



— BUREAU OF —
RECLAMATION

FONSI No. 2022-02
Project No. 2011-04

Arkansas Valley Conduit Project
**Final Environmental Assessment Fryingpan-
Arkansas Project**
Finding of No Significant Impact

Approved:  Date: February 28, 2022
Area Manager

U.S. Department of the Interior
Bureau of Reclamation
Missouri Basin Region
Eastern Colorado Area Office

February 2022

FINDING OF NO SIGNIFICANT IMPACT

In accordance with the National Environmental Policy Act (NEPA) of 1969, as amended, and the Council on Environmental Quality's Regulations for implementing the procedural provisions of the National Environmental Policy Act (40 CFR Part 1500-1508), the Bureau of Reclamation has prepared an environmental assessment for the reconfigured Arkansas Valley Conduit (AVC) Project. The Final Environmental Assessment (EA) analyzed proposed changes to the AVC Project as described and analyzed in the 2013 AVC and Master Contract Final Environmental Impact Statement (FEIS).

Based on the following, Reclamation has determined that the Proposed Action will not result in a significant impact on the human environment. Therefore, preparation of an environmental impact statement is not required.

Background

The AVC Project is an authorized water conveyance feature of the Fryingpan-Arkansas Project and will deliver water for municipal and industrial use within the boundaries of the Southeastern Colorado Water Conservancy District (Southeastern). The AVC Project is needed to supplement or replace existing poor quality groundwater sources, and help meet projected future water demands for AVC Participants.

The AVC Project was authorized in the original Fryingpan-Arkansas Project legislation in 1962 (Public Law 87-590). The AVC Project was not constructed with the other original Fryingpan-Arkansas Project features (i.e. Ruedi, Turquoise, Twin Lakes, and Pueblo Reservoirs) primarily because of the beneficiaries' inability to repay 100 percent of construction costs. In 2009, Congress amended the original Fryingpan-Arkansas Project legislation (Public Law 111-11), which authorized annual federal funding, as necessary, for constructing the AVC Project, and provided that only 35 percent of total AVC Project construction costs would be repaid over a period of no more than 50 years.

An initial value planning study was completed in 2010 and Reclamation's Technical Service Center issued an appraisal design report in August of 2012. The report compared five action alternatives (various alignments) for construction of the AVC Project. A supplemental report was issued in June of 2013 adding one additional alternative, for a total of six action alternatives. An FEIS was completed in August of 2013 that analyzed seven alternatives (the six action alternatives from the Appraisal Design Report plus a No Action alternative). A Record of Decision (ROD) was signed by Reclamation's Great Plains Regional Director in February 2014, which selected the "Comanche North Alternative" for implementation. Reclamation's Great Plains Region is now known as the Missouri Basin Region.

Through a collaborative effort between Reclamation, Southeastern and Board of Water Works of Pueblo (Pueblo Water) in 2018 and 2019, a revised AVC Project configuration was developed with the goal of reducing total estimated AVC Project costs and requirements for Reclamation appropriations.

In June of 2021, Reclamation finalized a Supplemental Information Report (SIR) for the AVC Project. The SIR described proposed changes that make up the Proposed Action. Where noted in the EA, additional delivery pipeline alignment refinements were made after issuance of the SIR. Total estimated AVC Project cost was reduced to a range of \$564 to \$610 million (appraisal level, 2019 dollars) and through alternative

funding sources, the estimated requirement for additional Reclamation appropriations was reduced to a range of \$355 to \$414 million (appraisal level, 2019 dollars).

Purpose and Need

The FEIS identified needs to meet primary drinking water standards and to meet existing (2010) and future (2070) water demands and provide AVC Project Participants with 10,256 acre-feet per year (afy) of Fryingpan-Arkansas Project water. It estimated a total 2070 water demand for AVC Project Participants of 12,569 afy, with 10,256 afy of this demand being met with deliveries of water via the AVC Project and the balance from the AVC Project Participants' local supplies. However, with the withdrawal of Saint Charles Mesa Water District (-2,651 afy) and the addition of Riverside Water Company (+20 afy), 2070 deliveries via the AVC Project are reduced from 10,256 afy to 7,625 afy.

The water delivered by the AVC Project (AVC Project Water) will be a combination of Fryingpan-Arkansas Project Water which is allocated to AVC Project Participants by Southeastern and non-project water resulting from the exercise of water rights held by individual AVC Project Participants.

Pueblo Water has also requested to continue utilizing excess capacity in Pueblo Reservoir for an additional 50 years in Pueblo Reservoir, if and when storage space is available. The purpose and need for Pueblo Water's request is as follows:

- 1) Increase the efficiency of Pueblo Water's water supply system, conserve water for municipal uses, and improve the quality of Pueblo Water's raw water supply;
- 2) Replace Pueblo Water's existing 2000 contract, which expires in 2025;
- 3) Authorize the storage of Pueblo Water's Bessemer Irrigating Ditch Company (BIDC) water rights acquired after the 2000 contract was executed; and
- 4) Increase flexibility in the volume of excess capacity use based on Pueblo Water's current and future demands. Pueblo Water requested changes in storage volume from a flat 15,000 acre-feet per year to a range of 10,000 to 25,000 acre-feet over the 50 year period using Pueblo Water's water rights described in the EA.

The continued use of excess capacity in Pueblo Reservoir by Pueblo Water is included as Part B of the Pueblo Water Service Contract for Treatment and Conveyance of AVC Project Water (Contract).

No Action Alternative

The No Action Alternative is defined as the Comanche North alignment as described in the FEIS and ROD. AVC Project Participants would receive AVC Project water deliveries, except for Saint Charles Mesa Water District. The No Action Alternative would move AVC Project water through the existing Joint Use Pipe (JUP) located below Pueblo Dam's South Outlet Works. The JUP connects to Pueblo Water's existing raw water pipeline. Under the No Action Alternative, Reclamation would purchase excess capacity available in the JUP upstream of the JUP Wye from Pueblo Water and would construct a new pipeline downstream from the JUP Wye to the Whitlock Water Treatment Plant (WTP).

From the Whitlock WTP, the AVC Project trunk line would be constructed along a route south of the City of Pueblo to Saint Charles Mesa and Avondale, crossing Interstate 25 southwest of the Xcel Energy Comanche Powerplant.

East of Avondale, the pipeline would generally be located north of the Arkansas River except between Manzanola and Rocky Ford. The total length of AVC Project pipelines, including spurs, and delivery pipelines would be about 227 miles. Spur pipelines branch from the main pipeline and connect to multiple delivery pipelines.

Primary spurs would be constructed from Fowler north to Colorado 96, then east to Sugar City; between Rocky Ford and La Junta; and a spur to serve Eads. Shorter delivery pipelines located near the trunk line pipeline and spurs would deliver water to AVC Project Participants. Spur crossings of the Arkansas River and perennial streams would be bored underneath the river. Pipeline sizes would range from 36 inches in diameter at the JUP Wye to 4 inches at some AVC Project Participant tie-in locations.

Pumping stations would be built at the Whitlock WTP and on the south end of the spur pipeline to Eads. A regulating tank site would be constructed southwest of the City of Pueblo, and two surge tanks would be constructed near Fowler and near La Junta. New water treatment components would be integrated into the existing Whitlock WTP. The integrated WTP would provide filtered water; residual disinfection would be the responsibility of AVC Project Participants at their respective delivery points. All AVC Project Participants would receive filtered water.

AVC Project Participants also participating in the Master Contract would receive their non-Fryingpan-Arkansas Project water stored in excess capacity space in Pueblo Reservoir via the AVC Project or other existing or future delivery systems, exchanged, or released to the Arkansas River, depending on the AVC Project Participants' needs.

Proposed Action Alternative

The Proposed Action shifts the AVC Project from a traditional Reclamation project, with all features funded, constructed, and owned by Reclamation, to a collaborative project executed by both Reclamation and Southeastern. Reclamation would fund, construct, and own the trunk line and appurtenant features such as the injection sites and regulating tanks. Southeastern would finance, construct, and own the spur and delivery pipelines and their appurtenant features such as the pumping station on the Eads Spur. Or alternatively, Southeastern may assist local communities in financing and constructing these features themselves.

Figure 1 in the Final EA provided a general overview of the AVC Project as described in the Proposed Action. Changes in AVC Project Participants, pipelines and associated facilities, and the Contract between Pueblo Water, Reclamation and Southeastern are summarized below. The SIR and Final EA provide additional descriptions and details including maps for each AVC Project segment.

1. **Co-operative management and construction of the AVC Project.** Division of the project into two major sub-projects which will be co-operatively managed by both Reclamation and Southeastern. Reclamation will fund, construct, and own about 120 miles of “trunk line” and Southeastern will finance, construct, and own about 54.3 miles of spur pipelines and 58.7 miles delivery pipeline to AVC Project Participants' delivery points.
2. **Changes in pipeline lengths.** The reconfigurations reduce the main trunk line by about 24.7 miles in length and increases the length of delivery pipelines needed by about 30.6 miles to AVC Project Participant connections.
3. **Changes in AVC Project Participants.** Changes in AVC Project Participants include the elimination of Saint Charles Mesa Water District and addition of Riverside Water Company. This

- has a net effect of reducing the total maximum annual water deliveries through the AVC Project from 10,256 afy to 7,625 afy.
4. **Elimination of pipeline around Pueblo.** The reconfigured AVC Project utilizes existing infrastructure owned and operated by Pueblo Water to convey AVC Project water to a connection point east of Pueblo near Devine, Colorado (Pueblo Connection Point) which eliminates about 27 miles of pipeline around the south side of Pueblo. About 6.3 miles of pipeline is required to reach from the Pueblo Connection Point to the FEIS's Comanche North alignment. This change results in net reduction of about 20.7 miles of pipe.
 5. **Contract with Pueblo Water.** The Contract is required to allow conveyance of AVC Project water through Pueblo Water's existing treatment and distribution system (Pueblo Water System). Pueblo Water will treat and deliver a maximum of 13 million gallons per day (mgd) to meet the FEIS's 2070 projected AVC Project Participant demands. Part B of the Contract will authorize continued use of excess storage capacity in Pueblo Reservoir of between 10,000 and 25,000 afy for a period of 50 years when available, pursuant to the spill priorities described in Contract No. 229F650016 between Southeastern and the United States. Pueblo Water is also requesting the ability to store BIDD water rights in excess capacity space in Pueblo Reservoir.
 6. **Pueblo Water System upgrades.** Reclamation may fund Pueblo Water System improvements increasing existing capacity of about 10 miles of Pueblo Water System pipeline to meet the 2070 AVC Project Participant demand of 13 mgd at the Pueblo Connection Point. Payments to Pueblo Water proposed as part of the Contract would make Pueblo Water responsible for increasing the capacity of their system to accommodate the increased demands.
 7. **Chemical injection facilities.** Water treatment facilities will be constructed along the trunk line adjacent to U.S. 50. The facilities will remove chloramines from the water supply from Pueblo Water by injecting sodium hypochlorite and sodium bisulfite.
 8. **Other feature relocations.** Regulating tank and pumping plant locations will be modified to facilitate gravity flow for most of the AVC Project.
 9. **Delivery point changes.** Changes in delivery pipeline connections to AVC Project Participants' water systems are proposed as requested by the AVC Project Participants. Approximately 30.6 miles of additional pipeline constructed by Southeastern and AVC Project Participants will be needed to connect to existing and future AVC Project Participants delivery facilities (water tanks, pipelines, etc.).
 10. **Fiber Optic Lines.** Dedicated fiber optic lines may be installed along the AVC trunk line, spurs and delivery pipelines, where appropriate, to provide communications between AVC Project facilities. Fiber optic lines may be installed within each pipeline's construction footprint, either within the pipeline trench or within acquired right-of-way or easement. Additional fiber optic conduits may also be installed during construction to facilitate rural broadband development by other entities provided there are no additional costs to the AVC Project and within existing Reclamation authorities.

Consultation and Coordination

The ROD anticipated the potential need for review of proposed AVC Project changes (e.g., pipeline routing, new AVC Project Participants, new water supplies, changes in water rights administration) and identified an Environmental Review Team to make recommendations regarding any warranted additional NEPA or Arkansas River Compact compliance review, adaptive management, mitigation or other environmental compliance.

Reclamation invited and assembled the Environmental Review Team in 2021, which includes the following agencies:

Reclamation	Colorado State Historic Preservation Officer
ACOE	Kansas Division of Water Resources
U.S. Fish and Wildlife Service (Service)	City of Pueblo
Southeastern	Pueblo, Otero, Crowley, Bent, Kiowa, and
CDOT	Prowers counties
CPW	Pueblo Water
CDPHE	

The Environmental Review Team was asked to review the draft SIR and to participate as cooperating agencies in the preparation of this EA to evaluate changes associated with the reconfigured AVC Project. The Colorado State Historic Preservation Officer declined to participate in the Environmental Review Team and will continue to participate in all other aspects of the AVC Project pursuant to the 2013 Programmatic Agreement (PA) regarding the AVC Project for compliance with the National Historic Preservation Act.

Reclamation held meetings with the Environmental Review Team on June 2 and 7, 2021 and has met with individual agencies on numerous occasions through the development and refinement of the Proposed Action. The Environmental Review Team concurred with Reclamation’s recommendation to prepare this environmental assessment as the appropriate process to analyze and disclose environmental effects associated with the SIR. Reclamation requested Environmental Review Team members, other federal, state and local agencies, and the public review and comment on the Draft EA. Reclamation utilized the AVC Project website to post the Draft EA and associated appendices for public review. A news release was published on Reclamation’s webpage on December 21, 2022, requesting comments on the Draft EA by January 21, 2022. On January 7, 2022, Reclamation updated the news release, requesting comments be submitted to Reclamation by January 30, 2022. The news release was distributed via email to approximately 1,000 agencies, organizations and individuals included in Reclamation’s AVC Project, Pueblo Reservoir and Fryingpan-Arkansas Project distribution lists.

Reclamation received comments from 4 agencies, organizations and individuals. Comment letters are summarized in the Final EA along with Reclamation’s response including changes incorporated into the Final EA. Copies of all comment letters received by Reclamation are included in the AVC Project’s administrative record.

Based on implementation of best management practices (BMPs) and mitigation measures in the FEIS (Exhibit A) and this FONSI, Reclamation has determined that the Proposed Action “may affect but is not likely to adversely affect” the Eastern black rail. Reclamation initiated informal Section 7 consultation with the Service on February 2, 2022. Reclamation has requested the Service’s concurrence with its determination that the reconfigured AVC may affect but is not likely to adversely affect the Eastern black rail and the 2013 informal consultation addresses all other listed and proposed species.

Summary of Environmental Impacts

During the environmental review process, potential effects resulting from the Proposed Action were identified, either by the public, other agencies, or Reclamation. Reclamation also used potential effects identified in the FEIS to help focus the environmental review and to identify opportunities to avoid or mitigate adverse effects of the Proposed Action.

The Final EA evaluated direct, indirect and cumulative impacts of the Proposed Action and identified whether the impacts for each resource area were negligible, minor, moderate or major. BMP and mitigation measures included in the ROD will continue to be implemented under the Proposed Action. Additional environmental commitments associated with the Contract were also identified, discussed and incorporated in this FONSI. Potential impacts under the Proposed Action when compared to the FEIS Comanche North Alternative (No Action alternative) are summarized in the following table and predicted to result in negligible adverse and beneficial effects on the human environment.

Table 1-Summary of Impacts

Resource	Proposed Action Impacts*	Notes:
Surface Water Hydrology	Negligible (beneficial)	Under the Proposed Action, Pueblo Water’s contracted excess capacity storage volume would continue and will change from 15,000 afy, to a minimum of 10,000 afy and maximum of 25,000 afy. The increase does not result in exceeding 120,453 afy total for temporary and long-term contract storage in Pueblo Reservoir as analyzed in the Temporary Program Programmatic EA. Surface water elevations in Pueblo Reservoir under the Proposed Action are predicted to be similar to the No Action Alternative. Also, minor increases in flows of up to 16 cfs (annual average) from Pueblo Dam to Pueblo Water’s [river] intakes under the Proposed Action, are considered to be beneficial.
Water Rights	Negligible (beneficial)	The Proposed Action will allow Pueblo Water to utilize its BIDC water rights more efficiently. No other water rights would be affected.
Water Quality	Negligible (beneficial)	The reduced construction footprint and reduced stream crossings under the Proposed Action will result in negligible improvement in water quality over the water quality impacts predicted in the FEIS. Additional facilities to remove chloramine is included in the Proposed Action to prevent formation of harmful disinfectant byproducts.
Geomorphology	Negligible (beneficial)	Stream crossings at Arkansas River crossing south of the Whitlock WTP, Salt Creek crossing near Interstate 25, Saint Charles River crossing at South Road, and Six Mile Creek at Grant Road are not needed.
Aquatic Life	Negligible (beneficial)	Under the Proposed Action the Arkansas River downstream of Pueblo Dam will receive up to an additional 16 cfs when Pueblo Water uses its river intakes for AVC Project. In addition, the existing commitment of when flows in the Arkansas River downstream of Pueblo Dam fall below 50 cfs, Pueblo Water will take up to 17 cfs of its raw water flow at river intakes.
Recreation	Negligible (beneficial)	The additional flows below Pueblo Dam (see above) will benefit recreation. The Proposed Action also results in reduced effects on public parks, trails, or other facilities used for recreation.
Vegetation and Wetlands	Negligible	Under the Proposed Action, approximately 448 acres of ground disturbance associated with construction of the trunkline will be avoided by using the existing Pueblo Water System. However, about 176 acres of additional ground disturbance will occur associated with construction of delivery pipelines, assuming a 50-foot construction corridor for these smaller diameter pipelines. Up to three acres of additional permanent disturbance will occur from construction and operation of the injection sites.

Resource	Proposed Action Impacts*	Notes:
Wildlife	Negligible	Temporary impacts to wildlife would be similar under both the Proposed Action and No Action alternatives. Reclamation determined the Proposed Action may affect, but is not likely to adversely affect the newly listed threatened Eastern black rail.
Human Environment	Negligible	Effects on the human environment, including noise and vibration, visual resources, traffic and utility services would be negligible with implementation of mitigation measures and BMPs included in the ROD.
Socioeconomics	Beneficial Effects	Total Estimated Cost under the Proposed Action was reduced to a range of \$564 to \$610 million and through introduced alternative funding sources. The estimated requirement for additional Reclamation appropriations was reduced to a range of \$355 to \$414 million.
Environmental Justice	Negligible	No change.
Historic Resources	Negligible	Under both Alternatives, Reclamation would follow the PA, complete additional Class III surveys of final alignments, and consult with the Colorado SHPO and other parties to the PA.
Indian Trust Assets	Negligible	See above.
Other Resources	Negligible	Change in land use associated with Pueblo Water’s BIDC water rights is not dependent on the Contract but is subject to Pueblo County’s revegetation and other requirements of Title 17 of the Pueblo County Code and other provision included in the decree for 17CW3050.
Climate Change	Negligible (beneficial)	The Proposed Action is predicted to result in similar or less greenhouse gas emissions. Climate change effect to other resources is predicted to be similar to the No Action Alternative.
Cumulative Impacts	Negligible (beneficial)	Approximately 448 acres of trunk line ground disturbance will be avoided and 179 acres of additional ground disturbance for delivery pipelines and AVC Project facilities will occur under the Proposed Action.

*When compared to impacts identified in the FEIS/ROD for the Comanche North Alternative.

Environmental Commitments

BMPs and mitigation measures included in the ROD (Exhibit A) will continue to be implemented. Reclamation will also continue to follow the environmental commitments included in the FONSI for the 2018 Final Programmatic EA for Pueblo Reservoir Temporary Excess Capacity Storage Contracting Program. Specific environmental commitments associated with the Contract are listed below.

These commitments in addition to the ROD will be implemented by Reclamation, Southeastern, and Pueblo Water, where appropriate to help avoid negative impacts from occurring to the above-described resources in Section 3 of this EA in the Lower Arkansas River and Pueblo Reservoir.

Reclamation Commitments

1. The amount of storage allowable under temporary excess capacity contracts will not exceed 26,517 AF, or when combined with all long-term excess capacity contracts will not exceed 120,453 AF,

consistent with mitigation measures numbers 3 and 8 included in the 2018 Temporary Program Programmatic EA and FONSI NO. EC-2019-01.

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 recommendations, or impair the ability of the Fremont Sanitation District Wastewater Treatment Plant or Salida Wastewater Treatment Plant to meet their Colorado Discharge Permit System 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 cubic feet per second (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 Gauge 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 Gauge to fish hatchery return flows.

Southeastern Commitments

1. Southeastern and AVC Project Participants will implement the BMPs and mitigation measures included in the ROD for construction of all AVC Project spur and delivery pipeline alignments.
2. Southeastern will coordinate all cultural and environmental surveys with Reclamation for all spur and delivery pipelines. Reclamation will consult with the Colorado SHPO under the PA for NHPA compliance.
3. Southeastern and AVC Project Participants will comply with all applicable federal, state and local laws and regulations, including but not limited to, NHPA, ESA, Clean Water Act and applicable local 1041 permit regulations.

Pueblo Water Commitments

1. Pueblo Water's non-Fryingpan-Arkansas Project 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 Pueblo Water, as described in this EA, may be stored and conveyed under the Contract.
2. By entering into an excess capacity contract with Reclamation for the use and distribution of Waters of the United States, Pueblo Water's project operations shall comply with all sections of the Clean Water Act.
3. When flows in the Arkansas River downstream of Pueblo fall below 50 cfs, Pueblo Water agrees to continue to take up to 17 cfs of its raw water flow and/or AVC Project Water delivered from Pueblo Reservoir to either the Northside or Southside diversions rather than through the municipal outlet at the South Outlet Works.

4. If Pueblo Water's excess capacity contract operations are anticipated to change, such that potential effects would be outside of the range of conditions evaluated in 2018 Temporary Program Programmatic EA and its hydrologic modeling, additional environmental compliance will be completed as required.
5. Regarding Pueblo Water's BIDD water rights, Pueblo Water commits to comply with revegetation and other requirements included in the water rights decrees and Title 17 of the Pueblo County Code.
6. The United States Bureau of Reclamation currently operates Twin Lakes and Turquoise Reservoirs so as to manage flows in the Arkansas River above Pueblo Reservoir for recreational and fishery purposes, while fully satisfying the primary purposes of the Project and other existing contractual obligations (including renewals of existing contractual obligations), pursuant to its concurrence with recommendations of the Colorado Department of Natural Resources made after CDNR's consultation with Southeastern Water Conservancy District. At times that such an Upper Arkansas River Voluntary Flow Management Program is in effect, and so long as the Memorandum of Understanding executed on July 24, 2006, and attached as Exhibit C to the decree entered in Division 2 Case No. 04CW129 remains in effect, the following limits shall apply to Pueblo Water's operation of exchanges from Pueblo Reservoir to upstream locations:
 - A. Pueblo Water shall not exercise exchanges from Pueblo Reservoir to upstream locations against Fryingpan-Arkansas Project water released from Twin Lakes or Turquoise Reservoir pursuant to the Voluntary Flow Management Program.
 - B. Pueblo Water shall not operate exchanges from Pueblo Reservoir to upstream locations in a manner so as to trigger releases of Fryingpan-Arkansas Project water from either Twin Lakes or Turquoise Reservoir pursuant to the Upper Arkansas Voluntary Flow Management Program.
 - C. When Pueblo Water operates exchanges from Pueblo Reservoir to upstream locations, to the extent practicable and required by the 2006 MOU, its exchange operations during the period from October 15 to November 15 will be conducted in a manner that maintains flows between 250 and 500 cfs at Wellsville consistent with the Voluntary Flow Management Program while allowing greater exchange potential from November 16 to April 30; and conducted in a manner to help maintain higher incubation flows between November 16 and April 30 if spawning flows from October 15 to November 15 are between 501 and 700 cfs.
7. Comply with the Pueblo Flow Management Program pursuant to existing intergovernmental agreements if Reclamation and the program participants receive credible information that project operations are impairing physical diversion of a senior water right, contrary to Colorado water law, the program participants will immediately initiate discussions among the parties, including the party alleging the impairment and Reclamation, to develop a solution and remedy the impairment in compliance with Colorado water law.

Exhibit A-Best Management Practices and Mitigation Measures from the Record of Decision for the Arkansas Valley Conduit and Long-term Excess Capacity Master Contract Final Environmental Impact Statement.

Best Management Practices

Best management practices, as outlined in the Final EIS, are intended to avoid or reduce general construction-related effects while the preferred alternative is being implemented. Best management practices will be implemented either by construction contract documents between Reclamation and construction contractors, or by Reclamation contracts directly with participants.

Table A.1. Best Management Practices

Resource	Best Management Practices	Implementation Mechanism ⁽¹⁾
General	Construction activities will comply with all applicable laws and regulations.	Construction Contract Documents
	To the extent practicable, construction will avoid wetlands; federal, state, and local wildlife areas and refuges; designated critical habitats; migratory bird habitat during nesting brood-rearing season; known historic properties; hazardous material sites; and other resource sensitive areas noted below.	Construction Contract Documents
	Construction limits will be clearly marked with stakes or fencing before beginning ground disturbing activities. No disturbance will occur beyond these limits other than non-destructive protection measures for erosion/sediment control.	Construction Contract Documents
	Construction will typically occur during daylight hours, although these hours may be extended if needed for certain work aspects.	Construction Contract Documents
	Material and equipment storage will be only within well-defined, designated staging areas placed outside of wetlands and other sensitive areas.	Construction Contract Documents
	Structures affected by pipeline construction, including utilities, roads, highways, rivers, canals, railroads, agricultural irrigation facilities, fences, and other structures, will be replaced, repaired, or restored to current condition or better after construction.	Construction Contract Documents
	Construction debris will be hauled from the work site to a disposal location approved by the Contracting Officer or his/her representative.	Construction Contract Documents
Surface Water	Participants will continue voluntary commitment to operations of the Fry-Ark Project and other non-Fry-Ark water supplies in accordance with the Upper Arkansas Voluntary Flow Management Program.	Reclamation Contracting Process
	Participants will participate and comply with Southeastern's commitments in the Pueblo Flow Management Program, as outlined in the Six Party Intergovernmental Agreement.	Reclamation Contracting Process
Groundwater	Established groundwater monitoring wells will be avoided. However, if any monitoring wells will be inadvertently damaged or affected during construction they will be repaired and the Colorado Division of Water Resources, U.S. Geological Survey or other agency responsible for the well will be contacted.	Construction Contract Documents

**Arkansas Valley Conduit and Master Contract
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Table A.1. Best Management Practices (continued)

Resource	Best Management Practices	Implementation Mechanism ⁽¹⁾
Water Quality	As part of the National Pollution Discharge Elimination System permitting requirement, a stormwater pollution prevention plan will be developed and approved by Reclamation and submitted to the Colorado Water Quality Control Division before commencing construction activities.	Construction Contract Documents
	The stormwater pollution prevention plan will include erosion control measures to prevent or reduce erosion, soil loss, and nonpoint source pollution. These practices may include, but are not limited to, silt fencing, filter fabric, sediment logs, hay bales, temporary sediment ponds, check dams, and/or immediate mulching of exposed areas to minimize sedimentation and turbidity effects as a result of construction activities. The placement and specific measures used will be dictated by site specific conditions. Erosion control measures will be inspected regularly and repaired as needed.	Construction Contract Documents
	In-stream flows will be maintained during stream crossing construction. Spoil, debris piling, construction materials, and any other obstructions will be removed from stream crossings to preserve normal water flow.	Construction Contract Documents
	Stream crossings will be routed, as practicable, to minimize disturbance.	Construction Contract Documents
	Intermittent streams will be crossed only during low-flow periods and preferably when streambeds are dry.	Construction Contract Documents
	Disturbed portions of stream banks and beds of rivers, streams, and other waterways will be protected by rock riprap of adequate size and type to minimize erosion and scour. Any slopes greater than 3:1 will be protected with erosion-control blankets after seeding.	Construction Contract Documents
Aquatic Life	To minimize effects on fisheries and stream habitat, any stream identified as a fishery, based on recommendations from the Division of Parks and Wildlife, that cannot be constructed as a trenchless crossing will be avoided during spawning periods and during high flow and crossed when flows are low.	Construction Contract Documents
	Identified potential habitat for state threatened, endangered, and special concern species will be avoided if feasible, especially for Arkansas darters in tributary streams.	Construction Contract Documents
	In-stream flows will be maintained during stream crossing construction. Water will be allowed to flow around or past stream crossings to preserve normal water flow downstream from construction.	Construction Contract Documents
Recreation	Construction will be timed to minimize effects and disruption to parks and trails during the peak recreation season (May through September) where feasible.	Construction Contract Documents

**Arkansas Valley Conduit and Master Contract
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Table A.1. Best Management Practices (continued)

Resource	Best Management Practices	Implementation Mechanism ⁽¹⁾
Wetlands and Riparian Areas	Permanent and temporary effects on jurisdictional wetlands will be avoided to the extent practicable in compliance with Section 404 of the Clean Water Act.	Construction Contract Documents
	Identified perennial river or stream crossings will be performed by trenchless construction operations, which will not disturb the stream channel or the adjacent wetlands.	Construction Contract Documents
	Erosion control measures will be employed as appropriate and at stream crossings before construction activities. In addition: <ul style="list-style-type: none"> • Preserve, if feasible, existing trees along the stream bank • Stabilize, control erosion, restore, and re-vegetate streambeds and embankments as soon as a stream crossing is completed, following vegetation best management practices, and maintain until stable • Replant riparian, as necessary, woody shrubs and trees appropriate to ecological characteristics of the site to preserve watercourse shading characteristics and the aesthetic nature of the stream bank 	Construction Contract Documents
	Any equipment used previously in a water body or wetland will be disinfected to prevent the spread of invasive aquatic species. Disinfection methods will follow the Corps Section 404 requirements.	Construction Contract Documents
	Where open trench crossing of stream is required, the stream channel will be reestablished following pipe installation.	Construction Contract Documents
	All temporarily disturbed jurisdictional and non-jurisdictional wetlands and riparian areas will be reestablished following construction by doing the following: <ul style="list-style-type: none"> • Restore contours to previous elevations • Compact trenches sufficiently to prevent drainage along the trench or via bottom seepage • Salvage and replace topsoil • Backfill in such a manner as to not drain wetland or stream • Reestablish wetlands to similar type of wetland and wetland function • Monitor for success of reestablishment annually for a period of 3 years and take remedial actions as necessary until successful 	Construction Contract Documents
	Permanent and temporary effects on wetlands and riparian areas will be avoided to the extent practicable in compliance with Section 404 of the Clean Water Act.	Construction Contract Documents

**Arkansas Valley Conduit and Master Contract
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Table A.1. Best Management Practices (continued)

Resource	Best Management Practices	Implementation Mechanism ⁽¹⁾
Vegetation	Sensitive vegetation communities, native prairie, or areas with sensitive plant species will be avoided to the extent possible. However, if these areas are disturbed during pipeline construction, topsoil will be replaced and re-vegetation plans will be specifically designed to reestablish a similar type and quality of native vegetation. Monitor for success of reestablishment annually for a period of 3 years and take remedial actions as necessary until successful.	Construction Contract Documents
	Vegetated areas temporarily disturbed by construction (except cropland) will be revegetated with species appropriate to the surrounding area's ecological conditions of, and in a manner that prevents erosion and noxious weed invasion. Revegetation will occur as soon as practicable after construction and will follow all pertinent local and state regulations. Temporary seeding may be required when areas remain disturbed for more than 30 days.	Construction Contract Documents
	All areas with existing landscape cover or mulch will be replaced with similar size and type of cover materials. A turf seed mix will be used for established lawns.	Construction Contract Documents
	Topsoil will be removed and stockpiled separately from surface soils for reapplication following construction.	Construction Contract Documents
	Topsoil, soil amendments, fertilizers, and mulches will be reapplied selectively, as appropriate, before revegetation during favorable plant establishment climate conditions to match site conditions and revegetation goals.	Construction Contract Documents
	Revegetation will be found to be successful with a cover of local native species obtains 90% cover and will be monitored for a minimum of 3 years following reseeding. Areas will be reseeded as necessary.	Construction Contract Documents

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	<p>To prevent introducing, and minimizing spread of, nonnative vegetation and noxious weeds, the following measures will be implemented during construction:</p> <ul style="list-style-type: none"> • Survey noxious weed within a year before construction to establish type, size, and location of noxious weed populations. • Minimize soil disturbance. • Pressure wash and/or steam clean construction equipment before entering construction zones from off-site locations and before moving from an infested site to a non-infested site within the construction zone. • Cover haul trucks bringing fill materials to prevent seed transport. • Park vehicles and equipment only in construction sites or approved staging areas. • Survey staging areas for noxious weeds and treat appropriately before use. • Use fill, rock, and topsoil that is weed-free. • Minimize fertilizer in seeded areas. • Use certified weed-free seed and mulch. • Use weed-free straw bales for erosion control. • Monitor and follow-up on treatment of exotic vegetation after construction. • Follow Colorado Department of Agriculture and US Department of Agriculture Noxious Weed Management Guidelines as well as applicable local regulations. • A weed management and control plan will be drafted and approved by Reclamation prior to disturbance of vegetation. 	<p>Construction Contract Documents</p>
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Table A.1. Best Management Practices (continued)

Resource	Best Management Practices	Implementation Mechanism ⁽¹⁾
Wildlife	Identified potential habitat for federal or state threatened, endangered, and sensitive species will be avoided if feasible.	Construction Contract Documents
	Construction will be prohibited within ½ mile of designated piping plover or Interior least tern breeding areas during the breeding season (April 15 through August 31) when these species are present.	Construction Contract Documents
	If threatened or endangered species are identified and encountered during construction, all ground-disturbing activities in the immediate area will be stopped to consult with the U.S. Fish and Wildlife Service and determine appropriate steps to avoid affecting the species.	Construction Contract Documents
	Effects on migratory birds will be avoided and minimized by implementing a Migratory Bird Management Plan. The management plan will include a number of measures, including removal of vegetation before migratory bird breeding season (which is typically between April 1 and August 15 in Colorado) or conducting clearance surveys immediately before construction. A Migratory Bird Management Plan will be developed.	Construction Contract Documents
	Seasonal Restrictions and Buffer Zones for Raptors. Avoidance and mitigation options for nesting raptors sites consists of: 1) conducting nest surveys before construction, 2) establishing reasonable site-specific buffers and seasonal restrictions, 3) implementing seasonal restrictions to avoid and minimize disturbance, and 4) removing inactive nests from the construction footprints or other areas of long-term effects.	Construction Contract Documents
Noise and Vibration	Construction and operation activities will comply with state and local noise ordinances.	Construction Contract Documents
	Night construction will be avoided near residential and populated areas.	Construction Contract Documents
Visual Resources	As noted for vegetation, short-term disturbances associated with constructing facilities will be revegetated and/or landscaped with Colorado native species.	Construction Contract Documents
	Existing topographic grades will be restored following pipeline excavation.	Construction Contract Documents
	Constructed structures, facilities, and features will be designed to blend with the architectural characteristics of surrounding structures. Local agencies will be invited to participate in the Environmental Review Team to coordinate design of aboveground structures, facilities, and features.	Construction Contract Documents
	Valve boxes will be left above grade in a cultivated field if agreeable to the landowner, or moved to the nearest fence or right-of-way. Valves will not be located adjacent to or in close proximity to a paved or graveled road and will be painted a neutral color that blends with the background, reduces visibility, and maintains the viewshed.	Construction Contract Documents
	Construction lighting during night work will be directed downward onto the construction activity to minimize effects near occupied homes and businesses, and to the night sky.	Construction Contract Documents

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Table A.1. Best Management Practices (continued)

Resource	Best Management Practices	Implementation Mechanism ⁽¹⁾
Traffic	Residents and business will be notified in advance of planned interruptions to utility services; any utility disruptions will typically be limited to less than 1 day or less	Construction Contract Documents
	Crossings of interstate or divided highways and railroads will be performed by trenchless construction methods, which will not disturb or interrupt traffic.	Construction Contract Documents
	Night work will be considered at select locations to minimize traffic effects, where work could be performed without affecting nearby residences;	Construction Contract Documents
	Boring under highways and major collector streets; or construction within existing rights-of-way or easements part of or adjacent to roadways will also be used to reduce effects on traffic.	Construction Contract Documents
	No more than two city blocks will be unavailable for general traffic at any time.	Construction Contract Documents
	Construction contractors will coordinate with the Colorado Department of Transportation, county, and local jurisdictions on traffic plans, lane closures, and detours.	Construction Contract Documents
Socio-economics	Landowners will be compensated for crop damage and hay loss caused by construction activities.	Reclamation Contracting Process
	Structures damaged or disturbed during construction will be repaired, replaced, or the landowners compensated.	Construction Contract Documents
Cultural Resources	Direct disturbance to historical properties will be avoided to the extent feasible and in accordance with the Section 106 programmatic agreement.	Construction Contract Documents
	Previously disturbed utility rights-of-way will be used for placement of pipelines and facilities, where feasible, to diminish the probability of encountering any undisturbed historical properties.	Construction Contract Documents
	All known burials or cemeteries will be avoided to the extent possible. If a burial or cemetery cannot be avoided or is encountered during construction, Reclamation will comply with the Native American Graves Protection and Repatriation Act if graves are discovered on Federal or trust lands or within reservation boundaries. If on state or private land, Reclamation will comply with the State unmarked burial law and the Section 106 programmatic agreement.	Construction Contract Documents
	If unrecorded cultural resources or traditional cultural properties are encountered during construction, all ground disturbance activity within the area will be stopped, Reclamation and appropriate authorities will be notified, and all applicable stipulations of the Section 106 programmatic agreement will be followed. Activities in the area will resume only when compliance has been completed.	Construction Contract Documents
	All appropriate cultural resource compliance activities will be completed in accordance with the Section 106 programmatic agreement.	Construction Contract Documents

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Table A.1. Best Management Practices (continued)

Resource	Best Management Practices	Implementation Mechanism ⁽¹⁾
Air Quality	A fugitive dust control plan will be developed and implemented to minimize particulate and dust emissions from the construction site.	Construction Contract Documents
	Construction equipment/vehicles will not be allowed to idle longer than 15 minutes when not in use.	Construction Contract Documents
	All construction equipment will be maintained in proper working order.	Construction Contract Documents
Floodplains	No structures will be constructed that will raise flood water surface elevations.	Construction Contract Documents
Hazardous Materials	A Hazardous Spill Plan or Spill Prevention, Control and Countermeasures Plan, whichever is appropriate, will be in place, stating what actions will be taken in the event of a spill, notification measures, and preventive measures to be implemented, such as the placement of refueling facilities, storage, and handling of hazardous materials.	Construction Contract Documents
	All equipment will be maintained in a clean and well-functioning operating condition to avoid or minimize contamination from automotive fluids. All equipment will be checked daily and any leaks will be immediately repaired on discovery. Oil, hydraulic fluids, antifreeze or other chemicals will not be drained to the ground.	Construction Contract Documents
	Before construction, a more detailed hazardous materials assessment in conformance with the scope and limitations of American Society for Testing Materials (ASTM) 1527-05: "Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process" will be conducted to identify sites with soil and/or groundwater contamination not documented in readily ascertainable agency files.	Construction Contract Documents
	Any known solid waste disposal areas identified in the construction sites will be avoided or removed and properly disposed at a permitted solid waste disposal facility	Construction Contract Documents
	Equipment or vehicles will not be refueled within 100 feet of rivers, streams, or identified wetlands. If on-site fuel tanks are used, approved containment devices will be required.	Construction Contract Documents
	Identified evidence of hazardous materials, petroleum product spills, or other contamination will be avoided or excavated and properly disposed at a permitted waste disposal facility.	Construction Contract Documents
	If soil and/or groundwater contamination is encountered during construction, mitigation procedures will be implemented to minimize the risk to construction workers and to future operations.	Construction Contract Documents
Unique and Prime Farmland/ Agricultural Lands	To the extent feasible, construction activities on irrigated lands will be avoided during the growing season.	Construction Contract Documents
	Cropland disturbed by construction will be restored with topsoil to the depth, quality, grade, and relative density, as the original surface. Pipelines crossing agricultural fields will be backfilled and compacted to prevent settling when the field is irrigated.	Construction Contract Documents

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	Long-term effects on prime and unique farmland will be avoided to the extent feasible. If avoidance is not possible, Reclamation will complete and submit a Farmland Conversion Form (AD-1006) to the Natural Resources Conservation Service in compliance with the Farmland Protection Policy Act for any long-term change in land use.	Construction Contract Documents
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Notes:

- (1) Construction Contract Documents include design drawings and construction specifications that will be implemented by the contractor. The Reclamation Contracting Process includes measures that Reclamation will address directly.

Mitigation Measures

Mitigation measures are methods or plans to reduce, offset, or eliminate adverse effects. Mitigation could include one or more of the following:

- Avoiding effects.
- Minimizing effects by limiting the degree or magnitude of an action.
- Rectifying effects by restoration, rehabilitation, or repair of the affected environment.
- Reducing or eliminating effects over time.
- Compensating for the effect by replacing or providing substitute resources or environments to offset the loss.

Reclamation will be responsible for implementing the following mitigation commitments as part of the Comanche North Alternative. Other participants or agencies may also have a role in accomplishing these commitments.

- Reclamation will limit excess capacity contract operations when streamflow is less than 50 cfs, as measured by adding streamflow at the Arkansas River above Pueblo gage to fish hatchery return flows from the current hatchery discharge point, to mitigate moderate effects of occasional low streamflow immediately below Pueblo Reservoir, and the effects of this low streamflow on water quality and aquatic life.
- Reclamation will provide coordination assistance with participants in managing storage and water releases in a manner that will assist in augmenting occasional moderate low streamflow effects in the Arkansas River downstream from Pueblo Reservoir to the Fountain Creek confluence. Reclamation will not modify operations that would impact Fry-Ark Project yield.
- Reclamation will provide \$50,000 for habitat improvements downstream from Pueblo Reservoir to mitigate moderate streamflow effects and minor aquatic life effects of the Comanche North Alternative during low-flow periods in the Arkansas River. Design and location of improvements will be coordinated between Reclamation and Colorado Parks and Wildlife, including site-specific NEPA compliance.
- To mitigate moderate reservoir effects in the Lower Arkansas River Basin on aquatic life, Reclamation will support expansion of the Pueblo Fish Hatchery near the existing Pueblo Fish Hatchery, if requested and deemed feasible by Colorado Parks and Wildlife, in conjunction with mitigation requirements set forth in the Southern Delivery System EIS and Fish and Wildlife Mitigation Plan. Hatchery expansion will occur through a

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mutually acceptable agreement between Colorado Parks and Wildlife and Reclamation, and the location of the expansion and site-specific NEPA compliance will be coordinated between Reclamation and Colorado Parks and Wildlife. The State will be responsible for construction, operation, and maintenance of fish production ponds and associated facilities. This includes providing all water necessary for these ponds, including, but not limited to, water for filling the ponds, and augmenting evaporation from the ponds, in accordance with Colorado state law.

- Effects on jurisdictional wetlands and waters of the U.S. will require authorization from the Corps. A compensatory mitigation plan may be required for the loss of any wetlands and will include methods to replace specific functions of affected wetlands. Any permanent loss of non-jurisdictional wetlands will be replaced.
- Before construction, rare plant surveys will be conducted during the appropriate flowering period in areas with potential habitat for state plant species of concern. If a plant species of concern population is found, construction activities may be shifted slightly, where practicable, to avoid plant species of concern. If not practicable, a plan detailing measures and methods to restore habitat or transplant species will be implemented. This plan will include measures appropriate for specific rare plant species and site conditions based on methods developed by the Rare Plant Initiative, Colorado Natural Heritage Program, and other experts.
- A Fish and Wildlife Coordination Act Report will be prepared in coordination with the U.S. Fish and Wildlife Service and Colorado Parks and Wildlife before implementing the Comanche North Alternative.
- Preconstruction surveys by trained observers will identify sensitive habitats and wildlife use before construction to allow implementing best management practices, temporal and spatial restrictions, and implementation of a migratory bird management plan. Pipelines, water treatment plants, and pump station facilities will be realigned during final design, where feasible, to avoid sensitive wildlife habitat.
- Open space areas and parks affected by construction activities will remain open to the extent feasible with consideration for public safety. Safe, reasonable, and short-term detours around construction areas will be created to minimize effects on park or trail users. Limitations in public access will be restored as quickly as possible.
- Planned construction or maintenance activities will be advertised in advance to minimize inconvenience to land owners and recreation activities.
- Traffic delays or detours from construction activities will be announced in advance of work to minimize disruption in traffic patterns. Residential, business, and emergency vehicles access will be maintained at all times. Incentives and disincentives will be offered to construction contractors to expedite completion in areas where traffic effects will be greatest.
- Construction traffic will be routed away from noise-sensitive streets, where feasible. Noisy operations will be conducted during the same time period, since combined noise levels will not be significantly greater than the level produced if the operations were performed separately.
- Construction methods with the minimum vibratory disturbance will be used near sensitive structures. Vibration monitors will be placed near sensitive structures to monitor and correct potential effects.

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- When final engineering is complete, Reclamation will meet with Pueblo County to enter into an agreement to address specific construction effects in accordance with best management practices and mitigation measures in this Record of Decision.
- Compliance with Section 106 of the National Historic Preservation Act will be completed in accordance with the programmatic agreement.