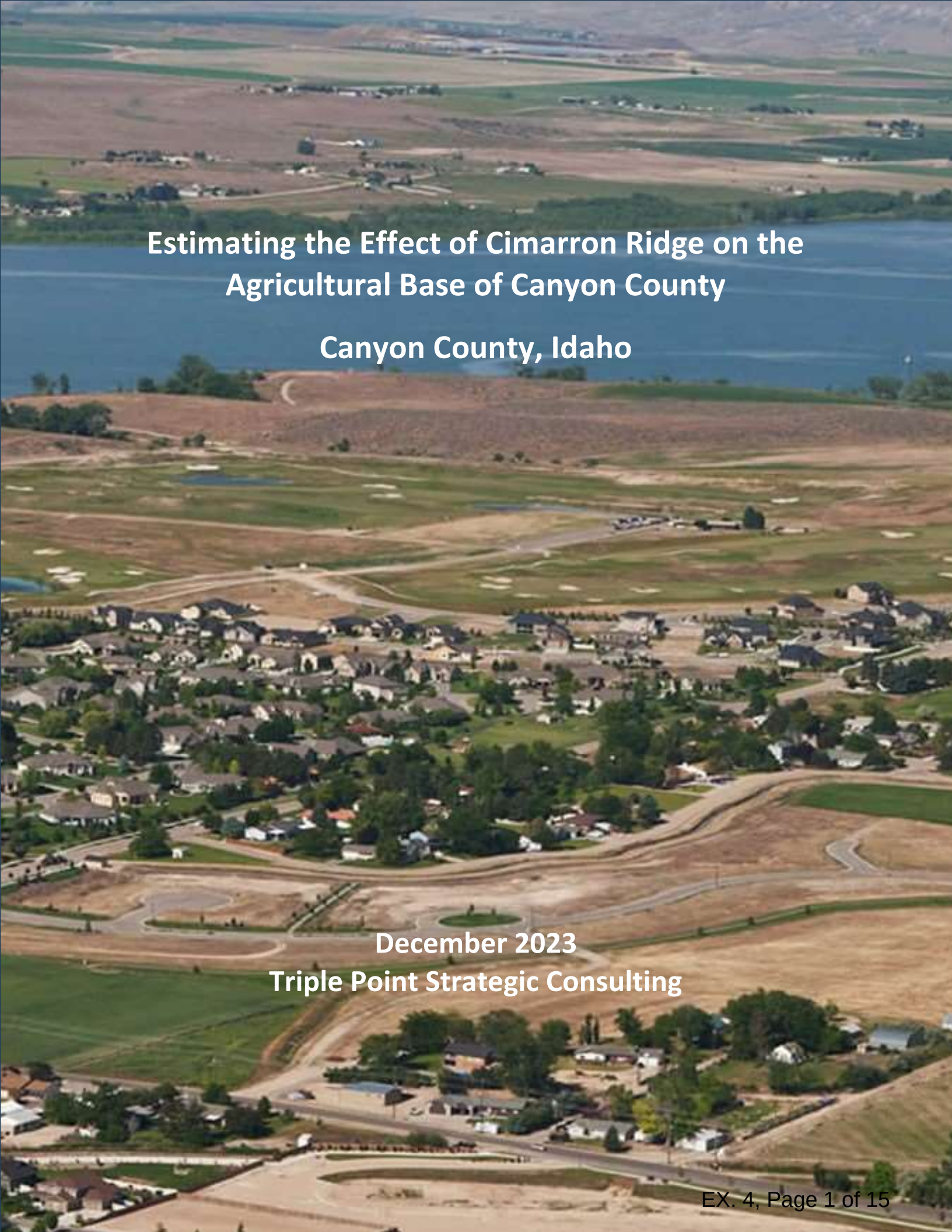




Estimating the Effect of Cimarron Ridge on the Agricultural Base of Canyon County

Canyon County, Idaho

December 2023

Triple Point Strategic Consulting



**Estimating the Effect of Cimarron Ridge on the
Agricultural Base of Canyon County
Canyon County, Idaho**

Submitted to:

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Purpose

IMH Boise Cimarron, LLC proposes to convert primary groundwater from irrigation purposes to domestic purposes for use in the Cimarron Ridge Subdivision proposed southwest of Lake Lowell in Canyon County, Idaho. At question is whether a proposed water conversion would have significant economic effects on the local agricultural base. Idaho Code § 42-222 describes under what conditions the Director of the Idaho Department of Water Resources may approve a nature of water change use under established rights. One of the considerations is the impact on the local agricultural economy, specifically the following (per Idaho Code § 42-222):

“The director shall not approve a change in the nature of use from agricultural use where such change would significantly affect the agricultural base of the local area.”

The purpose of this analysis is to quantify the economic output and water use of the subject property (Property) as it is currently used for agriculture relative to the economic output and water use of the agricultural base of the local area (i.e., Canyon County). This will allow the Property’s contribution to the local agricultural base to be estimated. The economic impacts and water use of the proposed residential development on the Property are also discussed.

Background

The Property is owned by IMH Boise Cimarron LLC. The Property consists of parcels R30022, R30039, and R30143, totaling 238.83 acres. This Property has a water right entitlement for 214 acres, although the number of acres actually irrigated in recent years has been less. All irrigation is currently agricultural—by irrigation wells and sprinkler irrigation. A portion of the Property has been farmed by McIntyre Farms Inc. in most of the recent years.

The water right transfer application seeks to change the nature of water use among other purposes. Specifically, the transfer proposes to retire 26 acres of irrigation, thereby transferring 82.2 acre-feet per year (AFY) to domestic use by 240 residential homes. The season of use would also be changed to year-round. The 26 acres would effectively be replaced by rooftops, roads, and other impervious surfaces. We also note that the 26 acres proposed for retirement have a right to 117 acre-feet of water.

Methodology

Canyon County is considered to be the “local area.” The economic output of an industry is the value of the products, goods, and services it produces. This analysis first evaluates the size of Canyon County’s economy in terms of its economic output. Second, we assess the economic output of Canyon County’s agricultural sector, which is comprised of 16 unique industries. The economic output of Canyon County’s agricultural sector is a measure of its agricultural base.

Using land and water use data for Canyon County, we estimate the amount of output per acre of land and per acre-foot of water. Applying these coefficients to the land and water currently used by the Property provides an estimate of the economic output of the Property, which can be compared the county’s agricultural base.

Definitions

This report refers to the amount of water used in an economic context as an input to producing an output. For example, water is a necessary ingredient (or input) for producing alfalfa. This reference to water usage is generally consistent with the term “irrigation requirement,” whereby “consumptive use” is the sum of the irrigation requirement and precipitation. Idaho’s definition of “consumptive use,” which is “that portion of the annual volume of water diverted under a water right that is transpired by growing vegetation, evaporated from soils, converted to nonrecoverable water vapor, incorporated into products, or otherwise does not return to the waters of the state” (Idaho Code § 42-202B).

IMPLAN Data

IMPLAN is an economic modeling system based on the Nobel Prize winning work of Wassily Leontief. An applied model was originally conceived as part of the Rural Development Act of 1972 and later privatized in the 1990s. IMPLAN is widely used for federal land permitting and economic development. IMPLAN incorporates all available economic data for each county in the country. For estimating economic output, IMPLAN sources information from several federal surveys such as the Census’ Annual Survey of Manufacturers and the Bureau of Economic Analysis’ Output Series. Other sources include the National Agricultural Statistical Service, National Bureau of Economic Research, Internal Revenue Service, and Energy Information Administration. IMPLAN segments regional economies into as many as 546 unique industries. This analysis relies on data for Canyon County.

IMPLAN’s environmental data consists of industry-specific coefficients representing physical emissions or resource use per dollar of industry output, with the physical unit depending on the particular pollutant or resource under consideration. IMPLAN’s environmental coefficients are sourced from data taken from the U.S. Environmentally-Extended Input-Output (USEEIO) (version 1.1) (Yang, et al. 2017). USEEIO is a family of models developed by the U.S. Environmental Protection Agency (EPA) designed to bridge the gap between traditional economic calculations, sustainability, and environmental decision-making.

In order to estimate water use by source and industry, this assessment relies on IMPLAN and USEEIO data. The water use data is sourced from the Water Use Satellite table compiled for USEEIO v1.1. This model version tracks water returns, allowing for the calculation of water use by industry. Water use for crops relies on acreage data for 37 crops accessed through the U.S. Department of Agriculture (USDA) Irrigation and Water Management Survey (IWMS) (USDA 2019). IWMS statistics are also used for water application rates in the USEEIO v1.1 model.

In USEEIO v1.1, water is divided into two categories: resource and water. The “resource” category represents water usage. These are the coefficients (cubic meters of water used per dollar of economic output) to estimate water use by industry.

Other Data Sources

Other information and data sources for conducting this analysis include the Canyon County Assessor’s Office, USDA Farm Service Agency, Idaho State Statute, SPF Water Engineering memos, and Zillow.

Canyon County Economic Assessment

This section characterizes Canyon County's economic base with emphasis on agriculture.

Overall Economy

In 2022, the entire Canyon County economy produced \$21.8 billion in goods and services. Agriculture produced almost \$1 billion, comprising 4.5 percent of the county's economy. Table 1 presents the economic output by sector.

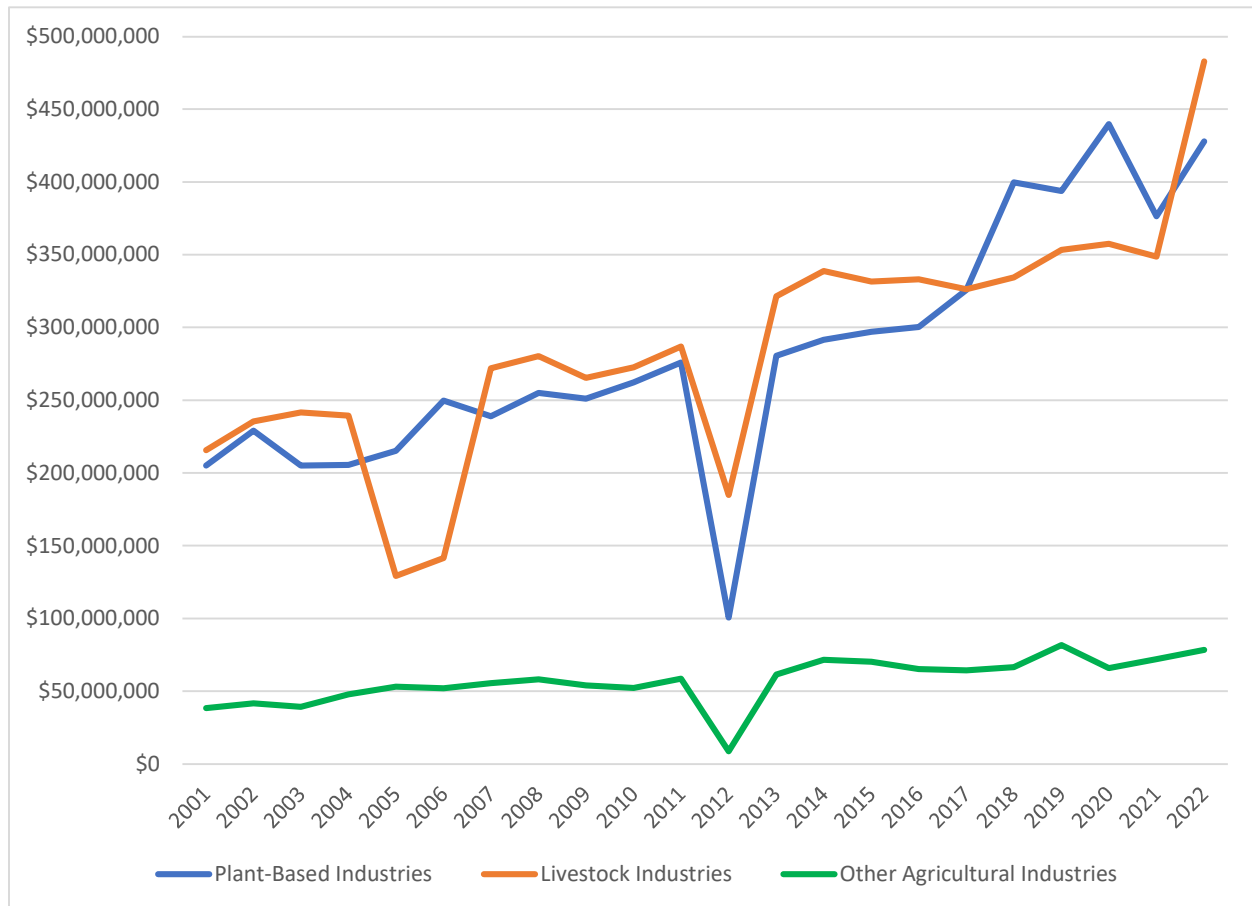
Table 1. Economic Output of Canyon County by Sector, 2022

Sector	Economic Output	Share
Agriculture	\$989,403,393	4.5%
Construction	\$2,475,431,334	11.3%
Government payroll	\$660,307,407	3.0%
Governmental enterprises	\$165,072,261	0.8%
Manufacturing	\$5,633,519,892	25.8%
Military payroll	\$30,480,233	0.1%
Mining and minerals	\$20,282,546	0.1%
Services	\$8,115,890,154	37.2%
Transportation	\$1,071,663,364	4.9%
Utilities	\$188,135,386	0.9%
Wholesale and retail	\$2,466,996,793	11.3%
TOTAL	\$21,817,182,763	100.0%

Source: IMPLAN.

Long-Term Agriculture Economy Trends

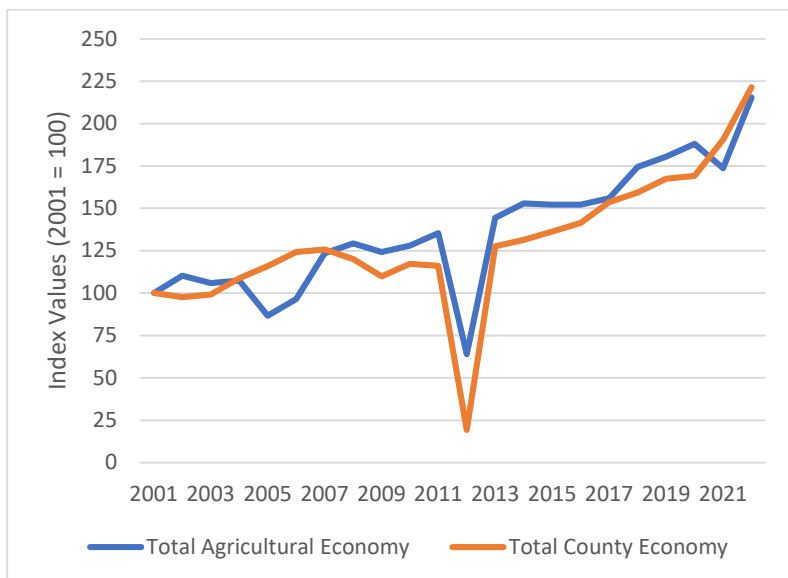
Canyon County's agricultural economy has grown steadily over the past 22 years. Aside from brief declines in each of the past two decades, the three agricultural industry categories combined (i.e., plant-based, livestock, and other agricultural) have grown consistently at an annual average growth rate of 7.7 percent in real terms, 2022 dollars (Figure 1).



Source: IMPLAN.

Figure 1. Canyon County Agricultural Base Economic Output 2001–2022

Perhaps not surprisingly, the County's total economy has grown consistently with its total agricultural economy (plant-based, livestock, and other combined) for the past 22 years (Figure 2).

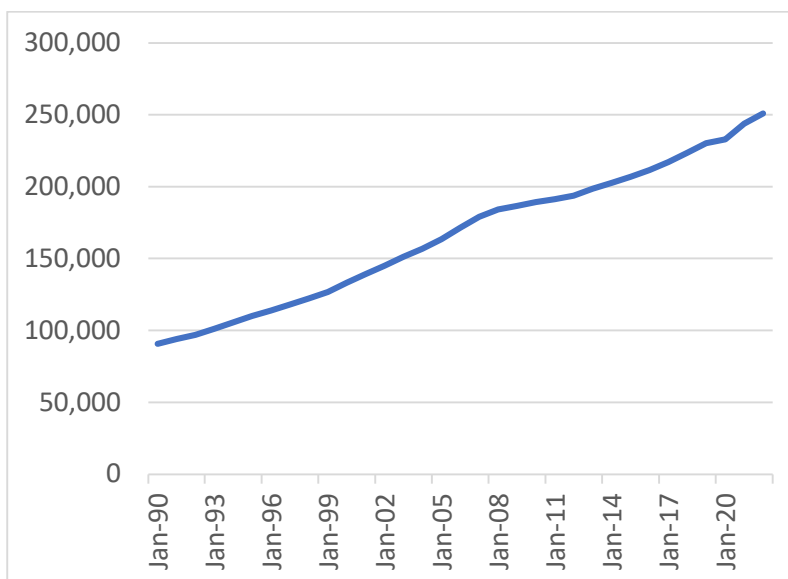


Source: IMPLAN.

Figure 2. Comparison of Canyon County Economic Output Growth Rates

Population Growth

Canyon County's residential population has been growing at an annual average of 3.2 percent for the past three decades as shown in Figure 3. By 2022, the population exceeded a quarter million residents.



Source: U.S. Census Bureau 2023a

Figure 3. Canyon County Population

Canyon County Agricultural Industries

Table 2 breaks down the county's agricultural sector into 16 separate industries. Dairy and beef cattle farming and crop farming (largely to feed cattle) comprise almost two-thirds of the agricultural output, over \$650 million.

Table 2. Economic Output of Canyon County by Sector, 2022

Agricultural Industry	Economic Output
Dairy cattle and milk production	\$331,348,547
All other crop farming, including alfalfa	\$194,185,031
Vegetable and melon farming	\$138,218,289
Beef cattle ranching and farming, including feedlots	\$127,087,638
Support activities for agriculture and forestry	\$62,348,630
Grain farming, including wheat	\$49,430,162
Sugarcane and sugar beet farming	\$26,814,490
Animal production, except cattle and poultry and eggs	\$13,823,914
Poultry and egg production	\$10,795,473
Greenhouse, nursery, and floriculture production	\$10,185,590
Fruit farming	\$8,893,552
Commercial hunting and trapping	\$6,770,623
Commercial logging	\$6,254,551
Forestry, forest products, and timber tract production	\$2,998,230
Oilseed farming	\$221,742
Tree nut farming	\$26,931
TOTAL AGRICULTURE	\$989,403,393

Source: IMPLAN.

The findings are consistent with the Census of Agriculture for Canyon County, which was last conducted in 2017 (USDA 2017).

Canyon County Groundwater Use

Total annual groundwater use in Canyon County is estimated to be 221,334 AFY as shown in Table 3. The grain and crop industries combined account for almost 75 percent of the total. Together with fruit and vegetables, these industries use over 93 percent of the groundwater pumped in the county.

Table 3. Canyon County Groundwater Use by Economic Sector

Economic Sectors	Groundwater Use (Acre-Feet/Year)	Share
Agriculture grain and crops	165,741	74.9%
Agriculture fruit and veg	41,162	18.6%
Agriculture beef and dairy cattle	7,283	3.3%
Manufacturing	3,225	1.5%
Services	1,402	0.6%
Agriculture other	1,045	0.5%
Utilities	452	0.2%
Government payroll	383	0.2%
Wholesale and retail	200	0.1%
Construction	173	0.1%
Mining and minerals	135	0.1%
Transportation	84	0.0%
Governmental enterprises	40	0.0%
Military payroll	9	0.0%
TOTAL GROUNDWATER USE	221,334	100.0%

Source: IMPLAN, USEEIO.

Canyon County Land Use

In 2022, irrigated agriculture accounted for over half of the county's land area, almost 200,000 acres (Table 4).

Table 4. Canyon County Land Use, 2022

Land Use Description	Acres	Share
01 Irrigated ag	199,797	55%
02 Irrigated pasture	22,564	6%
03 Non-irrigated ag	0	0%
05 Dry grazing	24,860	7%
10 Ag homesite	5,113	1%
11 Recreational	682	0%

Land Use Description	Acres	Share
12 Rural res	19,743	5%
13 Rural com tract	864	0%
14 Rural industrial tract	6,895	2%
15 Rural res subdivision	13,232	4%
16 Rural com sub	58	0%
17 Rural ind sub	112	0%
18 Rural other	8,394	2%
19 Public ROW/waste	11,586	3%
20 City res lot	13,252	4%
21 City com lot/ac	3,758	1%
22 City ind lot/ac	2,919	1%
25 Common area land only	1,529	0%
26 Condo land	1	0%
45 Locally assessed utilities	0	0%
70 Reservations & easements	628	0%
81L-Exempt land	25,041	7%
TOTAL ACRES	361,030	100%

Source: Canyon County Assessor.

Property Economic Assessment

As mentioned above, the Property is currently used for agricultural production using groundwater for irrigation. This section evaluates the number of acres farmed, the types of produce, groundwater used, and economic output.

Agricultural Production

This analysis relies on Farm Service FSA-578 reports that determine 171.52 acres of cropland have been farmed on the Property (Farm Number 3698) in recent years. Reports were not filed in 2020 or 2021. In 2018 and 2019, alfalfa was grown along with wheat and turnips. In 2008, 2009, 2010, and 2014, alfalfa was the sole crop grown.

Agricultural Water Use

The Property has water rights for 214 acres. For this analysis, we assume all 171.52 acres have been irrigated. Irrigation requirement data provided by HDR, Inc. finds the average irrigation requirement in southern Canyon County to be 3.6 AFY. Based on this average, the Property is currently using or has a total irrigation requirement of 617.47 AFY of groundwater.

Economic Impact of Transfer on Agricultural Base

This analysis estimates the economic output of the Property for comparison to the county agricultural base using two methods. One approach is based on the output per acre-foot of water used and the other is based on the output per acre of land. Both approaches incorporate IMPLAN data.

To estimate the output per acre-foot, the combined economic output of the grain, vegetable, and crop industries at the county level is divided by the total amount of water used to produce those products (both groundwater and surface water) to find \$693 of product value per acre-foot (Table 5).

Table 5. Output per Acre-Foot for Canyon County Grain, Crop, and Vegetable Industries, 2022

Industries	Total Acre-Feet/Year	Output	Cost/Acre-Foot
Grains, crops, vegetables	551,004	\$381,833,482	\$693

Source: IMPLAN, TPSC.

To estimate the output per acre, the combined economic output of all plant agriculture industries at the county level is divided by the total amount of irrigated agriculture land to produce those products, to find \$2,142 of product value per acre (Table 6).

Table 6. Output per Acre for Canyon County Plant Agriculture Industries, 2022

Industries	Total Acres	Output	Cost/Acre
All plant agriculture	199,797	\$427,975,787	\$2,142

Source: IMPLAN, TPSC.

Using the unit values derived in Tables 5 and 6, we estimate the current economic contribution to the local agricultural base to be 0.086 percent based on acres farmed, and 0.112 percent based on acre-feet of irrigation. The average of these two approaches is 0.099 percent.

Table 7. Estimates of Property Output in Comparison to Local Agricultural Base, 2022

Method	Units	Unit Value	Property Output	County Output	Share
Acres farmed	171.52	\$2,142	\$367,404	\$427,975,787	0.086%
Acre-feet for irrigation	617.47	\$693	\$427,894	\$381,833,482	0.112%
AVERAGE			\$397,649	\$404,904,634	0.099%

Source: IMPLAN, TPSC.

Proposed Residential Development

The proposed water transfer effectively removes 171.52 acres from agricultural production and replaces the land use with residential development. A total of 240 dwelling units are proposed, giving an average density of 1 unit per acre. Upon development, it is estimated that 145 acres will be irrigated with an irrigation volume of 3 acre-feet per acre. All irrigation will be for landscape except for a buffer strip along the east boundary.

Incremental Water Use

According to an SPF Engineering memo dated April 10, 2019, the annual domestic water use by 240 homes would be 81 AFY, assuming 300 gallons per home, per day. The memo concludes:

“In summary, higher density housing causes a decrease in annual water use because the increased indoor domestic use is more than offset by the decreased irrigation use resulting from more impervious area.”

In addition to domestic use, water would be used for landscape irrigation. According to an SPF Engineering memo dated September 17, 2021, the annual irrigation demand is estimated to be 3.0 acre-feet per acre on 145 acres, for a total of 430 AFY. Fire flow use is estimated to be minimal in comparison at 1 AFY.

The sum amount of water by these uses is 512 AFY, which is 105 acre-feet less than the 617 AFY currently used for farming the Property (Table 7).

Incremental Household Income

As a residential neighborhood, the Property would contribute to the county’s population growth. According the Census Canyon County census, there are 2.92 persons per household, which indicates an additional 701 residents or a 0.3 percent increase (U.S. Census Bureau 2023b). The incremental population will increase the demand for agricultural products at the margin, putting upward pressure on prices. Along with other economic impacts, incremental demand for food will impact the county’s agricultural base.

According to realtor.com, the median home listing price in Canyon County in October 2023 was \$470,000 (realtor.com 2023). Assuming an 20 percent downpayment, 7.5 percent 30-year fixed, the average monthly payment would be \$2,993 (Bankrate 2023). Assuming this represents 30 percent of household income on average, the average household income would be \$119,720, or \$28,732,800 for the entire development. At 11.3 percent of household spending on food (U.S. News & World Report 2023), the incremental demand for food would rise by \$3.2 million, or more than eight times the current economic output of the Property. While this may not directly impact Canyon County given today’s complex web of supply chains, the economic impact of residential development would be positive.

Conclusion

The data presented in this report shows that the agricultural economy and population of Canyon County have been growing rather consistently in recent decades.

The current contribution of the Property to the county’s agricultural economy is less than 0.1 percent, which is an estimate of the affect the proposed water transfer would have on the local agricultural base.

Developing the Property for residential housing units would create an incremental demand for agricultural product estimated to be \$3.2 million. The amount of water used by the proposed development is estimated to be 105 acre-feet less than currently used.

About Triple Point Strategic Consulting LLC

Triple Point specializes in developing custom economic and financial models. We deliver results for our clients with high-value and accurate information as demonstrated by our many repeat clients. Triple Point is active across the western United States and Canada, modeling for scenario planning, financial forecasting, permitting and approvals, optimal resource allocation, and improved decision-making. Economic impact studies are conducted using the IMPLAN model. In 2013, Jeff Moffett founded Triple Point Strategic Consulting to provide marketing, strategic planning, and economic analysis services. Focus areas are renewable energy, affordable housing, health assessments, sustainable tourism, and economic development. Jeff earned his M.S. in Econometrics and Ph.D. in Applied Statistics at the University of Washington, Seattle.

Recent Housing and Socioeconomic Projects

- Socioeconomic Assessment and Housing Market Analysis of Buena Vista, CO, 2020
- Socioeconomic Assessment and Housing Market Analysis of South Chaffee County, CO, 2020
- Economic Impact and Socioeconomic Analysis of the Former Bennett Freeze Area, AZ, 2020
- Socioeconomic Assessment and Housing Market Analysis of Lake County, CO, 2021
- Socioeconomic Assessment and Housing Market Analysis of City of Gunnison, CO, 2021
- Socioeconomic Assessment and Housing Market Analysis of City of Montrose, CO, 2021
- Socioeconomic Assessment and Housing Market Analysis of Buena Vista, CO, 2021
- Financial Proforma Scenario Planning, Valley Housing Fund, Crested Butte, CO 2022
- Socioeconomic Assessment and Housing Market Analysis of City of Gunnison, CO, 2022
- Region 10 Housing Meta-Analysis, western CO, 2022
- Housing Needs Assessment for the City of Cortez, CO, 2023
- Workforce Housing Innovation Study, West Mountain Regional Housing Coalition, CO, 2023
- Socioeconomic Assessment and Housing Market Analysis of Lake County, CO, 2023
- Water Resource and Economic Development Study, South Fork Boise River Diversion Project, current
- Market Assessment and Demand Study of Remington Ranch, Gypsum, CO, current
- Financial Modeling for Aspen School District, Aspen, CO, ongoing, March 2022 to ongoing

Recent Economic Analysis, Market Feasibility Assessments, and Business Development Projects

- North Fork EMS, 2017–2018 mill levy campaign strategist, measure passed by landslide
- Gunnison County Library District, 2019 mill levy campaign
- Delta County Library District, 2019 mill levy campaign
- Economic modeling, forecasting, and scenario planning for South Tahoe Events Center
- Scenario Planning of Land Management in San Luis Obispo County, CA 2019–2020
- Market and Environmental Feasibility Study of OHV Park, Yolo County, CA January 2020–2021
- Socioeconomic Assessment and Health Analysis of Delta County, CO, 2020
- Economic Impact and Socioeconomic Analysis of the Former Bennett Freeze Area, Navajo Nation, 2020
- Economic Impact Assessment of \$500M hospitality development, Sacramento County, CA 2021
- Economic Analysis of the Navajo Thaw Regional Recovery Plan Water Projects, Navajo Nation, 2021
- Proforma financial modeling, Gunnison County Library District, 2021
- Build-out and Economic Development Forecast for North Village, Mt. Crested Butte, CO 2021
- Economic and Fiscal Analysis of Large Res/Comm Development in Garfield County, CO 2022

- Socioeconomic and Behavioral Health Needs Assessment of Gunnison County, CO, 2021–2022
- Economic Impact of Adaptive Sports Center, Mt. Crested Butte, CO, Spring 2022, Spring 2023
- Proforma Budget Model for the Proposed Incorporation of Keystone, Summit County, CO 2022
- Economic Model for Lake Tahoe/Truckee Destination Management Roadmap, current
- Fiscal Analysis, multiple western destinations, Vail Resorts, 2022
- Fiscal Analysis for San Francisco Peninsula DMO, CA, 2022, 2023
- Market Modeling for the State of Nevada Department of Tourism, 2023
- Market and Destination Feasibility Study of Mendocino County, CA, 2023
- Business Development and Scenario Planning, Lake Tahoe Visitor Authority, CA, 2023
- Fiscal Analysis for Visit Del Mar, Del Mar, CA, 2023
- Economic Modeling for Strategic Planning for Mendocino County, CA, 2023, current

Economic Impact of Utility-Scale Renewable Energy Projects

- Economic Impact of Industrial Scale Solar Facility in Nebraska, January 2020, confidential
- Economic Impact of Shiprock Solar Facility, 2020
- Economic Impact of Industrial Scale Solar Facilities in San Luis Obispo County, California, 2020,
- Economic Impact and Fiscal Analysis of Battle Born Solar Facility in Clark County, NV, 2020
- Economic Impact of Industrial Scale Solar Facility in New Mexico, May 2021
- Economic Impact and Fiscal Analysis of Industrial Scale Solar Facility in Lincoln County, Nebraska, July 2021
- Socioeconomic Analysis of the Painted Desert Solar Project, Arizona, 2022
- Economic Impact of Beatty Energy Center, Nye County, NV, 2022
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- Economic Impact and Fiscal Analysis of Basin Solar Facility, Pahrump, NV, 2022
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- Economic Impact of Golden Currant Solar Facility, Clark County, NV, 2023
- Economic Impact of GridLiance Core Upgrades Transmission, Nye County, NV, 2023
- Economic Impact of Stagecoach Wind Facility, White Pine County, NV, current
- Economic Impacts of two utility-scale solar facilities in New Mexico, current
- Economic Impact of Solar Facility in Imperial County, CA, 2023 – 2024, current
- Economic Impacts of a utility-scale solar and wind project in Arizona, pending for 2024
- Economic Impact of GridLiance Beatty Upgrades, Nye County, NV, pending for 2024
- Economic Impact of Pantheon Solar Facility, White Pine County, NV, pending

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