BUREAU OF RECLAMATION

PRO-EA-22-004

Draft Environmental Assessment for the Strawberry Valley Project 1920 Act Conversion

Interior Region 7 – Upper Colorado Basin
Provo Area Office
Provo, Utah

U.S. Department of the Interior

July 2024

Mission Statements

The U.S. Department of the Interior protects and manages the Nation's natural resources and cultural heritage; provides scientific and other information about those resources; and honors its trust responsibilities or special commitments to American Indians, Alaska Natives, Native Hawaiians, and affiliated Island Communities.

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

Draft Environmental Assessment for the Strawberry Valley Project 1920 Act Conversion

Interior Region 7 – Upper Colorado Basin
Provo Area Office
Provo, Utah

Prepared by:

Bureau of Reclamation
Provo Area Office
Provo, Utah

Acronyms and Abbreviations

AF	Acre-Feet
AIANNH	American Indian/Alaska Native/Native Hawaiian Areas
BU	Bonneville Unit
CAAS	Corrective Action Alternative Study
cfs	cubic feet per second
Cities	Spanish Fork, Salem, and Payson Cities
CUP	Central Utah Project
CUWCD	Central Utah Water Conservancy District
EA	Environmental Assessment
EO	Executive Order
FONSI	Finding of No Significant Impact
ITA	Indian Trust Assets
M&I	Municipal and Industrial (uses and purposes are synonymous)
NAGPRA	Native American Graves Protection and Repatriation Act of 1990
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NRHP	National Register of Historic Places
O&M	Operate and Maintain
Reclamation	U.S. Bureau of Reclamation
SACS	Strawberry Aqueduct and Collection System
SHLCC	Strawberry High Line Canal Company
SHPO	State Historic Preservation Office
SVP	Strawberry Valley Project
SVP High Flow Water	Water Rights of the United States for the SVP Project in the Spanish Fork River when flows are greater than 390 cfs
SVP Service Area	Strawberry Valley Project Service Area (Figure 1)

TCP	Traditional Cultural Properties
U.S.C.	United States Code
WDA	Water Dedication Agreements
WOTUS	Waters of the United States
1991 Contract Water	Water stored in the enlarged Strawberry Reservoir and delivered to the SVP via the terms of the 1991 Agreement

Symbols

+	plus
%	percent
AF	acre-ft
ft	feet
ft^3/s	cubic foot per second
in	inches

Contents

Page

Executive Summary **ES-1**

1. Introduction **1**

1.1 Background 1

1.2 Historical Use of Water for Municipal Purposes 1

1.3 1991 Agreement and the Central Utah Project 2

1.4 Previous Attempts to Address Municipal Needs 3

1.5 Purpose and Need 4

1.5.1 Proponent's Objectives 4

2. Alternatives **5**

2.1 Introduction 5

2.2 No Action Alternative 5

2.3 Proposed Action Alternative 5

2.5 Third Party Contracts 9

3. Affected Environment and Environmental Consequences **10**

3.1 Resources Considered but Eliminated from Detailed Analysis 11

3.2 Reservoir Operations and Streamflow 11

3.2.1 No Action 12

3.2.2 Proposed Action 12

3.3 Land Use 12

3.3.1 No Action 13

3.3.2 Proposed Action 13

3.4 Water Resources 13

3.4.1 No Action 14

3.4.2 Proposed Action 15

3.5 Wetlands 19

3.5.1 No Action 21

3.5.2 Proposed Action 21

3.6 Soils and Farmland 21

3.6.1 No Action 22

3.6.2 Proposed Action 22

3.7 Floodplains 22

3.7.1 No Action 24

3.7.2 Proposed Action 24

3.8 Threatened and Endangered Species 24
3.8.1 Yellow Billed Cuckoo 25
3.8.2 No Action 26
3.8.3 Proposed Action 26
3.8.4 Yellow Billed Cuckoo Effects Determination: 26
3.8.5 June Sucker 27
3.8.6 No Action 27
3.8.7 Proposed Action 27
3.8.8 June Sucker Effects Determination 28
3.8.9 Ute Ladies'-tresses 28
3.8.10 No Action 28
3.8.11 Proposed Action 29
3.8.12 ULT Effects Determination 30
3.9 Climate Change 30
3.9.1 No Action 30
3.9.2 Proposed Action 31
3.10 Cultural Resources 31
3.10.1 No Action 32
3.10.2 Proposed Action 32
3.11 Indian Trust Assets 32
3.11.1 No Action & Proposed Action 35
3.12 Socioeconomics 35
3.12.1 No Action 35
3.12.2 Proposed Action 36
3.13 Environmental Justice 36
3.13.1 No Action 36
3.13.2 Proposed Action 36
3.14 Cumulative Effects 37
3.14.1 Methodology 37
3.14.2 Cumulative Effects Analysis 38
3.14.3 Conclusions 41
4. Environmental Commitments 43
4.1 Additional Analyses 43
4.2 Standard Reclamation Best Management Practices 43
4.3 Coordination with Local Agencies 43
4.4 Water Resources Management 43
4.5 Wildlife Resources 44
4.5.1 Bald and Golden Eagles 44
4.5.2 Other Raptors and Migratory Birds 44
4.6 Public Access 44
4.7 Previously Disturbed Areas 44
4.8 Health and Safety 44
4.9 Indian Trust Assets 44
4.10 Future Land Use 44

5. Consultation and Coordination 45
5.1 Comment Period 45
5.2 Utah State Historic Preservation Officer 45
5.3 Native American Consultation 45
6. Preparers 47
7. References 49
8. Appendices 53
Appendix A – Project Water Contract Holders A-1
Appendix B – 1991 Agreement B-1
Appendix C – Kem C. Gardner Study C-1
Appendix D– Utah SHPO Concurrence Letter D-1
Appendix E– IpaC List of Threatened and Endangered Species E-1

Tables

Page
Table 1. Resources considered but eliminated from detailed analysis 11
Table 2. Consumptive water use of various crops in Southern Utah Valley 17
Table 3. Agricultural and M&I Diversions and Depletions 18
Table 4. Threatened and Endangered Species 25
Table 5.-Summary of Reasonably Foreseeable Future Projects in the SVP Service Area 38
Table 6.-Reclamation team, environmental preparers 47

Figures

Page
Figure 1. Map of the Strawberry Valley Project Delineated Service Area 10
Figure 2. Water Supply and System Demand for Utah Lake Basin 19
Figure 3. Map of wetlands within the Strawberry Valley Project Delineated Service Area 20
Figure 4 Map of floodplains within the Strawberry Valley Project Delineated Service Area 23
Figure 5 Map showing Ute ladies'-tresses habitat in the SVP Service Area. 29
Figure 6 Map of Indian Trust Assets and their Proximity to SVP Service Area 34

Executive Summary

The U.S. Bureau of Reclamation (Reclamation) prepared this Environmental Assessment (EA) to assess the potential consequences of conversion of Bonneville Unit (BU) water delivered through BU facilities to fulfill Strawberry Valley Project contracts (1991 Contract Water) from irrigation to miscellaneous purposes, including municipal and industrial (M&I) uses.

The Proposed Action is needed to allow Reclamation to respond to the SVP contract holders' request to allow flexibility in their use of their contract water supply. This includes severing appurtenance of the water to specific parcels of land and converting the water to miscellaneous purposes to meet the growing demand for M&I water in south Utah County, Utah.

This EA has been prepared in compliance with the National Environmental Policy Act and Reclamation procedures, and is intended to serve environmental review and consultation requirements pursuant to Executive Order 11988 (Floodplain Management), Executive Order 11990 (Wetlands Protection), Executive Order 12898 (Environmental Justice), the National Historic Preservation Act (Section 106), the Endangered Species Act (Section 7(c)), and Department of Interior and Reclamation Indian Trust Asset policies.

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1. Introduction

1.1 Background

The Strawberry Valley Project (SVP) was authorized under the Reclamation Act of 1902 as an irrigation project to perform a trans-basin diversion from the Strawberry River (a tributary to the Duchesne River into the Colorado River Basin) into the Utah Lake Drainage by way of the Spanish Fork River. Prior to 1920, the Bureau of Reclamation (Reclamation) contracted with Mapleton and Springville Irrigation companies to operate and maintain (O&M) the Mapleton Springville Lateral (now pipeline) and contracted with the Strawberry High Line Canal Company (SHLCC) to O&M the Strawberry High Line Canal. Reclamation also contracted with various private irrigation ditch companies to deliver water to shareholders with Reclamation contracts. These entities deliver irrigation water to approximately 45,000 acres in south Utah County. In 1926, Reclamation contracted with the Strawberry Water Users Association (SWUA) to O&M the remaining Federal facilities in the SVP.

The SVP has provided irrigation water to farmlands and areas of south Utah County for more than 100 years. Under the Proposed Action, water delivered from the enlarged Strawberry Reservoir under existing contracts would be used for irrigation purposes until the water is converted and a third-party contract is executed to change its use. This EA addresses the proposed contract actions for converting water from irrigation and incidental domestic purposes to miscellaneous purposes and has been prepared in cooperation with the SVP contract holders (See Appendix A).

While irrigation use is defined by Reclamation as “the use of contract water to irrigate land primarily for the production of commercial agricultural crops or livestock, and domestic and other use incidental thereto”—commercial irrigation, miscellaneous use is defined as “the use of contract water from any project irrigation system for other purposes than irrigation.” Miscellaneous purposes and miscellaneous uses are synonymous and would include various municipal and industrial (M&I) uses, such as outdoor watering for landscaping in municipal areas using both treated and untreated water during the traditional irrigation season (April – October), and indoor uses such as drinking, cooking, washing, bathing, and industrial processing.

1.2 Historical Use of Water for Municipal Purposes

While the SVP was constructed for irrigation purposes, few of the early contracts invoked the authority of amendatory statutes (such as the Townsites and Power Act of 1906) that authorized only limited incidental municipal use in towns and cities. However, those municipal contracts with Spanish Fork, Salem, and Payson cities (the Cities) were the exception rather than the rule,

and the water delivered from Strawberry Reservoir to the SVP water users (1991 Contract Water) remains irrigation only with limited incidental municipal use. Supplying irrigation to water for other uses requires action under separate statutory authorities.

1.3 1991 Agreement and the Central Utah Project

Congress authorized construction of the Central Utah Project (CUP) in 1956 (43 U.S.C. § 620, et seq.). The Bonneville Unit (BU) is part of the CUP, which collects water from the south slopes of the Uinta Mountains and delivers it for temporary storage, to a much larger version of the original Strawberry Reservoir, which is now a BU facility. So, the BU was built over the SVP. The active capacity of the original Strawberry Reservoir was approximately 270,000 acre-feet (AF). When construction of the Soldier Creek Dam was completed in 1983, the enlarged Strawberry Reservoir increased the active capacity to approximately 1,172,600 AF. Beyond reservoir expansion, creation of the BU also included the construction of a new trans-basin diversion tunnel called the Syar Tunnel and construction of pipelines and tunnels (the Diamond Fork System) conveying water to the Spanish Fork River for use by the SVP contract holder as well as for use within the rest of the BU.

Hydrologic data suggests that the enlarged reservoir could not be filled with the original water rights of the SVP alone. BU water rights were required to meet the needs of both the SVP and BU. Because the water rights of the SVP prior to enlargement of the reservoir and BU water were commingled, the parties had to come to an arrangement to ensure that the obligation to deliver water to the SVP water users could continue, and to allow the BU to function as designed. In July 1991, the SWUA, Reclamation, and the Central Utah Water Conservancy District (CUWCD), entered into that agreement now known as the 1991 Agreement (See Appendix B).

In the 1991 Agreement the parties agreed, among other things, that the “long-term historical Strawberry Reservoir storage water releases averaged 61,500 AF.” It further states that “in lieu of the [SWUA's] existing contractual rights to the use of all of the storage water developed by the [original] Strawberry Reservoir, the [SWUA] shall be entitled to an allocation of 61,000 acre-feet of storage water each year in the Enlarged Strawberry Reservoir...” 1991 Agreement, Article 3(b). In addition, the 1991 Agreement provided the SWUA with a one-time 50,000 AF re-fillable storage bank in the Reservoir, that can be carried over year-to-year. Any unused portion of the 61,000 AF of allocated water that SWUA elects to save can be stored in that bank up to the 50,000 AF maximum. Both the annual 61,000 AF delivery and any storage contained in the 50,000 AF bank are to be used for SVP uses and have preference over all other BU uses.

The 1991 Agreement also states that CUWCD is the O&M entity for the Soldier Creek Dam, Strawberry Reservoir, and appurtenant features and can charge the SWUA for their portion of the O&M. CUWCD is required to deliver the 1991 Contract Water to the SVP contract holders under their respective delivery contracts with Reclamation. The 1991 Contract Water is distributed to the headgates of the respective canal companies.

The 1991 Agreement recognizes that the SVP will continue to use Spanish Fork River water rights that were part of the original SVP. This additional water is used to supplement the SVP in times of high flow when the Spanish Fork River exceeds 390 cfs. The Spanish Fork River water rights are hereinafter referred to SVP High Flow Water.

Finally, because the water rights of the original SVP no longer yield sufficient water to meet SVP needs without BU water rights to make up the difference, because the BU was authorized and built over the SVP, and because the water is commingled, all of the water in the enlarged Strawberry Reservoir is BU water.

As there have been differences of opinion throughout the more recent history of the SVP on the nomenclature of the aforementioned water, and because in part, there is a need to ensure that all water captured, stored, and delivered for the purposes mentioned above can be used for all purposes and not limited to commercial irrigation only, Reclamation proposes to respond to the SVP contract holders' request for greater flexibility through a conversion contract as authorized by federal law.

1.4 Previous Attempts to Address Municipal Needs

Irrigation water has been delivered to the SVP for nearly 100 years largely for commercial agriculture, with incidental amounts of M&I water. In 2001, Reclamation's interim Commissioner established a policy called Footnote 6 that allowed Reclamation irrigation water to be used for things previously not allowed such as golf courses, lawns, parking strips, etc. In compliance with Footnote 6, Reclamation and the SWUA created water dedication agreements (WDAs), that allowed the local municipalities to deliver irrigation water to municipal customers. In 2013, an updated Reclamation policy (PEC P05) clarified the definition of irrigation to be limited to commercial agriculture—irrigation of land used primarily for the production of commercial agricultural crops or livestock, and domestic and other use incidental thereto. Reclamation has been working with the SVP contract holders to generate a long-term solution that would provide them additional flexibility in the use of their contract water supply. The Proposed Action would allow SVP contract holders to move forward into the future and be compliant with Reclamation law and policy.

Reclamation and the SVP contract holders have engaged in discussions to resolve the outstanding issue of the Federal authority to allow the use of 1991 Contract Water and SVP High Flow Water for miscellaneous purposes. The Sale of Water for Miscellaneous Purposes Act of 1920, 43 U.S.C. § 521 (the 1920 Act) authorizes the Secretary of the Interior to enter into contracts to supply water from any project irrigation system for purposes other than irrigation, upon such conditions of delivery, use, and payment as the Secretary may deem proper, provided: (1) That the approval of such contract by the water users' association or associations (as listed in Appendix A) shall have been first obtained; (2) That no such contract shall be entered into except upon a showing that there is no other practicable source of water supply for the purpose; (3) That no water shall be furnished for the uses aforesaid if the delivery of such water shall be detrimental to the water service for such irrigation project or to the rights of any prior

appropriator; and (4) That the moneys derived from such contracts shall be placed into the Reclamation Fund to the credit of the project from which such water is supplied.

1.5 Purpose and Need

The purpose of the Proposed Action is to allow Reclamation to respond to the SVP contract holders' request for flexibility to utilize water delivered to the SVP for purposes other than irrigation in compliance with current Reclamation law and policy. The SVP contract holders desire the flexibility to use the 1991 Contract Water and SVP High Flow Water for miscellaneous purposes and want to remove appurtenance of the water to the land. Removal of appurtenance would dissolve Federal requirements to sell or move water through the "suspension and transfer" process, thus removing the administrative burden from the contract holders, but the water would still be used in the service area.

Contract actions are needed to provide the terms and conditions under which the irrigation water of the SVP can be made available for non-irrigation uses to address the existing and future domestic, municipal, and industrial water needs of an area experiencing high growth.

1.5.1 Proponent's Objectives

Utah County is experiencing tremendous growth and as a result, up to 1,000 acres of agricultural lands are being subdivided for development each year (CUWCD 2021). The Kem C. Gardner Policy Institute at the University of Utah study dated January 2022 (Gardner Institute 2022, see Appendix C) anticipates a population increase in Utah County of more than 600,000 individuals, from an estimated 723,000 in 2023 to nearly 1,340,000 by 2060. If these professional demographers are correct, the augmented population in Utah County would require additional water supplies to meet long-term water demand. Domestic water supplies are augmented from the CUP – BU deliveries, as well as irrigation water of the SVP that had previously been made available for miscellaneous use through WDAs in place with Reclamation.

Converting agricultural water to domestic use and other miscellaneous purposes is one of the best ways to meet water demand because it does not represent new depletions on the system. Further, in accordance with Reclamation Policy PEC P09-01, which states that "water is from a practicable source if it is reasonably within the means of the water user to obtain and use it, in light of the relevant circumstances such as costs, existence of delivery systems, legal rights, and other factors as determined appropriate by the contracting officer on a case-by-case basis," Reclamation has determined that the 1991 Contract Water and SVP High Flow Water are the only practicable source of water to meet this growing need.

2. Alternatives

2.1 Introduction

This chapter describes the features of the No Action and Proposed Action Alternatives and includes a brief description of alternatives considered but eliminated from consideration. It presents the alternatives in comparative form.

2.2 No Action Alternative

Under the No Action, contracts to authorize use of the 1991 Contract Water and SVP High Flow Water for miscellaneous purposes would not be entered into by the SVP contract holders and Reclamation. Without conversion, Reclamation and the SVP contract holders would need to seek a long-term solution to replace WDAs.

Under the No Action, no additional water would be made available for future non-irrigation use from the 1991 Contract Water and SVP High Flow Water. This would result in the 1991 Contract Water remaining in Strawberry Reservoir without a downstream market.

2.3 Proposed Action Alternative

The Proposed Action is to execute a conversion contract authorized by the 1920 Act between the SVP contract holders (Appendix A) and Reclamation to make all of the 1991 Contract Water and SVP High Flow Water available for purposes other than irrigation uses (please note - irrigation is authorized under miscellaneous uses) under terms and conditions described in the conversion contract.

Currently, SVP contract holders collectively have the contractual right to use the 1991 Contract Water and SVP High Flow Water for irrigation and limited municipal use under twenty-six separate delivery contracts executed between 1908 and 1921. Each SVP contract holder would independently decide to enter into the conversion contract with Reclamation to convert its portion of the 1991 Contract Water and SVP High Flow Water. Currently, most SVP contract holders are prepared to enter into the conversion contract. These SVP contract holders intend to convert their portion of the irrigation water to miscellaneous purposes.

The Proposed Action for purposes of the following environmental analysis, however, assumes that all SVP contract holders would immediately sign and convert their contractually proportionate share of the 1991 Contract Water and SVP High Flow Water to miscellaneous uses

(which includes commercial irrigation and M&I use). Reclamation has made this assumption with the intent to provide NEPA compliance for the conversion of the entire supply from the 1991 Contract Water and SVP High Flow Water. Reclamation recognizes, however, that it would need to assess each conversion contract at the time it is signed to ensure that there is adequate NEPA compliance.

After signing the conversion contract, SVP contract holders would be free to enter into third-party contracts, which Reclamation would approve, to change the use of the 1991 Contract Water and SVP High Flow Water from irrigation to miscellaneous purposes, which could include various classes of M&I use. All third-party contracts would be subject to the terms of the conversion contract.

Reclamation does not currently have an approved basis of negotiation for the conversion contract. However, Reclamation intends to request authority to:

- Allow SVP contract holders to enter third-party contracts to change the use of the 1991 Contract Water and SVP High Flow Water to other purposes additional to irrigation.

- Require that all the 1991 Contract Water and SVP High Flow Water be used within the SVP Service Area, which includes south Utah County, from Springville to Santaquin on the east side of Utah Lake and through Genola and West Mountain on the west side of Utah Lake (approximately 120,285 acres - see Map Figure 1 - SVP Service Area). The original SVP did not include a map of the project boundary but only included a general description of the service area. This action would finally delineate and memorialize the actual service area boundary for all future purposes.

- Sever appurtenance of the 1991 Contract Water and SVP High Flow Water to the irrigated lands within the SVP Service Area, which would remove the current Federal requirements for “suspension and transfer” of irrigation water. Water transfers would still be subject to requirements imposed by the State of Utah and other local authorities.

- Contain specific provisions to protect agricultural water use in accordance with relevant statutes. The Proposed Action would protect irrigated agriculture in the SVP Service Area for as long as producers desire to commercially farm, to ensure that existing miscellaneous uses are compliant with Reclamation law and policy.

- Maintain the timing, quantity and location of water deliveries.

The conversion contract would **NOT**:

- Authorize any new federal infrastructure or distribution facilities, piping canals, etc.

- Provide approval or control for any land use such as for new homes, municipal supplies, wells, or other activities for which Reclamation has no authority or responsibility.

- Allow any party, including the United States to circumvent the State of Utah's approval process for changes in the beneficial use of water.

SVP contract holders who do not immediately sign the conversion contract would be allowed to sign the conversion contract later. This NEPA document is intended to assess the effects of all the 1991 Contract Water and SVP High Flow Water being converted. Therefore, signatures in the future would be covered by this NEPA. However, if conditions change or significant time has passed, Reclamation would assess whether additional NEPA is required.

Reclamation is assuming for purpose of its analysis of the environmental effects of the Proposed Action that the 1991 Contract Water and SVP High Flow Water would be utilized in the following manner:

- Reclamation anticipates that in the near future, the majority of the 1991 Contract Water and SVP High Flow Water covered by the conversion contract would continue to be used for commercial irrigation. As mentioned previously, Reclamation assumes that approximately 1,000 acres of land currently used for agriculture would be changed to residential purposes (CUWCD 2021).

- Reclamation also anticipates that a majority of the water that is changed under the third-party contracts would be used for secondary irrigation through municipal irrigation systems. Pursuant to existing water dedication agreements, there are approximately 4,400 acre-feet of water being used in municipal irrigation systems.

- Reclamation is aware of early plans for a water treatment plant that could potentially utilize the 1991 Contract Water and SVP High Flow Water for industrial, commercial, and other indoor purposes. While these plans are not those of Reclamation and are still in the early stages and do not currently necessitate immediate changes in water use, it is important to note that water converted under the 1920 Act could be used to meet such needs. Should these plans progress, additional NEPA analysis would be needed to assess the environmental impacts. Any industrial, commercial, or other indoor use developments that arise may require changes in the timing of SVP Water delivery, which would also be addressed in future analyses, if necessary.

2.4 Alternatives Considered but Eliminated from Further Study

Reclamation considered the following various alternatives to meet the purpose and need. These alternatives were eliminated from further study because they were either not technically or economically feasible or did not meet the purpose and need.:

Adopting the SVP into the BU of the CUP

Adopting the entire SVP into the BU of the CUP would require numerous congressional and contractual actions that would convert the water from irrigation to miscellaneous purposes and removing the O&M of the SVP from its current contract holders and giving it to the CUWCD. All entities that would be required to enter into new contractual relationships to accomplish this have expressed that there is currently no plan or desire to do so. Additionally, years of studies and analyses, together with significant approvals would be required.

Pursuing Conversion through Federal Legislation

Pursuing Federal legislation to allow wide-spread miscellaneous use of irrigation water in the SVP would be costly, time consuming, and likely redundant because Federal statutes such as the Sale of Use of Water for Miscellaneous Purposes Act of 1920 and the Reclamation Projects Act of 1939 already allow irrigation water to be converted to miscellaneous use. Reclamation already has legal authority and policies in place to facilitate these conversions.

Converting a Reduced Quantity

Converting a reduced quantity of irrigation water for miscellaneous use does not meet the purpose and need, as the SVP contract holders have requested flexibility in the water use and purposes. Additionally, converting a smaller amount of water at this time, with a high likelihood of requiring more conversion later, would require Reclamation to piecemeal the NEPA analyses and would not allow expedient action to serve the public and the proponent.

Converting Water to Secondary Use Only

Converting water to secondary use (irrigation for lawns, gardens and other outdoor watering in municipal areas) only and not including miscellaneous use does not meet the purpose and need, as the SVP contract holders have requested flexibility in the water use and purposes. Additionally, converting water to secondary use only and not including miscellaneous use, with a high likelihood of requiring more conversion later, would require Reclamation to piecemeal the NEPA analyses and would not allow expedient action to serve the public and the proponent.

Other Sources

The system is fully allocated, and therefore no other practicable sources of water have been identified or could be appropriated at this time. Further, an additional source of water would not meet the purpose and need of providing SVP contract holders additional flexibility.

2.5 Third Party Contracts

This EA is intended to provide NEPA compliance for the execution of additional future third-party contracts for SVP contract holders desiring to change the use of the water from commercial irrigation. All 1991 Contract Water and SVP High Flow Water converted under approved third-party contracts would remain in the SVP Service Area, to be called for under conditions outlined in existing delivery contracts in the quantities and time frames currently allowed. Third-party contracts would allow for the water use to change from irrigation to miscellaneous/M&I. These contracts would change the class of water and allow the delivery and operating entities to track what the water is used for and where it is applied. The proposed use of third-party contracts is critical, especially when water is moved from one canal company to another. The third-party contract would provide contractual protections requiring that sufficient water be left in the original ditches so that the last irrigator would be able to farm, and O&M payments would continue to be paid to the original entities so there would be sufficient funds to maintain existing facilities. These contracts would contain specific information relating to the delivery, place of use, billing, etc.

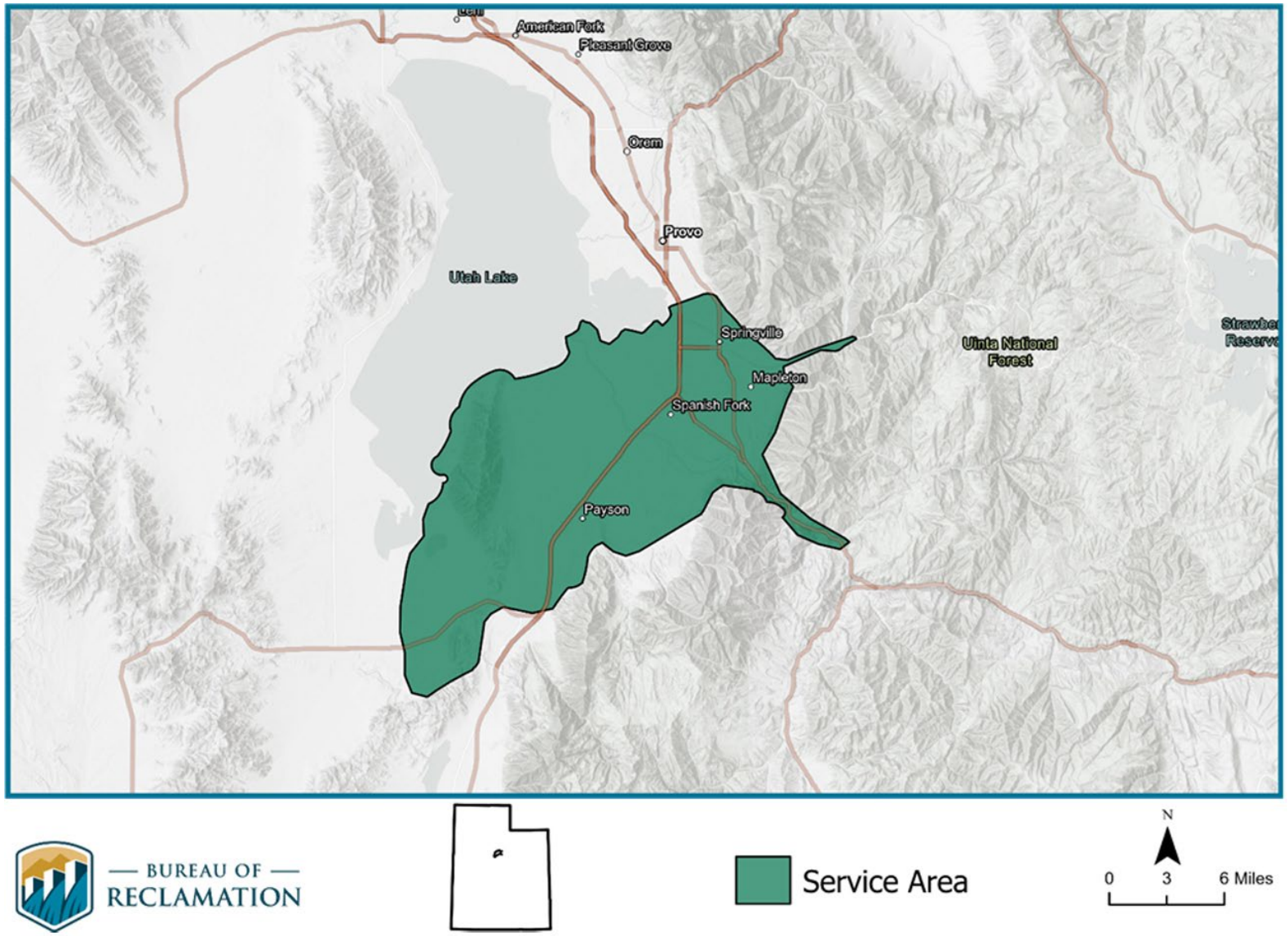

Figure 1. Map of the Strawberry Valley Project Delineated Service Area.

3. Affected Environment and Environmental Consequences

This chapter outlines the environmental resources and issues that could be impacted by the Proposed Action. It includes a detailed analysis of the resources and issues that were thoroughly examined, as well as those that were considered but ultimately excluded from further detailed study. For each resource and issue analyzed in detail, this chapter first presents the current conditions or characteristics of that resource and issue. It then discusses the anticipated impacts resulting from both the No Action and Proposed Action Alternatives.

3.1 Resources Considered but Eliminated from Detailed Analysis

Reclamation identified and subsequently excluded three resources from detailed analysis: water quality, paleontological resources, and wilderness and wild and scenic rivers. The specific reasons for excluding each of these resources are provided in Table 1.

Table 1. Resources considered but eliminated from detailed analysis

Resource	Rationale for Considering but Eliminating from Detailed Analysis
Water quality	The Proposed Action would not substantially affect water quality as no new discharges would occur. As required by the conversion contract, the water source, timing, and quantity of delivery would remain unchanged, resulting in only minor localized effects.
Paleontological resources	No ground disturbance is allowed under the Proposed Action, eliminating the potential to discover or damage paleontological resources.
Wilderness and wild and scenic rivers	There are no wilderness areas or wild and scenic rivers within the SVP Service Area, so these resources would not be impacted by the Proposed Action.

3.2 Reservoir Operations and Streamflow

The Strawberry River, the Strawberry Aqueduct and Collection System (SACS), and their associated tributaries are the primary water sources for the enlarged Strawberry Reservoir. This reservoir provides water for the trans-basin diversion into south Utah County via the Spanish Fork River. These water bodies are primarily snow-fed, resulting in high spring flows during May and June. Streamflow decreases rapidly after the spring peak, reaching its lowest levels from November through March. The 1991 Contract Water and SVP High Flow Water is currently delivered to south Utah County during the irrigation season from April to October.

The 1991 Agreement guarantees an annual allocation of 61,000 AF of storage water for deliveries from the enlarged Strawberry Reservoir to SVP contract holders. Additionally, a 50,000 AF storage bank is available for use during dry years and can be refilled in wet years.

3.2.1 No Action

Under the No Action, the existing operation of the Strawberry Reservoir and associated water delivery systems would continue. As agricultural lands in the SVP Service Area are sold, the 1991 Contract Water that could not be marketed for miscellaneous use would remain in the reservoir. If the reservoir fills and spills, water could be released down the Spanish Fork River or from Soldier Creek Dam to the Strawberry River. Therefore, minimal impacts to reservoir operations and streamflow are expected.

3.2.2 Proposed Action

The Proposed Action involves authorizing the conversion of irrigation water to miscellaneous purposes, for use as determined by contract holders. The comparison of historical reservoir operations and water demands with the Proposed Action reveals three primary features:

1. Shift from Irrigation to M&I Use: As M&I use increases, irrigation use decreases due to the conversion of agricultural land to residential, commercial, and other land uses that rely on M&I water.

2. Water Availability: According to the 1991 Agreement, the 1991 Contract Water and SVP High Flow Water would be available on April 1 each year.

3. Timing of Water Releases: The conversion contract would retain the current constraints on the timing of water use, and the timing of water releases would continue to be restricted to the irrigation season from April to October.

Given these factors, the Proposed Action is not expected to significantly impact reservoir operations and streamflow. The operational patterns and timing of water releases would continue as they have historically, ensuring the consistent delivery of water during the irrigation season.

3.3 Land Use

Historically, the primary land use in the SVP Service Area was agriculture. However, over the last three decades demand for housing has increased substantially in Utah County. In fact, Utah County experienced a 150 percent growth rate between 1990 and 2020, with the city of Spanish Fork experiencing a 278 percent growth rate during the same period (City of Spanish Fork, n.d.).

Municipal, commercial, and industrial growth in south Utah County has historically occurred without the widespread use of the 1991 Contract Water and SVP High Flow Water for miscellaneous purposes. Without conversion, local growth would continue using existing sources

such as Central Utah Project – BU water, surface water from local rivers and creeks (*e.g.*, Spanish Fork River and Peteetneet Creek), and increased groundwater pumping.

3.3.1 No Action

Under the No Action, land use would continue in its current form, with a diminishing amount of water available over time for miscellaneous uses. Water would remain available for agricultural use, but growth would still occur (Gardner Institute 2022, see Appendix C).

Without conversion, municipal development in south Utah County would likely resemble growth patterns in desert cities like Phoenix, Las Vegas, and St. George, which continue to grow despite water scarcity. Visual comparisons of satellite photos show that areas with secondary irrigation water, such as Boise, ID, have more trees, lawns, and green spaces compared to areas with low water availability like Las Vegas, NV. Recent development of lands adjacent to Spanish Fork, Salem, and Payson have depended on groundwater, as many municipalities hesitate to provide culinary water outside their existing infrastructure boundaries. Groundwater supplies, often found in association with irrigated areas, concentrate growth on irrigated land. However, groundwater supplies in south Utah County face increasing issues with quantity, quality, and interference with senior water rights. Consequently, south Utah County is closed to new ground and surface water appropriations.

3.3.2 Proposed Action

Independent of the Proposed Action, residential growth is projected to continue, especially adjacent to already developed areas and along transportation corridors such as Interstate 15. The current growth rate would persist regardless of the Proposed Action. The Proposed Action authorizes the conversion of all the water at once, but initially, only a small portion would be used for M&I purposes. The shift to non-irrigation uses would occur gradually, allowing farmers to continue farming as long as they or their successors desire.

If present trends continue, land use would shift towards smaller agricultural tracts and increased residential areas. The availability of converted 1991 Contract Water and SVP High Flow Water would support continued agricultural use, as well as the inclusion of lawns, parks, trees, and other green spaces that might otherwise be absent with a reduced local water supply. Residential growth would necessitate utility and transportation improvements and would likely spur various commercial and industrial projects in the area. Local municipalities and government entities are planning for this anticipated growth, preparing civic plans to accommodate the increased population with necessary utilities and transportation improvements.

3.4 Water Resources

The SVP was built in 1906 with the purpose of diverting water from the Colorado River Basin and delivering it for irrigation use in southern Utah County. As such, the SVP is a trans-basin diversion wherein water is captured from one natural drainage, imported across a basin divide,

and artificially returned to another. This section will analyze any impacts to water resources resulting from the Proposed Action by considering both the water supply as well as the administrative water rights which account for it.

The Utah Division of Water Rights regulates and oversees water rights for all uses in the area and is responsible under state law to enforce water priorities. However, when evaluating this resource, it is important to understand that the Proposed Action seeks to change the allowed uses from irrigation to miscellaneous under Federal Reclamation law, and that this change is separate from a change in use as defined by Utah water law. Water rights associated with the 1991 Contract Water and SVP High Flow Water are filed with the Utah Division of Water Rights, and Reclamation operates in accordance with Utah water law as per the 1902 Reclamation Act.

The SVP is supplied primarily by water stored within Strawberry Reservoir. Storage water rights for the Reservoir were acquired as part of the original SVP, as well for the CUP in preparation for the enlargement of the Reservoir and construction of Soldier Creek Dam. Today, the enlarged Strawberry Reservoir is operated by the CUWCD, is filled with BU water, and contractual agreements are in place to deliver water from the Reservoir to the SVP contract holders.

Although the source of the 1991 Contract Water originates in the Uinta Mountains and is part of the Colorado River Basin, it is artificially diverted to the Utah Lake Drainage and is considered import water by the Utah Division of Water Rights. Both the 1991 Contract Water and the SVP High Flow Water are applied to farmland in southern Utah County and the non-consumptive portion accretes through the groundwater system to Utah Lake.

The Utah Division of Water Resources has developed a water budget for the Utah Lake Drainage, which the 1991 Contract Water and SVP High Flow Water contributes to. This budget can be summarized by major inflows and outflows to the Utah Lake Basin and provide an overall estimate of quantities entering and leaving the hydrologic system, as well as projections of what water supply and demand would look like in the future given changes in population and use. This water budget provides a model for how the Proposed Action would impact water supply.

3.4.1 No Action

Under the No Action, the 1991 Contract Water and SVP High Flow Water would remain for irrigation purposes only. Continued use of water for commercial agriculture would not introduce change to the hydrology or water rights, as the 1991 Contract Water and SVP High Flow Water has been used in this manner for well over one hundred years. Water would continue to be delivered to irrigators for the productions of commercial agricultural crops in southern Utah Valley during the irrigation season from April to October. After being applied to farmland, the water not depleted through evapotranspiration would return to the hydrologic system through the soil, eventually returning to Utah Lake.

3.4.2 Proposed Action

Under the Proposed Action, change applications would be filed by the United States (and the water right users as co-applicants if the United States so chooses) to change the beneficial use of water to allow for miscellaneous purposes including municipal uses as defined by the Utah Division of Water Rights. Strawberry Reservoir operates using water rights acquired by the United States in the early 1900's when the original Strawberry Dam was constructed, as well as those acquired later for the reservoir enlargement and construction of Soldier Creek Dam as part of the CUP. While the BU water rights, acquired through the CUP, currently allow for all miscellaneous uses, the earlier priority date water rights in Strawberry Reservoir are currently designated for irrigation use only and could only be used for municipal purposes through change applications filed with the Utah Division of Water Rights and approved by the Utah State Engineer.

Approved change application for water rights associated with the SVP would be limited to the quantities of water as originally certificated, and no change in the season of use or the quantity of water diverted or depleted from the system would result. This is established under Utah law which prohibits any proposed change in use of a water right from creating quantity impairment for other water right holders. Impairment, by definition, is "enlarging the quantity of water depleted by the nature of the proposed use when compared with the nature of the currently approved use." Furthermore, a change in beneficial use to allow for miscellaneous purposes would not prevent the water from being applied to irrigation lands, but simply expands its uses. Any approved change applications would not prevent irrigation use now or in the future. Therefore, the Proposed Action would result in no significant impacts to water rights of downstream users or those associated with the SVP.

Except for the return flows granted to the Strawberry High Line Canal Company in 1921, the United States reserves the right to return flows associated with the SVP in accordance with their administration by the Utah State Engineer. As the right to these return flows would remain in force both now and after 1920 Act Conversion, the Proposed Action would result in no significant impact to these rights. How these return flows may be used in the future is not known, and any attempt to address their future use would be speculative and beyond the scope of this assessment.

Impacts to Water Supply

Under the Proposed Action, it is anticipated that the 1991 Contract Water and SVP High Flow Water would initially be used for commercial agriculture as it has in the past. However, independent studies project that the region's population will increase dramatically over the next fifty years which will transition rural agricultural communities into urban ones (Gardner Institute 2022, see Appendix C). Farmland would be replaced by homes, businesses, industrial areas, and public facilities. The Proposed Action would allow the 1991 Contract Water and SVP High Flow Water to be used for these miscellaneous purposes, and while this growth would occur independent of the Proposed Action, its authorization would allow the 1991 Contract Water and SVP High Flow Water to assist in meeting these future needs.

In a “worst-case” scenario, all of the 1991 Contract Water and SVP High Flow Water would be used for M&I purposes. As accounted for in the Utah Division of Water Resources - Water Resource Plan published in 2021, M&I use includes water used for both indoor culinary and industrial use as well as the watering of outdoor gardens, landscapes, and lawns. Although this change would take many years to complete, it would produce the maximum effect on water supply.

The two principal uses under M&I purposes are as follows:

Outdoor Watering
As is consistent with use under current WDAs, a large portion of the 1991 Contract Water and SVP High Flow Water would likely be used for watering outdoor landscapes within municipal areas. Water (both treated and untreated) would be delivered to customers for outdoor watering within the traditional irrigation season (April – October).

As urbanization of the region gradually transitions farmland into homes, parks, golf courses, and commercial areas, the 1991 Contract Water and SVP High Flow Water would be applied to the same service area as it has heretofore been used, the difference being that water would be used to irrigate landscaping instead of crops. One study widely used study within the State of Utah, and frequently cited by the Utah Division of Water Rights, demonstrates that landscape irrigation and agricultural irrigation have similar impacts on water resources in terms of evaporation, evapotranspiration, and return flows (Hill, Barker, and Lewis 2011). Researchers found the consumptive use of alfalfa to be 32.41 inches of water per year, while turfgrass consume 26.45 inches of water per year. These measurements are based on data collected in Spanish Fork, Utah and within the SVP Service Area (See Table 2).

Water not consumed through evapotranspiration returns to the hydrologic system via accretion flows to Utah Lake in the same manner as current irrigation practices. Water used for outdoor use would have limited impacts on groundwater accretions and water supply as the consumptive rates, service area, and returns are similar to the current use.

Table 2. Consumptive water use of various crops in southern Utah Valley

Consumptive Water Use of Various Crops in southern Utah Valley (Inches)									
	April	May	June	July	August	September	October	November	Annual
Irrigation Uses									
Alfalfa (Beef)	2.59	5.46	6.76	6.59	6.28	4.81	1.50	0.24	34.22
Alfalfa (Dairy)	2.59	4.94	5.79	6.67	6.01	4.25	2.03	0.12	32.41
Pasture	2.30	4.35	5.24	5.99	5.37	3.72	1.95	0.44	29.43
Secondary Irrigation Uses									
Turfgrass	2.27	3.71	4.62	5.28	4.73	3.30	1.88	0.52	26.45
Garden	0.10	1.75	3.64	6.72	5.70	1.12			19.02

Hill, R.W., J.B. Barker, and C.S. Lewis. 2011. Crop and Wetland Consumptive Use and Open Water Surface Evaporation for Utah. Research Report No. 213, Utah Agricultural Experiment Station, Utah State University, Logan, UT.

Indoor Use

The 1991 Contract Water and SVP High Flow Water for indoor use would be distributed to and treated through culinary water systems where it could later be delivered for drinking, cooking, washing, bathing, industrial processing, and other indoor plumbing purposes. Although it can vary depending on the area, it is widely considered that the depletion rate of indoor water use is less than that of irrigation and outdoor watering purposes. Indoor water that is not consumed returns to the drain, travels through municipal sewer lines, and is treated at a wastewater plant before being returned to the natural hydrologic system. As these uses typically have lower consumption rates than irrigation use, it is unlikely that the 1991 Contract Water and SVP High Flow Water used for indoor culinary use would have negative effects on the Utah Lake system.

Whether M&I water will be used primarily for outdoor or indoor use and how future infrastructure might be developed to deliver converted water is not known, and not part of the Proposed Action. Therefore, to avoid speculation, a scenario where the entire 1991 Contract Water and SVP High Flow Water supply is used for M&I purposes (both indoor and outdoor) should be considered as a guide based on existing data and model projections for the future.

Data published by the Utah Division of Water Resources in 2021 in Appendix D of the Water Resources Plan quantifies water diverted and depleted by both agricultural and M&I use annually for the Utah Lake Drainage. These figures are based on computer model water budgeting from the period of 1989 – 2018 and represent a model for diversion and depletions of the two water uses in the SVP region (See Table 3).

Table 3. Agricultural and M&I Diversions and Depletions

Agricultural and M&I Diversions and Depletion (Utah Lake Basin)			
Use	**Diversion (ac-ft)**	**Depletion (ac-ft)**	**Depletion Rate**
Agriculture	359,280	240,906	67.1%
M&I	127,527	45,238	35.5%

As would be expected, M&I use in the region has shown to consume less water when compared to depletion rates under strictly agricultural irrigation practices. As demonstrated above, the 1991 Contract Water and SVP High Flow Water converted to M&I uses would follow this trend, and not induce additional depletions. Therefore, the Proposed Action would not deplete additional water from the hydrologic system when compared with current use.

When predicting future supply of water in the Utah Lake drainage, the Water Resource Plan accounts for how any surplus resulting from agriculture to M&I conversion would be used. Conversion of irrigation water to M&I use corresponds to increased population in Utah County, and thus higher demand for the water supply. While additional water may become available through conversion, increase in demand for water is projected to rise correspondingly to mitigate surplus supply.

The Water Resource Plan calculates future demand on water supply within the Utah Lake Basin as agricultural land is converted to urban areas. The Utah Division of Water Resources considered changes in population from the Kem C. Gardner Report, market models from the Wasatch Front Regional Council, and change applications submitted to the Utah Division of Water Rights to calculate how conversion from agriculture to M&I use would increase water supply as well as how demand from increased population would offset it. Based on those results, it is expected that increased population and its accompanying demand on the water supply would consume additional return flows created by retired irrigation practices. It is important to note that all return flows derived from federally-owned water rights are owned by the United States and are administered at the discretion of the Secretary of the Interior. While conversion of agriculture to M&I use of the 1991 Contract Water and SVP High Flow Water is enabled through the Proposed Action, it is important to note that the population growth and its subsequent demand on the water supply is not. As such, the Proposed Action allows the SVP to be reactionary to growth and does not induce it. The following figure published by the Utah Division of Water Resources in 2021 in Appendix G of the Water Resources Plan illustrates how water supply (from agriculture to M&I conversion) and demand (from increased population) will both rise over the next several decades.

Utah Lake Basin

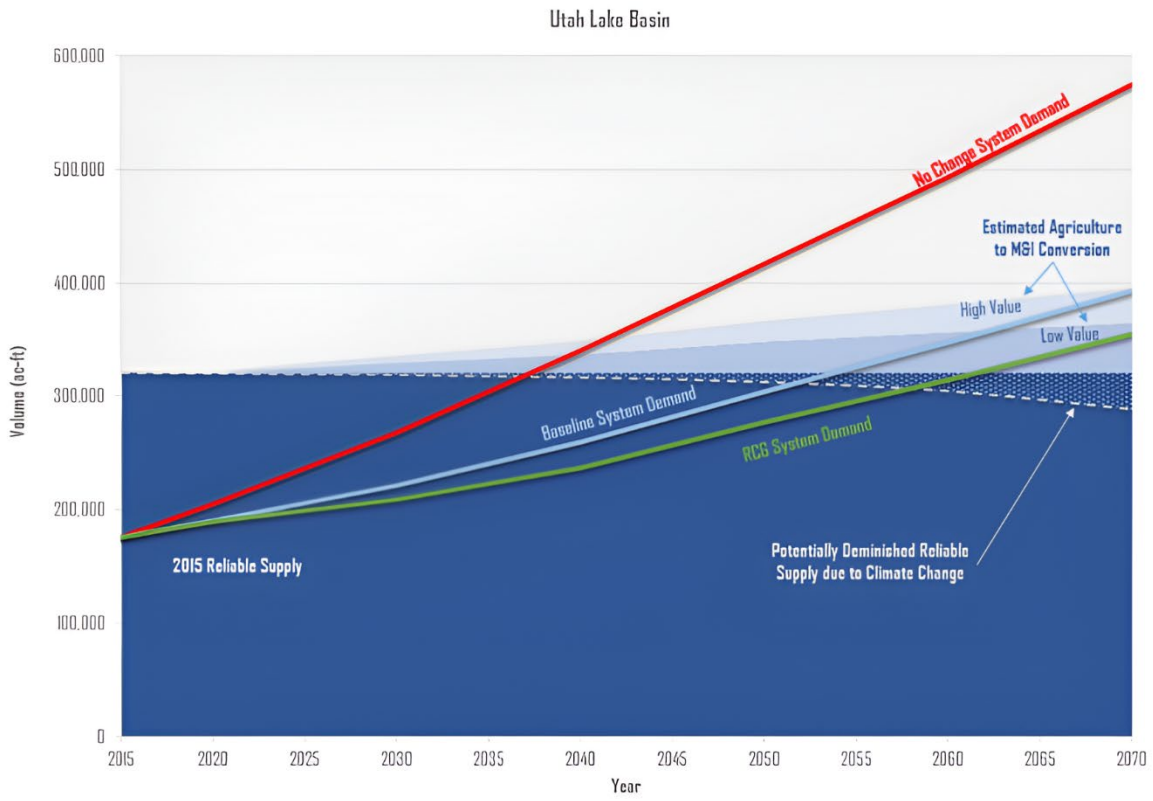

Figure 2. Water Supply and System Demand for Utah Lake Basin.

Under the Proposed Action, the transition of the 1991 Contract Water and SVP High Flow Water from agricultural to M&I use is anticipated to follow these trends. The Proposed Action would allow the 1991 Contract Water and SVP High Flow Water to be used increasingly for M&I over time following anticipated population growth. Therefore, any increase in supply resulting from this transition would be offset by increased population and water demands and result in no significant impact to overall water supply.

3.5 Wetlands

Wetlands within the SVP Service Area are critical to maintaining diverse ecosystems, providing essential habitats for wildlife, and contributing to water quality and flood control. These wetlands are typically located in low-lying areas, along streams, and near lakeshores. They encompass a variety of wetland types, including marshes, swamps, and riparian zones, each possessing unique hydrological and ecological characteristics.

The wetlands within the SVP Service Area serve as vital breeding grounds and stopover points for migratory birds, such as waterfowl and shorebirds. Additionally, they provide habitat for

various species of amphibians, reptiles, and mammals. Vegetation within these wetlands plays a crucial role in stabilizing soil, filtering pollutants, and mitigating flood impacts by absorbing excess water during periods of high precipitation.

Within the SVP Service Area, freshwater emergent wetlands cover 8,363 acres, representing 6.95% of the total area. Freshwater forested/shrub wetlands account for 241.29 acres, or 0.2% of the total. Freshwater ponds occupy 772.58 acres, making up 0.64% of the area, while lakes cover 3,065.51 acres, or 2.55%. Other wetland types cover 11.14 acres (0.01%), and riverine wetlands span 872.62 acres, accounting for 0.73% of the total area (U.S. Fish and Wildlife Service, n.d.). These classifications underscore the ecological significance of various wetland types within the SVP Service Area, highlighting their role in supporting regional biodiversity, maintaining water quality, and controlling floods.

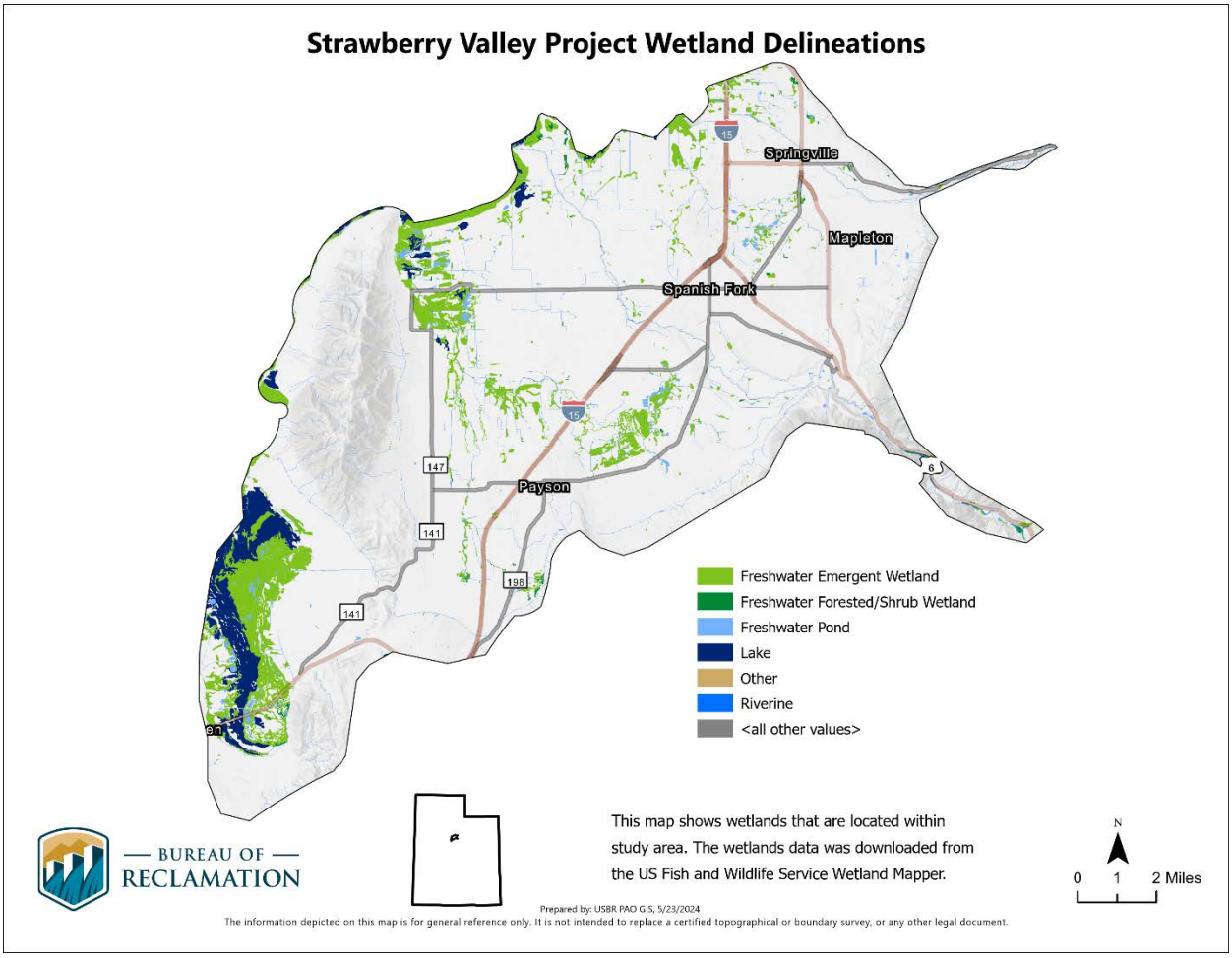

Figure 3. Map of wetlands within the Strawberry Valley Project Delineated Service Area.

3.5.1 No Action

Under the No Action, the wetlands within the SVP Service Area would continue to rely on the existing hydrological regime provided by the project. However, wetlands would still face conversion pressures due to residential and commercial development.

3.5.2 Proposed Action

Under the Proposed Action, the conversion of the 1991 Contract Water and SVP High Flow Water to miscellaneous uses would not directly impact wetland ecosystems within the SVP Service Area. The water feeding wetlands would generally remain unchanged in the foreseeable future, ensuring the continued support of wetland habitats and functions.

According to the study by Burden, Waddell, and Holmes (2000), irrigation water is not a significant driver of the springs and tributaries in the Utah Valley due to low infiltration rates and high evaporation losses. The flow in these water bodies is primarily sustained by natural groundwater discharge and precipitation, with minimal influence from irrigation practices. Furthermore, a study of groundwater flow in southern Utah County by L.E. Brooks and B.J. Stolp (1995) concluded that “observed water level fluctuations indicate that irrigation is not a major source of recharge in [Southern Utah Valley or Goshen Valley]” and that measurements recorded at springs and streams around Beer Creek, Spring Creek, and Benjamin Slough in the non-irrigation season remained at 90% of those observed during the irrigation season. Therefore, changes in irrigation water usage are not expected to significantly alter the groundwater contributions to wetlands.

Findings from the Utah Department of Natural Resources' “Water Resources Plan” (2021) indicate that the conversion of water from agricultural uses to municipal and industrial uses would not substantially alter the overall water balance in the region. This suggests that the implementation of the Proposed Action is expected to have minimal adverse effects on wetland ecosystems within the SVP Service Area.

3.6 Soils and Farmland

The soils and farmland within the SVP Service Area represent a diverse agricultural landscape. Prior to the development of the SVP, much of this land was unsuitable for agriculture due to limited access to water resources. However, with the introduction of water, agricultural activities flourished, leading to the cultivation of approximately 45,000 acres of farmland within the SVP Service Area (Esri, n.d.).

The soil types within the SVP Service Area can be broadly categorized into two main groups based on physiographic features: bench lands and ancient lakebed lands. Bench lands, characterized by their elevated position, have been developed into highly productive fruit orchards. In contrast, ancient lakebed lands, which were once part of prehistoric Lake Bonneville, are suitable for growing crops such as corn, small grains, alfalfa, and grass.

Within the SVP Service Area, farmland of statewide importance covers 19,110.73 acres, representing 15.89% of the total area. Farmland of unique importance accounts for 3,655.93 acres, or 3.04% of the total. Not prime farmland occupies 46,971.53 acres, making up 39.05% of the area, while prime farmland covers 49,279.09 acres, or 40.97% (Esri, n.d.). These classifications delineate the significance of various parcels of land within the SVP Service Area, reflecting the diverse agricultural potential and importance of these lands in regional food production and sustainability efforts.

3.6.1 No Action

Under the No Action, the existing agricultural lands within the SVP Service Area would continue to rely on the irrigation water provided by the project. However, lands are projected to continue to be converted to residential and commercial areas to keep up with growth, leading to a decrease in the acreage of farmland within the SVP boundaries (Gardner Institute 2022, see Appendix C.; CUWCD 2021).

3.6.2 Proposed Action

Under the Proposed Action, the conversion of the 1991 Contract Water and SVP High Flow Water to miscellaneous uses would not directly impact the soils and farmland within the SVP Service Area. Agricultural producers would continue to have access to water for irrigation purposes, ensuring the continued productivity of farmland. Nonetheless, similar to the No Action, lands would continue to be converted to residential and commercial areas to keep up with growth, leading to a decrease in the acreage of farmland within the SVP boundaries.

Historical data from the Utah Department of Natural Resources' “Water Resources Plan” (2021) indicate that all M&I use results in a 51% depletion rate, which is similar to that of irrigation use. This depletion rate includes both secondary irrigation (lawns and landscaping) as well as indoor use. Therefore, the conversion of irrigation water to miscellaneous uses, including M&I purposes, would not result in a substantial net change in water depletion. In addition, farmlands would continue to be developed regardless of the use of 1991 Contract Water and SVP High Flow Water, the same as described in the No Action. Consequently, the overall impact on soils and farmland within the SVP Service Area is expected to be minimal. Owners of farmlands would have full discretion regarding if or when their land is developed.

3.7 Floodplains

Floodplains as seen in figure 4, are integral components of the hydrological landscape within the SVP Service Area. These low-lying areas adjacent to rivers and streams are subject to periodic inundation during flood events, playing a crucial role in regulating water flow, mitigating flood risks, and maintaining ecosystem health. The floodplains within the traditional SVP Service Area consist of a variety of habitats, including riparian zones and grasslands, which support diverse plant and animal communities.

The floodplains serve as natural buffers against flooding by temporarily storing excess water, reducing peak flows, and minimizing the risk of downstream flooding. Additionally, they provide important habitat for wildlife, including fish, birds, and mammals, and contribute to water quality improvement by filtering sediments and pollutants from surface runoff.

Within the SVP Service Area, estimated floodplains cover 28,796.86 acres, representing 23.94% of the total area (U.S. Environmental Protection Agency, n.d.). This classification highlights the critical role of floodplains in the SVP Service Area, emphasizing their importance in water regulation, habitat provision, and ecosystem health.

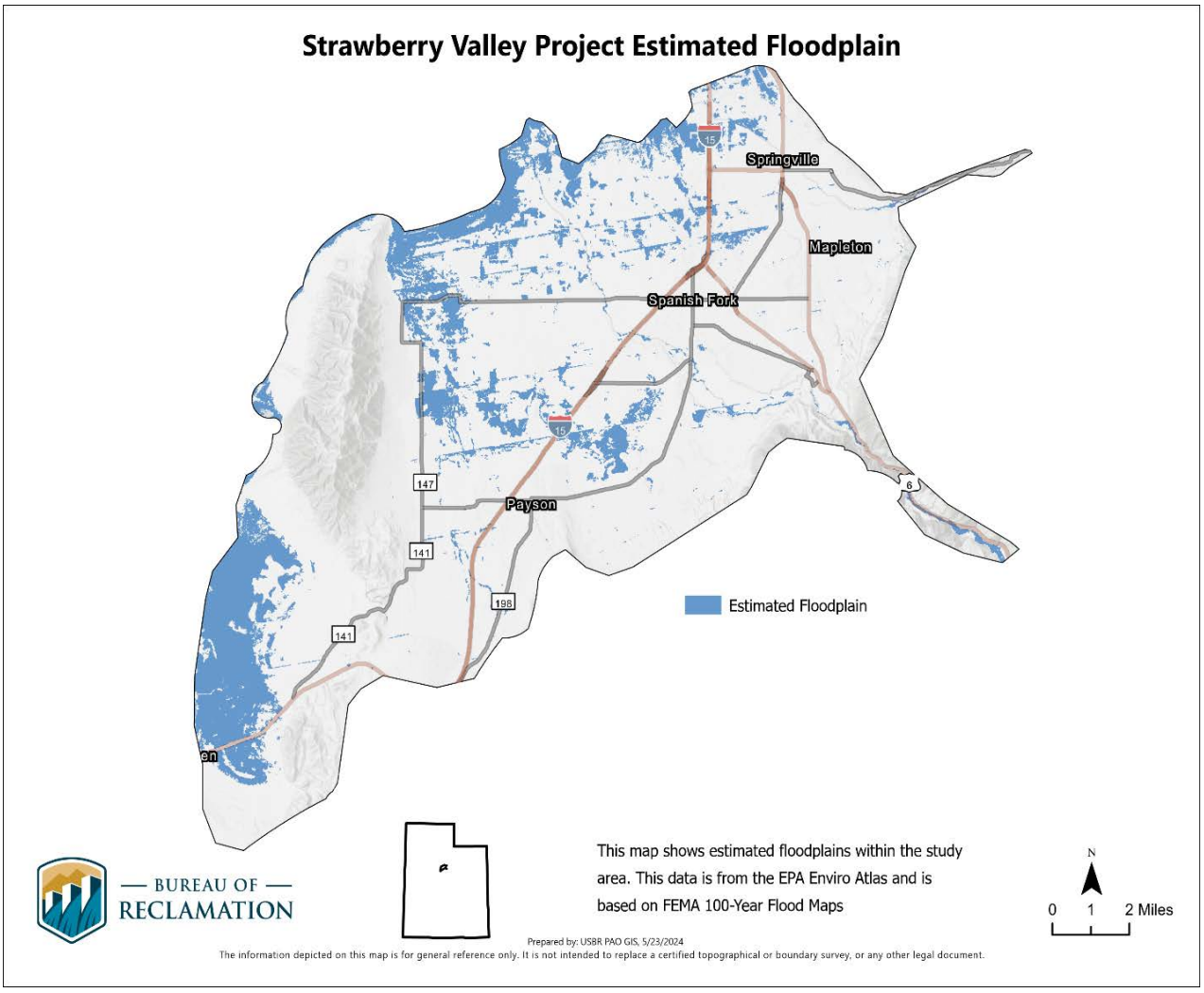

Figure 4. Map of floodplains within the Strawberry Valley Project Delineated Service Area.

3.7.1 No Action

Under the No Action, the floodplains within the SVP Service Area would continue to function within the existing hydrological regime provided by the project. Floodplains would continue to be affected by ongoing development and land use changes, which could alter their natural functions over time.

3.7.2 Proposed Action

Under the Proposed Action, the conversion of the 1991 Contract Water and SVP High Flow Water to miscellaneous uses would not directly impact floodplain ecosystems within the SVP Service Area. The water feeding floodplain management would generally remain unchanged in the foreseeable future, therefore the functionality of floodplains in regulating water flow and mitigating flood risks would remain unchanged as well. Floodplains would continue to be affected by ongoing development and land use changes, which could alter their natural functions over time.

Findings from the Utah Department of Natural Resources Water Resources Plan (2021) support the conclusion that the conversion of water from agricultural to municipal and industrial uses over time would not significantly impact the overall water balance or supply within the SVP service area. Therefore, the implementation of the Proposed Action is expected to have no adverse effects on floodplain ecosystems within the SVP Service Area. By maintaining water availability and preserving the hydrological function of floodplains, the Proposed Action would maintain these valuable ecosystems, which reduces the risk of flood damage to surrounding communities and infrastructure.

3.8 Threatened and Endangered Species

Section 7(a)(2) of the Endangered Species Act (ESA) requires federal agencies to ensure that any action they authorize, fund, or carry out does not jeopardize the continued existence of any endangered or threatened species or result in the destruction or adverse modification of designated critical habitat. To comply with this requirement, Reclamation obtained an official species list from the U.S. Fish and Wildlife Service (USFWS) on May 28, 2024 (Appendix E). This species list identifies threatened, endangered, proposed, and candidate species, as well as proposed and final designated critical habitats that may occur within the SVP Service Area.

There is no proposed or designated critical habitat within the SVP Service Area. Table 4 summarizes the listed species and suitable habitats within the SVP Service Area. Each species that may be present, and associated suitable habitat, is discussed in greater detail below.

When evaluating the potential impacts of a Proposed Action on endangered or threatened species and their habitats, if it is determined that the action would have "no effect" on these protected species or their critical habitats, no further consultation or action is required under the ESA. Given the habitat requirements, including the necessity for warm-season snow (Copeland et al.

2010), which are absent in the project area, Reclamation has determined that the Proposed Action would have no effect on the North American Wolverine (*Gulo gulo luscus*), and thus, no further consideration is required.

Table 4. Threatened and Endangered Species

Species	Status	Habitat Description	Suitable Habitat?
North American Wolverine *Gulo gulo luscus*	Threatened	Found in boreal forests, alpine tundra, and mountainous regions with deep, persistent snowpack.	No
Yellow-billed Cuckoo *Coccyzus americanus*	Threatened	Found in mixed native and non-native riparian woodlands. Patches vary in size and shape but must be ≥12-acres and 100m wide or more in at least one location. Quality habitat is structurally diverse with a multi- layered overstory and dense understory.	Yes
June Sucker *Chasmistes liorus*	Threatened	Endemic to the Utah Lake system.	Yes
Ute Ladies'-tresses *Spiranthes diluvialis*	Threatened	Primarily found in moist meadows associated with perennial streams, floodplains, lakeshores, and river terraces between 4,300-ft and 7,000-ft. Also found in human modified wetland habitats such as berms, levees, irrigated meadows, canals, barrow pits, and reservoirs.	Yes

3.8.1 Yellow Billed Cuckoo

The yellow-billed cuckoo (*Coccyzus americanus occidentalis*) is primarily found in riparian habitats throughout its range, including Utah. These habitats are characterized by the presence of water bodies such as rivers, streams, and wetlands, with dense vegetation consisting of cottonwoods, willows, sycamores, and other riparian trees and shrubs (Stanek et al., 2021). In Utah, yellow-billed cuckoos can be found in riparian corridors along major river systems such as the Colorado River, Green River, and their tributaries.

Within the SVP Service Area, suitable habitat for the yellow-billed cuckoo is limited to riparian corridors and wetland areas adjacent to standing water bodies. These areas are largely located near Utah Lake and the Spanish Fork River, with potential for limited pockets of habitat isolated throughout the service area. The availability and quality of these habitats are closely tied to the presence of water, which supports the dense vegetation necessary for the cuckoo's breeding and foraging activities. Given the elusive nature of the species, and their changing distribution due to

migration, presence of individuals is assumed for purposes of this analysis. Suitable habitat within the SVP Service Area is assumed to be occupied by individuals for nesting, foraging, and stopover areas during migration.

3.8.2 No Action

Under the No Action, the conversion contract would not be approved, and irrigation water would not be made available for miscellaneous purposes. The human population would continue to expand in the SVP Service Area (Gardner Institute, 2022). This expansion would result in increased demand for water as outlined in the State's 2021 Water Resources Plan. This increase in demand may require water suppliers and municipalities to utilize other sources such as reuse and groundwater in the absence of another reliable source. Utilizing these alternative sources is likely to result in reduced overall returns to the system, available water for wetland and riparian areas would likely be impacted, resulting in reduced productivity and viability for yellow-billed cuckoo and its habitat.

3.8.3 Proposed Action

Under the Proposed Action, the conversion contract would be approved by Reclamation, and the associated irrigation water would be available for miscellaneous purposes. The human population would continue to expand in the SVP Service Area (Gardner Institute 2022). This expansion would result in increased demand for water as outlined in the State's 2021 Water Resources Plan. The Proposed Action would enable water suppliers to convert irrigation water to M&I water, to be used as needed for future demand.

Using the best scientific and commercial data available, the Utah Division of Water Resources has quantified the return flow for agriculture as 38% and M&I as 49% (Utah Division of Water Resources 2021). This means that water used for M&I purposes returns 11% more to the environment than water used for agriculture. This increase would result in approximately 11% greater returns to the system as a whole. Given the dependency of yellow-billed cuckoo on riparian habitats, this would likely benefit the species and increase habitat productivity in the study area. However, this benefit is projected to be offset by the projected increase in human population and water demand expected in the area (Gardner Institute 2022). The projected increase in human population, independent of this action, combined with the increased return flows from converting irrigation water to M&I, would result in changes to the SVP Service Area that are inappreciable to individuals or suitable habitat.

3.8.4 Yellow Billed Cuckoo Effects Determination:

Using the best available scientific and commercial data available to forecast increased water demands, along with potential impacts of implementing the Proposed Action, Reclamation has determined that the anticipated impacts of the Proposed Action would have no effect on yellow-billed cuckoo.

3.8.5 June Sucker

The June sucker (*Chasmistes liorus*) is listed as threatened under the Endangered Species Act (ESA) and is endemic to Utah Lake and its tributaries. The species requires adequate flows in these tributaries for successful spawning and rearing. Control of invasive species is noted to be one of the biggest obstacles to species recovery (Cavalli et al. 2004). Recent restoration efforts have focused on increasing the survivability of juvenile fish to adult life stages. Recovery efforts by multiple parties, including Reclamation, have led to the increased viability of the species and its habitat. These efforts have focused on habitat requirements for survival on juvenile fish, with projects such as the Provo River Delta Restoration Project supporting this effort. The species was downlisted from endangered to threatened in 2021. Current population estimates show an upward trend with total abundance estimated to be around 15,000 individuals (Landoma & Connerb, 2020).

Suitable habitat for the June sucker within the study area is limited to Utah Lake and its tributaries. USFWS has designated critical habitat for the species, which lies outside the SVP Service Area and would not be impacted by the No Action or Proposed Action. Within the service area, June sucker habitat covers 5,793.717 acres, representing 4.82% of the total area.

3.8.6 No Action

Under the No Action, the conversion contract would not be approved, and irrigation water would not be made available for miscellaneous purposes, including M&I. The human population would continue to expand in the study area (Gardner Institute 2022). This expansion would result in increased demand for water as outlined in the State's 2021 Water Resources Plan. This increase in demand may require water suppliers and municipalities to utilize other sources such as reuse and groundwater in the absence of another reliable source. Utilizing these alternative sources is likely to result in reduced overall returns to the system. In which case net flows to Utah Lake and its tributaries would be impacted, resulting in adverse effects on the June sucker and its habitat.

3.8.7 Proposed Action

Under the Proposed Action, the conversion contract would be approved by Reclamation, and the associated irrigation water would be available for miscellaneous purposes, including M&I. The human population would continue to expand in the service area (Gardner Institute 2022). This expansion would result in increased demand for water as outlined in the State's 2021 Water Resources Plan. The Proposed Action would enable water suppliers to convert irrigation water to M&I water, which could be used to satisfy the projected increase in demand.

Using the best scientific and commercial data available, the Utah Division of Water Resources has quantified the return flow for agriculture as 38% and M&I as 49% (Utah Division of Water Resources, 2021). This means that water used for M&I purposes returns 11% more to the environment than water used for agriculture. This increase would result in approximately 11% greater returns to the system as a whole. Given the dependency of June sucker on Utah Lake and its tributaries, this would benefit the species by increasing return flows. However, this benefit is expected to be offset by the projected increase in human population and water demand

expected in the area (Gardner Institute 2022). The projected increase in human population, independent of this action, combined with the increased return flows from converting irrigation water to M&I, would result in changes to the study area that are inappreciable to individuals or suitable habitat.

3.8.8 June Sucker Effects Determination

Using the best available scientific and commercial data available to forecast increased water demands, along with potential impacts of implementing the Proposed Action, Reclamation has determined that the anticipated impacts of this action would have no effect on June sucker.

3.8.9 Ute Ladies'-tresses

Ute ladies'-tresses (*Spiranthes diluvialis*) is a rare orchid species found in wetland habitats in Utah and other western states. It is listed as threatened under the Endangered Species Act (ESA). Ute ladies'-tresses (ULT) is a small, perennial orchid with spiral-shaped flower spikes bearing numerous white flowers. It typically blooms in late summer or early fall, often in response to seasonal moisture conditions. ULT habitat consists of wetland areas such as marshes, seeps, springs, and wet meadows. These habitats are characterized by saturated or seasonally inundated soils and often support a diverse array of plant species adapted to wet conditions (Fertig 2005). Within the service area, ULT habitat is dispersed, including areas adjacent to the Spanish Fork River and Utah Lake. The total suitable habitat in the study area is estimated at 36,790.38 acres, which accounts for approximately 30.59% of the SVP Service Area (Figure 1). Habitat areas were identified using the Environmental Conservation Online System species profile (U.S. Fish and Wildlife Service, n.d.). Figure 5 illustrates the distribution of Ute ladies'-tresses in the SVP Service Area.

3.8.10 No Action

Under the No Action, the conversion contract would not be approved, and irrigation water would not be made available for miscellaneous purposes, including M&I. The human population would continue to expand in the study area (Gardner Institute 2022). This expansion would result in increased demand for water as outlined in the State's 2021 Water Resources Plan. This increase in demand may require water suppliers and municipalities to utilize other sources such as reuse and groundwater in the absence of another reliable source. If utilizing these alternative sources resulted in reduced overall returns to the system, the total available water for wetland areas and ULT habitat could be reduced, resulting in adverse effects on ULT and its habitat.

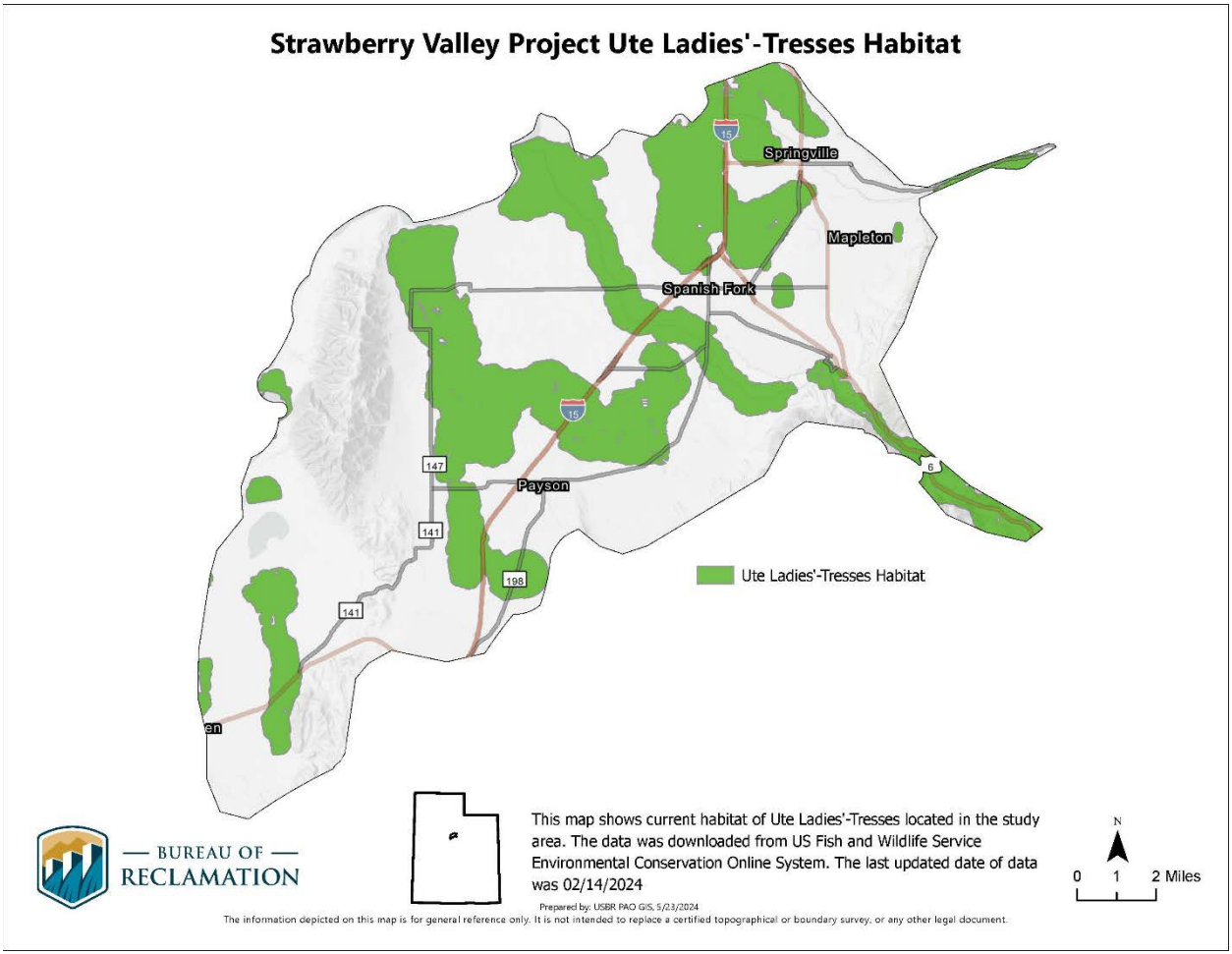

Figure 5. Map showing Ute ladies'-tresses habitat in the SVP Service Area.

3.8.11 Proposed Action

Under the Proposed Action, the conversion contract would be approved by Reclamation, and the associated irrigation water would be available for M&I purposes. The human population would continue to expand in the SVP Service Area (Gardner Institute 2022). This expansion would result in increased demand for water as outlined in the State's 2021 Water Resources Plan. The Proposed Action would enable water suppliers to convert irrigation water to M&I water, to be used as needed for future demand.

Using the best scientific and commercial data available, the Utah Division of Water Resources has quantified the return flow for agriculture as 38% and M&I as 49% (Utah Division of Water Resources 2021). This means that water used for M&I purposes returns 11% more to the environment than water used for agriculture. This increase would result in approximately 11% greater returns to the system as a whole. Given the reliance of ULT on wetland areas such as marshes, seeps, springs, and wet meadows, this would benefit the species by increasing available water in the SVP Service Area. However, this benefit is offset by the projected increase

in human population and water demand expected in the area (Gardner Institute 2022). The projected increase in human population, independent of this action, combined with the increased return flows from converting irrigation water to M&I, would result in changes to the service area that are inappreciable to individuals or suitable habitat.

3.8.12 ULT Effects Determination

Using the best available scientific and commercial data available to forecast increased water demands, along with potential impacts of implementing the Proposed Action, Reclamation has determined that the anticipated impacts of this action would have no effect on ULT.

3.9 Climate Change

Climate change significantly affects the distribution, structure, and function of ecosystems worldwide. Greenhouse gases influence global climate by trapping solar radiation in the atmosphere, which increases global temperatures. Anticipated climate change impacts are expected to affect geographies uniquely, with changes in precipitation and temperature.

In northern Utah, including the area where Strawberry Reservoir is located, temperatures have risen by more than 2.5°F since the beginning of the 20th century, and this warming trend is expected to continue. This increase leads to hotter summers and milder winters, which can affect evapotranspiration rates, soil moisture levels, and water demand for irrigation. Additionally, changes in precipitation patterns are anticipated, with the potential for more intense but less frequent precipitation events. These changes pose challenges for water storage and management. The region has already seen shorter, warmer winters, with more precipitation falling as rain rather than snow, and an increase in extreme summer heat and very warm nights (Natural History Museum of Utah, 2021; State Climate Summaries 2022, 2022).

In Utah, greenhouse gas emissions have historically varied, with electric power generation being the largest source, followed by transportation and industry. Emissions from the electric power sector have been decreasing as the state transitions from coal-fired power plants to natural gas and renewable energy sources. This shift has resulted in a notable reduction in CO_2 emissions from electricity generation. For instance, in 2023, coal accounted for 46% of Utah's electricity generation, down from 75% in 2015, while natural gas and renewables made up the remaining portions. The state's energy strategy includes further reductions in emissions by continuing to increase the share of renewables and improving energy efficiency (Energy EIA).

3.9.1 No Action

Under the No Action, the SVP would continue to operate as is. This could result in several potential consequences, including reduced water availability due to altered runoff patterns, increased evapotranspiration rates leading to decreased water supply, and additional stress on

infrastructure from more frequent extreme weather events. Prolonged drought periods could exacerbate water shortages, impacting agricultural productivity and municipal water supplies.

3.9.2 Proposed Action

Under the Proposed Action, conversion is not expected to have a significant effect on climate change impacts. The overall quantity of water used would remain consistent, as the same amount of water currently allocated for irrigation would be redirected to miscellaneous purposes. Both purposes have similar impacts on water resources in terms of evaporation, evapotranspiration, and return flows. Therefore, the hydrological cycle and water balance within the SVP Service Area are not expected to be significantly altered.

3.10 Cultural Resources

Under 36 CFR Part 800, cultural resources are defined as physical or other expressions of human activity or occupation that are more than 50 years old. Such resources (legally referred to as historic properties) include culturally significant landscapes, prehistoric and historic archaeological sites and isolated artifacts or features, historic structures, human burials, sacred sites, and areas of important cultural value to existing communities (traditional cultural properties (TCPs; Parker and King 1992). Historic Properties that are eligible for inclusion in the National Register of Historic Places (NRHP) are protected under the National Historic Preservation Act of 1966, as amended in 1992 (NHPA), and may also be protected under the Native American Graves Protection and Repatriation Act of 1990 (NAGPRA), the American Indian Religious Freedom Act, and Executive Order 13007, Protection of Native American Sacred Sites, and other State, agency, city, or tribal laws and policies.

There are a wide range of cultural resources in the SVP Service Area as identified through studies for other projects by both Reclamation (Erlick and Jacobson 2023; Stone 2005) and various academics (Aikens and Madsen 1986; Madsen and Simms 1998; Marwitt 1986; R.L. Kelly 1997; Janetski 1991; Callaway et al. 1986; Jennings 1978; Holzapfel 1999; Simms 2008). There is an abundance of cultural resource background information to evaluate the Proposed Action.

The SVP Service Area is in the Eastern Great Basin, a geographic and cultural region well known for its contemporary/historical Native American and Euro American heritage. The SVP Service Area includes from where water is discharged into Spanish Fork River and diverted into the Strawberry Power Canal that supplies the Springville-Mapleton Lateral to the north, the High Line Canal system to the south, the Upper and Lower Spanish Fork Powerplants, and the older privately built distribution system. Prominent cultural/archaeological features adjacent to or within the SVP Service Area include the forementioned infrastructure as well as the Spanish Fork Indian Farm Reservation.

The cultural phases characterized by mobile hunter-gatherers include the Paleoindian (20,000 to 6,500 BC) followed by the Archaic period (6,500 BC – AD 400). The cultural phases that started incorporating more agriculture into their subsistence was the Formative period (Fremont) that dates from AD 400-1350, followed by the Late Prehistoric from AD 1350-1700, and the Protohistoric that ranges between AD 1700-1850. The Historic (Post AD 1850) cultural phase is when European pioneers started settling in the area. The historic period sites (Euro – American) patterns (1776 to Present) relate to the Spanish frontier, Ute conflicts and Reservation, mining, railroading, ranching, farming, logging, and water development. While the evidence of human existence in the region spans over 10,000 years, based on the review of the Utah State Historic Preservation Office's historic buildings and archaeological records database, recorded archaeological sites are predominately of the historic period (post AD 1850) for the SVP Service Area. This is likely due to the early settlement of the SVP Service Area and continued growth and development (residentially, agriculturally, and commercially) into the modern day (Fuller et al 2016; Holzapfel 1999).

3.10.1 No Action

Under the No Action, there would be no changes to the 1991 Contract Water and SVP High Flow Water, no ground disturbance, and therefore there would be no effect to historic properties.

3.10.2 Proposed Action

The Proposed Action would have no potential to cause effects to historic properties because there are no ground disturbing activities currently planned as part of this proposed undertaking and changing the use of the 1991 Contract Water and SVP High Flow Water from irrigation to miscellaneous purposes will not alter the availability of water. The Utah State Historic Preservation Office (SHPO) concurred with these findings on September 18, 2023, and subsequent email correspondence on May 24, 2024, confirmed SHPO's concurrence with Reclamation's determination of effect (See Appendix D).

3.11 Indian Trust Assets

Indian Trust Assets (ITAs) are legal interests in property held in trust by the United States for Indian tribes or individuals. The Department of the Interior's policy is to recognize and fulfill its legal obligations to identify, protect, and conserve the trust resources of Federally recognized Indian tribes and tribal members, and to consult with tribes on a government-to-government basis whenever plans or actions affect tribal trust resources, trust assets, or tribal safety (see the *Departmental Manual*, 512 DM 2). Under this policy, as well as Reclamation's ITA policy, Reclamation is committed to carrying out its activities in a manner that avoids adverse impacts to ITAs when possible, and to mitigate or compensate for such impacts when it cannot. All impacts to ITAs, even those considered nonsignificant, must be discussed in the trust analyses in NEPA compliance documents, and appropriate compensation or mitigation must be implemented.

Under 25 CFR Part 115, trust assets can be real property, physical assets, or intangible property rights such as lands, minerals, hunting and fishing rights, traditional gathering grounds, and water rights. Impacts to ITAs are evaluated by assessing how the Proposed Action would affect the use and quality of ITAs. Any action that would adversely affect the use, value, quality, or enjoyment of an ITA is considered to have an adverse impact on the resources.

The most current (2023) American Indian/Alaska Native/Native Hawaiian Areas (AIANNH) National Shapefile was reviewed, and no Indian Trust Assets were located near the SVP Service Area. This review occurred on September 1, 2023, by Reclamation. See Aerial Map of Indian Trust Assets Proximity to SVP Service Area (See Figure 7). There are no Indian Trust Assets, including any Tribe's reserved water rights.

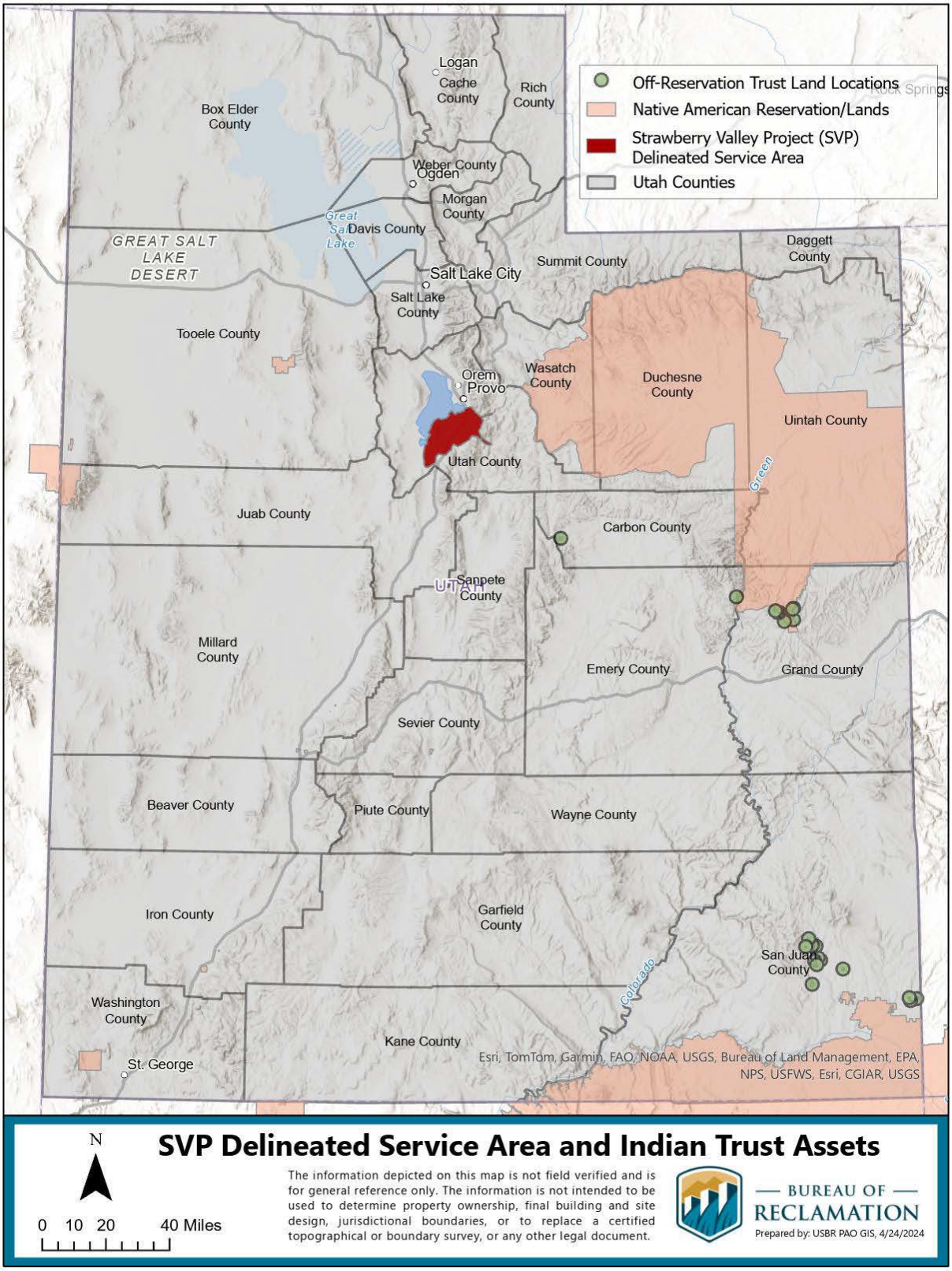

Figure 6. Map of Indian Trust Assets and their Proximity to SVP Service Area.

3.11.1 No Action & Proposed Action

Because there are no ITAs in the SVP Service Area, neither the No Action nor the Proposed Action would affect ITAs. Additionally, water is already guaranteed to the SVP by way of the 1991 Agreement. Changing the use of 1991 Contract Water and SVP High Flow Water from irrigation only to miscellaneous purposes does not alter the availability of water in either the Bonneville or Colorado River basins, neither does it impact any Tribe's ability to enter a compact or settlement regarding their reserved water rights.

3.12 Socioeconomics

The socioeconomic environment within the Strawberry Valley Project (SVP) service area, which includes the cities of Spanish Fork, Springville, Mapleton, Salem, Payson, and Santaquin, is characterized by a blend of rural and urban communities. This area supports a diverse economy that includes agriculture, manufacturing, retail, and services. Over the past few decades, the region has experienced significant growth driven by attractive living conditions, relatively affordable housing, and proximity to larger urban centers such as Provo and Salt Lake City. The median household income in these communities reflects this economic vitality, with Spanish Fork, for instance, having a median household income of $93,989. Additionally, the job market in these areas is strong, with low unemployment rates and high projected job growth rates (Data USA) (BestPlaces) (World Population Review).

Agriculture remains an important part of the local economy, with many residents engaged in farming and related activities. However, there has been a noticeable shift towards urbanization, with more land being converted for residential, commercial, and industrial use. This trend is expected to continue as the population grows and demand for housing and services increases. The SVP provides essential water resources that support both agricultural and urban needs. The availability of water has a direct impact on the local economy, influencing agricultural productivity, real estate development, and overall quality of life (Bureau of Reclamation).

3.12.1 No Action

Under the No Action, the 1991 Contract Water and SVP High Flow Water would remain unchanged for irrigation purposes. This would limit the flexibility of water use to meet the growing demands of the urbanizing population. Water would continue to be largely used for agricultural activities.

Regardless of conversion, growth in Utah County would continue. However, the value of water, without conversion, could result in higher costs for securing alternative water, potentially impacting the affordability of housing and the overall economic development of the region.

3.12.2 Proposed Action

The Proposed Action would allow for the conversion of the 1991 Contract Water and SVP High Flow Water from irrigation to miscellaneous uses, including M&I purposes. This increased flexibility in water use would increase the supply. This in turn is likely to have a positive impact on the economy by minimizing increased costs of water.

3.13 Environmental Justice

Environmental justice concerns arise when certain communities, particularly minority and low-income populations, disproportionately bear the adverse environmental impacts of development projects. In the SVP Service Area, which includes the cities of Spanish Fork, Springville, Payson, Provo, and Orem, the population is predominantly White. However, there are smaller percentages of Hispanic, Native American, and other minority groups in these cities. On average, the demographic composition across these cities is approximately 89.7% White, 12.0% Hispanic or Latino, 0.7% Black or African American, 1.8% Asian, 0.6% Native American, and 1.1% Native Hawaiian or Other Pacific Islander. Ensuring that these minority communities do not disproportionately experience adverse environmental impacts is a key consideration in the project's planning and implementation (U.S. Census Bureau data, 2020) (Census.gov).

The economic diversity within the community includes both affluent areas and regions with higher rates of poverty. Ensuring that all community members have equitable access to environmental benefits and are protected from disproportionate environmental harms is a key consideration in the assessment of environmental justice impacts.

3.13.1 No Action

Under the No Action, the continued allocation of 1991 Contract Water and SVP High Flow Water primarily for irrigation purposes would maintain the status quo. There would be no new environmental justice impacts as the existing water use patterns would remain unchanged.

The lack of flexibility in water use could limit the availability for municipal and industrial purposes, affecting affordable housing and economic opportunities in low-income and minority areas. This perpetuates existing disparities in access to resources and economic prospects. Studies show that these communities face greater barriers to homeownership and economic mobility due to systemic inequities and higher exposure to environmental hazards (National Low Income Housing Coalition, 2023).

3.13.2 Proposed Action

The Proposed Action would convert 1991 Contract Water and SVP High Flow Water to support municipal and industrial (M&I) uses, enhancing equitable water distribution across the SVP Service Area. This reallocation supports existing and planned developments without directly causing significant growth.

Ensuring that low-income and minority populations benefit from the Proposed Action is crucial. Inclusive community engagement and equitable resource distribution can help mitigate adverse impacts.

The Proposed Action is expected to have no significant adverse effect on environmental justice, promoting equitable access to resources and opportunities for all residents of the SVP Service Area.

3.14 Cumulative Effects

The Council on Environmental Quality's regulations for implementing NEPA (40 CFR 1508.1(g)(3)) state that cumulative effects "are effects on the environment that result from the incremental effects of the action when added to the effects of other past, present, and reasonably foreseeable actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative effects can result from individually minor but collectively significant actions taking place over a period of time." The area of potential cumulative effects varies by resource analyzed and will be defined accordingly for each resource in this assessment.

The Proposed Action involves Reclamation responding to the SVP contract holders' request to utilize the 1991 Contract Water and SVP High Flow Water for miscellaneous purposes under a conversion contract authorized by the 1920 Act. This action would not impact the water rights held by the United States or others in the area, nor would it involve new infrastructure or changes in land use. The SVP Service Area boundary would finally be delineated and the timing and quantities of water deliveries would continue as currently managed. Reclamation has assessed the reasonably foreseeable impacts of the Proposed Action.

3.14.1 Methodology

To identify reasonably foreseeable projects in the SVP Service Area with potential for cumulative effects, Reclamation contacted relevant agency and organization staff. The process included:

- Reclamation: An internal review of projects and activities that Reclamation was planning, implementing, or cooperating on.

- Water Management Organizations: Communication with CUWCD and SWUA to determine if any of their projects might contribute to cumulative effects.

Table 5.-Summary of Reasonably Foreseeable Future Projects in the SVP Service Area

Project Name	Description
High Line Canal Enclosure Project	SHLCC, CUWCD, Department of the Interior-CUPCA Office, and Reclamation are pursuing enclosure of the Strawberry High Line Canal. Environmental analysis could be completed in the next couple of years with construction in the foreseeable future.
Return Flows Wells	SHLCC has submitted water right applications for wells to the State to capture return flows. The filed change application would move their return flows into two wells in south Utah County. Environmental analysis could be completed in the next couple of years with construction in the foreseeable future.
Water Treatment Plant	CUWCD is planning to eventually construct a water treatment plant. Environmental analysis could be completed in the next couple of years with construction in the foreseeable future.

3.14.2 Cumulative Effects Analysis

Reclamation reviewed the potential for additive or interactive effects from the Proposed Action in combination with the projects listed above. The projects in Table 5 have not begun any environmental analysis. However, based on our knowledge of the potential projects, at least minor beneficial effects to water quality, and biological resources are anticipated due to possible improvements in infrastructure, better water management practices, and enhanced environmental protections. For example, enclosing a canal in a pipeline could enhance water quality by reducing contamination from runoff.

3.14.2.1 Reservoir Operation and Streamflow

As there would be no ground disturbing activities associated with the Proposed Action, and any ground disturbing activities associated with the above projects would have no impacts to reservoir operations and streamflow, there would be no combined or interactive effect on reservoir operations and streamflow from the Proposed Action and cumulative effects projects.

3.14.2.2 Land Use

The Proposed Action and the above projects would not cause cumulative impacts to land use. Land use is changing from agriculture to residential, commercial, and industrial regardless of the Proposed Action due to demographic shifts (Gardner Institute 2022). Additionally, these projects would not exacerbate changes or impacts to land use beyond what has already been described. They would only enable converted water to be used for the anticipated changes (Proposed Action), allow the conveyance of appropriated water through an enclosed canal instead of an open one, and provide treatment for available water.

3.14.2.3 Water Resources

These resources would not be measurably affected by the Proposed Action alone, as detailed in previous sections. The Proposed Action focuses on the conversion of water uses without significant changes to the overall volume or distribution of water, thus ensuring that the hydrological cycle and water balance within the SVP Service Area remain stable. Consequently, there could be no cumulative effects on these resources due to the Proposed Action.

Cumulative effects on water rights would not occur, as the projects listed above would not include any changes to water rights. The Proposed Action does not alter the legal framework governing water rights or the allocation of water resources within the SVP Service Area. Therefore, the stability of water rights is maintained, ensuring no cumulative impacts in this regard.

3.14.2.4 Wetlands

The Proposed Action, along with other current projects in the SVP Service Area, would not result in significant cumulative impacts on wetlands. The hydrological conditions supporting wetlands are primarily sustained by natural groundwater discharge and precipitation, as opposed to irrigation practices. Given that the Proposed Action does not alter the water feeding these wetlands, the cumulative impact on wetland ecosystems remains negligible. Additionally, ongoing development and land use changes would continue to reduce wetland acreage, but this trend is independent of the Proposed Action. Therefore, there would be no combined or interactive effects on wetlands from the Proposed Action and cumulative projects.

3.14.2.5 Soil and Farmlands

The Proposed Action and other ongoing projects in the SVP Service Area are not expected to have significant cumulative impacts on soils and farmland. The transition of land use from agricultural to residential and commercial developments is occurring independently of the Proposed Action, driven by regional growth demands. While the Proposed Action ensures continued access to irrigation water, thus maintaining the productivity of remaining farmland, it does not influence the broader trend of land conversion. Consequently, the combined or interactive effect on soils and farmland from the Proposed Action and other projects would be minimal.

3.14.2.6 Floodplains

Cumulative impacts on floodplains from the Proposed Action and other ongoing projects in the SVP Service Area are expected to be minimal. The hydrological regime within the floodplains, crucial for their natural functions, would remain largely unaffected by the Proposed Action. Although development and land use changes would continue to impact floodplain ecosystems, these changes are occurring independently of the Proposed Action. The overall water balance and floodplain functionality would be preserved, ensuring no significant combined or interactive effects on floodplains from the Proposed Action and other cumulative projects.

3.14.2.7 Threatened and Endangered Species

The Proposed Action Alternative and the above projects would not cause additional impacts to threatened and endangered species. The anticipated impacts of these projects, beneficial or adverse, along with the projected human population expansion (Gardner Institute 2022) is within the scope of analysis presented in section 3.9 of this document.

3.14.2.8 Climate Change

Cumulative impacts on climate change from the Proposed Action and other ongoing projects in the SVP Service Area are expected to be minimal. The Proposed Action allows for the flexible use of water resources, which can enhance resilience to climate change by supporting sustainable water management practices. Although climate change impacts, such as increased temperatures and altered precipitation patterns, are significant challenges, the Proposed Action would help mitigate these effects by ensuring a stable water supply and modernizing infrastructure. However, these adaptations would be part of a larger regional strategy to address climate change, and the Proposed Action alone would not significantly change the overall climate change impacts.

3.14.2.9 Cultural Resources

The Proposed Action has been determined to have no potential to cause effects on historic properties and will not result in an adverse effect on eligible historic properties. Even if the projects listed above in Table 5 adversely affect eligible historic properties, there could be no cumulative effect due to the Proposed Action. This conclusion is based on the fact that the Proposed Action does not involve ground-disturbing activities or changes that could impact historic sites.

3.14.2.10 Indian Trust Assets

There are no anticipated cumulative impacts to ITAs due to the Proposed Action. There are no ITAs in or near the SVP Service Area, furthermore, the projects listed in Table 5 are all located outside of ITAs. The Proposed Action entails no ground disturbance and does not change water availability in the Bonneville or Colorado River basins, nor does it impact any Tribe’s ability to enter a compact or settlement regarding their reserved water rights.

3.14.2.11 Socioeconomics

Cumulative impacts on socioeconomics from the Proposed Action and other ongoing projects in the SVP Service Area are expected to be beneficial but minimal. The Proposed Action supports the conversion of water from irrigation to miscellaneous purposes, including M&I uses, which would facilitate economic growth by meeting the increasing demand for residential, commercial, and industrial development. However, these changes are driven by regional population growth and urbanization trends, occurring independently of the Proposed Action. Therefore, while the Proposed Action would contribute positively to local economic development, it would not significantly alter the broader socioeconomic trends already underway in the regio

3.14.2.12 Environmental Justice

The Proposed Action and other ongoing projects in the SVP Service Area are not expected to have significant cumulative impacts on environmental justice. This conversion project along with the other reasonably foreseeable projects aim to assist, at least in part, to provide safe, reliable water to all people for all uses. Therefore, there would be likely be a beneficial cumulative effect to all citizens of the affected areas.

3.14.3 Conclusion

The Proposed Action would not have significant cumulative effects when combined with other past, present, and reasonably foreseeable projects, for the reasons as described in the sections above.

4. Environmental Commitments

The following environmental commitments will be implemented as an integral part of the Proposed Action for the SVP to ensure that potential impacts are minimized and that the project complies with all relevant environmental regulations.

4.1 Additional Analyses

If the Proposed Action changes significantly due to new or additional information, or if additional work areas outside the defined Project area are required, further environmental analyses will be conducted as necessary.

4.2 Standard Reclamation Best Management Practices

Standard Reclamation Best Management Practices (BMPs) will be applied during Project activities to minimize environmental effects. These BMPs will include measures for erosion control, public safety, protection of archaeological and historical resources, vegetation, and wildlife.

4.3 Coordination with Local Agencies

Reclamation will coordinate with local agencies and stakeholders to ensure that all environmental commitments are upheld and that the Project complies with local, state, and federal regulations.

4.4 Water Resources Management

Efforts will be made to manage water resources efficiently, ensuring no adverse impact on water quality or availability in the SVP Service Area. This includes monitoring water use and ensuring compliance with all legal and regulatory requirements for water transfers.

4.5 Wildlife Resources

4.5.1 Bald and Golden Eagles

Measures will be taken to avoid disturbance to bald and golden eagles, including maintaining appropriate buffer zones around known nest sites.

4.5.2 Other Raptors and Migratory Birds

Similar protective measures will be applied to other raptor species and migratory birds to minimize disturbance during critical breeding and nesting periods.

4.6 Public Access

Efforts will be made to minimize disruption to public access and recreational activities. Any necessary closures or detours will be clearly communicated to the public in advance.

4.7 Previously Disturbed Areas

Restoration efforts will focus on previously disturbed areas, with revegetation and erosion control measures implemented promptly following any disturbances.

4.8 Health and Safety

All Project activities will comply with applicable health and safety regulations to protect workers and the public.

4.9 Indian Trust Assets

Any potential impacts on Indian Trust Assets will be identified and addressed in coordination with the relevant tribes to ensure their protection and compliance with federal trust responsibilities.

4.10 Future Land Use

The Project will consider future land use changes and coordinate with local planning authorities to ensure that the conversion of 1991 Contract Water and SVP High Flow Water from irrigation to municipal and industrial uses is managed in a way that supports sustainable development.

5. Consultation and Coordination

Scoping, as defined in 40 CFR 1501.9, is "an early and open process to determine the scope of issues for analysis…, including identifying the significant issues and eliminating from further study non-significant issues." Scoping includes all types of information-gathering activities and can occur throughout the NEPA process. The Proposed Action was presented to the public and interested agencies as outlined below.

5.1 Comment Period

Reclamation is holding a comment period beginning July 10, 2024 through August 9, 2024. Comments should be submitted to Mr. Erik Kemp via email (ekemp@usbr.gov) or standard mail at the following address.

Bureau of Reclamation
Re: Strawberry Valley Project 1920 Act Conversion
c/o Erik Kemp
302 East Lakeview Parkway
Provo, UT 84606

5.2 Utah State Historic Preservation Officer

Reclamation's proposed water conversion would have no potential to cause affects to historic properties. Reclamation submitted a copy of the letter of findings to the Utah State Historic Preservation Officer (SHPO) on November 8, 2023. The SHPO concurred with a determination of no potential to cause affects to historic properties on November 9, 2023.

5.3 Native American Consultation

On June 17, 2024, Native American consultation was initiated by Reclamation through letters sent to the Uintah and Ouray Ute Tribe, Shoshone-Bannock Tribe, Northwestern Band of Shoshone Nation, Confederated Tribes of the Goshute Reservation, Paiute Indian Tribe of Utah, Moapa Band of Paiute Indians of the Moapa River Indian Reservation, Kaibab Band of Paiute Indians of the Kaibab Indian Reservation, Eastern Shoshone Tribe of the Wind River Reservation, Ute Mountain Ute Tribe, the Navajo Nation, Skull Valley Band of Goshute, and the Las Vegas Tribe of Paiute Indians of the Las Vegas Indian Colony. The standard 30-day comment period is currently underway.

6. Preparers

The following is a list of preparers who participated in the development of the draft EA.

Table 6.-Reclamation team, environmental preparers

Name	Title
Ben Woolf	Deputy Area Manager, Provo Area Office
Erik Kemp	Fish and Wildlife Biologist, Provo Area Office
Wyatt Carter	Fish and Wildlife Biologist, Provo Area Office
Maggie Erlick	Archaeologist, Provo Area Office
Nicole Jacobson	Archaeologist, Provo Area Office
Jeff Hearty	Economist, UCB Regional Office
Patricia Mori-Vignola	Contracts and Repayment, Provo Area Office
Dustin Woodbury	Water Rights, Provo Area Office

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8. Appendices

Appendix A – Project Water Contract Holders

Appendix B – 1991 Agreement

Appendix C – Kem C. Gardner Study

Appendix D– Utah SHPO Concurrence Letter

Appendix E– IpaC List of Threatened and Endangered Species

Appendix A – Project Water Contract Holders

SVP Contract Holders

Lakeshore Irrigation Company
Spanish Fork South Irrigation Company
Spanish Fork East Bench Irrigation and Manufacturing Company Spanish
Fork West Field Irrigation Company
Spanish Fork Southeast Irrigation Company
Farmers of Clinton Unit
Spanish Fork City
Payson City
High Line Canal Company
Salem Irrigation and Canal Company
P.E. & Lelia Whiting
John H. Hayes, John I Hayes, and Besey A. Hayes
Farmers of Soldier Fork Unit
Springville Irrigation District
Mapleton Irrigation District
Town of Salem
Strawberry Water Users Association for transfer of Project Management discussion w/ SOL)

Appendix B – 1991 Agreement

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION

CENTRAL UTAH PROJECT BONNEVILLE UNIT AND
STRAWBERRY VALLEY PROJECT

CONTRACT AMONG THE UNITED STATES, CENTRAL UTAH WATER CONSERVANCY DISTRICT, AND STRAWBERRY WATER USERS' ASSOCIATION RELATING TO THE OPERATION AND MAINTENANCE OF THE ENLARGED STRAWBERRY RESERVOIR AND THE RELATED FACILITIES JOINTLY USED

THIS CONTRACT, made this 29th day of July, 1991, pursuant to applicable Federal Reclamation Law, among the UNITED STATES OF AMERICA, hereinafter called the United States; the CENTRAL UTAH WATER CONSERVANCY DISTRICT, a water conservancy district organized and existing pursuant to the laws of the State of Utah, having its principal place of business at Orem, Utah, hereinafter called the District; and the STRAWBERRY WATER USERS' ASSOCIATION, a corporation organized and existing under the laws of the State of Utah, having its principal place of business at Payson, Utah, hereinafter called the Association.

WITNESSETH THAT:

WHEREAS, the United States constructed the Strawberry Valley Project, comprising the Strawberry Dam and Strawberry Reservoir with an active capacity of 270,000 acre-feet, the Strawberry Tunnel with a capacity of 600 cubic feet per second (cfs), the Upper Spanish Fork

Powerplant and transmission lines, the High Line Canal, the Mapleton and Springville Lateral and related collection, diversion, conveyance, and distribution works, all of which were substantially completed in approximately the year 1915; and

WHEREAS, the Association has constructed additional Strawberry Valley Project works, comprising two additional powerplants and transmission lines and additional lateral systems, has replaced the Upper Spanish Fork Powerplant and the diversion dam on the Spanish Fork River and has rehabilitated the Power Canal; and

WHEREAS, pursuant to that certain contract between the Association and the United States dated September 28, 1926, as supplemented by that certain Supplemental Contract dated November 20, 1928, then superseded by that certain Amendatory Contract dated October 9, 1940, the care, operation and maintenance of the Strawberry Valley Project and all appurtenances thereto were transferred to the Association except the High Line Canal and the Mapleton and Springville Lateral; and

WHEREAS, the parties hereto acknowledge for the purpose of this Contract that the Association's long-term historical withdrawal from the 270,000 acre-foot active capacity of Strawberry Reservoir has averaged 61,500 acre-feet per year which equates in this Contract to a firm annual allocation of 61,000 acre-feet coupled with a one-time allocation of 50,000 acre-feet; and

WHEREAS, the United States is constructing the Bonneville Unit of the Central Utah Project and as a part thereof has enlarged Strawberry Reservoir to an active capacity of 951,360 acre-feet by construction of Soldier Creek Dam and is constructing the Syar Tunnel and proposes to construct the Diamond Fork System and other works.

NOW, THEREFORE, in consideration of the mutual and dependent stipulations and covenants herein contained, it is agreed by and among the parties hereto as follows:

DEFINITIONS

1. Where used in this Contract:

(a) "Secretary" or "Contracting Officer" or either of them, means the Secretary of the United States Department of the Interior, or his duly authorized representative.

(b) "District" means the Central Utah Water Conservancy District.

(c) "Association" means the Strawberry Water Users' Association.

(d) "Bonneville Unit" means the Bonneville Unit of the Central Utah Project (initial phase).

(e) "Strawberry Project" means the existing Strawberry Valley Project and all works and facilities relating thereto.

(f) "Strawberry Reservoir" means the Strawberry Reservoir constructed as a part of the Strawberry Project with an active capacity of 270,000 acre feet.

(g) "The Enlarged Strawberry Reservoir" means the reservoir with an active capacity of 951,360 acre-feet created by the construction of Soldier Creek Dam as a part of the Bonneville Unit which now inundates the original Strawberry Dam and Reservoir.

(h) "Strawberry Tunnel" means the original tunnel constructed as a part of the Strawberry Project from Strawberry Reservoir to the West Portal near the head of Sixth Water Creek.

(i) "Syar Tunnel Intake Structure" means the new structure constructed as a part of the Bonneville Unit to divert water from the Enlarged Strawberry Reservoir into Syar Tunnel and Strawberry Tunnel.

(j) "Syar Tunnel" means the new tunnel under construction as a part of the Bonneville Unit from Syar Tunnel Intake Structure to an outlet portal at Fifth Water Ridge in Rays Valley.

(k) "Diamond Fork System" means the Bonneville Unit water conveyance facilities to be constructed by the United States from Syar Tunnel outlet portal (Rays Valley) to a point near the confluence of Diamond Fork Creek and Spanish Fork River and comprising:

(1) Sixth Water Aqueduct consisting of a series of pipelines, shaft, tunnel, and energy dissipater connecting the Syar Tunnel outlet with Sixth Water Creek.

(2) Sixth Water Creek consisting of open channel flow to Monks Hollow Reservoir.

(3) Monks Hollow Reservoir to be created by the construction of Monks Hollow Dam on Diamond Fork Creek approximately 8 miles upstream from its confluence with Spanish Fork River.

(4) Diamond Fork Pipeline to convey water from Monks Hollow Reservoir to near the confluence of Diamond Fork Creek and Spanish Fork River.

(l) "Water Year" means the continuous period from November 1 to the following October 31 inclusive.

CONSTRUCTION, OPERATION AND MAINTENANCE OF FACILITIES

2. The United States shall continue the construction of the Bonneville Unit, including Syar Tunnel and the Diamond Fork System. The District, under the direction of the Contracting Officer, shall operate and maintain the Enlarged Strawberry Reservoir, Syar Tunnel and Syar Tunnel Intake Structure, and the Diamond Fork System, so as to provide the water to which the Association is entitled in accordance with this Contract and to provide the District with its Bonneville Unit water.

EQUIVALENT ASSOCIATION STRAWBERRY PROJECT RIGHTS IN ENLARGED STRAWBERRY RESERVOIR

3. (a) Prior to the allocation provided for in Article 5 herein, the Association was entitled to the use of all water developed by the Strawberry Project under its existing contracts with the United States, including the Strawberry Reservoir storage water, Strawberry Tunnel accretion water and Spanish Fork River Strawberry Project water. The Strawberry Project has been operated and maintained by the Association and the long-term historical Strawberry Reservoir storage water releases have averaged 61,500 acre-feet per year for Strawberry Project uses. The Enlarged Strawberry Reservoir has substantially changed the conditions under which the Strawberry Reservoir has been operated and the parties agree that the annual quantities of water provided to the Association in the Enlarged Strawberry Reservoir and the operation and maintenance thereof, all in accordance with this Contract, are equivalent to the storage water historically developed by the Strawberry Reservoir for Strawberry Project uses.

(b) In lieu of the Association's existing contractual rights to the use of all of the storage water developed by the Strawberry Reservoir, the Association shall be entitled to an allocation of 61,000 acre-feet of storage water each year in the Enlarged Strawberry Reservoir, together with a one time allocation as of May 1, 1989, of 50,000 acre-feet of storage water and a permanent right to

50,000 acre-feet of storage capacity in the Enlarged Strawberry Reservoir. The 61,000 acre-feet shall be guaranteed to the Association each year from the water in storage and available for storage in the Enlarged Strawberry Reservoir for Strawberry Project uses and shall have preference over all Bonneville Unit uses. The 61,000 acre-feet and 50,000 acre-feet, in whole or in part, remaining in storage, shall not be subject to reductions during shortages, nor to evaporation or other reservoir losses, minimum stream flow requirements or wildlife impact mitigation. In addition, the Association shall be entitled to the continued use of the Strawberry Tunnel accretion water, so long as said accretion water is physically available for direct flow diversion, together with the Strawberry Project water rights in the Spanish Fork River.

BONNEVILLE UNIT MINIMUM STREAM FLOWS

4. None of the Strawberry Project water shall be required to satisfy minimum stream flows in the Uinta Basin. The accretion water accumulating in the Strawberry Tunnel may be nonconsumptively used by the United States for contribution to fishery and minimum stream flow requirements in Sixth Water Creek and for contribution to minimum stream flow requirements in Diamond Fork Creek from Monks Hollow Dam to the Spanish Fork River; provided, that any such accretion water shall remain Strawberry Project water for rediversion from the Spanish Fork River for Strawberry Project purposes. No other Strawberry Project water shall be

required to satisfy minimum stream flows or fisheries of the Bonneville Unit by reason of this contract. However, during such times as Strawberry Project water is conveyed by means of the natural channels of Sixth Water Creek and/or Diamond Fork Creek, such water will be nonconsumptively used by the United States and/or District to satisfy minimum stream flow requirements, provided that such nonconsumptive use shall not interfere with Strawberry Project uses of such water, including existing power uses.

ALLOCATION TO THE ASSOCIATION OF STRAWBERRY PROJECT WATER IN ENLARGED STRAWBERRY RESERVOIR

5. The United States and/or District shall allocate 61,000 acre-feet of water in the Enlarged Strawberry Reservoir to the Association on April 1 of each year and has provided a one-time allocation of 50,000 acre-feet of water in the Enlarged Strawberry Reservoir to the Association as of May 1, 1989. The 50,000 acre-feet one-time allocation to the Association may be used in whole or in part during any one year, or may be carried over in storage in the Enlarged Strawberry Reservoir from year to year as determined by the Association. In the event the Association does not use the entire 61,000 acre-feet annual allocation in any one year, the Association shall have the right to carry over any unused portion thereof and store such water but only in any then unused capacity of the Association's 50,000 acre-feet permanent storage capacity right in the Enlarged Strawberry Reservoir. Any water

of the Association carried over in excess of the 50,000 acre-feet permanent storage capacity shall become Bonneville Unit water. In the event the Enlarged Strawberry Reservoir fills and spills during any one year, none of the then remaining portion of the Association's water in storage within its 50,000 acre-feet of permanent storage capacity and none of its current year's allocation of 61,000 acre-feet shall be spilled.

OPERATION AND MAINTENANCE COSTS OF SOLDIER CREEK DAM AND ENLARGED STRAWBERRY RESERVOIR

6. The District shall operate and maintain the Soldier Creek Dam and Enlarged Strawberry Reservoir and the Association shall pay to the District a proportionate share of the annual costs of operation and maintenance thereof related solely to the storage of Association water in the Enlarged Strawberry Reservoir. The total costs incurred by the District during each Water Year covering the operation and maintenance of the Soldier Creek Dam and Enlarged Strawberry Reservoir shall be adjusted by deducting the operation and maintenance costs charged to flood control, fish and wildlife and commercial power pursuant to Article 12(b) of Contract No. 14-06-400-4286 between the United States and the District dated December 28, 1965. The costs so adjusted shall be divided into operation costs, being those costs normally attributed to the operation of such dam and reservoir for the storage of water therein and maintenance costs, being those costs normally attributed to

the maintenance, repair and rehabilitation of such dam and reservoir. The adjusted operation costs shall be prorated between the District and the Association on the basis of their average quantities of water in storage in the Enlarged Strawberry Reservoir. The Association's proportionate share of the adjusted operation costs shall be based upon average of the Association's quantities of water in storage therein at noon on April 2 and October 31 of the preceding Water Year divided by the average of the total quantities of water in storage at the same times within the active storage capacity (951,360 acre-feet) thereof. The adjusted maintenance costs shall be prorated between the District and the Association on the basis of the storage capacities of the Enlarged Strawberry Reservoir required for the storage of their respective quantities of water within the active capacity thereof. The Association's proportionate share of the adjusted maintenance costs shall be based upon the fraction 111/951, or 11.67 percent thereof. As close as reasonably possible to November 30 of each year, the District shall furnish to the Association an itemized statement of (i) the preceding Water Year adjusted operations costs; (ii) the quantities of Association water in storage at noon on April 2 and October 31 of the preceding Water Year; (iii) the average of the total quantities of water in storage at the same times as in (ii) within the active storage capacity of the Enlarged Strawberry Reservoir; and (iv) the Association's proportionate share of the adjusted operations costs and adjusted maintenance costs as determined above. The Association shall pay its pro-

portionate share of those costs to the District on or before 30 days following the billing date. In the event of a late payment beyond the due date, the late payment shall bear interest at the rate of 1 percent per month until the delinquent payment is made. In the event the Association disputes the amount of its proportionate share as billed, the Association shall timely pay the undisputed portion thereof and may withhold payment of the balance until the dispute is resolved by agreement or otherwise. Any unpaid disputed amounts determined to be owing by the Association shall bear interest at the rate of one percent per month. In the event of litigation, the prevailing party shall be entitled to recover its costs and reasonable attorneys' fees.

INTERIM USE OF STRAWBERRY TUNNEL

7. Prior to completion of the Syar Tunnel and the Sixth Water Aqueduct, the Strawberry Project water and Bonneville Unit water shall be released from the Enlarged Strawberry Reservoir by means of the Syar Tunnel Intake Structure and shall be conveyed through the Syar Tunnel to its connection with the Strawberry Tunnel and through the Strawberry Tunnel into Sixth Water Creek thence down Sixth Water Creek and Diamond Fork Creek into the Spanish Fork River for downstream Strawberry Project uses by the Association and for downstream Bonneville Unit uses by the United States and/or District. The existing capacity of the Strawberry Tunnel required to convey Strawberry Project water shall take preference over the capacity thereof required to convey Bonneville Unit Water. The

(c) Diamond Fork Creek from its confluence with Sixth Water Creek to the confluence of Diamond Fork Creek and Spanish Fork River, for downstream Strawberry Project uses by the Association and for downstream Bonneville Unit uses by the United States and/or District.

USE OF SYAR TUNNEL,

STRAWBERRY TUNNEL AND DIAMOND FORK SYSTEM

9. Upon completion of the Syar Tunnel and the Diamond Fork System, including Monks Hollow Dam and Reservoir and Diamond Fork Pipeline, and continuing thereafter, the Strawberry Project water and the Bonneville Unit water shall be released from the Enlarged Strawberry Reservoir by means of the Syar Tunnel Intake Structure and shall be conveyed through the Syar Tunnel and Diamond Fork System into the Spanish Fork River for downstream Strawberry Project uses by the Association and into the Spanish Fork River and/or other Bonneville Unit facilities for downstream Bonneville Unit uses by the United States and/or District. Thereafter, it is intended that the Strawberry Tunnel will generally not be used except by the United States for the delivery of water for fishery purposes, and at its option and expense, the United States may maintain the Strawberry Tunnel for that purpose. If the United States, District or the Association use the Strawberry Tunnel because of restrictions in use of Syar Tunnel, or for other reasons, they may do so, but each user shall have the obligation to pay the operation and maintenance costs or share in such costs with any other user. If the

United States uses the accretion water for fishery purposes, the Association will not be required to contribute to the operation and maintenance costs of the Strawberry Tunnel, even though the Association uses the accretion water consumptively. If, however, the United States should for any reason elect not to utilize the accretion water for fishery purposes, and therefore elects not to maintain the Strawberry Tunnel, the Association may at its option use the Strawberry Tunnel for the conveyance of the Association's accretion water developed thereby, but in that event, the Association will pay the maintenance costs if the water is used solely for the Association's purposes.

STREAM CHANNEL CAPACITIES AND RIGHTS

10. The United States shall provide the initial stream channel capacities in Sixth Water Creek and Diamond Fork Creek and the rights to use such capacities in such amounts as are required to thereby convey Bonneville Unit water in addition to the capacities required to thereby convey Strawberry Project Water. After the United States has provided such stream channel capacities and capacity rights, the operation and maintenance of the stream channels for the conveyance of Strawberry Project water and Bonneville Unit water shall be provided by the District.

ASSOCIATION NONCONSUMPTIVE USE OF BONNEVILLE UNIT WATER

11. The Association may nonconsumptively use any Bonneville Unit water which might be available in the Spanish Fork River at the Association's diversion dam for the generation of electrical energy at the Association's existing power plants without charge by the United States and/or District, provided that such water shall be returned undiminished in quantity and quality at or above the District's existing or hereafter established points of diversion or delivery and such nonconsumptive use by the Association shall not interfere with Bonneville Unit uses or times of use of such water, including power uses.

OPERATION AND MAINTENANCE DURING INTERIM USE OF STRAWBERRY TUNNEL

12. During the period provided for in the foregoing Article 7, i.e., from the present until the completion of the Syar Tunnel and Sixth Water Aqueduct:

(a) The District shall operate and maintain the Syar Tunnel Intake Structure and the Syar Tunnel to its connection with the Strawberry Tunnel and the Association shall operate and maintain the existing Strawberry Tunnel to its West Portal. The District shall release the Strawberry Project water to which the Association is entitled as provided for in this Contract from the Enlarged Strawberry

Reservoir by means of and as measured at the Syar Tunnel Intake Structure at such times and in such quantities as the Association shall direct up to the existing capacity of the Strawberry Tunnel. The District shall deliver such Strawberry Project water to the Association through the Syar Tunnel to its connection with the Strawberry Tunnel. The Association shall convey and be responsible for such Strawberry Project water through the Strawberry Tunnel, Sixth Water Creek, Diamond Fork Creek, and Spanish Fork River for downstream Strawberry Project uses. The District shall release the Bonneville Unit water from the Enlarged Strawberry Reservoir by means of and as measured at the Syar Tunnel Intake Structure at such times and in such quantities as there is unused capacity in the Strawberry Tunnel in excess of that required to convey Strawberry Project water. The District shall convey such Bonneville Unit water through the Strawberry Tunnel to the West Portal thereof. The District shall convey and be responsible for such Bonneville Unit water from the West Portal through Sixth Water Creek, Diamond Fork Creek, and Spanish Fork River for downstream Bonneville Unit uses.

(h) The District and the Association shall pay proportionate shares of the costs of operation and maintenance of the Syar Tunnel Intake Structure, Syar Tunnel to its connection with the Strawberry Tunnel and Sixth Water Aqueduct as determined in accordance with Article 15 herein.

(c) The Association shall pay the ordinary costs of operation and maintenance of the Strawberry Tunnel.

(d) The United States and/or District shall pay the Association for any extraordinary operation, maintenance, or repair costs of the Strawberry Tunnel which are attributable solely to the nonirrigation season operation thereof for the conveyance of Bonneville Unit water. In the event the Association incurs operation, maintenance, or repair costs for the Strawberry Tunnel in excess of the costs ordinarily incurred, the Association may refer the matter to a Review Board for its determination as to the cause thereof and whether such costs are extraordinary costs and were attributable solely to the nonirrigation season operation of the Strawberry Tunnel and if so, the amount thereof. The Review Board shall consist of three members of which one member shall be appointed by the Association, one member shall be appointed by the District, and one member shall be appointed by the United States. The unanimous decision of the members of the Review Board shall be required to bind the parties hereto. In the event the Review Board fails to reach a unanimous decision on any matter referred to it, any party may pursue any and all remedies available under law to obtain a final determination of the matter.

OPERATION AND MAINTENANCE DURING COMBINED USE OF SYAR AND STRAWBERRY TUNNELS

13. During the period provided for in the foregoing Article 8, i.e., from after completion of the Syar Tunnel and Sixth Water Aqueduct and prior to completion of Monks Hollow Dam and Reservoir and Diamond Fork Pipeline, the District shall operate and maintain all of the facilities described therein, including the existing Strawberry Tunnel, to utilize a total combined capacity of up to 600 cfs in the Syar Tunnel and Sixth Water Aqueduct and the Strawberry Tunnel to convey the Strawberry Project water. The remaining combined capacities will be utilized by the United States and/or District to convey Bonneville Unit water. The District shall release the Strawberry Project water to which the Association is entitled as provided for in this Contract from the Enlarged Strawberry Reservoir by means of and as measured at the Syar Tunnel Intake Structure at the call of the Association. The District shall convey such Strawberry Project water through the Strawberry Tunnel and/or the Syar Tunnel, Sixth Water Aqueduct, Sixth Water Creek, and Diamond Fork Creek and shall deliver such Strawberry Project water to the Association into the Spanish Fork River at or near its confluence with Diamond Fork Creek for downstream Strawberry Project uses at such rates of flow as the Association shall demand, but not to exceed 600 cfs of Strawberry Project water released from the Enlarged Strawberry Reservoir as measured at the Syar Tunnel Intake Structure, plus the

conveyance of Bonneville Unit water through the Strawberry Tunnel shall be on a capacity available basis until the Syar Tunnel and the Sixth Water Aqueduct are completed and become operational.

COMBINED USE OF SYAR AND STRAWBERRY TUNNELS

8. It is anticipated that construction of the Monks Hollow Dam and Reservoir shall be necessary to provide sufficient capacity in conjunction with the Syar Tunnel and Diamond Fork System to deliver Strawberry Project water and Bonneville Unit water from the Enlarged Strawberry Reservoir to near the confluence of Diamond Fork Creek and Spanish Fork River during peak demand periods and that until such time as Monks Hollow Dam and Reservoir are constructed, it will be necessary to utilize the existing Strawberry Tunnel and the Syar Tunnel and Sixth Water Aqueduct during peak demand periods to convey such waters. After completion of the Syar Tunnel and Sixth Water Aqueduct and prior to completion of construction of Monks Hollow Dam and Reservoir and Diamond Fork Pipeline, the Strawberry Project water and Bonneville Unit water shall be released from the Enlarged Strawberry Reservoir by means of the Syar Tunnel Intake Structure and shall be conveyed through:

(a) the Syar Tunnel and Sixth Water Aqueduct and the lower approximately 3½ miles of Sixth Water Creek to its confluence with Diamond Fork Creek; and/or

(b) the Strawberry Tunnel and Sixth Water Creek from the West Portal to the confluence of Sixth Water Creek and Diamond Fork Creek; and

Strawberry Tunnel accretion flows. The District and the Association shall pay proportionate shares of the costs of operation and maintenance of the Syar Tunnel Inlet Structure, Syar Tunnel and Sixth Water Aqueduct as determined in accordance with Article 15 herein.

OPERATION AND MAINTENANCE OF SYAR TUNNEL AND DIAMOND FORK SYSTEM

14. During the period provided in the foregoing Article 9, i.e., after completion of the Syar Tunnel and the Diamond Fork System and continuing thereafter, the District shall operate and maintain all of the facilities described therein and shall release the Strawberry Project water to which the Association is entitled as provided for in this Contract from the Enlarged Strawberry Reservoir by means of and as measured at the Syar Tunnel Intake Structure at the call of the Association. The District shall convey such Strawberry Project water through the Syar Tunnel and Diamond Fork System and shall deliver such Strawberry Project water to the Association into the Spanish Fork River at or near its confluence with Diamond Fork Creek for downstream Strawberry Project uses at such rates of flow as the Association shall demand, but not to exceed 600 cfs of Strawberry Project water released from the Enlarged Strawberry Reservoir, plus the available Strawberry Tunnel accretion flows. The District and the Association shall pay proportionate shares of the costs of operation and maintenance of the Syar Tunnel Inlet Structure, Syar Tunnel and Sixth Water Aqueduct, as deter-

mined in accordance with Article 15 herein. The District shall pay the entire costs of the operation and maintenance of the Monks Hollow Dam and Reservoir and the Diamond Fork Pipeline unless the Association utilizes such facilities for power generation in which event the sharing of operation and maintenance costs will be negotiated and covered by a separate agreement as provided in Article 19 herein.

COMPUTATION OF OPERATION AND MAINTENANCE COSTS OF SYAR TUNNEL AND DIAMOND FORK SYSTEM

15. The District's and Association's proportionate shares of the operation and maintenance costs provided for in the foregoing Articles 12, 13, and 14 shall be based on the ratio of the quantity in acre-feet of Strawberry Project water and of Bonneville Unit water, respectively, conveyed through the facilities therein described during each Water Year. The total costs incurred during each Water Year shall be divided into operations costs, being those costs normally attributed to the operation of the facilities, and maintenance costs, being those costs normally attributed to the maintenance, repair and rehabilitation of the facilities. The operations costs per acre-foot for each Water Year shall be determined by dividing the total operations costs incurred during that Water Year by the total quantity of Strawberry Project water and Bonneville Unit water conveyed through the facilities during that Water Year. The maintenance costs per acre-foot for each Water Year shall be determined by dividing the total maintenance costs incurred

during that Water Year by the average of the quantities of Strawberry Project water delivered and Bonneville Unit water delivered through the facilities respectively, during the prior 5 Water Years, as a moving average. Provided, however, that during the first 4 Water Years of operation the averages of the Strawberry Project water and Bonneville Unit water delivered through the facilities during the preceding Water Years will be used until 5 Water Years of operation have been reached. As close as reasonably possible to November 30 of each year, the District shall furnish to the Association an itemized statement of (i) the preceding Water Year operations costs; (ii) the quantities of Strawberry Project water and Bonneville Unit water, respectively, conveyed through the facilities during the preceding Water Year; (iii) the preceding Water Year maintenance costs; (iv) the average of the quantities of Strawberry Project water and Bonneville Unit water delivered through the facilities during the prior 5 Water Years, as a moving average, as qualified above during the first 4 Water Years of operation; and (v) the Association's proportionate share of the operation costs and maintenance costs as determined above, during the preceding Water Year. The Association shall pay its proportionate share of those costs to the District on or before 30 days following the billing date. In the event of a late payment, beyond the due date, the late payment shall bear interest at the rate of 1 percent per month until the delinquent payment is made. In the event the Association disputes the amount of its proportionate share as billed, the Association shall timely pay the

undisputed portion thereof and may withhold payment of the balance until the dispute is resolved by agreement or otherwise. Any disputed amounts determined to be owing by the Association shall bear interest at the rate of one percent per month. In the event of litigation, the prevailing party shall be entitled to recover its costs and reasonable attorneys' fees.

INDEMNITY AND HOLD HARMLESS

16. The District shall indemnify and hold the Association and the United States harmless against all third party claims for injury and damage arising out of, or because of, acts or omissions relating to the operation and maintenance of those works and facilities operated and maintained by the District under this Contract unless contributed to by acts or omissions of the party so indemnified. The Association shall indemnify and hold the District and the United States harmless against all third party claims for injury and damage arising out of, or because of, acts or omissions relating to the operation and maintenance of the Strawberry Tunnel under Subarticle 12(a) herein unless contributed to by acts or omissions of the party so indemnified. The foregoing provisions shall not operate as a third party beneficiary contract and shall not be construed as a waiver of immunity from liability or suit or as a waiver of any other defense which any party hereto has or may have to any claim asserted by any third party.

ACTS OF NATURE OR FORCE MAJEURE

17. No party shall be liable to any other party for any special, indirect, incidental or consequential loss or damage resulting from any delay or failure to perform its contractual obligations within the time specified by reason of acts of nature or force majeure.

OPERATING PROCEDURES

18. The procedures to be utilized and followed in the implementation of this Contract shall be covered by operating procedures to be adopted jointly by the District and the Association with the approval of the United States. The District and Association may amend such operating procedures from time to time with the approval of the United States and without the amendment of this Contract.

ASSOCIATION POWER RIGHTS IN DIAMOND FORK SYSTEM

19. It is acknowledged that as between the Association and the United States (but not by the District), the rights of the Association to develop power and/or participate in the development of power in Diamond Fork as provided for in the Amendatory Contract between the Association and the United States dated October 9, 1940, as confirmed by the opinion of the Regional Solicitor, Intermountain Region, dated July 30, 1986, and as quantified by the letter agreement between the Association and the Regional Director, Upper Colorado Region, dated March 27, 1987, is

based upon the ratio of 74,300 acre-feet annually of Strawberry Project Power water privilege to the combined total quantity of water annually delivered through the Syar Tunnel and the Diamond Fork System. It is further acknowledged that the quantification and allocation of power rights and privileges and the development of the power facilities in Diamond Fork together with the sharing of capital, operation, maintenance, replacement costs, (including the allocated cost of power), will be the subject matter of and governed by a separate contract and nothing in this Contract shall alter, modify or limit the power rights or power privileges of the Association, the District, or the United States.

PROVISIONS OF PRIOR CONTRACTS NOT SUPERSEDED

20. All provisions of the Amendatory Contract dated October 9, 1940, between the United States and the Association and the provisions of Section 4 of the Act of October 31, 1988, Public Law 100-563, and all provisions of the Repayment Contract dated December 28, 1965, as supplemented and amended, between the United States and the District, not expressly changed or supplemented herein or not in conflict herewith, shall remain the same and all rights, claims, and obligations thereunder shall remain in full force and effect.

FOR THE PURPOSE OF ARTICLES 21 THROUGH 28, THE UNITED STATES SHALL BE KNOWN AS CONTRACTING OFFICER AND THE DISTRICT AND THE ASSOCIATION SHALL BE KNOWN AS CONTRACTOR.

BOOKS AND RECORDS

21. The Contractor shall establish and maintain accounts and other books and records pertaining to administration of the terms and conditions of this contract, including: the Contractor's financial transactions, water supply data, project operation, maintenance and replacement logs, and project land and right-of-way use agreements; the water users' land-use (crop census), land-ownership, land-leasing and water-use data; and other matters that the Contracting Officer may require. Reports thereon shall be furnished to the Contracting Officer in such form and on such date or dates as the Contracting Officer may require. Subject to applicable Federal laws and regulations, each party to this contract shall have the right during office hours to examine and make copies of the other party's books and records relating to matters covered by this contract.

QUALITY OF WATER

22. The operation and maintenance of project facilities shall be performed in such manner as is practicable to maintain the quality of raw water made available through such facilities at the highest level reasonably attainable, as determined by the Contracting Officer. The United States does not warrant the quality of water and is under no obligation to construct or furnish water treatment facilities to maintain or better the quality of water.

WATER AND AIR POLLUTION CONTROL

23. The Contractor, in carrying out this contract, shall comply with all applicable water and air pollution laws and regulations of the United States and the State of Utah, and shall obtain all required permits or licenses from the appropriate Federal, State, or local authorities.

CHANGES IN CONTRACTOR'S ORGANIZATION

24. While this contract is in effect, no change may be made in the Contractor's organization, by inclusion or exclusion of lands, dissolution, consolidation, merger or otherwise, except upon the Contracting Officer's written consent.

NOTICES

25. Any notice, demand, or request authorized or required by this contract shall be deemed to have been given, on behalf of the Contractor, when mailed, postage prepaid, or delivered to the Regional Director, Upper Colorado Region, Bureau of Reclamation, 125 South State Street, P.O. Box 11568, Salt Lake City, Utah 84147, or when mailed postage prepaid, or delivered to Strawberry Water Users Association, P.O. Box 70, Payson, Utah 84651 or when mailed postage prepaid or delivered to Central Utah Water Conservancy District, 355 West 1300 South, Orem, Utah 84058. The designation of the addressee or the address given above may be changed by notice given in the same manner as provided in this article for other notices.

CONTINGENT ON APPROPRIATION OR ALLOTMENT OF FUNDS

26. The expenditure or advance of any money or the performance of any obligation of the United States under this contract shall be contingent upon appropriation or allotment of funds. Absence of appropriation or allotment of funds shall not relieve the Contractor from any obligations under this contract. No liability shall accrue to the United States in case funds are not appropriated or allotted.

ASSIGNMENT LIMITED--SUCCESSORS AND ASSIGNS OBLIGATED

27. The provisions of this contract shall apply to and bind the successors and assigns of the parties hereto, but no assignment or transfer of this contract or any right or interest therein shall be valid until approved in writing by the Contracting Officer.

OFFICIALS NOT TO BENEFIT

28. No Member of or Delegate to Congress, Resident Commissioner or official of the Contractor shall benefit from this contract other than as a water user or landowner in the same manner as other water users or landowners.

IN WITNESS WHEREOF, the parties hereto have signed their names the day and year first above written.

STRAWBERRY WATER USERS' ASSOCIATION

Attest:

By _____
Secretary

By _____
President

CENTRAL UTAH WATER CONSERVANCY DISTRICT

Attest:

By _____
Secretary

By _____
President

UNITED STATES OF AMERICA

Approved

_____
Reg. Solicitor's Office

By _____
Regional Director
Upper Colorado Region
Bureau of Reclamation

Appendix C – Kem C. Gardner Study

Mike Hollingshaus
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Utah Long-Term Planning Projections

A Baseline Scenario of Population and Employment Change in Utah and its Counties

January 2022

Kem C. Gardner POLICY INSTITUTE
THE UNIVERSITY OF UTAH
DAVID ECCLES SCHOOL OF BUSINESS

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Table of Contents

Analysis in Brief 1
Introduction 3
State-Level Demographic Results 3
Population and Households . . . 3
Economic Regions . . . 5
Components of Change . . . 5
Natural Increase . . . 5
Net Migration . . . 5
County-Level Demographic Results 6
Population . . . 6
Households . . . 6
Age . . . 7
Components of Change 8
Natural Increase . . . 8
Net Migration . . . 8
Economic Results 8
Industry Distribution . . . 9
Manufacturing . . . 9
Models and Assumptions 11
The Projection Models . . . 11
UDEM . . . 11
GITM and REMI . . . 11
Assumptions . . . 11
What are Long-term Planning Projections? . . . 12
What's next . . . 13
Special Thanks . . . 13
Data Tables 14

FIGURES

Figure 1: Utah Historical and Projected Total Population, 2010–2060 . . . 3
Figure 2: Utah Historical and Projected Total Households, 2010–2060 . . . 3
Figure 3: Projected Utah School and College Age Populations, 2020-2060 . . . 4
Figure 4: Utah Projected Population Pyramid, 2020 and 2060 . . . 4
Figure 5: Utah Dependency Ratios, 2020–2060 . . . 4
Figure 6: Projected Utah Components of Change, 2010–2060 . . . 4
Figure 7: Utah's Economic Regions . . . 5
Figure 8: Utah Projected County Population Change, 2020 to 2060 . . . 6
Figure 9: County Share of Projected State Household Growth, 2020-2060 . . . 7
Figure 10: Selected Utah Age Groups as a Percent of Total Population, 2010–2060 . . . 7
Figure 11: Counties Share of Years Driven by Projected Natural Increase, 2020–2060 . . . 8
Figure 12: Projected Net-Migration Reliant Counties by Share of Years, 2020–2060 . . . 8
Figure 13: Utah Historical and Projected Total Employment, 1980–2060 . . . 8
Figure 14: Projected Job Growth by County, 2020 to 2060 . . . 9
Figure 15: Utah Employment Growth by Industry, 2020-2060 . . . 9
Figure 16: Gardner Institute Modeling Process . . . 11

TABLES

Table 1: Top 10 Counties, Projected Manufacturing Employment Growth, 2020-2060 . . . 10
Table 2: Top 10 Counties, Projected Professional, Scientific, and Technical Service Industry Employment Growth, 2020–2060 . . . 10
Table 3: Main Demographic Assumptions for 2020-2060 State and County Projections . . . 12
Table 4: Main Economic Events in 2020-2060 State and County Projections . . . 12
Table 5: Utah Population by County, 2010-2060 . . . 14
Table 6: Utah Households by County, 2010-2060 . . . 15
Table 7: Utah Employment by County, 2010-2060 . . . 16
Table 8: Utah Total Employment by Industry, 2010-2060 . . . 17
Table 9: Utah Total Population, 2010-2060 . . . 18
Table 10: Utah School Age Population (5-17 Years of Age), 2010-2060 . . . 19
Table 11: Utah Working Age Population (18-64 Years of Age), 2010-2060 . . . 19
Table 12: Utah Retirement Age Population (65 Years and Older), 2010-2060 . . . 20
Table 13: Utah Components of Population Change, 2010-2060 . . . 20
Table 14: Utah Total Households and Average Household Size, 2010-2060 . . . 21
Table 15: Utah Total Employment, 2010-2060 . . . 21

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DAVID ECCLES SCHOOL OF BUSINESS

Utah Long-Term Planning Projections

A Baseline Scenario of Population and Employment Change in Utah and its Counties

Analysis in Brief

Utah's continued economic growth and diversification and declining natural increase will drive net migration to become a steadily increasing force as the population grows by over 2.2 million people (a 66% increase) in the next four decades.

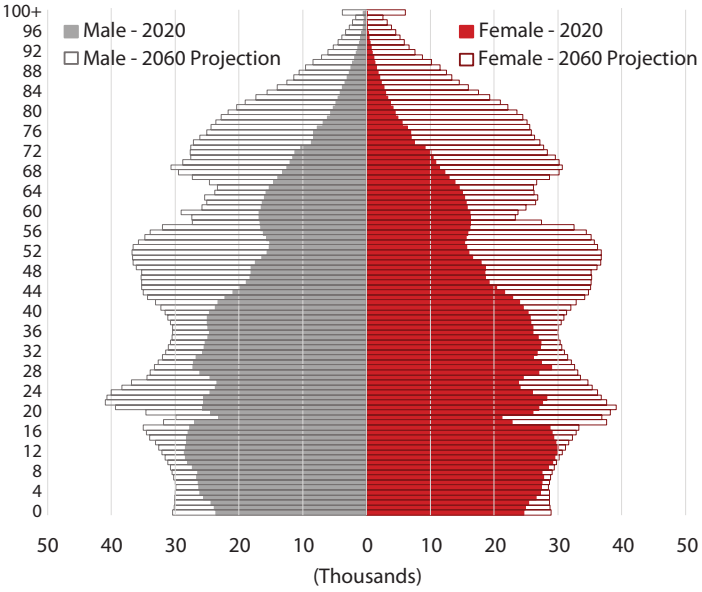
These long-term planning projections indicate Utah's history of population growth and change will continue, growing from 3.3 million in 2020 to 5.5 million in 2060. Statewide, projected population growth pairs with a doubling of households, from under 1.1 million in 2020 to nearly 2.2 million in 2060. An aging population will play a role in a projected decrease in household size, from 3.0 people per household in 2020 to 2.3 in 2060. Continued employment growth and industry diversification result in the addition of 1.3 million new jobs. This continuation of a strong economy plays a role in net migration becoming the driver of statewide growth. By 2060, net migration drives nearly three-quarters of population growth.

Key insights

Total Population

- **Continued growth in Utah in the future** – Projected growth in Utah results in the population increasing from 3,284,823 in 2020 to 5,450,598 in 2060, a 66% increase. The anticipated timing for reaching 4 million residents is between 2032 and 2033 and 5 million between 2050 and 2051.
- **Salt Lake County to remain the largest county in 2060** – Salt Lake County's projected population of 1,672,102 residents is the largest in Utah. Utah County is close behind at 1,338,222 residents.
- **Utah County experiences the most population growth** – Over 30% of statewide projected population growth comes from Utah's second-largest county, gaining the most residents between 2020 and 2060 (673,964).
- **Southwest Utah is the fastest-growing region** – With a population that is projected to more than double (129% increase), the Southwest Economic Region adds over 330,000 additional residents.
- **Different patterns of population change outside urban areas** – Current trends project minimal growth for many rural areas, but population decline for only one county—Millard.

Utah Population Pyramid: 2020 and 2060



Source: Kem C. Gardner Policy Institute, 2020–2060 Projections

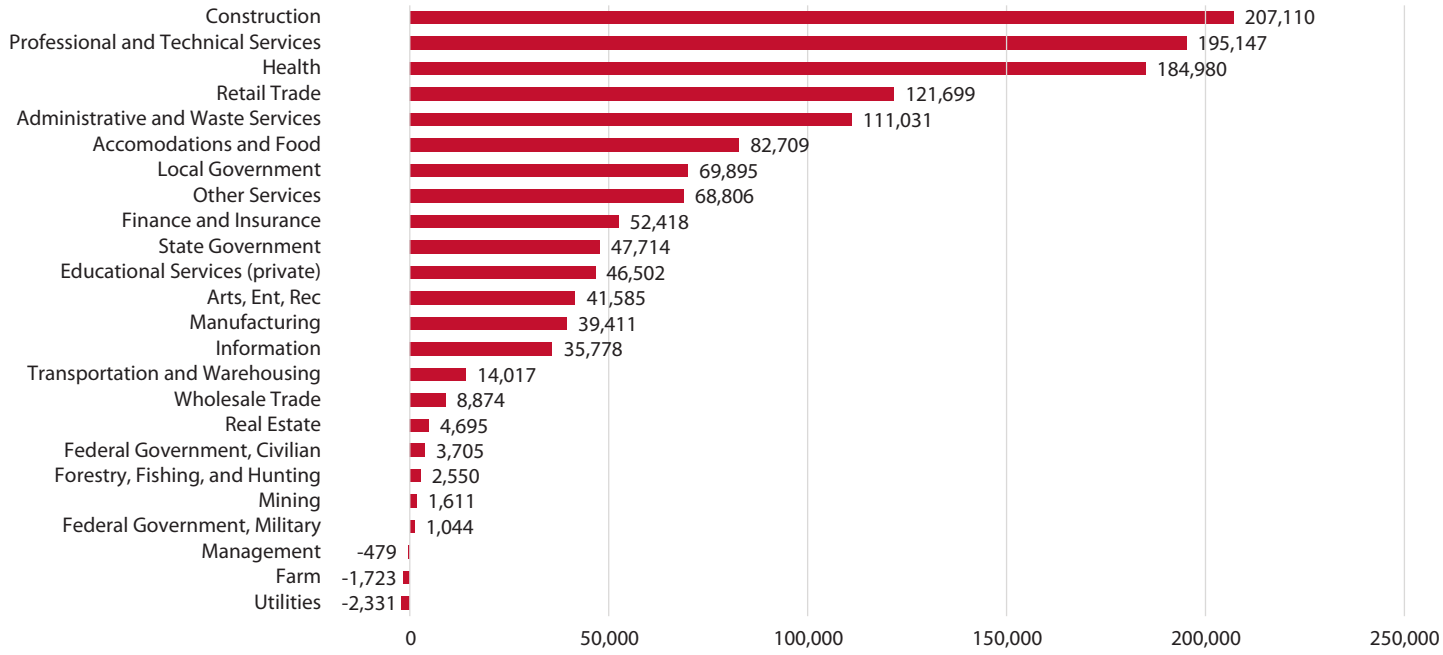
Employment

- **Utah's economy will continue to grow** – The addition of over 1,300,000 jobs places Utah's 2060 total employment at 3,448,350.
- **The Wasatch Front remains the heart of Utah's economy –** Job growth in Salt Lake and Utah counties drives two-thirds of statewide job growth in the projection horizon.
- **Employment growth is more concentrated than population growth –** For example, Salt Lake County, the second-largest population growth center, will add more jobs than residents over the next 40 years.

Households

- **Statewide, projections indicate a doubling of households –** Projected total households increase from 1.1 million in 2020 to 2.2 in 2060.
- **Average household size decreases** – Changing household dynamics and an aging population result in a decline in persons per household from 3.0 people per household in 2020 to 2.5 in 2060.

Utah Employment Growth by Industry, 2020-2060



Source: Kem C. Gardner Policy Institute, 2020–2060 Projections

- **Southwest Utah experiences the fastest growth in households** – Households in the region are projected to nearly triple, growing from just over 88,000 to over 256,000.
- **Salt Lake and Utah counties add the most households** – Both counties add over 290,000 new households throughout the projection horizon.

Components of Change

- **A shift in components of change –** Between 2031 and 2040, the projections identify natural increase (births minus deaths) as the main driver of growth in Utah. Throughout the rest of the projection horizon, net migration (in-movers minus out-movers) becomes the dominant driver of growth.
  - **Changes in fertility make a significant impact –** Declining fertility increases net migration's share of state growth. Projected decreases to the total fertility rate occur throughout the projection horizon and across the state.
  - **An anticipated increase in life expectancy –** Projected life expectancy increases for both males (78.2 to 84.2) and females (82.0 to 87.3) statewide.

Age

- **A continuation of the aging population** – The combined impacts of decreasing fertility rates, increasing life expectancy, and migration patterns result in an increase in the statewide median age from 32.1 in 2020 to 42.1 in 2060. Washington, Kane, and Summit counties have the oldest projected median ages in 2060, all at 51 or older.
- **Driven by increasing older population and decreasing youth population –** Projected increases in the number of Utahns age 65 and older result in an increasing overall share of the population from 11.5% in 2020 to 22.8% in 2060. The share of the population under 18 decreases from 28.9% in 2020 to 20.3% in 2060 despite an overall increase in the population.

What's new

These projections build on the 2017 Long Term Projections produced by the Kem C. Gardner Policy Institute.[1] This newest set of projections incorporates the available 2020 census data, Utah Population Committee estimates through 2021, and Department of Workforce Services Quarterly Census of Employment and Wages 2020 job counts. Modeling updates include new economic regions, additional industry-specific earnings data, more flexible economic scenario modeling, and improved geographic detail for mortality, labor force participation, and unemployment assumptions.

Introduction

The Gardner Institute long-term planning projections indicate an additional 2.2 million Utahns and 1.3 million more jobs by 2060. Changes in fertility, mortality, and the economy provide insights into how Utah's growth will shift into the future. Historical data, trends, and informed interpretations of what the future looks like drive this baseline scenario.

Decreasing fertility and increased life expectancy result in changes to demographic characteristics, such as increases in median age and changes in household composition. Continued diversification of Utah's economy drives continued migration to the state. Increased employment in construction, health care and social assistance, and professional, scientific, and technical services sectors drive this change. Salt Lake and Utah counties continue to be the dominant areas in the state for both population and employment growth. In contrast, smaller and more rural counties have less aggressive population change.

Revisited every four years, a custom-built long-range projection model system creates these baseline planning projections, exploring how assumptions about the future of key demographic and economic drivers shape population outcomes. This work provides a framework for state and local governments, private businesses, and nonprofit entities to understand the overarching trends influencing Utah's future. Today's known and anticipated events drive the results. However, policy decisions, investments, and unanticipated events (such as natural disasters or global pandemics) can result in different outcomes.

State-Level Demographic Results

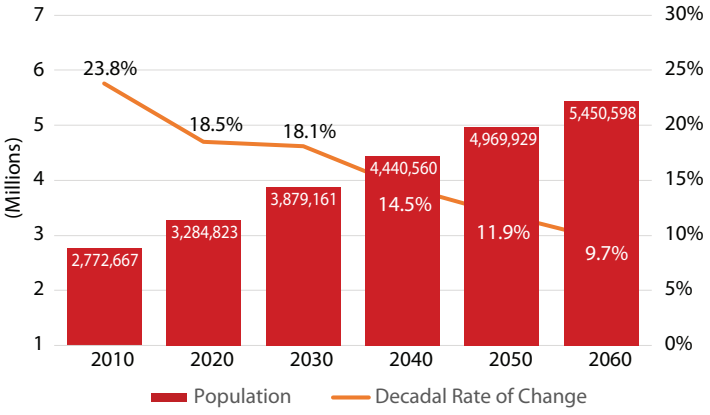
Population and Households

Growth and change are constants in Utah's population story. Since Utah appeared in the 1890 census, the statewide population has grown. Historical growth patterns can provide insights into where growth is likely to continue. The 2021 Long-Term Planning Projections indicate Utah's statewide population will grow from 3.28 million in 2020 to 5.45 million in 2060, a 65.9% increase. The anticipated timing for the population to reach 4 million occurs between 2032 and 2033 and 5 million between 2050 and 2051.

Between 2010 and 2020, Utah's population grew by 18.4% or 507,731 new residents. While this was the fastest growth rate in the nation, it declined from previous decadal change. A projected moderation in growth continues, with decadal growth rates declining from 18.1% between 2020 and 2030 to 9.7% in 2050 to 2060. However, three of these four decades include over 500,000 new Utahns. The average annual growth rate is 1.3% throughout the projection horizon, with higher rates in the earlier decades than in the latter.

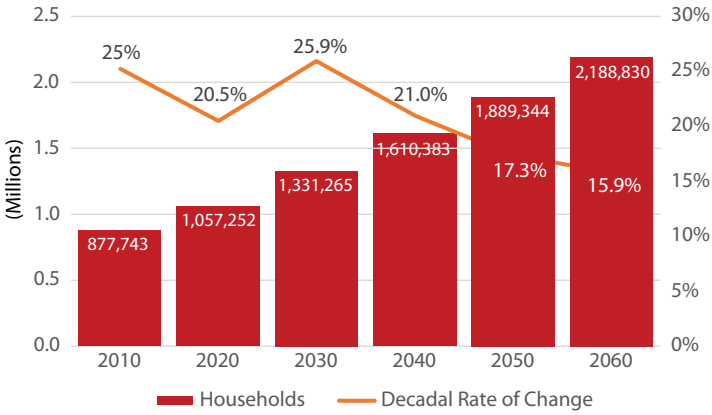
Statewide, households are projected to more than double, increasing from 1,057,252 households in 2020 to 2,188,830 in 2060. The increase in households occurs at a slightly higher rate than the population each decade. Like with population, this decrease follows historical patterns from previous decades. Changing household dynamics and an aging population both play roles in this different growth rate and household composition. A decline in persons per household occurs throughout the projection horizon, decreasing from 3.0 people per household in 2020 to 2.5 in 2060. This shift in household size means there are more households per capita.

Figure 1: Utah Historical and Projected Total Population, 2010–2060



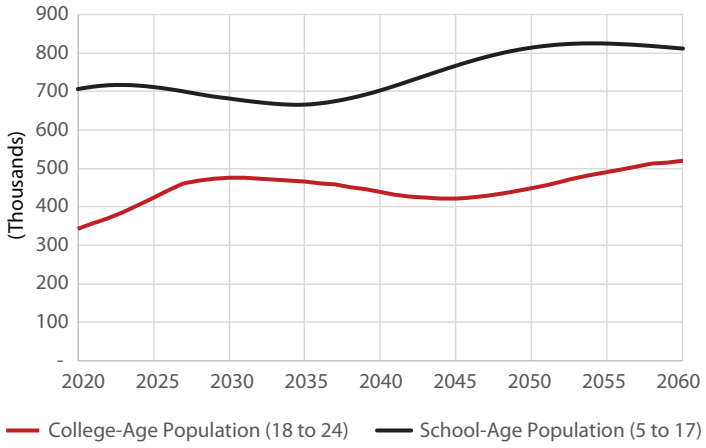
Source: Kem C. Gardner Policy Institute, 2020–2060 Projections

Figure 2: Utah Historical and Projected Total Households, 2010–2060



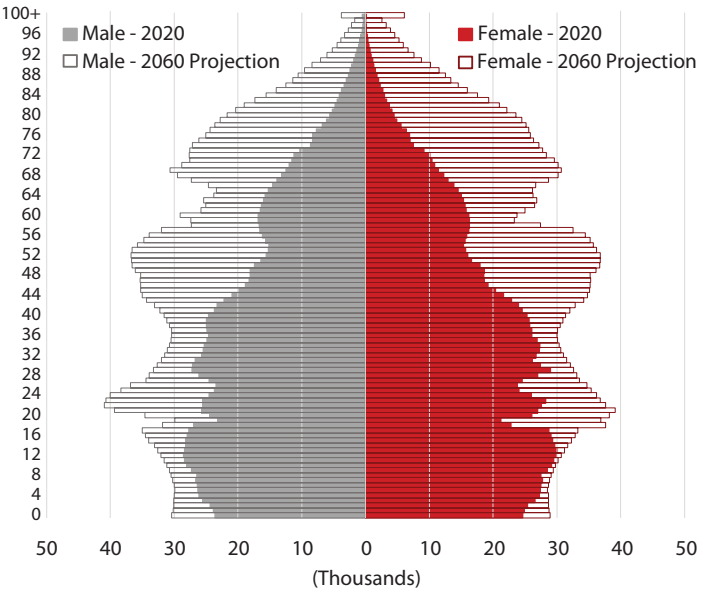
Source: Kem C. Gardner Policy Institute, 2020–2060 Projections

Figure 3: Projected Utah School and College Age Populations, 2020-2060



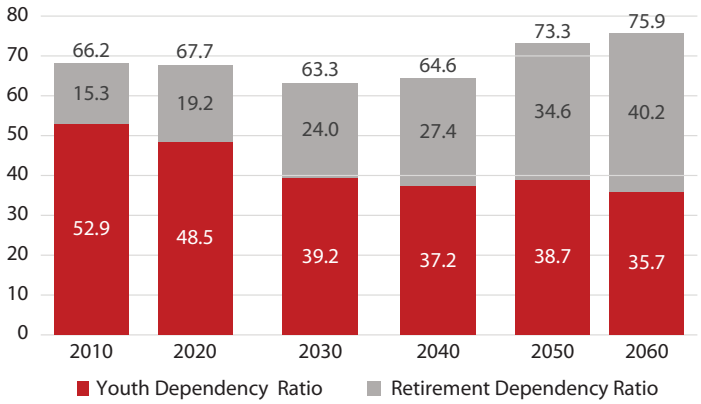
Source: Kem C. Gardner Policy Institute, 2020–2060 Projections

Figure 4: Utah Projected Population Pyramid, 2020 and 2060



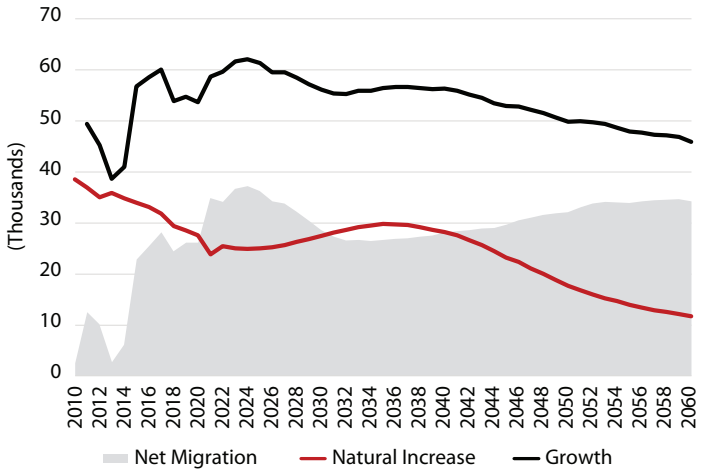
Source: Kem C. Gardner Policy Institute, 2020–2060 Projections

Figure 5: Utah Dependency Ratios, 2010–2060



Source: Kem C. Gardner Policy Institute, 2020–2060 Projections

Figure 6: Projected Utah Components of Change, 2010–2060



Source: Kem C. Gardner Policy Institute, 2020–2060 Projections

Current trends of an aging population reflect the Baby Boom generation aging into older segments of the population. The latter half of the projection horizon reflects the youngest Gen X, entire Millennial, and oldest Gen Z generational cohorts aging into retirement and beyond. The over 65 share of the population increases from 11.5% (2020) to 22.8% (2060) throughout the projection horizon, resulting in 376,000 Utahns growing to 1.2 million.

Anticipated birth waves lessen the speed at which the median age rises during certain periods. These birth waves naturally emerge and dissipate as large generations age through childbearing years. The impact of these waves increases as migration brings more young adults in childbearing years into the state.

The share of population under age 18 will decrease from 28.9% in 2020 to 20.3% in 2060. Despite a decrease in share during the projection horizon, the under 18 population will increase from just under 950,000 to 1.1 million. The working-age population (18 to 64 years) grows by over 1.8 million, an increase of 70% to 75% of all Utahns, between 2020 and 2060. The shifts in these age groups result in the statewide median age increasing from 32.4 in 2021 to 42.1 in 2060.

Despite overall increases to both the school (5 to 17) and college-age (18 to 24) populations throughout the projection horizon, births in prior years directly impact the annual change in these two age groups. The school-age population will increase five years after periods of higher births. Similarly, as those children age into their late teens and early 20s, the college-age population will experience a surge. Overall, the school-age population increases by just over 105,000 residents and the college-age by around 178,000 residents by 2060.

Components of Change

Population change results from natural increase (births minus deaths) and net migration (migrants moving in minus migrants moving out). While natural increase has been a dependable driver of Utah's statewide population growth, net migration has played a more consistent role in recent decades. Throughout the projection horizon, the role of net migration will continue to strengthen, driving nearly three-quarters of population growth by 2060. Between 2031 and 2040, the projections indicate natural increase as the main driver of growth in Utah. Throughout the rest of the projection horizon, net migration becomes the dominant driver of growth. Natural increase remains positive for the foreseeable future.

Natural Increase

Estimates indicate that in 2021, natural increase was at the lowest level in Utah since 1975.[2] An unusually high number of deaths due to COVID-19 and a trend of decreasing births since 2008 drove this decline. While the short-term impacts of the pandemic drove natural increase to record lows, the trends of decreasing fertility rates and an aging population will remain influential throughout the projection horizon.

Life expectancy continues to rise in Utah, increasing from 78.2 to 84.2 years for males and 82.0 to 87.3 years for females. These factors result in a shift in the balance of natural increase and net migration, and median age increasing throughout the state.

Net Migration

Migration will continue to play a role in Utah's statewide population change if a strong economy, opportunities for higher education, and natural amenities persist. In the second half of the projection horizon, net migration will be the primary driver of Utah's growth, signaling a shift from Utah's historical growth patterns of natural increase as the dominant driver of growth.

Economic Regions

Economists recognize that markets systematically organize into functional economic areas that capture the local labor market (commutershed), trade flows, and other measures of economic connection. These long-term planning projections incorporate an analysis of Utah's economic regions into the modeling.[7]

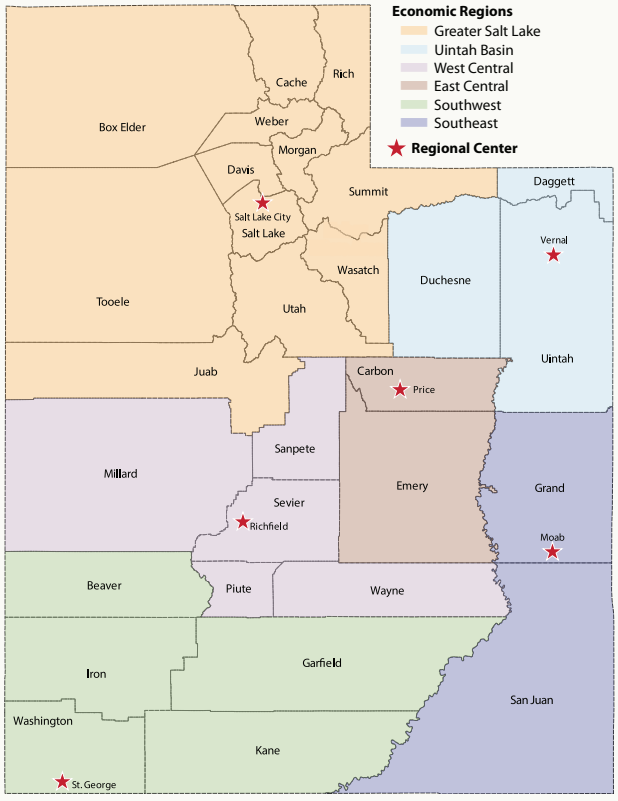
The Kem C. Gardner Policy Institute identifies six economic regions in Utah: Greater Salt Lake, Uintah Basin, West Central, East Central, Southwest, and Southeast. These regions, which were defined using 2011-2015 American Community Survey data, are similar to the boundaries of Utah's longstanding Associations of Governments, with some notable exceptions.

The influence and connectivity of the Greater Salt Lake Area is larger, resulting in a single dominant northern economic region. Carbon and Emery counties also emerge as a single, closely connected economic region referred to as the East Central region.

Figure 7 shows the county makeup of these regions, along with the central place in each region.

These projections indicate the Greater Salt Lake Economic Region will lead statewide population growth, growing from 2.8 million residents in 2020 to 4.6 million in 2060, and economic growth through the addition of nearly 1.2 of the 1.3 million new jobs statewide. The Southwest Economic Region will also play a notable role in statewide growth, with the quickest population growth rate in both population (129% or 330,000 new residents) and households (nearly tripling at 190% or 168,000 new households) by 2060. Data users who would like model outputs at the regional level should contact the Gardner Institute.

Figure 7: Utah's Economic Regions



County-Level Demographic Results

The change witnessed at the state level is experienced differently throughout Utah's 29 counties. More densely developed urban centers will continue to be hubs for growth. At the same time, smaller or more rural counties will see moderate growth or, in one case, decline throughout the projection horizon.

Population

Five counties are projected to add over 100,000 residents each and account for 83% of growth in the projection horizon – Utah, Salt Lake, Washington, Davis, and Weber. Utah County's addition of nearly 674,000 residents between 2020 and 2060 is the most significant change in the state, doubling the population to 1,338,222. The addition of over 483,000 new residents in Salt Lake County equates to a 41% increase, but it maintains its position as the largest county population in the state in 2060 (1.7 million). Washington County and Weber County switch rankings, with Washington County becoming the 4th largest by 2060.

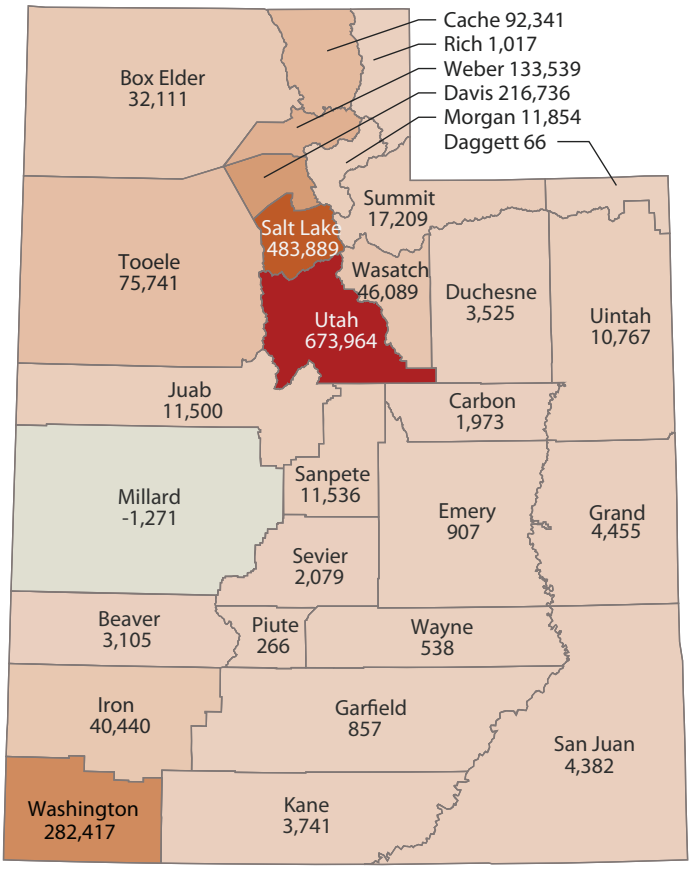
Washington County experiences the largest percent increase statewide (155%, more than doubling), resulting in an additional 282,000 residents and a 2060 population of nearly 465,000. Projections indicate two additional counties, Wasatch and Tooele, will double their population. In Wasatch County, this results in 46,000 residents growing to over 81,000 by 2060, and Tooele County grows from around 73,000 to nearly 149,000 residents. Juab and Morgan counties almost double by 2060, with both projected to add over 11,000 new residents.

Projected growth is minimal in smaller and more rural counties. Populations in seven counties will increase by less than 20% between 2020 and 2060. This increase ranges from a low of less than 100 new residents in Daggett County to a high of around 3,500 new residents in Duchesne County. Millard County is the only county projected to lose population, declining by 10% (around 1,300 residents), resulting in a 2060 population of nearly 12,000.

Households

Like population change, some familiar counties also add the most households. Salt Lake and Utah counties both add over 290,000 new households throughout the projection horizon. Despite such different population growth, changes in household size drive household growth. Utah County average household sizes are larger than Salt Lake County in 2020, at 3.51 and 2.89, respectively. Both counties experience decreases in persons per household (or average household size), although the decrease for Salt Lake County is slightly smaller. In 2060, the projected average household size in Utah County is 2.76 compared to Salt Lake County's 2.34.

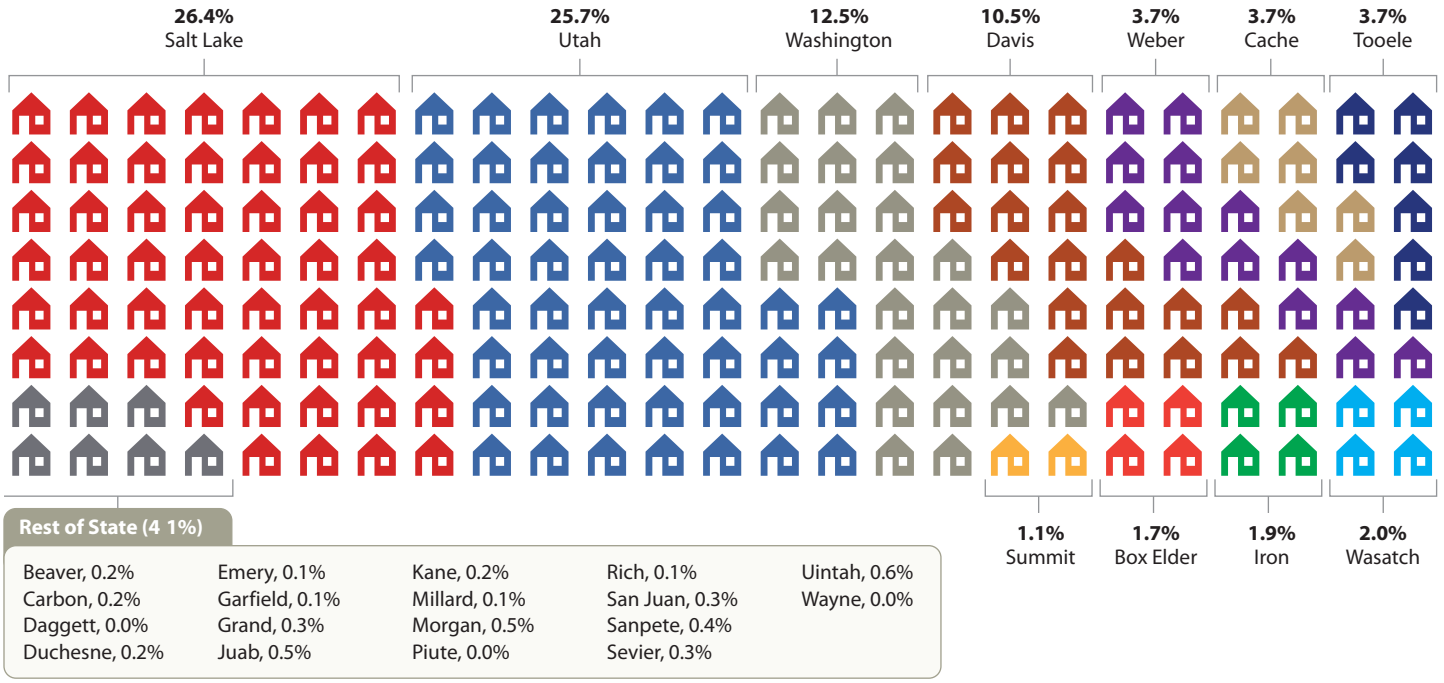
Figure 8: Utah Projected County Population Change, 2020 to 2060



Source: Kem C. Gardner Policy Institute, 2020–2060 Projections

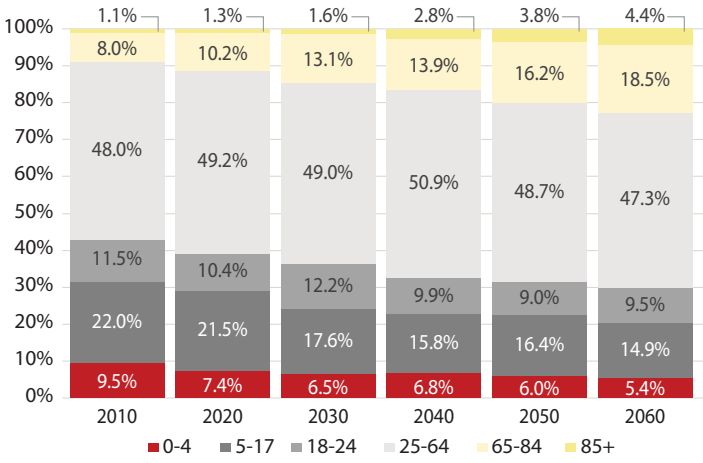
Fast-growing counties also have the fastest growth in households. Nine of the 10 counties with the largest increases in total households experience some of the largest projected decreases in average household size throughout the projection horizon. The smallest changes in total households occur in the low-growth and declining counties. However, a projected addition of households occurs in all counties. Despite the projected population decline, the declining household size from 3.00 in 2020 to 2.27 in 2060 in Millard County results in nearly 800 new households. The fewest projected new households are in Daggett County, adding fewer than 100 over four decades. The smallest projected change in household size is in Wayne County, declining from 2.33 to 2.23, with an addition of nearly 300 households throughout the horizon.

Figure 9: County Share of Projected State Household Growth, 2020-2060



Source: Kem C. Gardner Policy Institute, 2020–2060 Projections

Figure 10: Selected Utah Age Groups as a Percent of Total Population, 2010-2060



Source: Kem C. Gardner Policy Institute, 2020–2060 Projections

Age

Another component in changing household dynamics comes from the population's age composition. As mentioned previously, the share of the population age 65 or older will increase in the projection horizon while the share under 18 will decline statewide. If trends continue as assumed, the over 65 population in every county will increase. The population will more than double in seven counties and more than triple in 12. Only four counties will experience increases of less than 50% to this population.

Throughout the projection horizon, the resident population under 18 increases in 17 counties, despite decreasing as a share in 28 of 29 counties. Wayne County is the only county projected to see an increase in the share of population under 18, increasing slightly from 21.4% to 22.3%. Utah County leads growth in the youth population, adding over 108,000 new Utahns under age 18 and driving over two-thirds of the growth of this population statewide. Washington County, responsible for 15.2% of statewide growth in the youth population, adds nearly 24,000 new residents under age 18. Cache County rounds out the top three, with the addition of nearly 15,000 children under age 18 and driving 9.4% of statewide growth. Projected declines in the under 18 population by 2060 occur in 12 counties, ranging from 20 fewer in Rich County to nearly 6,400 fewer in Salt Lake County.

Increases in the working-age population (18 to 64 years) occur in 28 of 29 counties. For Emery, Sevier, and Carbon counties, growth in this population is the reason for total population increase rather than decline. In Washington, Wasatch, Morgan, Juab, and Tooele counties, the share of this population more than doubles throughout the projection horizon. Utah County also adds the most working-age residents, adding over 394,000 between 2020 and 2060. Salt Lake County retains the largest working-age population, increasing from nearly 745,000 in 2020 to nearly 965,000 residents in 2060.

Components of Change

Natural Increase

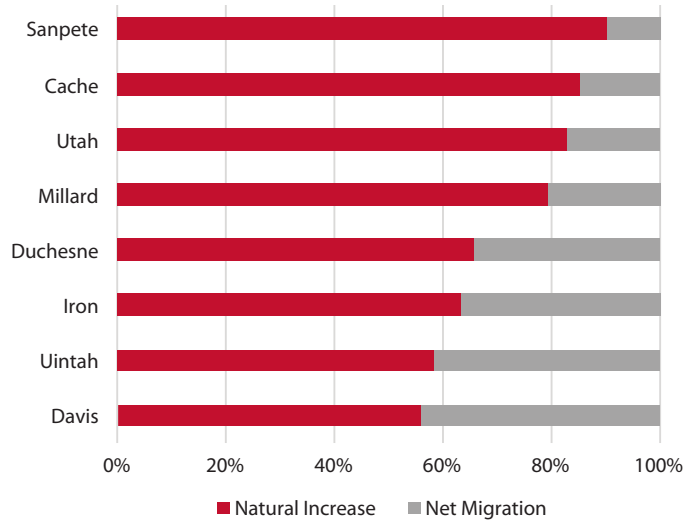
Only four counties have population change primarily driven by natural increase throughout the projection horizon. Cache, Iron, Sanpete, and Utah counties, driven by younger populations coming from university students, rely on natural increase for their population growth. Three counties, Davis, Duchesne, and Uintah, start their growth with a natural increase driver, but switch to more net migration in the mid-2040s.

Net Migration

The remaining 22 counties rely primarily on net migration to drive their population change throughout the projection horizon. In many of these counties, the early years of the projection horizon see fairly equal contributions from natural increase and net migration. However, net migration dominates the long-run population change. Economic considerations are the main driver of net migration. For example, Millard County's population loss is connected to a large employer shifting its operating model in the early years of the projection horizon. Additional detail can be found in the Assumptions section below.

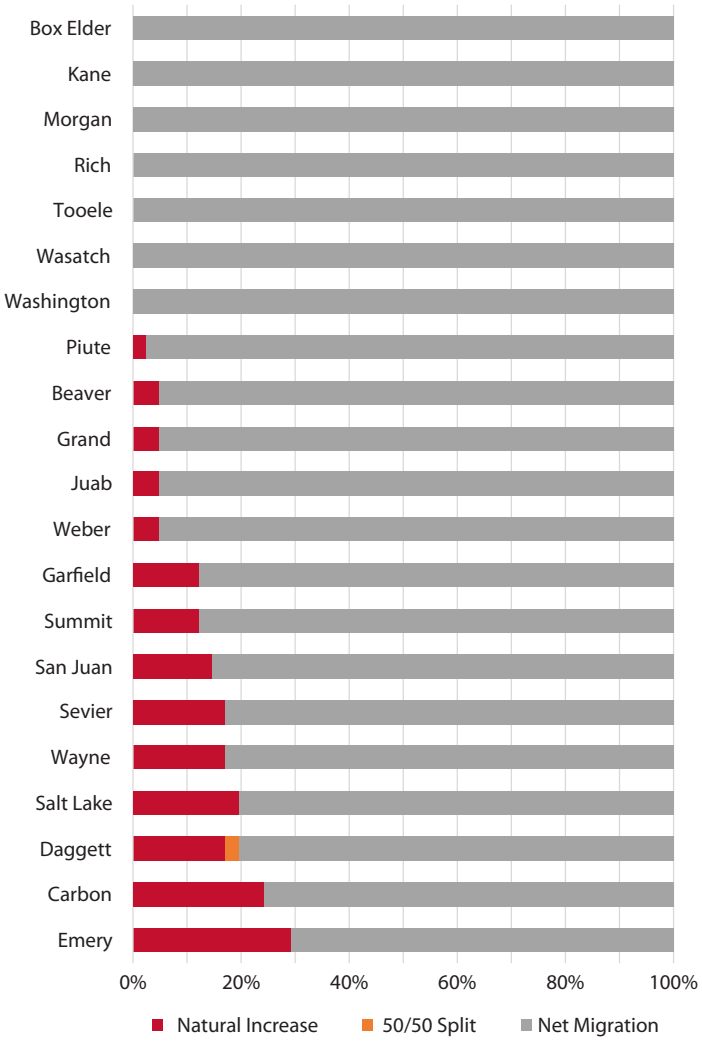
Nine counties in these projections depend entirely on net migration for growth. Natural decrease (more deaths than births) is expected to begin in the early 2020s in Grand and Kane counties. Sevier, Summit, Washington, Carbon, Emery, and at a smaller scale, Daggett, Garfield, Piute, and Wayne, shift to consistent natural decrease in the 2030s and early 2040s. For some of these counties, the economic draw might not be an employment opportunity but rather a suitable retirement location.

Figure 11: Counties Share of Years Driven by Projected Natural Increase, 2020–2060



Source: Kem C. Gardner Policy Institute, 2020–2060 Projections

Figure 12: Projected Net-Migration Reliant Counties by Share of Years, 2020–2060



Source: Kem C. Gardner Policy Institute, 2020–2060 Projections

Economic Results

Over the next 40 years, projected employment growth results in over 1.3 million jobs statewide, with the employment base expanding by 63.3% to more than 3.4 million. Utah's role as one of the fastest-growing economies in the United States provides a strong foundation for employment growth. Projected job gains in construction (207,100 jobs), professional, scientific, and technical services (195,100 jobs), and health care and social assistance (184,900 jobs) are the largest drivers for growth.

While Utah County is the leading projected population growth center, its projected employment growth trails Salt Lake by nearly 200,000 new jobs. Salt Lake has the state's lowest projected population growth-to-employment growth ratio, at 1 to 1, adding just over one new job for each new resident. The dominance of these two counties builds on past trends. Since 2010, Salt Lake and Utah counties account for 67% of employment growth and 59% of population growth in Utah.[3]

Concentrated employment growth among Utah's more urbanized counties drives statewide employment increases. Together, Salt Lake, Utah, Davis, Washington, and Weber counties account for over 88% of the anticipated job growth.

Industry Distribution

While these projections consider 24 different industries, two examples can provide insights into how counties interact with the statewide economic picture into the future. Projections for the state's large employment industries, like manufacturing and professional, scientific and technical services follow national industry growth trends. However, the current economic context heavily influences county employment in each industry.

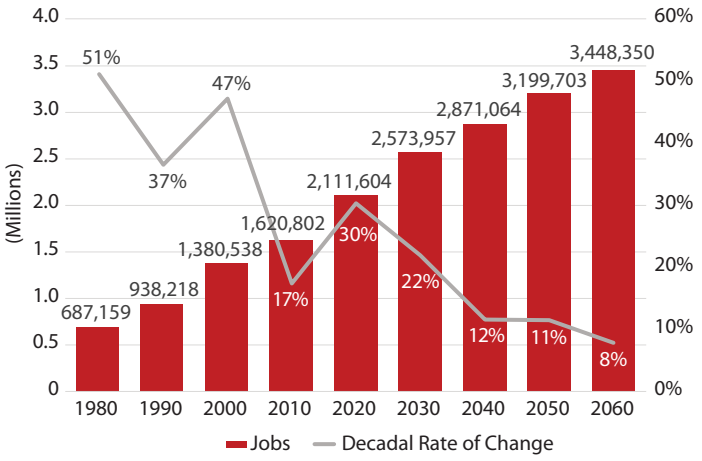
Manufacturing

Projected growth in manufacturing includes around 39,000 new jobs, with growth peaking in 2040. By 2040 the industry will add just over 36,000 jobs, 93% of the expected new jobs for the entire 40-year horizon. Concentrated in Utah's northern counties, manufacturing jobs in Salt Lake, Utah, Weber, Davis, Cache, Box Elder, and Tooele counties drive more than 88% of the projected growth. Combining these seven northern counties with Washington and Iron counties accounts for 96% of the employment growth in this industry.

Professional, Scientific, and Technical Services

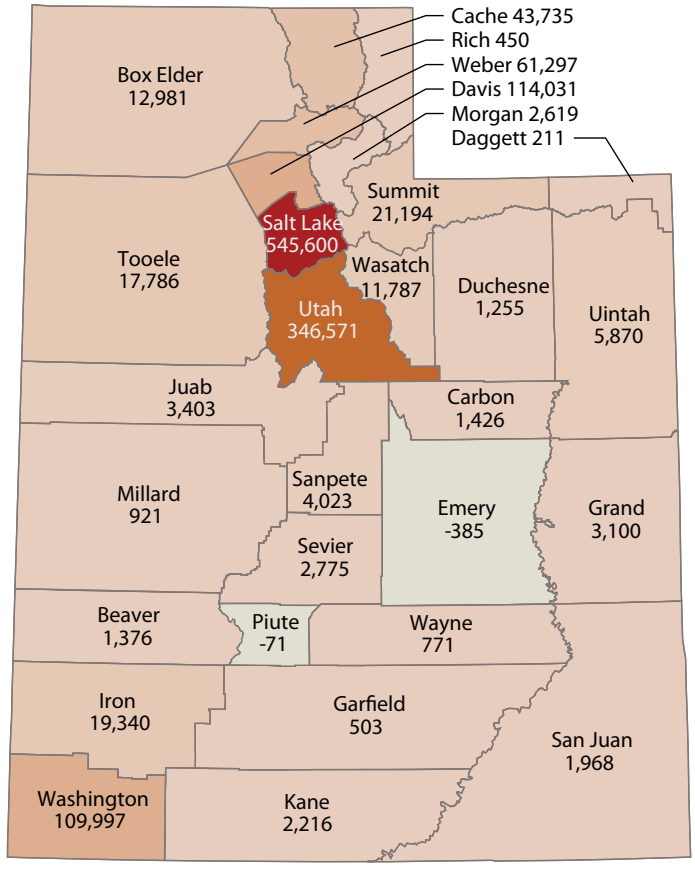
Professional, scientific and technical services is among the state's top projected growth industries, projected to add more than 195,000 new jobs. It is another of the most urbanized industries and will become even more so in the next 40 years. In 2020 Salt Lake and Utah counties accounted for 71% of industry employment. Over the next 40 years, these two counties will account for 75% of the total industry employment or 274,000 of the projected 367,000 total jobs.

Figure 13: Utah Historical and Projected Total Employment, 1980–2060



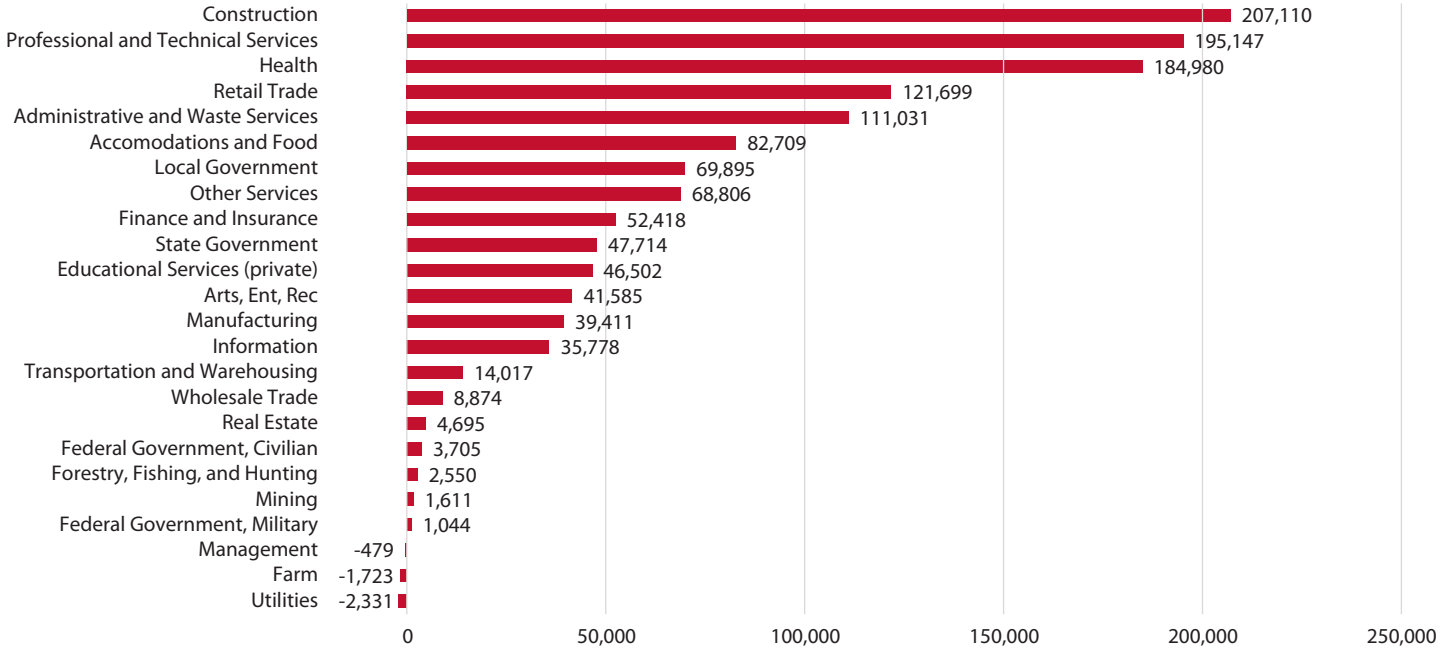
Source: Kem C. Gardner Policy Institute, 2020-2060 Projections

Figure 14: Projected Job Growth by County, 2020 to 2060



Source: Kem C. Gardner Policy Institute, 2020-2060 Projections

Figure 15: Utah Employment Growth by Industry, 2020-2060



Source: Kem C. Gardner Policy Institute, 2020–2060 Projections

Table 1: Top 10 Counties, Projected Manufacturing Employment Growth, 2020–2060

Area	Projected Manufacturing Employment Growth	Share of Projected Growth
State of Utah	39,411	n/a
County		
Salt Lake	12,506	31.7%
Utah	7,663	19.4%
Weber	5,839	14.8%
Cache	4,020	10.2%
Washington	2,839	7.2%
Davis	2,014	5.1%
Box Elder	1,631	4.1%
Tooele	894	2.3%
Iron	389	1.0%
Juab	374	0.9%
Top 10 Total	**38,169**	**96.8%**

Source: Kem C. Gardner Policy Institute, 2020-2060 Projections

Table 2: Top 10 Counties, Projected Professional, Scientific, and Technical Service Industry Employment Growth, 2020–2060

Area	Professional, Scientific,and Technical Service	Share of Projected Growth
State of Utah	195,147	n/a
County		
Salt Lake	94,738	48.5%
Utah	56,542	29.0%
Davis	13,117	6.7%
Washington	9,277	4.8%
Weber	6,063	3.1%
Cache	5,529	2.8%
Summit	3,629	1.9%
Wasatch	1,420	0.7%
Iron	1,170	0.6%
Tooele	765	0.4%
Top 10 Total	**191,485**	**98.1%**

Source: Kem C. Gardner Policy Institute, 2020-2060 Projections

Only five other Utah counties account for more than 1% of the projected industry growth. Davis, Washington, Weber, Cache, and Summit round out the top seven counties for growth in this industry. These five counties account for 24% of industry jobs in 2020 and 21% of industry employment in 2060.

Models and Assumptions

The Projection Models

These planning projections integrate two custom-built models: the Utah Demographic and Economic Model (UDEM), a customized demographic cohort-component model, and the Gardner Institute Trend Model (GITM), which produces statewide long-term employment projections by major industries.[4,5] UDEM incorporates the GITM employment projections as a key input to determine population capacity, primarily operating through net migration. See Figure 16 for a general overview of the projection model, data, and processes.

UDEM

UDEM is a customized demographic cohort-component model that produces detailed demographic and economic output. The population size and composition change over time through births, deaths, migration, and aging cohorts. UDEM also incorporates state and regional economic conditions (e.g., labor force and employment dynamics), special populations (e.g., higher education and correctional facilities), multiple types of migration (e.g., retirement, labor market, religious mission service), and regional commuting trends.[6]

GITM and REMI

GITM produces state and economic region-level projections with industry-level detail by tying historical employment relationships between Utah and the U.S. to external U.S. employment projections. The employment projections also reflect projected population growth for several industries—construction, health care, and retail trade. Once GITM completes the state and economic region projections, the REMI model produces county-level employment projections by allocating region-level industry employment to the counties.

Assumptions

Updated demographic assumptions include a convergence toward national rates, with Utah remaining higher. This results in declining fertility and increasing life expectancy. No long-term demographic impacts of COVID-19 are assumed. See Table 3 for more details on the demographic assumptions.

The state-level economic projections assume Utah's historical relationship with the U.S.'s employment will persist through the projection horizon. Three industries, retail, construction, and health care, are modeled from national trends and interact with local population growth. Several economic events were explicitly modeled, including the 2030 Olympic Winter Games, the planned retirement of coal-fired power plants, and the natural gas and hydrogen conversion of the Intermountain Power Project (IPP) power plant. See Table 4 for more details.

Figure 16: Gardner Institute Modeling Process

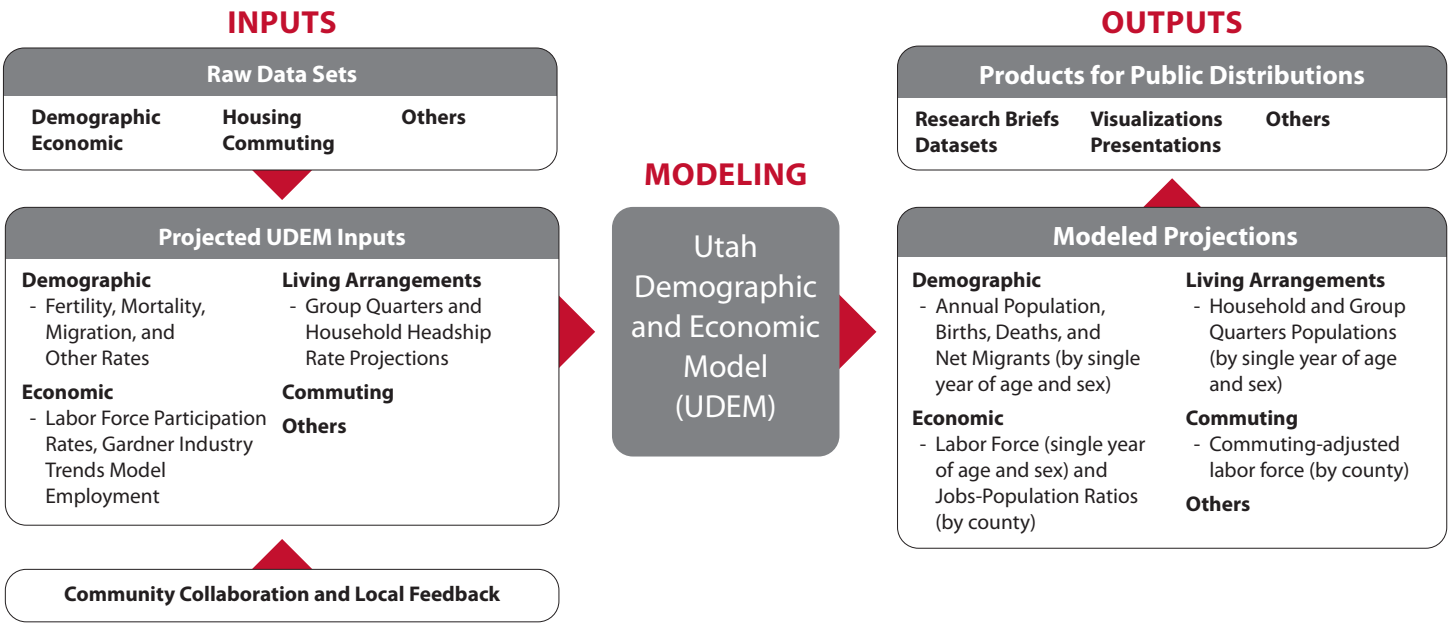


Table 3: Main Demographic Assumptions for 2020-2060 State and County Projections

Fertility	Total fertility rates (TFRs) continue to decline due to sharp decreases since 2017, from 1.99 in 2020 to 1.78 in 2060 statewide. Lower TFRs result in fewer births, smaller household sizes, increasing median age, and net migration's larger contribution to population growth.
Mortality	Life expectancy continues the gradual increase since 1990, with slight differences in female and male values. There are short-term COVID-19 impacts but no long-term effects. At the state level, life expectancy for females increases from 82.1 in 2020 to 87.3 in 2060. For males, 78.4 to 84.2.
Net Migration	Economic projections primarily drive total net migration. The age-specific migration rates will not be updated until the Census Bureau releases conclusive data.

Table 4: Main Economic Events in 2020-2060 State and County Projections

Coal-fired power plant closures	- The IPP coal-fired power plant in Millard County is converted to natural gas, with construction during 2022-2025 and operations beginning in 2026. - The Huntington and Hunter coal-fired power plants in Emery County close in 2036 and 2042, respectively. - The Bonanza power plant in Uintah County closes in 2030. Statewide, modeling for coal counties follows the national trend of decreasing coal production
The Point	Employment assumptions used by The Point for the complete redevelopment plan into the 2040s.
2030 Winter Olympics	The assumption was that Salt Lake City and Utah would host the 2030 Olympic Winter Games for planning purposes. Direct impacts begin in 2024, end in 2031, and are limited to the Greater Salt Lake economic region.

What are Long-term Planning Projections?

Baseline projections

The Gardner Institute refers to these projections as long-term "planning projections." This terminology is intentional. The Institute distinguishes between a forecast (a prediction of future events) and a planning projection (which is what we can reasonably expect to happen based upon a reasonable extrapolation of current data and assumptions).

"A forecast predicts what will happen. A projection describes what would happen, given certain hypotheses".[8]

A projection uses if/then logic, where the inputs and assumptions produce one of many possible outcomes. This logic makes projection models especially adaptable for policy planning. Often, forecasts are better suited to short horizons, such as a quarter or year, and projections to long horizons, such as the multiple decades in this report.

Decision-makers benefit from a "baseline" or "most likely" projection of the future, given current trends. The projections in this report serve as the Utah state government's official baseline or most likely projections.

Today's actions influence the future

The actions people take today influence future outcomes. For example, policies and resource allocations regarding transportation, land use, water, and other resources will impact where and how people live. Planning projections, then, serve as an indicator of both what the future may hold and as a reminder of how people's actions today influence that same future.

As one Gardner Institute analyst put it, "We are not just witnesses to the future, we are active participants in it." These projections help decision-makers deliberate about how to actively shape future conditions.

Uncertainty

All planning projections include significant uncertainty. For this reason, later this year, the Gardner Institute will release an analysis of the accuracy of past projections, so decision-makers are informed by this uncertainty.

The Gardner Institute will also release upper- and lower-bound scenarios of these long-term planning projections at the state level and in select counties. These scenarios will help decision-makers more fully understand and utilize long-term projections to the benefit of Utah.

What's Next

- **Additional Projections Documentation** – Releases throughout 2022 include detailed documents for the mortality, fertility, and economic projection components used in the process, along with an accuracy analysis of previous projections efforts.
- **High and Low Scenarios** – The current projections (the baseline or medium scenario) are based on the most likely course of action, detailed in the assumptions section. High and low scenarios will be released in 2022 at select geographies to provide a range of planning totals influenced by changing demographic and economic conditions or specific policies.
- **Race/Ethnicity at the State Level** – The Gardner Institute will update the state-level race and ethnicity projections in 2023.

Special Thanks

- To Dr. Pamela S. Perlich for her decades-long pursuit to continually improve modeling methodologies to inform Utah communities of potential futures.
- To Natalie Gochnour and Juliette Tennert, for their insights into the modeling process and guidance on approaches.
- To our external stakeholders and expert reviewers for their review of draft results and for sharing their local insights to inform this process better, including: Utah System of Higher Education, Utah Division of Water Resources, Utah Department of Transportation, Utah Governor's Office of Planning and Budget, Legislative Fiscal Analyst, Governor's Office of Economic Opportunity, Salt Lake City, Wasatch Front Regional Council, Mountainland Association of Governments, Bear River Association of Governments, Five County Association of Governments, Six County Association of Governments, Southeastern Utah Association of Local Governments, Utah League of Cities and Towns, Utah Association of Counties, Envision Utah, Utah State Board of Education, Department of Environmental Quality, Salt Lake County Office of Regional Development, Uintah Basin Association of Governments, Washington County Water Conservancy District, and other local organizations.

Endnotes

1. Perlich, P. S., Hollingshaus, M., Harris, E. R., Tennert, J., & Hogue, M. T. (2017). Utah's Long-Term Demographic and Economic Projections. Kem C. Gardner Policy Institute. https://gardner.utah.edu/wp-content/uploads/Projections-Brief-Final-Updated-Feb2019.pdf?x71849.
2. Harris, E. (2021). State and County Population Estimates for Utah: 2021. Kem C. Gardner Policy Institute. https://gardner.utah.edu/wp-content/uploads/UPC-Estimates-Dec2021.pdf .
3. Kem C. Gardner Policy Institute analysis of Utah Department of Workforce Services data.
4. Hollingshaus, M., Harris, E., Hogue, M. T., & Perlich, P. S. (2018). The Utah Demographic and Economic Model: Version 2017. Kem C. Gardner Policy Institute. https://gardner.utah.edu/wp-content/uploads/udem_2017_final.pdf?x71849.
5. Hogue, M. (2018). Gardner Industry Trends Model. Kem C. Gardner Policy Institute. https://gardner.utah.edu/wp-content/uploads/gitm_documentation_Final.pdf?x71849.
6. UDEM projects the "usual resident" population, which is determined by where an individual usually lives. This can often differ from where they work (i.e. commuting across county lines), and thus these population projections more closely represent the "night time" population rather than the "day time" population.
7. Hogue, M. (2020). Utah's Economic Regions. Kem C. Gardner Policy Institute. https://gardner.utah.edu/wp-content/uploads/EconRegions-Nov2020.pdf?x71849.
8. Keyfitz, N., & Caswell, C. (2005). Applied Mathematical Demography, 3rd ed., p.63. Springer Science+Business Media, Inc.

Data Tables

Table 5: Utah Population by County, 2010-2060

County	2010	2020	2030	2040	2050	2060	Absolute Change 2020-2060	Percent Change 2020-2060	Rank
Beaver County	6,645	7,076	8,008	8,777	9,397	10,181	3,105	43.9%	14
Box Elder County	50,084	57,886	67,637	75,494	83,130	89,997	32,111	55.5%	10
Cache County	113,307	133,743	163,345	185,948	207,094	226,084	92,342	69.0%	8
Carbon County	21,390	20,449	21,098	20,689	21,475	22,422	1,973	9.6%	25
Daggett County	1,076	943	905	910	942	1,009	67	7.1%	28
Davis County	307,712	363,419	411,564	472,344	529,711	580,155	216,736	59.6%	9
Duchesne County	18,689	19,608	18,796	19,351	20,807	23,133	3,525	18.0%	23
Emery County	10,991	9,824	9,862	9,674	10,066	10,731	907	9.2%	27
Garfield County	5,167	5,084	5,071	5,294	5,499	5,941	857	16.9%	24
Grand County	9,227	9,664	9,920	11,375	12,474	14,119	4,455	46.1%	13
Iron County	46,241	57,658	77,312	85,248	91,299	98,098	40,440	70.1%	7
Juab County	10,260	11,831	14,438	17,586	20,617	23,331	11,500	97.2%	5
Kane County	7,113	7,692	8,834	9,769	10,511	11,433	3,741	48.6%	12
Millard County	12,513	13,010	13,378	12,777	12,304	11,739	-1,271	-9.8%	29
Morgan County	9,516	12,353	15,080	18,184	21,301	24,207	11,854	96.0%	6
Piute County	1,548	1,442	1,577	1,625	1,663	1,708	267	18.5%	22
Rich County	2,280	2,517	2,795	3,059	3,311	3,534	1,018	40.4%	17
Salt Lake County	1,032,281	1,188,213	1,316,739	1,451,869	1,572,359	1,672,102	483,889	40.7%	15
San Juan County	14,715	14,541	14,712	16,186	17,280	18,923	4,382	30.1%	20
Sanpete County	27,834	28,560	31,839	34,693	37,100	40,096	11,536	40.4%	18
Sevier County	20,793	21,571	22,739	23,044	23,326	23,650	2,079	9.6%	26
Summit County	36,573	42,394	47,079	52,303	56,493	59,603	17,210	40.6%	16
Tooele County	58,369	73,149	96,600	115,253	133,001	148,890	75,742	103.5%	3
Uintah County	32,722	35,679	37,260	39,112	42,971	46,446	10,767	30.2%	19
Utah County	518,707	664,258	853,711	1,021,077	1,185,679	1,338,222	673,964	101.5%	4
Wasatch County	23,689	34,933	44,904	57,112	69,483	81,022	46,089	131.9%	2
Washington County	138,435	182,111	265,865	337,326	401,757	464,528	282,417	155.1%	1
Wayne County	2,775	2,490	2,556	2,712	2,850	3,028	538	21.6%	21
Weber County	232,015	262,727	295,538	331,771	366,031	396,265	133,539	50.8%	11
State of Utah	2,772,667	3,284,823	3,879,161	4,440,560	4,969,929	5,450,598	2,165,775	65.9%	0

Source: Kem C. Gardner Policy Institute, 2020-2060 Projections

Table 6: Utah Households by County, 2010-2060

County	2010	2020	2030	2040	2050	2060	Absolute Change 2020-2060	Percent Change 2020-2060	Rank
Beaver County	2,245	2,276	2,681	3,092	3,668	4,430	2,154	94.7%	11
Box Elder County	16,034	18,678	23,171	27,788	32,685	37,945	19,267	103.2%	9
Cache County	34,876	41,658	54,660	65,178	73,812	83,284	41,626	99.9%	10
Carbon County	7,972	7,950	8,509	8,755	9,369	10,078	2,128	26.8%	27
Daggett County	431	392	394	329	388	469	77	19.7%	28
Davis County	93,595	111,552	136,990	168,210	197,333	230,583	119,031	106.7%	8
Duchesne County	6,017	6,511	6,518	6,817	7,527	8,822	2,311	35.5%	23
Emery County	3,733	3,535	3,846	3,991	4,303	4,789	1,254	35.5%	24
Garfield County	1,916	1,881	1,926	2,013	2,219	2,525	644	34.2%	25
Grand County	3,869	4,006	4,392	5,152	5,951	7,000	2,994	74.7%	15
Iron County	14,983	18,731	26,881	31,354	35,321	40,004	21,273	113.6%	7
Juab County	3,080	3,529	4,567	5,943	7,605	9,456	5,927	167.9%	5
Kane County	2,879	3,081	3,761	4,203	4,709	5,443	2,362	76.7%	14
Millard County	4,184	4,299	4,741	4,849	5,024	5,088	789	18.4%	29
Morgan County	2,819	3,574	4,832	6,310	7,899	9,578	6,004	168.0%	4
Piute County	565	536	593	595	699	799	263	49.0%	21
Rich County	800	886	1,041	1,149	1,338	1,523	637	71.9%	18
Salt Lake County	342,487	405,229	474,073	553,023	629,565	703,504	298,275	73.6%	16
San Juan County	4,481	4,649	5,266	6,138	6,980	8,062	3,413	73.4%	17
Sanpete County	7,959	8,394	9,877	10,675	11,414	12,703	4,309	51.3%	20
Sevier County	7,074	7,464	8,565	9,202	9,842	10,636	3,172	42.5%	22
Summit County	13,043	15,688	19,363	22,639	25,379	28,078	12,390	79.0%	13
Tooele County	17,902	22,087	32,316	41,787	52,933	64,291	42,204	191.1%	3
Uintah County	10,598	11,993	13,359	14,842	16,689	18,712	6,719	56.0%	19
Utah County	140,866	184,558	257,513	327,172	396,956	474,814	290,256	157.3%	6
Wasatch County	7,307	11,040	15,675	20,786	26,856	33,366	22,326	202.2%	2
Washington County	46,274	62,416	98,497	131,765	165,946	203,901	141,485	226.7%	1
Wayne County	1,056	1,064	1,121	1,149	1,223	1,356	292	27.4%	26
Weber County	78,698	89,595	106,137	125,475	145,710	167,592	77,997	87.1%	12
State of Utah	877,743	1,057,252	1,331,265	1,610,383	1,889,344	2,188,830	1,131,578	107.0%	0

Source: Kem C. Gardner Policy Institute, 2020-2060 Projections

Table 7: Utah Employment by County, 2010-2060

County	2010	2020	2030	2040	2050	2060	Absolute Change 2020-2060	Percent Change 2020-2060	Rank
Beaver County	3,612	4,030	4,388	4,676	5,069	5,406	1,376	34.1%	18
Box Elder County	24,827	29,826	35,753	38,514	41,233	42,807	12,981	43.5%	12
Cache County	66,052	82,979	97,811	109,684	120,531	126,714	43,735	52.7%	10
Carbon County	11,867	11,174	10,945	10,937	11,728	12,600	1,426	12.8%	25
Daggett County	599	525	647	680	704	736	212	40.3%	16
Davis County	149,652	196,858	236,180	260,029	288,350	310,889	114,031	57.9%	7
Duchesne County	11,083	11,669	12,180	12,325	12,705	12,924	1,255	10.8%	27
Emery County	5,595	4,980	5,038	4,661	4,478	4,595	-385	-7.7%	28
Garfield County	3,426	3,352	3,869	3,849	3,907	3,855	503	15.0%	24
Grand County	6,452	7,534	9,348	9,657	10,176	10,634	3,100	41.1%	15
Iron County	22,221	30,263	36,443	41,287	45,726	49,603	19,339	63.9%	5
Juab County	4,774	5,553	6,742	7,563	8,333	8,956	3,402	61.3%	6
Kane County	4,381	5,130	6,078	6,385	6,934	7,346	2,215	43.2%	13
Millard County	6,558	7,428	7,849	8,082	8,290	8,349	922	12.4%	26
Morgan County	4,028	5,262	6,314	6,975	7,621	7,881	2,619	49.8%	11
Piute County	631	639	615	591	576	568	-71	-11.2%	29
Rich County	1,290	1,629	1,833	1,899	2,017	2,079	449	27.6%	22
Salt Lake County	735,647	945,896	1,140,373	1,264,859	1,398,926	1,491,496	545,599	57.7%	8
San Juan County	6,311	6,508	7,223	7,647	8,028	8,476	1,968	30.2%	20
Sanpete County	11,308	13,369	15,259	16,396	17,021	17,392	4,022	30.1%	21
Sevier County	11,209	12,638	12,958	13,386	14,475	15,413	2,775	22.0%	23
Summit County	33,292	38,852	52,424	56,784	59,582	60,046	21,194	54.5%	9
Tooele County	21,321	23,890	30,286	34,572	38,715	41,676	17,786	74.4%	3
Uintah County	18,016	18,213	19,679	20,883	22,687	24,083	5,869	32.2%	19
Utah County	255,012	374,457	479,028	549,051	640,493	721,028	346,572	92.6%	2
Wasatch County	10,971	17,609	23,185	26,219	28,752	29,396	11,787	66.9%	4
Washington County	70,274	104,797	143,157	172,488	196,373	214,794	109,997	105.0%	1
Wayne County	1,736	1,917	2,240	2,347	2,525	2,688	771	40.2%	17
Weber County	118,657	144,624	166,113	178,639	193,749	205,921	61,297	42.4%	14
State of Utah	1,620,802	2,111,604	2,573,957	2,871,064	3,199,703	3,448,350	1,336,746	63.3%	0

Source: Kem C. Gardner Policy Institute, 2020-2060 Projections

Table 8: Utah Total Employment by Industry, 2010-2060

Wage and Salary Employment	2010	2020	2030	2040	2050	2060	Absolute Change 2020-2060	Percent Change 2020-2060	Rank
Accommodation And Food Services	99,678	121,825	169,204	171,317	194,121	204,534	82,709	67.9%	7
Administrative, Support, Waste Management, And Remediation Services	89,811	114,123	154,920	182,059	210,153	225,154	111,031	97.3%	5
Arts, Entertainment, And Recreation	34,480	40,652	64,858	71,616	75,306	82,237	41,585	102.3%	4
Construction	90,998	147,864	185,185	234,978	301,865	354,974	207,110	140.1%	1
Educational Services; Private	48,951	68,925	86,938	92,440	103,634	115,427	46,502	67.5%	8
Farm	20,007	22,347	19,836	19,822	20,265	20,624	-1,722	-7.7%	23
Federal Civilian	38,035	39,427	40,798	41,834	42,307	43,132	3,705	9.4%	19
Federal Military	16,886	17,172	16,868	17,256	17,721	18,216	1,043	6.1%	20
Finance And Insurance	111,543	146,845	154,894	166,835	185,225	199,263	52,418	35.7%	14
Forestry, Fishing, And Hunting	3,313	5,652	5,525	6,429	7,316	8,202	2,549	45.1%	13
Health Care And Social Assistance	137,135	179,987	231,629	279,586	322,865	364,967	184,980	102.8%	3
Information	34,347	44,249	54,589	65,171	72,025	80,027	35,777	80.9%	6
Local Government	112,886	125,150	144,999	161,628	178,511	195,045	69,895	55.8%	12
Management Of Companies And Enterprises	22,682	32,997	36,117	34,876	33,990	32,518	-478	-1.4%	22
Manufacturing	118,120	145,994	170,944	182,142	184,538	185,405	39,410	27.0%	15
Mining	14,671	11,656	12,041	13,191	13,213	13,267	1,611	13.8%	18
Other Services (Except Public Administration)	82,784	103,338	144,200	155,084	164,949	172,144	68,806	66.6%	9
Professional, Scientific, And Technical Services	107,017	173,093	249,384	302,470	352,637	368,240	195,147	112.7%	2
Real Estate And Rental And Leasing	93,569	123,434	142,991	135,148	131,235	128,129	4,695	3.8%	21
Retail Trade	172,249	214,715	211,708	256,628	300,163	336,414	121,700	56.7%	11
State Government	66,632	79,645	92,531	105,528	116,473	127,359	47,714	59.9%	10
Transportation And Warehousing	50,900	87,249	108,080	100,817	98,824	101,266	14,017	16.1%	16
Utilities	4,275	4,488	3,047	2,336	2,130	2,157	-2,331	-51.9%	24
Wholesale Trade	49,833	60,775	72,673	71,875	70,237	69,649	8,873	14.6%	17

Source: Kem C. Gardner Policy Institute, 2020-2060 Projections

Table 9: Utah Total Population, 2010-2060

Year	Total	Absolute Growth	Growth Rate	Median Age
2010	2,772,667	41,107	1.5%	29.3
2011	2,822,091	49,424	1.8%	29.5
2012	2,867,405	45,314	1.6%	29.8
2013	2,906,021	38,617	1.3%	30.1
2014	2,946,989	40,967	1.4%	30.4
2015	3,003,791	56,803	1.9%	30.6
2016	3,062,384	58,592	2.0%	30.9
2017	3,122,477	60,093	2.0%	31.2
2018	3,176,342	53,865	1.7%	31.5
2019	3,231,108	54,766	1.7%	31.8
2020	3,284,823	53,715	1.7%	32.1
2021	3,343,552	58,729	1.8%	32.4
2022	3,403,190	59,638	1.8%	32.8
2023	3,464,887	61,696	1.8%	33.2
2024	3,526,992	62,105	1.8%	33.6
2025	3,588,325	61,333	1.7%	34.0
2026	3,647,847	59,522	1.7%	34.3
2027	3,707,365	59,519	1.6%	34.6
2028	3,765,808	58,443	1.6%	34.9
2029	3,823,047	57,239	1.5%	35.1
2030	3,879,161	56,114	1.5%	35.2
2031	3,934,602	55,440	1.4%	35.3
2032	3,989,928	55,326	1.4%	35.5
2033	4,045,806	55,878	1.4%	35.6
2034	4,101,768	55,962	1.4%	35.7
2035	4,158,181	56,412	1.4%	35.8
2036	4,214,821	56,640	1.4%	35.9
2037	4,271,482	56,661	1.3%	36.0
2038	4,327,969	56,487	1.3%	36.1
2039	4,384,194	56,225	1.3%	36.3
2040	4,440,560	56,367	1.3%	36.6
2041	4,496,514	55,954	1.3%	36.8
2042	4,551,744	55,230	1.2%	37.1
2043	4,606,307	54,563	1.2%	37.4
2044	4,659,824	53,517	1.2%	37.7
2045	4,712,762	52,938	1.1%	38.0
2046	4,765,572	52,809	1.1%	38.3
2047	4,817,728	52,157	1.1%	38.6
2048	4,869,323	51,594	1.1%	39.0
2049	4,920,070	50,748	1.0%	39.3
2050	4,969,929	49,859	1.0%	39.6
2051	5,019,857	49,928	1.0%	39.9
2052	5,069,569	49,712	1.0%	40.1
2053	5,119,019	49,450	1.0%	40.4
2054	5,167,718	48,699	1.0%	40.7
2055	5,215,630	47,912	0.9%	41.0
2056	5,263,304	47,674	0.9%	41.2
2057	5,310,621	47,317	0.9%	41.5
2058	5,357,795	47,174	0.9%	41.7
2059	5,404,637	46,843	0.9%	41.9
2060	5,450,598	45,961	0.9%	42.1

Source: Kem C. Gardner Policy Institute, 2020-2060 Projections

Table 10: Utah School Age Population (5-17 Years of Age), 2010-2060

Year	Total	Absolute Growth	Growth Rate
2010	608,701	—	—
2011	618,225	9,524	1.6%
2012	626,812	8,587	1.4%
2013	633,953	7,141	1.1%
2014	641,601	7,648	1.2%
2015	652,687	11,087	1.7%
2016	664,087	11,399	1.7%
2017	675,570	11,483	1.7%
2018	685,712	10,142	1.5%
2019	696,077	10,364	1.5%
2020	706,174	10,097	1.5%
2021	712,289	6,115	0.9%
2022	716,069	3,780	0.5%
2023	716,832	763	0.1%
2024	715,188	-1,645	-0.2%
2025	711,428	-3,760	-0.5%
2026	706,181	-5,247	-0.7%
2027	699,955	-6,227	-0.9%
2028	692,969	-6,986	-1.0%
2029	686,577	-6,392	-0.9%
2030	681,572	-5,005	-0.7%
2031	676,240	-5,332	-0.8%
2032	671,647	-4,593	-0.7%
2033	667,883	-3,764	-0.6%
2034	665,561	-2,321	-0.3%
2035	665,512	-50	-0.0%
2036	668,850	3,338	0.5%
2037	674,546	5,697	0.9%
2038	682,242	7,695	1.1%
2039	691,631	9,389	1.4%
2040	702,706	11,075	1.6%
2041	715,056	12,350	1.8%
2042	728,040	12,984	1.8%
2043	741,271	13,231	1.8%
2044	754,297	13,026	1.8%
2045	766,978	12,681	1.7%
2046	778,942	11,964	1.6%
2047	789,884	10,941	1.4%
2048	799,488	9,605	1.2%
2049	807,575	8,086	1.0%
2050	814,074	6,499	0.8%
2051	819,056	4,982	0.6%
2052	822,540	3,484	0.4%
2053	824,546	2,007	0.2%
2054	825,157	611	0.1%
2055	824,578	-579	-0.1%
2056	823,082	-1,496	-0.2%
2057	820,890	-2,192	-0.3%
2058	818,072	-2,818	-0.3%
2059	814,909	-3,164	-0.4%
2060	811,572	-3,337	-0.4%

Source: Kem C. Gardner Policy Institute, 2020-2060 Projections

Table 11: Utah Working Age Population (18-64 Years of Age), 2010-2060

Year	Total	Absolute Growth	Growth Rate
2010	1,648,779	—	—
2011	1,678,799	30,019	1.8%
2012	1,706,439	27,641	1.6%
2013	1,729,970	23,530	1.4%
2014	1,754,926	24,957	1.4%
2015	1,789,348	34,422	2.0%
2016	1,824,712	35,364	2.0%
2017	1,861,250	36,538	2.0%
2018	1,893,948	32,698	1.8%
2019	1,926,829	32,881	1.7%
2020	1,959,287	32,458	1.7%
2021	1,998,291	39,004	2.0%
2022	2,037,816	39,525	2.0%
2023	2,080,029	42,214	2.1%
2024	2,123,804	43,775	2.1%
2025	2,167,522	43,718	2.1%
2026	2,210,161	42,639	2.0%
2027	2,253,174	43,013	1.9%
2028	2,295,487	42,313	1.9%
2029	2,336,563	41,076	1.8%
2030	2,375,965	39,401	1.7%
2031	2,415,933	39,968	1.7%
2032	2,455,030	39,098	1.6%
2033	2,493,559	38,529	1.6%
2034	2,530,069	36,509	1.5%
2035	2,563,356	33,288	1.3%
2036	2,593,134	29,778	1.2%
2037	2,621,584	28,450	1.1%
2038	2,649,048	27,464	1.0%
2039	2,674,829	25,780	1.0%
2040	2,698,103	23,275	0.9%
2041	2,718,643	20,540	0.8%
2042	2,736,645	18,002	0.7%
2043	2,752,755	16,110	0.6%
2044	2,768,059	15,304	0.6%
2045	2,782,633	14,575	0.5%
2046	2,797,677	15,044	0.5%
2047	2,813,616	15,940	0.6%
2048	2,830,658	17,042	0.6%
2049	2,849,074	18,416	0.7%
2050	2,867,657	18,582	0.7%
2051	2,886,736	19,079	0.7%
2052	2,906,878	20,142	0.7%
2053	2,928,096	21,218	0.7%
2054	2,949,368	21,272	0.7%
2055	2,969,745	20,377	0.7%
2056	2,988,809	19,064	0.6%
2057	3,010,340	21,531	0.7%
2058	3,036,194	25,854	0.9%
2059	3,067,051	30,857	1.0%
2060	3,099,467	32,416	1.1%

Source: Kem C. Gardner Policy Institute, 2020-2060 Projections

Table 12: Utah Retirement Age Population (65 Years and Older), 2010-2060

Year	Total	Absolute Growth	Growth Rate
2010	251,877	—	—
2011	262,966	11,088	4.4%
2012	273,853	10,887	4.1%
2013	284,389	10,536	3.8%
2014	295,267	10,878	3.8%
2015	307,862	12,595	4.3%
2016	321,151	13,289	4.3%
2017	334,876	13,726	4.3%
2018	348,259	13,383	4.0%
2019	362,281	14,022	4.0%
2020	376,220	13,939	3.8%
2021	393,843	17,623	4.7%
2022	413,681	19,838	5.0%
2023	434,134	20,453	4.9%
2024	454,740	20,606	4.7%
2025	475,768	21,027	4.6%
2026	496,574	20,806	4.4%
2027	516,791	20,217	4.1%
2028	536,231	19,440	3.8%
2029	554,397	18,166	3.4%
2030	571,092	16,695	3.0%
2031	586,382	15,290	2.7%
2032	601,374	14,992	2.6%
2033	616,499	15,124	2.5%
2034	632,322	15,823	2.6%
2035	649,779	17,458	2.8%
2036	668,017	18,238	2.8%
2037	685,753	17,735	2.7%
2038	702,901	17,149	2.5%
2039	720,482	17,581	2.5%
2040	739,617	19,135	2.7%
2041	760,453	20,836	2.8%
2042	783,188	22,735	3.0%
2043	807,616	24,428	3.1%
2044	832,645	25,030	3.1%
2045	858,834	26,189	3.1%
2046	885,644	26,810	3.1%
2047	912,302	26,658	3.0%
2048	938,867	26,565	2.9%
2049	964,856	25,989	2.8%
2050	991,380	26,525	2.7%
2051	1,018,840	27,460	2.8%
2052	1,046,306	27,466	2.7%
2053	1,073,652	27,347	2.6%
2054	1,101,294	27,642	2.6%
2055	1,129,938	28,644	2.6%
2056	1,160,164	30,226	2.7%
2057	1,187,860	27,696	2.4%
2058	1,211,363	23,503	2.0%
2059	1,229,577	18,214	1.5%
2060	1,245,287	15,710	1.3%

Source: Kem C. Gardner Policy Institute, 2020-2060 Projections

Table 13: Utah Components of Population Change, 2010-2060

Year	Births	Deaths	Natural Increase	Net Migration
2010	52,889	14,302	38,597	2,510
2011	51,836	14,897	36,939	12,485
2012	50,388	15,289	35,099	10,215
2013	51,801	15,916	35,885	2,732
2014	50,807	15,941	34,866	6,101
2015	51,024	17,074	33,950	22,853
2016	50,704	17,555	33,149	25,443
2017	49,494	17,596	31,898	28,195
2018	47,310	17,894	29,416	24,449
2019	47,115	18,540	28,575	26,191
2020	46,510	18,937	27,573	26,142
2021	45,639	21,768	23,871	34,858
2022	45,359	19,855	25,503	34,135
2023	45,264	20,257	25,007	36,689
2024	45,702	20,793	24,908	37,197
2025	46,333	21,324	25,009	36,324
2026	47,157	21,862	25,295	34,227
2027	48,160	22,438	25,721	33,797
2028	49,300	23,029	26,271	32,172
2029	50,489	23,618	26,870	30,369
2030	51,782	24,263	27,519	28,596
2031	53,062	24,917	28,145	27,295
2032	54,291	25,588	28,702	26,624
2033	55,484	26,304	29,179	26,699
2034	56,581	27,056	29,525	26,437
2035	57,583	27,801	29,781	26,631
2036	58,409	28,641	29,769	26,872
2037	59,123	29,496	29,626	27,034
2038	59,691	30,500	29,191	27,297
2039	60,060	31,357	28,703	27,522
2040	60,433	32,206	28,227	28,139
2041	60,605	33,042	27,563	28,390
2042	60,600	34,012	26,589	28,641
2043	60,452	34,799	25,653	28,910
2044	60,197	35,732	24,465	29,052
2045	59,883	36,649	23,233	29,705
2046	59,521	37,190	22,331	30,478
2047	59,137	38,068	21,068	31,088
2048	58,758	38,753	20,005	31,590
2049	58,393	39,585	18,807	31,941
2050	58,105	40,404	17,701	32,158
2051	57,877	41,011	16,867	33,061
2052	57,700	41,778	15,922	33,790
2053	57,593	42,321	15,272	34,179
2054	57,566	42,873	14,693	34,006
2055	57,606	43,613	13,992	33,919
2056	57,788	44,393	13,395	34,279
2057	58,020	45,154	12,866	34,451
2058	58,263	45,667	12,597	34,577
2059	58,534	46,385	12,149	34,694
2060	58,842	47,106	11,736	34,225

Source: Kem C. Gardner Policy Institute, 2020-2060 Projections

Table 14: Utah Total Households and Average Household Size, 2010-2060

Year	Total	Absolute Growth	Growth Rate	Average Size
2010	877,743	—	—	3.11
2011	895,232	17,489	2.0%	3.10
2012	911,455	16,223	1.8%	3.09
2013	925,524	14,069	1.5%	3.09
2014	940,194	14,670	1.6%	3.08
2015	959,780	19,586	2.1%	3.08
2016	980,016	20,236	2.1%	3.07
2017	1,000,953	20,937	2.1%	3.07
2018	1,019,772	18,819	1.9%	3.06
2019	1,038,725	18,954	1.9%	3.06
2020	1,057,252	18,527	1.8%	3.06
2021	1,082,726	25,474	2.4%	3.04
2022	1,109,335	26,608	2.5%	3.02
2023	1,136,684	27,349	2.5%	3.00
2024	1,164,425	27,741	2.4%	2.98
2025	1,192,326	27,900	2.4%	2.96
2026	1,220,284	27,958	2.3%	2.94
2027	1,248,097	27,813	2.3%	2.92
2028	1,275,878	27,781	2.2%	2.90
2029	1,303,638	27,760	2.2%	2.89
2030	1,331,265	27,626	2.1%	2.87
2031	1,359,356	28,092	2.1%	2.85
2032	1,387,747	28,391	2.1%	2.83
2033	1,416,545	28,798	2.1%	2.81
2034	1,445,551	29,006	2.0%	2.79
2035	1,474,129	28,578	2.0%	2.78
2036	1,502,118	27,989	1.9%	2.76
2037	1,529,715	27,597	1.8%	2.75
2038	1,556,903	27,188	1.8%	2.74
2039	1,583,904	27,000	1.7%	2.72
2040	1,610,383	26,480	1.7%	2.71
2041	1,640,619	30,236	1.9%	2.70
2042	1,669,733	29,114	1.8%	2.68
2043	1,698,140	28,407	1.7%	2.67
2044	1,726,113	27,973	1.6%	2.66
2045	1,753,636	27,523	1.6%	2.64
2046	1,781,138	27,501	1.6%	2.63
2047	1,808,384	27,247	1.5%	2.62
2048	1,835,389	27,005	1.5%	2.61
2049	1,862,358	26,969	1.5%	2.60
2050	1,889,344	26,986	1.4%	2.59
2051	1,916,737	27,393	1.4%	2.57
2052	1,944,397	27,660	1.4%	2.56
2053	1,972,782	28,385	1.5%	2.55
2054	2,002,086	29,304	1.5%	2.54
2055	2,032,249	30,163	1.5%	2.52
2056	2,062,991	30,742	1.5%	2.51
2057	2,093,810	30,818	1.5%	2.49
2058	2,124,912	31,103	1.5%	2.48
2059	2,156,673	31,761	1.5%	2.46
2060	2,188,830	32,157	1.5%	2.45

Source: Kem C. Gardner Policy Institute, 2020-2060 Projections

Table 15: Utah Total Employment, 2010-2060

Year	Total	Absolute Growth	Growth Rate
2010	1,620,802	-13,179	-0.8%
2011	1,664,436	43,634	2.7%
2012	1,706,075	41,639	2.5%
2013	1,753,390	47,315	2.8%
2014	1,803,950	50,560	2.9%
2015	1,865,948	61,998	3.4%
2016	1,933,445	67,497	3.6%
2017	1,993,373	59,928	3.1%
2018	2,068,149	74,776	3.8%
2019	2,127,021	58,872	2.8%
2020	2,111,604	-15,417	-0.7%
2021	2,210,849	99,245	4.7%
2022	2,274,964	64,115	2.9%
2023	2,336,388	61,424	2.7%
2024	2,383,804	47,416	2.0%
2025	2,418,945	35,141	1.5%
2026	2,448,494	29,549	1.2%
2027	2,479,603	31,109	1.3%
2028	2,510,434	30,831	1.2%
2029	2,550,198	39,764	1.6%
2030	2,573,957	23,759	0.9%
2031	2,594,356	20,399	0.8%
2032	2,621,573	27,218	1.0%
2033	2,647,310	25,737	1.0%
2034	2,681,569	34,259	1.3%
2035	2,709,617	28,047	1.0%
2036	2,741,151	31,534	1.2%
2037	2,775,046	33,895	1.2%
2038	2,806,771	31,725	1.1%
2039	2,838,505	31,734	1.1%
2040	2,871,064	32,559	1.1%
2041	2,902,498	31,433	1.1%
2042	2,934,566	32,069	1.1%
2043	2,967,716	33,150	1.1%
2044	3,002,291	34,575	1.2%
2045	3,036,888	34,597	1.2%
2046	3,071,241	34,353	1.1%
2047	3,104,700	33,459	1.1%
2048	3,137,456	32,756	1.1%
2049	3,169,588	32,132	1.0%
2050	3,199,703	30,115	1.0%
2051	3,228,390	28,687	0.9%
2052	3,254,789	26,399	0.8%
2053	3,280,858	26,069	0.8%
2054	3,306,395	25,537	0.8%
2055	3,332,434	26,038	0.8%
2056	3,357,685	25,251	0.8%
2057	3,381,602	23,917	0.7%
2058	3,404,626	23,024	0.7%
2059	3,426,669	22,044	0.6%
2060	3,448,350	21,680	0.6%

Source: Kem C. Gardner Policy Institute, 2020-2060 Projections

Kem C. Gardner
POLICY INSTITUTE
THE UNIVERSITY OF UTAH

DAVID ECCLES SCHOOL OF BUSINESS

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Appendix D– Utah SHPO Concurrence Letter

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Governor

Deidre M. Henderson
Lieutenant Governor

Jill Remington Love
Executive Director
Utah Department of Cultural and Community Engagement

Christopher Merritt
State Historic Preservation Officer
Utah State Historic Preservation Office

September 18, 2023

Rick Baxter
Acting Area Manager
Bureau of Reclamation
302 East 1860 South
Provo, Utah 84606-7317

RE: Reclamation to Convert Strawberry Valley Project Water Marked for Irrigation Use to Municipal and Industrial Use Utah County, Utah

For future correspondence, please reference Case No. 23-2065

Dear Rick Baxter,

The Utah State Historic Preservation Office received your submission and request for our comment on the above-referenced undertaking on September 18, 2023.

We concur with your determination of effect for this undertaking.

This letter serves as our comment on the determinations you have made within the consultation process specified in §36CFR800.4. If you have questions, please contact me by email at rmcgrath@utah.gov.

Sincerely,

Ryan P McGrath

Ryan McGrath
Archaeologist

Appendix E– IpaC List of Threatened and Endangered Species

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Utah Ecological Services Field Office
2369 West Orton Circle, Suite 50
West Valley City, UT 84119-7603
Phone: (801) 975-3330 Fax: (801) 975-3331

In Reply Refer To: 05/28/2024 15:58:30 UTC
Project Code: 2024-0096031
Project Name: SVP 1920

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed, and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological

evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

https://www.fws.gov/sites/default/files/documents/endangered-species-consultation-handbook.pdf

Migratory Birds: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts, see https://www.fws.gov/program/migratory-bird-permit/what-we-do.

The MBTA has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures, see https://www.fws.gov/library/collections/threats-birds.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit https://www.fws.gov/partner/council-conservation-migratory-birds.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

OFFICIAL SPECIES LIST

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Utah Ecological Services Field Office
2369 West Orton Circle, Suite 50
West Valley City, UT 84119-7603
(801) 975-3330

PROJECT SUMMARY

Project Code: 2024-0096031
Project Name: SVP 1920
Project Type: Dam - Operations
Project Description: This project is a Conversion Contract that would enable irrigation water from the Strawberry Valley Project to be used for other purposes. It would not require change to current use, but would make it possible for water to be used as secondary irrigation or culinary purposes.

Project Location:

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@40.05948775,-111.74759444676448,14z

Counties: Utah County, Utah

ENDANGERED SPECIES ACT SPECIES

There is a total of 5 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

MAMMALS

NAME	STATUS
North American Wolverine *Gulo gulo luscus*	Threatened

No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/5123

BIRDS

NAME	STATUS
Yellow-billed Cuckoo *Coccyzus americanus*	Threatened

Population: Western U.S. DPS
There is **final** critical habitat for this species. Your location does not overlap the critical habitat.
Species profile: https://ecos.fws.gov/ecp/species/3911

FISHES

NAME	STATUS
June Sucker *Chasmistes liorus*	Threatened

There is **final** critical habitat for this species. Your location does not overlap the critical habitat.
Species profile: https://ecos.fws.gov/ecp/species/4133

INSECTS

NAME	STATUS
Monarch Butterfly *Danaus plexippus*	Candidate

No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/9743

FLOWERING PLANTS

NAME	STATUS
Ute Ladies'-tresses *Spiranthes diluvialis*	Threatened

No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/2159

CRITICAL HABITATS

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

YOU ARE STILL REQUIRED TO DETERMINE IF YOUR PROJECT(S) MAY HAVE EFFECTS ON ALL ABOVE LISTED SPECIES.

IPAC USER CONTACT INFORMATION

Agency: Bureau of Reclamation
Name: Wyatt Carter
Address: 302 East Lakeview Parkway
City: Provo
State: UT
Zip: 84655
Email wcarter@usbr.gov
Phone: 8013791161