantially different compared to the no-action alternative. In the event of a larger incidents or release of hazardous materials, significant environmental impacts could occur. This is because of the potential for additional bulk liquids (e.g., crude oil) to enter the environment. For a discussion of the risks related to the risks of incidents and the associated environmental outcomes, see Chapter 4, *Environmental Health and Safety*. Depending on the specific location of the event, there is the potential for low-income populations to be disproportionately affected.

7.2.5 What mitigation measures would reduce impacts on social policy?

This section describes the applicant mitigation that would reduce impacts on social policy from construction and routine operation of the proposed action.

The greatest potential for significant social impacts is related to increased rail traffic from routine operations that could result in increased noise and vehicle delay and safety concerns along the PS&P

rail line. Mitigation to address impacts related to noise and vehicle traffic and safety that would also address potential impacts on the community in general are presented in Chapter 3, Sections 3.7, *Noise and Vibration*, and 3.16, *Vehicle Traffic and Safety*.

Additionally, increased risks could adversely affect environmental health and safety in the study area. The potential for increased risks during onsite, rail, and vessel operations (e.g., storage tank rupture, train derailment, or vessel collision) and the related environmental consequences (e.g., release of hazardous materials) are addressed in Chapter 4, *Environmental Health and Safety*. As noted in Chapter 4, even with the implementation of mitigation measures, some low risks would remain. Because of the extent of the damage that would result in the event of an incident, these risks would remain unavoidable and significant.

7.2.5.1 Applicant Mitigation

The applicant will implement the following mitigation.

- The applicant will appoint a community liaison to consult with affected communities, businesses, and agencies; develop cooperative solutions to address local concerns; be available for public meetings; and conduct periodic public outreach. The applicant will provide the name, telephone number, and email address of the community liaison to mayors and other local officials in each community through which the PS&P rail line passes.
- The applicant will appoint a tribal liaison to assist in addressing issues of concerns to federally recognized tribes; develop cooperative solutions to tribal concerns; be available for tribal meetings; and conduct periodic outreach. The applicant will provide the name, telephone number, and email address of the tribal liaison to officials of each tribe that wish to be notified.
- The applicant will submit quarterly reports to the City of Hoquiam on the progress of, implementation of, and compliance with all mitigation measures. The reporting period for these reports will begin the first quarter after permit issuance and continue quarterly through the first year of project operations after which the applicant will submit a report annually through the first 5 years of operation.

7.3 Cost-Benefit Analysis

This section describes the cost-benefit analysis required by the City of Hoquiam (HMC 11.10.16). Because the cost-benefit analysis informs the City's decision regarding issuance of the land use permits, the scope of the analysis is limited to potential costs and benefits to the residents of Hoquiam. This section describes costs and benefits related to employment, income, and fiscal revenues as a result of the construction and routine operation[12] of the proposed action.

7.3.1 What is the study area for the cost-benefit analysis?

The study area for the cost-benefit analysis considers the costs and benefits that would affect the residents of Hoquiam and the city at large. In addition to resources in Hoquiam, this study area

[12] Chapter 4, *Environmental Health and Safety*, addresses the potential impacts from increased risk of incidents (e.g., storage tank failure, train derailments, vessel collisions) and related consequences (e.g., release of crude oil).

includes resources in Aberdeen but only to the extent that job creation in Aberdeen would affect residents of Hoquiam.

7.3.2 How was the cost-benefit analysis conducted?

This section describes the sources of information and methods used to conduct the cost-benefit analysis.

7.3.2.1 Information

Information used in this analysis came from the sources described in Chapter 3, *Affected Environment, Impacts, and Mitigation*, and through conversations with staff at the City of Hoquiam.

7.3.2.2 Impact Analysis

Cost-benefit analysis is a commonly used tool for evaluating proposed policies and actions. Cost-benefit analysis is conducted by estimating the net benefits of a proposed action or the benefits of a proposed action minus the costs of the action. In a cost-benefit analysis, a proposed action is usually evaluated over a period long enough for the main costs and benefits of the action to be realized. Costs and benefits that accrue in future years are then expressed in present value terms through the application of a discount rate. When conducting a cost-benefit analysis, the goal is to express as many impacts in monetary terms as possible. It is often not possible, however, to ascribe a monetary value to all relevant impacts because some impacts are difficult to quantify, and other impacts, even if they can be quantified, are difficult to express in monetary terms. When impacts in a cost-benefit analysis cannot be expressed in monetary terms for either of these reasons, they are discussed and evaluated on a qualitative basis.

This cost-benefit analysis is based on the analysis of impacts from the proposed action on the resources discussed in Chapter 3, *Affected Environment, Impacts, and Mitigation*. Impacts of the proposed action related to increased safety risks (e.g., storage tank failure, train derailments, vessel collisions) analyzed in Chapter 4, *Environmental Health and Safety,* are also considered. However, because there are many factors that contribute to the specific circumstances of an environmental outcome (e.g., hazardous materials release) related to an incidents, it is difficult to predict the specific outcomes that may occur. Therefore, the cost-benefit analysis considers costs that may accrue to the City of Hoquiam related to preparing for the potential consequences rather than costs that may be incurred related to cleanup activities and the related degradation. Costs and benefits from socioeconomic impacts analyzed in previous sections of this chapter are also considered. Short-term impacts during construction and long-term impacts during routine operations are both considered.

Impacts leading to an increase in revenues to the City of Hoquiam are assumed to benefit the residents of Hoquiam because increased revenues would lead to increased local public services, reduced future growth in local taxes paid by current residents, or both. Impacts that correspond to an increase in the demand for local public services are assumed to be a cost to the residents of Hoquiam because they would result in a need for future increases in local tax collections or would compete with existing local demand. Costs and benefits to the residents of Hoquiam would also result to the extent that the proposed action would affect employment and income, leisure, and nonmarket values, such as those associated with environmental resources (e.g., water quality, clean air).

Impacts are discussed quantitatively, to the extent that quantitative indicators are provided in the analyses in Chapter 3, *Affected Environment, Impacts, and Mitigation*. When quantitative impact estimates are available, the monetary impacts on the residents of Hoquiam are discussed, to the extent possible. All monetized impacts are presented in 2013 dollars. Because it is not possible to monetize all impacts, it is not possible to reach one estimate of net present value of the proposed action for the residents of Hoquiam. No attempt to generate a future stream of costs and benefits is made, and no discount to the monetized value of future impacts is applied. Rather, the costs and benefits are described to summarize information to be used in assessing the financial outcomes of implementing the proposed action. The monetized impacts are presented separately for the construction period (for this analysis, assumed to occur in 1 year) and for a representative 1-year period during operations.

As discussed in Chapter 3, *Affected Environment, Impacts, and Mitigation*, although construction and routine operations could affect the resources addressed in that chapter, in general, these impacts would be low either before or after implementation of the recommended mitigation. Because the proposed action would have low impacts on most resources, there would be no measurable benefits or costs to the residents of Hoquiam from those impacts and they are not discussed further in this analysis.

The notable exceptions include potential impacts related to noise, tribal resources, vehicle traffic and safety, and environmental health and safety. With respect to noise, as discussed in Section 3.7, *Noise and Vibration*, substantial increases in noise levels would occur nearby the PS&P rail line. Because the portion of the PS&P rail line that would be used related to the proposed action is located entirely in Aberdeen (and at least 450 feet from residents of Hoquiam), there would be no significant impacts on residents of Hoquiam.

Additionally, although there would also be impacts on tribal resources; namely, the Quinault Indian Nation's Usual & Accustomed Fishing Rights, it is not clear how those impacts might directly translate to broader economic losses relative to the residents of Hoquiam or to the city at large. However, as noted in Section 3.12, *Tribal Resources*, there is the potential for economic implications to members of the Quinault Indian Nation, depending on the extent of the disruption as a result of the proposed action.

As discussed in Chapter 3, Section 3.16, *Vehicle Traffic and Safety*), in Chapter 4, *Environmental Health and Safety*, and in Section 7.1, *Economics*, there is the potential for significant impacts that could affect the City of Hoquiam related to these resources and they are therefore, addressed further in the cost-benefit analysis. Although there could also be substantial increases in noise (Section 3.7, *Noise and Vibration*) and disturbance to tribal fishing (Section 3.12, *Tribal Resources*), impacts on these resources would not likely affect Hoquiam residents and are not considered further in this analysis. The following sections focus on assessing the costs and benefits related to the potential impacts of the proposed action. As noted in Section 7.1, *Economics*, benefits are related to increased employment and income and fiscal revenues that could accrue to the City of Hoquiam as the result of the proposed action. The discussion of costs focuses on those that would affect the City of Hoquiam as the result of increased vehicle traffic and safety concerns, environmental health and safety concerns, and impacts on property values related to the real and perceived impacts that would occur within or affect the City of Hoquiam.

7.3.3 What are the benefits of the proposed action?

This section describes the beneficial impacts of the proposed action that could occur in the study area.

7.3.3.1 Employment and Income

As discussed in Section 7.1.4.2, *Proposed Action*, construction and operation of the proposed action would result in increased employment and income associated with direct spending related to labor salaries and benefits and material purchases. Additionally, these activities would result in indirect and induced employment and income impacts. As discussed below, it is possible to estimate the proportion of employment and income likely to benefit the City of Hoquiam.

Construction

As presented in Appendix O, *Census Block Group Data,* the construction of Phase 1 of the proposed action would support 82 direct jobs and an additional 211 indirect and induced jobs in Washington. Each job would consist of a full-time or part-time position during a 1-year period. The 82 direct jobs provide construction services at the project site. The remaining 211 indirect jobs could occur anywhere in Washington. Construction of Phase 2 would add 46 direct jobs for site construction and 144 indirect and induced jobs in Washington State.

U.S. Census Bureau estimates of commuting patterns indicate that approximately 23% of workers employed in Hoquiam reside in the city and 27% of workers employed in Aberdeen reside in Hoquiam (U.S. Census Bureau 2011). If the workers employed at the construction site show similar patterns of residence as to those of the general population, and if each 1-year job is filled by one worker,[13] between 19 and 22 direct construction workers (between 23 and 27% of total) would likely reside in Hoquiam during Phase 1. An additional 11 to 12 construction workers (between 23% and 27% of total) would reside in Hoquiam in Phase 2. A share of the indirect and induced employment could also occur in Hoquiam although it is not possible to determine the specific numbers of jobs that would be filled by Hoquiam residents.

ECONorthwest (2014) estimated that each onsite construction job would pay approximately $125,000 a year in total compensation (wages and benefits). If 30 to 34 of the 128 onsite construction jobs are filled by construction workers that reside in Hoquiam (as assumed above), construction would generate an estimated $3.8 million to $4.3 million in labor income for construction workers residing in Hoquiam during both Phase 1 and Phase 2 of construction.

Additional labor income would be generated in Hoquiam, associated with indirect and induced jobs. ECONorthwest estimates 355 indirect and induced jobs would be generated during construction (both Phases 1 and 2) in Washington State. It is not possible to infer from the ECONorthwest study and from readily available data how many of these jobs would be likely to occur in Hoquiam. These jobs would average $53,500 in annual labor income per job (ECONorthwest 2014).

[13] ECONorthwest (2014) estimates the number of jobs associated with the proposed action. These jobs are defined as 1-year part-time or full-time employment. Because two workers employed for 6 months each would correspond to one job, and one worker employed for 2 years would correspond to two jobs, jobs and employed persons are not the same. For analytical purposes, this section assumes each job corresponds to one worker employed over a 1-year period.

Operations

During operations, ECONorthwest (2014) estimated that 11 direct jobs would be supported at the terminal if only Phase 1 infrastructure were operational, and an additional 4 direct jobs would be supported at the terminal if both Phase 1 and Phase 2 infrastructure were operational. An additional 10 indirect and induced jobs (6 on Phase 1 and 4 in Phase 2) would be generated in Grays Harbor County, associated with the creation of the direct jobs at the project site. As noted in Section 7.1, *Economics*, additional direct, indirect, and induced employment in Grays Harbor County would be associated with vessel and rail transportation; however, it is anticipated that most of these jobs would occur outside the local communities. Although some rail and vessel jobs may be filled by residents of Hoquiam or Aberdeen, for the purposes of providing a conservative estimate, job creation associated with increased rail and vessel operations are not included.

Assuming all direct jobs in Grays Harbor County would be located in Hoquiam and Aberdeen (excluding vessel and rail transportation direct jobs), it is possible to estimate the number of operations jobs filled by workers who reside in Hoquiam. Assuming each job is filled by one worker, and using the same U.S. Census Bureau commuting pattern estimates used to analyze construction jobs, between 23 and 27% of direct operations workers would reside in Hoquiam. This would correspond to 3 to 4 workers (from a total of 15). A share of the indirect and induced employment could also occur in Hoquiam.

ECONorthwest (2014) estimated that each direct onsite job would pay approximately $65,000 a year in total compensation (wages and benefits). Under this assumption, total labor income in Hoquiam, supported by operational jobs directly linked to the proposed action, would correspond to between $195,000 (3 multiplied by $65,000) and $260,000 (4 multiplied by $65,000), assuming a full build-out (after Phase 1 and Phase 2 construction).

Additional labor income would be generated in Hoquiam, associated with indirect and induced jobs. ECONorthwest (2014) estimates 37 indirect and induced jobs would be generated during operations (at full build-out) in Grays Harbor County. It is not possible to infer from the ECONorthwest study and from readily available data how many of these jobs would be likely to occur in Hoquiam. These jobs would average $38,600 in annual labor income per job (ECONorthwest 2014).

Operations jobs would be permanent. Because permanent jobs generate income year after year, they are more likely to induce additional economic activity attracting businesses and local investment than temporary construction jobs.

7.3.3.2 Fiscal Revenues to the City of Hoquiam

As discussed in Section 7.1.4.2, *Proposed Action*, in addition to generating increased employment and income, construction and routine operations of the proposed action would also result in increased fiscal revenues. As discussed below, it is possible to estimate the proportion of revenues that would likely accrue to the City of Hoquiam. Increased revenues would be generated by the property tax, sales tax, business and occupation tax, utility taxes, and building permits.

Property Tax and Leasehold Excise Tax

The Port is a public port and a taxing district. The use of public land and publicly owned property pays a leasehold tax to the Port in lieu of real estate property taxes. A portion of the leasehold tax is transferred to the city where the property is located. The tax rate for the city's portion of the

leasehold tax is up to 4% of the rent paid for the property, with the remaining of the 12.84 % tax rate going to the county and state (Washington State Department of Revenue 2010). There is currently no information on changes in property rents paid by the applicant to the Port due to the proposed action. To the extent that property rents increase, the City of Hoquiam portion of the leasehold excise tax would increase as well.

Owners of private improvements at the Port pay regular property taxes to the city where their property is located, including taxing districts within the city such as school districts (Washington State Department of Revenue 2010). The property tax levy rate for the City of Hoquiam in 2014 was approximately $10.98 per $1,000 of assessed value, including the Hoquiam school district and an emergency medical service levy (Washington State Department of Revenue 2014a).

ECONorthwest (2014) estimated property taxes to be paid by the applicant and Imperium Terminal Services based on information provided directly by both. Jointly, the two projects would pay $223,222 in property taxes during construction and $1,869,393 during each year of operations, assuming a full build-out (Phase 1 and Phase 2). ECONorthwest does not report the portion attributable to the applicant's proposed action and the portion attributable to the Imperium Terminal Services proposed action. However, it is reasonable to assume that the assessed value of each proposed action is proportional to construction costs. In this case, approximately 48.1% of the total assessed value of these two proposed actions corresponds to the applicant's proposed project.[14] The tax rate paid by the applicant and Imperium Terminal Services would not necessarily be the same, because the applicant's facilities would be partially located in Aberdeen, while the Imperium Terminal Services facilities would be mostly located in Hoquiam.[15] Assuming 50% of the applicant's assessed property value is taxed by the City of Aberdeen and 50% by the City of Hoquiam (based on the location of the project site relative to the city borders), property tax collections by the City of Hoquiam can be estimated to be approximately $55,783 during construction and approximately $467,161 during each year of operation.

Sales and Use Tax

As of January 2015, the Hoquiam local sales/use tax rate is 6.5% (Washington State Department of Revenue 2014b). In other words, for each dollar spent in Hoquiam, the city collects 6.5% in local sales/use tax. During construction of the proposed action, construction service providers would pay City of Hoquiam sales taxes to the extent that they are established within the city boundaries. This would also be the case of subcontracted companies, providers of inputs, and establishments where workers spend their income. Similarly, sales by establishments located in Hoquiam during operations would also pay City of Hoquiam sales taxes. There is no information on the extent to which service and input providers, during construction or operations, would be located in Hoquiam, or the extent to which earnings associated with construction and operations of the proposed action would be spent in Hoquiam. Therefore, it is not possible to estimate sales and use taxes collected by the City of Hoquiam from construction and operation of the proposed action.

[14] ECONorthwest (2014) estimated total construction costs for Westway Terminal Company's project to be $61.3 million at full build-out and for Imperium Terminal Services to be $66.1 million.

[15] In 2014, the property tax levied by the City of Aberdeen was $9.25 per $1,000 compared to $10.98 per $1,000 for the City of Hoquiam (Washington State Department of Revenue 2014a).

Business and Occupation Tax

Washington State does not have an income tax and the state taxes gross receipts of businesses in specific occupations, known as the business and occupation tax. The City of Hoquiam imposes a local business and occupation tax, in addition to that imposed by the State of Washington. As of January 2014, Hoquiam's business and occupation tax rate was 0.2% of gross receipts for all major categories of business (manufacturing, retail, wholesale and services) (Association of Washington Cities 2014). During construction of the proposed action, construction service providers would pay City of Hoquiam business and occupation taxes to the extent that they are established within the city boundaries. This would also be the case of subcontracted companies, providers of inputs, and establishments where workers spend their income. Similarly, gross receipts by establishments located in Hoquiam during operations would also pay City of Hoquiam business and occupation taxes. As in the case of sales and use tax collections, there is not enough information to estimate the business and occupation tax collections by the City of Hoquiam that would be associated with the proposed action. This would require estimating the extent to which construction and operations service and input providers would be located in Hoquiam, as well as the location of establishments where proposed action- related earnings would be spent.

Utility and Other Taxes, Licenses, and Permits

The City of Hoquiam taxes gross operating revenues derived from business in the city of various types of utilities, including gas, electricity, cable TV, telephone, garbage collection and water, sewer and stormwater collection. Tax rates range between 6 and 8% (HMC 4.88). During both construction and operations of the proposed action, increased business revenues, and labor income in Hoquiam associated with employment at the terminal and with train and vessel operations, and input and service providers to construction and operations, would result in increased utility revenues and, consequently, increases utility tax collections for the City of Hoquiam. Because the increase in demand for utilities associated with the proposed action was determined to be minor (Chapter 3.13, *Public Services and Utilities*), the increase in utility tax collections to the City of Hoquiam would be expected to be minor as well.

Other minor City of Hoquiam revenues derived from the proposed action would include revenues from licenses and permits, particularly building permits.

7.3.4 What are the costs of the proposed action?

Potential costs relevant to the City of Hoquiam would be the result of potentially significant impacts that would directly affect residents or the city at large. This section discusses the costs that could occur as the result of increased vehicle traffic and safety concerns, and of real and perceived risks associated with onsite operations and rail and vessel transport due to environmental health and safety impacts. Additionally, this section addresses the potential for these impacts to affect property values in Hoquiam.

7.3.4.1 Potential Costs Related to Increased Vehicle Traffic and Safety

As discussed in Chapter 3, Section 3.15, *Rail Traffic*, and 3.16, *Vehicle Traffic and Safety*, operation of the proposed action would result in increased rail traffic along the PS&P rail line that would increase vehicle delays at certain grade crossings and surrounding intersections during operations. Additionally, increased train traffic would result in increased risks of accidents at grade crossings

along the entire PS&P rail line. The average number of train trips along the PS&P rail line is expected to increase from approximately three train trips per day by an additional 1.25 trips per day.

Although none of the directly affected intersections is located in Hoquiam, Hoquiam residents commuting to Aberdeen and other areas east of the project site would have increased potential to be delayed at a grade crossing by a train or to be affected by increased congestion at surrounding intersections as motorists attempt to bypass blocked grade crossings. As a result, depending on the timing of such an event and on commuting routes, residents may see their commuting times increase.

It is not possible to estimate how much commuting time would increase for these residents because it is not possible to know what specific roads would be taken or what share Hoquiam residents would represent of the vehicles on roads affected by delays during commuting times. Increases in commuting times would have a cost to the residents of Hoquiam. This cost would correspond to the estimated opportunity cost of their time; i.e., the value of the time they would spend in other activities (work or leisure) were they not delayed in traffic. The U.S. Department of Transportation developed a measure of this value that it uses in regulatory analysis (Belenky 2011). The opportunity cost of one hour in surface traffic for all-purpose traffic (business and personal) is estimated to be between $9.66 and $16.18 per person for local traffic and between $16.51 and $24.76 per person for intercity traffic, in 2013 dollars.[16]

As discussed in Chapter 3, Section 3.16, *Vehicle Traffic and Safety*, increased rail and vehicle traffic would contribute to an increase in the expected number of vehicle accidents at grade crossings. Although none of these grade crossings is located in Hoquiam, residents commuting to Aberdeen and other nearby areas could face increased risk of accidents if commuting routes include affected grade crossings. It is not possible to estimate this increase in risk because there is not enough information on commuting routes for residents of Hoquiam. Accidents have an economic cost that includes the cost of damage to property, lost productivity associated with injury and death, the cost of medical and emergency services, travel delays, added fuel consumption, and pollution impacts caused by congestion, among others.

A recent study from the National Highway Traffic Safety Administration (2014) estimated the total economic costs of traffic accidents (not including the value of lives lost or the loss of quality of life due to nonfatal injuries) to be from $3,037 per person to $1.5 million per person in 2013 dollars, depending on the severity of injuries or on fatalities.[17] Individuals involved in these crashes pay for approximately 25% of these costs, the remaining being paid by insurance companies, public revenues, and other third parties such as motorists delayed in traffic and health care providers.

7.3.4.2 Potential Costs Related to Environmental Health and Safety Concerns

As discussed in Chapter 4, *Environmental Health and Safety*, operation of the proposed action could increase safety risks (e.g., storage tank failure, train derailments, and vessel collisions) that could result in harm to both humans and the surrounding environment depending on the specific

[16] Values reported in 2009 dollars were adjusted for inflation using the U.S. Bureau of Labor Statistics Consumer Price Index (2014).
[17] Values reported in 2010 dollars were adjusted for inflation using the U.S. Bureau of Labor Statistics Consumer Price Index (2014).

circumstances of such an event and the related environmental consequences (e.g., hazardous materials release).

In terms of potential costs to the City of Hoquiam, the proposed action could increase safety risks due to train derailments and other kinds of rail incidents. These events pose a variety of risks to environmental health and safety, including potential injuries and fatalities for railroad staff and other individuals, loss and damage of property (both property belonging to the railroad and adjacent properties), environmental damage resulting from spills from train cars, loss of freight, and cleanup and wreck removal costs.

The possibility of train derailments is of particular concern in the area after two grain car derailments that occurred in Aberdeen in spring 2014. Although these incidents resulted in minimal costs besides the damage to the rail cars and loss of freight, they raised concern among area residents about the potential for damages if similar derailments occurred for rail shipments of crude oil. A report by the U.S. Congressional Research Service (2014) notes that there were 10 derailments of rail cars transporting crude oil in 2013 and 2014. As noted in Chapter 4, Section 4.4, *Environmental Health Risks—Rail Transport*, several additional train incidents have occurred in the first half of 2015. The damages associated with these derailments ranged from only relatively minimal losses of freight to a large explosion that resulted in 47 fatalities, extensive property damage, and evacuation of over 2,000 people in Quebec.

The costs that could be incurred by the City of Hoquiam from a train derailment or other kind of incident are unpredictable and depend on the probability of an incident occurring in a location that could affect city resources and the magnitude of damages if an incident were to occur. If a derailment or other kind of incident involving crude oil rail cars were to occur, the magnitude of damages is difficult to predict as the damages would depend on a variety of factors, including the severity of the incident (i.e., number of affected rail cars), the proximity of the incident to people and property, and the proximity of the incident to sensitive environments, among others.

As discussed in Chapter 4, *Environmental Health and Safety*, regulatory standards are or will soon be in place that will require the implementation and maintenance of emergency preparedness and response protocols intended to mitigate adequately the risks related to the proposed action. Although the overall risk of a large-scale event with the potential to result in broader damage is relatively low, the consequences of such an event would be significant. Therefore, the mitigation described in Chapter 4 is required to minimize these risks.

This mitigation includes the recommendation that the Hoquiam and Aberdeen Fire Departments be specifically trained to handle some of the safety risks associated with the proposed action. Although clean-up of environmental impacts of hazardous material release or oil spills is typically not the responsibility of local jurisdictions, local fire, police and medical services are typically first responders and have the responsibility of protecting the public from harm. Chapter 4, *Environmental Health and Safety*, notes that the Hoquiam and Aberdeen Fire Departments have expressed a need for training at the project site (and along the PS&P rail line) to review and practice hazardous material release emergency responses. The Hoquiam and Aberdeen Fire Departments have an agreement in which they respond together to emergency calls.

Any training or equipment needed to better prepare local responders to handle the increased risk of oil spills or hazardous material releases would have a cost. The Hoquiam Fire Department is funded by the City of Hoquiam general funds and by fees for ambulance services. The main source of revenues for the City of Hoquiam general funds are property, sales and use, business and

occupation, and utility taxes (City of Hoquiam 2012). Increased demands for training and equipment would require increases in local tax collections unless funded by other sources, such as a specific agreement with the applicant or through funding by public grants. There is currently not enough information on the extent of training or equipment needed to quantify these costs.

7.3.4.3 Potential Impacts on Property Values

Impacts on property values from the proposed action could result during construction and, to a larger extent, during operation of the proposed action. Impacts from these activities could affect property values by making surrounding properties less desirable as the result of impairing natural amenities such as air and water quality, increasing ambient noise levels and traffic congestion, and increasing risks that could adversely affect surrounding land uses (e.g., increased chance of incidents that could lead to hazardous materials releases and environmental damage).

Hedonic pricing is a method that uses data on real estate transactions to estimate the impact of various attributes on the values of nearby properties. It is commonly used to estimate the impacts of environmental amenities and other landscape features on property values. This method uses data on property values to estimate the value of an environmental amenity in terms of its effect on the values of nearby properties. More specifically, the hedonic pricing method uses statistical techniques to infer the value of a property attribute by comparing values of properties that have a given attribute and those that do not. Attributes evaluated in hedonic pricing studies can have either positive or negative impacts on property values.

Hedonic pricing is based on the assumption that individuals view goods such as houses as a bundle of attributes. In the case of houses, these attributes may include structural characteristics (e.g., size, number of bedrooms), neighborhood characteristics (e.g., crime rate, school quality, recreation opportunities), and environmental attributes (e.g., trees, proximity to open space, air quality, proximity to undesirable land uses). Individuals choose houses based on a combination of these attributes. Differences in the market price of houses can be used to derive an implicit value of each attribute. The implicit value of an attribute reflects what individuals, on average, are willing to pay for that attribute. The result of the hedonic pricing method is a function that relates the value of a property to a set of housing attributes, including the specific attribute being valued.

Although previous hedonic pricing studies suggest that there could be impacts on property values from construction and onsite operations of the proposed action, the impacts on property values that could be directly attributed to the proposed action are negligible. Because the project site is located in an already industrialized area, any negative impacts on nearby properties from construction or onsite operations would already have been realized and would not be a result of the proposed action.

Therefore, the potential for the proposed action to affect property values would occur primarily as the result of the perception of increased risk of impacts that could occur during transport. To evaluate the potential for these impacts, a literature review was conducted of other studies that have estimated the impacts of rail lines on property values. The studies, and their estimated impact of freight rail lines on property values, are summarized in Table 7-11.

Table 7-11. Summary of Studies Estimating the Impacts of Freight Rail Lines on Nearby Property Values

Authors and Publication Year	Study Title	Description of Rail Line Impact	Estimated Impact per Property	Distance Factor
Futch, M. (2011)	*Examining the Spatial Distribution of Externalities: Freight Rail Traffic and Home Values in Los Angeles*	Large increase in rail traffic along the Alameda Corridor, leading from the Ports of Los Angeles and Long Beach, California	Average per-property decrease in value of $3,500	Impact dissipates with distance, and is strongest for properties within 0.33 mile, less significant for properties within 0.66 mile of the rail line. Impact is not significant for properties greater than 0.66 miles from the rail line.
Simons, R.A. and A. El Jaouhari (2004)	*The Effect of Freight Railroad Tracks and Train Activity on Residential Property Values*	Increase in freight rail traffic on existing rail lines in Cuyahoga County, Ohio	Average decrease in value between $3,800 and $5,800. Impact increases with each additional train trip	Impact estimated for properties within 750 feet of the rail line.
The Eastman Company (2012)	*Increased Coal Train Traffic and Real Estate Values*	Large increases (between 9 and 18 daily trips) resulting from proposed Gateway Pacific Terminal at Cherry Point Washington	Decreases in property values between 5 and 20% for increases of 18 train trips per day. Decreases in property values between 3 and 5% for increases of 9 trips per day	Study focused on properties within 600 feet of the rail line, but suggests that impacts also would be experienced by properties further out from this zone.

From this review, it can be seen that proximity to freight rail lines can affect property values, and this impact increases with increasing rail traffic. These studies also show that the impact of rail lines on property values dissipates with distance. The most severe impacts are for properties within roughly 1,000 feet of the rail line and become negligible at distances of roughly 0.66 mile from the rail line.

To evaluate the potential for impacts on property values in Hoquiam, geographic information system (GIS) data were analyzed to determine the number of properties close to the rail line. As shown in Table 7-12, this analysis resulted in a count of the number of properties within given distance bands of 0 to 0.33 mile (1,760 feet), 0.33 to 0.66 mile (3,520 feet), and 0.66 mile to 1 mile (5,280 feet). As shown in the table, only a small number of properties within the boundaries of Hoquiam are located close to the rail lines and could possibly experience property value impacts from the proposed action.

Table 7-12. Properties in Hoquiam Potentially Affected by Rail Traffic—Proposed Action

Distance from Rail Line	Number of Residential Properties
0 to 0.33 mile (1,760 feet)	7
0.33 mile to 0.66 mile (3,520 feet)	25
0.66 mile to 1 mile (5,280 feet)	33

Although other studies have shown an impact on the values of nearby properties from increases in freight rail traffic, it is not possible to use these studies as a basis for quantifying the impact of the proposed action on potentially affected properties in Hoquiam. The studies by The Eastman Company (2012) and Simons and El Jaouhari (2004), for example, only estimate impacts for properties less than 1,000 feet from the rail line, and no residential properties in Hoquiam are that close to the rail line. Futch (2011) estimated impacts on property values that were significant up to 0.66 mile from the rail line, meaning that 32 (7 plus 25) residential properties within the city boundary could experience property value impacts. It is difficult, however, to use the results of the Futch study to determine an impact for affected properties in Hoquiam, as the property value impacts estimated in the Futch study were for a very large increase in rail traffic. In contrast, the increase in rail traffic from the proposed action would be much smaller. The property value impacts from increased rail traffic due to the proposed action would thus likely be much smaller than the impacts estimated by these studies, which involved much larger increases in rail traffic.

7.3.5 What are the likely costs and benefits of the proposed action?

In summary, implementation of the proposed action would result in some economic and financial benefits to Hoquiam as well as some costs. Table 7-13 summarizes the main benefits and costs from the proposed action. When enough information was available, monetary estimates are provided in 2013 dollars.

Additionally, if additional projects, such as the Imperium Terminal Services project or Grays Harbor Rail Terminal Expansion Projects are implemented, the potential for more significant impacts on rail congestion, vehicle congestion, and the related safety concerns would also increase. The potential cumulative impacts related to these topics are discussed in Chapter 6, *Cumulative Impacts*.

Table 7-13. Main Benefits and Cost to the City of Hoquiam—Proposed Action (2013 Dollars)

Benefits	Quantification
Employment and Income	
Direct labor income (including benefits) during construction	Estimate: $3.8 million to $4.3 million
Annual direct labor income (including benefits) during each year of operations	Estimate: $195,000 to $260,000 per year
Additional labor income (including benefits) associated with indirect and induced jobs in during construction and operations	Not estimated
Fiscal Revenues	
Property tax collections during construction	Estimate: $55,783
Property tax collections during each year of operations	Estimate: $467,161 per year
Additional tax collections during construction and operations from local sales and use tax, business and occupation tax and utility taxes	Not estimated
Costs	
Vehicle Traffic and Safety	
Increased traffic delays	Previous studies estimate: $9.66 and $16.18 per person delayed in traffic, per hour, for local traffic $16.51 and $24.76 per person delayed in traffic, per hour, for intercity traffic
Increased exposure to traffic accidents risks	Previous studies estimate: $3,037 per person to $1.5 million per person involved in a traffic accident, depending on severity of incident
Environmental Health and Safety	
Cost of training for the City of Hoquiam Fire Department on flammable liquid fires risks and to review and practice material release emergency response	Not estimated
Property Values	
Potential decrease in property values	Previous studies estimate: $3,500 to $5,800 on average 3 to 5% for increases of 9 trips per day 5 to 20% for increases of 18 trips per day