

**Boise River Basin Feasibility Study** 

# Specialist Report: Socioeconomics

Boise Project, Idaho Interior Region 9: Columbia Pacific Northwest

### **Mission Statements**

The Department of the Interior (DOI) conserves and manages the Nation's natural resources and cultural heritage for the benefit and enjoyment of the American people, provides scientific and other information about natural resources and natural hazards to address societal challenges and create opportunities for the American people, and honors the Nation's trust responsibilities or special commitments to American Indians, Alaska Natives, and affiliated island communities to help them prosper.

The mission of the Bureau of Reclamation is to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public.

# Acronyms and Abbreviations

Acronym or Abbreviation	Meaning
BEA	U.S. Bureau of Economic Analysis
BLS	U.S. Bureau of Labor Statistics
DCMI	domestic, commercial, municipal, and industrial
EIS	Environmental Impact Statement
FTE	full-time equivalent
MSE	mechanically stabilized earth
NEPA	National Environmental Policy Act
Reclamation	Bureau of Reclamation
USCB	U.S. Census Bureau

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# 1. Introduction

The Boise River Basin Feasibility Study is a feasibility study to evaluate increasing water storage opportunities within the Boise River basin by expanding Anderson Ranch Reservoir. The project is located at Anderson Ranch dam and reservoir, the farthest upstream of the three reservoirs within the Boise River system and located 28 miles northeast of the city of Mountain Home in Elmore County, Idaho. Anderson Ranch Dam is a zoned earth fill embankment structure that provides irrigation water, flood control, power generation, and recreation benefits. The reservoir also provides a permanent dead storage pool for silt control and the preservation and propagation of fish and wildlife. Anderson Ranch Dam is operated by the Bureau of Reclamation (Reclamation). Reclamation, in partnership with the Idaho Water Resource Board, proposes to raise Anderson Ranch Dam. New water storage would provide the flexibility to capture additional water when available, for later delivery when and where it is needed to meet existing and future demands. The alternatives analyzed in this document include the No-Action Alternative (Alternative A), a 6-foot raise of Anderson Ranch Dam (Alternative C).

Alternative A provides a basis for comparison with the two action alternatives, Alternative B and Alternative C. Under Alternative A, current baseline conditions would continue, without increasing Anderson Ranch Dam height or constructing associated reservoir rim projects, access roads, or facilities. The expected project duration of Alternative B is approximately 51 months and Alternative C is 44 months. Reclamation would continue existing operations of Anderson Ranch Dam. Alternative B proposes to raise the dam by 6 feet from the present elevation of 4196 feet to 4202 feet to capture and store approximately 29,000 additional acrefeet of water. Alternative B would inundate an estimated 146 acres of additional land around the reservoir above the current full pool elevation of 4196 feet. Alternative C proposes to raise the dam by 3 feet to 4199 feet, allowing for the ability to capture and store approximately 14,400 additional acrefeet of water. Alternative C would inundate an estimated 73 acres of additional land around the reservoir above the current full pool elevation of 4196 feet.

Each of the two action alternatives, Alternative B and Alternative C, includes two separate, but similar, structural construction methods for the dam raise, downstream embankment raise, or mechanically stabilized earth (MSE) wall raise. Otherwise, the only difference is the dam raise elevations of 6 feet for Alternative B and 3 feet for Alternative C. Project areas and construction durations for each method are nearly identical, except for a 200-foot difference in approach road length at the right abutment and an approximate 1-month difference in construction duration. The longer road length is within the dam footprint on previously disturbed ground. Because these differences are negligible, they are not differentiated within the analysis of each alternative. Alternative analysis assumes the longer road length and construction duration, however, a final construction method will be chosen during later phases of engineering evaluation.

Chapter 1 and Chapter 2 of the Boise River Basin Feasibility Study Environmental Impact Statement (EIS) provide a detailed description of the proposed action, project's purpose and need, project area, and alternatives including design features applicable to the action alternatives. This specialist report supports the analysis of expected impacts on socioeconomics as described in the EIS.

### 1.1 Regulatory Framework

Federal, state, and local laws and regulations affect the socioeconomic conditions of communities through the development of goals and policies to regulate population growth, housing development, and industry. Regulations at the federal, state, and local levels regarding housing are generally concerned with proper construction, provision, and siting of housing for a variety of incomes. In addition to policies and regulations that specifically address population growth, housing development, and industry, socioeconomic conditions also are affected by implementation of environmental review requirements, including the National Environmental Policy Act (NEPA).

# Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970

Title II, Uniform Relocation Assistance, Section 201(b), establishes a uniform policy for the fair and equitable treatment of persons displaced as a direct result of programs or projects undertaken by a federal agency or with federal financial assistance. The primary purpose of this policy is to ensure that such persons will not suffer disproportionate injuries as a result of programs and projects designed for the benefit of the public as a whole and to minimize the hardship of displacement on such persons.

Title III, Uniform Real Property Acquisition Policy, Section 301, was developed "to encourage and expedite the acquisition of real property by agreements with owners, to avoid litigation and relieve congestion in the courts, to assure consistent treatment for owners in the many Federal programs, and to promote public confidence in Federal land acquisition practices."

#### Housing and Community Development Act of 1974

Under Section 104(d) of the Housing and Community Development Act of 1974, as amended (Public Law 93-383, 42 USC 5301 et seq.) and the implementing regulations at 24 Code of Federal Regulations Part 42, a residential anti-displacement and relocation assistance plan is required and must provide for: 1) one-for-one replacement of occupied and vacant occupiable low- and moderate-income dwelling units demolished or converted to another use in connection with a development project assisted under Parts 570 and 92; and 2) provide relocation assistance for all low- and moderate-income persons who occupied housing that is demolished or converted to a use other than for low- or moderate-income housing.

# 2. Affected Environment

The socioeconomic analysis area, as defined in this specialist report, encompasses the four counties surrounding Anderson Ranch Reservoir and Dam, the South Fork Boise River, and mainstem Boise River from Lucky Peak Dam to the confluence of the Boise and Snake rivers near Parma, Idaho: Ada, Camas, Canyon, and Elmore counties (Figure 1). Specific socioeconomic conditions described include population, housing, income, employment, and unemployment as well as water resources for agriculture; domestic, commercial, municipal, and industrial (DCMI); and recreation. The current condition of socioeconomic resources to be affected in this analysis area, the four-county region (Figure 1), is described below.

Data from the U.S. Census Bureau (USCB) were used to describe historical and current trends in populations, housing characteristics, per capita income, and median household incomes within the analysis area. Data from the U.S. Bureau of Labor Statistics (BLS) were used to describe the historical and current trends in labor force characteristics of the analysis area, and data from the U.S. Bureau of Economic Analysis (BEA) were used to characterize the historical and current trends in employment by industry and earnings by industry in the analysis area.

Although the population, housing, per capita, and median household income data used to characterize the socioeconomic environment start in 2000, the employment by industry and income by industry data presented in this chapter start in 2001. This is due to changes in the standard used by Federal statistical agencies in classifying business establishments. In 2001, the standard was switched from the Standard Industrial Classification system to the North American Industrial Classification Systems. By using the 2001 instead of the 2000 employment by industry and income by industry data, meaningful comparison with other years can be made. However, for the purposes of characterizing the population, housing, per capita, and median household incomes, using the U.S. Census data was deemed to be more appropriate.

# 2.1 Population

The population of the analysis area has been increasing since 2000, with most of the population growth occurring in Ada and Canyon counties. From 2010 to 2017, the populations of the state of Idaho, Ada County, and Canyon County each grew by about 1%. During this same period, the populations of Camas and Elmore counties declined by about 3% and 0.4%, respectively (Table 1).

# 2.2 Housing

Total housing units in the analysis area increased from 2000 to 2010 to 2017 for all counties except in Camas County where total housing units declined slightly between 2010 and 2017 (Table 2). On average, housing vacancy rates within the analysis area were higher than the federal housing shortage threshold of 5%, but they were lower than the state average vacancy

rate for each of the three years summarized in Table 2. Camas County had the smallest housing stock among the four counties, and it also had the most vacancy (Table 2).



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• • • •	0000	0040	0047	Percent Total	Average Annual Growth Rate (%)		
Area	2000	2010	2017	Change (2010 to 2017)	2000 to 2010	2010 to 2017	
Ada County	300,904	392,365	435,117	44.6	2.7	1.5	
Camas County	991	1,117	886	-10.6	1.2	-3.3	
Canyon County	131,441	188,923	207,027	57.5	3.7	1.3	
Elmore County	29,130	27,038	26,232	-9.9	-0.7	-0.4	
Analysis area Total	462,466	609,443	669,262	44.7	2.8	1.3	
State of Idaho	1,293,953	1,567,582	1,657,375	28.1	1.9	0.8	
United States	281,421,906	308,745,538	321,004,407	14.1	0.9	0.6	

# Table 1. Total population in the analysis area relative to the state of Idaho and United States, 2000, 2010 and 2017

Source: USCB, 2019a; USCB, 2019b; and USCB, 2019c

# Table 2. Total housing units and vacancy rates in the analysis area relative to the state ofIdaho and United States, 2000, 2010, and 2017

Aroa	То	Annual Vacancy Rates (%)				
Alea	2000	2010	2017	2000	2010	2017
Ada County	118,516	159,471	172,399	4.3	6.9	4.6
Camas County	601	831	810	34.1	41.4	54.3
Canyon County	47,965	69,409	73,265	6.1	8.4	5.4
Elmore County	10,527	12,162	12,394	13.6	16.6	18.8
Analysis area	177,609	241,873	258,868	5.5	7.9	5.7
State of Idaho	527,824	667,796	701,196	11.0	13.2	13.1
United States	115,904,641	131,704,730	135,393,564	9.0	11.4	12.2

Source: UCSB, 2019d; USCB, 2019e; and USCB, 2019f

### 2.3 Income

Real per capita personal incomes (in 2018 dollars) for the analysis area in 2000, 2010, and 2017 are presented in Table 3. Compared to the state and nation, which experienced a small increase in per capita personal income between 2000 and 2010, the analysis area's real per capita personal income declined during this period. Negative growth rates in Ada and Elmore counties were the drivers for the declining per capita income growth rate in the analysis area. The lower rates from 2000 to 2010 are most likely due to the combined effects of the early 2000 recession and the Great Recession which officially started in December 2007 and ended in June 2009 (Federal Reserve Bank, 2013). While the analysis area appears to have recovered from the Great Recession, income growth within the state and for the nation declined slightly.

Table 3. Real per capita income (in 2018\$) in the analysis area relative to the state of Idaho andUnited States in 2000, 2010, and 2017

Area	Per Capita	Personal Inco	Average Annual Growth Rate (percent)		
	2000	2010 2017		2000 to 2010	2010 to 2017
Ada County	\$31,847	\$25,870	\$32,413	-2.1	3.3
Camas County	\$27,648	\$32,071	\$29,904	1.5	-1.0
Canyon County	\$21,433	\$22,586	\$20,247	0.5	-1.5
Elmore County	\$23,721	\$21,100	\$23,590	-1.2	1.6
Analysis area Total	\$28,366	\$24,652	\$28,300	-1.4	2.0
State of Idaho	\$25,231	\$25,870	\$26,092	0.3	0.1
United States	\$30,529	\$31,403	\$31,937	0.3	0.2

Source: USCB, 2019g; USCB, 2019h: USCB, 2019i; BEA, 2019b

Real median household incomes (in 2018 dollars) for the analysis area in 2000, 2010, and 2017 are presented in Table 4. Real median household income within the analysis area declined between 2000 and 2010 and declined again at a higher rate between 2010 and 2017 (Table 4).

Area	Median H	ousehold Incon	Average Annual Growth Rate (percent)		
	2000	2010	2000 to 2010	2010 to 2017	
Ada County	\$65,252	\$64,148	\$61,616	-0.2	-0.6
Camas County	\$48,320	\$50,717	\$37,560	0.5	-4.2
Canyon County	\$50,748	\$49,652	\$47,557	-0.2	-0.6
Elmore County	\$49,860	\$49,504	\$46,254	-0.1	-1.0
Analysis area Total	\$60,490	\$59,349	\$56,955	-0.2	-0.6
State of Idaho	\$53,135	\$53,334	\$52,227	0.0	-0.3
United States	\$59,389	\$59,643	\$59,056	0.0	-0.1

Table 4. Real median household income (in 2018\$) in the analysis area relative to the state ofIdaho and United States in 2000, 2010, and 2017

Source: USCB, 2019j; USCB, 2019k; USCB, 2019l; USCB, 2019m; USCB, 2019n; USCB, 2019o; BEA, 2019b

Real earnings (in 2018 dollars) by industry for the analysis area in 2001, 2010, and 2017 are presented in Table 5. Real earnings by industry grew at a faster rate after 2010, primarily driven by earnings growth in the construction; manufacturing; finance, insurance, and real estate (FIRE); and services sectors. These four sectors accounted for almost 60% of the total industry earnings in each of the 3 years (Table 5). Notably, mining, quarrying, and oil and gas extraction in the analysis area increased almost seven-fold from 2001 to 2010 and then retracted to less than the 2001 earnings by 2017.

Table 5. Real earnings by industry (in millions 2018\$) in the analysis area relative to the state
of Idaho and United States in 2001, 2010, and 2017

Industry Sector	2001	2010	2017	Average Annual Growth Rate (%)	
industry Sector	2001	2010	2017	2001- 2010	2010- 2017
Agriculture	\$261	\$232	\$284	-1.3%	2.9%
Mining, quarrying, and oil and gas extraction	\$60	\$405	\$50	23.6%	-25.9%
Construction	\$1,614	\$885	\$1,899	-6.5%	11.5%
Manufacturing	\$2,464	\$2,062	\$3,229	-2.0%	6.6%
Wholesale Trade	\$788	\$854	\$1,279	0.9%	5.9%
Retail Trade	\$1,352	\$1,594	\$1,755	1.8%	1.4%
Transportation, Warehousing, & Utilities	\$311	\$650	\$763	8.5%	2.3%
Information	\$292	\$332	\$349	1.5%	0.7%
FIRE1	\$913	\$918	\$1,639	0.1%	8.6%
Services	\$4,965	\$6,195	\$7,965	2.5%	3.7%
Government	\$2,544	\$3,219	\$3,426	2.7%	0.9%
Total Industry Earnings2	\$15,746	\$17,421	\$22,721	1.1%	3.9%

Source: BEA, 2019c.

1 FIRE is a combination of the finance, insurance, and real estate sectors.

2 Earnings for each year may not add up to the total industry earnings estimates shown. This is due to some of the income estimates within some sectors being marked (D) in one or more of the counties in the analysis area. Data are marked with (D) to avoid disclosure of confidential information, e.g., in the case of very few businesses in the sector. However, the actual estimate is included in the total for that year for each of the individual counties.

### 2.4 Employment

Two estimates of employment are typically used to describe employment in an area: total civilian labor force and employment by industry. Civilian labor force data reflect the employment status of individuals by "place of residence" and include self-employed, employees on unpaid leave of absence, unpaid family workers, and household workers. Employment by industry data reflect jobs by "place of work" and exclude the self-employed, unpaid family workers, employees on leave of absence, and household workers. Individuals with more than one job are counted only once in civilian labor force data, and they are counted in each job in the employment by industry data.

Table 6 shows the civilian labor force characteristics for the analysis area, the state of Idaho, and the country. The civilian labor force (composed of civilian employment and civilian unemployment) in the analysis area grew from 2000 to 2017, except in Elmore County where it declined slightly between 2010 and 2017. Within the analysis area, the average unemployment rate in the civilian labor force increased from 3.8% in 2000 to 9.2% in 2010 before declining again to 3.1% in 2017.

A #00	Ci	Unemployment Rate (percent)				
Alea	2000	2000 2010 2017		2000	2010	2017
Ada County	169,932	196,945	234,620	3.4	8.3	2.8
Camas County	535	643	683	3.7	12.8	2.8
Canyon County	65,786	84,738	96,619	4.5	11.3	3.6
Elmore County	10,598	11,395	11,196	5.7	8.6	3.7
Analysis area Total	246,851	293,721	343,118	3.8	9.2	3.1
State of Idaho	659,824	761,056	834,698	4.7	9.0	3.2
United States	142,583,000	153,889,000	160,320,000	4.0	9.6	4.4

Table 6. Labor force and unemployment rates in the analysis area relative to the state of Idahoand United States in 2000, 2010, and 2017

Source: BLS, 2019a; BLS, 2019b

Trends in annual unemployment rate for the analysis area, the state of Idaho, and the country are shown in Figure 2. From 2000 to 2017, the trend in the analysis area's unemployment rates has been generally similar to the state's trend and generally less than the national average. From 2000 to 2007, the analysis area unemployment rates trended closely, though slightly lower, to the state's unemployment rates. Between 2007 and 2009, unemployment rates in the analysis area, the state of Idaho, and the U.S. increased dramatically because of the slowdown in the regional and national economy due to the Great Recession (Federal Reserve Bank, 2013). Since 2010, the unemployment rate for the analysis area has declined each year from a high of 9.2% in 2010 to 3.1% in 2017.

Table 7 and Figure 3 summarize the average annual employment by industry for the analysis area, which is concentrated in the services, retail trade, and government sectors. These three sectors account for about two-thirds of all jobs in the analysis area. In 2001, an estimated 313,189 people were employed in the analysis area. Between 2001 and 2017, annual employment increased by approximately 110,310 jobs (or 35%). The 2010 to 2017 average annual growth rate was double the 2000 to 2010 rate, from 1.3% to 2.7%.



Figure 2. Annual unemployment rates for the analysis area, state of Idaho, and United States from 2000 to 2017

Figure 3. Total employment by major industry in the analysis area 2001, 2010, and 2017



Industry Sector	2001	2010	2017	Average Annual Growth Rate (%)		
	2001	2010	2017	2001 to 2010	2010 to 2017	
Agriculture1	8,259	7,759	8,776	-0.7%	1.8%	
Mining, quarrying, and oil and gas extraction	469	738	1,244	5.2%	7.7%	
Construction	24,174	20,028	29,225	-2.1%	5.5%	
Manufacturing	35,508	23,984	30,355	-4.3%	3.4%	
Wholesale Trade	11,792	12,130	15,615	0.3%	3.7%	
Retail Trade	36,170	38,963	45,829	0.8%	2.3%	
Transportation, Warehousing, & Utilities	6,586	10,386	13,698	5.2%	4.0%	
Information	4,926	5,856	5,940	1.9%	0.2%	
FIRE2	23,963	36,437	43,657	4.8%	2.6%	
Services	114,524	144,695	175,942	2.6%	2.8%	
Government	43,580	49,668	52,465	1.5%	0.8%	
Total Industry Employment3	313,189	351,177	423,495	1.3%	2.7%	

 Table 7. Employment by industry sector in the analysis area relative to the state of Idaho and

 United States in 2001, 2010, and 2017

Source: BEA, 2019a.

1 Includes employment numbers in forestry, fishing, and related activities. The estimates associated with forestry, fishing, and related activities are characterized by (D) in the data for Camas County in all 3 years. Data are marked with (D) to avoid disclosure of confidential information, e.g., in the case of very few businesses in the sector.

2 FIRE is a combination of the finance, insurance, and real estate sectors.

3 Employment for each year may not add up to the total industry employment shown. This is due to some of the employment estimates within some sectors being marked (D). Data are marked with (D) to avoid disclosure of confidential information, e.g., in the case of very few businesses in the sector. However, the actual estimate is included in the total for that year for each of the individual counties are included in the totals for the counties.

### 2.5 Agricultural Resources

Information on agricultural resources in the analysis area was collected in 2012 and 2017 by the National Agricultural Statistics Service Census of Agriculture. Although overall acreage decreased in the analysis area from 2012 to 2017, overall value of agricultural production increased (Table 8). In 2017, Canyon County had the highest value of production, and Elmore County had the largest acreage (Table 8).

Table 8. Agricultura	I production	in the a	analysis area
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	2012	2017	Percent Change
Ada County			
Land in Farms (acres)	144,049	112,370	-22%
Value of Production (in 2018 dollars)	\$244,016,054	\$134,827,456	-45%
Camas County			
Land in Farms (acres)	167,639	192,672	15%
Value of Production (in 2018 dollars)	\$23,854,033	\$25,288,407	6%
Canyon County			
Land in Farms (acres)	303,836	274,952	-10%
Value of Production (in 2018 dollars)	\$567,252,937	\$588,758,817	4%
Elmore County			
Land in Farms (acres)	344,820	358,454	4%
Value of Production (in 2018 dollars)	\$387,113,749	\$440,389,305	14%
Total Land in Farms (Acres) in Analysis area	960,344	938,448	-2%
Total Value of Production in Analysis area	\$1,222,236,772	\$1,189,263,985	-3%

Value of Production in nominal dollar year corresponding with year of census. Source: U.S. Department of Agriculture (USDA), 2014 USDA, 2019

# 2.6 Domestic, Commercial, Municipal, and Industrial Water Resources

Existing DCMI water use in Ada, Canyon, and Elmore counties is described in the Treasure Valley DCMI Water-Demand Projections (SPF Water Engineering, 2016). The DCMI water use in these three counties of the analysis area for 2010 and 2015 is summarized in Table 9.

	2010 Estimate (AF)	2015 Estimate (AF)
Ada County and Canyon County	79,500	110,200
Elmore County	5,440	4,870
Total DCMI Demand in Analysis area	84,940	115,070

# Table 9. Existing DCMI water use (acre-feet of demand) in three counties (Ada, Canyon, and Elmore) of the analysis area

Camas County DCMI water use not available.

2010 Estimate for Ada County and Canyon County does not include rural DCMI use. 2015 estimate does include rural DCMI water use.

Source: SPF Water Engineering, 2016

### 2.7 Recreational Resources

As described in the Recreation Specialist Report in Appendix B, short-term (construction) and long-term (inundation) impacts are anticipated to public and private recreation facilities as well as recreation access and activities. Mitigation is planned to maintain current recreation capacity and opportunities to the extent possible.

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# 3. Environmental Consequences

### 3.1 Methods and Assumptions for Evaluating Impacts

Socioeconomic resources evaluated include population, housing, income, and employment in the analysis area. Additionally, the economic effects of potential changes in agricultural economy, DCMI, and recreational activity were evaluated. Changes in socioeconomic conditions associated with each action alternative were quantitatively evaluated if data were available and quantifiable. Otherwise, the changes were evaluated qualitatively. The evaluation was completed for both temporary changes associated with construction and permanent/long-term changes associated with the operational phase of each action alternative.

Changes in the socioeconomic resources resulting from changes in construction and operation were evaluated in terms of their direct impact on population, housing, employment (labor force and unemployment rate), income, and overall economic development. The changes in the socioeconomic resources are a direct result of the changes in employment (number of workers during project construction) and income (measured as expenditures during project construction) in the analysis area. They are also a direct result of the changes in agricultural revenue changes and recreational expenditures.

In addition to the direct economic effects, each action alternative will also result in secondary (indirect and induced) economic effects. These economic effects include changes in characteristics such as regional employment and income. Secondary employment effects would include indirect employment resulting from the purchase of goods and services by firms involved with construction, and induced employment because of construction workers spending their income within the analysis area. In addition to these secondary employment impacts, construction activity will also result in indirect and induced incomes. The magnitudes of these economic effects depend on the initial changes in economic activity within the region (such as construction expenditures), the interactions within the regional economy, and the leakage of economic activity from this regional economy to the larger, surrounding economy. Economic linkages create multiplier effects in a regional economy as money is circulated by trade. Economic leakages reduce the multiplier effects in a regional economy.

The IMPLAN model—an economic input-output model commonly used by Reclamation and other federal agencies for these types of analyses—was used to estimate the regional economic effects of construction-related expenditures for the action alternatives. The IMPLAN model package includes county-level data to describe the local economy in a given year and an online platform that allows users to input more refined and/or accurate input data reflecting the regional economy.

Indirect and induced economic effects during construction were evaluated using an IMPLAN model of the analysis area and the 2017 IMPLAN Data (IMPLAN Group, 2019). The

proposed alternative's construction costs were refined using assumptions on construction duration, construction cost split (between materials/equipment and labor), origin and size of labor force, and origin of construction materials. Because the IMPLAN model is an annual model that evaluates the regional economic effects associated with changes in local expenditures, each of the proposed alternative's non-labor/material or labor cost were identified as either local or non-local, where applicable. Because the accuracy of the results depends on the accuracy of the inputs, the cost estimates are considered preliminary and will change as engineering design is refined. Cost estimates are in 2025 dollars and were run in the IMPLAN model as such. However, the labor income and total output from the IMPLAN model are reported in 2018 dollars to facilitate comparisons to existing employment and income levels in the analysis area.

#### Population, Housing, Income, and Employment

The potential impacts to population and housing associated with each action alternative were evaluated based on the direct construction expenditures. Operational expenditures were assumed to remain unchanged from the current levels. The direct construction expenditures were used to evaluate the secondary (indirect and induced) impacts associated with the local portion of the construction expenditures using an IMPLAN regional economic model of the analysis area.

The total (direct plus secondary) employment and income outputs from the IMPLAN model were compared to the analysis area's existing employment and income to determine the temporary changes related to these two indicators. Additionally, the changes in employment were used to evaluate any potential impacts to the analysis area's population and housing.

#### **Agricultural Resources**

Changes in agricultural resources associated with each action alternative were estimated using the Farm Budget Tool (Reclamation, 2019). However, because results from the Farm Budget Tool indicated no changes would occur in gross farm revenues/earnings, the IMPLAN model was not used to evaluate the changes in the regional economy in terms of employment and income changes related to agricultural resources. Therefore, changes in agricultural resources through changes in water supply were evaluated qualitatively for each action alternative.

#### **DCMI Water Resources**

Changes to DCMI water resources were evaluated qualitatively for each action alternative.

#### **Recreational Resources**

Because quantifiable physical changes in recreational opportunities were unavailable thereby precluding estimation of their monetized values, the potential regional economic impacts to employment and income associated with changes in recreation expenditures from each action alternative were not evaluated using the IMPLAN model. Impacts to recreational resources were evaluated qualitatively.

#### 3.1.1 Impact Indicators and Significance Criteria

NEPA does not require that economic effects be judged for significance. However, for purposes of evaluating the potential socioeconomic impacts associated with the implementation of the proposed actions and in the absence of agency-specific significance criteria, the following significance criteria were developed (Table 10).

Impact Indicator	Significance Criteria
Regional (analysis area) industry sector output (or the value of production)	Increase or decrease at least 1% of regional activity
Regional (analysis area) sectoral personal income	Increase or decrease at least 1% of regional activity
Regional (analysis area) sectoral employment	Increase or decrease at least 1% of regional activity
Change to existing businesses	Displacement of an existing business or combination of businesses

Table 10. Socioeconomic impact indicators and significance criteria

### 3.2 Direct, Indirect, and Cumulative Impacts

#### 3.2.1 Alternative A – No Action

Under Alternative A, current socioeconomic conditions associated with reservoir operations would continue. Alternative A would not result in project-related construction and employment changes from existing conditions, and current water management operations would continue. Reclamation would continue to operate Anderson Ranch Dam under current standard operating procedures. Irrigation water delivery, power generation, and flood control would continue to occur according to existing reservoir operation protocols. Therefore, no new short-term or long-term direct or indirect effects to socioeconomic conditions, associated with the dam raise, would occur under Alternative A.

Under Alternative A, except for DCMI water resources, future socioeconomic conditions (population, employment, income, and housing) are expected to remain the same as those documented in and planned for in the adopted comprehensive plans of each of the four individual counties included in the analysis area. These comprehensive plans include specific elements such as population and growth, economic development, agriculture, housing, and transportation (Ada County, 2016; Camas County, 2018; Canyon County, 2020; Elmore County, 2014). Each of the comprehensive plans includes county specific goals with respect to each of the elements as they relate to the future socioeconomics conditions. However, under Alternative A, DCMI water resources may be insufficient to meet anticipated future demand (SPF, 2016).

#### 3.2.2 Alternative B – Anderson Ranch Dam Six-Foot Raise

The proposed action (Alternative B) would have direct and indirect effects on the socioeconomic conditions in the analysis area in the short term and long term. Table 11 shows the estimated total construction costs associated with construction of Alternative B, for both construction methods: B1 (downstream embankment raise) and B2 MSE Raise, including costs for the reservoir rim projects. The proposed action's total design and construction cost, including non-contract costs (NCC), is estimated to be between \$83.3 million and \$87.3 million (in 2025 dollars) (Appendix C).

For purposes of this analysis of the proposed action, 90% of the construction costs under both construction methods (B1 and B2) are assumed to be spent locally, and 10% is spent outside the analysis area. Similarly, of expenditures spent locally, 70% are estimated to be on non-labor/material costs, and 30% are labor costs. For the reservoir rim projects, the split between local and non-local is assumed to be, on average, 92% local and 8% non-local. The split between expenditures on local materials and local labor is estimated to be, on average, about 75% and 25%, respectively.

	Total Construction	Local a		
Component	Total Construction	Total	Nonlabor b	Labor c
Dam Raise Constr. Costs - Alt B1	\$44,000,000	\$39,600,000	\$27,720,000	\$11,880,000
Dam Raise NCC - Alt B1	\$22,500,000	\$20,250,000	\$14,175,000	\$6,075,000
Dam Raise Constr. Costs - Alt B2	\$48,000,000	\$43,200,000	\$30,240,000	\$12,960,000
Dam Raise NCC - Alt B2	\$22,500,000	\$20,250,000	\$14,175,000	\$6,075,000
Airstrip Constr. Costs	\$1,766,110	\$1,677,804	\$1,103,020	\$574,784
Airstrip NCC	\$706,000	\$670,700	\$440,931	\$229,769
Recreation Facility Constr. Costs	\$3,723,150	\$3,536,993	\$2,475,895	\$1,061,098
Recreation Facility NCC	\$1,489,000	\$1,414,550	\$990,185	\$424,365
Bridge Constr. Costs	\$1,766,110	\$1,677,804	\$1,309,292	\$368,512
Bridge NCC	\$706,000	\$670,700	\$523,388	\$147,312
Culvert Constr. Costs	\$668,258	\$601,432	\$401,085	\$200,347
Culvert NCC	\$267,000	\$240,300	\$160,252	\$80,048
Power Utilities Constr. Costs	\$735,084	\$735,084	\$514,558	\$220,525
Power Utilities NCC	\$294,000	\$294,000	\$205,800	\$88,200
Roadway Constr. Costs	\$3,341,289	\$2,673,031	\$2,218,616	\$454,415
Roadway NCC	\$1,337,000	\$1,069,600	\$887,768	\$181,832
TOTAL B1, including NCC	\$83,300,000	\$75,111,998	\$53,125,789	\$21,986,209
TOTAL B2, including NCC	\$87,300,000	\$78,711,998	\$55,645,789	\$23,066,209

# Table 11. Estimated construction costs (in 2025\$) for Alternative B – Anderson Ranch DamSix-Foot Raise

Source: 6-foot Dam Raise Engineering Summary, Appendix C.

B1 construction method is downstream embankment raise; B2 construction method uses MSE (Appendix C). Cost estimates are in 2025 dollars.

a Local (within the analysis area) cost based on a percentage split between local and nonlocal which is different for each construction component.

b Non-labor local (within the analysis area) costs based on different percentages for different construction components.

c Labor (within the analysis area) costs based on different percentages for different construction components.

The construction durations for the proposed action are estimated for downstream embankment raise (B1), MSE Raise (B2), and reservoir rim projects to be 51 months, 50 months, and 25 months, respectively. These construction durations were used to develop the

corresponding annual estimates for input into the IMPLAN model. Table 12 summarizes these annual inputs separately for the proposed action projects (downstream embankment raise [B1] and reservoir rim projects and MSE Raise [B2] and reservoir rim projects).

Table 12. Annual project construction costs (in 2025\$) for Alternative B – Anderson Ran	ch
Dam 6-foot raise	

	Total	Annual a
Dam Raise - B1 + Reservoir Rim		
Construction Costs	\$83,300,000	\$41,649,500
Local	\$75,111,998	\$37,556,000
Non-Labor	\$53,125,789	\$26,562,900
Labor	\$21,986,209	\$10,993,100
Dam Raise - B2 + Reservoir Rim		
Construction Costs	\$87,300,000	\$43,649,500
Local	\$78,711,998	\$39,356,000
Non-Labor	\$55,645,789	\$27,822,900
Labor	\$23,066,209	\$11,533,100

Source: 6-foot Dam Raise Engineering Summary, Appendix C Notes:

B1 construction method is downstream embankment raise; B2 construction method uses MSE (Appendix C). Cost estimates are in 2025 dollars.

a Based on the assumed project duration of 51 months for B1, 50 months for B2 and 25 months for reservoir rim projects.

The construction activities associated with the proposed action are expected to create employment opportunities within and outside the analysis area. Most construction workers would likely live within the analysis area, and non-local construction workers would use temporary housing in the analysis area including motels, RV parks, and campgrounds. Construction workers are not expected to relocate their families to this temporary job location.

Table 13 summarizes the regional economic impacts associated with the proposed action. All values shown represent a range with the lower value for the impacts associated with downstream embankment raise (B1) and reservoir rim projects combined and the higher value for MSE Raise (B2) and reservoir rim projects combined. The total annual construction employment in the analysis area is estimated to be between 387 and 405 full-time equivalents (FTEs), including direct, indirect, and induced impacts (Table 13).

As expected, the increase in regional employment would be accompanied by increased levels of income and total industry output within the analysis area (Table 13). Construction of the proposed action is expected to result in an increase of about \$8.8 million to \$10 million (in 2020 dollars) in annual direct labor income and \$34.1 million to \$35.8 million (in 2018 dollars) in annual direct total industry output, respectively, within the analysis area.

Impact	Employment (FTEs) a	Labor Income a	Total Industry Output a
Direct	227-238	\$8,807,800 - \$10,000,400	\$34,164,500 - \$35,801,900
Indirect	61-64	\$2,685,100 - \$2,930,200	\$10,022,800 - \$10,493,000
Induced	99-103	\$3,617,000 - \$4,113,400	\$14,776,700 - \$15,499,900
Total	387-405	\$15,109,900 - \$17,044,000	\$58,964,000 - \$61,794,800

Table 13. Regional economic impacts in analysis area from construction of Alternative B – Anderson Ranch Dam 6-foot raise

Labor income and total industry output estimates are in 2018 dollars.

Labor Income shown here is IMPLAN's Employee Compensation. Employee compensation includes total payroll cost of the employee paid by the employer. It includes wage and salary plus benefits and payroll taxes.

Source: IMPLAN

a First value in range corresponds to downstream embankment raise (B1) construction method and second value corresponds to MSE (B2) construction method (Appendix C).

#### Population, Housing, Income, and Employment

Assuming approximately 10% of construction workers would come from outside the analysis area, the resulting temporary increase in population would be about 22 to 24 construction workers and their families. Based on an average family size of 3.23 (USCB, 2019o) for the analysis area, the potential increase in population would be between 73 and 77. This increase represents about 0.01% of the analysis area's population of 669,262 in 2017 (Table 1) and of the projected population of 736,188 in 2018. (Projected population in 2018 was determined using an assumed 1.1% annual population growth rate [Idaho Department of Labor, 2019].) This small change due to construction employment is unlikely to result in a significant increase in the population of the analysis area.

No significant impacts to housing are anticipated as a result of the small influx of non-local construction workers, who are expected to use of temporary housing in the analysis area including motels, RV parks, and campgrounds instead of relocating their families to temporary job locations.

The increase in total regional labor income, estimated between \$15.1 and \$17 million (Table 13), represents less than 0.1% of the total personal income in the analysis area of \$20.8 billion. This estimate is derived from the \$28,300 in average per capita income for the analysis area multiplied by the projected population in the analysis area in 2018. Therefore,

construction of the proposed action does not result in significant impacts to total personal income in the analysis area.

The increase in total industry output (or industry income or earnings), estimated between about \$59 and \$61.8 million (Table 13), represents less than 0.3% of the total industry output of the analysis area of \$22.7 billion (Table 5). Therefore, construction of the proposed action does not result in significant impacts to total industry earnings in the analysis area.

The increase in employment from the construction of the proposed action is negligible compared to the analysis area's total employment. Specifically, total annual construction employment associated with the proposed action represents less than 0.1% of total employment in the analysis area in 2017, and the increase in direct construction workforce of 227 to 238 FTEs represents less than 1% of the total 2017 construction employment in the analysis area. Therefore, the increase in employment is not significant, and the construction of the proposed action does not result in significant impact to total sectoral employment in the analysis area.

Some farmers and ranchers in the analysis area have expressed concern over the road closures for construction. The farmers and ranchers use these transportation routes for their operations. However, because the construction-related impacts are short term and alternative access routes are available with the same capacity for transporting livestock, equipment, and/or hay (Transportation Specialist Report in Appendix B), no significant impacts to local businesses are expected from the proposed action.

#### **Agricultural Resources**

The increase in surface water supplies with the proposed action is likely to result in irrigators changing from groundwater to surface water where conditions may favor a change. Factors likely to contribute to a conversion to surface water include the types of crops grown (high versus low value), the difference in the per acre-foot cost between surface water and groundwater, and the ease with which such a switch could be achieved. Although the proportion allocated to agriculture of the total 29,000 acre-feet of new surface water supply generated by the proposed action is unknown at this time, the potential impacts to agricultural resources and thus socioeconomics are likely to be insignificant when compared to the 1.6 million acre-feet of existing irrigation delivery in the region.

#### **DCMI Water Resources**

Although the proportion allocated to DCMI of the total 29,000 acre-feet of surface water supplies under the proposed action is unknown at this time, the potential new volume available to DCMI is not expected to be sufficient compared to the 116,900 acre-feet of projected DCMI demand in the region (SPF, 2016). Additionally, based on the 38% refill probability under the 50-year historical hydrology (Water Operations Technical Memorandum, EIS Appendix F), the actual total average annual delivery is 11,020 acre-feet. Assuming that half of the 9,918 acre-feet (the 90% of the water that is available to agriculture and DCMI users) goes to the DCMI users, that would translate to about 4% of the projected

DCMI demand. This conclusion assumes the 116,900 acre-feet is the same as the available total DCMI water supplies (including both groundwater and surface water), which may be not be the case. Additionally, the 116,990 acre-feet estimate is based on an assumed projected population in 2020 of 674,500 (SPF, 2016). However, this projected population estimate is about 75% smaller than the projected population of 890,800 in 2020. The 890,800 estimate is derived by applying the 1.1% annual population growth rate (Idaho Department of Labor, 2019) to the 2017 population estimate of 669,262 (Table 1). Therefore, while the additional water supplies will help to meet some of the projected shortages to DCMI users, the actual amount is unlikely to meet all the DCMI users' water demands in the future.

#### **Recreational Resources**

As reported in the Recreation Specialist Report (Appendix B), with the proposed action, impacts to recreation are considered minor, and, for motorized boating recreation, they may be enhanced in the long run. Therefore, the socioeconomic impacts are likely to be beneficial and minor in the long run.

#### 3.2.3 Alternative C – Anderson Ranch Dam Three-Foot Raise

Similar to the proposed action (Alternative B), Alternative C would have direct and indirect effects on socioeconomic conditions in the analysis area in the short term and long term. The primary difference between Alternative C and Alternative B is a lower dam raise. Alternative C would increase the elevation of Anderson Ranch Dam by 3 feet, also resulting in fewer changes to reservoir rim projects, no replacement of Pine Bridge and no airport realignment and reduction of work at Lester Creek Road (project number 3, Figure 6).

The direct and secondary (indirect and induced) effects are less than those described in Section 3.2.2 because the preliminary construction costs estimates for Alternative C are lower than the construction costs for Alternative B. At the time of this report, costing information for Alternative C was limited to what is provided in Appendix D, the 3-foot Dam Raise Engineering Summary.

The preliminary cost estimate and construction schedule for the 3-foot downstream embankment raise (C1) is \$31 million and for the 3-foot MSE Raise (C2), \$37 million. As stated in Appendix D, in order to develop a cost estimate for the Rim Projects for Alternative C, Reclamation prepared revised estimate work sheets for all affected rim projects greater than \$50,000 (25 of 28 projects). Alternative C reflects a 31% savings, and the average reduction of costs associated with any given project is only 19%.

The construction durations for the proposed action are estimated for, MSE (C2), and reservoir rim projects to be 44 months, 43 months, respectively. Non-construction costs are not available and the IMPLAN model was not developed for Alternative C. Similar to Alternative B, the construction activities associated with the proposed action are expected to create employment opportunities within and outside the analysis area, however to a slightly lesser extent due to the decrease in overall project size and costs.

The regional economic impacts associated with Alternative C would be similar to that represented in Table 13 but slightly less as reflected by the 31% cost decrease of Alternative C.

#### Population, Housing, Income, and Employment

The population analysis for Alternative B is the same for Alternative C. This small change due to construction employment is unlikely to result in a significant increase in the population of the analysis area.

No significant impacts to housing are anticipated as a result of the small influx of non-local construction workers, who are expected to use of temporary housing in the analysis area including motels, RV parks, and campgrounds instead of relocating their families to temporary job locations.

The increase in total regional labor income would be similar to, though less than, what is described in Table 13 for Alternative B, and represents less than 0.1% of the total personal income in the analysis area of \$20.8 billion. Therefore, construction of the proposed action does not result in significant impacts to total personal income in the analysis area.

The increase in total industry output (or industry income or earnings), would be similar to Alternative B (Table 13), however less due to the 31% cost savings for Alternative C. Construction of the proposed action does not result in significant impacts to total industry earnings in the analysis area.

The increase in employment from the construction of Alternative C is similar to, though less than, Alternative B and would be negligible compared to the analysis area's total employment. Similar to B, the total annual construction employment associated with Alternative C would represents less than 0.1% of total employment in the analysis area in 2017, and an increase in direct construction workforce FTEs represents would be less than 1% of the total 2017 construction employment in the analysis area. Therefore, the increase in employment is not significant, and the construction of the proposed action does not result in significant impact to total sectoral employment in the analysis area.

Some farmers and ranchers in the analysis area have expressed concern over the road closures for construction. Transportation impacts are similar to those for Alternative B but roads would not be closed for as long for Alternative C (Transportation Specialist Report in Appendix B). The farmers and ranchers use these transportation routes for their operations. However, because the construction-related impacts are short term and alternative access routes are available with the same capacity for transporting livestock, equipment, and/or hay, no significant impacts to local businesses are expected from the proposed action.

#### **Agricultural Resources**

As identified for Alternative B, the proportion allocated to agricultural resources of the total 14,400 acre-feet of surface water supplies under Alternative C is unknown at this time. Using the same assumptions as provided for Alternative B, and assuming half of the available water for Alternative C is allocated to agricultural resources, the conclusion would be the same as

Alternative B. Potential socioeconomic impacts to agricultural resources would be insignificant, as described for Alternative B, however even less when comparing the 14,400 acre-feet to the 1.6 million acre-feet of existing irrigation delivery in the region.

#### **DCMI Water Resources**

As identified for Alternative B, the proportion allocated to DCMI of the total 14,400 acrefeet of surface water supplies under Alternative C is unknown at this time. Using the same assumptions as provided for Alternative B, and assuming half of the available water for Alternative C is allocated to DCMI, the conclusion would be the same as Alternative B. While the additional water supplies will help to meet some of the projected shortages to DCMI users, the actual amount would not meet all the DCMI users' water demands in the future.

#### **Recreational Resources**

As reported in the Recreation Specialist Report (Appendix B), with the proposed action, impacts to recreation are considered minor, and, for motorized boating recreation, they may be enhanced in the long run. Therefore, the socioeconomic impacts are likely to be beneficial and minor in the long run.

#### 3.2.4 Cumulative Impacts

Cumulative effects are analyzed for the Alternative B and Alternative C. Cumulative effects are those that result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions. The cumulative effects analysis considers projects, programs, and policies that are not speculative and are based on known or reasonably foreseeable long-range plans, regulations, operating agreements, or other information that establishes them as reasonably foreseeable. While no present actions are identified, Reclamation has identified two past actions: Pine Bridge at the South Fork Boise River and the 4-foot Anderson Ranch Dam crest raise for security enhancement. Reclamation has also identified two potential future projects to be considered for the cumulative impact analysis: Cat Creek Energy Project and South Fork Boise River Diversion Project. Additional project proposal information for these, as known by Reclamation to date, is provided in Chapter 2 of the EIS.

The proposed 2025 dam construction date is well removed in time from the 2018 installation date of the newly replaced bridge and 2010 construction of the security enhancement along the dam crest. No cumulative impacts to socioeconomics are identified for this past action.

The Cat Creek Energy Project and South Fork Boise River Diversion Project both propose to draft water from the reservoir with separate pump stations located along the reservoir rim. In the unlikely scenario two or more of the projects would be constructed simultaneously, there could be competition for construction labor which could attract additional construction workers from outside the analysis area. This could result in an increase in the population of the area and thus an increase in demand for housing and services. However, to date, Reclamation has not been provided with formal proposals and designs from either entity to

which more specific information can be derived. At this time, there are no known specific reasonably foreseeable future projects that would have a direct or indirect cumulative impact to socioeconomics.

#### 3.2.5 Mitigation

No mitigation measures are necessary for Alternative B and Alternative C because the socioeconomic effects, though minor, are positive.

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