Volume 2, Section 17 Snake Lake Reservoir Expansion Project
Environmental Impact Assessment
Socio-economic Assessment

Submitted to:

MPE a division of Englobe

MPE
A division of Englobe,
Lethbridge, Alberta

On Behalf of:

Eastern Irrigation District
Brooks, Alberta

Submitted by:

AAR Environmental Services
Calgary, Alberta

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Executive Summary

The Eastern Irrigation District (EID) is applying for approval under the *Environmental Protection and Enhancement Act* (EPEA) to construct the proposed Snake Lake Reservoir (SLR) Expansion Project (the Project). The Project, located between Bassano and Brooks in Alberta, involves the construction of a roughly 8 km long, up to 20 m high dam to increase the storage capacity of the reservoir system from 19.25 million m^3 to 87.4 million m^3. This Environmental Impact Assessment (EIA) provides a comprehensive description of the socio-economic effects for EID's proposed SLR Expansion Project (the Project). This section provides detail on economic and social conditions within the rural area in which the Project would be built as well as on the nearby population centres (i.e., towns, villages, and cities) and Indigenous reserves in a local and regional study area surrounding the Project. Baseline conditions were described and quantified to meet requirements provided in the Final Terms of Reference (FTOR; Volume 2, Appendix A) issued by Alberta Environment and Protected Areas and following the Guide to Preparing Environmental Impact Assessments in Alberta. This includes changes in population and demographics, income and employment, costs of housing, education, recreation opportunities, health and social services, protective services infrastructure services, and municipal finance. Once established, results will be qualified to refine the environmental impact assessment, including a cumulative effects assessment, of predicted effects on socio-economic outcomes resulting from the expanded reservoir.

Baseline conditions were gathered within the spatial boundaries used by governments to collect and report socio-economic information as well as the expected spatial distribution of Project effects. Socio-economic data gathered during each federal census are reported for census subdivisions (CSDs). The County of Newell was defined as the Socio-economic Local Study Area (SLSA) which coincides with the boundaries of the EID. The Socio-economic Regional Study Area (SRSA) consists of nearby CSDs that could be affected by the Project in, or adjacent to, the SLSA. These include the City of Brooks, the Village of Duchess, the Town of Bassano, the Village of Rosemary, and the Siksika 146 Indian Reserve. The combination of the SLSA and SRSA represents the Socio-economic Study Area (SSA). Baseline socio-economic conditions in the SLSA and SRSA come from two sources:

1. Census data for the CSDs that comprise the SLSA and SRSA.
2. Reports on agricultural production and economies in the SLSA and EID (e.g., EID annual reports, statistics, and Government of Alberta production economics).

The Project is estimated to cost $250 million to construct (2023$). It is expected that 20% of the Project workforce will consist of unskilled and general labour, 50% equipment operators, 20% skilled tradespeople, and 10% project managers. In addition, a team of 10 construction managers, quality control staff, and engineers will oversee Project construction. The EID will likely tender the work to local contractor(s) for construction. The EID is developing an overall engineering and contracting plan for the Project. It is estimated that 60-80% of the construction workforce will come from within the rural and urban communities in the study area (the SLSA and SRSA), with 20-40% coming from other parts of Alberta. Estimates of workforce percentages are approximations; true values may vary compared to the values estimated for this report. The employment of up to 75 workers from within the study area will be beneficial, creating new employment for the local

construction workforce, but the effects will be small enough to not trigger construction labour shortages leading to higher wages.

Most of the Project workforce will be local workers who will reside within their own homes; non-local workers are expected to use commercial accommodation, such as those in City of Brooks or Town of Bassano during the construction seasons. Therefore, no Project-related changes to the population of the SLSA or SRSA are expected. With no change in the permanent population of the SLSA or SRSA, the Project is expected to cause no changes in infrastructure, services, or municipal finances. Use of commercial accommodation could total 15-30 people (20-40% of 75 workers during peak construction seasons) resulting in a marginal benefit for local business, without adversely affecting accommodation or causing shortages.

The Project will be a permanent development with no foreseeable closure or decommissioning. The EID will use its existing staff to operate the Project, with an annual operating budget estimated at $30,000 (2023$). Project operations will not result in changes to the amount of irrigation occurring in the EID; rather it will provide additional storage to better support the existing 50,000 acres (20,000 ha) of irrigation downstream from the SLR that currently relies on directly drawing water from the Bow River. Therefore, there will be no change in the amount or value of agricultural production in the SLSA and no new employment associated with Project operations. Wetland valuation was completed as required by the FTOR. Per the Alberta Wetland Policy, wetlands will be replaced with neutral impacts (no net loss of value). As such, the Project will have no effect on economic conditions in the SLSA or SRSA. Importantly, no adverse effects on population, demographics, services, infrastructure, or municipal finances are expected because of Project construction and operation. As such, no mitigations, offsets, or monitoring are required or recommended. Additional needs in the FTOR for assessments of recreation, grasslands, livestock watering and First Nations and Métis have been discussed.

From a socio-economic perspective, the cumulative effects of Project construction and operation must be viewed in the context of other major projects that are planned to occur at the same time as the SLR Expansion Project and are likely to compete for labour, goods, and services, potentially leading to shortages and cost increases. As of December 2024, the provincial Major Projects List identified three projects that are likely to be under construction at the same time as Project construction (2026-2029). However, two of these are solar energy projects which require a highly specialized labour force that will be imported into the region, such that the regional construction labour force is not under stress. Consequently, the cumulative effects of Project construction combined with the construction of other planned projects in the study are expected to be minimal, and within the normal variability of demands on the regional construction workforce.

Management of cumulative effects during Project construction will not be required because the demand for regional construction workers, in combination with labour demands of other proposed projects, will fall within the normal range of variability for the regional construction industry. This has been the recent experience with construction of various solar projects in southern Alberta. The effects of Project construction and operation, in combination with the anticipated effects of constructing other major projects that are expected to have overlapping timelines are not expected to result in any adverse cumulative effects on employment, population demands for infrastructure or services, or municipal finance.

Table of Contents

Figures

Tables

Appendix O

Abbreviations

ABWRET-A	Alberta Wetland Rapid Evaluation Tool – Actual
CSD	Census Subdivisions
EIA	Environmental Impact Assessment
EID	Eastern Irrigation District
EMS	Emergency Medical Services
EPEA	*Environmental Protection and Enhancement Act*
FCSS	Family and Community Support Services
FSL	Full Supply Level
FTOR	Final Terms of Reference
NRCB	Natural Resources Conservation Board
RCMP	Royal Canadian Mounted Police
SLR	Snake Lake Reservoir
SLSA	Socio-economic Local Study Area
SRSA	Socio-economic Regional Study Area
SSA	Socio-economic Study Area
TIA	Traffic Impact Assessment

17.1 INTRODUCTION

17.1.1 Background

Snake Lake Reservoir (SLR) is an off-stream reservoir 23 km northwest of the City of Brooks. It was constructed from 1995 to 1997 in a natural coulee with a downstream (east) and upstream (west) dam with natural slopes on the north and south sides. It is owned and operated by the Eastern Irrigation District (EID), under an existing *Water Act* Licence *(No. 00071066-00-00)*, and is regulated via Alberta's *Irrigation Districts Act* (Government of Alberta [GOA], 2000a). The EID is licensed to divert 938 million m^3 of water from the Bow River and uses an average (over 10 years) of 549 million m^3 per year (ranging from 363 million m^3 to 663 million m^3), such that there is an average of 389 million m^3 of unused water available for offsite storage without requiring additional allocation (EID, 2020). The SLR stores up to 15,600 acre-feet (19.25 million m^3) of water at Full Supply Level (FSL) at a geodetic elevation of 781.7 m. Water diverted from the Bow River at Bassano Dam flows within EID's East Branch Canal and enters the reservoir on the west side via a gated inlet chute. Reservoir volume is controlled by an inline check structure. Outflow from the reservoir is through a low-level outlet structure located near the north end of the East Dam, into the Snake Lake Canal, which merges into Springhill Canal northeast of the SLR. Water stored supports 50,000 acres (20,000 ha) of downstream irrigated agriculture.

The EID proposes to expand the SLR, which currently supports 3.5" (9 cm) of water for 50,000 acres downstream, by constructing outer berms up to 20 m high on 4 sections of land east and southeast of the present reservoir. The proposed expansion will inundate an additional 763.6 ha of land and will see the FSL increase to 782.0 m asl, such that the expanded reservoir is estimated to hold 87.4 million m^3 (70,900 acre-feet), increasing support to 14.1" (36 cm) of water for each of the 50,000 acres (20,000 ha) downstream. As no additional downstream lands will be irrigated, no additional water withdrawals are required. The expanded reservoir will allow more water diversion to occur in spring, or any season when there is excess water present in the Bow River and leave more water within the river during drier periods. The expansion will provide additional water security during droughts and better support the river instream flow objective for the protection of aquatic life. The Project requires approval per the *Environmental Protection and Enhancement Act* (EPEA) and surpasses the threshold for needing an Environmental Impact Assessment (EIA) in support of this approval.

17.1.2 Purpose

The purpose of the socio-economic assessment is to explore how construction and operation of the proposed SLR Expansion Project (the Project) will affect economic and social conditions within the rural area in which the Project would be built as well as on the nearby population centres (i.e., towns, villages, and cities) and Indigenous Reserves. In general, water development projects tend to have positive social and economic effects including the employment associated with Project construction, which provides opportunities for employment and income for local and regional residents. By increasing the security of water supply during operations, the Project will increase recreational opportunities, provide improved water security for fire protection or other municipal uses, and increase the security of agricultural production during droughts. However, there can also be negative effects if the employment demands of the Project exceed the capacity of the regional workforce. This could result in the importation of new workers and their families,

potentially leading to unanticipated population growth that can stress available community services and infrastructure. This assessment will examine both the positive and negative effects of Project construction and operation and will consider opportunities for mitigating adverse effects while enhancing positive benefits.

The Project will be a permanent development with no foreseeable closure or decommissioning so there is no discussion of the socio-economic effects of decommissioning.

17.1.3 Regulatory Context

As per Section 40[c] of Alberta's *Environmental Protection and Enhancement Act* (GOA, 2000b), one of the purposes of conducting an environmental assessment is to predict the social and economic consequences of a proposed activity and to mitigate any possible adverse impacts. The scope of the assessment of social and economic effects is based on the FTOR issued for the Project assessment. The socio-economic requirements for this Project are identified in Section 7 of the FTOR dated July 4, 2024, located in Volume 1.

The assessment must also consider the directions contained in the Guide to Preparing Environmental Impact Assessment Reports in Alberta (GOA, 2013). These include identifying opportunities for training, employment, and businesses for Indigenous communities in the Study Area where possible.

17.1.4 Issue Scoping

Socio-economic issues were identified based on the FTOR for this Project (Table 17-1).

17.2 METHODS

17.2.1 Study Areas

Spatial areas for assessing Project effects (Appendix O1, Figure O1-1) were determined based on the spatial boundaries used by governments to collect and report socio-economic information as well as the expected spatial distribution of Project effects. Socio-economic data gathered during each federal census are reported for census subdivisions (CSDs). The County of Newell Number 4 CSD was defined as the Socio-economic Local Study Area (SLSA). The county boundaries coincide with the boundaries of the EID. The Socio-economic Regional Study Area (SRSA) consists of other nearby CSDs that could be affected by the Project in, or adjacent to, the SLSA. These include the City of Brooks, the Village of Duchess, the Town of Bassano, the Village of Rosemary, and the Siksika 146 Reserve. The combination of the SLSA and SRSA represents the Socio-economic Study Area (SSA).

17.2.2 Project Development Stages

The selection of the Project development stages is based on the Project description, which defines two stages: construction and operation. Construction is expected to occur over 3 years starting in 2026; however, shipping of aggregate and riprap is planned to occur over 2 years starting in 2025. Operation of the expanded reservoir is expected to begin in 2029.

Table 17-1: Issue scoping: Socio-economic conditions

Project Activities	Potential Effects	Indicators
Construction (includes all activities related to construction)	• Employment of construction/related workers • Purchases of goods and services • Temporary population increase given in-migration of construction workers • Increased demands for infrastructure associated with construction workforce • Increased demands for services associated with construction workforce • Increased municipal costs associated with providing goods and services associated with construction workforce	• Income and employment • Changes in population and demographics • Costs of housing • Recreation opportunities and infrastructure • Protective services • Health and social services • Municipal finance • Changes in agricultural production and returns • Wetlands (value)
Operation (includes all activities related to operation)	• Employment of operation workers • Purchases of goods and services needed for operations • In-migration associated with new employment • Increased demands for infrastructure associated with operation • Increased demands for services associated with operation • Increased municipal costs and revenues associated with operation • Employment associated with changes in agricultural production	• Income and employment • Changes in population and demographics • Costs of housing • Infrastructure services • Education • Recreation opportunities and infrastructure • Protective services • Health and social services • Municipal finance • Changes in agricultural production and returns • Wetlands (Value)

17.2.3 Baseline Methods

17.2.3.1 Socio-Economic Indicators/Parameters

The socio-economic indicators used in this assessment are largely based on Section 7.1 of the FTOR. Baseline information is requested for the following:

a) Changes in population and demographics;
b) Income and employment;
c) Costs of housing;
d) Education;
e) Recreation opportunities and Infrastructure.
f) Health and Social Services;
g) Protective services;
h) Infrastructure services;
i) Municipal finance;
j) Agricultural production and returns; and
k) Wetland value.

17.2.3.2 Information and Data Sources

Information on baseline socio-economic conditions in the SLSA and SRSA came from two sources. The first source consists mainly of census data for the CSDs that comprise the SLSA and SRSA, with data being taken from the 2021, 2016, 2011, and 2006 censuses. This information is supplemented with available socio-economic information published by various municipal,

provincial, and federal government agencies. The second source includes reports related to agricultural production and economies in the SLSA and EID. These sources include the annual reports of the EID, annual statistics in activities and production in Alberta's irrigation districts, and economics information for dryland and irrigated crops in Alberta.

17.2.3.3 Baseline Indicator/Parameter Analysis

Based on the FTOR and prior experience with socio-economic impact assessments, the indicators used to characterize baseline socio-economic conditions include:

a. Population and demographics;
b. Economic conditions, including employment, income and agriculture;
c. Infrastructure, including housing,
d. Services, including education, protective services, health and social services; and
e. Other, including wetlands, recreation opportunities, First Nations and Métis traditional land use and social and cultural implications, livestock watering, and native grasslands and biodiversity.

17.2.4 Environmental Impact Assessment Methods

17.2.4.1 Project Case

Assessment of the magnitude and significance of Project effects was done by comparing Project demands on employment, infrastructure, and services with the existing capacity and planned or anticipated expansion of local communities. This assessment drew on professional expertise gained from similar projects.

17.2.4.2 Mitigations and Monitoring

Suggestions for impact mitigation and monitoring, including opportunities for benefit enhancement, were developed based on previous experience with similar projects.

17.2.4.3 Criteria

The criteria used to assess residual effects were selected based on previous experience with similar projects.

17.2.5 Cumulative Effects Assessment Methods

From a socio-economic perspective, the cumulative effects of Project construction and operation must be viewed in the context of other major projects that are planned to occur at the same time as the SLR Expansion Project and are likely to compete for labour, goods, and services, potentially leading to shortages and cost increases. A list of these potential major projects[1] was provided by the Government of Alberta (2024a). As of December 2024, the major projects list identified four projects that are underway (Table 17-2). These projects have a combined cost of $636.3 million and, based on Alberta employment multipliers (Governmet of Canada [GOC], 2023a), were estimated to have 1,400 person-years of employment, or about 250 jobs per year in 2023, 300 jobs in 2024 and 45 jobs in 2025.

[1] Projects with a construction cost of $5 million or more.

Table 17-2: List of major projects underway

Municipality	Name	Sector	Estimated Cost	Schedule
County of Newell	Brooks Solar Farm	Power	$500,000,000	2023 - 2024
County of Newell	JBS Canada Distribution Centre	Commercial	$90,000,000	2024 - 2025
Siksika 146	Siksika Nation Continuing Care Centre	Institutional	$11,300,000	2022 - 2024
Siksika 146	Siksika Nation Recovery Facility	Institutional	$35,000,000	2024 – 2025

Source: (GOA, 2024a)

The Alberta Major Projects list (GOA, 2024a) also identifies six projects (other than the SLR Expansion). These are listed in Table 17-3 and include four solar power projects with a combined cost of $1.6 billion. This amount of construction could involve 3,470 person-years of construction, based on employment multipliers for the electric power construction industry (GOC, 2023a). There are also two relatively small institutional projects although cost information is only available for one of these. The construction schedules identified for the projects suggest that construction of three of these may be underway during construction of the SLR Expansion Project (2026-2029). These projects are estimated to employ up to 1,530 people in 2025, 1,700 in 2026 and 180 in 2027, based on the timing and cost information in Table 17-3.

Table 17-3: List of major projects currently proposed

Municipality	Name	Sector	Estimated Cost	Schedule
Brooks	Salt Flats Solar Project	Power	$28,000,000	2025 - 2026
Brooks	Junior High School Replacement	Institutional	$48,300,000	TBD[1]
Brooks	Alberta Surgical Initiative	Institutional	TBD	TBD
County of Newell	Luna Solar Project (Phase One)	Power	$700,000,000	2024 - 2025
County of Newell	Luna Solar Project (Phase Two)	Power	$700,000,000	2025 - 2026
County of Newell	Latham Solar Farm	Power	$170,000,000	By 2027

Source: (GOA, 2024a)

[1] To be determined.

17.3 BASELINE CONDITIONS

17.3.1 Population and Demographics

In 2021, the SLSA (County of Newell) had a rural population of 7,465 people which represents a small decrease (0.8%) since 2016 (see Table 17-4). However, the population of County of Newell in 2021 was 3.2% greater than in 2006.

Table 17-4: Population and population change in the SLSA and SRSA, 2006 to 2021

Study Area	2021	2016	Change 2016 to 2021 (%)	2011	2006	Change 2006 to 2021 (%)
SLSA – County of Newell	7,465	7,524	-0.8	7,138	7,233	+3.2
SRSA	21,139	20,617	+2.5	19,264	17,986	+17.5
Brooks	14,924	14,451	+3.3	13,676	12,508	+19.3
Duchess	1,053	1,085	-2.9	992	978	+7.7
Bassano	1,216	1,206	+0.8	1,282	1,345	-9.6
Rosemary	370	396	-6.6	342	388	-4.6
Siksika 146 Reserve	3,576	3,479	+2.8	2,972	2,767	+29.2
Socio-Economic Study Area (SSA)	28,604	28,141	+1.6	26,402	25,219	+13.4

Source: (GOC, 2023b; GOC, 2017)

The population of the SRSA in 2021 was 21,139 and of this, 70.6% of the population lived in Brooks, 16.9% lived on the Siksika 146 Reserve, 5.8% lived in Bassano, 5.0% lived in Duchess, and 1.8% lived in Rosemary. The population of the SRSA grew by 2.5% between 2016 and 2021 and by 17.5% between 2006 and 2021. Table 17-4 shows that most population growth occurred in Brooks and on the Siksika 146 Reserve, with no population growth or declines occurring in Bassano, Duchess, and Rosemary since 2006. The age composition of the SLSA and SRSA populations are provided in Table 17-5.

Table 17-5: Age characteristics of the SLSA and SRSA populations, 2021

Study Area	0 to 14 Years (%)	15 to 64 Years (%)	65+ Years (%)
SLSA – County of Newell	22.4	61.9	15.7
SRSA	23.3	64.9	11.7
Brooks	22.8	65.9	11.2
Duchess	23.8	64.8	11.4
Bassano	14.0	59.7	26.3
Rosemary	23.0	60.8	14.9
Siksika 146 Reserve	28.5	62.7	8.8
SSA	***23.1***	***64.1***	***12.8***
Alberta	***19.0***	***66.2***	***14.8***

Source: (GOC, 2023b)

Compared to Alberta, the SLSA and SRSA have higher percentages of children (0 to 14 years), and slightly lower percentages of people aged 15 to 64 years and seniors (people 65 years of age and older). People in the SLSA tend to be slightly older than in the SRSA, having a lower percentage of children and a higher percentage of seniors. Within the SRSA, the population of the Siksika 146 Reserve is relatively young, with 28.5% of the population being children and only 8.8% being seniors. In comparison, only 14.0% of people living in Bassano were children and 26.3% were seniors.

A large percentage of the population growth that occurred between 2016 and 2021 was because of people moving into the SLSA and SRSA from other parts of Alberta, other provinces, and other countries. Table 17-6 shows that between 2016 and 2021, the population of the SLSA was

relatively stable, with 82.7% of the population either not moving or changing residences within the same CSD. The other 17.4% of the SLSA population moved into County of Newell, mostly from other parts of Alberta.

Table 17-6: Mobility of the SLSA and SRSA populations, 2016 to 2021

Study Area	Did Not Move (%)	Moved within CS (%)	Stayed within CS (%)	Moved from remainder of Alberta (%)	Moved from remainder of Canada (%)	Moved from Other Countries (%)	Total Moved into CS (%)
SLSA – County of Newell	73.6	9.1	82.7	13.0	2.5	1.9	17.4
SRSA	61.0	18.7	79.7	10.4	2.4	7.3	20.1
Brooks	57.0	20.4	77.4	9.5	2.7	10.4	22.6
Duchess	69.7	7.2	76.9	21.0	0.0	1.0	22.0
Bassano	64.5	12.3	76.8	17.1	5.7	0.0	22.8
Rosemary	54.7	14.1	68.8	28.1	3.1	0.0	31.2
Siksika 146 Reserve	74.4	17.5	91.9	7.2	0.8	0.0	8.0
SSA	**64.1**	**16.4**	**80.5**	**11.1**	**2.4**	**6.0**	**19.5**

Source: (GOC, 2023b)

Within the SRSA, the Siksika 146 Reserve population was very stable, with 91.9% of the population staying on reserve. There was considerably more mobility in other parts of the SRSA with 22% to 31% of the population of the other four communities moving from outside the SRSA in 2016. 10.4% of the 2021 population of Brooks had moved into the community from other countries. Most of the other observed changes involved people moving into the communities from other parts of Alberta.

While Table 17-6 shows movement into the communities in the SRSA, data on the number of people who moved out is not available during the same period. For all communities except Brooks, Bassano, and the Siksika 146 Reserve, there was a net decrease in population between 2016 and 2021 (Table 17-5), indicating that more people moved out of the communities than moved in.

Much of the population change observed in the SLSA and SRSA over time has been related to immigration. As shown in Table 17-7, immigrants account for 11.1% of the population of the SLSA and 32.7% of the SRSA population, primarily in Brooks. More than one in three residents of Brooks (37.1%) had immigrated to Canada with 67.3% of these having arrived since 2011.

Table 17-7: Immigrant component of the SLSA and SRSA populations, 2021

Study Area	Immigrants % of the population	Period in which the Immigrations Arrived					
		Before 1980	1980 to 1990	1991 to 2000	2001 to 2010	2011 to 2015	2016 to 2021
SLSA – County of Newell	11.1%	24.8%	11.7%	19.3%	26.2%	8.3%	9.7%
SRSA	32.7%	4.2%	3.8%	5.9%	19.9%	32.3%	33.5%
Brooks	37.1%	3.5%	3.5%	6.1%	19.6%	33.3%	34.0%
Duchess	7.6%	12.5%	0.0%	0.0%	31.3%	0.0%	43.8%
Bassano	8.2%	36.8%	26.3%	0.0%	21.1%	10.5%	0.0%
Rosemary	5.6%	0.0%	0.0%	0.0%	50.0%	0.0%	0.0%
Siksika 146 Reserve	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
SSA	26.7%	6.5%	4.7%	7.4%	20.6%	29.6%	30.8%

Note: Immigrant refers to a person who is, or who has ever been, a landed immigrant or permanent resident. Source: (GOC, 2023b)

Thus, in terms of population and demographics, the SLSA can be described as having a slowly declining, older, rural population while the SRSA consists of three components:

- A large, young, and growing urban population in Brooks that has been driven by immigration;
- A large and very young population on the Siksika 146 Reserve; and
- An older and stable or declining population in the villages of Bassano, Duchess, and Rosemary.

17.3.2 Economic Conditions

17.3.2.1 Labour Force

Table 17-8 summarizes the labour force conditions in the SLSA and SRSA in 2021. It shows that there were 13,975 people in the labour force (people aged 15 to 65) in the overall study area with 3,645 of these in the SLSA and 10,330 in the SRSA. Residents of Brooks comprised 55.1% of the regional labour force.

The labour force participation rate represents the percentage of the labour force that were either working or actively looking for work. In 2021, the labour force participation rate in the SLSA was 71.5% compared to 65.1% in the SRSA. Thus, a higher percentage of rural residents in the study area were active in the labour force compared to urban residents. The lowest labour force participation rates were found on the Siksika 146 Reserve (51.3%) and in Rosemary (55.6%).

In 2021, 11.3% of the labour force in the SSA was unemployed. However, this ranged from 7.0% of the SLSA labour force to 12.8% for labour force of the SRSA. The highest unemployment rates were reported by residents of the Siksika 146 Reserve (34.5%). These baseline numbers indicate the SLSA has over 1,500 unemployed residents.

Table 17-8: Labour force conditions in the SLSA and SRSA, 2021

Study Area	SLSA – County of Newell	SRSA	Brooks	Duchess	Bassano	Rosemary	Siksika 146 Reserve	SSA
Labour Force	3,645	10,330	7,705	525	645	150	1,305	13,975
Employed	3,390	9,015	7,030	460	535	135	855	12,405
Unemployed	255	1,320	675	70	110	15	450	1,575
Not in the labour force	1,460	5,535	3,525	265	390	115	1,240	6,995
Participation rate (%)	71.5	65.1	68.6	66.5	62.3	55.6	51.3	66.6
Employment rate (%)	66.5	56.8	62.6	58.2	51.7	50.0	33.6	59.2
Unemployment rate (%)	7.0	12.8	8.8	13.3	17.1	10.0	34.5	11.3

Source: (GOC, 2023b)

Changes in labour force conditions between 2016 and 2021 are summarized in Table 17-9. While the size of the labour force decreased by 285 people, the number of regional residents who decided to leave the labour force increased by 850 people. Labour force conditions in the SLSA changed very little, with small decreases in the rates of participation and unemployment. In the SRSA, the labour force participation rate dropped by 4.2 percentage points and the unemployment rate increased by 1.8 percentage points. Overall, the number of unemployed people in the study area increased by 155 since 2016 to 1,575 people in 2021.

Table 17-9: Changes in labour force conditions in the SLSA and SRSA, 2016 to 2021

Study Area	SLSA – County of Newell	SRSA	Brooks	Duchess	Bassano	Rosemary	Siksika 146 Reserve	SSA
Labour Force	-155	-130	-280	-40	+20	-15	+185	-285
Employed	-140	-295	-220	-25	-5	-20	-25	-435
Unemployed	-15	+170	-60	-5	+25	+5	+205	+155
Not in the labour force	-35	+885	+805	+50	+25	+10	-5	+850
Participation rate (%)	-0.3	-4.2	-5.9	-6.4	-1.1	-5.6	+3.9	-3.3
Employment rate (%)	-0.2	-4.8	-5.1	-4.4	-3.1	-7.4	-3.6	-3.8
Unemployment rate (%)	-0.1	+1.8	-0.4	+0.1	+3.5	+3.9	+12.6	+1.3

Source: (GOC, 2023b; GOC, 2017)

17.3.2.2 Employment by Industry

Table 17-10 shows the industry of employment for residents of the SLSA and SRSA in 2021 by community. The rural nature of the SLSA is evidenced by the very large percentage of the labour force employed in the agricultural industry (31.0%) while this industry accounted for only 2.8% of employment in the SRSA. Within the SRSA, manufacturing (notably in Brooks) is the most important industry, accounting for 25.4% of employment, and this related mainly to the large meat

packing and other agricultural processing facilities in Brooks. Other important industries in the urban communities of the SRSA include health care and social services (11.2% of employment), retail trade (10.6%), and education services (7.0%). Public administration is the primary industry employment for residents of the Siksika 146 Reserve.

Table 17-10: Industry of employment for the SLSA and SRSA, 2021

Study Area	SLSA – County of Newell (%)	SRSA (%)	Brooks (%)	Duchess (%)	Bassano (%)	Rosemary (%)	Siksika 146 Reserve (%)	SSA (%)
Agriculture, forestry, fishing and hunting	31.0	2.8	2.5	2.0	3.3	6.9	4.3	10.4
Mining, quarrying, and oil and gas extraction	9.2	6.8	7.4	11.8	5.7	10.3	0.0	7.5
Utilities	0.8	0.8	0.7	2.0	1.6	0.0	1.1	0.8
Construction	8.0	5.8	5.2	10.8	10.6	0.0	5.3	6.4
Manufacturing	3.1	25.4	31.4	6.9	10.6	10.3	0.0	19.4
Wholesale trade	3.6	2.3	1.8	5.9	5.7	6.9	1.1	2.6
Retail trade	7.1	10.6	10.9	8.8	16.3	20.7	3.7	9.6
Transportation and warehousing	3.8	3.1	3.1	5.9	1.6	10.3	1.6	3.3
Information and cultural industries	0.4	0.3	0.3	0.0	0.0	0.0	1.1	0.3
Finance and insurance	1.4	1.8	1.6	2.0	3.3	0.0	2.7	1.7
Real estate and rental and leasing	0.7	1.1	0.9	0.0	0.0	0.0	4.3	1.0
Professional, scientific and technical services	2.8	2.5	2.7	3.9	1.6	0.0	1.6	2.6
Administrative and support, waste management, and remediation services	1.1	3.3	3.1	2.0	4.1	0.0	5.9	2.7
Educational services	7.0	7.0	6.0	7.8	8.1	6.9	13.3	7.0
Health care and social services	7.3	11.2	9.8	13.7	8.1	6.9	23.4	10.1
Arts, entertainment, and recreation	1.8	0.9	0.7	2.0	2.4	0.0	1.6	1.2
Accommodation and food services	2.4	4.9	5.3	3.9	6.5	0.0	2.1	4.3
Other services (except public administration)	5.5	4.5	4.4	8.8	8.9	6.9	0.0	4.8
Public administration	2.8	4.8	2.3	2.9	0.0	6.9	28.7	4.3

Source: (GOC, 2023b)

Changes in employment structure between 2016 and 2021 are shown in Table 17-11. A net loss of 690 jobs occurred, with 175 in the SLSA. SLSA changes include increases in agriculture (60), wholesale trade (50), health care and social assistance (25), and construction (10) and losses in

mining, quarrying and oil and gas extraction (-90), manufacturing (-50), and most other industries. The balance of jobs in the SLSA was an increase in 830 jobs and a loss of 1,345 jobs.

The SRSA experienced a net loss of 515 jobs, although there was a very large net increase in manufacturing jobs (570, with a gain of 590 in Brooks) and an increase in health care and social assistance jobs (160). All other industries experienced net job losses, with the largest numbers of losses in accommodation and food services (-200), agriculture (-170), and construction (-150).

Table 17-11: Net changes in industry of employment in the SLSA and SRSA, 2016 to 2021

Study Area	SLSA – County of Newell	SRSA	Brooks	Duchess	Bassano	Rosemary	Siksika 146 Reserve	SSA
Total Net Change	**-175**	**-515**	**-295**	**-65**	**-20**	**-50**	**-85**	**-690**
Total Increases	*+185*	*+830*	*+820*	*+85*	*+150*	*+50*	*+160*	*+820*
Total Decreases	*-360*	*-1,345*	*-1,115*	*-150*	*-170*	*-100*	*-245*	*-1,510*
Agriculture; forestry; fishing and hunting	+60	-170	*-150*	*-20*	*-15*	*+10*	*+5*	**-110**
Mining; quarrying; and oil and gas extraction	-90	-215	*-140*	*-25*	*-15*	*-20*	*-15*	**-305**
Utilities	-20	-15	*-5*	*+10*	*-10*	*-10*	*0*	**-35**
Construction	+10	-150	*-85*	*-5*	*+25*	*-10*	*-75*	**-140**
Manufacturing	-50	+570	*+590*	*0*	*-15*	*+5*	*-10*	**+520**
Wholesale trade	+50	-10	*-65*	*+20*	*+25*	*+10*	*0*	**+40**
Retail trade	-25	+100	*+65*	*-15*	*+40*	*+20*	*-10*	**+75**
Transportation and warehousing	-35	-130	*-50*	*-20*	*-40*	*+5*	*-25*	**-165**
Information and cultural industries	-10	-25	*-15*	*0*	*-10*	*0*	*0*	**-35**
Finance and insurance	0	-25	*-25*	*0*	*0*	*-10*	*+10*	**-25**
Real estate and rental and leasing	-35	-20	*-25*	*-10*	*-15*	*0*	*+30*	**-55**
Professional; scientific and technical services	-35	-95	*-60*	*-5*	*-5*	*-10*	*-15*	**-130**
Administrative and support; waste management and remediation services	-30	-130	*-55*	*-25*	*+15*	*-10*	*-55*	**-160**
Educational services	0	-10	*-25*	*+5*	*+15*	*-10*	*+5*	**-10**
Health care and social assistance	+25	160	*+165*	*+30*	*-15*	*-5*	*-15*	**185**
Arts; entertainment and recreation	+5	-30	*-45*	*+10*	*+15*	*0*	*-10*	**-25**
Accommodation and food services	-30	-200	*-160*	*-20*	*-10*	*-10*	*0*	**-230**
Other services (except public administration)	+25	-35	*-45*	*+10*	*+15*	*0*	*-15*	**-10**
Public administration	+10	-85	*-165*	*-5*	*-20*	*-5*	*+110*	**-75**

Note: A net change in jobs accounts for the total increase or decrease in employment over a specific period, considering both job creation and job losses. Source: (GOC, 2023b; GOC, 2017).

17.3.2.3 Income

Residents of the SLSA reported the highest average individual and household incomes in the study area for 2020, although residents of the SRSA had higher average employment incomes (Table 17-12). Average individual incomes in the SLSA ($53,000) were 11.3% higher than in the SRSA ($47,609) but were 12.9% lower than the Alberta average ($60,850). Individuals in the SRSA had average incomes that were 21.8% lower than the Alberta average.

Table 17-12: Average individual and household incomes in the SLSA and SRSA, 2020

Study Area	Average Individual Total Income	Average Individual Employment Income	Average Household Income
SLSA – County of Newell	$53,000	$39,840	$107,500
SRSA	$47,609	$43,543	$96,453
Brooks	$50,680	$44,280	$103,400
Duchess	$54,300	$54,400	$104,400
Bassano	$45,600	$40,400	$84,000
Rosemary	$48,400	$47,600	$94,000
Siksika 146 Reserve	$31,520	$33,400	$66,200
SSA	**$48,953**	**$42,571**	**$99,205**
Alberta	**$60,850**	**$56,350**	**$119,700**

Source: (GOC, 2023b)

Note: average individual employment income is based on only those individuals receiving and income, the Average Total income is based on the number of people in the workforce

There was a similar pattern for household incomes, with the average in the SLSA ($107,500) being 11.5% higher than for the SRSA ($96,453) but 10.2% lower than the Alberta average ($119,700). Households in the SRSA had average incomes that were 19.4% lower than the Alberta average. Individuals and households on the Siksika 146 Reserve had average incomes that were about 35% lower than the study area averages.

17.3.2.4 Agriculture

As noted in Table 17-13, the agricultural industry is a major employer in the SLSA. According to the Census of Agriculture (GOC, 2021a), there were 727 farms in the SLSA (County of Newell) in 2021, covering 561,986 ha. This represents 96.7% of the entire area of the County of Newell. While the number of farms increased from 668 in 2016, the land areas farmed decreased by 28,348 ha (4.8%). These changes resulted from an increase in smaller farm operations (30-70 ha).

In 2021, most agricultural land (68.5%) was used for pasture, with the majority being natural land (see Table 17-13). Crops accounted for 29.6% of total agricultural land while summer fallow and other purposes accounted for the remaining 2.0%.

Table 17-13:Agricultural land use in the SLSA (County of Newell) in 2021

Study Area	Acres	Hectares	Percent of Total
Crops (Cultivated)	410,629	166,176	29.6
Summer fallow (Cultivated)	4,605	1,864	0.3
Tame or seeded pasture (Cultivated)	136,887	55,396	9.9
Total Cultivated	*552,121*	*223,436.0*	*39.8*
Natural land for pasture	813,459	329,195	58.6
Total Pasture	*950,346*	*384,591*	*68.5*
All other land	23,117	9,355	1.7
Total Fallow + Other	27,722	11,219	2.0
Total farm area	**1,388,697**	**561,986**	**100**

Source: (GOC, 2021b)

Conty of Newell Covers 1,435,718 acres or 581,014 ha

A detailed description of the crop types by land area in the County of Newell (in 2021) is provided in Table 17-14. The key crops were wheat (27.3%), canola (18.0%), barley (13.1%), alfalfa and alfalfa mixtures (12.1%), and various dried peas and beans (10.9%).

Table 17-14: Area of agricultural crops and irrigated crops in the SLSA/EID in 2021

Agricultural Crop	Total Land Farmed			Irrigated Land in the EID		
	Acres	Hectares	Percent of Total	Acres	Hectares	Percent of Farmed Land
Wheat	111,947	45,303	27.3	63,247	25,595	56.5
Oats and mixed grains	6,527	2,641	1.6	2,751	1,113	42.1
Barley	53,510	21,655	13.1	20,107	8,137	37.6
Corn	16,605	6,720	4.1	16,388	6,632	98.7
Canola (rapeseed)	73,887	29,901	18.0	35,214	14,251	47.7
Flaxseed	8,089	3,273	2.0	6,335	2,564	78.3
Dried peas and beans	44,500	18,008	10.9	15,482	6,265	34.8
Alfalfa and alfalfa mixtures	49,732	20,126	12.1	36,695	14,850	73.8
All other tame hay and fodder crops	22,291	9,021	5.4	21,311	8,624	95.6
Forage seed	10,162	4,112	2.5	288	117	2.8
Potatoes	4,023	1,628	1.0	6,678	2,702	166.0
Other	8,624	3,490	2.1	3,756	1,520	43.6
Total	**409,897**	**165,879**	**100.0**	**228,252**	**92,370**	**55.7**

Source: (GOC, 2021c; GOA, 2024b)

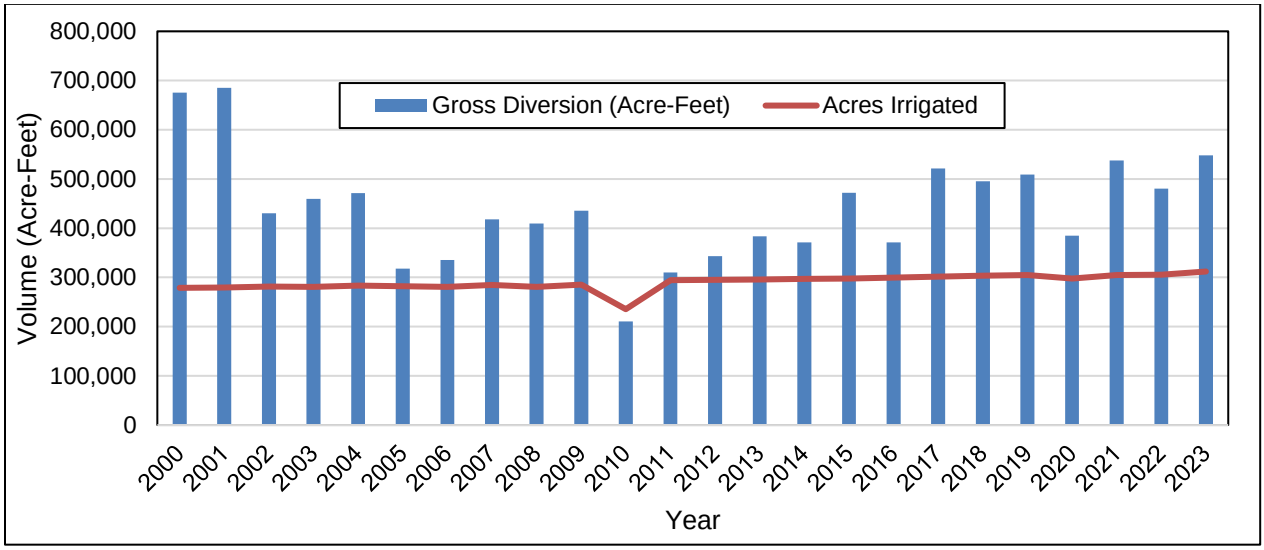
The boundaries of the County of Newell mostly coincide with the boundaries of the EID, which is one of the largest irrigation districts in Alberta, and the area of crops under irrigation in 2021 is also shown in Table 17-14. According to the Census of Agriculture (GOC, 2021c), 545 of the 727 farms in the SLSA (75.0%) used irrigation on 228,252 ac (92,370 ha) in 2021. Table 17-14 shows that 55.7% of croplands in the SLSA were irrigated. This includes most of the corn, potatoes, tame hay and fodder crops, and about half of the grains (wheat and oats) and oilseeds (canola). About

three quarters of all the lands used for alfalfa and alfalfa blends were also irrigated. Irrigation was also used on 2.7% of lands being summer fallowed and 23.4% of tame pastureland.

Much of the agricultural land in the SLSA is used directly or indirectly to support the cattle industry. This includes lands used for tame or seeded pasture, natural land for pasture, as well as land used to grow tame hay and fodder, most corn, and alfalfa and alfalfa mixtures. In 2021, 425 of the 727 farms in the SLSA (58.5%) raised 235,200 cattle (GOC, 2021d), or an average of 553 cattle per farm. There were 31 times more cattle than people living in the SLSA. Cattle populations in the EID in 2021 were 19% higher than in 2016 (an increase of 37,800 animals) and by 61% from 2011.

The EID draws water needed for irrigation and other purposes from the Bow River. It is licensed to draw up to 761,000 ac-ft[(2)] (938 million m^3) of water from the river per year to irrigate a maximum of 345,000 acres (140,000 ha) of irrigation and to provide up to 5,000 acre-feet (6.1 million m^3) of water for other purposes (GOA, 2024b). As shown in Figure 17-1, the amount of land irrigated in the EID has been gradually increasing, from about 279,000 ac (113,000 ha) in 2000 to 311,904 acres in 2023. During this time the amount of water diverted from the Bow River varied greatly, from a low of 210,500 acre-feet in 2010 (27.7% of the licensed allocation) to 685,000 acre-feet in 2001 (90.0% of the licensed allocation). Despite the variability in precipitation during the growing season, the annual withdrawals from the Bow River are all within the EID's total allocation. Increases in areas irrigated is made possible by increasing the efficiency of water use, as supported by less wasteful irrigation methods. Annual withdrawals vary according to the amount of natural moisture (rainfall) that occurs each year and the timing of these rainfall events. Since 2000, the average gross withdrawal has amounted to 57.9% of the amount allowed under the licence and withdrawals in 2023 amounted to 72.0% of the licensed amount.

[2] An ac-ft (acre-foot) is the amount of water needed to cover an acre of land with 1 foot of water.



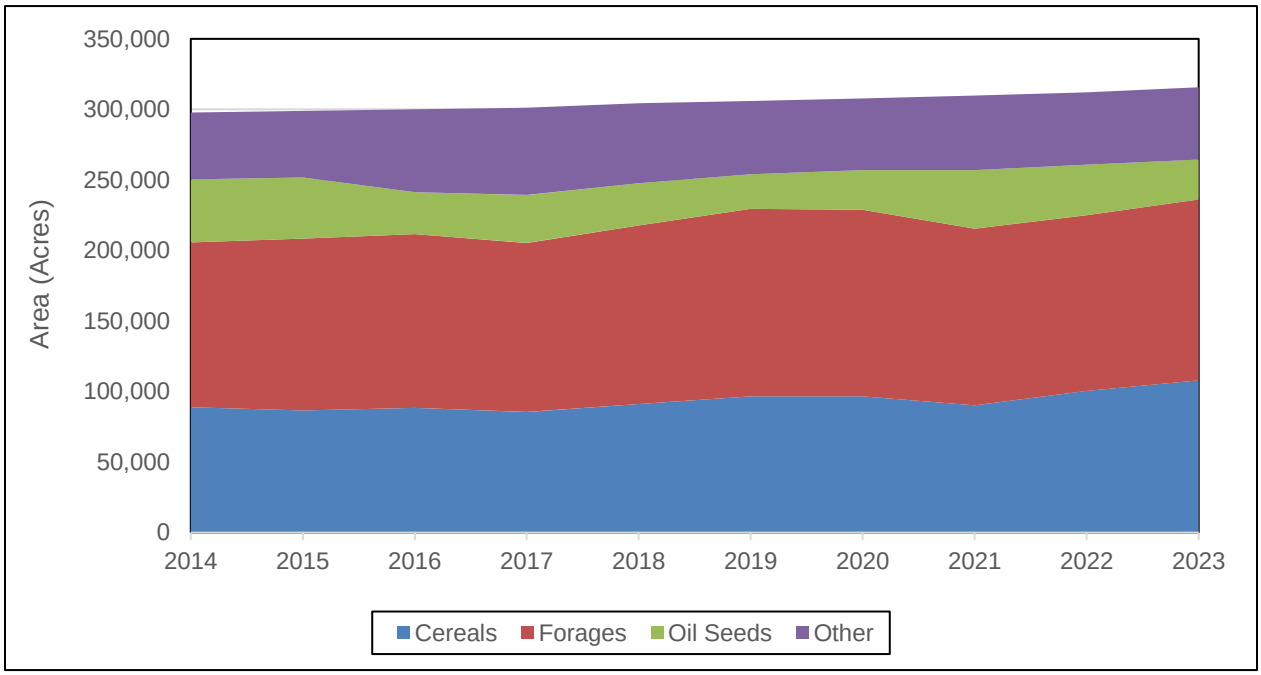
Source: (GOA, 2024b)

Note: 1 acre = 0.405 ha, one acre-foot = 1233.5 m^3

Figure 17-1: History of gross water diversions and irrigated acres in the EID, 2000 to 2023

During the period from 2000 to 2021 an average of 18 inches (460 mm) of water per acre (1.5 ac-ft) has been diverted for irrigation purposes, with 21 inches (530 mm) being diverted in 2023. The amount of water needed to supplement natural rainfall for irrigation purposes has ranged from 6.8 inches (170 mm) in 2010 to 29 inches (740 mm) in 2001.

Figure 17-2 shows how the acres of land under irrigation in the EIA changed between 2014 and 2023. It shows that the total area under irrigation increased by 6.0% during this period. This consisted of a 21.6% in the number of acres irrigated for cereals, a 9.7% increase in the area irrigated for forage crops, a 7.6% increase in lands irrigated for specialty and other crops, and a 36.6% decrease in the areas of land irrigated for oilseeds.



Source: (GOA, 2024c)

Note: 1 acre = 0.405 ha

Figure 17-2: Area (acres) of irrigated crops in the EID, 2014 to 2021

The economic advantages of irrigation are shown in Table 17-15 for two representative crops in 2022, although the data are for all irrigated and dryland acres in Alberta, rather than just for the EID and surrounding areas. For spring wheat, for example, the gross returns for irrigated acres are 34.3% higher than for dryland acres with an average yield of 74.7 bushels per acre for irrigated farms compared to only 58.8 bushels per acre for dryland. However, the cash costs of irrigation are also 31.1% higher than for dryland, with the result that the gross margins from irrigating spring wheat are $134.07 per acre higher (37.4%) that for dryland.

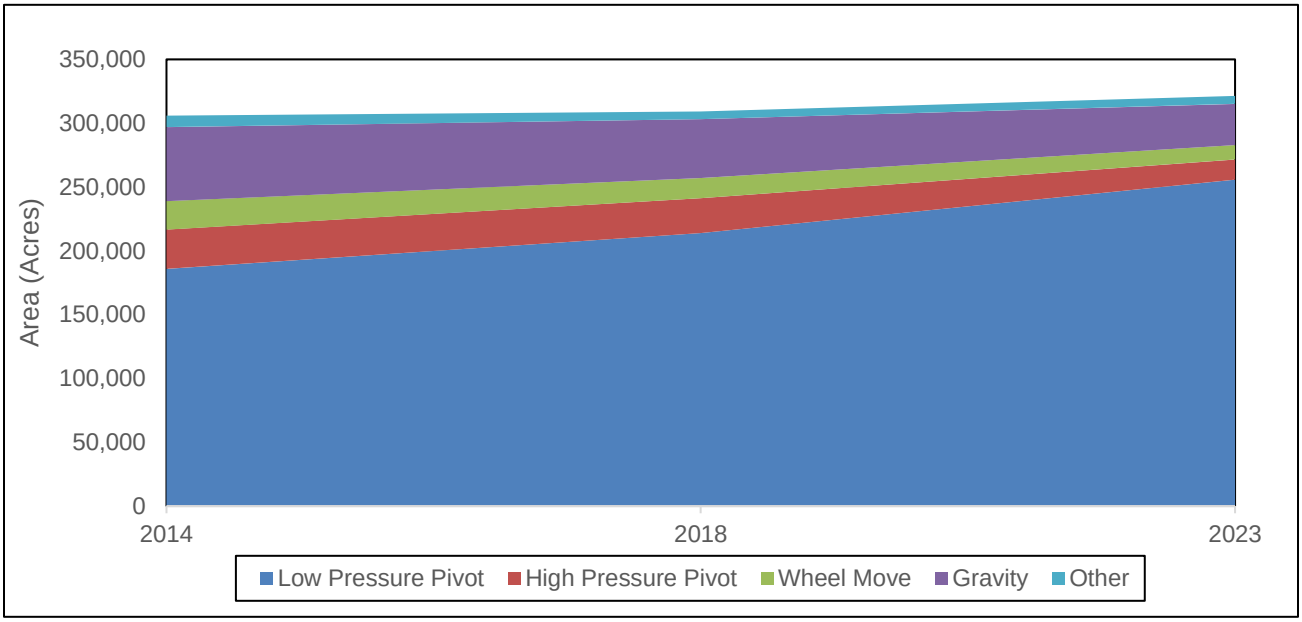
Table 17-15: Comparison of returns, costs and gross margins per acre for irrigated and dryland crops in Alberta, 2022

Commodity		Spring Wheat			Alfalfa		
		Gross Return	Cash Costs	Gross Margin	Gross Return	Cash Costs	Gross Margin
Irrigated		$934.34	$441.63	$492.71	$1,268.74	$351.03	$917.71
Dryland		$695.61	$336.97	$358.64	$200.76	$65.85	$134.90
Difference From Dryland	**Cost**	**$238.73**	**$104.66**	**$134.07**	**$1,067.98**	**$285.18**	**$782.81**
(%)	**%**	**34.3**	**31.1**	**37.4**	**532.0**	**433.1**	**580.3**

Source: (GOA, 2024d) (GOA, 2024e)

The true advantages of irrigation are apparent in growing alfalfa. The gross returns and gross margins for alfalfa are more than five times higher than for dryland alfalfa based on irrigated yields of 5.5 tonnes of alfalfa per irrigated acre compared to only 0.7 tonnes per acre for dryland. This means that an acre of irrigated alfalfa can support seven times as many livestock as an acre of dryland alfalfa.

As noted previously, the observed increases in areas irrigated in the EID has been possible through increases in the efficiency of water use by adopting more effective irrigation methods such as low-pressure centre pivot systems. Figure 17-3 shows that the use of low-pressure centre pivots in the EID increased by 69,860 acres between 2014 and 2023 (a 37.6% increase), primarily replacing less efficient gravity systems (a reduction of 25,900 acres), high pressure centre pivots (a reduction of 14,900 acres) and wheel roll systems (11,000 acres).



Source: (GOA, 2024c)

Note: 1 acre = 0.405 ha

Figure 17-3: Changes in application technology on the area (acres) of irrigated crops in the EID, 2014 to 2023

Prior to 2003, the EID charged water rates of $7.50 per acre-foot but this was reduced to $0 per acre-foot for the period from 2003 to 2022. A charge of $5.00 per acre-foot was implemented in 2023, to help offset operating costs in 2023 at $29.00/acre and help fund the building of the expanded Snake Lake Reservoir (EID, 2024). This resulted in collection of $1.58 million in revenues from water users in 2023 that will support the SLR. The EID is able to keep water rates very low because revenues from oil and gas leases that account for 83% of its annual operating revenues and more than offset operating costs, with the resulting surplus being put towards capital projects through the Irrigation Works Fund.

17.3.2.5 Housing

A summary of housing and housing conditions in the SLSA and SRSA is provided in Table 17-16. There were 2,404 occupied private dwellings in the SLSA in 2021 with an average of 3.1 people per dwelling. Even though the population of the SLSA declined between 2016 and 2021, 85 new dwellings were constructed. Housing in the SLSA is mostly suitable[3] (2.9% was

[3] Housing suitability refers to whether the dwelling has enough bedrooms for the size and composition of the household according to the National Occupancy Standard (NOS).

unsuitable), in relatively good condition (only 5.8% needs major repairs) and relatively affordable (12.7% of households were spending 30% or more of their income on shelter costs).

Table 17-16:Housing in the SLSA and SRSA, 2021

Study Area	Occupied Private Dwellings	Dwellings Built Since 2016	Residents per Dwelling	Not Suitable (%)	Needs Major Repairs (%)	Spending 30% or more of income (%)
SLSA – County of Newell	2,404	85	3.1	2.9	5.8	12.7
SRSA	7,248	245	2.9	9.2	10.6	12.7
Brooks	5,140	105	2.9	8.7	6.0	15.1
Duchess	378	0	2.8	4.0	7.9	10.6
Bassano	540	0	2.3	1.9	9.3	14.8
Rosemary	139	0	2.7	7.2	10.8	18.0
Siksika 146 Reserve	1,051	140	3.4	18.1	34.7	0.0
SSA	**9,652**	**330**	**3.0**	**7.7**	**9.4**	**12.7**

Source: (GOC, 2023b)

Of the 7,248 occupied dwellings in the SRSA, 9.2% were not suitable, 10.6% required major repairs and 12.7% of households were spending 30% of more of their incomes on shelter costs. Of the 245 dwellings built in the SRSA since 2016, 140 were constructed on the Siksika 146 Reserve and 105 in Brooks. Housing on the Siksika 146 Reserve was in poorest condition, with 18.1% being considered not suitable and 34.7% needing major repair.

17.3.2.6 Health and Social Services

Most of the health facilities and services are in Brooks and there is also a Health Centre located in Bassano. The Brooks Health Centre is an acute and continuing care facility. Core programs at the Brooks Health Centre include short stay surgical services, pediatrics, 24-hour emergency and ambulatory care services, obstetrics, and community health. Several medical clinics operate in Brooks and Bassano as well, with several of the doctors having excess capacity and are accepting new patients (Palliser Primary Care Network, 2022).

Research indicates that the oil and gas sector's long hours and repetitive tasks, prevalent in the Brooks-Newell Region, may increase the risk of addictive behavior. This region, with a focus on oil, gas, and meat processing industries, offers addiction support through Alberta Health Services and various community groups. Notably, drug-related arrests in 2022 showed a decline compared to the previous year (Grassland Regional FCSS, 2023).

The Grasslands Regional FCSS serves the communities in the SLSA. FCSS coordinates many programs in the SLSA including regional youth programs, senior support programs, meals on wheels, and volunteer sector programs. They also produce a Quality of Life Survey every few years for the SLSA (Grassland Regional FCSS, 2023).

17.3.2.7 Emergency Services

Royal Canadian Mounted Police (RCMP) detachments are in Brooks and Bassano. The Brooks detachment is the main center between Calgary, Lethbridge, and Medicine Hat and provides comprehensive police services. Both Brooks and Bassano detachments have initiatives like the Domestic Violence Intervention Team and the Safe Communities Committee, focusing on crime prevention and community safety. These programs have contributed to a continual downward trend in various crime statistics in the region. The RCMP also collaborates with local agencies such as Alberta Health and Emergency Medical Services (EMS) for traffic related calls and the Alberta Emergency Management Agency for coordinated responses to emergencies.

The Brooks Fire Department operates from a facility with a five-bay fire hall, administrative offices, and a fully equipped Emergency Operations Centre. They provide a range of emergency services including responding to fires, dangerous goods incidents, vehicle and industrial accidents, technical rescue, and more. The department functions 24/7 and is staffed by 32 volunteer firefighters and 3 full-time officers. They also engage in community education and fire prevention and have plans to upgrade their equipment and training programs to maintain their service level. The Bassano Fire Department is also well equipped, but is volunteer run, and they are currently looking to train additional volunteers to help meet call demand (Town of Bassano, 2024).

There are EMS ambulances in operation within the Newell Region and are based out of the Brooks Health Centre and Bassano Health Centre. The emergency services in Brooks, Alberta, including the RCMP and Fire Department, appear to be well-equipped and capable of meeting current demands.

17.3.2.8 Municipal Finance

Table 17-17 contains some selected indicators related to the finances of the rural and urban communities in the study area. In 2022, the County of Newell (the SLSA) had gross revenues of $42.2 million, with the majority (72.8%) coming from property taxes. Linear developments accounted for more than half (51.4%) of the assessed property value, with residential properties accounting for only 20.8% of the assessment base. The County had expenses of $27.5 million, with transportation services representing 40.3% of annual costs, resulting in net revenues of $14.7 million. The County had tax rates that were lower than the urban communities and its debt of $3.65 million was only 6.1% of the allowable limit.

Table 17-17:Selected municipal finance indicators, 2022

Financial Indicators 2022		SLSA-County of Newell	Regional Study Area			
			Brooks	Bassano	Duchess	Rosemary
Revenues	Millions	$42.2	$33.1	$4.9	$2.5	$0.9
Property Taxes	Millions	$30.8	$12.7	$1.3	$0.8	$0.3
	Percent of Revenues (%)	72.8	38.5	27.6	32.2	30.6
Expenses	Millions	$27.5	$33.3	$3.2	$2.4	$0.9
	Police, Fire and Emergency Services (%)	7.9	15.7	5.4	8.8	16.5
	Water, Wastewater and Waste Management (%)	11.4	21.7	24.8	26.5	27.3

Financial Indicators 2022		SLSA-County of Newell	Regional Study Area			
			Brooks	Bassano	Duchess	Rosemary
	Transportation (%)	40.3	16.7	17.7	21.2	17.2
	Recreation and Culture (%)	7.5	25.8	21.0	22.6	13.4
Net Revenues	Millions	$14.7	-$0.2	$1.7	$0.1	$0.0
Assessed Value and Composition	Millions	$3,880	$1,337	$113	$94	$28
	Residential (%)	20.8	76.8	72.8	90.4	92.2
	Non-Residential (%)	9.6	21.3	22.2	8.1	6.0
	Farmland (%)	3.7	0.0	0.1	0.0	0.0
	Linear[4] (%)	51.4	1.9	2.3	1.4	1.5
	Machinery & Equipment (%)	14.5	0.1	2.6	0.1	0.3
Tax Rates (mils)	Residential	11.94067	17.30458	21.25375	13.5726	20.6796
	Non-Residential	13.00837	18.43541	20.95159	13.9737	16.3400
Debt	Millions	$3.65	$3.69	$0.19	$0.00	$0.03
	Percent of Limit (%)	6.1	8.6	3.4	0.0	2.9

Source: (GOA, 2023)

The urban communities (the SRSA without the Siksika 146 Reserve) had lower revenues than the SLSA, with the revenues being loosely correlated with the population, and were far less reliant on revenues from property taxes than the County. Most property tax revenues also came from residential properties, which accounted for 72.8% or more of the tax assessment base for the various communities. For operating costs, the provision of utilities (water, wastewater, and waste management) accounted for 21% to 27% of annual costs with spending on recreation and culture also representing 13% to 26% of costs. Except for Brooks, which reported a $0.2 million deficit in 2022, the urban communities experienced small net revenues or reported a balanced budget. All urban communities, except Duchess, reported having debts that represented 8.6% or less of their debt limits.

17.3.2.9 Other

Wetlands

Wetland ecosystems provide a range of socio-economic benefits that contribute to the wellbeing of communities and the economy. In the Vegetation and Wetlands section (Volume 2, Section 10) it was reported that 32 wetlands covering 88 hectares are within the Project footprint. These wetlands support biodiversity, protect against environmental hazards, and provide wildlife habitat, flood control, water quality improvement, carbon sequestration, tourism and recreation, cultural and educational values. The exact nature and extent of the benefits provided by the wetlands within the Project footprint have not been specifically assessed. However, their potential replacement value was estimated using the Alberta Wetland Rapid Evaluation Tool – Actual (ABWRET-A) (GOA, 2015) which is a standardized method for evaluating wetland functions. For the Snake Lake area, the estimated replacement value of potentially affected wetlands is estimated to be $7.55 million, based on an average replacement value of $17,700 per hectare.

4 items like oil and gas wells and pipelines, and power generation, power lines and utility lines

An explanation of the exact methodology and assumptions used to determine this value can be found in Volume 2, Section 10.

Recreation

The recreational value of the SLR has not been quantified; while the reservoir is available for recreational activities such as fishing, boating, and wildlife viewing, there will be no new infrastructure developed to support these activities. The existing boat launch on the extant SLR will be maintained as is, and no new recreation infrastructure is planned.

17.4 SOCIO-ECONOMIC IMPACT ASSESSMENT RESULTS

17.4.1 Construction

According to the EID, construction of the Project is planned to commence in the Spring of 2026 with construction lasting three years. The Project is estimated to cost $250 million[5] to construct (2023$).

The estimated cumulative labour requirements to construct the Project will total 300 to 350 person-years. This is based on 50 to 75 people working onsite for eight months (April through November) and 20 to 25 people working onsite for the other four months of the year during each of the three-year construction period. About 20% of the Project workforce will consist of unskilled and general labour, 50% will consist of equipment operators including truck drivers and mechanics, 20% will be skilled tradespeople such as carpenters and concrete finishers, while the remaining 10% will involve projects managers. A team of 10 construction managers, quality control staff and engineers will oversee Project construction. Typically, the EID uses its own staff and local contractors to construct its projects.

A major cost of the Project will be the supply of mineral materials, including sand and gravel, and riprap. Sand and gravel will be obtained from EID's gravel pit near Eyremore, AB (28 km one way shipping) and will require 13 people working to excavate, load, and ship the gravel over 2 years (400 days of hauling). Riprap will be quarried at a private operation near Picture Butte, AB, and shipped to an offloading site by truck, 105 km one way, requiring 10 people working two years to process and deliver the materials (400 days of hauling).

It is estimated that 60-80% of the construction workforce will come from within the rural and urban communities in the study area (the SLSA and SRSA) with the other 20% coming from other parts of Alberta. There will be no work camp, as most workers (60-80%) will be able to commute to the Project from their homes. The other 20-40% are expected to stay in local hotels, rent apartments, or stay in local campgrounds.

17.4.1.1 Economic Conditions

The employment of up to 75 workers from within the SLSA will be beneficial, in terms of creating new employment opportunities for the local construction workforce, but the effects would be small enough not to trigger construction labour shortages that could lead to higher wages. In 2021, 845 people were employed in the study area construction industry, including 285 in the SLSA and 560

5 This estimate is considered to be accurate to ±20%.

in the SRSA. Project labour requirements could involve 9% of the regional construction workforce and, as noted above, this is common practice because the EID routinely uses local contractors to build its projects. Impacts were assessed as low positive (Table 17-18).

17.4.1.2 Population and Demographics

With most Project workforce being local workers and, given that any non-local workers are expected to use commercial accommodation during the construction seasons, there are expected to be no Project-related changes to the population of the SLSA or SRSA. It was assessed as neutral (Table 17-18).

17.4.1.3 Services

With no change in the permanent population of the SLSA or SRSA associated with Project employment, there will be no changes in demands for services. The 20 months' worth of trucking could result in additional demand on protective service providers, however the Traffic Impact Assessment (TIA) completed as part of the EIA process (Volume 1, Section 5) indicated there are no significant impacts from Project related trucking, so significant impacts on services is not expected.

17.4.1.4 Infrastructure

With no change in the permanent population of the SLSA or SRSA associated with Project employment, there will be no changes in demands for most infrastructure. The Project will increase the demand on commercial accommodation. This increase would be about 15 people in total (20% of 75 workers during peak construction seasons) and is small enough to be considered beneficial for local businesses and would not adversely affect accommodation by causing accommodation shortages. The Project construction could also affect traffic volumes on roads in the SRSA, as mineral materials for the berm structure will be trucked to the site. The Project estimates it will need 20 months' worth of trucking of rock and gravel for the construction. The impact was assessed as low negative (Table 17-18). The TIA can be found in Volume 1, Section 5 – Transportation Infrastructure and Traffic Impact Assessment.

17.4.1.5 Municipal Finance

The works of the EID are not subject to municipal taxation so there would be no effects on municipal finances in the SLSA or SRSA, and it was rated as neutral (Table 17-18).

17.4.1.6 Agricultural Production and Returns

Project construction is not expected to affect the operations of the EID or affect existing agricultural production and returns. The Project is not expected to need accommodations to handle additional demands consistent with the expansion of the number of irrigated acres. The impact was assessed as neutral (Table 17-18).

17.4.1.7 Wetlands

The Project will require the removal of 88 hectares of wetlands valued as having a replacement cost of $7.55 million, according to the ABWRET-A assessment. A Water Act approval will be required to permit this loss. Later, during operations, these losses will be fully replaced by allowing new wetlands to develop in shallow areas of the expanded reservoir. The net value change will be zero; however, during construction, prior to compensation, the effect is High-Negative.

17.4.1.8 Recreation

The Final Terms of Reference incudes:

“7.2 1. 1. Describe the socio-economic impacts of construction and operation of the Project on: g) recreational activities.

Changes in recreational activities are discussed in Volume 2, Section 13 Land Use and Management, including assessment of “Other Consumptive and Non-consumptive Land Uses”, with the following indicators:

- Area available for public land use (ha)
- Campgrounds area (ha)
- Access points to water features (count)
- Reservoir (Fishing and Nature Viewing) Area (ha)

During construction there will be no change to these resources and this is assessed Neutral.

17.4.1.9 Recreational Infrastructure

The Final Terms of Reference incudes:

“7.2 10. Provide an estimate of the nature and cost of the development of recreational infrastructure”

Recreational uses at this site may include activities such as fishing, boating, or wildlife viewing. No impacts on recreational infrastructure will occur. The Project is not being explicitly developed to improve recreational activities and there will be no new infrastructure developed to support recreation. While recreational uses may increase as a byproduct of the development there is no new infrastructure specifically designed to accommodate this. During construction there will not be any change in recreation; the existing reservoir will remain available for use, but the new reservoir will not yet be available. This is assessed as Neutral.

17.4.1.10 First Nations and Métis

The Final Terms of Reference incudes:

“7.2 1. 1. Describe the socio-economic impacts of construction and operation of the Project on: i) First Nations and Métis (e.g., traditional land use and social and cultural implications)”

and

“7.2 3. Discuss opportunities to work with Indigenous communities and groups, and other local residents and businesses regarding employment, training needs, and economic development opportunities arising from the Project."

This assessment considered the Siksika Nation as a community within the SRSA. Socio-economic assessment did not predict effects on the SRSA. Additional consideration for effects on Traditional Land Use of First Nations and Métis are discussed in Volume 2, Section 15. No explicit plans have been developed to work with Siksika Nation; as discussed Volume 1, Section 12 – Public and Indigenous Engagement the EID has initiated communications with Siksika Nation on multiple occasions regarding this Project and has not yet received a response. However, EID is willing to discuss the Project and any opportunities that may arise with Siksika, the Métis Nation of Alberta, or any other First Nation as the Project moves into the next stages of development.

17.4.1.11 Dam Decommissioning Financing

The Final Terms of Reference incudes:

"7.2. 5. Provide a description of how the dam decommissioning will be financed."

As per the Volume 1, Section 2, Project Description Overview, the expanded reservoir will be a permanent feature, the dam will not be decommissioned, and therefore, dam decommissioning financing is not assessed. However, the EID will inspect and maintain the reservoir and its dams using a combination of built in electronic monitors to detect seepage or soil movement (See Volume 1, Section 6. Dam Safety) and visual inspections of the dams and appurtenant structures, to ensure the dam continues to function over time. If the dam ever needs repairs or substantial maintenance, this will be separately budgeted and completed to maintain the working function of the reservoir.

17.4.1.12 Livestock Watering

The Final Terms of Reference incudes:

"7.2. 6. Provide an estimate of the costs and benefits of providing livestock watering facilities supported by the Project as it relates to improved range management and livestock production."

Changes to livestock watering activities or infrastructure in the EID are not included in this Project. Therefore, this is not assessed.

17.4.1.13 Native Grasslands and Biodiversity

The Final Terms of Reference incudes:

"7.2. 14. Provide an estimate of the losses and gains of native grasslands and associated biodiversity related to the Project and the economic costs and benefits."

Native grasslands will need to be removed to facilitate project development. There will be effects on wildlife, vegetation, and biodiversity related to the Project. Assessment of native grassland and effects on biodiversity are discussed in Volume 2, Section 10 Vegetation and Wetlands, and Volume 2, Section 11 Wildlife and Wildlife Habitat. In addition, the loss of grassland used as native pasture has been assessed in Volume 2, Section 13 Land Use and Management. Therefore, this is not further assessed here.

17.4.2 Operation

According to the EID, Project operation will commence in the Spring of 2029. The Project will be considered a permanent Project with no foreseeable closure. The EID will use its existing staff

for daily inspection of the structure and managing water levels in the reservoir. The Project will require annual inspections and ongoing minor repairs. The annual operating budget is estimated to be $30,000 (2023$).

Project operation will not result in changes to the amount of irrigation occurring in the EID; the Project's purpose is to provide additional storage that will better support about 50,000 acres of irrigation located downstream from the SLR that currently relies on water directly drawn from the Bow River. Thus, there will be no changes in the amount or value of agricultural production in the SLSA directly attributed to the Project.

17.4.2.1 Economic Conditions

As there will be no new employment associated with Project operations and with a very small annual operating budget, physical operation of the Project will have no effect on economic conditions in the SLSA or SRSA. With no change in the amount of value of agricultural production because of the Project, the change in water supply offered by the Project will also have no effect on economic conditions in the local or regional study areas.

The Snake Lake Project focuses on optimizing the use of existing irrigation systems by capturing and storing excess water during the spring when snowmelt leads to high river flows. This will result in more certainty for water availability and will benefit local farming communities by increasing certainty of water supply for irrigation during peak growing seasons, thereby safeguarding productivity against the impacts of dry summer periods. Communities downstream of Snake Lake will also experience indirect benefits, as the Project will alleviate pressure on the river system, preserving aquatic ecosystems and ensuring sufficient flow for other users such municipality and cities downstream. Additionally, the enhanced water management capabilities will help mitigate the risks of both drought and flood events, contributing to the resilience and economic stability of the broader community.

17.4.2.2 Population and Demographics

The population and demographic conditions in the SLSA and SRSA will not be affected by Project operations because there will be no new employment associated with physical operation of the Project or the change in water supply provided by the Project.

17.4.2.3 Services

With no new employment or population effects associated with physical operation of the Project or the change in water supply provided by the Project, there will be no post-construction effects on services in the SLSA or SRSA.

17.4.2.4 Infrastructure

With no new employment or population effects associated with physical operation of the Project or the change in water supply provided by the Project, there will be no effects on infrastructure in the SLSA or SRSA.

17.4.2.5 Municipal Finance

The works of the EID are not subject to municipal taxation so there would be no effects on municipal finances in the SLSA or SRSA.

17.4.2.6 Agricultural Production and Returns

While Project operation will allow the EID more flexibility in managing its water allocations, especially during times of low flows, reservoir expansion is not being done to promote irrigation expansion. Consequently, Project operations will, for the most part, have no effects on existing agricultural production and returns of the 50,000 acres (20,000 ha) of downstream irrigated agriculture supported by the Project although there are predicted benefits in terms of more reliable water supplies during low flow periods in the Bow River, which, due to the increase in reliability of water, will allow irrigators to continue farming fields during drought years, rather than leaving some fields fallow or cutting crops early, as has been common practice in recent drought years. In addition, Project operation will still be able to accommodate any additional annual demands consistent with recent trends in expanding the number of irrigated acres while operating within its licensed allocation. Water rates are not expected to be affected by the additional costs of Project operation.

17.4.2.7 Wetlands

As per the planned Wetland Assessment Impact Report in support of a *Water Act* approval for wetland disturbance, all construction related losses will be fully replaced by allowing new wetlands to develop in shallow areas of the expanded reservoir. Wetlands will be assessed for functions to assess the relative wetland value as per the Alberta Wetland Policy and the Mitigation Directive. Per the area of wetlands planned for development, it is anticipated that all wetland losses will be replaced, resulting in neutral effects on wetlands. It will take several years to ensure the wetlands develop as intended and, if the relative wetland value does not fully compensate for the assessed cost of wetland losses, the difference will be paid to Government of Alberta using the Wetland Replacement Fee Form. Thus, there will be full replacement and neutral effects on wetlands.

17.4.2.8 Recreation

Following completion of the new reservoir, additional lands for recreation will be available. The impact rating is assessed as High-Positive

17.4.2.9 Recreational Infrastructure

As there is no planned development of recreational infrastructure, the effect on recreation remains neutral during operations.

17.4.2.10 First Nations and Métis

As discussed in 17.4.1.10, effects on First Nations and Métis are not assessed.

17.4.2.11 Livestock Watering

As discussed in 17.4.1.11, effects on Livestock Watering are not assessed.

17.4.2.12 Native Grassland and Biodiversity

As discussed in 17.4.1.12, effects on Native Grassland and Biodiversity are not assessed.

17.4.3 Risk of Accidental and Severe Environmental Effects

17.4.3.1 Construction

Project construction activities will be done in accordance with occupational health and safety standards such that risks associated with accidental or severe environmental effects will have no impact on the socio-economic environment.

17.4.3.2 Operation

The EID's operational safety plans will be followed. These are included in Volume 2, Section 18 - Public Safety.

17.4.4 Mitigations and Offsets

17.4.4.1 Construction

As Project effects on employment will be beneficial and there will be no adverse effects on population and demographics, services, infrastructure, or government finances because of Project construction, no mitigations or offsets are required. There may be opportunities to enhance Project benefits by encouraging local contractors to hire people who are unemployed. It is recommended that the EID will develop a Project specific strategy for maximizing the use of local and regional goods and services during construction.

17.4.4.2 Operation

There are anticipated to be no adverse effects associated with physical operation of the Project or changes in water supply provided by the Project, so mitigation or offsets are not required.

17.4.5 Suggested Monitoring

17.5.3.1 Construction

As Project effects on employment will be beneficial and there will be no adverse effects on population and demographics, services, infrastructure or government finances because of Project construction, no monitoring is recommended.

17.5.3.2 Operation

There are anticipated to be no adverse effects and some positive effects associated with physical operation of the Project or changes in water supply provided by the Project, so no monitoring is recommended.

17.4.6 Residual Impact Assessment

A summary of the residual socio-economic effects during project construction is provided in Table 17-18 (during construction) and Table 17-19 (during operations, after all mitigation measures and offsetting procedures have been completed).

During Project construction, effects on population and demographics, municipal services, government finances, agricultural production and returns, recreation opportunities, and livestock watering will not change from baseline and are assessed as neutral. Project construction will have a low-positive effect on economic conditions but a low-negative effect on infrastructure due to transportation of construction materials. Construction will have a negative impact on both

wetlands and native grasslands and biodiversity; these are considered to be short term effects due to mitigation and offsets.

Project effects during operation will be neutral in terms of population and demographics, municipal services, infrastructure, government finances, wetland value, and recreation infrastructure. For both recreational opportunities and agricultural production and returns, there are anticipated to be potential long-term benefits due to having more available area for public access and angling or other recreation activities, and more reliable water supplies during low flow periods in the Bow River.

Table 17-18:Summary of socio-economic effects during construction

Impact description[1]	Direction	Key Criteria			Modifiers		Residual Impact Rating
		Magnitude	Geographical Extent	Duration	Confidence	Ecological and Social Context	
Economic Conditions	Positive	Low	Regional	Short-term	High	N/A	Low Positive
Population/Demographics	Neutral						Neutral
Services	Neutral						Neutral
Infrastructure	Negative	Low	Regional	Short-term	High	N/A	Low Negative
Government Finances	Neutral						Neutral
Agricultural Production and Returns	Neutral						Neutral
Wetland Value	Negative	High	Local	Short-term	High	N/A	High Negative
Recreational Opportunity	Neutral						Neutral
Recreational Infrastructure	Neutral						Neutral

1. As discussed above, Socioeconomic effects on First Nations and Métis, Dam Decommissioning Financing, Livestock Watering, and Native Grasslands and Biodiversity were not assessed

Table 17-19:Summary of residual socio-economic effects during operation

Impact description	Direction	Key Criteria			Modifiers		Residual Impact Rating
		Magnitude	Geographical Extent	Duration	Confidence	Ecological and Social Context	
Economic Conditions	Neutral						Neutral
Population/Demographics	Neutral						Neutral
Services	Neutral						Neutral
Infrastructure	Neutral						Neutral
Government Finances	Neutral						Neutral
Agricultural Production and Returns	Positive	Low	Regional	Long-term	High	N/A	Medium Positive
Wetland Value	Neutral						Neutral
Recreational Opportunity	Positive	High	Local	Long-term	High	N/A	High Positive
Recreational Infrastructure	Neutral						Neutral

1. As discussed above, Socioeconomic effects on First Nations and Métis, Dam Decommissioning Financing, Livestock Watering, and Native Grasslands and Biodiversity were not assessed

17.5 CUMULATIVE EFFECTS ASSESSMENT

17.5.1 Construction

As noted previously, in 2021, 845 people were employed in the SSA construction industry such that, if all labour for the projects listed in Table 17-2 for 2024 were sourced from within the region, the projects will require 35.5% of the regional construction labour force. However, the construction of solar projects is highly specialized, and it is expected that much of the construction labour required for the solar power project currently under construction is imported into the region, such that the regional construction labour force is currently not under stress.

Similarly, construction of one or more of the proposed solar projects and the other projects listed in Table 17-3 could also overlap with Project construction, thereby creating some competing demands for the regional construction labour force. These projects are estimated to employ up to 1,700 in 2026 and 180 in 2027, primarily due to the construction of solar projects and, as noted above, it is expected that much of this labour will have to be imported into the region because of the highly specialized skills related to construction of solar energy projects. Consequently, the cumulative effects of Project construction combined with the construction of other planned projects in the study are expected to be within the normal variability of demands on the regional construction workforce.

The effects of Project construction, in combination with the anticipated effects of constructing other major projects that are expected to have overlapping timelines, are not expected to result in any adverse cumulative effects on employment, population demands for infrastructure or services, municipal finance, agricultural production and returns, recreation infrastructure, livestock watering, wetlands or native grasslands and biodiversity.

17.5.2 Operation

As Project operation will not result in any new employment in the SLSA or SRSA nor result in any additional irrigated acreage, there will be no adverse cumulative effects related to operation of any of the proposed projects that may be in operation when the Project commences operation in 2029. The effects of Project operation, in combination with the anticipated operational effects of other major projects that are expected to have overlapping timelines. are not expected to result in any adverse cumulative effects on employment, population demands for infrastructure or services, or municipal finance, recreation opportunities, livestock watering, wetlands or native grasslands and biodiversity. The Project will likely have a small positive cumulative effect in terms of agricultural productivity and returns because the increased reliability of water supply in dry years will support possible increases in the number of irrigated acres in those parts of the EID supported by the Project.

17.5.3 Regional Approaches to Manage Cumulative Effects

17.5.3.1 Construction

Management of cumulative effects during Project construction will not be required because the demand for regional construction workers, in combination with labour demands of other proposed projects, will fall within the normal range of variability for the regional construction industry. This

has been the recent experience with construction of various solar projects in southern Alberta. Furthermore, the construction labour market is highly flexible such that, if local or regional shortages do occur, there maybe a temporary influx of workers. This does not typically result in large increases in population and associated demands for infrastructure or services because temporary workers will move on to other parts of Alberta once Project construction has been completed.

17.5.3.2 Operation

There will be no need to manage cumulative socio-economic effects during operation because the Project will result in no adverse effects on employment, population demands for infrastructure or services, municipal finance, recreation opportunities, livestock watering, wetlands or native grasslands and biodiversity and will have positive effects on agricultural productivity and returns.

17.6 BENEFIT/COST ANALYSIS

Section 7.2.11 of the FTOR calls for the completion of a benefit/cost analysis of the Project. This section states:

> *"Provide a benefit/cost analysis of the Project, including costs of construction, operation, and maintenance, increased value of agricultural production, indirect and induced benefits (livestock production, food processing etc.), recreational activities, and sport fisheries. Present a sensitivity analysis of assumptions used to generate these values."*

A similar requirement for benefit/cost analysis has been required for past water management projects submitted to the NRCB, where the Project proponent has been a Ministry of the Province and the Project would be entirely funded by the Province. It is believed that such information is needed to help the Board understand whether environmental, social, and economic benefits exceed environmental, social and economic costs.

The Snake Lake Reservoir Project is being proposed by a private entity: the EID as such, the Project is being financed by the EID through a combination of bank loans, grants, and user fees. The original funding arrangement, based on an original cost estimate of $218,580,000, consisted of 50% from a Canada infrastructure bank loan (which charges an interest rate of 1%), 30% from a provincial government grant, and the remaining 20% and any cost overruns to be funded by the EID. The current cost estimate of the Project is now estimated to be $250 million.

Overall, the EID is directly responsible for 70% of Project costs. As noted previously, it implemented water use charges of $5.00 per irrigated acre in 2023 and has already collected $1.58 million in revenues to support construction and operation of the Project. With the Project being essentially privately financed, the question of whether Project benefits exceed costs is based on the applicant's assessment of financial feasibility, which is a confidential matter. Needless to say, the EID's decision to proceed with the application to construct and operate the SLR and to commence collecting revenues to pay off the Project is indicative of its belief that the Project is financially feasible. With construction costs of $250 million, 70% debt financing, and annual operation costs of $30,000, the break-even benefits of the SLR to the EID will be an average of about $11.9 million per year over the Project life, or $38 per irrigated acre per year based on the current number of irrigated acres in the EID. This represents a rough estimate of

the value of the increased flexibility of the water management benefits that the SLR would provide to the EID.

Additionally, Project operation will create benefits outside the EID. The expanded SLR will reduce demands on the Bow River and allow more water to remain in the river. Higher flows in the river could provide benefits in terms of improved aquatic habitat and/or increased availability of water for withdrawal for downstream users. However, currently the extent of these benefits is impossible to quantify as they will depend on the timing, magnitude and duration of river flows and on the decisions of provincial water managers.

17.7 REFERENCES

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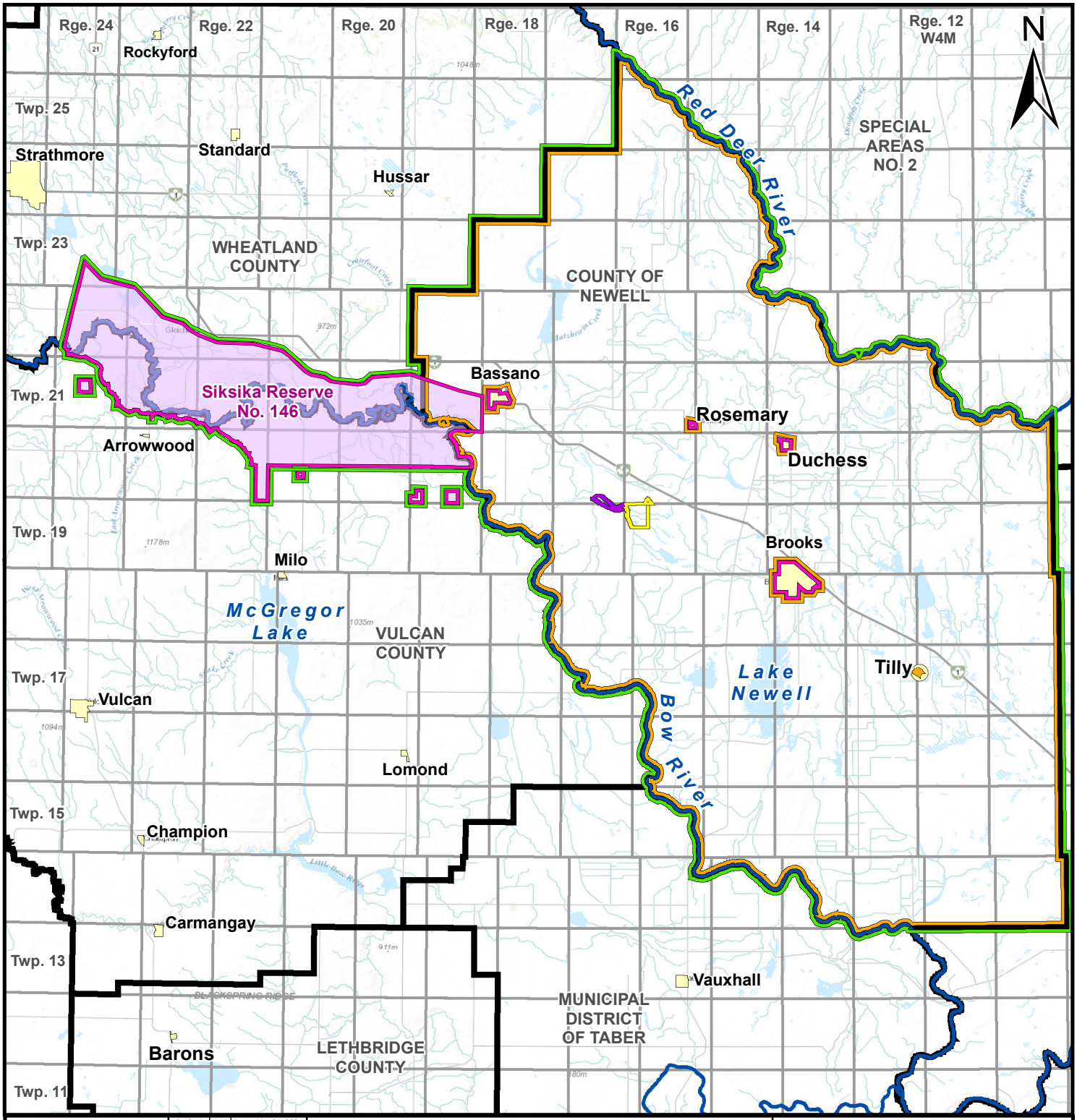
Appendix O

Figures



SCALE: 1:750,000

Km 6 0 6 12

Drafted:	NM	Date:	Mar 24, 2025
Approved:	WB	Revision:	0
Route Source:		Date:	Feb 18, 2022
CAD Survey		Revision:	0

Data Sources:
ESRI World Topographic Map
ATS Grid: AltaLIS 2007.

AAR Environmental Services

Please contact AARES for all other sources.

Please note that the topographic map is from 2010 (NRCAN) and although we have no reason to doubt the accuracy and completeness of it, users should be aware discrepancies may be present.

Legend

- Socio-economic Study Area (SSA)
- Socio-economic Regional Study Area (SRSA)
- Socio-economic Local Study Area (SLSA)
- Snake Lake Reservoir Expansion Project Area
- Snake Lake Reservoir
- Indigenous Reserve
- Municipal Area
- Rural Boundary
- Regional River

EID

Socio-economic Local and Regional Study Areas

March 2025

REF.: AARES21-127 (Socio)

Figure O1-1