



— BUREAU OF —
RECLAMATION

Triview Metropolitan District Long-Term Excess Capacity Contract

Draft Environmental Assessment Fryingpan-Arkansas Project

EA No. EC-2021-070

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**Prepared for:
United States Department of the Interior
Bureau of Reclamation
Missouri Basin Region
Eastern Colorado Area Office**

August 2021

Mission Statements

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

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

ACRONYMS

ACHP	Advisory Council on Historic Preservation	NHPA	National Historic Preservation Act
AF	Acre-Feet	NOW	North Outlet Works
AGUA	Arkansas Groundwater Users' Association	NPS	National Parks Service
AVC	Arkansas Valley Conduit	NRCS	National Resource Conservation Service
AVIC	Arkansas Valley Irrigation Company	NRHP	National Register of Historic Places
Bale	Bale Ditch No. 1 and No. 2	PBWW	Pueblo Board of Water Works
CEQ	Council of Environmental Quality	PT	Proposed Threatened
cfs	Cubic Feet per Second	Reclamation	United States Bureau of Reclamation
CNHP	Colorado National Heritage Program	SC	State Special Concern
	Colorado Partners in	SDS	Southern Delivery System
CPARC	Amphibians and Reptile Conservation	SE	State Endangered
CPW	Colorado Parks and Wildlife	SHPO	State Historic Preservation Office
CS-I	Cold Stream Tier One	Southeastern	Southeastern Colorado Water Conservancy District
CS-II	Cold Stream Tier Two	ST	State Threatened
CU	Consumptive Use	SSRC	Stonewall Springs Reservoir Complex
CWCB	Colorado Water Conservation Board	SSRCo	Stonewall Springs Reservoir Company
DOI	Department of Interior	SWA	State Wildlife Areas
EA	Environmental Assessment	Triview	Triview Metropolitan District
ECAO	Eastern Colorado Area Office	TU	Trout Unlimited
EIS	Environmental Impact Statement	UAWCD	Upper Arkansas Conservation District
Excelsior	Excelsior Irrigation Company	USDA	United States Department of Agriculture
FE	Federal Endangered	USFWS	United States Fish & Wildlife Service
FMIC	Fountain Mutual Irrigation Company	USGS	United States Geological Survey
FONSI	Finding of No Significant Impact	USACE	United States Army Corps of Engineers
Fry-Ark Project	Fryingpan-Arkansas Project	Utilities	Colorado Springs Utilities
FT	Federal Threatened	VFMP	Voluntary Flow Management Program
IPaC	USFWS ECOS-IPaC System	WNTI	Western Native Trout Initiative
KDWPT	Kansas Department of Wildlife Parks and Tourism	WS-II	Warm Stream Two
MGD	Million Gallons Per Day	WWTP	Wastewater Treatment Plant
NEPA	National Environmental Policy Act		

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Chapter 1. Purpose and Need

1.1 Introduction

The Bureau of Reclamation (Reclamation) proposes to approve a long-term (40-year) excess capacity storage and conveyance contract (Contract) with the Triview Metropolitan District (Triview). An excess capacity contract is often referred to as an "if and when" contract, meaning if and when space for Non-Project water is available for storage and/or exchange in Reclamation facilities. Under the proposed Contract and its terms, Triview would be allowed to use excess space in Reclamation's Pueblo Reservoir to store its water analyzed in this environmental assessment (EA), subject to existing storage priorities of Reclamation's Fryingpan-Arkansas (Fry-Ark) Project and other entities within the Arkansas River Basin. The Contract would facilitate movement of Triview's water to its service territory via Colorado Springs' Southern Delivery System (SDS) or by exchange. More specifically, the Contract would allow 1) storage of up to 999 acre-feet (AF) of water in Pueblo Reservoir when excess storage space is available to Triview, and 2) use of Pueblo Dam's North Outlet Works (NOW) for delivery of Triview's water to deliver water to SDS or downstream to the Arkansas River.

The Fry-Ark Project is a federal multipurpose, trans-mountain water diversion and delivery project in Colorado. The Fry-Ark Project was authorized in 1962 (by Public Law 87-92 as amended). Southeastern Colorado Water Conservancy District (Southeastern) is the Fry-Ark Project's sponsor/partner who entered into contracts with Reclamation for repayment of construction, operations, maintenance, and replacement costs. The Fry-Ark Project makes possible a 30-year average annual diversion of about 55,000 AF of water from the Colorado River basin. Waters from the Fryingpan River and other tributaries of the Roaring Fork River located on the West slope of the Continental Divide are diverted and delivered to the Arkansas River Basin located on the East slope. Imported West slope water is conveyed to Turquoise Reservoir, and then typically conveyed through the Mt. Elbert conduit to the Mt. Elbert Forebay and used to generate power at the Mt. Elbert Powerplant and before being discharged into Twin Lakes Reservoir. These reservoirs also store Fry-Ark Project water, along with other Non-Project water, before being released to the Arkansas River for delivery for Upper Arkansas River uses or downstream to Pueblo Reservoir where it is further distributed within Southeastern's boundary to Fry-Ark Project beneficiaries. Pueblo Reservoir is the terminal storage facility for the Fry-Ark Project.

1.2 Purpose and Need

The purpose of the Contract is to provide a long-term, reliable means of delivery of Triview's existing water rights that maximizes use of existing infrastructure and supports Triview's municipal water supply needs.

The Contract will enable Triview to use its water more efficiently by providing long-term water storage and conveyance capacity opportunities, increase Triview's water management flexibility, and reduce Triview's dependency on non-renewable groundwater supplies. By entering into the Contract, Reclamation is acting pursuant to the Reclamation Act of June 17, 1902 (32 Stat. 388), and Acts amendatory and supplementary thereto, including the Reclamation Project Act of August 4, 1939 (53 Stat. 1187), and the Fry-Ark Project

Act of August 16, 1962 (76 Stat. 389), as amended, particularly, but not limited to, Public Law No. 111-11, §9115 (123 Stat. 991, 1320 (2009)) and Public Law 87-92 as amended. The Contract would facilitate the movement of Triview's water rights from the Fountain Mutual Irrigation Company (FMIC), the Excelsior Irrigation Company (Excelsior), the Arkansas Valley Irrigation Company (AVIC), Bale Ditch No. 1 and No. 2 (Bale), and the movement and reuse of effluent generated by such water rights. The transfer and lease of water rights is governed by Colorado water law and administered by the Colorado Division of Water Resources (CDWR).

The purposes and needs for the excess capacity storage and conveyance contract are listed below:

- Provide water storage and conveyance capacity to increase water management flexibility within Triview's water supply portfolio and service area;
- Reduce Triview's dependency on nonrenewable groundwater;
- Facilitate conversion to renewable surface water;
- Complement Triview's reuse of its return flows in the form of treated effluent discharged to Monument and Fountain Creeks; and
- Maximize the use of existing infrastructure, including SDS, to serve Triview's municipal and industrial water supply demands where feasible.

1.3 Decision Process

Reclamation must decide whether to enter into the Contract with Triview. Because the execution of the Contract constitutes a federal action, it is subject to compliance with the National Environmental Policy Act (NEPA) of 1969, amendments, and other applicable laws and regulations. This EA is prepared to analyze and disclose potential effects associated with the Proposed Action and a No Action Alternative. This EA is prepared in compliance with NEPA (Public Law 91-190) and under current guidelines established by the Council on Environmental Quality (CEQ), U.S. Department of The Interior, and Bureau of Reclamation.

1.4 Background

The Project Area is located within the Arkansas River Basin of Colorado. Triview's service area boundary encompasses land located within El Paso County, Colorado. Figure 1 shows Triview's water service area.

Triview owns and maintains facilities that provide water, wastewater, and stormwater services to a 2,590-acre service area within the Town of Monument, Colorado. Currently, this includes more than 1,900 homes and 60 commercial customers. Triview's service area is located entirely within the Arkansas River Basin. Historically, Triview's water supply has been derived from nonrenewable deep aquifers in the Denver Basin, which are currently being depleted and are not a sustainable resource in the long-term. In recent years, Triview has been actively acquiring renewable water sources to supplement its Denver Basin groundwater, and the means to convey such renewable resources to its service area as follows:

- 1,057 shares of the FMIC, representing an average annual yield of approximately 739.9 AF;

- Access to water storage in Big Johnson Reservoir through its ownership of 1,057 shares of the FMIC.
- Approximately 50% share of Excelsior, representing an average annual yield of approximately 720.8 AF;
- Ownership of 2,050 AF of conditional water storage rights in the Stonewall Springs Reservoir Complex (SSRC) as filled with the Excelsior Ditch, and 19,538 shares in the Stonewall Springs Reservoir Company (SSRCo), representing approximately 19,538 AF of conditional storage capacity;
- Ownership of the AVIC representing an average annual yield of approximately 439.8 AF; and
- Ownership of the Bale Ditch No.1 and 50% of the Bale Ditch No. 2 representing approximately 82.0 AF.

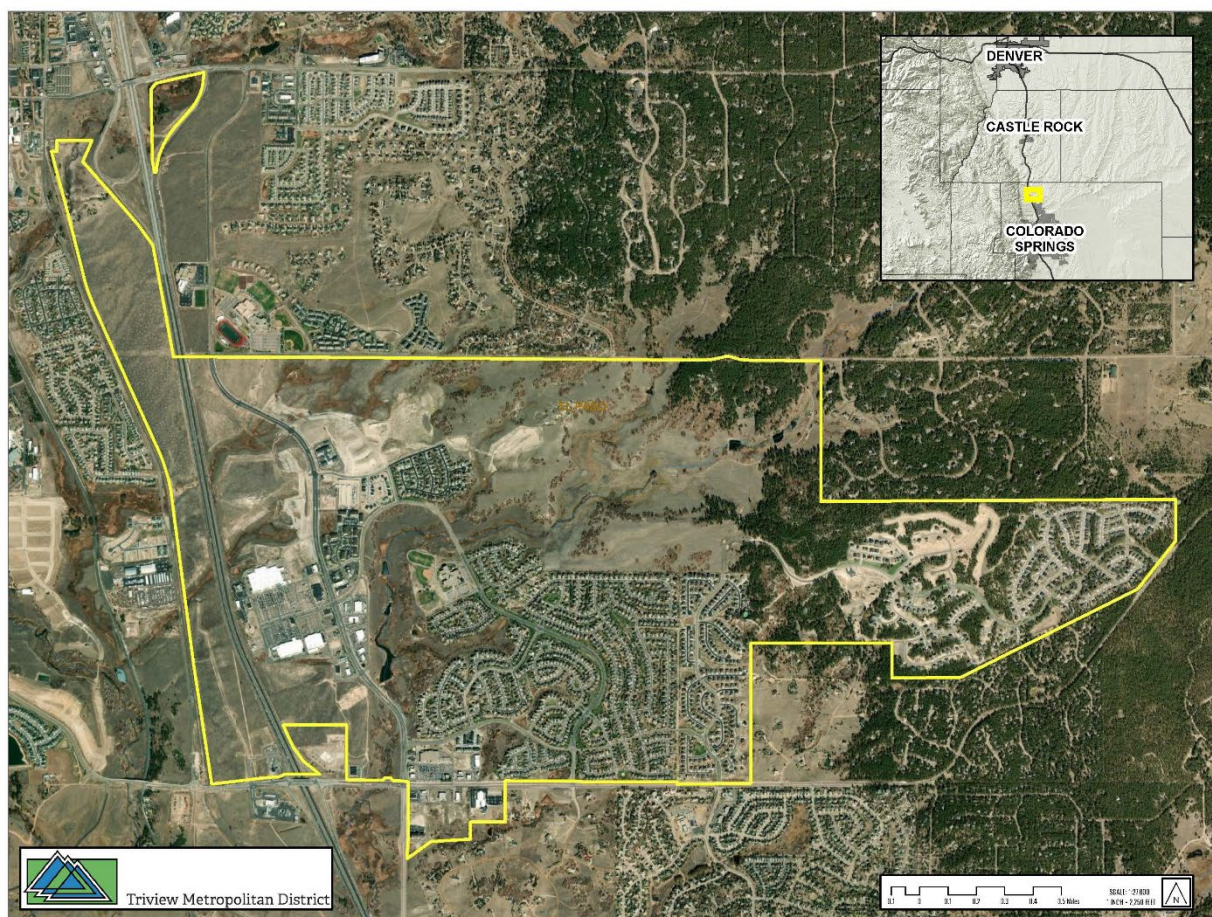


Figure 1. Triview Metropolitan District Boundaries Map (Triview, 2018)

All of the average annual yields of historical consumptive use (CU) water from the above sources can be used and reused to extinction in accordance with their existing or anticipated decrees under Colorado water law. These water rights vary seasonally and interannually and the return flows resulting from Denver Basin groundwater use accrue to the Fountain Creek watershed on a continuous basis. Additional storage is needed to manage that variability and to recapture the reusable return flows resulting from their first use. The proposed Contract that Triview is requesting will allow them to store up to 999 AF in Pueblo Reservoir if and when space is available for municipal purposes within Triview's service area. This Contract will not be used to expand the Triview's service area, but instead will be used to support Triview's efforts to replace its non-renewable Denver Basin groundwater supplies with renewable surface water supplies.

Using Pueblo Reservoir's excess capacity does not require the construction of any new facilities. However, the Contract will also authorize Triview's use of NOW to convey up to 4 million gallons per day (MGD) of water stored in Triview's Pueblo Reservoir excess capacity account to SDS for distribution to Triview's service area.

The water rights to be stored in Pueblo Reservoir include those in Triview's portfolio described above, including: Denver Basin groundwater rights, FMIC shares, Excelsior shares, SSRCo shares, AVIC shares, and Bale shares. The geographic extent of Triview's operations is the same as its service area, as shown in Figure 1. The extent of Triview's supply operations can be broken into two areas: 1) Upper Arkansas River upstream of Pueblo Reservoir; and 2) Fountain Creek and Lower Arkansas River downstream of Pueblo Reservoir.

The following operations are described in detail in Chapter 2. The following summary paragraphs provide summary descriptions of the new assets and activities Triview will undertake with the Proposed Action:

Upper Arkansas River Upstream of Pueblo Reservoir

With the conversion of the irrigated agricultural lands along Cottonwood Creek to municipal use, historical CU credits now owned by Triview will continue to flow down from Cottonwood Creek to the confluence with the Arkansas River near Buena Vista, and continue down the Arkansas River to Pueblo Reservoir. Similarly, with the dry-up of Bale Ditches No.1 and 2 irrigated lands owned by Triview, historical CU credits will flow down from South Arkansas River to the confluence with the Arkansas River near Salida (approximately 0.75 miles), and continue down the Arkansas River to Pueblo Reservoir. Deliveries of Triview's AVIC and Bale Ditches historical CU credits to Pueblo Reservoir will be either stored using Triview's 999 AF Contract or delivered directly to the SDS via NOW and conveyed to Triview's service area. Any required winter return flow replacements will be made from either Pueblo Board of Water Works (PBWW) leases, Upper Arkansas Water Conservancy District (UAWCD) leases, or other reservoir transactions from Turquoise Reservoir, Twin Lakes, Clear Creek Reservoir, or Cottonwood Reservoir shareholders. Water leased from PBWW and UAWCD is made available by virtue of the exercise of those entities' water rights and storage in the afore-mentioned reservoirs. Triview is not seeking to store any of its water rights upstream of Pueblo Reservoir, nor is Triview seeking to store PBWW or UAWCD water in its Pueblo Reservoir account.

Fountain Creek and Lower Arkansas River downstream of Pueblo Reservoir

Triview's proposed operations below Pueblo Reservoir will utilize Monument Creek, Fountain Creek, and the Arkansas River below Pueblo Reservoir for transporting water to the SSRC. Administrative trades or exchanges will be the primary mechanism to move water stored in the SSRC to Pueblo Reservoir. Detailed operations are as follows:

Monument and Fountain Creek Operations

- Reusable effluent generated by Triview is delivered from the Upper Monument Creek Regional wastewater treatment plant (WWTP) to Monument Creek, and then conveyed down Fountain Creek to the confluence with the Arkansas River.
- Water derived from Triview's FMIC shares diverted from Fountain Creek can be delivered through either the Spring Creek or McRae augmentation stations back to Fountain Creek, and then conveyed down Fountain Creek to the confluence with the Arkansas River.

- From the confluence of the Fountain Creek and the Arkansas River, Triview's reusable effluent and FMIC water are either:
 - Exchanged (by contract or appropriative right) up the Arkansas River to Pueblo Reservoir, or;
 - Conveyed down the Arkansas River to the Excelsior Ditch, and delivered into storage in the SSRC for exchange or administrative trade into Pueblo Reservoir at a later date.

Excelsior Ditch and Stonewall Reservoir Company Operations

- Triview's Excelsior Ditch water diverted in-priority can be either:
 - Delivered to the Arkansas River via the Excelsior Ditch Augmentation Station Outlet Canal, then Exchanged (by contract or appropriative right) up the Arkansas River to Pueblo Reservoir, or;
 - Delivered into storage in the SSRC for exchange or administrative trade into Pueblo Reservoir at a later date.

All deliveries into Pueblo Reservoir by administrative trade, direct exchange (Arkansas River and Fountain Creek confluence or Arkansas River and Excelsior augmentation station), or by exchange from SSRC facilities, will be either stored using Triview's 999 AF Contract, or conveyed directly to the SDS via NOW for delivery to Triview's service area.

Triview's wastewater is currently treated at the Upper Monument Creek Regional WWTP, and discharged to Monument Creek, a tributary of Fountain Creek. Because Triview is replacing existing nonrenewable supplies with an equal volume of renewable supplies, the amount of treated wastewater discharged from the WWTP will not change as a result of the Contract.

Chapter 2. Proposed Action and Alternatives

This chapter describes the Proposed Action and the No Action Alternative.

2.1 Proposed Action

Triview seeks a Contract with Reclamation to support its efforts to replace its non-renewable Denver Basin groundwater supplies. The Denver Basin groundwater is currently the sole source of water available for direct delivery to Triview. The Proposed Action does not require construction of new diversion or delivery facilities and Triview would convey the water stored in its excess capacity account via the existing SDS. Raw water would be conveyed through SDS infrastructure, as capacity allows up to 4 MGD, to Triview for treatment and distribution. Figure 2 shows the Project Area, the location of the AVIC and Bale water rights, and Triview's service area.

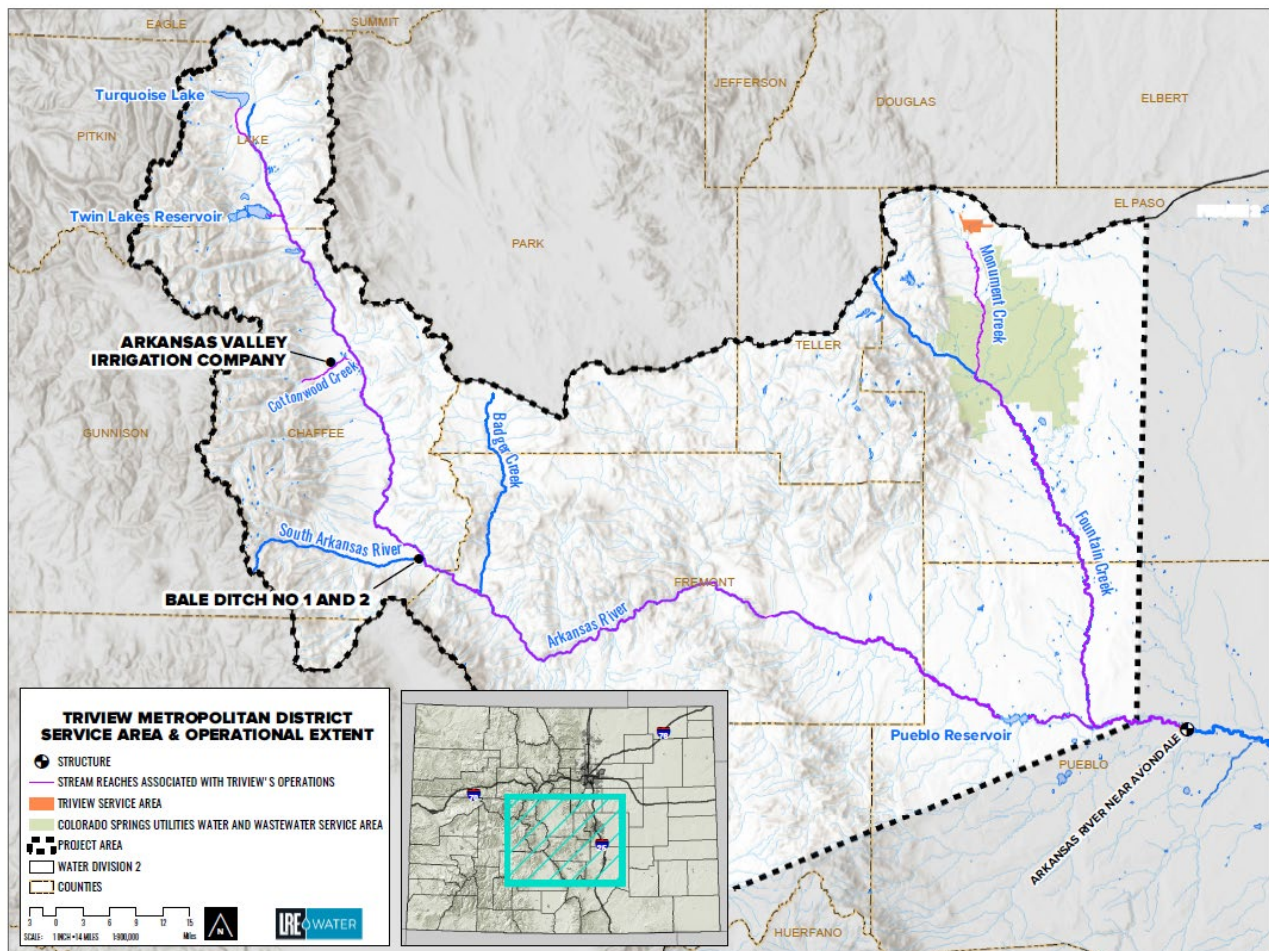


Figure 2. Project Area

Under the Proposed Action, the Contract's exchange component would operate as follows:

- a. Triview's CU credits from the AVIC and Bale ditches will flow down the Arkansas River into Pueblo Reservoir, where the water will either be conveyed directly to Triview's service area via the SDS or stored using the Contract.
- b. Triview's reusable effluent to Fountain Creek, as well as Triview's FMIC shares, will flow to the Fountain Creek confluence with the Arkansas River. These flows will be exchanged up the Arkansas River to Pueblo Reservoir or conveyed down the Arkansas River to the point of diversion for the Excelsior Ditch for delivery to the SSRC and exchanged or administratively traded into Pueblo Reservoir at a later date.
- c. Triview's in-priority diversions of Excelsior Ditch water rights would be delivered to the Arkansas River (via Excelsior Ditch Augmentation Station Outlet Canal) for exchange to Pueblo Reservoir or stored in SSRC for exchange or administrative trade into Pueblo Reservoir at a later date.
- d. All deliveries into Pueblo Reservoir by administrative trade, or by direct exchange or exchange from SSRC facilities, will either be stored using the Contract or conveyed directly to Triview's service area via the SDS instantaneously (without storage) in Pueblo Reservoir.

The Contract's proposed water supply sources are shown in Table 1. Triview is contracted with LRE Water (LRE) to complete the hydrologic modeling for this Proposed Action, documented in Appendix A the *Triview Metropolitan District – Daily Surface Water Hydrology and Reservoir Model Documentation and Results Summary* (LRE, 2021).

2.2 No Action Alternative

The following No Action Alternative considers the potential alternatives should Triview's requested Contract not be granted, including potential effects upon the above-described water rights, Fountain Creek, and the Arkansas River.

FMIC Water and Water Rights

Triview owns 1,057 shares of the FMIC, of which 666 are currently available, or anticipated to be available imminently, for municipal and augmentation uses. Five hundred of these shares were changed to augmentation, municipal, and other uses (Case No. 18CW3016). Triview also owns and has available 166 FMIC shares that have previously undergone a change of use and have been released from a plan of augmentation, Case No. 16CW3010. Triview further owns an additional 244 shares changed to augmentation use, but these are currently under lease and unavailable for Triview's use. As confirmed by numerous decrees of the Division 2 Water Court, FMIC shares have an average annual yield of 0.7 AF per share. Triview filed an application to change the remainder of its FMIC shares to municipal uses in Division 2 Case No. 21CW3022, pending before the Water Court. In summary, Triview's entire portfolio of 1,057 shares will yield 739.9 AF annually on average.

Should Triview be unable to place the water and water rights attributable to its FMIC shares in storage in Pueblo Reservoir, it is feasible that such water and water rights would continue to be leased to other water users under the FMIC ditch for native irrigation purposes, left in the ditch for pro-rata use by other FMIC shareholders in a similar manner, or continue to be leased to downstream water users. Such potential uses of water would result in no material change to the timing or quantities of flows in Fountain Creek or the Arkansas

Table 1. Triview Excess Capacity Storage Contract Water Supply Sources

Triview's Groundwater Water Rights ¹					
Case No.		NT/Augmented Annual Volume Available (AF)		Single Family Equivalences Potentially Legally Served	Aquifer
81CW173, 82CW295, 87CW40, 95CW153, 97CW39, 97CW68, 14CW3053, 21CW3001		1,184.14		2,368.30	Arapahoe
81CW173, 82CW295, 97CW39, 97CW68, 14CW3053, 21CW3001		133.48		267	Laramie-Fox Hills
82CW22, 97CW39, 14CW3053		0.0		0	Dawson
82CW295, 85CW13, 88CW23(A), 97CW39, 97CW68, 98CW134, 14CW3053, 21CW3001		2,404.8		4,809.60	Denver
Triview's Surface Water Rights					
Case No.	Priority No.	Ditch	Priority Date	Total Decree Cubic Feet per Second (cfs)	Source
18CW3016, 16CW3010	4	Fountain Mutual Irrigation Company Canal ²	9/21/1861	9.84 (5.38) ³	Fountain Creek
	7		4/1/1862	1.125	
	11		2/1/1863	16.69	
	17		12/31/1863	4.25 (2.125) ⁴	
	21		12/31/1864	4.65	
	28		12/31/1886	8.48	
	29		12/31/1867	9.68	
	41		9/21/1874	17.05	
	168		1/31/1903	343.2	
04CW62	55	Excelsior Ditch ⁵	5/1/1887	20.0	Arkansas River
	60		1/6/1890	40.0	
Pending	76	Arkansas Valley Irrigation Canal ⁶	5/1/1880	18.05	Cottonwood Creek
CA-1724, CA-5141	0	Bale Ditch No. 1	4/30/1875	1.33	South Arkansas River
	A50		12/31/1898	1.0	
	0	Bale Ditch No. 2 ⁷	4/30/1875	1.0 (0.5)	
	A51		12/31/1898	1.0 (0.5)	

¹ Triview's portfolio includes 3,722.4 AF of Denver Basin groundwater a nonrenewable source that can be used to extinction;

² Triview owns 1,057 shares of the Fountain Mutual Irrigation Company (FMIC), representing approximately 739.9 AF;

³ FMIC's interest in Priority No. 4 is 5.38 cfs. The amount of 1.73 cfs was changed in Case No. 90CW28. In addition to the 5.38 cfs, FMIC claims the right to divert any of the remaining 2.73 cfs decreed to this priority which is not used by other owners;

⁴ Priority No. 17 is referred to as the Janitell's right and FMIC has used 1/2 of the water, or 2.125 cfs, in return for the carriage of the other 2.125 cfs to its owner through the FMIC ditch. By Decree Authorizing Change in Point of Diversion in Civil Action No. 38180, entered July 29 1959, the point of diversion for this 4.25 cfs of Priority No. 17 of the Laughlin Ditch was changed to the headgate of the Fountain Mutual Ditch;

⁵ Triview owns approximately 50% share of the Excelsior Irrigating Company (Excelsior), representing approximately 720.8 AF;

⁶ Triview owns 18.05 cfs (100%) of the Arkansas Valley Irrigation Company (AVIC) Canal representing an average of approximately 439.8 AF of Historical Consumptive Use;

⁷ Triview owns 2.33 cfs of the Bale Ditch No. 1 and 1.00 cfs of the Bale Ditch No. 2 representing an average of approximately 82.0 AF of Historical Consumptive Use;

Triview's Storage Water Rights				
Case No.	Reservoir	Priority Date	Total Decree (AF)	Source
01CW0149, 06CW0126, 17CW3059, 17CW3072, CA10146	Big Johnson Reservoir ⁸	3/18/1903	10,000	FMIC Ditch
16CW3093	Stonewall Springs Reservoir Complex ⁹	12/31/2016	19,538	Excelsior Ditch

River, being entirely consistent with Triview's current use of these water rights. Triview would be denied the use of this renewable water resource, but would have a small revenue stream from the lease thereof.

Excelsior Water and Water Rights

Triview recently acquired its interests in the Excelsior Irrigation Company. In 2020-2021, Triview has continued a historical practice of leasing its water and water rights attributable to Excelsior shares to the Arkansas Groundwater Users' Association (AGUA). Should Triview's Contract request in Pueblo Reservoir be denied, there is the potential that this practice would continue, with little to no change in flows on Fountain Creek or the Arkansas River from which Excelsior water rights divert.

Denver Basin Groundwater

As described above, currently Triview's sole water supply, the Denver Basin groundwater, is finite and non-renewable. The groundwater, which is first used in Triview's municipal water system and augmentation under a number of approved augmentation plans, becomes fully-consumable and reusable wastewater effluent when discharged following treatment. Absent a means to deliver its renewable water supplies to municipal use, including Pueblo Reservoir storage, Triview may be forced to continue its reliance on this finite and unsustainable groundwater resource for the foreseeable future, or until exhausted. Should this occur, wastewater effluent return flows would be maintained in much the same way they exist today: Triview leasing such return flows to downstream water users, with no material changes to stream flow in Fountain Creek or the Arkansas River as a result. Absent Pueblo Reservoir storage, Triview currently has no viable means of delivering re-usable wastewater effluent return flows for municipal reuse.

AVIC Water and Water Rights

Triview recently purchased the AVIC water rights, which are estimated to provide approximately 439.8 average annual AF of renewable water supply when changed to municipal uses (historical CU could be as high as 526 AF, depending upon the outcome of the Triview's change case). For 2020-2021, it is likely that these water rights will remain in their originally decreed irrigation use near Buena Vista, Colorado, while Triview works to prepare a municipal change case application in Colorado water court. Following approval of such change case, it is Triview's intent to deliver the AVIC water via the Arkansas River to storage in the requested Contract storage account in Pueblo Reservoir. Subsequently, Triview would seek to deliver water stored to its municipal service territory through the SDS. Should Triview's Contract request in Pueblo Reservoir be denied, there is the potential that irrigation practices may continue, with little to no change in flows on Cottonwood Creek where the AVIC water rights divert, nor on the Arkansas River until a decree is issued for the change case. Appendix A provides additional discussion regarding Triview's use of these water rights under the No Action and Proposed Action alternatives.

⁸ Triview has access to water storage in Big Johnson Reservoir (a/k/a Fountain Valley No. 2) through its ownership of 1,057 shares of the Fountain Mutual Irrigation Company. Big Johnson Reservoir's current capacity is approximately 5,000 AF but will be expanded up to its full storage right of 10,000 AF (decreed on 6/2/1919 with a priority date of 3/18/1903) in the future;

⁹ Triview owns 2,050 AF of conditional water storage right in the Stonewall Springs Reservoir Complex (SSRC) and up to 19,538 shares in the Stonewall Springs Reservoir Company (SSRCo), representing approximately 19,538 AF of conditional storage capacity.

Bale Ditch No. 1 & 2 Water and Water Rights

Triview recently purchased the Bale rights, which are estimated to provide approximately 82 average annual AF of renewable supply when changed to municipal uses, although such historical CU could be higher, depending upon the outcome of the Triview's change case. The property owner separated the Bale water rights from the land and will be pursuing residential development. For 2020-2021, it is likely that these water rights will remain in their originally decreed irrigation use near Salida, Colorado, while Triview works to prepare a municipal change case application in Colorado water court. Following approval of such change case, it is Triview's intent to deliver the Bale water via the Arkansas River to storage in the requested Contract storage account in Pueblo Reservoir. Subsequently, Triview would seek to deliver water stored to its municipal service territory through the SDS. Should Triview's Contract request for storage in Pueblo Reservoir be denied, changed case water rights also would also be leased to other downstream municipal users or diverted to Triview's Stonewall Spring Complex.

SSRC/Exchanges

Neither the SSRC itself, nor an exchange between the SSRC and Pueblo Reservoir, represent "wet" water utilized in Triview's system, however, such intermediate storage, and the ability to exchange from them are integral to Triview's plan for its use of the requested Contract storage account in Pueblo Reservoir. Therefore, an analysis of the effects on these potential resources resulting from the No Action Alternative is appropriate. Because Triview does not currently store municipal water at SSRC, nor exchange it from it, regardless of source, no "status quo" is discussed.

As described above concerning the Excelsior shares, storage in the SSRC could potentially include any of Triview's water sources should such sources obtain judicial or administrative approval for storage in the SSRC, including as discussed herein. Conceivably, such water supplies once stored in SSRC, could be traded with other third parties, or exchanged by other parties utilizing existing appropriative rights of exchange, to the existing Pueblo Reservoir storage space of such third parties. The effect of such trades or exchanges with third parties might have effects on both the Arkansas River and Fountain Creek similar to what Triview proposed with its own requested storage interests in Pueblo Reservoir. Any water placed in storage in the SSRC might likewise be moved via various infrastructure or exchanges on Fountain Creek, with similar effects. Triview at present has no agreements or contracts for such trades/exchanges, and therefore will be unable to pursue such alternatives without the cooperation of other third parties, which may or may not be forthcoming.

2.3 Alternatives Eliminated

New Delivery System

Under this alternative, Triview would be required to construct its own water delivery system through Pueblo and El Paso Counties capable of delivering its FMIC, AVIC, Bale, and Excelsior water rights (or an alternative portfolio of renewable water rights). The delivery system would conceptually begin at SSRCo and a series of pump stations would then deliver water north, potentially using an Xcel Energy easement for the pipeline alignment. Given Triview's limited financial capacity, this is not a feasible alternative that meets the purpose and need. This alternative would be cost-prohibitive and would not maximize the use of existing infrastructure. This alternative was eliminated from further consideration.

Master Contract Participation

Because Triview is located outside the boundary of Southeastern, it is not eligible to participate under the Master Contract for storage and exchange in Pueblo Reservoir. Triview could request inclusion into

Southeastern and then participate in the Master Contract. This alternative would allow Southeastern and Triview to contract at the Master Contract rate but would not reduce the required additional NEPA analysis to add Triview to the Master Contract. In addition, Triview would be required to pay Southeastern the back ad valorem tax payments that would be required by Southeastern's bylaws. This alternative would be cost-prohibitive and was eliminated from further consideration.

Use of Alternate Decreed Points of Diversion/Places of Storage

There are no alternate points of diversion or places of storage in Triview's AVIC and Bale anticipated water rights change case. Triview's existing FMIC change decrees (16CW3010 and 18CW3016), its anticipated future FMIC, and its Excelsior change decrees do not include alternate points of diversion or places of storage, other than Big Johnson Reservoir (which is an alternative for unchanged FMIC shares as well) and the SSRCo. Triview has no present plans to use other facilities, and the potential use of Big Johnson Reservoir and the SSRCo are discussed above. Furthermore, any options other than those described above either; 1) would not require Reclamation action because the alternate point(s) of diversion would not require the use of Fry-Ark Project facilities; or 2) would require a separate, future Reclamation contract with its own separate NEPA compliance. However, hypothetical future storage in Reclamation's space in Twin Lakes or Turquoise Reservoir is not a reasonably foreseeable future action (RFFA) by Triview. These options were eliminated as an alternative for further consideration.

Sub-Regional Water Delivery System

Under this alternative, as with the "New Delivery System" alternative described above, Triview would need to construct a separate series of pipelines, pump stations, and WWTPs extending across a 70-mile corridor of El Paso County (but not Pueblo County). The system would allow water to be pumped as far north as the Monument, Colorado area, after utilizing prospective exchanges on Fountain Creek to a location south of Colorado Springs, Colorado. Water would be exchanged from Stonewall Springs, along the Arkansas River, to gravel pit storage vessels in the vicinity of the City of Fountain, or expansion of existing storage reservoirs in the same area. Given Triview's limited financial capacity, this is not a feasible alternative that meets the purpose and need. This option would not be cost-effective, would not maximize the use of existing infrastructure, and the ability to reliably operate the required Fountain Creek exchange is speculative. It was eliminated as an alternative for further consideration.

Sale to Third Parties

If Triview was unable to place its FMIC, Excelsior, AVIC, and Bale water rights into storage, and ultimately to municipal use in Triview's municipal water supply system, Triview could attempt to recoup its investment in these water rights through a sale to third parties.

FMIC

It is anticipated that such third parties would be other municipal entities seeking to make uses similar to Triview's, either through local diversion on Fountain Creek, or by delivery to the Arkansas River for re-diversion/storage in much the same manner that Triview proposes. As such, affects upon Fountain Creek and the Arkansas River would be expected to be similar.

Excelsior

It is likely that any third-party purchaser would be a municipal entity seeking to make much the same use of the Excelsior shares as Triview, potentially through similar uses of Fry-Ark Project facilities, with resulting similar effects in flows on the Arkansas River and Fountain Creek. Other entities or individuals who own

acreage historically irrigated by Excelsior water supplies, or who utilize Excelsior water supplies (e.g., AGUA) might be interested in acquiring such water and returning it to its original irrigation uses or previously changed augmentation uses. Such potential purchasers' use of Excelsior shares would likely result in flow regimes on the Arkansas River and Fountain Creek similar to the status quo currently occurring.

AVIC

It is likely that any third-party purchaser would be a municipal entity seeking to make much the same use of the AVIC water rights as Triview, potentially through similar uses of Fry-Ark Project facilities, with resulting similar effects in flows on Cottonwood Creek and the Arkansas River. Absent approval of Triview's Contract request, Triview would need alternate storage and conveyance infrastructure in order to use its AVIC water and water rights in its municipal system. Triview's majority ownership of the SSRCo, and therefore equitable ownership of the majority of the SSRC, could allow Triview to utilize its storage entitlements in the SSRC for storage of water and water rights attributable to AVIC. However, Triview has no contracts or agreements with third parties that might facilitate ultimate delivery of such SSRC-stored AVIC water to its service territory for municipal use, and such delivery would, absent significant new infrastructure beyond Triview's means, require delivery into storage in Pueblo Reservoir in one manner or another, much as Triview seeks in its current application.

Bale

Absent approval of Triview's Contract request, Triview would need alternate storage and conveyance infrastructure in order to use its Bale water and water rights in its municipal system. Triview's majority ownership of the SSRCo, and therefore equitable ownership of the majority of the SSRC, could allow Triview to utilize its storage entitlements in the SSRC for storage of water and water rights attributable to Bale. However, Triview has no contracts or agreements with third parties that might facilitate ultimate delivery of such SSRC-stored Bale water to its service territory for municipal use, and such delivery would, absent significant new infrastructure beyond Triview's means, require delivery into storage in Pueblo Reservoir in one manner or another, much as Triview seeks in its current application.

At this time, the sale of the above-mentioned water rights to a third party has been eliminated from further consideration.

Alternate Storage/Delivery

Absent approval of Triview's Contract request, Triview would need alternate storage and conveyance infrastructure in order to use its FMIC, Excelsior, AVIC, Bale, and return wastewater effluent water and water rights in its municipal system.

FMIC

Triview's FMIC Shares, as with all shares in FMIC, include both direct flow rights, and an associated pro rata entitlement to water stored in Big Johnson Reservoir, a roughly 5,000 AF (decreed for 10,000 AF) storage vessel to which flows in the FMIC ditch can be conveyed. Big Johnson Reservoir is located on the south side of Colorado Springs, and in the vicinity of various raw water conveyance facilities and WWTPs utilized by Colorado Springs Utilities (Utilities), including facilities associated with and used in conjunction with SDS. To date, Triview has been unable to negotiate an agreement with Utilities to utilize such facilities, and Utilities has expressed a reluctance to allow such a connection. As such, at present Triview has no viable alternatives for storage and delivery of its FMIC water rights. Absent approval of Triview's Contract request, Triview would need alternate storage and conveyance infrastructure in order to use its FMIC shares for its municipal needs. Coincident with Triview's acquisition of its Excelsior shares, Triview acquired majority ownership of

the SSRCo, which owns and controls water storage rights in the SSRC. Triview could utilize its storage entitlements in the SSRC for storage of water and water rights attributable to its FMIC shares. However, Triview has no contracts or agreements with third parties that might facilitate ultimate delivery of such SSRC-stored FMIC water to its service territory for municipal use, and such delivery would, absent significant new infrastructure beyond Triview's means, require delivery into storage in Pueblo Reservoir in one manner or another, much as Triview seeks in its current application.

Excelsior

Coincident with Triview's acquisition of its Excelsior shares, Triview acquired majority ownership of the SSRCo, which owns and controls water storage rights in the SSRC. Triview could utilize its storage entitlements in the SSRC for storage of water and water rights attributable to its Excelsior shares. However, Triview has no contracts or agreements with third parties that might facilitate ultimate delivery of such SSRC-stored Excelsior water to its service territory for municipal use, and such delivery would, absent significant new infrastructure beyond Triview's means, require delivery into storage in Pueblo Reservoir in one manner or another, much as Triview seeks in its current application.

AVIC

Triview's majority ownership of the SSRCo, and therefore equitable ownership of the majority of the SSRC, could allow Triview to utilize its storage entitlements in the SSRC for storage of water and water rights attributable to the AVIC. However, Triview has no contracts or agreements with third parties that might facilitate ultimate delivery of such SSRC-stored AVIC water to its service territory for municipal use, and such delivery would, absent significant new infrastructure beyond Triview's means, require delivery into storage in Pueblo Reservoir in one manner or another, much as Triview seeks in its current application.

Bale

Triview's majority ownership of the SSRCo, and therefore equitable ownership of the majority of the SSRC, could allow Triview to utilize its storage entitlements in the SSRC for storage of water and water rights attributable to the Bale. However, Triview has no contracts or agreements with third parties that might facilitate ultimate delivery of such SSRC-stored Bale water to its service territory for municipal use, and such delivery would, absent significant new infrastructure beyond Triview's means, require delivery into storage in Pueblo Reservoir in one manner or another, much as Triview seeks in its current application.

Reusable Wastewater Effluent

As with Triview's FMIC shares, reusable wastewater effluent could potentially be re-diverted from Fountain Creek at the headgate of the FMIC ditch, and diverted to storage in Big Johnson Reservoir, subject to Triview negotiating a carriage agreement with FMIC to allow such non-native water in the ditch. No such carriage agreement is currently in place despite Triview having been seeking one for a number of years. Conceptually, such water might be delivered to Utilities' nearby delivery and treatment system and transported back for another municipal use at Triview, and repeated to extinction. This would reduce flows in Fountain Creek, and the Arkansas River, below the FMIC headgate. However, Triview has no agreement with Utilities to utilize such infrastructure and Utilities has expressed a reluctance to allow such a connection.

Absent approval of Triview's Excess Capacity Storage request, Triview would need alternate storage and conveyance infrastructure in order to use its re-usable effluent return flows for its municipal needs. Coincident with Triview's acquisition of its Excelsior shares, Triview acquired majority ownership of the SSRCo, which owns and controls water storage rights in the SSRC. Triview could utilize its storage entitlements in the SSRC for storage of water and water rights attributable to its re-usable effluent return flows. However, Triview has

no contracts or agreements with third parties that might facilitate ultimate delivery of such SSRC-stored reusable wastewater effluent return flows to its service territory for municipal use. This water delivery would, require development of significant new infrastructure beyond Triview's means and also require delivery into storage in Pueblo Reservoir, similar to what Triview seeks in its Contract proposal.

The alternative storage and diversion of the above-mentioned water rights has been eliminated from further consideration.

Chapter 3. Affected Environment & Environmental Consequences

3.1 Introduction

This chapter describes the environmental resources that could be affected by the Proposed Action and No Action alternatives and discloses the environmental consequences associated with each alternative. It also discusses past, present, and reasonably foreseeable future actions, common to both alternatives, as well as potential cumulative effects.

Impacts are discussed under the following resource groups for the Project Area, including hydrology of the Arkansas River upstream and downstream of Pueblo Reservoir, and within Pueblo Reservoir itself¹⁰:

- Air quality and noise;
- Cultural resources (e.g., historical structures, paleontological,);
- Geology and soils;
- Land use (e.g., farmland, recreation, visual resources, and wild and scenic rivers);
- Public safety (e.g., flood control, transportation, health);
- Socioeconomics;
- Environmental justice;
- Threatened and endangered species;
- Vegetation, fisheries, and wildlife; and
- Water resources and wetlands (e.g., floodplains, hydrology, water rights, and water quality).

The baseline condition or characteristics of each resource under each resource group are discussed first, followed by predicted impacts caused by the Proposed Action and No Action alternative.

Two separate effects analyses are described in this chapter. Direct and indirect effects are grouped together in the Environmental Analysis subsection. Cumulative effects are discussed as a separate subsection titled, “Cumulative Effects” if they are reasonably certain to occur and not speculative.

The significance of identified effects on the natural or human environmental quality was assessed based on context, duration, intensity, and/or type.

Context is the setting in which an effect would occur.

Duration considers the timeframe over which an effect would occur; it also considers the frequency (return period) with which a particular impact would be expected to occur, if applicable.

¹⁰ Monument Creek and Fountain Creek flows will not deviate from Baseline Conditions because the Proposed Action is replacing the use of nonrenewable Denver Basin groundwater with renewable surface water and will not directly increase Triview’s service area (i.e., will not increase wastewater flows or stormwater flows to either Monument or Fountain Creek). The Proposed Action will not impact either water body negatively or beneficially for any resource described herein; as both Creeks will remain at current Baseline Conditions.

Intensity can be defined as no effect, negligible effects, minor effects, moderate effects, or major effects; its definition can vary by resource.

Type refers to whether the effects are beneficial, neutral, or adverse.

3.2 Resources Considered and Eliminated from Further Analysis

There are no impacts anticipated for the following resources: air quality and noise; wilderness and wild and scenic rivers; geology, soils, and minerals; prime and unique farmland; public safety; and paleontological resources. Therefore, impacts to these resource areas have been considered but eliminated from further evaluation. Since there would be no change in impacts to these resources as a result of either alternative, there are no anticipate cumulative effects. These resources and the reasons for their elimination are described further in Table 2.

Table 2. Resources Eliminated from Future Analysis

Resource	Rationale for Elimination from Further Analysis
Air Quality and Noise	Neither alternative involves construction activities or other on-the-ground changes. There will be no use of heavy equipment. There will be no future growth in the Triview service area (in population and area) as the result of either the Proposed Action or the No Action Alternatives. Therefore, no air quality or noise impacts are anticipated.
Climate Change	Neither alternative involves construction activities or other on-the-ground changes. There will be no use of heavy equipment. There will be no future growth in the Triview service area (in population and area) as the result of either the Proposed Action or the No Action Alternatives. No climate change impacts are anticipated. However, climate change does have potential to affect water supply and is discussed further in the hydrology section of this chapter.
Wilderness/Wild & Scenic Rivers	There are no designated Wilderness Areas or Wild and Scenic Rivers within the Project Area. There would be no impact to these resources from the Proposed Action or the No Action Alternatives. (National Wild and Scenic Rivers System, 2021)
Geology, Soils, and Minerals	Neither alternative involves construction activities or other on-the-ground changes. There will be no future growth in the Triview service area (in population and area) as the result of either the Proposed Action or the No Action Alternatives. Therefore, no geological, soil, or mineral impacts are anticipated. Streamflow would still be within the range of normal flows in the Arkansas River (see results of hydrology analysis below). Flows in Monument Creek below Triview's WWTP discharge would not change, as neither alternative causes future growth. No increase in erosion or decrease in soil stability is expected. Neither alternative would have any impact on minerals in the Project Area.
Prime and Unique Farmlands	Per the National Resource Conservation Service (NRCS) Soil Web Survey online mapping tool, the converted farmland associated with the AVIC and Bale water rights discussed above are not associated with prime or unique farmlands. As such, there would be no conversion of farmland to non-agricultural use, as defined by the Farmland Protection Policy Act (USC 4201-4209), by implementing the Proposed Action or the No Action Alternatives (NRCS, (n.d.)).
Public Safety	Neither alternative involves construction activities or other on-the-ground changes. There will be no use of heavy equipment. Therefore, no public safety impacts are anticipated. The water would still be within the range of normal flows in the Arkansas River (see results of hydrology analysis below). Flows in Monument Creek below Triview's wastewater treatment plant discharge would not change, as neither alternative causes future growth. As a result, there are no Fry-Ark Project-caused flood-related issues anticipated as a result of either the Proposed Action or the No Action Alternatives.
Paleontology	Neither alternative involves alterations of structures or construction at the land surface that could displace paleontological resources in the area. There will be no future growth in the Triview service area (in population and area) as the result of either the Proposed Action or the No Action Alternatives.

3.3 Hydrology

Hydrologic impacts were evaluated with a set of streamflow model scenarios representing the No Action, and Proposed Action described in Section 2; impacts are reported relative to the modeled Baseline scenario. In the Baseline Conditions scenario Triview's operations are the same as the No Action Alternative for each of Triview's water rights (FMIC water, Excelsior water, Denver Basin groundwater, AVIC water, and Bale water). Triview's surface water and groundwater resources are described prior to the model scenario explanations in this section.

Surface Water Resources

The Arkansas River is the 4th longest river in the United States, extending approximately 1,450 miles, of which 316 miles flow through Colorado. The river has a watershed area of 28,268 square miles in Colorado, accounting for 27% of Colorado, making it the state's largest river basin. The Arkansas River's headwaters are located in Lake County on the East Slope of the Continental Divide in the Mosquito and Sawatch mountain ranges. From the headwaters, the river flows southeasterly through deep canyons near Cañon City, Colorado and then east through Pueblo, Colorado. It then flows across the eastern plains to Kansas, Oklahoma and finally to Arkansas. Mountain precipitation (primarily as snowfall) results in snowpack accumulation during the winter and early spring months. According to the Colorado Water Conservation Board (CWCB), when rapid warming occurs in late spring and early summer months, the snowpack melts and the Arkansas River experiences high-intensity, short-duration flow events (CWCB, 2015).

Pueblo Reservoir was constructed in the early-to-mid 1970s as the terminal storage reservoir for the Fry-Ark Project. The reservoir has a total active storage capacity of 256,949 AF, dedicated flood control space of 26,991 AF, and a joint-use pool of 66,011 AF. Water from both the West Slope of the Continental Divide and the Arkansas River is stored in the reservoir (Reclamation, 2018b). Arkansas River flows are stored in the conservation and joint-use pools from November 15th to March 15th per the State of Colorado's decreed Winter Water Storage Program. Non-Project water can also be stored in Pueblo Reservoir with an excess capacity storage contract with Reclamation if and when space is available. Non-Project water can be stored in the joint-use pool from November 1 to April 15 only.

Flood control is a Fry-Ark Project purpose and the flood control period for Pueblo Reservoir is April 15th to November 1st. During this time, the joint-use pool and the flood control space must be evacuated at a rate no greater than 5,000 cfs or the safe channel capacity of the Arkansas River. This evacuation must be completed no later than April 15th of each year. This evacuated water spills from the reservoir per the spill priority language in Article 13 of Southeastern's repayment contract (Reclamation, 1965).

Fry-Ark Project and Non-Project waters are released in six different ways from Pueblo Reservoir:

- NOW to the Arkansas River and downstream users for direct use and/or augmentation;
- NOW through Southeastern's James W. Broderick Power Plant to the Arkansas River and downstream users;
- NOW to the SDS and delivered to Colorado Springs, Pueblo West Metropolitan District, Fountain, Security, and Donala Water and Sanitation District for municipal uses;
- To the Arkansas River for irrigation and municipal use by entities in the Arkansas River east of Pueblo;
- Pueblo Dam spillway gates to the Arkansas River; and
- South Outlet Works:
 - To Fountain Valley Authority members through the Fountain Valley Conduit;

- To Pueblo West Metropolitan District for municipal use;
- To Bessemer Ditch for municipal and irrigation use;
- Pueblo Water; and
- To the Pueblo Fish Hatchery.

Fountain Creek originates in Woodland Park along Pikes Peak in the Central Front Range of Colorado. It flows southeasterly to join with the Monument Creek watershed which drains an area south of the Palmer Divide. Monument Creek merges with Fountain Creek in Colorado Springs, Colorado. Fountain Creek then continues to flow southerly through multiple municipalities including Stratmoor, Security, Widefield, and Fountain. Fountain Creek eventually merges with the Arkansas River in Pueblo, Colorado. Fountain Creek is 74.5 miles long and has a watershed of approximately 927 square miles (Reclamation, 2018b).

The FMIC is an incorporated mutual ditch company serving its approximately 6,000 shareholders pro rata from eight Fountain Creek water rights. FMIC water rights are diverted from Fountain Creek, and portions of such FMIC water rights not utilized for irrigation can be measured at the Spring Creek Augmentation Station. These water rights can be stored in Big Johnson Reservoir via the FMIC Ditch, and can be released from Big Johnson Reservoir via McCrae Augmentation Station. As confirmed by numerous decrees of the Division 2 Water Court, FMIC shares have an average annual yield of 0.7 AF per share.

The AVIC diverts from the south bank of Cottonwood Creek in Chaffee County, Colorado. Historical CU credits, now owned by Triview, from a subset of the AVIC historically irrigated area flow down from Cottonwood Creek to the confluence with the Arkansas River near Buena Vista and continue down the Arkansas River to Pueblo Reservoir. The AVIC was originally decreed on May 1, 1880, and the historical CU of the AVIC rights has yet to be decreed to Triview.

Bale diverts from the north and south banks (respectively) of the South Arkansas River approximately $\frac{3}{4}$ mile upstream of the Arkansas River confluence below Salida. Historical CU credits from both ditches will flow down from South Arkansas River to the Arkansas River below Salida and continue down the Arkansas River to Pueblo Reservoir. The Bale water rights were originally decreed on April 30, 1875 and December 31, 1898, and the historical CU of the Bale water rights has yet to be decreed to Triview.

Big Johnson Reservoir is an approximately 5,000 AF private water supply reservoir that is owned and operated by FMIC, which operates the reservoir for the benefit of its shareholders, as described above, in addition to storage during the Winter Water Storage Program. The reservoir may be expanded to 10,000 AF in the future, in accordance with the full storage right decreed in 1919.

The Excelsior Ditch diverts from the north bank of the Arkansas River in Pueblo County, CO, at a decreed maximum rate of 60cfs. The Excelsior Ditch is a combination of water rights originally adjudicated to the Bessemer Irrigation Company and the Rocky Ford High Line Canal Company and transferred to the Excelsior Irrigation Company in 1905. The historical CU of the Excelsior water rights was decreed in Case No. 04CW62, Water Division No. 2, to be an average of 0.424 AF per share.

Stonewall Springs South Reservoir is a 2,050 AF private water supply reservoir that is part of the SSRC, which was decreed by the Division 2 Water Court in Case No. 16CW3093. The South Reservoir of the SSRC is currently under construction and anticipated to be completed in 2021, and subsequent future phases (the Central Reservoir and the East Reservoir) will result in total maximum storage capacity of 19,538 AF, which was decreed with an appropriation date of December 27, 2016 (Case No. 16CW3093).

Groundwater Resources

Triview has sufficient available annual groundwater supplies to meet its total existing and planned demand. Triview's decreed groundwater water rights total over 3,722 AF per year. According to the United States Geological Survey (USGS), the Denver Basin underlies an area of about 7,000 square miles extending from Greeley south to near Colorado Springs and from the Front Range east to near Limon including the Denver metropolitan area (USGS, n.d.). Triview is seeking renewable sources to replace these nonrenewable and finite groundwater supplies, and purchased FMIC, AVIC, Bale, and Excelsior water rights in order to reduce its dependency on Denver Basin groundwater. Triview lists its groundwater water sources as nine wells, five Arapahoe Aquifer Wells and four Denver Aquifer Wells.

Baseline Conditions

Triview's operational area was modeled in two parts: 1) the Upper Arkansas River to Pueblo Reservoir (Upper Model), and 2) the Lower Arkansas River from Pueblo Reservoir to Avondale, Colorado, including Fountain Creek and Monument Creek up to the point of Triview's effluent discharge (Lower Model). A third model separate from streamflow impact evaluation was developed for point-flow estimation of exchange capacity below Pueblo Reservoir. A schematic showing the three models is in Appendix B, Figure B-1.

In the Baseline Conditions scenario Triview's operations are the same as the No Action Alternative described in Section 2.2 for each of Triview's water rights (FMIC water, Excelsior water, Denver Basin groundwater, AVIC water, and Bale water).

Upper Model Baseline

The Upper Model Baseline and No Action Alternative includes two scenarios pending official water court determination of return flow obligations. In Scenario A, the water court would find that all return flow obligations from AVIC are due to the Arkansas River, so Triview would lease water exclusively from the Upper Arkansas River to meet the AVIC obligations in addition to Bale obligations. In Scenario B, the water court would find that some or all return flow obligations from AVIC are due to Cottonwood Creek, so Triview would lease water from the UAWCD in Cottonwood Lake to meet those obligations in addition to leasing Upper Arkansas River water to meet return flow obligations associate with Bale.

Scenarios A and B are operationally identical other than this difference in leased water for return flow replacement. Historical CU, return flows, and leased return flow replacement water all flows downstream to Pueblo Reservoir. Only Historic CU is stored in and released from Pueblo Reservoir. In Appendix B, Figure B-2 shows the Upper Model Scenario A system schematic at Baseline Conditions and Figure B-3 shows the Upper Model Scenario B system schematic at Baseline Conditions.

Lower Model Baseline

In the Lower Model Baseline and No Action Alternative, Upper Arkansas CU flows flow through Pueblo Reservoir and are diverted at the Excelsior Ditch for storage in SSRC. FMIC flows, reusable return flows, and Excelsior Ditch shares are also diverted at the Excelsior Ditch for storage in SSRC. All Triview water in SSRC may be leased to downstream users and thus released from the SSRC Outlet to the Arkansas River. Figure B-4 in Appendix B shows the Lower Model system schematic at Baseline Conditions.

Proposed Action

Five gages and one reservoir are included as gages of primary interest. Results for these gages are presented below. A detailed discussion of results for each of these gages, and for other secondary interest gages can be

found in Appendix A the *Triview Metropolitan District – Daily Surface Water Hydrology and Reservoir Model Documentation and Results Summary* (LRE, 2021).

Upper Model Proposed Action

In the Upper Model there is one Proposed Action for each Baseline scenario. The Proposed Actions differ from Baseline only in that AVIC CU and Bale CU will be conveyed in the Arkansas River, stored in the Pueblo Reservoir account, and withdrawn to meet Triview demand via the SDS. This Proposed Action would have no flow impacts, with no effect on the Voluntary Flow Management Program in the Upper Arkansas River, and would improve river conditions relative to historic AVIC and Bale operations by adding historic CU to the river.

Lower Model Proposed Action

In the Lower Model there would be one operational scenario under the Proposed Action, with conditional operations dependent on exchange capacity and other system variables.

Proposed Action without Exchange

The Proposed Action without Exchange Potential differs from Baseline and No Action in that Upper Arkansas CU is withdrawn from Pueblo Reservoir via the SDS and Triview's storage in SSRC is held for exchange at a later date instead of being leased to downstream users.

Proposed Action with Exchange

The Proposed Action with Exchange Potential differs from the Proposed Action without Exchange potential in that FMIC flows and reusable return flows are quantified at FOUMOUCO for exchange into Pueblo Reservoir from the confluence of Fountain Creek and the Arkansas River, and exchanged to the maximum extent possible. Additionally, Excelsior Ditch flows are exchanged into Pueblo Reservoir from the Excelsior Ditch diversion point to the maximum extent possible, with exchange capacity impacted by what was exchanged from FOUMOUCO. When exchange capacity remains after Excelsior Ditch, Triview releases water from the SSRC for exchange into Pueblo Reservoir from the SSRC Outlet above ARKAVOCO.

In Appendix B, Figure B-5 shows the Upper Model Scenario A system schematic under the Proposed Action, Figure B-6 shows the Upper Model Scenario B system schematic under the Proposed Action, Figure B-7 shows the Lower Model schematic under the Proposed Action without exchange potential, and Figure B-8 shows the Lower Model system schematic under the Proposed Action with exchange potential.

For hydrology and hydrology-related impacts, the following definitions were used.

- **Negligible:** Changes in streamflow or reservoir contents would be unmeasurable or of imperceptible consequence. The change would be considered unmeasurable or imperceptible if it is below the estimated accuracy of USGS stream stage measurements, which is 2 percent (Sauer and Turnipseed, 2010).
- **Minor:** Predicted changes would be measurable (i.e., greater than 2 percent), but the change is within the accuracy of USGS streamflow measurements. The accuracy of USGS streamflow records for individual days is generally within 10 percent (as described by USGS, 1992). For consistency, this same percentage is used for reservoir effects.
- **Moderate:** Measurable changes to streamflow would be greater than 10 percent but would not likely cause an adverse effect with regional consequences. Note that moderate intensity impacts may be reduced by consideration of the context and/or duration of the impacts.

- **Major:** Measurable changes to streamflow would be greater than 10 percent and would cause an adverse effect with regional consequences. Note that major intensity impacts may be reduced by consideration of the context and/or duration of the impacts.

Proposed Action Impacts

Five gages and one reservoir are included as results of primary interest for impacts of the Proposed Action. Results for these gages are presented below. Of the 12 gages modeled between the Upper and Lower Models, nine experienced negligible impacts due to the Proposed Action's rerouting of flow. On average, these nine gages experienced an average daily less than 1% decrease in flow between the Proposed Action and Baseline Conditions, and three gages experienced negligible and minor impacts. A detailed discussion of results for each of these gages, and for other gages can be found in Appendix A the *Triview Metropolitan District – Daily Surface Water Hydrology and Reservoir Model Documentation and Results Summary* (LRE, 2021).

Below is a summary analysis of the modeling results for the five primary gages: ARKWELCO, ARKPORCO, ARKPUECO, ARKMOFCO, and ARKAVOCO. For each gage, the results presented reflect the maximum day. The maximum day results display the maximum day's change in flow for the Proposed Action from Baseline Conditions for each month in each year type.

Arkansas River near Wellsville, CO (ARKWELCO)

There is no modeled change in flow or impact at ARKWELCO.

Arkansas River at Portland, CO (ARKPORCO)

There is no modeled change in flow or impact at ARKPORCO.

Arkansas River above Pueblo, CO (ARKPUECO)

The average modeled daily impact at ARKPUECO for the Proposed Action for all year types is -0.59%, which is characterized as a negligible impact (< 2% change in streamflow). Table 3 displays the maximum day's change in flow for the Proposed Action from Baseline Conditions for each month in each year type.

The Arkansas River above Pueblo (ARKPUECO) gage experiences negligible or minor impacts to streamflow from the Proposed Action with the exception of one event in water year 2003 (an average water year). The model predicts a maximum daily decrease in flow of 12.3% on October 1 and 2, 2002 (WY 2003); however, these impacts can be tempered by other factors such as duration and context. This two-day impact in October 2002 is classified as a negligible impact based on its very limited duration (2 days over a 22-year period, or 0.02% of days); in terms of context, it is questionable whether flows of less than 1 cfs are even discernable in this wide section of the lower Arkansas. These maximum impact days occur in late 2002, a record drought year, but fall into water year 2003, an average year in the model period of record. Note that impacts modeled in October 2002 would not actually occur, because Reclamation curtails contract operations when flows below ARKPUECO and the Hatchery are less than 50 cfs (4.2 Environmental Commitments). Figure 3, Figure 4, and Figure 5 depict the average daily impacts modeled at ARKPUECO in each month for dry, average, and wet year-types, respectively, for the Proposed Action and Baseline/No Action Alternative conditions. For these reasons, this is considered a non-impact.

Table 3: Worst Case Maximum Daily Impacts Modeled at ARKPUECO

	Maximum Day of Dry Years (2002, 2012, 2013)					Maximum Day of Average Years (1998, 1999, 2000, 2001, 2003, 2004, 2005, 2006, 2007, 2009, 2010, 2014, 2016, 2017, 2018, 2019)					Maximum Day of Wet Years (1997, 2008, 2011, 2015)				
	Baseline Condition	No Action	Proposed Action	Difference		Baseline Condition	No Action	Proposed Action	Difference		Baseline Condition	No Action	Proposed Action	Difference	
	cfs	cfs	cfs	cfs	%	cfs	cfs	cfs	cfs	%	cfs	cfs	cfs	cfs	%
Jan	40.0	40.0	40.0	0.0	0.0%	1.2	1.2	1.2	0.0	0.0%	52.0	52.0	52.0	0.0	0.0%
Feb	63.0	63.0	63.0	0.0	0.0%	2.2	2.2	2.2	0.0	0.0%	25.0	25.0	25.0	0.0	0.0%
Mar	110.0	110.0	101.0	-9.0	-8.2%	140.0	140.0	131.0	-9.0	-6.4%	248.0	248.0	239.0	-9.0	-3.6%
Apr	124.0	124.0	115.0	-9.0	-7.3%	143.1	143.1	134.0	-9.1	-6.4%	386.0	386.0	377.0	-9.0	-2.3%
May	153.0	153.0	144.0	-9.0	-5.9%	249.1	249.1	240.0	-9.1	-3.6%	516.0	516.0	507.0	-9.0	-1.7%
Jun	194.1	194.1	185.0	-9.1	-4.7%	786.2	786.2	773.0	-13.2	-1.7%	1803.8	1803.8	1791.0	-12.8	-0.7%
Jul	147.4	147.4	138.0	-9.3	-6.3%	199.0	199.0	194.0	-5.0	-2.5%	922.2	922.2	913.0	-9.2	-1.0%
Aug	145.4	145.4	136.0	-9.4	-6.5%	167.3	167.3	158.0	-9.3	-5.5%	574.4	574.4	565.0	-9.4	-1.6%
Sep	151.4	151.4	142.0	-9.4	-6.2%	138.3	138.3	129.0	-9.3	-6.7%	343.9	343.9	333.0	-10.9	-3.2%
Oct	112.3	112.3	103.0	-9.3	-8.3%	0.6	0.6	0.6	-0.1	-12.3%	228.2	228.2	219.0	-9.2	-4.0%
Nov	172.0	172.0	168.0	-4.0	-2.3%	155.0	155.0	146.0	-9.0	-5.8%	266.0	266.0	257.0	-9.0	-3.4%
Dec	38.0	38.0	38.0	0.0	0.0%	0.5	0.5	0.5	0.0	0.0%	54.0	54.0	54.0	0.0	0.0%

X > 10% decrease Flow < 50 cfs

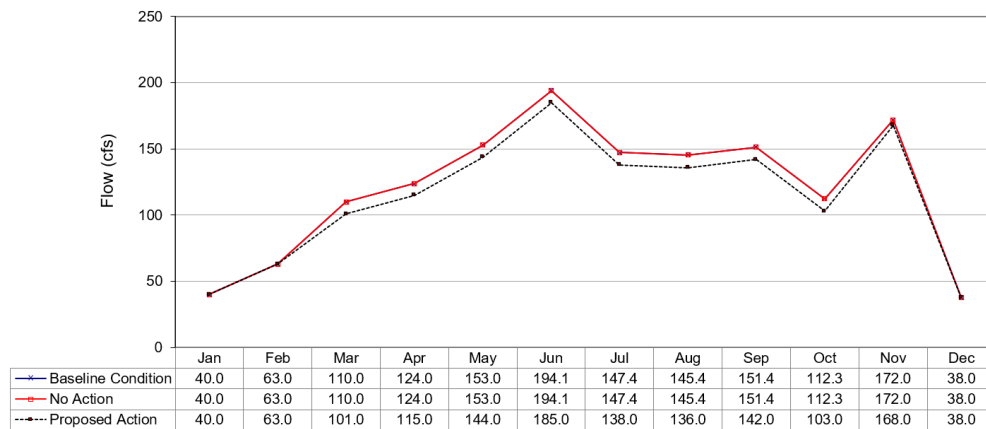


Figure 3. Maximum Daily Impact Modeled at ARKPUECO in Each Month for All Dry Years

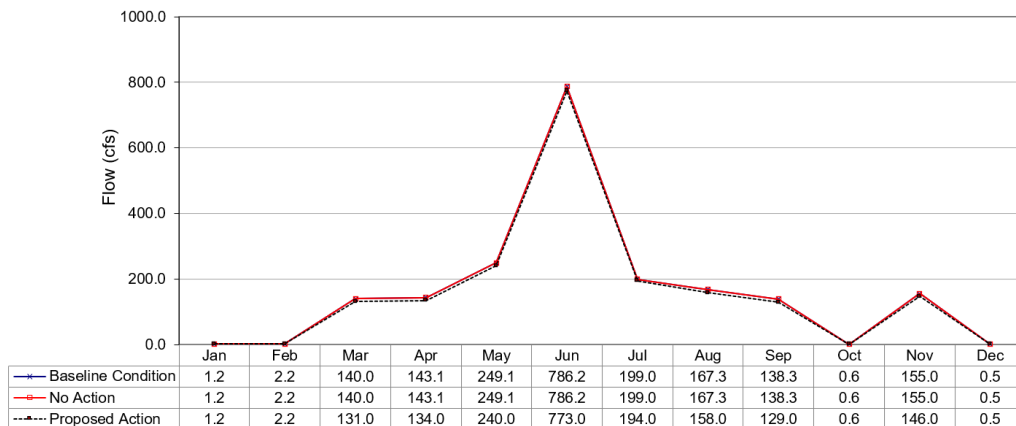


Figure 4. Maximum Daily Impact Modeled at ARKPUECO in Each Month for All Average Years

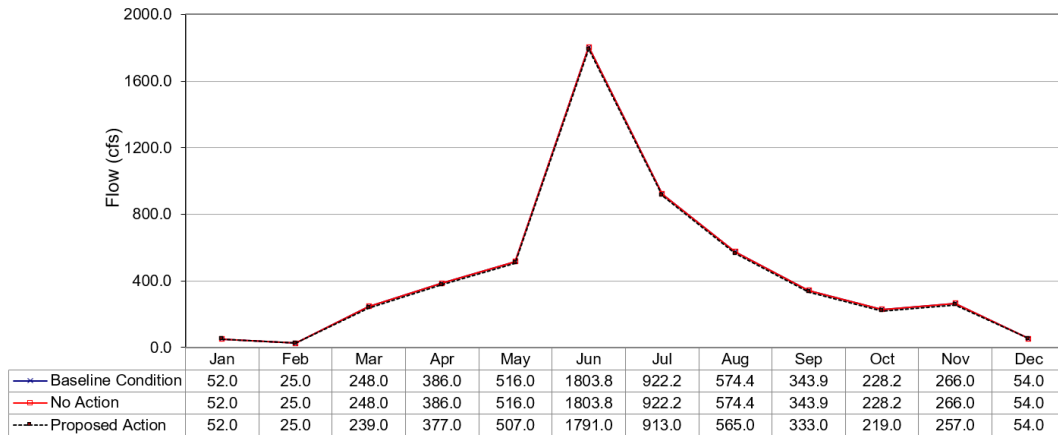


Figure 5. Maximum Daily Impact Modeled at ARKPUECO in Each Month for All Wet Years

Arkansas River at Moffat Street in Pueblo, CO (ARKMOFCO)

The averaged modeled daily impact at ARKMOFCO for the Proposed Action for all year types is -0.65%, which is characterized as a negligible impact (< 2% change in streamflow). Table 4 displays the maximum day's change in flow for the Proposed Action from Baseline Conditions for each month in each year type.

The Arkansas River at Moffat St at Pueblo (ARKMOFCO) gage experiences negligible and minor impacts to streamflow from the Proposed Action. All changes to streamflow at ARKMOFCO are minor or negligible, with the maximum decrease equal to -8.4% (October of Dry years). Figure 6, Figure 7, and Figure 8 depict the average daily impacts modeled at ARKMOFCO in each month for dry, average, and wet year-types, respectively, for the Proposed Action and No Action Alternative conditions.

Table 4. Worst Case Maximum Daily Impacts Modeled at ARKMOFCO

	Maximum Day of Dry Years (2002, 2012, 2013)					Maximum Day of Average Years (1998, 1999, 2000, 2001, 2003, 2004, 2005, 2006, 2007, 2009, 2010, 2014, 2016, 2017, 2018, 2019)					Maximum Day of Wet Years (1997, 2008, 2011, 2015)				
	Baseline Condition cfs	No Action cfs	Proposed Action cfs	Difference		Baseline Condition cfs	No Action cfs	Proposed Action cfs	Difference		Baseline Condition cfs	No Action cfs	Proposed Action cfs	Difference	
				cfs	%				cfs	%				cfs	%
Jan	38.0	38.0	38.0	0.0	0.0%	1.5	1.5	1.5	0.0	0.0%	25.0	25.0	25.0	0.0	0.0%
Feb	47.0	47.0	47.0	0.0	0.0%	1.5	1.5	1.5	0.0	0.0%	12.0	12.0	12.0	0.0	0.0%
Mar	111.0	111.0	102.1	-8.9	-8.1%	122.0	122.0	113.1	-8.9	-7.3%	196.0	196.0	187.1	-8.9	-4.6%
Apr	118.7	118.7	109.1	-9.6	-8.1%	120.1	120.1	111.1	-9.1	-7.5%	364.0	364.0	355.1	-8.9	-2.5%
May	129.0	129.0	120.1	-8.9	-6.9%	2.5	2.5	2.3	-0.2	-8.2%	461.0	461.0	452.1	-8.9	-1.9%
Jun	111.1	111.1	102.1	-9.1	-8.2%	746.2	746.2	733.1	-13.2	-1.8%	1673.8	1673.8	1661.1	-12.7	-0.8%
Jul	129.3	129.3	120.1	-9.3	-7.2%	190.0	190.0	185.0	-5.0	-2.6%	836.2	836.2	827.1	-9.2	-1.1%
Aug	116.0	116.0	107.1	-8.9	-7.7%	120.3	120.3	111.1	-9.2	-7.7%	585.4	585.4	576.1	-9.3	-1.6%
Sep	131.4	131.4	122.1	-9.4	-7.1%	114.3	114.3	105.1	-9.2	-8.1%	336.9	336.9	326.1	-10.8	-3.2%
Oct	110.3	110.3	101.1	-9.2	-8.4%	163.7	163.7	154.1	-9.6	-5.9%	212.2	212.2	203.1	-9.2	-4.3%
Nov	115.0	115.0	111.0	-4.0	-3.5%	113.0	113.0	104.1	-8.9	-7.9%	265.0	265.0	256.1	-8.9	-3.4%
Dec	32.0	32.0	32.0	0.0	0.0%	1.7	1.7	1.7	0.0	0.0%	55.0	55.0	55.0	0.0	0.0%

X > 10% decrease

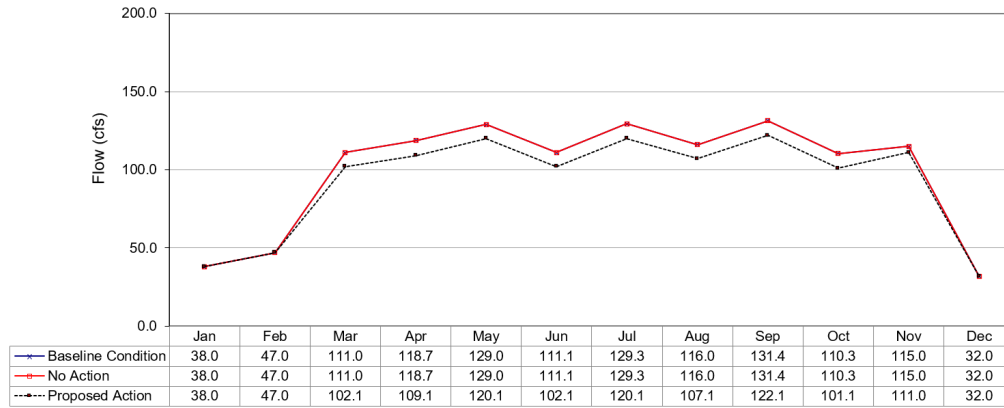


Figure 6. Maximum Daily Impact Modeled at ARKMOFCO in Each Month for All Dry Years

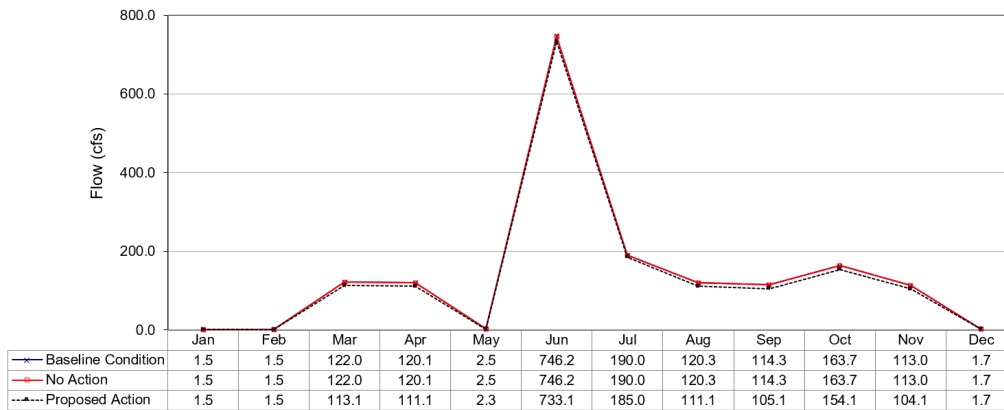


Figure 7. Maximum Daily Impact Modeled at ARKMOFCO in Each Month for All Average Years

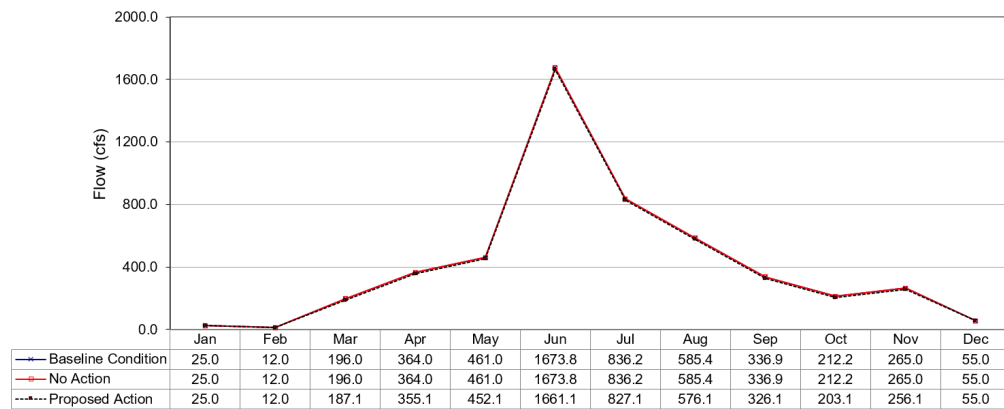


Figure 8. Maximum Daily Impact Modeled at ARKMOFCO in Each Month for All Wet Years

Arkansas River near Avondale, CO (ARKAVOCO)

The averaged modeled daily impact at ARKAVOCO for the Proposed Action for all year types is -0.01%, which is characterized as a negligible impact (< 2% change in streamflow). Table 5 displays the maximum day's change in flow for the Proposed Action from Baseline Conditions for each month in each year type.

Table 5. Worst Case Maximum Daily Impacts Modeled at ARKAVOCO

	Maximum Day of Dry Years (2002, 2012, 2013)					Maximum Day of Average Years (1998, 1999, 2000, 2001, 2003, 2004, 2005, 2006, 2007, 2009, 2010, 2014, 2016, 2017, 2018, 2019)					Maximum Day of Wet Years (1997, 2008, 2011, 2015)				
	Baseline Condition	No Action	Proposed Action	Difference		Baseline Condition	No Action	Proposed Action	Difference		Baseline Condition	No Action	Proposed Action	Difference	
	cfs	cfs	cfs	cfs	%	cfs	cfs	cfs	cfs	%	cfs	cfs	cfs	cfs	%
Jan	316.4	316.4	317.7	1.2	0.4%	153.5	153.5	154.5	1.1	0.7%	286.1	286.1	287.4	1.3	0.5%
Feb	325.0	325.0	326.4	1.4	0.4%	186.0	186.0	187.6	1.6	0.9%	293.3	293.3	294.2	0.9	0.3%
Mar	314.0	314.0	307.7	-6.3	-2.0%	402.5	402.5	387.5	-15.0	-3.7%	435.4	435.4	422.2	-13.2	-3.0%
Apr	383.0	383.0	370.9	-12.1	-3.2%	307.0	307.0	313.2	6.2	2.0%	452.0	452.0	448.9	-3.1	-0.7%
May	258.0	258.0	250.2	-7.8	-3.0%	254.0	254.0	258.1	4.1	1.6%	1540.0	1540.0	1526.5	-13.5	-0.9%
Jun	219.0	219.0	217.1	-1.9	-0.9%	855.0	855.0	848.0	-7.0	-0.8%	2910.0	2910.0	2883.6	-26.4	-0.9%
Jul	200.0	200.0	198.5	-1.5	-0.7%	1013.0	1013.0	1006.6	-6.3	-0.6%	1590.0	1590.0	1573.9	-16.1	-1.0%
Aug	224.0	224.0	222.3	-1.7	-0.8%	668.7	668.7	659.2	-9.5	-1.4%	959.0	959.0	922.0	-37.0	-3.9%
Sep	164.0	164.0	162.3	-1.7	-1.0%	515.0	515.0	508.8	-6.2	-1.2%	671.0	671.0	657.4	-13.6	-2.0%
Oct	320.0	320.0	317.3	-2.7	-0.8%	569.0	569.0	559.4	-9.6	-1.7%	428.0	428.0	424.6	-3.4	-0.8%
Nov	292.0	292.0	288.1	-3.9	-1.3%	133.0	133.0	128.4	-4.6	-3.5%	475.0	475.0	473.2	-1.8	-0.4%
Dec	294.4	294.4	295.6	1.2	0.4%	163.0	163.0	157.7	-5.3	-3.3%	292.1	292.1	293.0	0.8	0.3%

X > 10% change

The Arkansas River near Avondale (ARKAVOCO) gage experiences negligible and minor impacts to streamflow with both decreased and increased streamflow in the Proposed Action. All changes to streamflow at ARKAVOCO are minor or negligible, with the maximum decrease equal to -3.9% (August of Wet years) and the maximum increase equal to 2.0% (April of Average years). At ARKAVOCO, change relative to Baseline is the difference between the SSRC release pattern in Baseline and the net change of Proposed Action with decreased Pueblo Releases for exchange and SSRC outflows for exchange and overflow. All increases in flow are negligible. Figure 9, Figure 10, and Figure 11 depict the average daily impacts modeled at ARKAVOCO in each month for dry, average, and wet year-types, respectively, for the Proposed Action and No Action Alternative conditions.

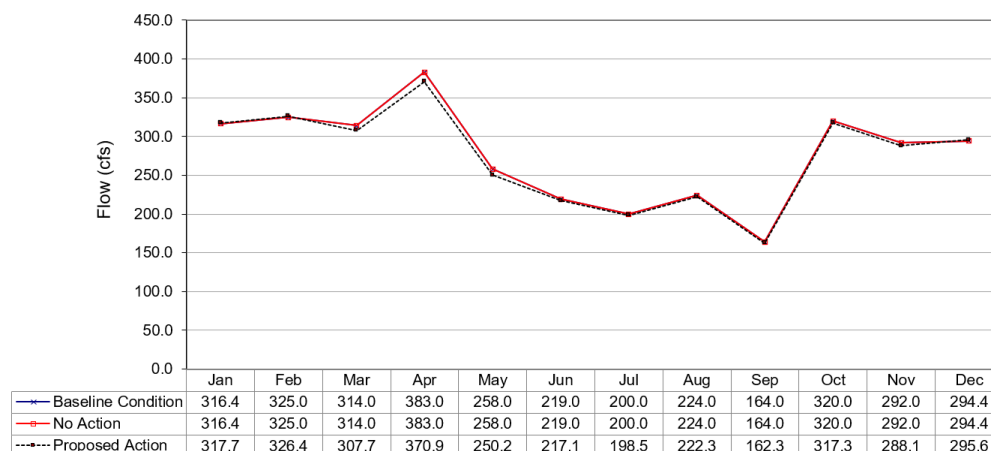


Figure 9. Maximum Daily Impact Modeled at ARKAVOCO in Each Month for All Dry Years

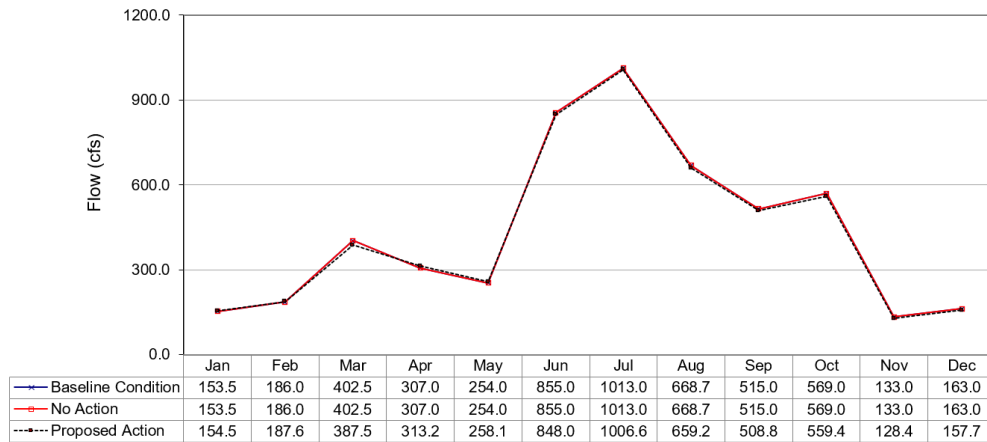


Figure 10. Maximum Daily Impact Modeled at ARKAVOCO in Each Month for All Average Years

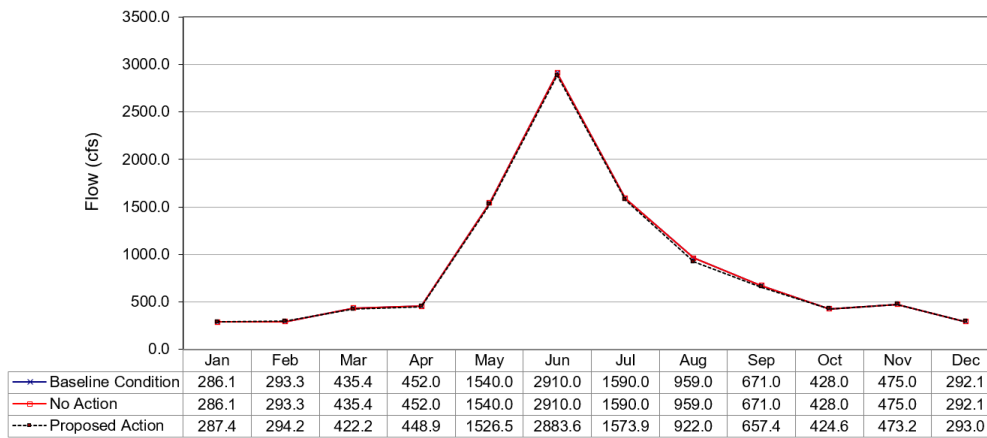


Figure 11. Maximum Daily Impact Modeled at ARKAVOCO in Each Month for All Wet Years

Pueblo Reservoir

Pueblo Reservoir experiences negligible impacts due to the Proposed Action's rerouting of flow, even under the scenario of a maximum delivery of 999 AF to Pueblo Reservoir in a single day.

Table 6 and Table 7 display the maximum daily change in reservoir elevation and surface area, respectfully, with the maximum addition of 999 AF to storage in a single day for each month in each year type. The maximum daily change is 0.35%. The average modeled daily impact to reservoir surface elevation for all year types throughout the study period is a 0.55% increase in surface area from Baseline Conditions. These impacts are characterized as negligible.

For further discussion of Hydrological impacts to the Arkansas River and the Pueblo Reservoir, along with stream model documentation and additional results at secondary gages please see Appendix A the *Triview Metropolitan District – Daily Surface Water Hydrology and Reservoir Model Documentation and Results Summary* (LRE, 2021).

Table 6. Maximum Daily Impacts to Pueblo Reservoir – Maximum Day Surface Elevation

	Maximum Day of Dry Years (2002, 2012, 2013)					Maximum Day of Average Years (1998, 1999, 2000, 2001, 2003, 2004, 2005, 2006, 2007, 2009, 2010, 2014, 2016, 2017, 2018, 2019)					Maximum Day of Wet Years (1997, 2008, 2011, 2015)				
	Baseline Condition Ft	No Action Ft	Proposed Action Ft	Difference		Baseline Condition Ft	No Action Ft	Proposed Action Ft	Difference		Baseline Condition Ft	No Action Ft	Proposed Action Ft	Difference	
				Ft	%				Ft	%				Ft	%
Jan	123.3	123.3	123.5	0.20	0.16%	108.6	108.6	108.8	0.23	0.21%	126.4	126.4	126.6	0.19	0.15%
Feb	128.5	128.5	128.6	0.15	0.12%	114.3	114.3	114.5	0.18	0.16%	131.2	131.2	131.3	0.14	0.11%
Mar	134.6	134.6	134.8	0.15	0.11%	101.9	101.9	102.2	0.26	0.25%	131.2	131.2	131.4	0.18	0.13%
Apr	131.4	131.4	131.7	0.22	0.17%	99.3	99.3	99.6	0.35	0.35%	131.2	131.2	131.4	0.24	0.18%
May	127.0	127.0	127.2	0.25	0.20%	100.0	100.0	100.3	0.35	0.35%	131.2	131.2	131.4	0.24	0.18%
Jun	102.1	102.1	102.4	0.34	0.33%	101.3	101.3	101.7	0.34	0.34%	128.9	128.9	129.2	0.24	0.19%
Jul	99.3	99.3	99.6	0.35	0.35%	102.1	102.1	102.4	0.34	0.33%	127.1	127.1	127.3	0.25	0.20%
Aug	99.9	99.9	100.3	0.35	0.35%	102.2	102.2	102.5	0.34	0.33%	117.3	117.3	117.6	0.28	0.24%
Sep	101.6	101.6	102.0	0.34	0.34%	106.0	106.0	106.4	0.33	0.31%	114.8	114.8	115.1	0.29	0.25%
Oct	113.5	113.5	113.8	0.30	0.26%	102.1	102.1	102.5	0.34	0.33%	115.4	115.4	115.7	0.29	0.25%
Nov	114.2	114.2	114.5	0.29	0.26%	102.2	102.2	102.5	0.34	0.33%	115.5	115.5	115.8	0.29	0.25%
Dec	117.7	117.7	117.9	0.26	0.22%	105.5	105.5	105.8	0.28	0.27%	120.4	120.4	120.7	0.25	0.21%



 X > 10% Increase

Table 7. Maximum Daily Impacts to Pueblo Reservoir – Maximum Day Surface Area

	Maximum Day of Dry Years (2002, 2012, 2013)					Maximum Day of Average Years (1998, 1999, 2000, 2001, 2003, 2004, 2005, 2006, 2007, 2009, 2010, 2014, 2016, 2017, 2018, 2019)					Maximum Day of Wet Years (1997, 2008, 2011, 2015)				
	Baseline Condition Acres	No Action Acres	Proposed Action Acres	Difference		Baseline Condition Acres	No Action Acres	Proposed Action Acres	Difference		Baseline Condition Acres	No Action Acres	Proposed Action Acres	Difference	
				Acres	%				Acres	%				Acres	%
Jan	4,631.1	4,631.1	4,645.3	14.20	0.31%	4,514.7	4,514.7	4,530.5	15.76	0.35%	4,243.0	4,243.0	4,254.7	11.61	0.27%
Feb	4,504.8	4,504.8	4,515.6	10.79	0.24%	4,549.8	4,549.8	4,562.3	12.44	0.27%	4,475.7	4,475.7	4,486.8	11.11	0.25%
Mar	4,476.7	4,476.7	4,489.4	12.75	0.28%	4,108.3	4,108.3	4,117.8	9.47	0.23%	4,243.0	4,243.0	4,254.5	11.46	0.27%
Apr	4,502.0	4,502.0	4,519.3	17.22	0.38%	4,626.4	4,626.4	4,646.4	19.99	0.43%	4,482.3	4,482.3	4,501.5	19.20	0.43%
May	4,092.8	4,092.8	4,108.3	15.52	0.38%	4,511.4	4,511.4	4,532.1	20.77	0.46%	4,492.6	4,492.6	4,513.4	20.72	0.46%
Jun	3,762.5	3,762.5	3,779.1	16.65	0.44%	3,452.3	3,452.3	3,469.6	17.30	0.50%	4,475.7	4,475.7	4,496.6	20.93	0.47%
Jul	3,608.5	3,608.5	3,620.8	12.29	0.34%	3,286.3	3,286.3	3,304.4	18.17	0.55%	4,489.8	4,489.8	4,510.6	20.84	0.46%
Aug	3,499.5	3,499.5	3,516.4	16.89	0.48%	3,442.6	3,442.6	3,459.9	17.33	0.50%	3,763.1	3,763.1	3,779.7	16.61	0.44%
Sep	3,360.4	3,360.4	3,375.4	14.99	0.45%	4,476.2	4,476.2	4,494.4	18.18	0.41%	3,406.7	3,406.7	3,424.3	17.53	0.51%
Oct	3,324.9	3,324.9	3,342.9	17.96	0.54%	4,582.4	4,582.4	4,602.0	19.55	0.43%	3,444.4	3,444.4	3,461.7	17.34	0.50%
Nov	4,475.7	4,475.7	4,496.1	20.34	0.45%	4,473.4	4,473.4	4,494.3	20.90	0.47%	3,445.6	3,445.6	3,462.9	17.33	0.50%
Dec	3,767.6	3,767.6	3,780.5	12.89	0.34%	4,476.2	4,476.2	4,492.4	16.20	0.36%	3,762.5	3,762.5	3,776.8	14.27	0.38%

 X > 10% Increase

No Action Alternative

The No Action Alternative would involve a willing buyer or leaser acquiring Triview's Upper Arkansas water rights and using them without the need for a federal action, so it is assumed that the water rights would release from Pueblo Reservoir and flow down the Arkansas River for delivery to lessors. As with Baseline conditions, Triview would divert the Upper Arkansas water rights at Excelsior Ditch to re-time flows in releases from SSRC to downstream lessees. Triview's effluent return flow pattern would occur for the same time period, in the same amount, and at the same rate in the No Action Alternative as they currently operate, because the proposed excess capacity and water storage contracts serves only to replace groundwater supply with renewable supply. There would be no effects on water rights under the No Action Alternative.

3.4 Water Rights

Baseline Conditions

Water rights in Colorado’s Arkansas River Basin (Division 2) are adjudicated in Colorado Water Court and are administered by CDWR under the “first in time, first in right” Prior Appropriation Doctrine. Water rights allow the water rights owner to apply native flows for beneficial uses according to availability. When there is not enough native flow to meet all the water rights, the CDWR administers a “call” to ensure senior water rights owners receive sufficient flows to meet the decrees before junior water rights holders. A decreed storage water right is necessary to legally store water in Colorado. The CDWR also administers Arkansas River groundwater water rights through a permit process.

The Arkansas River Compact was negotiated between Colorado and Kansas, signed in 1948, and subsequently enacted as state law and federal law.¹¹ This compact apportions the Arkansas River flows and conservation benefits of John Martin Reservoir. The Arkansas River Compact Administration administers the Arkansas River Compact, which does not apportion the waters in the river between the states in specific amounts or percentages of flows. Instead, the Arkansas River Compact includes language designed to protect the existing uses in both states from depletions due to future development (CWCB, 2011). See www.co-ks-arkansasrivercompactadmin.org for additional information on the Arkansas River Compact (Arkansas River Compact, 1980).

Proposed Action

Under the Proposed Action, CDWR would continue to administer all water rights and only water that entities are legally entitled to divert and store in Fry-Ark Project facilities, either through a decree, or by temporary approval of State Engineer’s Office, may be stored in a Contract with Reclamation. The Proposed Action would not change or expand contractors’ water rights or uses. Contractors could not divert any additional water in addition to that which was historically consumed, nor can they divert additional water because of increased efficiencies. Entities would continue to obtain approval from the State Engineer’s Office prior to storing any water if not included in their water right decree. Additionally, per the commitments outlined in Section 4.2 below, Triview will transport, store, and release its water in accordance with the laws of the State of Colorado. Only water stored or leased by Triview, as described in this EA, may be stored under the proposed Contract.

No Action Alternative

The No Action Alternative would involve a willing buyer or leaser acquiring Triview's Upper Arkansas water rights and using them without the need for a federal action, so it is assumed that the water rights would release from Pueblo Reservoir and flow down the Arkansas River for delivery to lessors. As with Baseline Conditions, Triview would divert the Upper Arkansas water rights at Excelsior Ditch to re-time flows in releases from SSRC to downstream lessees. Triview's effluent return flow pattern would occur for the same time period, in the same amount, and at the same rate in the No Action Alternative as they currently operate, because the proposed excess capacity and water storage contracts serves only to replace groundwater supply with renewable supply. There would be no effects on water rights under the No Action Alternative.

¹¹ (Colorado Revised Statute 37-69-101; Kansas Statutes Annotated 82a-520; and 63 Statute 145, 81st Congress, May 31, 1949)

3.5 Aquatic Resources

Baseline Conditions

The analysis area is composed of thirteen stream classification segments in the Arkansas River Basin (Table 8). Eight of the thirteen segments are classified as Aquatic Life Cold 1, one is classified as Aquatic Life Warm 1, and four are classified as Aquatic Life Warm 2.¹² Three of the thirteen segments have cold stream one (CS-I) temperature standards, three of the segments have cold stream two (CS-II) temperature standards, four of the segments has warm stream two (WS-II) temperature standards, and three have site-specified temperature standards¹³:

Table 8. Applicable Aquatic Life Classifications and Temperature Standards

Segment	Description	Aq. Life Classifications	Temperature Standards
COARUA01a	All streams and wetlands within Mount Massive and Collegiate Peaks Wilderness areas	Aq. Life Cold 1	CS-I
COARUA02c	Mainstem of the Arkansas River from a point immediately above the confluence with the Lake Fork to a point immediately above the confluence with Lake Creek	Aq. Life Cold 1	CS-I
COARUA03	Mainstem of the Arkansas River from a point immediately above the confluence with the Lake Creek to the Chaffee/Fremont County line	Aq. Life Cold 1	CS-II
COARUA04a	Mainstem of the Arkansas River from the Chaffee/Fremont County Line to a point immediately above Highway 115 bridge, due east of Florence	Aq. Life Cold 1	Varies*
COARUA04b	Mainstem of the Arkansas River from a point immediately above Highway 115 bridge, due east of Florence, to the inlet of Pueblo Reservoir	Aq. Life Warm 1	WS-II
COARMA20	Pueblo Reservoir	Aq. Life Cold 1	Varies**
COARUA05a	All tributaries to the Arkansas River, including wetlands, from the source to immediately below the confluence with Brown's Creek, except for specific listings in segments 5b through 12b.	Aq. Life Cold 1	CS-I

¹² "(i) Class I - Cold Water Aquatic Life: These are waters that (1) currently are capable of sustaining a wide variety of cold water biota, including sensitive species, or (2) could sustain such biota but for correctable water quality conditions. Waters shall be considered capable of sustaining such biota where physical habitat, water flows or levels, and water quality conditions result in no substantial impairment of the abundance and diversity of species. (ii) Class 1 - Warm Water Aquatic Life: These are waters that (1) currently are capable of sustaining a wide variety of warm water biota, including sensitive species, or (2) could sustain such biota but for correctable water quality conditions. Waters shall be considered capable of sustaining such biota where physical habitat, water flows or levels, and water quality conditions result in no substantial impairment of the abundance and diversity of species. (iii) Class 2- Cold and Warm Water Aquatic Life These are waters that are not capable of sustaining a wide variety of cold or warm water biota, including sensitive species, due to physical habitat, water flows or levels, or uncorrectable water quality conditions that result in substantial impairment of the abundance and diversity of species." (Colorado Water Quality Control Commission, 2017)

¹³ "Cold Stream Tier I temperature criteria apply where cutthroat trout and brook trout are expected to occur. Cold Stream Tier II temperature criteria apply where cold-water aquatic species, excluding cutthroat trout or brook trout, are expected to occur... Warm Stream Tier I temperature criteria apply where common shiner, johnny darter, or orangethroat darter, or stonecat are expected to occur... Warm Stream Tier II temperature criteria apply where brook stickleback, central stoneroller, creek chub, finescale dace, longnose dace, mountain sucker, northern redbelly dace, razorback sucker, or white sucker are expected occur, and none of the more thermally sensitive species in Tier I are expected to occur..." (Colorado Water Quality Control Commission, 2020a)

COARUA12b	Mainstem of Cottonwood Creek (Chaffee County), from the source to the confluence with the Arkansas River; South Fork of the Arkansas, including all tributaries and wetlands, from the National Forest boundary to the confluence with the Arkansas River	Aq. Life Cold 1	CS-II
COARMA02	Mainstem of the Arkansas River from the outlet of Pueblo Reservoir to a point immediately above the confluence with Wildhorse/Dry Creek Arroyo	Aq. Life Cold 1	CS-II
COARLA01a	Mainstem of the Arkansas River from a point immediately above the confluence with Fountain Creek to immediately above the Colorado Canal headgate near Avondale	Aq. Life Warm 2	Varies***
COARFO02a	Mainstem of Fountain Creek from a point immediately above the confluence with Monument Creek to a point immediately above the State Highway 47 Bridge.	Aq. Life Warm 2	WS-II
COARFO02b	Mainstem of Fountain Creek from a point immediately above the State Highway 47 Bridge to the confluence with the Arkansas River.	Aq. Life Warm 2	WS-II
COARFO06	Mainstem of Monument Creek, from the boundary of National Forest lands to the confluence with Fountain Creek.	Aq. Life Warm 2	WS-II

Aq. Life Cold 1 – Water capable of sustaining cold water species, including sensitive species, or has the ability to sustain cold water species but for correctable water quality conditions.

Aq. Life Warm 1 – Water capable of sustaining warm water species, including sensitive species, or has the ability to sustain warm water species but for correctable water quality conditions.

Aq. Life Warm 2 – Water not capable of sustaining a wide variety of warm water biota, including sensitive species, due to physical habitat, water flows or levels, or uncorrectable water quality conditions that result in substantial impairment of the abundance and diversity of species.

CS-I – Temperature standards that apply when cutthroat and brook trout are present.

CS-II – Temperature standards that apply when cold water species, with the exception of cutthroat and brook trout, are present.

WS-II – Temperature criteria apply where brook stickleback, central stoneroller, creek chub, finescale dace, longnose dace, mountain sucker, northern redbelly dace, razorback sucker, or white sucker are expected occur, and none of the more thermally sensitive species in Tier I are expected to occur.

CLL – Large Cold Lakes temperature criteria apply to lakes and reservoirs with a surface area equal to or greater than 100 acres surface area.

Varies* – DM = CS-II and MWAT = CS-II from November 1st through March 31st; DM = 24.8 deg C and MWAT = 22.1 deg C from April 1st through October 31st.

Varies** - DM = CLL and MWAT = CLLI from January 1st to March 31st; DM = CLL and MWAT = 23.6 deg C from April 1st to December 31st.

Varies*** - DM = WS-II and MWAT = WS-II from January 1st to November 30th; DM = 21.5 deg C and MWAT = 20.7 deg C from December 1st to December 31st.

The Arkansas River is Colorado's longest reach of Gold Medal water, extending approximately 102 miles. In the entire state of Colorado there are only 322 miles of Gold Medal fisheries/waters, spanning across 11 different rivers and three lakes. To be designated as a Gold Medal water, the area must be able to produce a minimum of 12 "quality trout", meaning 14 or more inches in length. In addition to this, the area must also be able to produce 60 pounds of stocking stock per acre, i.e., the amount of living organisms in the ecosystem which includes fish, vegetation, and macroinvertebrates. Lastly, the waters must be accessible to the public. The Upper Arkansas River's 102 miles were formally designated as Gold Medal quality in 2014 (Trout Unlimited (TU), 2015).

The Greenback cutthroat trout were thought to be extinct, but small populations were rediscovered and in 1978 their status was changed from endangered to threatened, due to recovery efforts as documented by Colorado Parks and Wildlife (CPW) (CPW, 2021b). There are no protected populations of the Federal and State listed threatened greenback cutthroat trout in the Project Area. Greenback cutthroat trout are only found in the Arkansas River Basin within Bear Creek (Noble, 2021). Yellowfin trout were once native to the Arkansas River, but by the early 1900's were extirpated from the basin. Brown trout, an adaptable species were imported to the United States from Europe in the late 1800's and are now the most common fish in the Arkansas River. Rainbow trout, a non-native species like the Brown trout, were imported to the Arkansas River from California (CPW, 2021b). Lake Fork Creek supports a self-sustaining brown and brook trout population. Heavy metals from acid mine drainage leaching into the Arkansas River may impact the life span of the fish living there due to the heavy mining activity in the area. In the 1980s, clean-up efforts were initiated in the basin and since then have improved the health of the fish populations (CPW, 2021b).

Pueblo Reservoir is home to a wide variety of fish species, including Black Crappie, Blue Catfish, Bluegill, Channel Catfish, Common Carp, Cutbow, European Rudd, Flathead Catfish, Gizzard Shad, Largemouth Bass, Rainbow Trout, Saugeye, Smallmouth Bass, Spotted Bass, Walleye, White Sucker, Wiper, and Yellow Sucker. CPW stocks many of these fish species within the reservoir on an annual basis. The Walleye and Saugeye populations are quite successful, and allows for an egg take operation that supplies other Colorado waters with millions of young walleye. Along with eggs, CPW also takes Walley and Saugeye from Pueblo Reservoir to stock lakes and reservoirs around the state, and even trades the fish with other states to obtain fish that are harder to produce in Colorado, such as Wiper. Higher water levels in the reservoir are desirable for the fish. When water levels are higher, trees and brush may become flooded for extended periods, providing ideal habitat for the various fish species that call Pueblo Reservoir home, boding well for young fish survival (CPE, 2020d).

Proposed Action

The Proposed Action does not involve construction activities or other on-the-ground changes. Hydrologic changes are largely negligible, and only negligible impacts to aquatic life are anticipated. Therefore, the Proposed Action is anticipated to have insignificant impacts on the flows of the Arkansas River both upstream and downstream of Pueblo Reservoir. As the hydrology model predicted negligible increases in water levels and surface area of Pueblo Reservoir as a result of the Proposed Action, there are also no anticipated negative impacts to the various fish species found within the reservoir. There are no anticipated impacts to aquatic resources as a result of the Proposed Action.

The Proposed Action will not decrease the flows of the Arkansas River below Pueblo Reservoir to levels that would be harmful to aquatic life because Reclamation will limit excess capacity contract operations that will affect the Arkansas River below Pueblo Reservoir (as measured by adding the flow at the Above Pueblo Gage to fish hatchery return flows) when flows are ≤ 50 cfs. This is further described in Section 4.2 - Environmental Commitments below.

No Action Alternative

The No Action Alternative will use the same water rights as the Baseline Conditions and because of this resulting return flows would be for the same time period and in the same amount and rate. There would be no effects on aquatic species.

3.6 Water Quality

Baseline Conditions

The analysis area includes thirteen stream classification segments in the Arkansas River Basin; seven in the Upper Arkansas River Basin, one in the Middle Arkansas River Basin, two in the Lower Arkansas River Basin, and three in the Fountain Creek Basin. Use classifications include a combination of Agriculture, Aquatic Life Cold 1, Aquatic Life Warm 1, Recreate E, and Water Supply. Temperature standards for three segments are CS-I, while three segments are CS-II, four are WS-II, and three are site-specific. A number of these segments also have temporary modifications for chronic arsenic that expire on December 31, 2024. Temporary modifications are temporary variances to water quality standards. While temporary modifications are in place, attainment of stream standards continues to be assessed based on the underlying standards. The classification and numeric standards for the Arkansas River Basin can be found in Regulation 32, with corresponding standards tables in the Regulation 32 Appendix (Colorado Water Quality Control Commission, 2020b). Table 9 identifies the classifications, temperature standards, temporary modifications, and shows which segments are currently included on the 303(d) List of Impaired Segments and which are on the Monitoring and Evaluation List (M&E List) (Colorado Water Quality Control Commission, 2019).

Table 9. Applicable Regulation 32 Stream Segmentations and Information

Segment	Description	Class.	Temporary Mods.	Temperature Standards	303(d) List	M&E List
COARUA01a	All streams and wetlands within Mount Massive and Collegiate Peaks Wilderness areas	Aq. Life Cold 1	None	CS-I	--	--
COARUA02c	Mainstem of the Arkansas River from a point immediately above the confluence with the Lake Fork to a point immediately above the confluence with Lake Creek	Aq. Life Cold 1	Arsenic (12/31/2024)	CS-I	Arsenic	--
COARUA03	Mainstem of the Arkansas River from a point immediately above the confluence with the Lake Creek to the Chaffee/Fremont County line	Aq. Life Cold 1	Arsenic (12/31/2024)	CS-II	--	--
COARUA04a	Mainstem of the Arkansas River from the Chaffee/Fremont	Aq. Life Cold 1	Arsenic (12/31/2024)	Varies	--	Temperature

	County Line to a point immediately above Highway 115 bridge, due east of Florence					
COARUA04b	Mainstem of the Arkansas River from a point immediately above Highway 115 bridge, due east of Florence, to the inlet of Pueblo Reservoir	Aq. Life Warm 1	Arsenic (12/31/2024)	WS-II	--	Arsenic and Manganese
COARMA20	Pueblo Reservoir	Aq. Life Cold 1	Arsenic (12/31/2024)	Varies	--	--
COARUA05a	All tributaries to the Arkansas River, including wetlands, from the source to immediately below the confluence with Brown's Creek, except for specific listings in segments 5b through 12b.	Aq. Life Cold 1	Arsenic (12/31/2024)	CS-I	Arsenic, Cadmium, Copper, Manganese, and Zinc*	Macro-invertebrates and Lead*
COARUA12b	Mainstem of Cottonwood Creek (Chaffee County), from the source to the confluence with the Arkansas River; South Fork of the Arkansas, including all tributaries and wetlands, from the National Forest boundary to the confluence with the Arkansas River.	Aq. Life Cold 1	Arsenic (12/31/2024)	CS-II	--	--
COARMA02	Mainstem of the Arkansas River from the outlet of Pueblo Reservoir to a point immediately above the confluence with Wildhorse/Dry Creek Arroyo	Aq. Life Cold 1	Arsenic (12/31/2024) Temperature (7/1/2021)	CS-II	Temperature and Selenium	--

COARLA01a	Mainstem of the Arkansas River from a point immediately above the confluence with Fountain Creek to immediately above the Colorado Canal headgate near Avondale	Aq. Life Warm 2	No Temp. Mods. But has a discharger-specific variance for Selenium and Sulfate (12/31/2028)	Varies	<i>E. coli</i> , Manganese, and Sulfate	Temperature
COARFO02a	Mainstem of Fountain Creek from a point immediately above the confluence with Monument Creek to a point immediately above the State Highway 47 Bridge.	Aq. Life Warm 2	--	WS-II	<i>E. coli</i>	Iron, Temperature, and Lead
COARFO02b	Mainstem of Fountain Creek from a point immediately above the State Highway 47 Bridge to the confluence with the Arkansas River.	Aq. Life Warm 2	--	WS-II	<i>E. coli</i> , Iron, and Temperature	--
COARFO06	Mainstem of Monument Creek, from the boundary of National Forest lands to the confluence with Fountain Creek.	Aq. Life Warm 2	--	WS-II	<i>E. coli</i> , Macro-invertebrates, Manganese, and Temperature	--

*Lake Fork below Sugarloaf Dam to the confluence with the Arkansas River.

Proposed Action

The Proposed Action does not involve construction activities or other on-the-ground changes. Hydrologic changes are negligible for all Arkansas River segments, including Pueblo Reservoir. Only negligible impacts to water quality are anticipated. The same water will flow through the Arkansas as was flowing pre-Proposed Action and there will be no change in the quality of this water, only its timing.

Under the Proposed Action, Pueblo Reservoir would continue to be classified as a large cold lake. It would still stratify in the summer and mix in the fall. For the Final Programmatic Environmental Assessment for Pueblo Reservoir Temporary Excess Capacity Storage Contracting Program, and Site Specific Environmental Assessment for Donala Water and Sanitation District 40-Year Excess Capacity Storage and Conveyance

Contract and Bureau of Land Management 40-Year Excess Capacity Storage Contract (Finding of No Significant Impacts (FONSI) No. 2019-01, and Project Nos. 2015-05 and 2015-028), Reclamation ran a Riverware model for Pueblo Reservoir to quantify the water quality impacts associated with the temporary excess capacity pool of 80,000 AF.

For this analysis, specific conductance was used as a general indicator to evaluate the effects on water quality. Triview's proposed excess capacity storage request of 999 AF falls well within the volume that was analyzed for the above referenced contract and EA. As such, the impacts from Triview's Proposed Action will be insignificant, as the results for the Temporary Excess Capacity Storage Contract analysis were all less than 1 percent and considered insignificant, and Triview's 999 AF volume is encapsulated within these results (Reclamation, 2018b). Commitment 1 in Section 4.2 below, provides assurance that Triview's 999 AF storage contract will not significantly impact Pueblo Reservoir water quality, as the 999 AF will be deducted from the available temporary excess capacity pool: The amount of storage allowable under temporary excess capacity contracts will be reduced by 999 AF, consistent with mitigation measure number 3 in EA and FONSI No. EC-1300-06-02, Temporary Excess Capacity Contracts 2006-2010, dated April 3, 2006.

Fountain Creek has historically been a geomorphologically unstable stream. High erosion in the upper portion of Fountain Creek has led to (and continues to lead to) sedimentation in the Lower portions of Fountain Creek, and at the confluence with the Arkansas River. This is primarily due to increased return flows from municipal and industrial water use and increased stormwater runoff in the Fountain Creek Basin. Under the Proposed Action, the flows/quantity of water in Monument Creek and Fountain Creek will not deviate from Baseline Conditions because the Proposed Action is replacing the use of nonrenewable Denver Basin groundwater with renewable surface water and will not directly increase Triview's service area (i.e., will not increase wastewater flows or stormwater flows to either Monument or Fountain Creek). The Proposed Action will not impact either water body negatively or beneficially for any resource described herein; as both Creeks will remain at current Baseline Conditions.

Additionally, per the commitments outlined in Section 4.2 below, by entering into a Contract with Reclamation for the use and distribution of waters of the United States, Triview's project operations shall comply with all sections of the Clean Water Act. Triview will protect water quality and comply with the Clean Water Act through complying with terms of any National Pollution Discharge Elimination System/Colorado Discharge Elimination System permits, other applicable Clean Water Act permits, and implementing best management practices and control measures during its operations as appropriate. Even in the absence of the Contract the Clean Water Act would still be applicable to all of Triview's operations. Therefore, only negligible, if any, impacts to water quality are anticipated for all segments.

No Action Alternative

The No Action Alternative will use the same water rights as the Baseline Conditions and because of this resulting return flows would be for the same time period and in the same amount and rate. There would be no effects on water quality.

3.7 Wildlife, Floodplains, Wetlands, and Riparian Vegetation

Baseline Conditions

Wildlife: A number of birds are found in the Upper and Middle Arkansas River Basin including, red-tailed hawks, golden eagles, bald eagles, merganser ducks, western tanager, mallard ducks, yellow warbler, American

goldfinch, stellar jays, Canadian geese, peregrine falcons, ferruginous hawks, turkey vultures, water ouzels, great horned owls, yellow-rumped warbler, kingfishers, and great blue herons.

Elk can also be found in the Arkansas River Basin. Elk were once the most common hoofed animal in North America; however, in the 1800s elk were almost driven to extinction. Since this time, conservation management has helped the local elk population grow to become one of the largest on the continent. Other mammals are also found in the Arkansas River Basin include Colorado mule deer, mountain goats (imported from South Dakota and Montana in the 1940s), and Rocky Mountain bighorn sheep (again hunted to near extinction in the 1800s, but reintroduced in the 1920s) (CPW, 2021b).

Vegetation: An important resource for wildlife of the Arkansas River's riparian corridor is diversity of habitats. The area between Leadville and Buena Vista is considered the Montane Zone, between 8,000 and 10,000 feet in elevation. The zone extends along the Arkansas River and its tributaries. Douglas firs grow on moist north-facing aspects, while Ponderosa pines grow on dry south-facing aspects. Ponderosa pines become increasingly more plentiful further down river (i.e., between Granite and Buena Vista). Pinon pine can also be found in dryer areas oftentimes in stands with Juniper. Throughout the semi-arid valley, there a number of cactus species such as yucca, prickly pear, and cholla, can also be found. From Salida to Pueblo the larger trees give way to shrubs and grasses. The wetlands along this stretch of the river act as "sponges", absorbing and holding large quantities of water. Along the Arkansas and its tributaries there are also thickets of short, leafy Gambel oak. Other brush, shrubs, and willows along the river and streams also provide homes for many small birds and mammals. Cottonwoods can also be found along most of the river and streams in the plains and mountain valleys. They provide roosting habitat for large birds, such as bald eagles. Downstream of Pueblo Reservoir Dam there are Jupiter trees that are estimated to be more than 200 years old (CPW, 2021a).

Floodplains, Wetlands, and Riparian Zones: Much of the Upper Arkansas River is bounded by rock; due to these surrounding land forms, it is a narrow and confined canyon topography. However, there are less confined reaches of the Arkansas River characterized by meander bars, islands, and stream side floodplains with a lush band of riparian vegetation. An example of this is the floodplain along a short stretch of the Arkansas River located in between Leadville and Granite, and another example can be found downstream of Cañon City. The predominant channel type throughout the majority of the Project Area is not suited for the development of floodplains or extensive riparian zones. The majority of the river is incised in pre-Cambrian rock, which lack floodplain development, with the exception of the reaches between Leadville and Granite and directly below Cañon City. These areas are sedimentary/alluvial out-wash materials that do allow for floodplain development (CPW, 2019).

Although the Lower Arkansas River basin has been extensively modified throughout the years, the basin contains some great wetlands with little to no impact. The Lower Arkansas River contains alluvial deposits that cover the riparian and floodplain lowlands of large tributaries and rivers. Many floodplains in the Lower Arkansas River include patches of poorly drained clay and clay loam soils that support large marsh wetlands. Deep alluvial soils associated with sandy tributaries help transport subsurface water across some plains riparian reaches. South of the Arkansas River rolling sand hills are found along with historic stabilized dunes that lack drainage. The Lower Arkansas basin contains many wetlands, water bodies and riparian areas. The majority of these wetlands are characterized as herbaceous wetlands, which include marshes seep-fed meadows, playas, and mesic herbaceous areas along floodplains and riparian corridors. Playas, seep-fed meadows complexes, and open riparian corridors dominate the northern part of the river, while large marshes occur along the floodplain of John Martin Reservoir and large shrub wetlands occur further west in Pueblo County. Fewer meadow marshes and playas are found in the southern portion of the plains; however, the southern part of

the Arkansas includes larger streams and canyons many of which include small patch wetlands (Lemly, *et. al.*, 2015).

Proposed Action

The Proposed Action does not involve construction activities or other on-the-ground changes. Hydrologic changes are largely negligible both upstream, downstream, and within Pueblo Reservoir and impacts to wildlife, vegetation, floodplains, wetlands, and riparian zones are anticipated to be negligible as a result of the Proposed Action.

No Action Alternative

The No Action Alternative will use the same water rights as the Baseline Conditions and because of this, resulting return flows would be for the same time period and in the same amount and rate. There would be no effects on wildlife, floodplains, wetlands, and riparian vegetation under the No Action Alternative.

Fry-Ark Project operational changes are primarily limited to additional storage and release from Pueblo Reservoir based on each contractors' water rights administered by the State Engineer. Modeled Pueblo Reservoir fluctuations are minor with slightly higher average reservoir elevations but within the minimum and maximum No Action Alternative Pueblo Reservoir elevation range. The Proposed Action is predicted to have no measurable effect on wildlife, wetlands, migratory birds, and paleontological resources.

Releases from Pueblo Reservoir for Reclamation's Temporary Excess Capacity Contract Program would be within Pueblo Dam's normal operating range and all exchanges administered by the State Engineer. Pueblo Dam would continue to meet its flood control purposes through operations in accordance with the Pueblo Dam Water Control Manual [United States Army Corps of Engineers (USACE), 1994]. Flood control releases when combined with downstream inflow will not exceed 6,011 cfs at the Arkansas River at Avondale gage. The availability of 27,000 ac-feet of year-round flow control space and 66,000 ac-ft of flood control space between April 15 and October 31 will not be affected and the Proposed Action is predicted to have no measurable effect on the Arkansas River floodplain. Pueblo Dam releases to meet augmentation requirements for contracts issued under Reclamation's Temporary Excess Capacity Contract Program would be contained within the existing river channel. Reclamation has also included an environmental commitment to limit temporary contract operations when Arkansas River below Pueblo Reservoir flows are ≤ 500 cfs and ≥ 50 cfs, and temporary contract operations that could cause a 50% decrease or greater in mean daily flow, as measured by adding the flow at the Above Pueblo stream gage with Pueblo Fish Hatchery return flows. This commitment in addition to recreation and fisheries benefits, benefits the Arkansas River floodplain downstream of Pueblo Dam.

3.8 Threatened, Endangered, and Special Status Species

Baseline Conditions

This section of the EA includes an assessment of the threatened and endangered species under Section 7 of the Endangered Species Act. LRE used the United States Fish and Wildlife Service (USFWS) Information for Planning and Consultation (IPaC) system and the Colorado National Heritage Program (CNHP) tracking lists to identify any proposed, candidate, threatened and endangered candidate species, as well as proposed and final designated critical habitat within the Project Area.

Table 10 shows the USFWS and CNHP federal and state-listed threatened endangered, candidate and special status species within the Arkansas River Basin and Project Area.

Table 10. Threatened and Endangered Species Potentially Found within the Arkansas River Basin

Common Name	Scientific Name	Federal Status	State Status	Aquatic Dependent	General Habitat
Amphibians					
Boreal Toad (Southern Rocky Mountain Population)	Anaxyrus boreas pop.	--	SE	Yes	Inhabit marshes, wet meadows, and the margin of streams beaver ponds, shallow lakes, and glacier kettle ponds in subalpine areas of Colorado. Typically found at elevations between 7,500 and 12,500 feet. During the summer, boreal toads can be found in shallow water or among sedges and shrubby willows where soil is damp or wet [Keinath, McGee, & Livo, 2005 and United States Department of Agriculture (USDA), 2008].
Couch's Spadefoot	Scaphiopus couchii	--	SC	No	Couch spadefoot spend the majority of their life in a dormant state several feet underground. They can be found in short grass prairies and grasslands, and cultivated lands. Couch spadefoot are tolerant of extremely dry conditions. Spadefoot leave their burrows during summer storm events to breed and lay eggs in temporary pools and puddles resulting from rain events (Arizona-Sonora Desert Museum, 1999).
Northern Leopard Frog	Lithobates pipiens	--	SC	Yes	Found at elevations between 3,000 and 12,000 feet and in a variety of aquatic habitats that include, slow moving or still water along streams and rivers, wetlands, wet meadows, the banks, and shallows of marshes, permanent or temporary pools, beaver ponds, and human constructed habitats such as earthen stock tanks and borrow pits. They are usually found at the water's edge, though they may be found far away from permanent water sources in wet meadows or during mild, wet weather (CPARC, 2020) and (CPW, (n.d.)g).
Plains Leopard Frog	Lithobates blairi	--	SC	Yes	Predominantly found along and in vegetation growing on the edge of shallow streams and ponds and in prairie wetland remnants. Requires water for breeding (CNHP, 2009). In Colorado, plains leopard frogs are

					found at elevations of approximately 5,000 feet (Smith and Keinath, 2005).
Western Narrow-mouthed Toad	Gastrophryne olivacea	--	SC	Yes	They breed in temporary ditches, edges of marshes, and flooded fields (Vitt, (n.d.)).
Birds					
American Peregrine Falcon	Falco peregrinus anatum	--	SC	No	Inhabit a variety of habitats sometimes cities. Found in open spaces associated with high cliff and bluffs, water towers, and skyscrapers. They nest near water (Audubon, (n.d.)b).
Bald Eagle	Haliaeetus leucocephalus	--	SC	No	Found along large rivers, lakes marshes, reservoirs, and seacoasts. They prefer tall, mature coniferous or deciduous trees (USFWS, 2015a)
Burrowing Owl	Athene cunicularia	--	ST	No	Found in open habitats with sparse vegetation and airports. They are associated with prairie dogs and ground squirrels whose burrows they use for nests (Cornell Lab of Ornithology, 2019a).
Ferruginous Hawk	Buteo regalis	--	SC	No	Ferruginous Hawks live in the open spaces of the west such as grasslands, prairie, sagebrush steppe, scrubland, and pinyon-juniper woodland edges at low to moderate elevations (Cornell Lab of Ornithology, 2019b)
Eastern Black Rail	Laterallus jamaicensis spp. jamaicensis	FT	--	No	Rely on dense emergent marshes, including beaver ponds (CPW, 2020a). Breeding grounds for the Eastern Black Rail can be found in the following Counties in Colorado; El Paso, Otero County, Bent County, Prowers County, Lincoln County and possibly in Crowley County.
Greater Sandhill Crane	Antigone canadensis tabida	--	SC	Yes	Found in the San Luis Valley, and breed in areas around Saguache county. Found in wetlands, and wetland habitats and large grain fields. Cranes select sites that are closely associated with water, in Colorado willow-lined streams and beaver ponds are preferred (CPW, (n.d.)k), CPW, (n.d.)f), and Graham, 2014).

Gunnison Sage-grouse	<i>Centrocercus minimus</i>	FT	--	No	Inhabits large, continuous areas of sagebrush and diverse grasses and forbs. Prime nesting habitat includes healthy wetlands and riparian ecosystems, (USFWS, (n.d.)f). Critical habitats for the Gunnison Sage-grouse are found outside the Arkansas River Basin.
Least Tern	<i>Sterna antillarum</i>	--	SE	Yes	The least tern breed in the Lower Arkansas River Basin. They nest in sandy shores of reservoirs and gravel pits. Least tern are found adjacent to wetlands and their shores. Sand bars particularly along the Arkansas River represent potential nesting habitats, however, water regulation precludes least terns from successfully nesting (CPW, 2020a).
Lesser Prairie-chicken	<i>Tympanuchus pallidicinctus</i>	--	ST	No	Inhabit sand sagebrush ecoregions that include parts of SE Colorado. Populations are small and fragmented. Lesser prairie chickens are found in Kiowa, Prowers and Baca Counties. Found in sandy short-grass prairie regions with scattered shrubs such as sand sage (Audubon, (n.d.)a).
Long-billed Curlew	<i>Numenius americanus</i>	--	SC	No	Preferred habitats include grasslands with close proximity to water. In Colorado, they are associated with ponds, reservoirs playas, and wet meadows. Found throughout eastern Colorado (CPW, (n.d.)h).
Mexican Spotted Owl	<i>Strix occidentalis lucida</i>	FT	ST	Yes	Inhabit old-growth or mature forest made up of complex structures such as riparian or conifer communities as well as rocky canyons [National Park Service (NPS), 2010]. Owls are typically found near water sources, perennial streams, creeks etc. Even small sources of water such as pools or puddles can create the proper conditions for owls (USFWS, (n.d.)d).

Mountain Plover	<i>Charadrius montanus</i>	--	SC	No	Inhabit agricultural fields, shortgrass prairies and high, open semi desert habitats (Cornell Lab of Ornithology, 2019c)
Piping Plover	<i>Charadrius melodus</i>	FT	ST	Yes	Rely on sparsely vegetated sandy shores of reservoirs and gravel pits (CPW, 2020c and USFWS, 2021a). Piping plovers' nest in John Martin Reservoir State Park and Adobe Creek Reservoir.
Plains Sharp-tailed Grouse	<i>Tympanuchus phasianellus jamesi</i>	--	SE	No	Inhabit open prairies, brushy groves, deciduous trees and coniferous forests (CPW, (n.d.)e).
Southwestern Willow Flycatcher	<i>Empidonax traillii eximius</i>	FE	--	No	Require moist microclimatic and vegetative conditions. They breed in dense riparian areas (cottonwoods/willows) near surface water and saturated soils (NPS, 2013).
Western Snowy Plover	<i>Charadrius nivosus</i>	--	SC	Yes	Inhabit a vast and varied habitats including barren to sparsely vegetated sand beaches, dry salt flats in lagoons, dune habitats, levees, reservoirs, and ponds (USFWS, (n.d.)c).
Whooping Crane	<i>Grus americana</i>	FE	SE	Yes	Can be found in mudflats around reservoirs, and agricultural areas as well as in riverine habitats. They nest in wetlands and areas dominated by bulrush among other aquatic plants which are common places for nesting (CPW, (n.d.)l, and USFWS, (n.d.)d)
Fish					
Arkansas Darter	<i>Etheostoma cragini</i>	--	ST	Yes	Inhabit spring fed streams, stream channels, and pools near shorelines. Prefer shallow, clear, and cool waters with sand and/or silt bottoms. During low-water periods when streams may be intermittent, darter populations can be found in large deep pools (USFWS, (n.d.)a, and CPW, (n.d.)a).
Bonytail Chub*	<i>Gila elegans</i>	FE	--	Yes	Bonytail chubs were once common in portions of the upper and lower Colorado River basins. Habitat found in the main-stems of the Colorado River System. Bonytail prefer backwaters with rocky or muddy bottoms and flowing pools (USFWS, 2014a, and Upper Colorado River Endangered Fish Recovery Program), (n.d.)a).

Colorado Pikeminnow*	<i>Ptychocheilus lucius</i>	FE	--	Yes	Habitat found in the main-stems of the Colorado River System (USFWS, (n.d.)e).
Flathead Chub	<i>Platygobio gracilis</i>	--	SC	Yes	Found in main-stems of streams and rivers that are high in turbidity and dissolved solids levels. Flathead chubs are associated with fast flowing streams and rivers that have sand or gravel substrates. Colorado populations are restricted to the Arkansas River Basin, Fountain Creek and the Purgatoire River (Rahel and Thel, 2004).
Greenback Cutthroat Trout	<i>Oncorhynchus clarkii stomias</i>	FT	ST	Yes	Inhabit cold-water streams and cold-water lakes with adequate stream spawning habitat present during spring. There is only one population of Greenback Cutthroat trout in the Arkansas River Basin. This population is found in Bear Creek, west of Colorado Springs. (CPW, 2015, Nobel, 2021, and Young, 2009).
Humpback Chub*	<i>Gila cypha</i>	FE	--	Yes	Habitat found in the main-stems of the Colorado River System (NPS, 2015).
Pallid Sturgeon	<i>Scaphirhynchus albus</i>	FE	--	Yes	Pallid sturgeon are bottom dwelling fish associated with sandy and fine bottom material. However, they have evolved to inhabit different river systems such as floodplains, backwaters, chutes, sloughs islands, and main channel water (USFWS, (n.d.)d).
Razorback Sucker*	<i>Xyrauchen texanus</i>	FE	--	Yes	Habitat found in the main-stems of the Colorado River System (Upper Colorado River Endangered Fish Recovery Program, (n.d.)b and USFWS, 2014b).
Rio Grande Cutthroat Trout	<i>Oncorhynchus clarkii virginalis</i>	--	SC	Yes	High elevation streams and lakes of the Rio Grande, Canadian, and Pecos River drainages [Western Native Trout Initiative (WNTI), (n.d.)]
Southern Redbelly Dace	<i>Phoxinus erythrogaster</i>	--	SE	Yes	Widely scattered into isolated populations in five drainages: Upper Arkansas, Fountain Creek, Chico Creek, Apishapa River and Big Sandy Creek. Redbelly dace occupy stream channels and off-channel wetlands (CPW, (n.d.)i, and Stasiak, 2007).
Suckermouth Minnow	<i>Phenacobius mirabilis</i>	-	SE	Yes	Found in habitats characterized by changing water chemistry, high turbidity, and variable water depths. Streams with mixed sand-gravel substrate. (Smith, 2015)

Flowering Plants					
Penland Alpine Fen Mustard	<i>Eutrema penlandii</i>	FT	--	No	Alpine meadows at elevations above 11,800 feet in the Mosquito range of the Rocky Mountains, often on east facing, gentle slopes, fed by snowmelts. Has been found in Lake, Park and Summit Counties in CO. (USFWS, (n.d.)b).
Ute Ladies'-tresses	<i>Spiranthes diluvialis</i>	FT	--	No	Ute Ladies'-tresses occur along riparian edges, gravel bars, old oxbows, high flow channels, and moist to wet meadows along perennial streams. It typically occurs in stable wetland and seepy areas associated with old landscape features within historical floodplains of major rivers where soils are both sandy and stony (Sheivak, 2014, and USFWS, 2021e).
Western Prairie Fringed Orchid	<i>Platanthera praeclara</i>	FT	--	Yes	Found often in mesic to wet tallgrass prairies and meadows. Soil moisture is fundamental for growth (USFWS, 2021f).
Insects					
Pawnee Montane Skipper	<i>Hesperia leonardus montana</i>	FT	--	No	Inhabits dry, open Ponderosa pine woodlands. Blue gramma grass and prairie gayfeather are two important food sources for the Pawnee montane skipper, (Proctor, 1998).
Uncompahgre Fritillary Butterfly	<i>Boloria acrocynema</i>	FE	--	No	Lives in patches of snow willow in alpine meads at elevations above the tree line. Found mostly on northeast-facing slopes, which tend to be the coolest and wettest microhabitats (USFWS, 2021d).
Mammals					
Black-footed Ferret	<i>Mustela nigripes</i>	FE	SE	No	Depends exclusively on prairie dog burrows for shelter. Inhabits grasslands and mixed grass prairie areas (CPW, (n.d.)c).
Black-tailed Prairie Dog	<i>Cynomys ludovicianus</i>	--	SC	No	Found in grasslands and underground borrows throughout the Great Plains (USFWS, 2021b).
Canada Lynx	<i>Lynx canadensis</i>	FT	SE	No	Lynx prefer boreal coniferous forest, made up of pines, spruces, firs and larches. This provides a thick understory and different size trees; the perfect habitat for the lynx preferred prey, the snowshoe hare. Lynx are adaptable and can be found in rocky areas, open forests, scrub brush and dunes, (CPW (n.d.)i, and USFWS, 2013). Canada lynx can be found mostly throughout western Colorado,

Preble's Meadow Jumping Mouse	<i>Zapus hudsonius preblei</i>	FT	ST	No	Inhabits densely vegetated riparian areas adjacent to water sources, however, they can also inhabit adjoining uplands. Preble's Meadow Jumping Mice are primarily nocturnal (Douglas County, 2018, CPW, 2021c, and USFWS, 2021c). Critical habitat has been designated with in the Arkansas River Drainage: Monument Creek, El Paso County (DOI, 2010.)
Swift Fox	<i>Vulpes velox</i>	--	SC	No	Native to the short grasses and mixed-grass prairies (Dowd Stukel, ed., 2011)
Wolverine	Gulo	--	SE	No	The wolverine can be found in boreal forests, mountains, open plains and the tundra or above timberline. Wolverines need large and undisturbed ranges in order to survive (Luensmann, 2008).
Reptiles					
Colorado Checkered Whiptail	<i>Aspidoscelis neotesselata</i>	--	SC	No	Found in hillsides, grasslands surrounded rocky arroyos, canyons, associated with the Arkansas River valley, roadsides, shrubby areas, and juniper-grass (CPW, (n.d.)d).
Massasauga	<i>Sistrurus tergeminus</i>	--	SC	No	Mostly associated with shortgrass prairie habitat with abundant sand sage, buffalograss, and blue grama. Habitats dominated by buffalograss and grama grasses below 5,500 feet are absolute requirements (Mackessy, 2005).
New Mexico thread snake	<i>Rena dissectus</i>	--	SC	No	Stony hillsides, prairies, and in sandy or rocky desert areas (KDWPT, (n.d.)).
Roundtail Horned Lizard	<i>Phrynosoma modestum</i>	--	SC	No	Found in the southern Great Plains. Occurred in Otero County in rocky alluvium and in Las Animas County in broken plateau. Associated with open habitat that have small rocks/pebbles. They can be found at elevations between 2,953 to 7,218 feet, where the surrounding vegetation can range from shortgrass prairie to open juniper woodlands (CPARC, 2015a).
Speckled Kingsnake	<i>Lampropeltis holbrooki</i>	--	SC	No	Inhabits floodplain fields along the Arkansas River. Speckled king snakes are found near small streams and other areas that are mostly made up of short grass prairie. In Colorado, they are found at elevations between 3,800 – 5,000 feet (CPARC, 2015b).
Texas Horned Lizard	<i>Phrynosoma cornutum</i>	--	SC		Common in arid shortgrass and sand sage prairie lacking ground litter (Montgomery and Mackessy, 2003).

Yellow Mud Turtle	Kinosternon flavescens	--	SC	Yes	Yellow mud turtle require three basic habitats, an upland hibernation site, aquatic habitat such as wetlands and other bottomlands, and a sandy site for summer dormancy and egg laying (CPW, (n.d.)m).
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FE – Federal Endangered, a plant or animal that is in danger of extinction within the foreseeable future throughout all or a significant portion of its range.

FT – Federal Threatened, a plant or animal that is likely to become endangered within the foreseeable future throughout all or a significant portion of its range.

SC – State Special Concern, although the species is not endangered or threatened, it is extremely uncommon in Colorado, or has unique or highly specific habitat requirements and deserves careful monitoring of its status. Species on the periphery of their range that are not listed as threatened may be included in this category along with those species that were once threatened or endangered but now have increasing or protected, stable populations.

SE – State Endangered, if the species is threatened with extinction throughout all or a significant portion of its range within Colorado.

ST – State Threatened, if the species is likely to become endangered within the foreseeable future throughout all or a significant portion of its range within Colorado.

*West-Slope only

Proposed Action

Arkansas Darter

The Arkansas darter is a state threatened species and a federal candidate species. This darter is native to portions of the Arkansas River Basin. It inhabits spring fed stream channels, and pools near shorelines. The Arkansas darter prefer shallow, clear, cool waters with sand and/or silt bottoms. During low flow periods when streams may be intermittent, darter populations can be found in large deep pools (USFWS, (n.d.)a) and CPW, (n.d.)a). Local extinction of the Arkansas darter is attributed to large-scale withdrawals of groundwater leading to dewatering streams. Hydrologic changes associated with the Proposed Action are largely negligible. Therefore, the Proposed Action is not anticipated to negatively impact the Arkansas darter or the species' habitat.

Bald Eagle

The bald eagles is listed as a species of concern in the state of Colorado. Bald eagles are federally protected under the Migratory Bird Treaty Act (MBTA) (16 U.S.C. 703-712) and the Bald and Golden Eagle Protection Act (16 U.S.C. 668-668c) (CPW, 2020e). Bald eagles are often found near large rivers, lakes, and reservoirs, often associated with tall mature coniferous and deciduous trees (CPW, (n.d.)c). No construction activities are associated with the Proposed Action and changes in hydrology are not predicted to result in changes to adversely affect aquatic and adjacent riparian habitats. Therefore, it is anticipated that the Proposed Action will not have an effect on the bald eagle or the species' habitat.

Black-footed Ferret

The black-footed ferret is a federal endangered and a state endangered species. Black-footed ferrets inhabit grasslands, mixed grass prairie areas, and depend exclusively on prairie dog burrows for shelter. Black-footed ferret populations have not been abundant in Colorado; however, in 2013 CPW, USFWS, and other partners began working to return black-footed ferrets to Colorado. These collaborative actions include working with private and public landowners on the eastern plains of Colorado, and releasing black-footed ferrets to black-tailed prairie dog complexes (CPW, (n.d.)c). The Proposed Action will have no effect on black-footed ferrets or the species' habitat.

Eastern Black Rail

Eastern black rail rely on wet sedge meadows and dense emergent marshes (CPW, 2020a). In Colorado, eastern black rails use shallow wetlands that are dominated by cattails. The eastern black rail is listed as a federally threatened species and it's protected under the Migratory Bird Treaty Act. Current range and breeding grounds for the black rail include the following counties in Colorado; El Paso, Otero County, Bent County, Prowers County, Lincoln County and possibly in Crowley County (USFWS, 2020). Hydrologic changes associated with the Proposed Action are predicted to be largely negligible; therefore, impacts to wildlife, vegetation, floodplains, wetlands, and riparian zones are anticipated to be negligible. As a result, the Proposed Action will have no effect on the eastern black rail or the species' habitat.

Flathead Chub

Although not a federally threatened, endangered, or sensitive species, the flathead chub it is a species of special concern in the state of Colorado. Flathead chub are associated with river mainstems that are high in turbidity and dissolved solids and are usually fast flowing with sand or gravel substrates. Colorado populations are limited to the Arkansas River Basin, Fountain Creek, and the Purgatoire River. Major threats include habitat alterations due to development and operations of reservoirs on large rivers, reducing flows and turbidity levels, and fragmented rivers (CPW, 2015 and Rahel & Thel, 2004). Any hydrologic changes associated with the Proposed Action are predicted to be negligible. Therefore, the Proposed Action will have no significant changes to the flow or turbidity levels of the Arkansas River that could impact the flathead chub or its habitat.

Greenback Cutthroat Trout

The greenback cutthroat trout is a federally and state threatened species. Greenback cutthroat trout were once native to the Arkansas River Basin, however, due to anthropogenic influences, populations declined and they were thought to be extinct. Recent studies have found that the only known remaining populations of greenback cutthroat trout in the Arkansas River Basin are found only in Bear Creek, west of Colorado Springs (CPW, 2015 and Nobel, 2021). The Proposed Action will have no effect to greenback cutthroat trout habitat or populations.

Least Tern

The least tern is found along sandy shorelines of reservoirs and along sandbars of major rivers. They nest in sandy shores of reservoirs and gravel pits. Sand bars particularly along the Arkansas River represent potential nesting habitats, however, the regulation of water may preclude least terns from successfully nesting in the Arkansas River (CPW, 2020b) The least tern is a state-listed endangered species (USFWS, 2020). No construction activities are associated with the Proposed Action, and all hydrological changes to the Arkansas River are predicted to be negligible. Therefore, the Proposed Action is predicted to have no effect on the least tern or the species' habitat.

Northern Leopard Frog

Northern leopard frogs live in wet environments such as wet meadows and the banks and shallows of deep, slow-moving or still waterways that include marshes, ponds, lakes, reservoirs, beaver ponds in streams, and occasionally irrigation ditches (CPW, 2016). Subadult frogs migrate to feeding sites along the borders of larger, permanent water bodies, while recently-metamorphosed frogs will travel up and down drainages and across land to locate new breeding and habitat areas. The frogs prefer to winter in still deep ponds that do not freeze solid. Reproduction and early life stages occur in semi-permanent ponds as well (USFWS, 2015b). This frog is found at elevations between 3,000 and 12,000 feet. Once an abundant species in the state of Colorado, the northern leopard frogs is currently a species of concern. It is believed that the decline of the species is mainly due to wetland destruction due to an increase in urban development along with the

introduction of bullfrogs and nonnative gamefish (CPW, 2015). Because the Northern leopard frog seeks out permanent, deep, and slow-moving/still waters, it is unlikely that the conversion of the AVIC or the Bale water rights from agricultural use to water supply use would negatively impact the species. Additionally, the frogs are known for their overland migration, and would be able to find sufficient habitat in adjacent wetlands and streams not directly impacted by this project. There are no construction activities associated with the Proposed Action. Therefore, the Proposed Action would have no effect on the northern leopard frog and its habitat.

Piping Plover

Piping plover is a federally and state threatened species (CPW, 2020c). Piping plover rely on sparsely vegetated sandy shores of reservoirs and gravel pits. Piping plovers are vulnerable to human disturbances and highly dependent on water levels (Nelson, 2012). Piping plover have been found nesting in John Martin Reservoir State Park and Adobe Creek Reservoir (Nelson, 2012). The piping plover decline is attributed mainly to being heavily hunted, and changes in river flow regimes and lakes drying (USFWS, 2021a and Nelson, 2012). Other reasons for decline include vegetation encroachment, nest flooding, human caused changes to landscape including development on beaches, increased predation (CPW, 2020c and Nelson, 2012). No construction activities are associated with the Proposed Action, and all hydrological changes to the Arkansas River are predicted to be negligible. Therefore, the Proposed Action will have no effect on the piping plover or the species' habitat.

Southern Redbelly Dace

The southern redbelly dace is a state endangered species. Southern redbelly dace are known to exist in small tributaries in the Arkansas River near Pueblo, CO. (CPW, 2015). Southern redbelly dace inhabit small, cool perennial spring fed creek, with sand and/or gravel substrates. Threats to their population include habitat loss due to dewatering and impoundments, non-point sources of pollution, and increase siltation (Stasiak, 2007). No construction activities are associated with the Proposed Action and any hydrologic changes associated with the Proposed Action will be largely negligible. Therefore, the Proposed Action will not affect the southern redbelly dace or its habitat.

Preble's Meadow Jumping Mouse

The Preble's meadow jumping mouse is a federally and state threatened species. It inhabits densely vegetated riparian areas adjacent to water sources and adjoining uplands. The Preble's meadow jumping mouse are primarily nocturnal (USFWS, 2021f). Designated critical habitat for the Preble's meadow jumping mouse is within the Arkansas River Drainage, specifically adjacent to Monument Creek (DOI, 2010). Threats to the Preble's meadow jumping mouse are primary due to fragmentations and loss of habitat due to urban and suburban development, instream changes due to increased runoff and flood control efforts, and overgrazing. These anthropogenic activities disturb the mice resulting in the mice destroying their own nests, shelter, and food resources (CPW, 2015). No construction activities are associated with the Proposed Action and any hydrologic changes associated with the Proposed Action are considered to be negligible. Therefore, the Proposed Action will have no effect on the Preble's meadow jumping mouse or the species' habitat.

No Action Alternative

The No Action Alternative will use the same water rights as the Baseline Conditions and because of this resulting return flows would be for the same time period and in the same amount and rate. There would be no effects on threatened and endangered species under the No Action Alternative.

3.9 Land Use and Recreation

Baseline Conditions

A majority of the land ownership in the Project Area is private, with the exception of the small stretches of National Forest System lands. In the Upper Arkansas River, whitewater rafting occurs from the late spring throughout the summer months in the Project Area. Browns Canyon National Monument is located within the Project Area as well, which includes upwards of 12,000 acres of the San Isabel National Forest and 9,750 acres of Bureau of Land Management Land. It is co-managed by the United States Forest Service and Bureau of Land Management. White water rafting, kayaking, and fishing is common throughout the stretch of the Arkansas River that flows through the Monument, while horseback riding, hiking and nature-watching is common along the shorelines (USDA, n.d.).

The Arkansas River is Colorado's longest reach of Gold Medal fisheries water, extending approximately 102 miles, making it popular with anglers (TU, 2015). This is discussed above in the "Aquatic Resources" section of the EA in greater detail.

While many rivers across Colorado suffer low flows due to diversions for various uses, the Upper Arkansas River is unique and has more water than it would need under natural (pre-anthropogenic impacts) conditions due to the Voluntary Flow Management Program (VFMP). The VFMP is a cooperative effort between Colorado Department of Natural Resources, CPW, Colorado TU, Southeastern, and the Arkansas River Outfitters Association. It was informally initiated in 1990 and in 1992 was revised to include cold water fishery protections per the requests of TU. Since then, the VFMP has worked to maintain flows at or above 700 cfs from July 1st to August 15th, and no less than 250 cfs in the remainder of the year. This is achieved by Reclamation releasing water at Twin Lakes Reservoir near Leadville and then recapturing it in Pueblo Reservoir. The 700 cfs supports the summer white water rafting operations, while also flushing pollutants and sediment from the fish habitats. The 250 cfs that the VFMP maintains throughout the non-summer months supports the fisheries as well, by reducing and stabilizing flows to accommodate the rearing and spawning of brown trout. This enhances the fishing experience for anglers. The VFMP has allowed the Arkansas River to become and maintain the status of a Gold Medal fishery and one of the most popular white water rafting destinations in the entire country (TU, n.d.).

Pueblo Reservoir, which is managed for Reclamation by CPW and known as Lake Pueblo State Park, has 6.8 square miles (4,646 acres) of surface water area with 64 miles of shoreline and 25 square miles of semi-arid desert state park wildlife lands. At the State Park there are many opportunities for recreation including camping, boating (sailing, canoeing, kayaking, motor boating, water skiing, etc.), swimming, fishing, hiking, biking, and small game hunting. Warm water sport fish that can be found in Pueblo Reservoir include: largemouth and smallmouth bass, walleye, perch, crappie, channel catfish, northern pike and stocked rainbow trout. The largest spotted bass species caught in Colorado was in Pueblo Reservoir in 1994 (Recreation.gov, 2021).

Downstream of Pueblo Dam, still within the Lake Pueblo State Park boundaries, there is a swim beach, river tubing, and a fish hatchery. This fishery provides excellent fishing opportunities for rainbow and brown trout over a 9-mile stretch of river. Additionally, walleye, saugeye, and bass can also be found. There is also fly fishing, tubing, kayaking, and other water recreation in the Arkansas River downstream of Lake Pueblo State Park, including a half-mile long whitewater park near downtown Pueblo. Runnable flows for the Pueblo Whitewater Park range from 400 cfs to 4,000 cfs, with 400 cfs equating to a "barely runnable" water level and 4,000 cfs considered to be a "high" water level. Further down in the Arkansas River, the primary form of

recreation is bank fishing and occasional canoeing/kayaking. Hunters also can be found hunting big and small game, waterfowl, and wild turkey along the banks of the middle and lower Arkansas River (Reclamation, 2018b).

In the early 2000s, the Pueblo Flow Management Program began after the filing of the Pueblo In-Channel Diversion water right. The result was two interagency agreements amongst the City of Pueblo, CSU, Pueblo Water, Aurora, and Southeastern, stipulating a voluntary reduction of decreed exchanges to meet instream flow requirements along the Arkansas River through Pueblo. The Flow Management Program's focuses on a stretch of the Arkansas River from above the City of Pueblo to the confluence with Fountain Creek. The Program targets year-round flow of 100 cfs and recreation flows of up to 500 cfs during the summer months (Reclamation, 2018b).

In addition to what is described above, there are also a number of State Wildlife Areas (SWAs) in the Project Area (CPW, 2020f). See Table 11 below.

Table 11. State Wildlife Areas in Project Area

SWA	County	Acres	Hunting	Fishing	Camping
Clear Creek Reservoir SWA	Chaffee Co.	500	Yes	Yes	Yes
Buena Vista SWA	Chaffee Co.	41	No	Yes	No
Harmon SWA	Chaffee Co.	10	No	Yes	No
Cottonwood Creek SWA	Chaffee Co.	5	Yes	Yes	No
Johnson Village SWA	Chaffee Co.	9	No	Yes	No
Champion SWA	Chaffee Co.	60	No	Yes	No
Arkansas River/Big Bend SWA	Chaffee Co.	11	No	Yes	No
Pridemore SWA	Chaffee Co.	10	No	Yes	No
Mount Ouray SWA	Chaffee Co.	231	Yes	Yes	No
Mount Shavano SWA	Chaffee Co.	84	Yes	Yes	No
Frantz Lake SWA	Chaffee Co.	69	No	Yes	No
Sands Lake SWA	Chaffee Co.	14	No	Yes	No
Ogden/Treat SWA	Fremont Co.	28	No	Yes	No
Lake Pueblo SWA	Pueblo Co.	11,864	Yes	Yes	Yes

Lands historically irrigated by AVIC and Bale Ditches No. 1&2 water rights will no longer be irrigated when compared to existing conditions as described in the Water Rights Section. Triview is currently working with local agencies to revegetate the AVIC parcels near Buena Vista and potentially incorporate the parcels into Buena Vista's boundaries as a park or open space. The owner of the Bale Ditch parcels is pursuing residential development of the property. These property will not be irrigated in the future under both the No Action and Proposed Action alternatives. Change case decrees issued in Colorado Water Court and Chaffee County regulations will dictate local revegetation requirements associated with removing irrigation from these parcels.

Proposed Action

The Proposed Action does not involve construction activities or other on-the-ground changes. There will be no impacts to non-water related recreation expected from the Proposed Action. The Aquatic Resources section in this chapter concluded no effect is anticipated to sport fish as a result of the implementation of the Proposed Action.

As presented above in the Hydrology section, there will be negligible and minor impacts to the Arkansas River upstream, downstream and within Pueblo Reservoir. Based on this analysis, and the fact that Triview will comply with commitments under the Upper Arkansas River VFMP and Pueblo Flow Management Program (Section 4.2 – Environmental Commitments below), no significant impacts are anticipated for whitewater rafting, angling, and other recreational uses along the Arkansas River upstream or downstream of Pueblo Reservoir.

No Action Alternative

The No Action Alternative will use the same water rights as the Baseline Conditions and because of this resulting return flows would be for the same time period and in the same amount and rate. There would be no effects on land use and recreation under the No Action Alternative.

3.10 Environmental Justice

Baseline Conditions

Presidential Executive Order 12898 directs federal agencies to identify and address disproportionately high and adverse human health or environmental effects of their actions on minority and low-income populations, to the greatest extent practicable and permitted by law (Federal Reserve, 1994).

The analysis area for the environmental justice resources effects is broader than the Arkansas River. Table 12 presents the race demographics across the five counties within the Project Area, and the City of Pueblo compared to the State of Colorado (United States Census Bureau, 2019a-2019l).

Table 12. Race Demographic Breakdowns within the Project Area

Race Demographics	White (%)	Black/ African American (%)	American Native/ Alaskan Native (%)	Asian (%)	Native Hawaiian or Other Pacific Island (%)	Two or More Races (%)	Hispanic* (%)	White, Not Hispanic (%)
Chaffee	93.9	1.8	1.5	0.9	0.1	1.8	10	85.2
El Paso	83.3	6.9	1.4	3.1	0.4	4.9	17.7	68.6
Fremont	91.1	4	1.9	1	0.1	2	13.5	78.8
Lake	93.2	1	2.6	0.8	Z**	2.4	35.4	61
Pueblo	90	2.6	3.2	1.1	0.2	3	43.2	51.7
City of Pueblo	75.5	2.7	5.1	0.8	0.1	4.6	51.1	43.6
Colorado	86.9	4.6	1.6	3.5	0.2	3.1	21.8	67.7

*Per the US Census Bureau: People who identify their origin as Hispanic, Latino, or Spanish may be of any race. The concept of race is separate from the concept of Hispanic origin. Percentages for the various race categories add to 100 percent, and should not be combined with the percent Hispanic.

**Z = Value greater than zero but less than half unit of measure shown

Proposed Action

Implementation of the Proposed Action will not result in any identifiable adverse human health effects. There will be no on-the-ground construction activities or releases of pollutants as a result of the Proposed Action.

Additionally, hydrological changes due to the Proposed Action are considered to be negligible. Therefore, there would be no direct or indirect impacts on any minority populations in the Project Area.

No Action Alternative

The No Action Alternative will use the same water rights as the Baseline Conditions and because of this resulting return flows would be for the same time period and in the same amount and rate. There would be no effects on environmental justice and socioeconomics under the No Action Alternative.

3.11 Socioeconomics

Baseline Conditions

The analysis area for the socioeconomic resources effects, like for environmental justice above, is broader than the Arkansas River and includes those Chaffee, El Paso, Lake, and Pueblo counties). Table 13 presents the income/poverty statistics across the five counties located within the Project Area, and the City of Pueblo compared to the State of Colorado (United States Census Bureau, 2019a-2019l).

Table 13. Income and Poverty Statistics within the Project Area

Economics	Median Household Income (USD)*	Per Capita Income (USD)*	Persons in Poverty (%)
Chaffee	\$55,771.00	\$29,827.00	11.0
El Paso	\$68,779.00	\$33,728.00	8.8
Fremont	\$49,409.00	\$22,692.00	16.1
Lake	\$50,565.00	\$29,122.00	11.4
Pueblo	\$46,783.00	\$25,051.00	17.8
City of Pueblo	\$40,450.00	\$23,098.00	23.5
Colorado	\$72,331.00	\$38,226.00	9.3

*2019 dollars for 2015-2019

Proposed Action

Implementation of the Proposed Action will not result in any identifiable adverse human health effects. There will be no on-the-ground construction activities or releases of pollutants as a result of the Proposed Action. Additionally, hydrological changes due to the Proposed Action are considered to be negligible. Therefore, there would be no direct or indirect impacts on any low-income populations in the Project Area.

No Action Alternative

The No Action Alternative will use the same water rights as the Baseline Conditions and because of this resulting return flows would be for the same time period and in the same amount and rate. There would be no effects on environmental justice and socioeconomics under the No Action Alternative.

3.12 Cultural Resources and Indian Trust Assets

National Historical Preservation Act

Cultural resources include addressing the National Historic Preservation Act (NHPA) and Tribal Consultation. Section 106 of the NHPA requires that all Federal agencies to consider the effects of agency undertakings on historic properties and provide the Advisory Council on Historic Preservation (ACHP) an opportunity to comment on said undertakings. The ACHP is an independent federal agency with oversight responsibility under the NHPA. Undertakings are defined as any agency activity, including an activity by a non-federal party authorized by a permit, with the potential to effect historic properties. Historic properties are defined as cultural resource sites that are listed in or eligible for listing in the National Register of Historic Places (NRHP). Historic properties are prehistoric or historic districts, structures, objects, sites, buildings, or properties of religious, cultural, or traditional importance, all of which are listed as eligible for listing on the NRHP.

The NHPA and the ACHP require that the Federal agencies determine the effect that the agencies' actions may have on historical properties located within the Project Area. ECAO is required to comply with Section 106 of the Programmatic Agreement, as stipulated in 36 CFR 800, by implementing Stipulation IV of the Programmatic Agreement (Reclamation, 2017). Additionally, a 2007 Programmatic Agreement between Reclamation's Eastern Colorado Area Office (ECAO) and the Colorado State Historic Preservation Office (SHPO) outlines a process to follow to comply with NHPA.

Indian Trust Assets

Reclamation is also responsible for government-to-government consultation with Indian tribes in accordance with all applicable mandates. Tribal consultation will address:

- Observance of specific planning coordination authorities, including section 101(d)(6) of the NHPA;
- Executive Order 12898 (Environmental Justice);
- Executive Order 13007 (Indian Sacred Sites);
- Executive Order 13175 (Consultation and Coordination with Indian Tribal Governments);
- Presidential Memorandum on Government to Government Consultation with Native American Tribal Governments issued on April 29, 1994; and
- Presidential Memorandum on Tribal Consultation issued on November 5, 2009.

Baseline Conditions

Archeological surveys within the Browns Canyon National Monument date the presence of Native Americans back at least 13,000 years. There are archeological sites with stone artifacts that are attributed to the Paleo-Indian and early Archaic periods. The area is traditionally significant to the Ute, and Jicarilla Apache also claim ties to the area. There are also historical cabins and other structures located near the Monument dating back to the 1800s when miners were prospecting the area. These structures are generally found outside of the Monument area (USDA, n.d.).

The Arkansas Valley Conduit (AVC)/Master Contract Environmental Impact Statement (EIS) identified a total of 45 sites and seven isolated finds within the Pueblo Reservoir maximum pool elevation (Reclamation, 2013). Only two of these sites, the Bessemer Ditch and a portion of the Denver and Rio Grande Railroad, are recommended as eligible for the National Historic Places. The remaining sites include 18 recommended as not eligible and 26 unevaluated sites. Thirty-three of these sites are prehistoric, 11 are historic, and one is a paleontological site. Twenty-three archaeological sites previously documented within the maximum pool

elevation (before inundation) were unable to be relocated (Brant et al. 2010), likely due to the fact that they are underwater.

Stipulation IV requires that ECAO identify and evaluate historical properties within the fluctuation zone of reservoirs constructed by ECAO. Stipulation IV.A specifically discusses the requirements at Pueblo Reservoir. In 2007, ECAO began contracting to have the lands surrounding Pueblo Reservoir surveyed. Sites that were exposed during low water stages were evaluated for their eligibility with the NRHP. A letter dated July 15, 2011 (CHS #59084) stating that the SHPO concurred with Reclamation's findings officially satisfied the Section 106 requirements for reservoir operations and storage contracts at Pueblo Reservoir (Reclamation, 2017).

Proposed Action

The Proposed Action does not involve construction activities or other on-the-ground changes. Hydrologic changes are largely negligible, and all releases made through the Pueblo Dam would remain within the historical release ranges in the existing river channel. This is anticipated to have insignificant impacts on the flows of the Arkansas River as are addressed with the 2007 Programmatic Agreement which was extended in 2017. No additional compliance under NHPA is required. Therefore, no historic properties or cultural resources will be affected.

In 2018, Reclamation consulted 15 Tribes within the Arkansas River Basin culturally affiliated with the study area during evaluation of continuing the Fry-Ark Temporary Excess Capacity Program, and approval of the Donala and BLM Long-Term contracts. Two tribes responded with "no adverse effects" or "no properties". No other comments were received. The Proposed Action fits within the 2018 tribal consultations and is expected to result in no impacts to Indian Trust Assets.

No Action Alternative

The No Action Alternative will use the same water rights as the Baseline Conditions and because of this resulting return flows would be for the same time-period and in the same amount and rate. There would be no effects on historic properties, cultural resources, or Indian Trust Assets under the No Action Alternative.

3.13 Cumulative Effects

Cumulative impacts are defined as "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency (federal or nonfederal) or person undertakes such other actions" (40 CFR 1508.7). Cumulative effects can result from individually minor, but collectively significant, actions taking place over a period of time. CEQ regulations that implement NEPA require the assessment of cumulative impacts in the decision-making process for federal projects.

Reasonably Foreseeable Future Actions

Reasonably foreseeable future actions are (1) action that will occur in the same geographic area as the Proposed Action; (2) are reasonably certainty to occur; and (3) have sufficient information available to define the action to perform a significant analysis. Reasonably foreseeable future actions considered in this EA are as follows:

Climate Change

The U.S. DOI's Secretarial Order No. 3289 requires Reclamation to “consider and analyze potential climate change impacts when undertaking long-range planning exercises” (DOI, 2010). In 2021, the U.S. Secretary of the Interior issued Secretarial Order No. 3399 which “prioritizes action on climate change and establishes a Departmental Climate Task Force. This Order also provides instruction on how science may be used in the decision-making process and clarifies Departmental policy to improve transparency to the public on the Department’s decision-making process.” (DOI, 2021). Additionally, climate change and associated impacts are applicable to the action alternative in two ways: 1) whether an action could contribute to climate change (i.e., by generating greenhouse gas emissions); and 2) whether climate change could affect an action.

Temperature in the western United States has increased during the twentieth century and is projected to continue increasing in the twenty-first century (Reclamation, 2011). Many western U.S. river basins have warmed by approximately 2 degrees Fahrenheit in recent years, and average temperatures are predicted to continue to increase by 5 to 7 degrees Fahrenheit by the end of the century (Reclamation, 2021). Along with warming temperatures in the Arkansas River Basin, a general increase in mean annual precipitation with a decline in spring snowmelt runoff have also been observed (Reclamation, 2011).

Reclamation’s 2021 SECURE Water Act Report assesses climate change risks and how these risks could affect water operations, flood control, recreation, hydropower, and fish and wildlife in the western United States (Reclamation, 2021). The report assesses these climate change risks across eight major Reclamation river basins, including the Colorado, Rio Grande, and Missouri River Basins. The study did not include the Arkansas River Basin; however, it does include several river basins that boarder the Arkansas River Basin. The report indicates increased climate risks to western U.S. water resources over the course of the next century. Some of these increased climate risks include: an increase in annual temperature ranging from 3 to upwards of 9 degrees Fahrenheit; a decrease in average annual precipitation; a decrease in snowpack; and decreases in average annual streamflow.

Several climate models have been developed to evaluate potential effects of climate change on temperature, rainfall, runoff, etc. resulting in hundreds of different climate projections. One such model was developed for the AVC/Master Contract EIS. This model evaluated 112 monthly simulated runoff projections for the Arkansas River at Cañon City gage. A study-period of 49 years was used for current runoff conditions (1950-1999) and a study-period of 19 years was used for future runoff conditions (2060-2079). Model results predicted an increase in Basin temperatures ranging from 3 to 9.4 degrees Fahrenheit, and a precipitation change ranging from -4.2 to +6.6 inches (average precipitation change of 0 inches). The model compared current Arkansas-Red Rivers and Colorado River conditions with hydrologic scenarios that resulted from reduction in water supply by 7, 14, and 21 percent. Changes in annual deliveries varied from 0 to 5.6 percent under the No Action Alternative with only Fry-Ark Project Releases with a range of 1 to 12.8 percent under the AVC Action Alternatives. For more information on the AVC climate change modeling efforts please see the Appendix C.2 attached to the EIS at <https://www.usbr.gov/avceis/>.

The 2012 Joint Front Range Climate Change Vulnerability Study assessed climate change projects for the Arkansas River Basin. The study concluded that by 2027 the annual streamflow in the Arkansas River Basin would range from an increase of 5 percent to a decrease of 21 percent. This assumed an annual increase in temperature of 2 to 10 degrees Fahrenheit and an annual change in precipitation ranging from a decrease of 18 percent to an increase of 28 percent (Water Research Foundation, 2012).

Proposed Action

There are no construction activities associated with the Proposed Action; therefore, there will be no effect on greenhouse gas emissions from construction activities. Long-term contributions of greenhouse gas emissions would include energy needs of pumping plants and water treatment plant operations. These energy needs are not anticipated to exceed the CEQ's threshold of 25,000 metric tons of carbon dioxide. The Joint Front Range Climate Change Vulnerability Study predicted changes in Arkansas River Basin streamflow ranging from an increase of 5 percent to a decrease of 21 percent by 2070.

Decreases in streamflow resulting from climate change will result in reduced yields associated with Triview's changed water rights and smaller increases in flow above and below Pueblo Reservoir during the direct diversion season. Smaller decreases in flows can be expected below Pueblo as a result of reductions in exchange potential. The net impact of decreased streamflow would be a reduction in the frequency and magnitude of storage and conveyance through Pueblo Reservoir, especially in modeled wet and average years.

Conversely, increases in streamflow resulting from climate change will result in increased yields associated with changed water rights and larger increases in flow above and below Pueblo during the direct diversion season. Increased streamflow below Pueblo would result in increased exchange potential, providing both more opportunities for exchanges and higher exchange rates. The net impact of increased streamflow would be an increase in the frequency and magnitude of storage and conveyance through Pueblo Reservoir.

No Action Alternative

The No Action Alternative will use the same water rights as the existing conditions because of this the resulting return flows would be for the same time period and in the same amount and rate. Because of this the influence of climate change will be no different on the No Action Alternative than it would be on the Baseline Conditions.

AVC and Master Contract

First authorized in 1962, AVC would be a federal water supply project located in the Lower Arkansas Valley of southeastern Colorado. Approximately 40 water service providers would be served filtered water from Pueblo Reservoir, including 17 providers currently under enforcement actions from the Colorado Department of Health and Environment. Such providers are required to come into compliance with the Safe Water Drinking Act before the year 2026. The Master Contract is a 40-year excess capacity storage contract between Reclamation and Southeastern signed in 2016. The Master Contract allows Southeastern to subcontract with Master Contract participants up to 29,938 AF of storage per year in Pueblo Reservoir. As of 2019 Southeastern had contracted 6,565 AF of such space in Pueblo Reservoir. For cumulative effects analysis, both AVC and Master Contract are assumed to be operating as described in the AVC/Master Contract Final EIS (Reclamation 2013).

Pueblo Board of Water Works Long-Term Contract Renewal

In 2000 Pueblo Water entered into a 25-year excess capacity storage contract to store up to 15,000 AF per year of Non-Project Water in Pueblo Reservoir. Discussions between Pueblo Water and Reclamation are underway regarding renewal of the existing contract or developing a new long-term excess capacity storage contract. For cumulative effects analysis, Reclamation assumed a similar 15,000 AF per year excess capacity storage contract is in place during the period of analysis (2017 to 2058). In 2021, Pueblo Water requested Reclamation evaluate continuance of the contract with volumes between 10,000 and 25,000 AF in conjunction with a proposed service contract to convey AVC water through the Pueblo Water system.

Southern Delivery System

In 2011, Utilities, Pueblo West Metropolitan Water District, City of Fountain and City of Security entered into 40-year excess capacity storage and exchange contracts. Utilities also entered into a conveyance contract to modify and connect SDS to the NOW of Pueblo Dam and convey up to 96 million gallons per day of SDS water using Project Facilities. SDS began delivering water in 2016. The SDS project includes two new reservoirs to store a portion of Utilities' water supplies and to capture and reuse Fountain Creek return flows in Phase II within the next 5-10 years. For cumulative effects analysis, Reclamation assumes that SDS is operating as described in the SDS Final EIS (Reclamation 2008).

Monument Development, LLC Future Development

Any areas outside of the current Triview service area are assumed to be included within Triview and to receive water, wastewater and other municipal-type services from Triview, in the future. A group of three (3) parcels owned by Monument Development, LLC, a Colorado limited liability company, totaling approximately 1,974 acres and located near the southeast corner of the District are reasonably certain to request Triview resources to support properties develop. The Monument Development, LLC properties are anticipated to be commercial or industrial development, and Triview has sufficient water resources to serve whatever scope of development may occur in this location, including on-site Denver Basin groundwater supplies.

Interconnection with Neighboring Water Providers

Triview has system interconnections with neighboring water providers including the Forest Lakes Metropolitan District and the Donala Water & Sanitation District. Triview anticipates similar connections being made in the near future with the Town of Monument, and potentially the Town of Palmer Lake. Such interconnections are primarily for purposes of emergency assistance should any of the interconnected water providers require assistance through supplemental water supplies in times of emergencies. Such interconnections may in the future be utilized for delivery of water resources through shared infrastructure. Such interconnections exist, and will continue to exist, regardless of the status of Triview's requested long-term storage contract.

Actions Not Considered Reasonably Foreseeable

There are additional agricultural water rights in the analysis area that potentially could be removed from agriculture; however, this is considered speculative and thus it is not a reasonably foreseeable action.

Chapter 4 Summary and Environmental Commitments

This EA evaluated direct, indirect, and cumulative impacts of the Proposed Project Action, and identified whether the impacts for each resource area were negligible, minor, moderate, or major. Environmental commitments for the project were also identified.

4.1 Summary of Project Impacts

The project impacts are listed in Table 14 summarizes the resource areas eliminated from further analysis, and document the reasons why there were eliminated.

Table 14. Summary of Impacts for Proposed Action and No Action Alternative

Resource	Proposed Action Level of Impact*	Is Impact of Proposed Action Significant?	No Action Level of Impact**
Hydrology: ARKWELCO	Negligible	No	None
Hydrology: ARKPORCO	Negligible	No	None
Hydrology: ARKPUECO	Major***/Minor	No	None
Hydrology: ARKMOFCO	Minor	No	None
Hydrology: ARKAVOCO	Minor	No	None
Pueblo Reservoir	Negligible	No	None
Aquatic Resources	Negligible	No	None
Water Quality	Negligible	No	None
Wildlife, Vegetation, and Floodplain, Wetlands, and Riparian Zones	Negligible	No	None
Threatened, Endangered, and Special Status Species	Negligible	No	None
Land Use and Recreation	Negligible	No	None
Environmental Justice	Negligible	No	None
Socioeconomics	Negligible	No	None
Cultural Resources	Negligible	No	None
Climate Change	Negligible	No	None

*Compared to Baseline Conditions

**No Action Alternative is the same as Baseline Conditions, as such there are no impacts associated with the No Action Alternative

***Major impacts modeled for October 2002 would not actually occur, because Reclamation curtails contract operations when flows below ARKPUECO and the Hatchery are less than 50 cfs

4.2 Environmental Commitments

The following commitments were sourced from prior Reclamation EAs and EISs and their associated FONSI, RODs and contracts pertinent to Pueblo Reservoir, including:

- 1) Reclamation's Fry-Ark Project Pueblo Reservoir Temporary Excess Capacity Contracting Program (2006);
- 2) The Final Programmatic Environmental Assessment for Pueblo Reservoir Temporary Excess Capacity Storage Contracting Program, and Site Specific Environmental Assessment for Donala Water and Sanitation District 40-Year Excess Capacity Storage and Conveyance Contract and Bureau of Land Management 40-Year Excess Capacity Storage Contract (2018);
- 3) The ROD for the Arkansas Valley Conduit and Long-Term Excess Capacity Master Contract Final Environmental Impact Statement (2014); and
- 4) Information obtained from temporary contracts issued in 2021 under the provisions of 2) above.

These commitments will be implemented by Reclamation and Triview, as part of the contract that results from this EA, to help avoid any negative impacts from occurring to the above-described resources in the Arkansas River and within Pueblo Reservoir.

Reclamation Commitments

1. The amount of storage allowable under temporary excess capacity contracts will be reduced by 999 AF, consistent with mitigation measure number 3 in EA and FONSI NO. EC-1300-06-02, Temporary Excess Capacity Contracts 2006-2010, dated April 3, 2006.
2. Reclamation will monitor excess capacity operations including daily storage and release data for Contractors' accounts, to better understand real-time use of contracted storage. This will aid in understanding how excess capacity is used and present the opportunity to manage adaptively future temporary excess capacity contract operations.
3. Reclamation will not execute contract exchanges until the Natural Resource Conservation Service makes its annual May 1st water supply forecast, and Reclamation determines whether or not contract exchanges will affect its ability to operate in accordance with the Upper Arkansas River Voluntary Flow Management Program (VFMP) recommendations, or impair the ability of Fremont Sanitation District Wastewater Treatment Plant or the Salida Wastewater Treatment Plant to meet their CDPS permit limits.
4. Reclamation will limit excess capacity contract operations from Pueblo Reservoir to upstream locations against releases made by Reclamation in support of the Upper Arkansas River Voluntary Flow Management Program or make exchanges from Pueblo Reservoir that would require Reclamation to release additional water to meet objectives and recommendations of the Upper Arkansas Voluntary Flow Management Program.
5. Reclamation will limit excess capacity contract operations that will affect the Arkansas River below Pueblo Reservoir when flows are ≤ 500 cfs and > 50 cfs to a decrease of no more than 50% of the average daily flow as measured by adding the flow at the Above Pueblo Gage to fish hatchery return flows.

6. Reclamation will limit excess capacity contract operations that will affect the Arkansas River below Pueblo Reservoir when flows are ≤ 50 cfs, as measured by adding the flow at the Above Pueblo Gage to fish hatchery return flows.

Triview Commitments

1. Triview's water will be transported, stored, and released in accordance with the laws of the State of Colorado. Only water from sources owned or by leased by Triview, as described in this EA, may be stored and conveyed under these contracts.
2. By entering into an excess capacity contract with Reclamation for the use and distribution of United States waters, Triview's project operations shall comply with all sections of the Clean Water Act.
3. If Triview's excess capacity contract operations are anticipated to change such that potential effects would be outside of the range of conditions evaluated in Triview's Hydrologic Model, additional environmental compliance will be completed as required.

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