

February 2020

Proposed Chehalis River Basin Flood Damage Reduction Project
SEPA Draft Environmental Impact Statement

Appendix D

Environmental Justice Discipline Report

Publication No.: 20-06-002



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About this Document

This discipline report has been prepared as part of the Washington Department of Ecology's (Ecology's) State Environmental Policy Act (SEPA) Environmental Impact Statement (EIS) to evaluate a proposal from the Chehalis River Basin Flood Control Zone District (Applicant).

Proposed Action

The Applicant seeks to construct a new flood retention facility and temporary reservoir near Pe Ell, Washington, and make changes to the Chehalis-Centralia Airport levee in Chehalis, Washington. The purpose of the Applicant's proposal is to reduce flooding originating in the Willapa Hills and improve levee integrity at the Chehalis-Centralia Airport to reduce flood damage in the Chehalis-Centralia area.

Time Frames for Evaluation

If permitted, the Applicant expects Flood Retention Expandable (FRE) facility construction would begin in 2025 and operations in 2030, and the Airport Levee Changes construction would occur over a 1-year period between 2025 and 2030. The EIS analyzes probable impacts from the Proposed Action and alternatives for construction during the years 2025 to 2030 and for operations from 2030 to 2080. For purposes of analysis, the term "mid-century" applies to the operational period from approximately 2030 to 2060. The term "late-century" applies to the operational period from approximately 2060 to 2080.

Scenarios Evaluated in the Discipline Report

This report analyzes probable significant environmental impacts from the Proposed Action, the Local Actions Alternative, and the No Action Alternative under the following three flooding scenarios (flow rate is measured at the Grand Mound gage):

- **Major flood:** Water flow rate of 38,800 cubic feet per second (cfs) or greater
- **Catastrophic flood:** Water flow rate of 75,100 cfs
- **Recurring flood:** A major flood or greater that occurs in each of 3 consecutive years

The general area of analysis includes the area in the vicinity of the FRE facility and temporary reservoir; the area in the vicinity of the Airport Levee Changes; and downstream areas of the Chehalis River to approximately river mile 9, just west of Montesano.

Local Actions Alternative

The Local Actions Alternative represents a local and nonstructural approach to reduce flood damage in the Chehalis-Centralia area. It considers a variety of local-scale actions that approximate the Applicant's purpose through improving floodplain function, land use management actions, buying out at-risk properties or structures, improving flood emergency response actions, and increasing water storage from Pe Ell to Centralia. No flood retention facility or Airport Levee Changes would be constructed.

No Action

Under the No Action Alternative, no flood retention facility or Airport Levee Changes would be constructed. Basin-wide large and small scale efforts would continue as part of the Chehalis Basin Strategy work, and local flood damage reduction efforts would continue based on local planning and regulatory actions.

SUMMARY

This report describes populations in the study area, including fair treatment and meaningful involvement of minorities and communities of color, low-income populations, potentially affected tribal populations, and populations with limited English proficiency (LEP). There are various population centers and communities within the study area, including cities, smaller towns, rural unincorporated communities, and the Confederated Tribes of the Chehalis Reservation (Chehalis Tribe) reservation. The FRE facility site and most associated construction areas are within a largely unpopulated area of unincorporated Lewis County. The airport levee is in the city of Chehalis.

This report also describes potential impacts and proposed mitigation for the Proposed Action, Local Actions Alternative, and No Action Alternative and the potential for significant environmental impacts on all elements of the environment to have a disproportionate impact on environmental justice populations of interest. Impacts are summarized in Tables D-1 and D-2.

Table D-1

Summary of Environmental Justice Impacts from the Proposed Action

IMPACT	IMPACT FINDING	MITIGATION PROPOSED (SUMMARIZED, SEE SECTION 3.2.4)	SIGNIFICANT AND UNAVOIDABLE ADVERSE IMPACT
PROPOSED ACTION (FRE FACILITY AND AIRPORT LEVEE CHANGES) – CONSTRUCTION			
Environmental justice evaluation of air quality and greenhouse gas, earth, fish species and habitats, land use, public services and utilities, recreation, and water direct impacts from construction of the FRE facility.	No impact	None	No
Environmental justice evaluation of air quality and greenhouse gas direct impacts from construction of the Airport Levee Changes.	No impact	None	No
Environmental justice evaluation of fish species and habitats indirect impacts from construction of the FRE facility.	No impact	None	No

IMPACT	IMPACT FINDING	MITIGATION PROPOSED (SUMMARIZED, SEE SECTION 3.2.4)	SIGNIFICANT AND UNAVOIDABLE ADVERSE IMPACT
PROPOSED ACTION (FRE FACILITY AND AIRPORT LEVEE CHANGES) – OPERATIONS			
Environmental justice evaluation of environmental health and safety found disproportionate impacts from operation of the FRE facility.	Significant	<p>EJ-1: To target outreach efforts for the Proposed Action, mitigation is proposed for the Applicant to develop an inclusive public involvement strategy tailored to the communities who may be affected from a catastrophic event causing the FRE facility to breach or fail while the temporary reservoir is holding water.</p> <p>EHS-3: Develop and implement a breach flood warning system for Pe Ell, Centralia, and Chehalis.</p> <p>EHS-4: Provide training to local emergency response officials for dam breach scenarios.</p>	Yes
Environmental justice evaluation of air quality and greenhouse gas, earth, fish species and habitats, land use, recreation, and water impacts from operation of the FRE facility.	No impact	None	No

Table D-2
Summary of Environmental Justice Impacts from Alternatives

IMPACT	IMPACT FINDING
LOCAL ACTIONS ALTERNATIVE	
Disproportionate impacts on environmental justice populations from construction of local actions relative to land use.	Significant
Disproportionate impacts on environmental justice populations from operation of local actions relative to land use.	Significant
Disproportionate impacts on environmental justice populations from operation of local actions relative to community cohesion.	Significant
Flooding would continue to disproportionately affect environmental justice relative to environmental health and safety, land use, public services and utilities, transportation, and water.	Continuing disproportionate substantial flood risk
Flooding would continue to have a substantial risk to earth, recreation, and visual quality, but the impacts would not be disproportionate to environmental justice populations.	Continuing substantial flood risk, not disproportionate to environmental justice populations
NO ACTION ALTERNATIVE	
Flooding would continue to affect environmental justice relative to environmental health and safety, land use, public services and utilities, transportation, and water.	Continuing disproportionate substantial flood risk
Flooding would continue to have a substantial risk to earth, recreation, and visual quality, but the impacts would not be disproportionate to environmental justice populations.	Continuing substantial flood risk, not disproportionate to environmental justice populations

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1 INTRODUCTION

1.1 Resource Description

Environmental justice is defined by the U.S. Environmental Protection Agency as the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies (USEPA 1998). This report discusses environmental justice relative to the following populations:

- Minorities and communities of color
- Low-income populations
- Potentially affected tribal populations
- Populations with limited English proficiency (LEP)

This report describes populations in the study area, and assesses the potentially significant environmental impacts from the Proposed Action, Local Actions Alternative, and No Action Alternative that may have a disproportionate impact on populations of interest. Tribal resources are discussed in more detail in the *Tribal Resources Discipline Report* (Anchor QEA 2020a).

1.2 Regulatory Context

Regulations, statutes, and guidance relevant to determining potential impacts on environmental justice are summarized in Table D-3.

Table D-3
Regulations, Statutes, and Guidelines for Environmental Justice

REGULATION, STATUTE, GUIDELINE	DESCRIPTION
FEDERAL	
Title VI of the Civil Rights Act of 1964 (42 U.S. Code 2000d), as amended by the Civil Rights Restoration Act of 1987	Prohibits discrimination based on race, color, sex, and national origin in the provision of benefits and services resulting from federally assisted programs and activities.
Executive Order 12898, Environmental Justice	Promotes nondiscrimination in federal programs substantially affecting human health and the environment and provides minority and low-income community access to public information on, and an opportunity for public participation in, matters relating to human health and the environment.
Executive Order 13166, Improving Access to Services for Persons with Limited English Proficiency	Requires federal agencies to examine the services they provide, identify any need for services to those with LEP, and develop and implement a system to provide those services so LEP persons can have meaningful access to them.

REGULATION, STATUTE, GUIDELINE	DESCRIPTION
Council on Environmental Quality Environmental Justice Guidance Under the National Environmental Policy Act (NEPA)	Guidance for federal agencies to effectively identify and address environmental justice concerns.
Promising Practices for Environmental Justice Methodologies in NEPA Reviews	Report of the Federal Interagency Working Group on Environmental Justice NEPA Committee to improve consistency in consideration of environmental justice issues.
Robert T. Stafford Disaster Relief and Emergency Assistance Act	Requires the consideration of language access in emergency planning and response.
STATE	
Washington State Office of the Chief Information Officer Policy 188	Intended to assist the State of Washington in meeting its obligations under state and federal law to provide reasonable accommodation to employees and provide persons with disabilities an equal opportunity to participate in, and enjoy the benefits of, services, programs, or activities conducted by the state.
Executive Order 05-03	Directs all state agencies to adopt the principles and practices of Plain Talk (i.e., reader-friendly language).
Revised Code of Washington 38.52.070, Emergency Management – Communication Plans	Requires state or local organizations performing local emergency management functions to develop communication plans and provide emergency notification that includes consideration of people with LEP.

2 METHODOLOGY

2.1 Study Area

The study area for environmental justice includes all potentially affected populations residing in areas that could be directly or indirectly affected by construction or operation of any alternative. Figure D-1 presents the primary study area, which includes the areas of the FRE facility and airport levee sites, the area of maximum inundation from a temporary reservoir associated with the FRE facility, and mainstem Chehalis River areas downstream of the FRE facility that were modeled to identify the estimated flooding from a late-century catastrophic flood (to approximately river mile [RM] 9, just west of Montesano).

The study area intersects 20 census tracts and 48 block groups (see Figure D-2). Block groups are the primary geographic unit used in this report because they are the smallest area for which detailed population data are reported by the U.S. Census Bureau. Census data for population characteristics of these block groups were used to determine the population characteristics in the study area. Although the study area for environmental justice includes only portions of some of these block groups, population characteristics of the entire block group are included in the environmental justice analysis because they can be indicative of the populations present within the study area.

Census Geographic Areas

Census tracts are subdivisions of a county that average about 4,000 people. Tracts are designed to be relatively homogeneous in population characteristics, economic status, and living conditions at the time they are established.

Block groups are subdivisions of a census tract that generally include 600 to 3,000 people.

Source: U.S. Census Bureau 2018a

2.2 Affected Environment

There are various population centers and communities within the study area—cities such as Centralia and Chehalis along the Interstate 5 (I-5) trade and commuter corridor; smaller towns like Pe Ell, Elma, and Montesano; rural, unincorporated communities such as Doty, Dryad, and Adna; and the Chehalis Tribe reservation along the mainstem Chehalis River south of U.S. Route (US) 12. Table D-4 provides an overview of the population of census-designated places in the study area.

Figure D-1
Environmental Justice Study Area

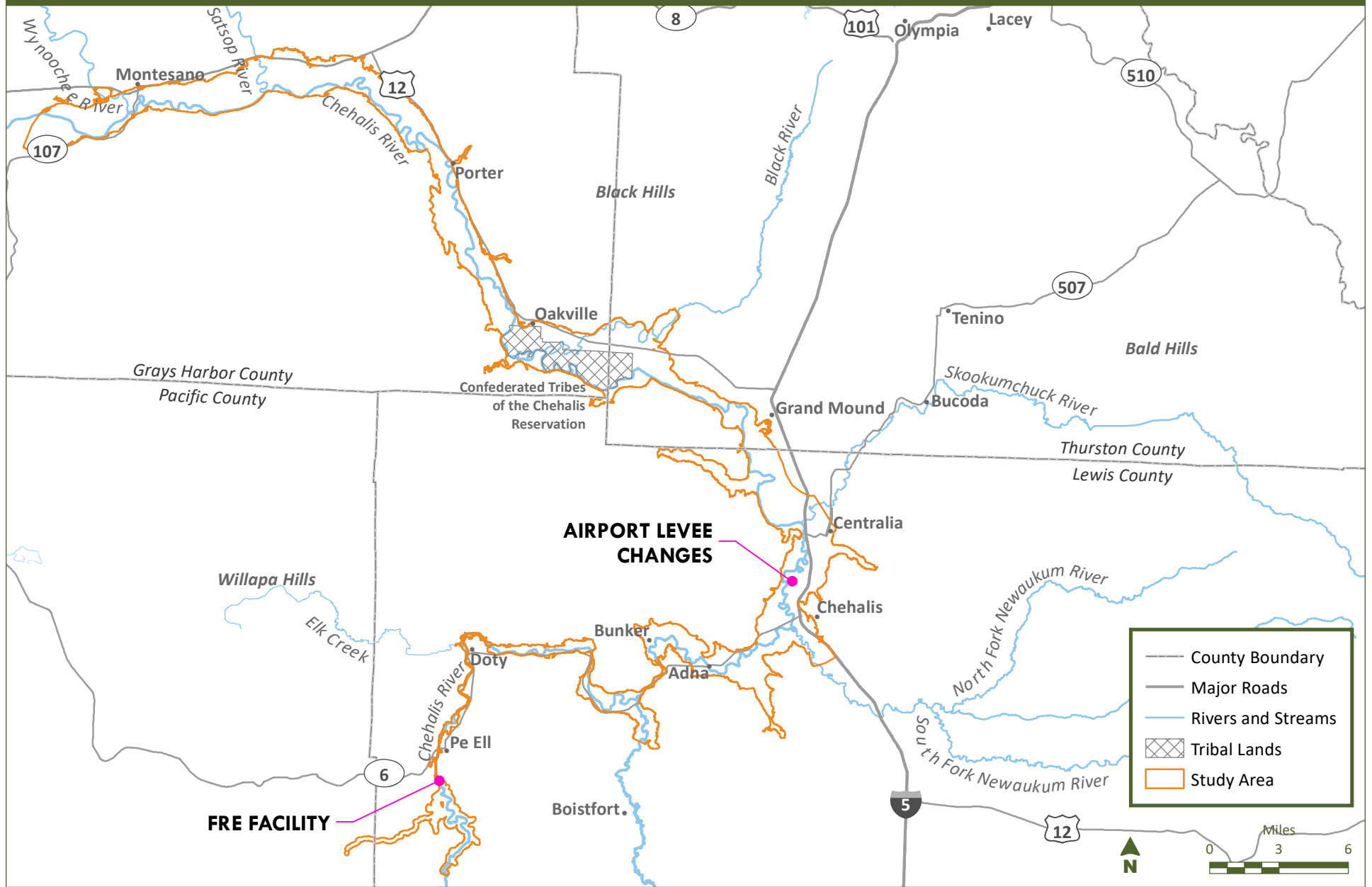
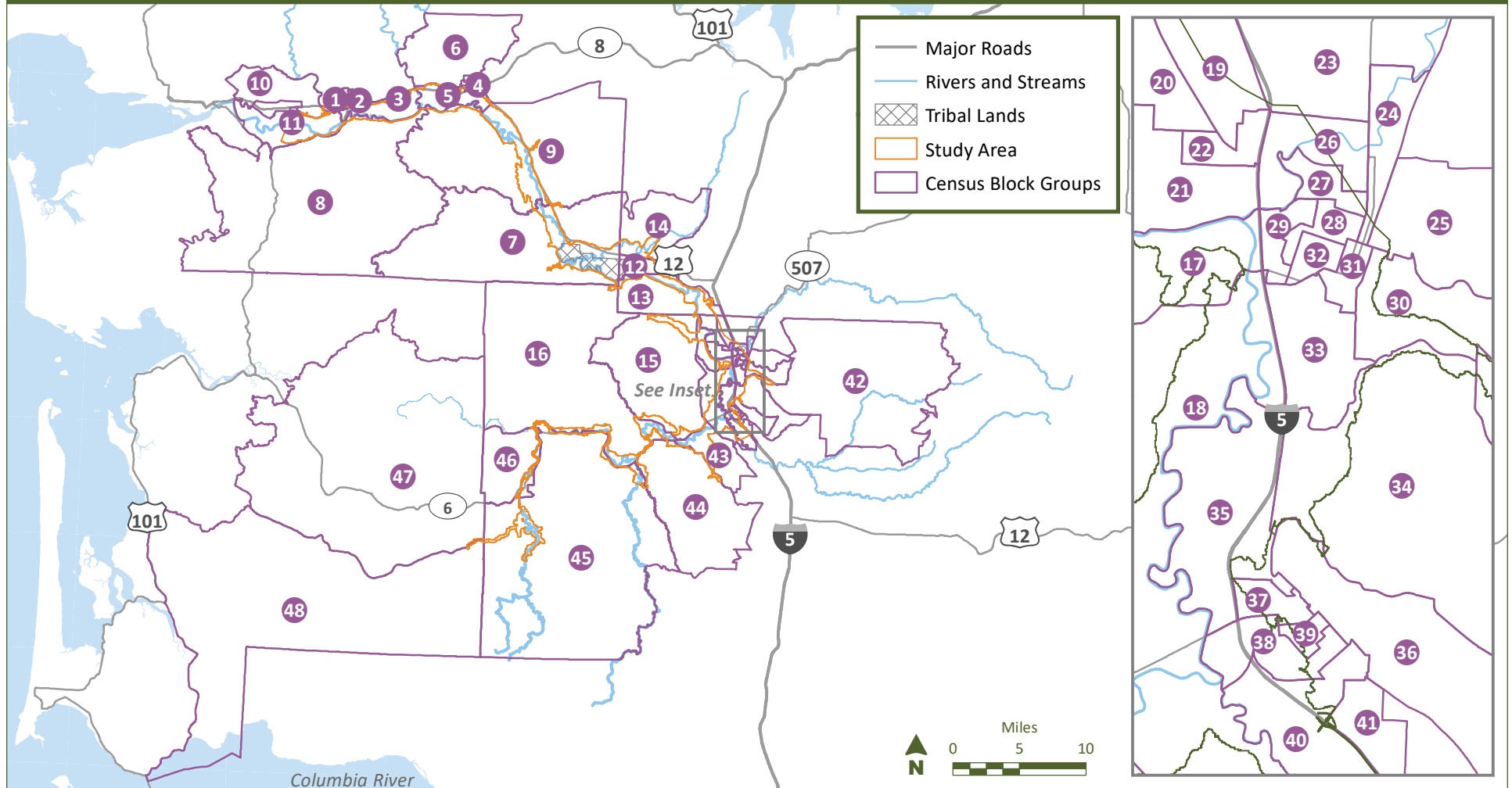


Figure D-2

Block Groups Intersecting the Study Area



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Census Tract	Block Group	Census Tract	Block Group	Census Tract	Block Group	Census Tract	Block Group	Census Tract	Block Group	Census Tract	Block Group
400	BG 1 1	800	BG 2 10	970300	BG 1 19	970600	BG 1 28	970800	BG 4 37	971500	BG 5 46
	BG 2 2		BG 3 11		BG 2 20		BG 2 29		BG 1 38		BG 1 47
	BG 4 3		BG 1 12		BG 3 21		BG 1 30		BG 2 39		BG 2 48
500	BG 1 4	12720	BG 5 13	970400	BG 4 22	970700	BG 2 31	971000	BG 1 40	971100	BG 1 42
	BG 3 5		BG 1 14		BG 1 23		BG 3 32		BG 2 41		BG 1 43
	BG 4 6		BG 1 15		BG 2 24		BG 4 33		BG 1 42		BG 3 44
700	BG 1 7	970100	BG 2 16	970500	BG 3 25	970800	BG 1 34	971400	BG 1 43	971500	BG 3 44
	BG 2 8		BG 1 17		BG 1 26		BG 2 35		BG 3 44		BG 4 45
	BG 3 9		BG 2 18		BG 2 27		BG 3 36		BG 4 45		

Table D-4
Populations in the Study Area

COMMUNITY	POPULATION ESTIMATE (2017)
LEWIS COUNTY	
Centralia	16,771
Chehalis	7,337
Fords Prairie	1,812
Pe Ell	620
GRAYS HARBOR COUNTY	
Elma	3,047
Montesano	3,899
Oakville	723
CHEHALIS TRIBE	
Reservation and Off-Reservation Trust Land	1,017

Source: ACS 2017

The study area is largely zoned agricultural (59%) and rural (21%), with incorporated city limits encompassing approximately 12%, and a smaller amount of forest resource (5%) and other (3%) zoning (Anchor QEA 2020b). Development is largely concentrated within incorporated city and town limits, Chehalis and Centralia Urban Growth Areas, and the unincorporated communities. More rural residential land uses are concentrated within the unincorporated communities of Doty, Dryad, Adna, Littell, Claquato, and Lankner (Anchor QEA 2020b).

Growth Planning

The state Growth Management Act requires counties and cities that meet certain population and growth criteria create **comprehensive plans**. A key element of comprehensive plans are **land use designations**, which include specific land use goals and policies (Anchor QEA 2020b).

All the counties and five cities (Centralia, Chehalis, Elma, Montesano, and Oakville) within the study area participate in comprehensive planning to establish the direction of future economic growth and development in their communities. The predominant comprehensive plan land use designation in the study area for unincorporated portions of Lewis, Thurston, and Grays Harbor counties is agricultural, with moderate amounts of rural residential and forest resource lands. The portion of the study area within Pacific County is entirely within the forestlands of long-term commercial significance land use designation. The main land use designation for the five cities that participate in comprehensive planning is rural residential. Most of the residential areas in these cities consist of single-family homes with a relatively low density (typically less than five dwelling units per acre). Industrial and commercial land use designations are common in Chehalis and Centralia (Anchor QEA 2020b).

Unemployment rates in study area populations are generally higher than the state-wide rate of 6% (U.S. Census Bureau's American Community Survey [ACS] 2013-2017 5-year estimates, referenced in this

document as ACS 2017). There are higher rates of unemployment in the small towns of Fords Prairie (19.2%) and Pe Ell (12.7%) than the cities of Chehalis (7.3%), Elma (8.6%), Centralia (9.2%), and Montesano (11%) (ACS 2017).

Information is sparse regarding populations experiencing homelessness in the study area, but people living unsheltered is a concern in both the rural areas and cities. All four study area counties improved their housing outcomes in fiscal year 2018 compared to the prior fiscal year: Lewis and Thurston counties were among the top 10 counties in Washington for improved exits to permanent housing from emergency shelters, and Grays Harbor and Pacific counties were among the top 10 for improved rapid rehousing outcomes (DOC 2018). Lewis County is in the process of approving a 5-year Housing and Homelessness Strategic Plan. According to the plan, the current estimated number of homeless households in all of Lewis County is 132. It is estimated that implementation of Lewis County's strategic plan will result in 91 of those households becoming housed, which would leave 41 households unsheltered (Lewis County 2019). The goal of the strategic plan is to maintain an emergency shelter and housing support system that effectively identifies and responds to persons at risk of or experiencing homelessness.

The identification and determination of populations of interest to the environmental justice analysis in the study area are detailed in Sections 2.2.1 through 2.2.4.

2.2.1 Minorities and Communities of Color

This section identifies minorities (defined in this report as all people who list their racial status as a race other than white alone and/or list their ethnicity as Hispanic or Latino) and communities of color in the study area based on the census block group data. Race and ethnicity characteristics were compiled from the ACS 2013-2017 5-year estimates for block groups that intersect the study area (Table D-5). The same information was compiled for Lewis County and Washington State, for comparison and context.

For this analysis, a block group is considered to have a "minority population" if the total minority percentage within the block group is 10% greater than the minority percentage of Lewis County.¹ Lewis County's minority percentage is 16%; thus the threshold for a minority population in a block group is 17.6%. Table D-5 depicts the minority percentages in block groups that intersect the study area and identifies blocks with minority populations above the threshold. Of the 48 block groups considered, 25² have minority percentages above the threshold for a minority population when compared to the reference populations in Lewis County (Figure D-3).

¹ The 10% threshold was determined based on review of the *Promising Practices for EJ Methodologies in NEPA Reviews* (NEPA Committee and EJ IWG 2016).

² Although Census Tract 950400 Block Group 2 also includes minority populations, it is not included in this count because the small portion of the Block Group overlapping the Study Area is managed forest where people do not live.

Table D-5
Minority Populations in Study Area Block Groups

CENSUS AREA		TOTAL POPULATION	TOTAL MINORITY
REFERENCE POPULATIONS			
Lewis County		76,012	12,032 (16%)
Washington State		7,169,967	2,168,485 (30%)
BLOCK GROUPS INTERSECTING STUDY AREA¹			
Tract 400	BG 1	1,618	571 (35%)
	BG 2	1,078	40 (4%)
	BG 4	574	139 (24%)
Tract 500	BG 1	1,501	263 (18%)
	BG 3	666	291 (44%)
	BG 4	2,380	42 (2%)
Tract 700	BG 1	2,307	813 (35%)
	BG 2	598	55 (9%)
	BG 3	1,768	64 (4%)
Tract 800	BG 2	1,216	133 (11%)
	BG 3	1,565	68 (4%)
Tract 12720	BG 1	1,156	266 (23%)
	BG 5	1,374	388 (28%)
Tract 12730	BG 1	2,693	811 (30%)
Tract 970100	BG 1	1,916	44 (2%)
	BG 2	1,576	116 (7%)
Tract 970200	BG 1	2,444	383 (16%)
	BG 2	1,121	135 (12%)
Tract 970300	BG 1	1,307	90 (7%)
	BG 2	921	251 (27%)
	BG 3	858	126 (15%)
	BG 4	1,819	638 (35%)
Tract 970400	BG 1	2,395	890 (37%)
	BG 2	972	22 (2%)
	BG 3	1,049	253 (24%)
Tract 970500	BG 1	867	111 (13%)
	BG 2	1,133	237 (21%)
Tract 970600	BG 1	1,302	336 (26%)
	BG 2	760	218 (29%)
Tract 970700	BG 1	1,004	107 (11%)
	BG 2	939	254 (27%)
	BG 3	875	375 (43%)
	BG 4	1,559	436 (28%)
Tract 970800	BG 1	726	171 (24%)
	BG 2	1,019	324 (32%)
	BG 3	1,866	53 (3%)
	BG 4	955	206 (22%)
Tract 970900	BG 1	935	260 (28%)
	BG 2	883	179 (20%)
Tract 971000	BG 1	689	180 (26%)
	BG 2	995	276 (28%)
Tract 971100	BG 1	1,082	73 (7%)

CENSUS AREA		TOTAL POPULATION	TOTAL MINORITY
Tract 971400	BG 1	894	59 (7%)
Tract 971500	BG 3	2,077	155 (7%)
	BG 4	1,268	97 (8%)
	BG 5	1,005	121 (12%)
Tract 950400	BG 1	1,625	101 (6%)
	BG 2	994	175 (18%)²

Source: ACS 2017

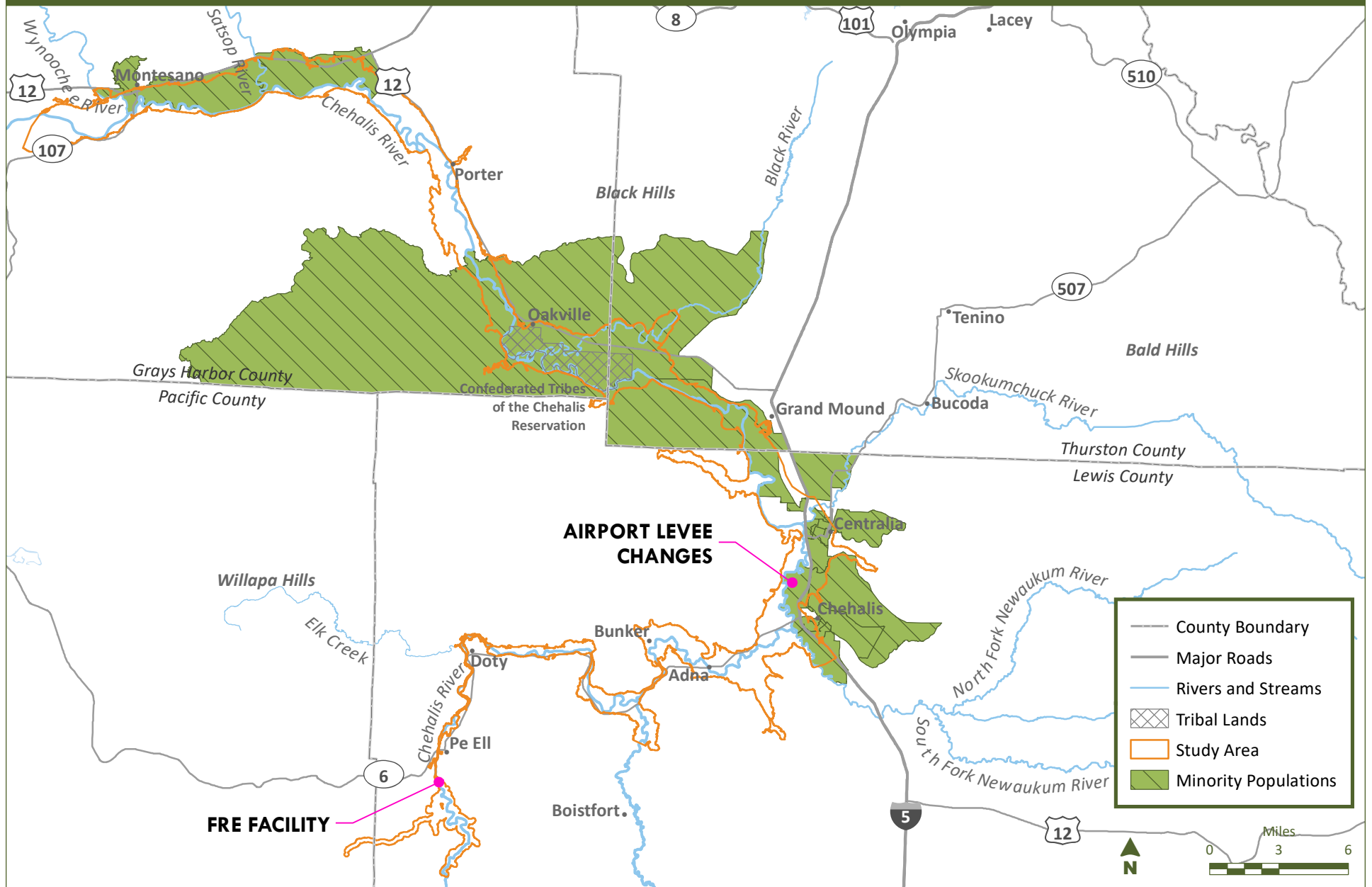
Notes:

 Block group with “minority population” of 17.6% total minority percentage or greater (10% greater than Lewis County’s minority percentage)

1. Although the study area includes only portions of some block groups, population characteristics of the entire block group are included in the environmental justice analysis because they can be indicative of the populations present within the study area.
2. Although Census Tract 950400 Block Group 2 includes a minority percentages above the threshold for a minority population when compared to the reference populations in Lewis County, it is not included in further discussions in this report because the small portion of the Block Group overlapping the Study Area is managed forest where people do not live.

Figure D-3

Minority Populations in Study Area Block Groups



Note: Although Census Tract 950400 Block Group 2 also includes minority populations, it is not shown on this figure because the small portion of the Block Group overlapping the Study Area is managed forest where people do not live.

2.2.2 Low-Income Populations

The SEPA analysis uses a combination of data from the U.S. Census Bureau to identify low-income populations. Additional information from the Washington Department of Health (DOH) is also considered.

For this report, low-income is defined as 200% or less of the poverty level, which can also be described as a ratio of income-to-poverty level of 2 or less. The 2019 federal poverty level for a four-person household was \$25,750 (ASPE 2019). Median household income characteristics and the ratios of income-to-poverty level were compiled from the U.S. Census Bureau's 2013-2017 ACS 5-year estimates for block groups that intersect the study area, as well as for Lewis County and Washington, for comparison and context (Table D-6).

From analysis of the 2013-2017 ACS 5-year estimates, the population of a block group is considered a "low-income population" if the percentage of people living at or below twice the poverty level is greater than the percentage for Lewis County.³ Lewis County's low-income percentage is 39%; thus the threshold for a low-income population in a block group intersecting the study area is 39%. Of the 48 block groups considered, 25 have low-income percentages above this threshold when compared to the reference population of Lewis County as shown in Table D-6.

The 2013-2017 ACS 5-year estimates shown in Table D-6 use averages from small-sample surveys with potentially high margins of error. Therefore, this report also includes information on the additional economic characteristics from DOH to evaluate where there are low-income populations in the study area. DOH combines information on a variety of environmental and public health factors to provide rankings for environmental health disparities in the Washington Tracking Network; socioeconomic rankings for the Environmental Health Disparities layer⁴ and the Social Vulnerability to Hazards layer⁵ are shown in Table D-7. Block groups within tracts with DOH socioeconomic factors ranked 9 or 10 for the tract are identified as areas of high vulnerability and considered as part of the "low-income population" analysis for the purposes of this report. A summary assessment of the DOH information compared to the ACS data follows Tables D-6 and D-7.

³ The threshold was determined based on review of the *Promising Practices for EJ Methodologies in NEPA Reviews* (NEPA Committee and EJ IWG 2016).

⁴ The socioeconomic factors for the Environmental Health Disparities layer are unemployment, unaffordable housing, transportation expense, populations living in poverty, people of color, no high school diploma, and LEP.

⁵ The socioeconomic factors for the Social Vulnerability to Hazards layer are unemployment, populations living in poverty, no high school diploma, and no access to a private vehicle.


Table D-6
Household Incomes in Study Area Block Groups

CENSUS AREA		TOTAL POPULATION	NUMBER OF LOW INCOME PEOPLE	PERCENT OF POPULATION LOW INCOME ¹
REFERENCE POPULATIONS				
Lewis County		74,867	28,911	39%
Washington State		7,037,413	1,984,694	28%
BLOCK GROUPS INTERSECTING THE STUDY AREA ²				
Tract 400	BG 1	1,618	658	41%
	BG 2	1,078	206	20%
	BG 4	574	256	45%
Tract 500	BG 1	1,501	536	36%
	BG 3	666	481	72%
	BG 4	2,380	330	14%
Tract 700	BG 1	2,297	979	43%
	BG 2	598	317	54%
	BG 3	1,754	739	42%
Tract 800	BG 2	1,216	294	24%
	BG 3	1,565	397	26%
Tract 12720	BG 1	1,156	157	14%
	BG 5	1,272	124	10%
Tract 12730	BG 1	1,980	767	39%
Tract 970100	BG 1	1,895	352	19%
	BG 2	1,576	423	27%
Tract 970200	BG 1	2,334	889	38%
	BG 2	1,121	479	43%
Tract 970300	BG 1	1,307	659	50%
	BG 2	885	478	54%
	BG 3	841	211	25%
	BG 4	1,800	982	55%
Tract 970400	BG 1	2,358	1,062	45%
	BG 2	972	366	38%
	BG 3	1,049	446	43%
Tract 970500	BG 1	867	279	32%
	BG 2	1,133	495	44%
Tract 970600	BG 1	1,302	626	48%
	BG 2	679	357	53%
Tract 970700	BG 1	1,004	225	22%
	BG 2	906	465	51%
	BG 3	875	350	40%
	BG 4	1,529	1,102	72%
Tract 970800	BG 1	715	382	53%
	BG 2	1,019	580	57%
	BG 3	1,843	431	23%
	BG 4	692	284	47%
Tract 970900	BG 1	935	551	59%
	BG 2	825	377	46%

CENSUS AREA		TOTAL POPULATION	NUMBER OF LOW INCOME PEOPLE	PERCENT OF POPULATION LOW INCOME ¹
Tract 971000	BG 1	527	331	63%
	BG 2	995	346	35%
Tract 971100	BG 1	1,056	234	22%
Tract 971400	BG 1	894	133	15%
Tract 971500	BG 3	2,063	443	21%
	BG 4	1,268	442	35%
	BG 5	1,005	339	34%
Tract 950400	BG 1	1,625	434	27%
	BG 2	896	208	23%

Source: ACS 2017

Notes:

 Block group with “low-income population” due to total low-income percentage greater than Lewis County’s low-income percentage

1. For this analysis, the “ratio of income to poverty level in the past 12 months” Census data were used to determine the population at 200% or less of the poverty level and thus to indicate the low income percent of the population.
2. Although the study area includes only portions of some block groups, population characteristics of the entire block group are included in the environmental justice analysis because they can be indicative of the populations present within the study area.


Table D-7

Environmental Health Disparities and Social Vulnerability Rankings in Study Area Census Tracts

CENSUS TRACTS INTERSECTING THE STUDY AREA ²	SOCIOECONOMIC RANKINGS ¹	
	ENVIRONMENTAL HEALTH DISPARITIES ³	SOCIAL VULNERABILITY TO HAZARDS ⁴
400	5	4
500	7	8
700	7	8
800	7	7
12720	9	7
12730	4	1
970100	3	5
970200	7	10
970300	9	8
970400	9	9
970500	7	8
970600	10	7
970700	10	10
970800	9	10
970900	10	8
971000	10	9
971100	7	7
971400	6	1
971500	7	8
950400	3	8

Source: WTN 2019

Notes:

-  Block groups from tracts with DOH socioeconomic factors ranked 9 or higher are considered high vulnerability and included as part of the “low-income population” analysis for this report.
1. Rankings are provided in deciles relative to the entire population of Washington. For example, if a census tract is ranked 9, 80% of the tracts in the state have a lower level of disparity or vulnerability and 10% have a greater level of disparity or vulnerability.
 2. Information in the Washington Tracking Network is provided at the census tract level (not to the block group level, as provided for other factors in this report). Although the study area includes only smaller portions of some block groups within these census tracts, tracts are designed to be relatively homogeneous and thus can be indicative of the populations present, and useful when combined with other data.
 3. The socioeconomic factors for the Environmental Health Disparities layer are unemployment, unaffordable housing, transportation expense, populations living in poverty, people of color, no high school diploma, and LEP.
 4. The socioeconomic factors for the Social Vulnerability to Hazards layer are unemployment, populations living in poverty, no high school diploma, and no access to a private vehicle.

Based on the information presented in Tables D-6 and D-7, 33 of the 48 block groups are considered to have a “low-income population” due to either of the following criteria being met (see Table D-8 and Figure D-4):

- Block groups with percent low income exceeding the Lewis County reference population
- DOH socioeconomic factors ranked 9 or higher for the tract

Table D-8
Factors Contributing to Low-Income Population Designations

BLOCK GROUPS INTERSECTING THE STUDY AREA		ACS LOW-INCOME PERCENTAGE EXCEEDING REFERENCE POPULATION	DOH SOCIOECONOMIC FACTORS RANKED 9 OR HIGHER
GRAYS HARBOR COUNTY			
Tract 400	BG 1	•	
	BG 2		
	BG 4	•	
Tract 500	BG 1		
	BG 3	•	
	BG 4		
Tract 700	BG 1	•	
	BG 2	•	
	BG 3	•	
Tract 800	BG 2		
	BG 3		
THURSTON COUNTY			
Tract 12720	BG 1		•
	BG 5		•
Tract 12730	BG 1	•	
LEWIS COUNTY			
Tract 970100	BG 1		
	BG 2		
Tract 970200	BG 1		•
	BG 2	•	•
Tract 970300	BG 1	•	•
	BG 2	•	•
	BG 3	•	•
	BG 4	•	•
Tract 970400	BG 1	•	•
	BG 2		•
	BG 3	•	•
Tract 970500	BG 1		
	BG 2	•	
Tract 970600	BG 1	•	•
	BG 2	•	•
Tract 970700	BG 1		•
	BG 2	•	•
	BG 3	•	•
	BG 4	•	•

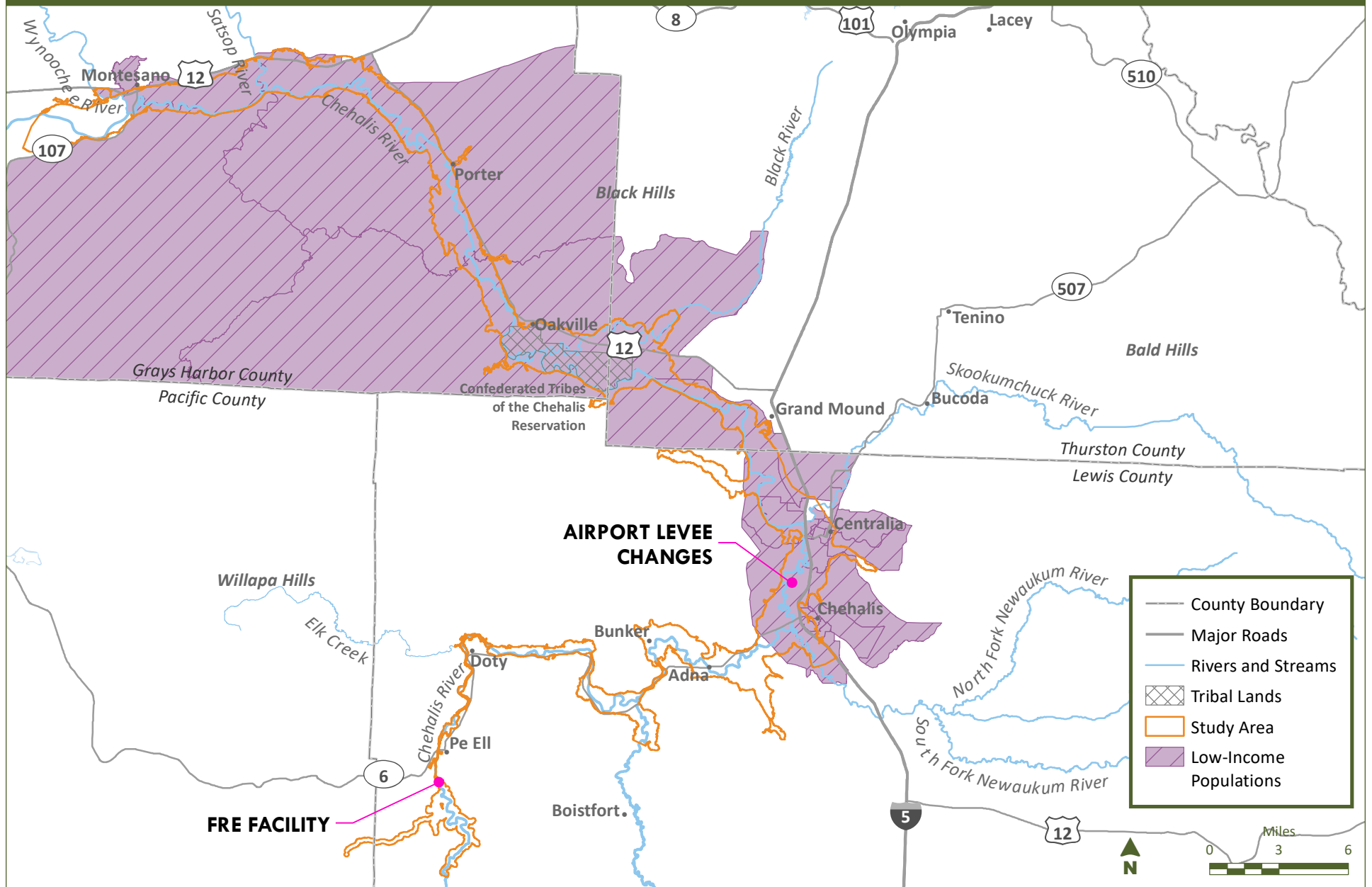
BLOCK GROUPS INTERSECTING THE STUDY AREA		ACS LOW-INCOME PERCENTAGE EXCEEDING REFERENCE POPULATION	DOH SOCIOECONOMIC FACTORS RANKED 9 OR HIGHER
Tract 970800	BG 1	•	•
	BG 2	•	•
	BG 3		•
	BG 4	•	•
Tract 970900	BG 1	•	•
	BG 2	•	•
Tract 971000	BG 1	•	•
	BG 2		•
Tract 971100	BG 1		
Tract 971400	BG 1		
Tract 971500	BG 3		
	BG 4		
	BG 5		
PACIFIC COUNTY			
Tract 950400	BG 1		
	BG 2		

Notes:

Any of the criteria met for the block group to be considered to have a “low-income population” for this report

Figure D-4

Low-Income Populations in Study Area Block Groups



2.2.3 Tribal Communities and Populations

The Chehalis Tribe reservation is located along the mainstem Chehalis River south of US 12, within the study area. Members of the Chehalis Tribe, Cowlitz Indian Tribe, Quinault Indian Nation, and Shoalwater Bay Indian Tribe of the Shoalwater Bay Indian Reservation may live throughout the study area. Census data are available for recognized reservations (and in some cases, tribal trust land), but data are not available relative to tribal membership. Tribal members who may not reside on reservations could still be affected by the Proposed Action or alternatives. To the extent there is a potential for disproportionate impacts on a tribal community, tribal representation would be sought in a manner that is consistent with the government-to-government relationship between the United States and tribal governments and Washington State and tribal governments. Tribal resources, including tribal treaty rights, are discussed in the *Tribal Resources Discipline Report* (Anchor QEA 2020a). Cultural resources are discussed in the *Cultural Resources Discipline Report* (ESA 2020i).

2.2.4 Populations of Limited English Proficiency

This section identifies LEP populations in the study area based on U.S. Census Bureau 2013-2017 ACS 5-year estimate data for block groups that intersect the study area, as well as for Lewis County and Washington, for comparison and context (Table D-9 and Attachment D-1). The ACS 5-year estimates use an average from small-sample surveys with potentially high margins of error; thus this report also includes information from the Washington State Office of the Superintendent of Public Instruction (OSPI) on the concentration of and languages spoken by students to further guide where there are LEP populations in the study area.

It should be noted that LEP populations are not included in the populations of interest for determining any disproportionate impacts in Section 3. Rather, this information is provided for the purposes of identifying where outreach efforts to LEP populations should be provided for any alternative or project that could move forward. The most widely spoken language in these block groups other than English is Spanish.

Limited English Proficiency

Individuals who do not speak English as their primary language and who have a limited ability to read, speak, write, or understand English have limited English proficiency, or “LEP.” The Census and ACS ask people whether they speak English “very well,” “well,” “not well,” or “not at all.” Government agencies rely on ACS language data to determine how and where to provide language assistance service (U.S. Census Bureau 2018b).

Table D-9

Population with Limited English Proficiency in Study Area Block Groups

CENSUS AREA		TOTAL POPULATION IN ESTIMATE	LEP POPULATION ¹	PERCENT LEP ¹
REFERENCE POPULATIONS				
Lewis County		71,533	2,918	4%
Washington State		6,721,822	510,111	8%
BLOCK GROUPS INTERSECTING STUDY AREA ²				
Tract 400	BG 1	1,592	52	3%
	BG 2	1,019	0	0%
	BG 4	574	2	0%
Tract 500	BG 1	1,408	0	0%
	BG 3	609	243	40%
	BG 4	2,264	0	0%
Tract 700	BG 1	2,158	0	0%
	BG 2	592	0	0%
	BG 3	1,715	0	0%
Tract 800	BG 2	1,168	44	4%
	BG 3	1,511	22	1%
Tract 12720	BG 1	1,076	17	2%
	BG 5	1,323	90	7%
Tract 12730	BG 1	2,512	202	8%
Tract 970100	BG 1	1,838	0	0%
	BG 2	1,495	0	0%
Tract 970200	BG 1	2,244	163	7%
	BG 2	995	0	0%
Tract 970300	BG 1	1,282	0	0%
	BG 2	921	118	13%
	BG 3	807	29	4%
	BG 4	1,578	191	12%
Tract 970400	BG 1	2,268	282	12%
	BG 2	935	4	<1%
	BG 3	950	0	0%
Tract 970500	BG 1	802	0	0%
	BG 2	1,015	20	2%
Tract 970600	BG 1	1,152	66	6%
	BG 2	746	128	17%
Tract 970700	BG 1	924	10	1%
	BG 2	907	6	1%
	BG 3	832	94	11%
	BG 4	1,417	168	12%
Tract 970800	BG 1	674	56	8%
	BG 2	843	141	17%
	BG 3	1,737	0	0%
	BG 4	919	2	<1%
Tract 970900	BG 1	785	8	1%
	BG 2	773	55	7%

CENSUS AREA		TOTAL POPULATION IN ESTIMATE	LEP POPULATION ¹	PERCENT LEP ¹
Tract 971000	BG 1	689	42	6%
	BG 2	930	50	5%
Tract 971100	BG 1	1,077	11	1%
Tract 971400	BG 1	868	0	0%
Tract 971500	BG 3	1,969	6	<1%
	BG 4	1,191	2	<1%
	BG 5	958	4	<1%
Tract 950400	BG 1	1569	10	1%
	BG 2	965	18	2%
Total across all block groups intersecting the study area		69,125	2,925	4%

Source: ACS 2017

Notes:

1. Population 5 years and older that indicated speaking English less than “very well”
2. Although the study area includes only portions of some block groups, population characteristics of the entire block group are included in this table because they can be indicative of the populations present within the study area.

OSPI tracks languages spoken by students in Washington school districts; information for the 2016-2017 school year is shown in Table D-10 for districts that serve the study area. This student language information correlates with the ACS data on LEP populations and also shows that the most widely spoken language in these areas other than English is Spanish.

Table D-10
Languages Spoken in School Districts Serving the Study Area

LANGUAGES SPOKEN IN SCHOOL DISTRICTS	STUDENTS ¹
ABERDEEN SCHOOL DISTRICT	3,328
Arabic	1
Cambodian	5
Chinese-Unspecified	1
Japanese	1
Korean	1
Pilipino/Filipino	1
Portuguese	1
Q'anjob'al	3
Serbian	1
Spanish	421
Triqui	8
Unknown	3
Vietnamese	2
Visayan	1
ADNA SCHOOL DISTRICT	640
Spanish	3
BOISTFORT SCHOOL DISTRICT	96
Spanish	2

LANGUAGES SPOKEN IN SCHOOL DISTRICTS	STUDENTS ¹
CENTRALIA SCHOOL DISTRICT	3,561
Spanish	457
Russian	4
Unknown	4
Arabic	3
Chinese-Unspecified	2
Mam	2
Burmese	1
Dinka	1
Lao	1
Marshallese	1
Ukrainian	1
CHEHALIS SCHOOL DISTRICT	3,055
Spanish	135
Russian	5
Punjabi	2
Chinese-Unspecified	1
Dinka	1
Japanese	1
Kanjobal	1
Mandingo	1
Marshallese	1
Mongolian	1
Tagalog	1
COSMOPOLIS SCHOOL DISTRICT	143
Spanish	4
ELMA SCHOOL DISTRICT	1,410
Chinese-Mandarin	1
Spanish	124
MONTESANO SCHOOL DISTRICT	1,374
Chinese-Mandarin	1
Spanish	28
Tagalog	1
OAKVILLE SCHOOL DISTRICT	203
Spanish	3
Tagalog	1
ROCHESTER SCHOOL DISTRICT	2,267
German	2
Korean	1
Pilipino/Filipino	2
Spanish	135
Tagalog	1
Unknown	1

Source: OSPI 2017; data not available for Pe Ell Scholl District or Satsop School District

Note:

1. Includes the count of students that speak each language and total count of Transitional Bilingual Instructional Program eligible students.

2.3 Studies and Reports Referenced/Used

Information about environmental justice considerations was obtained from state and federal agencies, public scoping for this EIS, and information developed through the Chehalis Basin Strategy. The following studies, reports, and data sources were used to evaluate environmental justice impacts:

- *Chehalis Basin Strategy Programmatic Environmental Impact Statement* (Ecology 2017)
- U.S. Census Bureau 2013-2017 ACS 5-year estimate data for population demographics, median household incomes, ratios of incomes to poverty levels, and LEP populations and percentages (ACS 2017)
- OSPI data for the concentration of and languages spoken by students (OSPI 2017)
- DOH socioeconomic rankings for the Environmental Health Disparities layer and the Social Vulnerability to Hazards layer (WTN 2019)
- *Environmental Justice: Guidance Under the National Environmental Policy Act* (CEQ 1997)
- *Final Guidance for Incorporating Environmental Justice Concerns in EPA's NEPA Compliance Analyses* (USEPA 1998)
- *Promising Practices for EJ Methodologies in NEPA Reviews* (NEPA Committee and EJ IWG 2016)
- *SEPA EIS Scoping Summary Report* (Anchor QEA 2018)

The following discipline reports were used to determine potentially significant impacts for other elements of the environment and any proposed mitigation. These impacts and mitigation were considered to assess the potential for environmental impacts to disproportionately affect environmental justice populations of interest.

- *Air Quality and Greenhouse Gas Discipline Report* (ESA 2020a)
- *Cultural Resources Discipline Report* (ESA 2020i)
- *Environmental Health and Safety Discipline Report* (ESA 2020b)
- *Earth Discipline Report* (Shannon & Wilson and Watershed Geodynamics 2020)
- *Fish Species and Habitats Discipline Report* (Anchor QEA 2020c)
- *Land Use Discipline Report* (Anchor QEA 2020b)
- *Noise Discipline Report* (ESA 2020c)
- *Public Services and Utilities Discipline Report* (ESA 2020d)
- *Recreation Discipline Report* (ESA 2020e)
- *Transportation Discipline Report* (ESA 2020f)
- *Tribal Resources Discipline Report* (Anchor QEA 2020a)
- *Visual Quality Discipline Report* (ESA 2020g)
- *Water Discipline Report* (ESA 2020h)

2.4 Technical Approach

Through the evaluation in Sections 2.2.1 through 2.2.3, environmental justice populations of interest (minorities, low-income populations, and tribal communities) were determined to be in 29 of the 39 block groups intersecting the study area⁶. A summary of the area with environmental justice populations in the study area is also shown in Figure D-5.

The analysis considered the potentially significant environmental impacts of the Proposed Action and alternatives on all elements of the environment and determined the potential for those environmental impacts to disproportionately affect the populations of interest (see Section 3). The potentially significant environmental impacts of the alternatives on all elements of the environment were overlaid with the populations of interest (the areas shown in Figure D-5), to determine the relative type and severity of effects and determine the potential for environmental impacts on affected populations of interest. A summary accounting of these findings was used to determine any impacts relative to disruption of community cohesion.

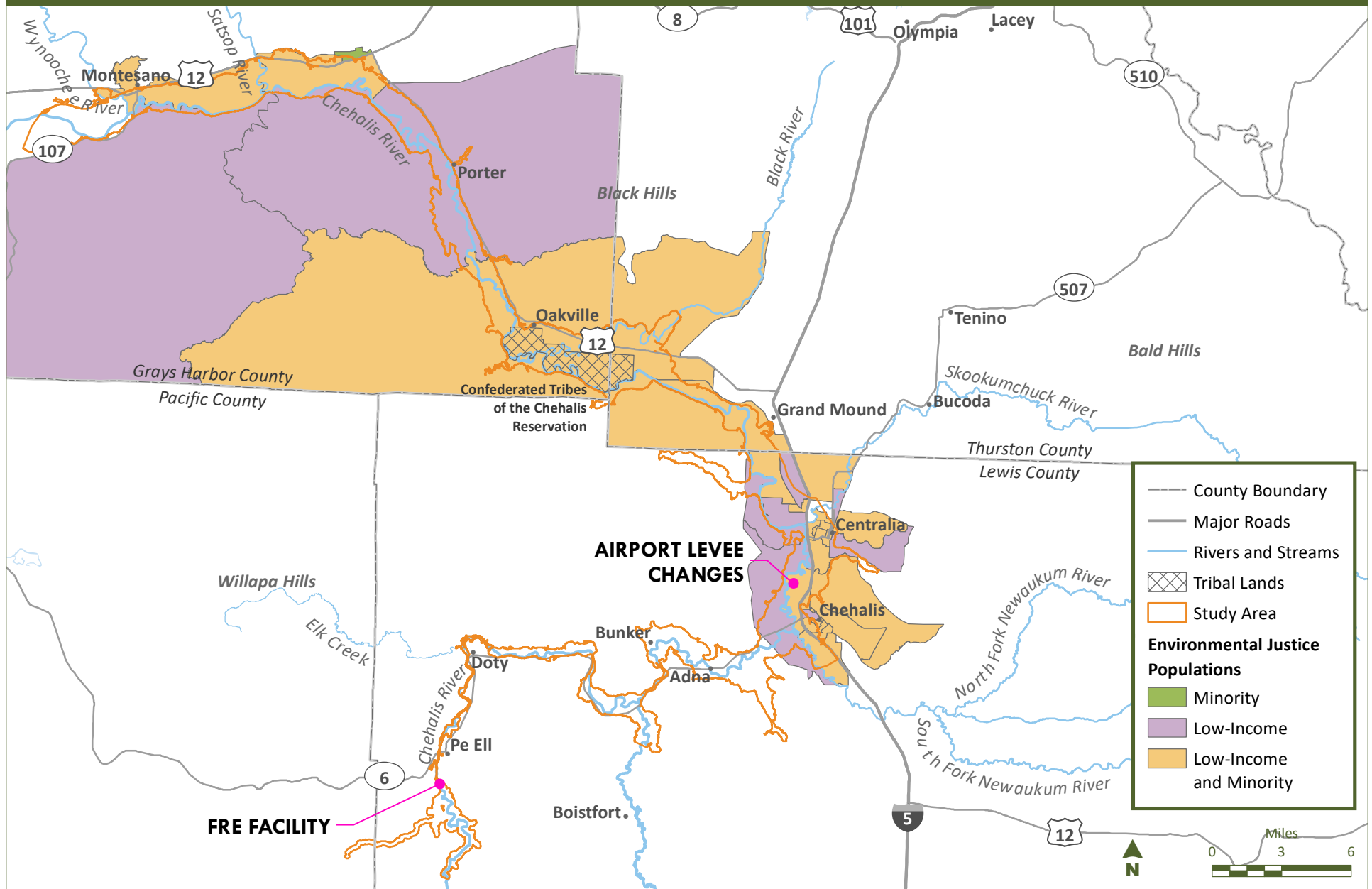
2.5 Impact Analysis

As noted in Section 2.4, the impact analysis for environmental justice considered construction or operation of an alternative resulting in disproportionate impacts on populations of interest or multiple significant environmental impacts affecting populations of interest that would result in disrupting community cohesion.

⁶ Although Census Tract 950400 Block Group 2 also includes minority populations, it was not determined to have environmental justice populations of interest for this report, and thus is not included in this count, because the small portion of the Block Group overlapping the Study Area is managed forest where people do not live.

Figure D-5

Environmental Justice Populations in the Study Area



Note: Although Census Tract 950400 Block Group 2 also includes minority populations, it is not shown on this figure because the small portion of the Block Group overlapping the Study Area is managed forest where people do not live.

3 TECHNICAL ANALYSIS AND RESULTS

3.1 Overview

This section describes the probable environmental justice impacts from the Proposed Action (Section 3.2), Local Actions Alternative (Section 3.3), and No Action Alternative (Section 3.4). When significant adverse impacts were identified in the discipline reports for the other elements of the environment listed in Section 2.3, these impact determinations were assessed for the potential for environmental impacts to disproportionately affect environmental justice populations of interest. Where mitigation measures that could avoid, minimize, or reduce the identified impact below the level of significance were identified in the discipline reports, these were also considered. Project impacts that would be effectively mitigated are not anticipated to result in disproportionate impacts on environmental justice populations of interest, but those significant impacts and mitigation are also noted here.

The *Cultural Resources Discipline Report* (ESA 2020i) describes historic and cultural resources present in the study area. If adverse effects are determined, a Memorandum of Agreement would be negotiated among the U.S. Army Corps of Engineers, Department of Archaeology and Historic Preservation, potentially affected Native American tribes, and the Chehalis River Basin Flood Control Zone District (Applicant). This process is separate from the SEPA process. The *Cultural Resources Discipline Report* discloses potential impacts but does not include a determination of significance while the Section 106 process is ongoing. Therefore, this discipline report is not discussed further in this section.

Construction and operation of the Proposed Action could result in impacts on tribal resources, including wildlife, vegetation, and fish available for harvest and use by tribes. Making a determination of significance related to treaty-reserved rights is not part of the *Tribal Resources Discipline Report* (Anchor QEA 2020a); therefore, this discipline report is not discussed further in this section.

The *Noise Discipline Report* (ESA 2020c) did not identify any significant adverse impacts; therefore, that discipline report is not discussed further in this section.

3.2 Proposed Action

3.2.1 Impacts from Construction

A flood retention structure would be constructed. The area for the temporary reservoir would extend 6.4 miles over 847 acres along the Chehalis River from RM 108 to 114. In addition to removal of vegetation for the FRE facility, tree clearing and vegetation removal would occur within the reservoir area. A new power line would be built to construct and operate the power pumps, gates, instruments, and other controls for the FRE facility. In addition, constructing the FRE facility includes developing a quarry site, material storage, and materials processing as well as areas for construction offices and equipment storage near the site. For construction, a concrete production facility would also be located above and

northeast of the FRE facility to produce concrete; concrete aggregate may be mined within the temporary reservoir or nearby.

Construction of the levee would include raising the existing 9,511-foot-long Chehalis-Centralia Airport levee by 4 to 7 feet. The project would raise the existing levee by adding earthen materials or floodwalls on top. In addition, 1,700 feet of Airport Road would be raised to meet the airport levee height along the southern extent of the airport. The project would require replacing all utility infrastructure and terminating the West Street overcrossing approach.

3.2.1.1 Direct Impacts

Probable significant adverse direct impacts associated with construction activities for the FRE facility were identified in EIS discipline reports for air quality and greenhouse gas (GHG), earth, fish species and habitats, land use, public services and utilities, recreation, and water. These impacts are evaluated relative to environmental justice as follows:

- **Air Quality and Greenhouse Gas Discipline Report (ESA 2020a):** Total GHG emissions for the FRE facility during the 5-year construction period would be 106,890 metric tons/year. Total GHG emissions for the levee construction during the 1-year construction period would be 1,849 metric tons/year. Combined GHG emissions from construction and operation would be 123,439 metric tons and would be a significant adverse impact. The accumulation of GHGs has been identified as a driving force in global climate change, and climate change impacts from increasing GHGs have been included in the future conditions for all salient resource areas analyzed in this EIS. The *Proposed Project Description and Alternatives Appendix* includes additional information on how climate change is included throughout the analyses (Anchor QEA 2020d). The GHG emissions related to the Proposed Action would not be a disproportionate impact relative to environmental justice populations.
- **Earth Discipline Report (Shannon & Wilson and Watershed Geodynamics 2020):** The river channel at the FRE facility site would be permanently disturbed due to the construction of the structure, resulting in significant adverse impacts to substrate and geomorphic processes at that location; these impacts would be localized at the site. These impacts would occur where people do not live; thus disproportionate impacts relative to environmental justice populations are not anticipated.
- **Fish Species and Habitats Discipline Report (Anchor QEA 2020c):** The construction of the FRE facility would directly adversely affect habitat in the construction footprint, the temporary reservoir area, and downstream of the facility. Construction of the FRE facility would have significant adverse impacts on several species of salmon and non-salmon fish because of in-water work and dewatering, reduced fish passage or uncertainty about fish transport to upstream habitats, and water quality impacts. Freshwater aquatic macroinvertebrates, a key fish

prey item and indicator of aquatic habitat health, and freshwater shellfish are vulnerable to in-water construction activities because of their inability to move away from the activity and their reliance on specific substrate types and water quality. The permanent loss and alteration of habitat from construction and decreasing recruitment would create significant adverse impacts on mussels and a significant to moderate adverse impact on aquatic macroinvertebrates.

Fish from the Chehalis River are an important contributor to ocean fisheries and are essential for supporting in-river fisheries such as ceremonial, subsistence, commercial and non-commercial tribal harvest, and recreational. Tribal resources, including tribal treaty rights, are discussed in the *Tribal Resources Discipline Report* (Anchor QEA 2020a). Decreased fish abundance will be considered by and factored into future fishery management decisions by the fishery managers and co-managers, and could affect harvest allocations. However, multiple factors are considered when setting harvest allocations, and no assessment is made in this EIS of how co-managers might adjust harvest regulations and allocations in the future due to any reductions in abundance and population productivity associated with construction of the Proposed Action.

There have been fishing closures in the Chehalis Basin and additional closures are likely to occur in the future. Low predicted fish returns in 2019 prompted the closure of fishing for all species on the Chehalis River, South Fork Chehalis River, North Fork Newaukum River, South Fork Newaukum River, and Skookumchuck River, and have also resulted in fishing closures in prior years. Although environmental justice populations of interest may be affected by future changes to harvest allocations, restrictions in the study area are historical and likely to be ongoing. Therefore, disproportionate impacts on environmental justice populations are not anticipated as a result of the probable impacts to fish species under the Proposed Action.

- **Land Use Discipline Report (Anchor QEA 2020b):** Construction impacts on land use in the vicinity of the FRE facility structure and temporary reservoir would affect existing forestlands, shorelines, floodplains, and critical areas. Impacts would be significant and inconsistent with land use plans, policies, and regulations due to the impacts on shoreline ecological functions in the project area and within the temporary reservoir extents. These significant impacts would occur where people do not live; thus disproportionate impacts on environmental justice populations are not anticipated.
- **Public Services and Utilities Discipline Report (ESA 2020d):** Improvement or relocation of a water supply line for Pe Ell's water treatment facility may be required for FRE facility construction. Mitigation measures identified in the *Public Services and Utilities Discipline Report* would reduce impacts, minimize service disruptions, and provide advance notice if service disruption is necessary. Additionally, Pe Ell's water treatment facility does not serve the areas with environmental justice populations; therefore, disproportionate impacts on environmental justice populations of interest are not anticipated.

- **Recreation Discipline Report (ESA 2020e):** Less than 1% of the 98,049-acre Pe Ell South Permit Area would be permanently closed when FRE facility construction begins. The Pe Ell South Permit Area is one of eight Weyerhaeuser permit areas throughout the state for hunting and camping, including the nearby Pe Ell North Permit Area, Aberdeen Permit Area, and Longview-St. Helens Permit Area. During construction, there would be a permanent change to the recreational character of the area, permanent closure of 13.8 river miles of the Chehalis River to kayakers and whitewater rafters, and permanent closure of 6.4 river miles to anglers including 12.8 miles of bank access along the Chehalis River and tributaries. Construction of the FRE facility would cause permanent changes in the area around the site and the permanent loss of access for kayaking, whitewater rafting, fishing, camping, and hunting would be a significant adverse impact.

Environmental justice populations of interest are not present in block groups around the Pe Ell South Permit Area, although they may use the area for recreation. However, the permit area is large and includes many other areas that would remain available. Weyerhaeuser also operates several other areas nearby to provide access to natural resources and outdoor recreation and there are a variety of other recreational sites and parks adjacent to the block groups with environmental justice populations. Therefore, disproportionate impacts on environmental justice populations of interest are not anticipated.

- **Water Discipline Report (ESA 2020h):** The construction of the FRE facility would have significant adverse impacts relative to increased water temperatures both in the temporary reservoir and in areas of the Chehalis River immediately downstream of the FRE facility during certain periods that would exceed temperature water quality criteria. Construction of the FRE facility would also have significant adverse impacts relative to dissolved oxygen.

The water quality impacts in the construction and reservoir areas—where people do not live—are not expected to result in disproportionate impacts relative to environmental justice populations. Impacts on aquatic species from changes in water quality are discussed above. The predicted impacts to water quality in the Chehalis River relative to temperature are predicted to decrease moving downstream and would generally become negligible before reaching areas with environmental justice populations of interest. Additionally, water downstream of the facility is not expected to be directly used from the river by residents. Disproportionate impacts on environmental justice populations are not anticipated.

As discussed above, there would be **no disproportionate direct adverse impacts** relative to an environmental justice evaluation of the impacts from construction of the FRE facility.

Probable significant adverse impacts associated with construction activities for the Airport Levee Changes were identified in the EIS discipline report for air quality and GHG. Combined GHG emissions for construction and operation of the FRE facility and Airport Levee Changes would be 123,439 metric

tons, inclusive of a 50-year operational period, and would be a significant adverse impact. However, as noted above, the accumulation of GHGs has been identified as a driving force in global climate change, and climate change impacts from increasing GHGs have been included in the future conditions for all salient resource areas analyzed in this EIS. The *Proposed Project Description and Alternatives Appendix* includes additional information on how climate change is included throughout the analyses (Anchor QEA 2020d). The GHG emissions related to the Proposed Action would not be a disproportionate impact relative to environmental justice populations. Therefore, there would be **no disproportionate direct adverse impacts** relative to an environmental justice evaluation from construction of the Airport Levee Changes.

3.2.1.2 Indirect Impacts

Probable significant adverse indirect impacts associated with construction activities for the FRE facility were identified in the EIS discipline report for fish species and habitats. However, these impacts would occur where people do not live. Based on this analysis, there would be **no disproportionate indirect adverse impacts** relative to an environmental justice evaluation of the impacts from construction of the FRE facility.

No probable significant adverse impacts associated with construction activities for the Airport Levee Changes were identified in the EIS discipline reports. Therefore, there would be **no disproportionate indirect adverse impacts** from construction of the Airport Levee Changes.

3.2.2 Impacts from Operation

The FRE facility would operate during major floods or larger, and the structure would temporarily store up to 65,000 acre-feet of water in a pool that would extend up to 6.4 miles and inundate up to 847 acres along the Chehalis River from RM 108 to 114. Water would be released back to the river system over a period of time (up to 35 days) and when it is safe to do so. There are no new operations associated with the airport levee.

3.2.2.1 Direct Impacts

Probable significant adverse impacts associated with the operation of the FRE facility were identified in EIS discipline reports for air quality and GHG, earth, environmental health and safety, fish species and habitats, land use, recreation, and water. The impacts are evaluated relative to environmental justice, as follows:

- **Air Quality and Greenhouse Gas Discipline Report (ESA 2020a):** GHG emissions related to the FRE facility operations would be 294 metric tons/year and negligible for levee operation. Combined GHG emissions from construction and operation would be 123,439 metric tons, inclusive of a 50-year operational period, and would be a significant adverse impact. As noted above, the accumulation of GHGs has been identified as a driving force in global climate change, and climate change impacts from increasing GHGs have been included in the future conditions

for all salient resource areas analyzed in this EIS. The *Proposed Project Description and Alternatives Appendix* includes additional information on how climate change is included throughout the analyses (Anchor QEA 2020d). The GHG emissions related to the Proposed Action would not be a disproportionate impact relative to environmental justice populations.

- **Earth Discipline Report (Shannon & Wilson and Watershed Geodynamics 2020):** Operation of the FRE facility was found to have several significant impacts relative to geology and geomorphology. There would be significant to moderate adverse impacts on water quality due to increased turbidity from shallow and deep-seated landslides around the perimeter of the temporary reservoir caused by fluctuating water levels. There would be significant adverse impacts on sediment transport and substrate characteristics in the temporary reservoir fluctuation zone. Operation of the FRE facility would result in significant adverse impacts on movement of large woody material (LWM), and decreased LWM within and downstream of the FRE facility. There would be significant impacts related to decreased channel-forming processes and LWM in the Chehalis River to the confluence of the South Fork Chehalis River. When the temporary reservoir drains and during one or two intense rainstorms after the temporary reservoir is drained, fine sediment input on the mainstem Chehalis River would be increased. The effects would be moderate during those time periods, but could be significant during the latter parts of the reservoir draining period if incoming turbidity levels are low; thus the fine sediment would have a significant adverse impact on water quality due to higher turbidity levels. The increase in water temperature and decreased dissolved oxygen would also be a significant adverse impact on water quality.

Many of these impacts would occur within the temporary reservoir associated with the FRE facility—where people do not live—and water downstream of the facility is not expected to be directly used from the river by residents; thus disproportionate impacts relative to environmental justice populations are not anticipated. Impacts from a geologic event affecting the FRE facility are discussed in the next paragraph.

- **Environmental Health and Safety Discipline Report (ESA 2020a):** The FRE facility would be designed to meet stringent design criteria covering a variety of possible conditions that could affect the FRE structure, such as earthquakes and floods, including ground shaking associated with an earthquake on the Cascadia Subduction Zone (CSZ). Although very unlikely, the results of an FRE structure break or failure in the event of an earthquake on the CSZ at the same time that the reservoir is holding water would be significant adverse impacts. The flooding resulting from such an event could cause potential loss of human life, loss of and damage to of public infrastructure, and extensive damage to private properties and the environment. The probable significant adverse impacts associated with the catastrophic failure of the FRE facility have a very low probability of occurrence, but would have high consequences that would affect the

entire study area and would have a **significant and disproportionate impact** on most of the study area's environmental justice populations.

- **Fish Species and Habitats Discipline Report (Anchor QEA 2020c):** Operation of the FRE facility would eliminate habitat in the FRE facility footprint, reduce fish passage and movements between habitats, and adversely impact aquatic habitat downstream of the facility. Operation of the FRE facility, combined with increased water temperatures, would have substantial impacts on salmon and steelhead. The FRE facility would create permanent and constant adverse impacts on native fish within the temporary reservoir and downstream from the FRE because spawning habitat would be reduced or eliminated for most native species, summer rearing areas would be greatly constricted, and a large degree of uncertainty surrounds the ability of native fish to take advantage of expanded habitat in winter. In addition, fish passage survival would be reduced through the FRE facility for mobile and migratory species. The FRE facility would create a significant to moderate adverse impact to aquatic macroinvertebrates due to direct loss of habitat, loss of organic matter inputs, and changes in hydraulics. Long-term operation of the FRE facility would also create a significant adverse impact to shellfish due to loss of habitat, changes in hydraulics that may affect long-standing mussel bed conditions, and changes in host fish abundance and distribution.

As discussed in Section 3.2.1.1, fish from the Chehalis River are an important contributor to ocean fisheries and are essential for supporting in-river fisheries such as ceremonial, subsistence, commercial and non-commercial tribal harvest, and recreational. The decreased fish abundance will be considered by and factored into future fishery management decisions by the fishery managers and co-managers, and could affect harvest allocations. However, multiple factors are considered when setting harvest allocations, and no assessment is made in this EIS of how co-managers might adjust harvest regulations and allocations in the future due to any reductions in abundance and population productivity associated with operation of the Proposed Action.

Although environmental justice populations of interest may be affected by future changes to harvest allocations, as discussed in Section 3.2.1.1, fishing closures in the Chehalis Basin are already occurring and are likely to occur in the future. Therefore, disproportionate impacts on environmental justice populations are not anticipated as a result of the probable impacts to fish species under operation of the Proposed Action.

- **Land Use Discipline Report (Anchor QEA 2020b):** The FRE facility would permanently change the land use within the area. Adverse impacts on shoreline ecological functions and critical areas from the FRE facility structure, ongoing vegetation removal and management activities, and temporary inundation are anticipated in the vicinity of the FRE facility. Impacts to shoreline ecological functions from riparian land use changes associated with the FRE facility would be

significant and would therefore be inconsistent with the Lewis County Shoreline Master Program. FRE facility operations are inconsistent with several land use plans and policies to maintain no net loss of ecological function. Land use changes from commercial forestry to the FRE facility and temporary reservoir would be inconsistent with the current forest resource land use and zoning designations; if impacts could not be resolved through conditional use or rezoning, land use conversions would be considered a significant adverse impact. These impacts on land uses from the Proposed Action would occur where people do not live; thus disproportionate impacts on environmental justice populations are not anticipated.

- **Recreation Discipline Report (ESA 2020e):** The FRE facility would permanently change the recreational character of the immediate area as described above. The permanent closure of less than 1% of the Pe Ell South Permit Area that is accessible to recreationists occurs during construction and no additional closure is likely during operations. The FRE facility would cause areas to be permanently closed to recreational activities. Operations would permanently eliminate a 13.8-mile reach for kayaking and whitewater rafting and eliminate fishing on approximately 6.4 river miles including 12.8 miles of bank access along the Chehalis River and tributaries. This change to recreation use in the area is considered a significant adverse impact because of the permanent loss of this reach of the Chehalis River for in-water recreation. The Proposed Action would have significant impacts on fish, which in turn would impact recreational fishing by reducing the number of fish available to be caught. A reduction in salmon and steelhead abundance and the permanent loss of 12.8 miles of fishing access would reduce the ability to catch fish above and below the FRE facility, resulting in significant impacts on recreational fishing.

Environmental justice populations of interest are not present in block groups around the areas that will be closed to recreational activities, although they may use the area for recreation. Many other nearby areas provide access to natural resources and outdoor recreation would remain available; therefore, disproportionate impacts on environmental justice populations of interest are not anticipated.

As discussed above, although environmental justice populations of interest may be affected by future changes to fish harvest allocations, fishing closures in the Chehalis Basin are already occurring. Therefore, disproportionate impacts on environmental justice populations are not anticipated as a result of the probable impacts to recreational fishing under operation of the Proposed Action.

- **Water Discipline Report (ESA 2020h):** Operation of the FRE facility would have significant adverse impacts relative to increased water temperatures and turbidity (high levels of sediments suspended in water)—both in the temporary reservoir and in areas of the Chehalis River downstream of the FRE facility during certain periods—that would exceed temperature

and turbidity water quality criteria. Operation of the FRE facility would also have significant adverse impacts relative to dissolved oxygen at the FRE facility site and in the temporary reservoir that would exceed dissolved oxygen water quality criteria. A water supply line for the Town of Pe Ell's water system may be affected by the FRE facility construction and temporary reservoir inundation. If the water line requires improvement or relocation, and the Applicant does not improve the water line to withstand inundation, relocate the line, or provide funding for this work, this would be a significant adverse impact on the Town of Pe Ell's water right.

The water quality impacts in the reservoir areas—where people do not live—are not expected to result in disproportionate impacts relative to environmental justice populations. The predicted periodic impacts to water quality in the Chehalis River relative to temperature, turbidity, and dissolved oxygen are predicted to decrease moving downstream and would generally become negligible before reaching areas with environmental justice populations of interest. Additionally, water downstream of the facility is not expected to be directly used from the river by residents. Disproportionate impacts on environmental justice populations are not anticipated.

Based on this analysis, there would be **significant and disproportionate adverse impacts** relative to an environmental justice evaluation of the environmental health and safety impacts from operation of the FRE facility during a catastrophic event causing the FRE facility to breach or fail while the temporary reservoir is holding water.

No probable significant adverse impacts associated with operation of the Airport Levee Changes were identified in EIS discipline reports. Therefore, there would be **no disproportionate direct adverse impacts** relative to an environmental justice evaluation from operation of the Airport Levee Changes.

3.2.2.2 Indirect Impacts

No probable significant adverse impacts associated with operation of the FRE facility or Airport Levee Changes were identified in the EIS discipline reports. Therefore, there would be **no disproportionate indirect adverse impacts** from operation of the Proposed Action.

3.2.3 Proposed Mitigation Measures

This section describes the mitigation measures proposed for the Applicant to implement that would reduce and compensate for impacts related to environmental justice from construction and operation of the Proposed Action. These mitigation measures would be implemented in addition to compliance with environmental permits, plans, and authorizations described in the EIS discipline reports that would be required for the Proposed Action. Mitigation for earth, environmental health and safety, fish species and habitats, public services and utilities, recreation, water, and land use are discussed in more detail in those reports.

The Applicant will implement the following measures to mitigate environmental justice impacts:

- **EJ-1:** To provide targeted outreach efforts for the Proposed Action, mitigation is proposed for the Applicant to develop an inclusive public involvement strategy tailored to the communities who may be affected by a catastrophic event causing the FRE facility to breach or fail while the temporary reservoir is holding water. This strategy will address social and economic barriers to meaningful public engagement, such as language service needs, limited access to technology, and literacy and education levels. The public involvement approach may include consideration of culturally effective outreach (such as radio and community events), providing language translation and interpretation services, and a multimedia approach such as local mailers and video.

3.2.4 Significant and Unavoidable Adverse Environmental Impacts

Compliance with laws and implementation of mitigation measures would reduce impacts related to environmental justice; however, there are would still be **significant and unavoidable adverse environmental impacts** relative to an environmental justice evaluation of the environmental health and safety impacts from operation of the FRE facility. The likelihood of an FRE facility failure from an earthquake on the CSZ during a time when the reservoir is storing water is extremely low. However, in the event of a FRE facility failure, there are no mitigation measures that could completely eliminate the possibility of an incident or the resulting impacts on environmental justice populations.

3.3 Local Actions Alternative

The Local Actions Alternative represents a local and nonstructural approach to reduce flood damage in the Chehalis-Centralia area. It considers a variety of local-scale actions that approximate the Applicant's purpose through improving floodplain function, conducting land use management actions, buying out at-risk properties or structures, improving flood emergency response actions, and increasing water storage from Pe Ell to Centralia.

3.3.1 Impacts from Construction

3.3.1.1 Direct Impacts

Probable significant adverse direct impacts associated with construction activities for the Local Actions Alternative elements were identified in the EIS discipline report for land use. These impacts are evaluated relative to environmental justice as follows:

- **Land Use Discipline Report (Anchor QEA 2020b):** Local actions could include construction impacts on land uses from floodproofing structures, demolition of buy-out structures, and activities associated with floodplain storage improvements and channel migration protection (e.g., grading, planting, in-water work). Construction impacts on adjacent land uses could include noise, dust, and access impacts. Because construction would be temporary and short-term, these adverse impacts would range from significant to minor depending on the proximity and intensity of adjacent land uses.

No specific locations for Local Actions Alternative elements have been determined, but because the environmental justice populations of interest are primarily within floodplain areas where impacts from floodproofing structures, demolition of buy-out structures, and activities associated with floodplain storage improvements and channel migration protection are more likely to occur, these impacts are expected to have a disproportionately high impact on minorities, low income populations, and tribal communities.

Based on this analysis, there would be **significant and disproportionate adverse impacts** relative to an environmental justice evaluation of the land use impacts of the Local Actions Alternative.

3.3.1.2 Indirect Impacts

No indirect adverse impacts are anticipated relative to environmental justice from construction of the Local Actions Alternative.

3.3.2 Impacts from Operation

3.3.2.1 Direct Impacts

Continuing substantial flood risk associated with the Local Actions Alternative was identified in EIS discipline reports for earth, environmental health and safety, land use, public services and utilities, recreation, transportation, visual quality, and water. Additional probable significant adverse impacts

associated with operation of the Local Actions Alternative elements were identified in the EIS discipline report for land use. These impacts and the continuing substantial flood risk are evaluated relative to environmental justice as follows:

- ***Earth Discipline Report (Shannon & Wilson and Watershed Geodynamics 2020)***: Under the Local Actions Alternative, changes to sediment and water input from climate change would occur, and the Chehalis River would continue to adapt to the effects of the 2007 flood. Reforestation and riparian restoration activities could provide additional LWM and bank protection over the long term. Constriction removal could have local effects on sediment transport and deposition. Channel migration protection structures would reduce bank erosion and channel migration potential, affecting natural geomorphic processes by decreasing channel migration. Geology, geological processes, and geomorphological processes would continue to experience substantial flood risk. These impacts would primarily occur in areas where people do not live and in water that is not expected to be directly used from the river by residents; thus disproportionate impacts relative to environmental justice populations are not anticipated.
- ***Environmental Health and Safety Discipline Report (ESA 2020b)***: Under the Local Actions Alternative, environmental health and safety throughout the study area would continue to experience substantial flood risk from a major or catastrophic flood. There would be the potential for the contamination of wells and surface waters from inundation of floodwaters or contaminants, creating health and safety issues. Flooding along public roadways would likely not be reduced. Floods would likely continue to result in road closures during floods on I-5, SR 6, and US 12, as well as other local roadways, continuing to affect emergency response time. The environmental justice populations of interest are primarily within areas vulnerable to flooding and would continue to experience substantial and disproportionate flood risk from a major or catastrophic flood.
- ***Land Use Discipline Report (Anchor QEA 2020b)***: The Local Actions Alternative includes floodproofing and buy-outs of at-risk properties or structures. While this could benefit people living and working in existing structures at risk of repetitive flood losses, buy-outs would affect existing land uses where properties would be converted to public use or other change from the existing use. These land use impacts are anticipated to be significant to minor depending on the potential need for zoning changes based on the location and number of structures that would be a part of the buy-out program. The Local Actions Alternative also includes elements to improve floodplain storage and provide channel migration protection. The land use impacts from floodplain storage improvements are anticipated to be significant to minor, depending on extent of acreage needed for floodplain storage improvements to achieve the Proposed Action objectives. Land use impacts from channel migration protection are anticipated to be significant to minor, depending on the location and extent of shorelines that would be protected or affected. Additionally, some residences and buildings would continue to experience substantial

flood risk under the Local Action Alternative. Impacts from continued flooding of residences and buildings would range depending on the extent of flooding and resulting changes in land use patterns as people relocate to avoid recurring flood damage.

No specific locations for Local Actions Alternative elements have been determined, but because the environmental justice populations of interest are primarily within floodplain areas where impacts from flooding, buy-outs, floodplain storage, and channel migration protection elements are more likely to occur, these impacts are expected to have a disproportionately high impact on minorities, low-income populations, and tribal communities. Environmental justice populations of interest would also continue to experience substantial and disproportionate flood risk from a major or catastrophic flood.

- ***Public Services and Utilities Discipline Report (ESA 2020d)***: Under the Local Actions Alternative, public services and utilities throughout the study area would continue to experience substantial flood risk from major and catastrophic floods. This alternative would result in some improved conditions, but floods would be expected to continue to create service outages during floods, as well as delayed response times for emergency service providers, until floodwaters recede and services can be restored. Inundation at utility facilities and area roadways is predicted to increase over time due to climate change, resulting in potentially longer and more frequent service disruptions. Environmental justice populations of interest are served by public services and utilities that are located within areas vulnerable to flooding and would face continued and unpredictable flooding of facilities and likely increased inundation in the future. Therefore, minorities, low-income populations, and tribal communities would continue to experience substantial and disproportionate flood risk from a major or catastrophic flood.
- ***Recreation Discipline Report (ESA 2020e)***: Under the Local Actions Alternative, recreation facilities and resources throughout the study area would continue to experience substantial flood risk from major and catastrophic floods. Flooding at recreational facilities would continue to disrupt recreational use. Environmental justice populations of interest are present in the areas that could have displaced recreational uses or damage to structures and facilities within recreation areas. Many other nearby areas provide access to natural resources and outdoor recreation would remain available; therefore, disproportionate impacts on environmental justice populations of interest are not anticipated.
- ***Transportation Discipline Report (ESA 2020f)***: Under the Local Actions Alternative, floods would continue to periodically disrupt travel in and around the study area and could cause long-term damage to facilities and loss of access. Use of unofficial detour routes during floods could temporarily increase traffic and temporarily affect the level of service along non-arterial roadways. Transportation facilities would continue to flood and roadway closures would be necessary. Many of these transportation facilities are within block groups with environmental

justice populations of interest and roadways that serve environmental justice populations of interest would continue to be vulnerable to flooding. Thus, environmental justice populations of interest would continue to experience substantial and disproportionate flood risk from a major or catastrophic flood.

- **Visual Quality Discipline Report (ESA 2020g):** Flooding would continue throughout the study area and would not be substantially reduced through implementation of the elements of the Local Actions Alternative. The study area would continue to experience substantial flood risk, with floods continuing to cause long-term damage and changes to visual character. These impacts would occur throughout the study area; therefore, disproportionate impacts on environmental justice populations of interest are not anticipated.
- **Water Discipline Report (ESA 2020h):** In the long term, flooding would not be significantly reduced at a large scale; water resources throughout the study area would continue to be vulnerable to impacts during both major and catastrophic floods. Floods would continue to inundate rivers, streams, habitat, and properties. The environmental justice populations of interest are primarily within areas vulnerable to flooding; therefore, these populations would continue to experience substantial and disproportionate flood risk from a major or catastrophic flood.

Based on this analysis, there would be **significant and disproportionate adverse impacts** relative to an environmental justice evaluation of the land use impacts of the Local Actions Alternative. The **continuing substantial flood risk would have disproportionate impacts** relative to an environmental justice evaluation of the environmental health and safety, land use, public services and utilities, transportation, and water evaluations of the Local Actions Alternative. Additionally, due to multiple significant environmental impacts that would affect environmental justice populations of interest, there would be a **significant adverse impact** relative to community cohesion.

3.3.2.2 Indirect Impacts

No indirect adverse impacts relative to environmental justice from operation of the Local Actions Alternative are anticipated.

3.4 No Action Alternative

Under the No Action Alternative, no flood retention facility or Airport Levee Changes would be constructed. Continuing substantial flood risk associated with the No Action Alternative was identified in EIS discipline reports for earth, environmental health and safety, land use, public services and utilities, recreation, transportation, visual quality, and water. The continuing substantial flood risks are evaluated relative to environmental justice as follows:

- **Earth Discipline Report (Shannon & Wilson and Watershed Geodynamics 2020):** Under the No Action Alternative, flooding would not be significantly reduced. Geology, geological processes, and geomorphological processes would continue to experience substantial flood risk. These impacts would primarily occur within areas where people do not live and in water that is not expected to be directly used from the river by residents; thus disproportionate impacts relative to environmental justice populations are not anticipated.
- **Environmental Health and Safety Discipline Report (ESA 2020b):** Under the No Action Alternative, environmental health and safety throughout the study area would continue to experience substantial flood risk from major and catastrophic floods. There is the potential for the contamination of wells and surface waters from inundation of floodwaters and contaminants, creating health and safety issues. Public roadways and critical facilities would remain vulnerable to flooding. Floods would continue to result in road closures during floods would include I-5, SR 6, and US 12, as well as other local roadways, continuing to affect emergency response time. Critical facilities could also continue to be sited in the floodplain, continuing to affect emergency response time. The environmental justice populations of interest are primarily within areas vulnerable to flooding and would continue to experience substantial and disproportionate flood risk from a major or catastrophic flood.
- **Land Use Discipline Report (Anchor QEA 2020b):** Under the No Action Alternative, flooding would not be significantly reduced. Over time, it is possible that flooding could lead to land use conversions or restrictions because existing land uses could become incompatible with areas that experience high amounts of flooding. Agricultural losses to crops and livestock from flooding would continue, although livestock losses would be lessened to some degree by farm pads that have been constructed since the 2007 flood. Landowners may also choose to relocate homes and businesses outside of the floodplain to avoid damages. A total of 4,374 buildings were evaluated for changes in inundation. For major floods, 366 buildings would likely be inundated to some level in mid-century, and in the late-century, 517 buildings would likely be inundated. For catastrophic floods, 2,245 buildings would likely be inundated to some level in mid-century and 2,955 buildings in late-century. Residences and buildings would continue to experience substantial flood risk under the No Action Alternative. The environmental justice populations of interest are primarily within areas vulnerable to flooding and would continue to experience substantial and disproportionate flood risk from a major or catastrophic flood.

- **Public Services and Utilities Discipline Report (ESA 2020d):** Public services and utility facilities throughout the study area would continue to be vulnerable to damage during both major and catastrophic floods. Inundation at utility facilities and area roadways would increase over time due to climate change, resulting in potentially longer and more frequent service disruptions. Floods would continue to affect structures and facilities in the study area, and roads and bridges would remain at risk of being damaged by floodwaters, reducing the capacity for prompt emergency response and access to critical facilities. Environmental justice populations of interest are served by public services and utilities that are located within areas vulnerable to flooding and would face continued and unpredictable flooding of facilities, likely increased inundation in the future, and additionally reduced emergency response times and longer and more frequent service disruptions. Environmental justice populations of interest would continue to experience substantial and disproportionate flood risk from a major or catastrophic flood.
- **Recreation Discipline Report (ESA 2020e):** Structures and facilities within recreation areas, and access roads and bridges to recreational facilities (such as Rainbow Falls State Park and the Willapa Hills State Park Trail) would remain at risk of being damaged by floodwaters. Recreation resources would continue to experience substantial flood risk from major and catastrophic floods. Environmental justice populations of interest are present in the areas and there could be displaced recreational uses or damage to structures and facilities within recreation areas. Many other nearby areas provide access to natural resources and outdoor recreation would remain available; therefore, disproportionate impacts on environmental justice populations of interest are not anticipated.
- **Transportation Discipline Report (ESA 2020f):** Flooding along roadways, railroads, and the airport throughout the study area would not be reduced under the No Action Alternative. Floods would continue to pose substantial flood risk to transportation facilities as well as passenger and freight rail and transit service and air service at the airport. Floods would continue to disrupt travel in and around the study area and could cause long-term damage to facilities and loss of access. Transportation facilities would continue to flood and roadway closures would be necessary. Use of unofficial detour routes during floods could temporarily increase traffic and temporarily affect the level of service along non-arterial roadways. Many of these transportation facilities are within block groups with environmental justice populations of interest and roadways and facilities that serve environmental justice populations of interest would continue to be vulnerable to flooding. Thus, environmental justice populations of interest would continue to experience substantial and disproportionate flood risk from a major or catastrophic flood.
- **Visual Quality Discipline Report (ESA 2020g):** Flooding would continue throughout the study area and would not be substantially reduced through implementation of flood damage reduction actions included in the No Action Alternative. The study area would continue to

experience substantial flood risk, with floods continuing to cause long-term damage and changes to visual character. These impacts would occur throughout the study area; therefore, disproportionate impacts on environmental justice populations of interest are not anticipated.

- **Water Discipline Report (ESA 2020h):** In the long term, flooding would not be significantly reduced at a large scale; water resources throughout the study area would continue to be vulnerable to impacts during both major and catastrophic floods. Water quality and use throughout the study area would continue to experience substantial flood risk during both major and catastrophic floods under the No Action Alternative. The environmental justice populations of interest are primarily within areas vulnerable to flooding; therefore, these populations would continue to experience substantial and disproportionate flood risk from a major or catastrophic flood.

The **continuing substantial flood risk would have disproportionate impacts** relative to an environmental justice evaluation of the environmental health and safety, land use, public services and utilities, transportation, and water evaluations of the No Action Alternative.

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Attachment D-1

Populations of Limited English Proficiency

Attachment D-1

Populations of Limited English Proficiency

