



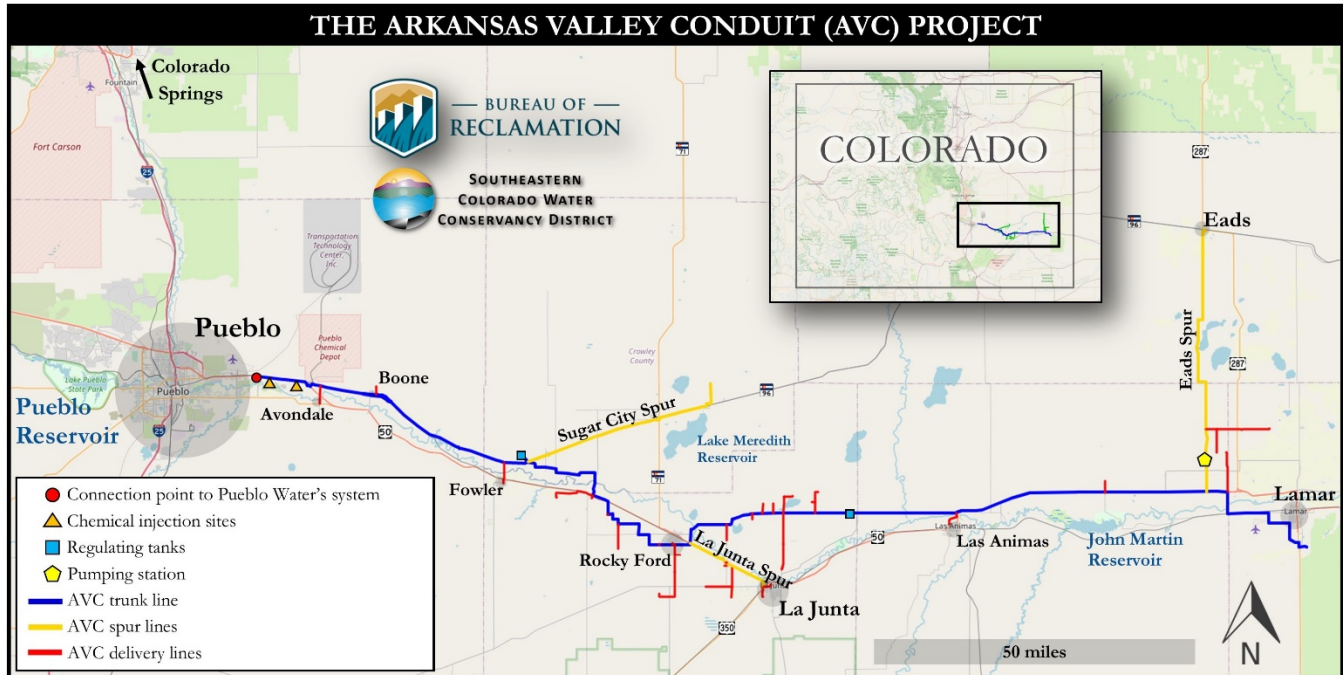
— BUREAU OF —  
RECLAMATION

Project No. ECAO-2011-04

# Arkansas Valley Conduit

## Supplemental Information Report

Missouri Basin Region, Eastern Colorado Area Office



# Mission Statements

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

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

# Abbreviations and Acronyms

acre-ft	acre-feet
acre-ft/yr	acre-feet per year
APE	area of potential effect
AVC	Arkansas Valley Conduit
CDOT	Colorado Department of Transportation
CDPHE	Colorado Department of Public Health and Environment
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
Colorado	Colorado State Highway
Contract	Pueblo Water Service Contract for Treatment and Conveyance of AVC Project Water
CWA	Clean Water Act
EA	environmental assessment
EIS	environmental impact statement
ERO	ERO Resources Corporation
FEIS	Arkansas Valley Conduit and Long-Term Excess Capacity Master Contract Final Environmental Impact Statement
FONSI	Finding of No Significant Impact
Fry-Ark	Fryingpan-Arkansas Project
FY	fiscal year
Holbrook Center	Holbrook Center Soft Water Association
Homestead	Homestead Improvement Association
HVAC	heating, ventilation, and air-conditioning
I-25	Interstate I-25
JUP	Pueblo Water's Joint Use Pipe
Mgal/d	million gallons per day
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
North Holbrook	North Holbrook Water Company
O&M	operation and maintenance
PA	programmatic agreement
Participants	Arkansas Valley Conduit Project Participants

# Abbreviations and Acronyms

PMP	Project Management Plan
psi	pounds per square inch
Pueblo Water	Board of Water Works of Pueblo
Reclamation	Bureau of Reclamation
Riverside	Riverside Water Company
ROD	Record of Decision for the Arkansas Valley Conduit and Long-Term Excess Capacity Master Contract
SCADA	supervisory control and data acquisition
Service	U.S. Fish and Wildlife Service
SHPO	Colorado State Historic Preservation Officer
SIR	Supplemental Information Report
Southeastern	Southeastern Colorado Water Conservancy District
Southside	Southside Water Association
St. Charles Mesa	Saint Charles Mesa Water District
TBD	to be determined
TSC	Technical Service Center
U.S.	United States
U.S. 50	United States Highway 50
West Grand Valley	West Grand Valley Water, Inc.
West Holbrook	West Holbrook Water Pipeline Association
WTP	Water Treatment Plant



# Table of Contents

	<i>Page</i>
Introduction and Background.....	1
Regulatory Guidance .....	7
ROD .....	7
Environmental Review Team .....	7
ROD Selected Alternative (Comanche North) .....	8
Reconfigured AVC Project.....	12
Participants .....	13
Pipeline Realignments and Associated Facilities .....	14
Pueblo Reservoir to Pueblo Connection Point Trunk Line.....	14
Boone Reach Trunk Line .....	15
Injection Sites.....	15
Injection Site No. 1 .....	15
Injection Site No. 2 .....	17
Pumping Plants.....	18
Regulating Tanks .....	18
Regulating Tank No. 1.....	18
Regulating Tank No. 2.....	18
Spur Pipelines.....	18
Delivery Pipelines .....	18
Pueblo Water Contract .....	20
AVC Project Management .....	20
AVC Project Charter and Project Management Plan.....	20
AVC Project Segments .....	21
Segment 1 – Pueblo Reservoir to Pueblo Connection Point.....	21
Segment 2 – Pueblo Connection Point to Rocky Ford .....	21
Segment 3 – Rocky Ford to Las Animas .....	22
Segment 4 – Las Animas to Lamar/Eads.....	22
Reclamation Subproject.....	22
Southeastern Subproject.....	23
Final Design and Construction.....	24
Reconfigured AVC Project Affected Environment .....	25
Segment 1 – Pueblo Reservoir to Pueblo Connection Point.....	25
AVC Project Water Supply and Demand .....	25
Whitlock WTP Improvements .....	26
Pueblo Water Delivery System .....	26
Segment 1 Trunk Line .....	28
Pueblo Reservoir Excess Storage Capacity Contract with Pueblo Water .....	29
Segment 2 – Pueblo Connection Point to Rocky Ford .....	29
Boone Reach .....	29
Fowler/Manzanola Reach .....	33
Manzanola to Rocky Ford Reach.....	33
Segment 3 – Rocky Ford to Las Animas.....	37
Rocky Ford/Cheraw Reach .....	37
Hilltop .....	37

# Table of Contents

	<i>Page</i>
West Grand Valley .....	37
Riverside .....	37
North Holbrook .....	40
West Holbrook .....	40
Holbrook Center .....	40
Cheraw .....	40
Southside.....	40
East End .....	43
Segment 4 – Las Animas to Lamar .....	43
Wiley.....	43
Sugar City Spur .....	43
Sugar City.....	43
La Junta Spur.....	46
Swink .....	46
Homestead Improvement Association.....	46
La Junta.....	46
Eads Spur .....	46
Endangered Species Act Compliance .....	49
Historic and Cultural Resources Compliance.....	52
References.....	55

Appendix A: Maps - AVC Project Features

Appendix B: Programmatic Agreement

## Figures

<i>No.</i>		<i>Page</i>
1	Reconfigured AVC Project showing division between trunk line and spur/delivery lines. ....	3
2	Changes in Participants. ....	4
3	Changes to pipe alignment around Pueblo. ....	5
4	AVC FEIS/ROD Selected Alternative (Comanche North). ....	9
5	Planned areas to locate injection sites.....	16
6	AVC Project Charter excerpt.....	21
7	Pueblo Water pipeline improvements (from Black and Veatch, 2020). ....	27
8	U.S. 50/Colorado 96/Avondale trunk line and delivery pipeline changes. ....	31
9	Boone area trunk line and delivery pipeline changes.....	32
10	Fowler/Regulating Tank No. 1 delivery pipeline changes. ....	34
11	Valley Water delivery pipeline changes.....	35
12	Patterson Valley delivery pipeline changes. ....	36
13	Hilltop delivery pipeline changes.....	38
14	West Grand Valley delivery pipeline changes.....	39

## Figures (continued)

<i>No.</i>		<i>Page</i>
15	Riverside/North Holbrook delivery pipeline changes.....	41
16	Cheraw/Southside/East End delivery pipeline changes. ....	42
17	Wiley delivery pipeline changes. ....	44
18	Sugar City delivery pipeline changes. ....	45
19	Swink delivery pipeline changes. ....	47
20	Homestead/La Junta delivery pipeline changes. ....	48
21	May Valley delivery pipeline changes.....	50
22	May Valley 2 delivery pipeline changes. ....	51

## Tables

<i>No.</i>		<i>Page</i>
1	2013 FEIS Identified AVC Participants.....	10
2	Reconfigured AVC Project Pipelines with FEIS/ROD Selected Alternative.....	13
3	Changes to Delivery Line Lengths.....	19
4	Tentative Design and Construction Schedule .....	24



# Introduction and Background

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

The AVC was authorized in the original Fry-Ark legislation in 1962 (Public Law 87-590). The AVC would not increase Fry-Ark water diversions; rather, it was intended to improve drinking water quality. However, the AVC was not constructed with the original Fry-Ark Project, primarily because of the beneficiaries' inability to repay 100 percent of construction costs. In 2009, Congress amended the original Fry-Ark legislation in Public Law 111-11, which authorized annual Federal funding, as necessary, for constructing the AVC, and provided that only 35 percent of total Project construction costs would be repaid over a period of no more than 50 years. An initial Value Planning study was completed in 2010 (Bureau of Reclamation [Reclamation], 2010). Reclamation's Technical Service Center (TSC) issued an Appraisal Design Report in August 2012, which compared five action alternatives (pipeline alignments) for construction of the AVC. A supplemental report was issued in June 2013 for one additional alternative, for a total of six action alternatives. The Arkansas Valley Conduit and Long-Term Excess Capacity Master Contract Final Environmental Impact Statement (FEIS) was issued in August 2013 (Reclamation, 2013). Seven alternatives (six action alternatives from the Appraisal Design Report plus no action) were analyzed under the FEIS. A Record of Decision for the Arkansas Valley Conduit and Long-Term Excess Capacity Master Contract (ROD) was signed by Reclamation's Great Plains Regional Director in February 2014, which selected the "Comanche North Alternative" for implementation (Reclamation, 2014). This alternative then became known as the "Selected Alternative." The TSC issued a Feasibility Design Report for the Selected Alternative in September 2016 and a Project Cost Summary Report in October 2017. The total estimated cost to construct the Selected Alternative was \$640 million (feasibility level, April 2016 dollars) or approximately \$700 million in 2019 dollars.

Through a collaborative effort between Reclamation and Southeastern in 2018 and 2019, a revised Project configuration was developed with the goal of reducing total estimated Project costs and requirements for Reclamation appropriations. The total estimated 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). Federal appropriations for this Project through fiscal year (FY) 2019 totaled approximately \$29.5 million. An additional \$28 million in FY 2020 and \$11.05 million in FY 2021 were provided to move the AVC Project into construction.

## Arkansas Valley Conduit Supplemental Information Report

It is anticipated that an environmental assessment (EA) will be adequate to evaluate and disclose any additional environmental impacts associated with all the changes listed above, referred to as the Reconfigured AVC Project.

Some of the proposed changes to the AVC Project since it was defined in the FEIS include:

1. **Cooperative management and construction of the AVC Project.** Division of the project into two major subprojects, which will be cooperatively managed by both Reclamation and Southeastern. Instead of Reclamation constructing and owning the entire AVC Project, Southeastern will construct and own the “spur and delivery lines” portion of the AVC, as shown in figure 1. Reclamation will construct about 120 miles of “trunk line,” and Southeastern will construct about 54.3 miles of spur pipelines and 58.7 miles of delivery pipeline to FEIS delivery points. The total pipeline length of the Reconfigured AVC Project is approximately 233 miles. The ROD’s Selected Alternative identified about 227 total miles of pipeline, all constructed by Reclamation. The reconfiguration reduces the main trunk line by about 24.7 miles and increases the length of delivery pipelines needed by about 30.6 miles to the connections with AVC Project Participants (Participants).
2. **Changes in Participants.** Changes in Participants include the elimination of Saint Charles Mesa Water District (St. Charles Mesa) and addition of Riverside Water Company (Riverside), as shown in figure 2. These changes have a net effect of reducing the total maximum annual water deliveries through the AVC from 10,256 acre-feet per year (acre-ft/yr) to 7,625 acre-ft/yr. Per the FEIS, St. Charles Mesa would have received up to 2,651 acre-ft/yr, and Riverside has requested a maximum of 20 acre-ft/yr – yielding the net reduction of 2,631 acre-ft/yr.
3. **Elimination of pipeline around Pueblo.** The Comanche North Alternative, as described in the FEIS and the ROD, included construction of a pipeline around the City of Pueblo. The Reconfigured AVC Project instead utilizes existing infrastructure owned and operated by the Board of Water Works of Pueblo (Pueblo Water) to convey AVC Project water to a connection point east of Pueblo near Devine, Colorado (Pueblo Connection Point). This change eliminates about 27 miles of pipeline around the south side of Pueblo, as well as a major interstate crossing at Interstate I-25 (I-25). In place of this pipeline, 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 a net reduction of about 27 miles of pipe, as shown in figure 3.
4. **Contract with Pueblo Water.** A contract with Pueblo Water is required to allow conveyance of AVC Project water through its existing treatment and distribution system. Reclamation proposes to enter into a Pueblo Water Service Contract for Treatment and Conveyance of AVC Project Water (the Contract)

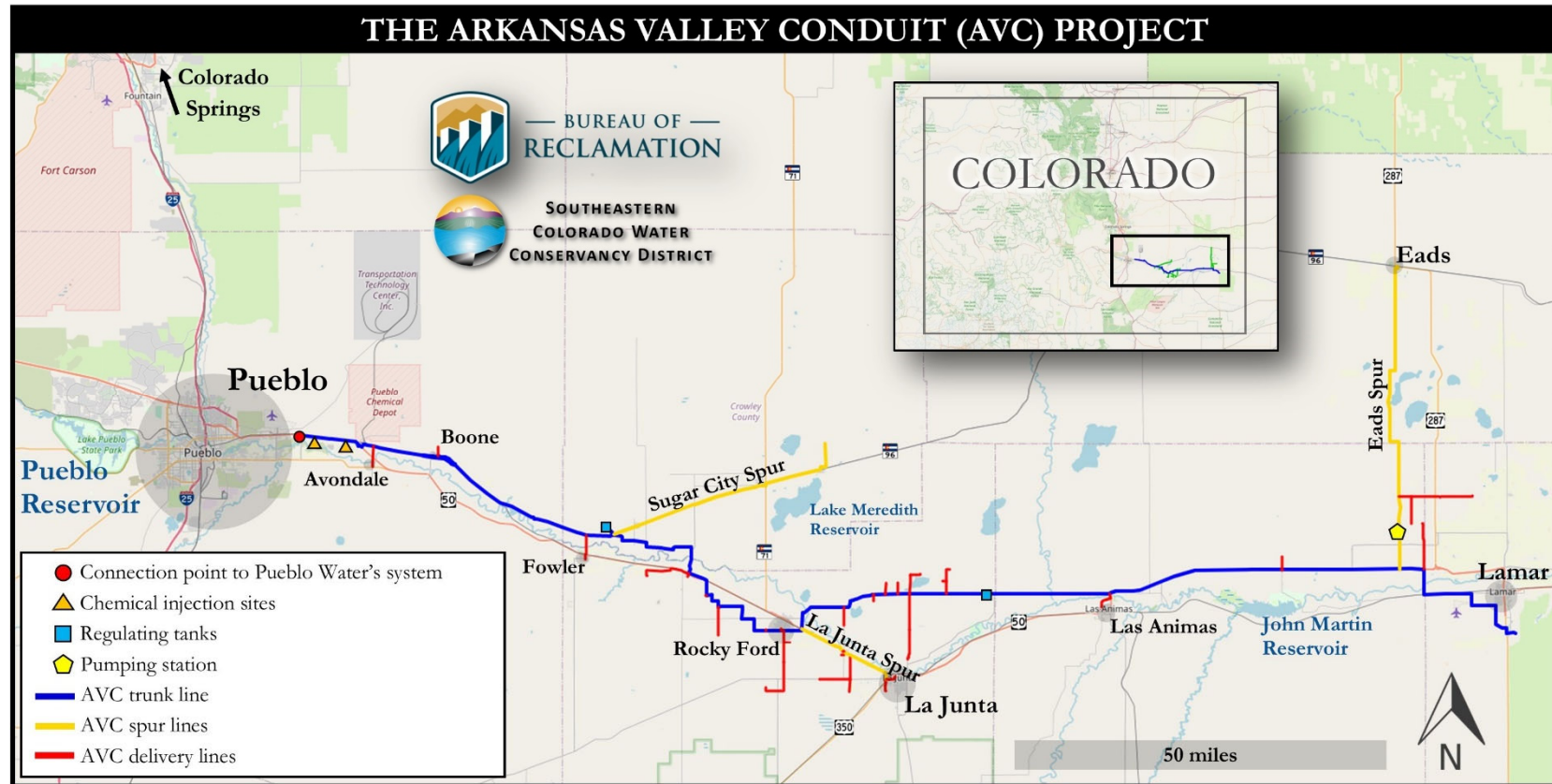


Figure 1: Reconfigured AVC Project showing division between trunk line and spur/delivery lines.

## Arkansas Valley Conduit Supplemental Information Report

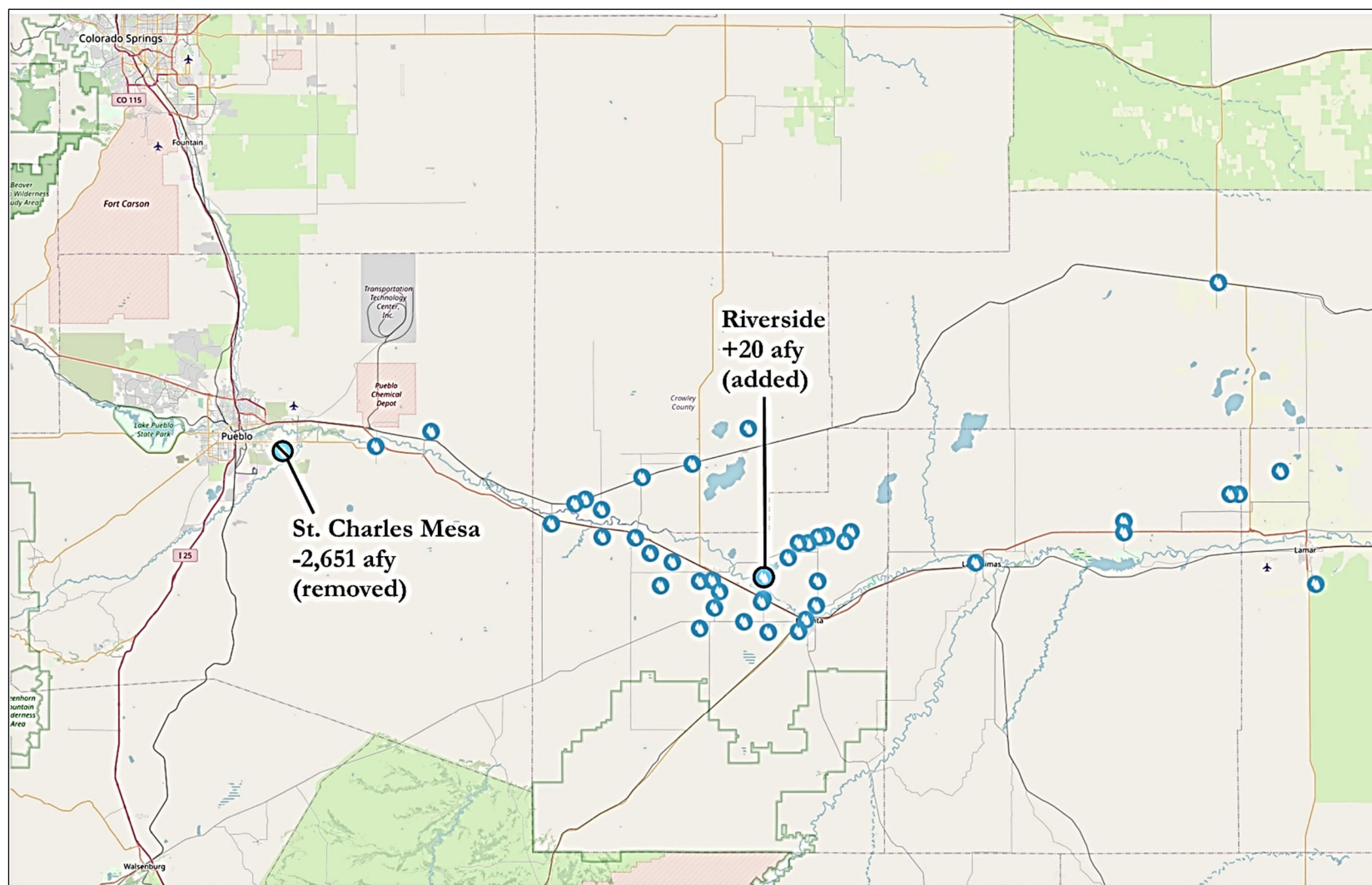


Figure 2: Changes in Participants.



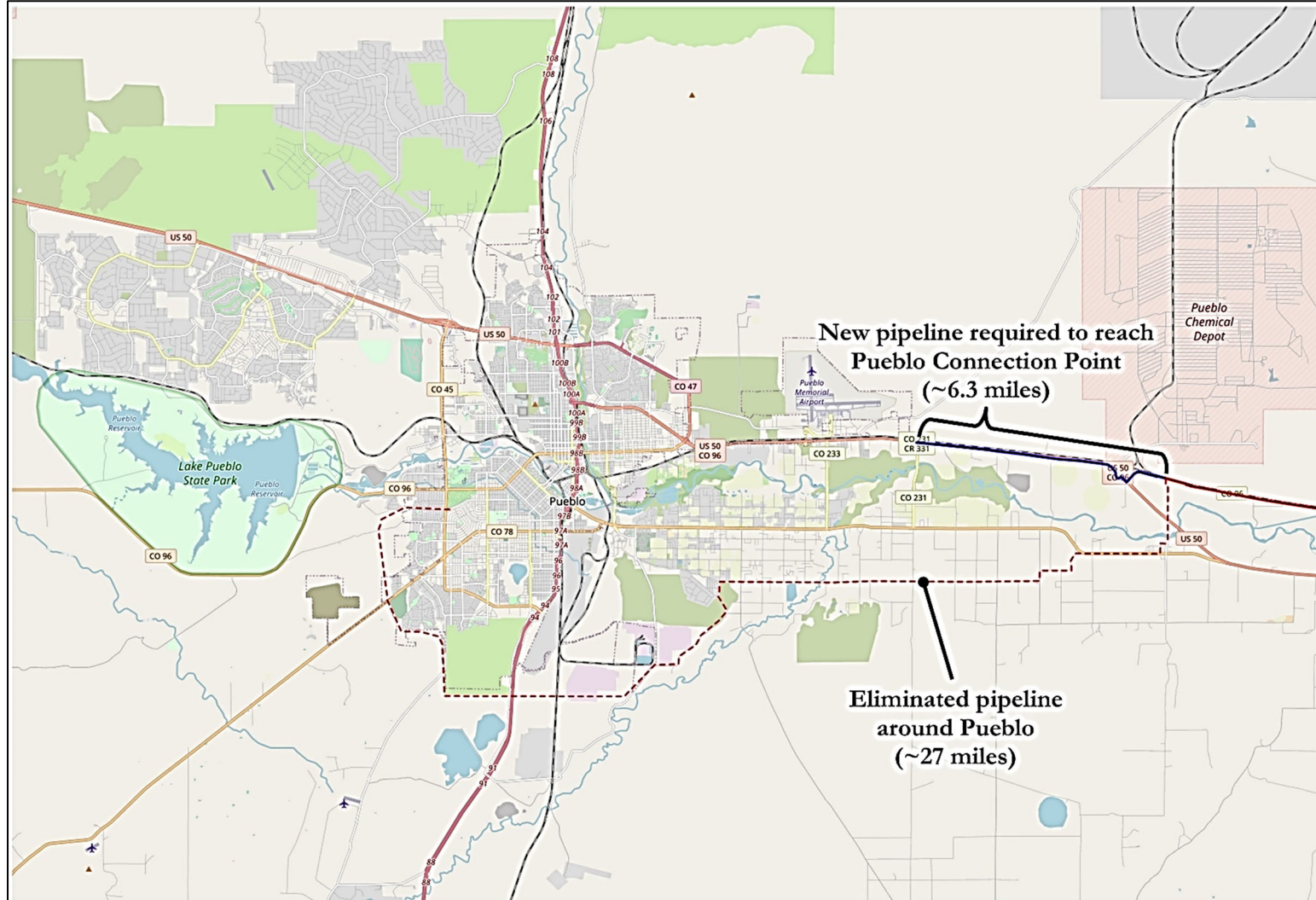


Figure 3: Changes to pipe alignment around Pueblo.

## Arkansas Valley Conduit Supplemental Information Report

with Pueblo Water to treat and deliver a maximum of 13 million gallons per day (Mgal/d) to meet the FEIS's 2070 projected AVC Project Participant demands.

Under the Contract, Reclamation will authorize continued use of excess storage capacity in Pueblo Reservoir of between 10,000 and 25,000 acre-ft/yr for a period of 50 years. Pueblo Water currently has a contract with Reclamation for the use of excess storage capacity of up to 15,000 acre-ft/yr in Pueblo Reservoir, which expires in 2025. Pueblo Water is also requesting to reduce the storage contract volume from 15,000 acre-ft/yr to 10,000 acre-ft/yr, with the ability to increase storage up to 25,000 acre-feet (acre-ft) over the life of the Contract. In addition, Pueblo Water is requesting to add the ability to store water from Bessemer Ditch water rights, acquired in the early 2000s, in Pueblo Reservoir.

Pueblo Water plans to charge Reclamation a one-time capacity fee for the use of its system to treat and deliver AVC Project water to the Pueblo Connection Point. For its part, Reclamation would charge Pueblo Water annually on a per acre-foot basis for its use of excess storage capacity. Pueblo Water would pay this annual charge to Reclamation. Alternatively, if the one-time capacity fee which Pueblo Water would charge for the use of its system by the AVC is not paid in a lump sum by Reclamation, then Reclamation would either make an annual payment to Pueblo Water or give Pueblo Water a credit equal to the amount due from Pueblo Water each year for excess storage capacity charges until Pueblo Water's one-time capacity fee has been paid to it or via a crediting arrangement. The contract fees and payments described above would be subject to contract negotiation.

5. **Chemical injection facilities.** Two chemical injection facilities along the trunk line adjacent to United States Highway 50 (U.S. 50) will be constructed to meet Colorado Department of Public Health and Environment (CDPHE) required water quality standards. Sodium hypochlorite and sodium bisulfite will be injected into the pipeline to remove chloramines from the water.
6. **Other feature relocations.** Regulating tank and pumping plant locations will be modified to facilitate gravity flow for most of the AVC Project system.
7. **Pueblo Water system upgrades.** Pueblo Water's existing system can provide up to about 3 Mgal/d to the Pueblo Connection Point with no system improvements. Water treatment will be provided by Pueblo Water's existing Whitlock Water Treatment Plant (Whitlock WTP). The Contract would utilize the Pueblo Water's Joint Use Pipeline (JUP) below the JUP Wye (a three-way pipeline connection) to deliver water to Whitlock WTP and eliminate the need for about 1.3 miles of pipeline to additional water treatment facilities constructed at the Whitlock WTP. Future upsizing of about 10 miles of Pueblo Water delivery system by Pueblo Water will allow delivery of up to 13 Mgal/d to the Pueblo Connection Point. It is anticipated that Reclamation would pay a one-time capital improvement fee to Pueblo Water as part of the Contract, and Pueblo Water would be

## Arkansas Valley Conduit Supplemental Information Report

responsible for upgrades to its system to accommodate the increased demands. Payment of the capital fee, possibly through upfront funding, will be addressed in the contract.

8. **Delivery point changes.** Changes in delivery pipeline connections to Participants' water system, requested by the Participants, will also be needed.

The purpose of this Supplemental Information Report (SIR) is to review proposed changes and determine if supplemental National Environmental Policy Act (NEPA) analysis and documentation is needed in accordance with the guidance outlined below. This SIR discloses an analysis of the environmental effects of the changes on the Project components based on the environmental resources studied in the FEIS. A supplemental environmental impact statement will be prepared if it is determined that these changes represent substantial changes in the FEIS Proposed Action that are relevant to environmental concerns, or there are significant new circumstances or information relevant to environmental concerns and bearing on the Proposed Action or its impacts.

## Regulatory Guidance

The Council on Environmental Quality (CEQ) regulations (40 Code of Federal Regulations [CFR], Chapter V) provide direction regarding the review of an environmental impact statement (EIS) and preparation of supplemental statements. The CEQ regulations state in 40 CFR § 1502.9(d) that agencies shall “prepare supplements to either draft or final EISs if a major Federal action remains to occur, and: (i) The agency makes substantial changes to the proposed action that are relevant to environmental concerns; or (ii) There are significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts.”

A supplemental EIS is prepared under the above circumstances to ensure that the agency has the best possible information to make any necessary substantive changes in its decision regarding the proposed changes. In evaluating the proposed changes to the ROD's Selected Alternative (Comanche North), the criteria in 40 CFR § 1502.9(d) will be employed to determine if significant new circumstances or information relevant to the environmental concerns and bearing on the AVC Project or its impacts have occurred since completion of the FEIS in 2013.

## ROD

### Environmental Review Team

The February 27, 2014 ROD anticipated the potential need for review of proposed AVC Project changes (e.g., pipeline routing, new Participants, new water supplies, or

## Arkansas Valley Conduit Supplemental Information Report

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. Per the ROD, the “Environmental Review Team could include technical representatives of the following agencies:

- Bureau of Reclamation
- U.S. Army Corps of Engineers
- U.S. Fish and Wildlife Service
- Southeastern Colorado Water Conservancy District
- Colorado Department of Transportation
- Colorado Parks and Wildlife
- Colorado State Historic Preservation Office
- Kansas Division of Water Resources
- City of Pueblo
- Pueblo, Otero, Bent, Kiowa, and Prowers counties
- Other entities as deemed important to the process”

The Environmental Review Team will be asked to review this SIR and participate as cooperating agencies in the preparation of an EA to evaluate the changes associated with the Reconfigured AVC Project. If Reclamation determines that proposed changes result in significant effect to the quality of the human environment, a supplemental EIS will be prepared. Otherwise, Reclamation will complete a Finding of No Significant Impacts (FONSI) for the Reconfigured AVC Project.

### **ROD Selected Alternative (Comanche North)**

The FEIS/ROD Selected Alternative (figure 4) included diverting water from the existing JUP immediately upstream from Pueblo Boulevard, north of the Arkansas River. The JUP delivers water from Pueblo Reservoir to Whitlock WTP. Under the selected Comanche North Alternative, Reclamation proposed purchasing excess capacity available in the JUP upstream of the JUP Wye from Pueblo Water and constructing a new pipeline downstream from the JUP Wye to the Whitlock WTP.

From Whitlock WTP, a new pipeline would be constructed along a route south of Pueblo to St. Charles Mesa and Avondale, crossing I-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 AVC Project pipeline for the Comanche North Alternative, including spurs, would be about 227 miles in length.

Primary spurs would be constructed from Fowler north to Colorado State Highway (Colorado) 96, then east to Sugar City; between Rocky Ford and La Junta; and a spur would serve Eads. Shorter delivery pipelines located near the trunk line pipeline and spurs would deliver water to Participants. Spur crossings of the Arkansas River and



Figure 4: AVC FEIS/ROD Selected Alternative (Comanche North).

## Arkansas Valley Conduit Supplemental Information Report

perennial streams would be bored underneath. Pipeline sizes would range from 36 inches in diameter at the JUP Wye to 4 inches in diameter at some AVC Project Participant tie-in locations.

Pumping stations would be built at the Whitlock WTP and on the south end of the pipeline spur to Eads. A regulating tank site would be constructed southwest of the City of Pueblo, and two surge tanks would be constructed (one tank near Fowler, and the other tank near La Junta).

New water treatment plant components would be integrated into the existing Whitlock WTP. The integrated water treatment plant would provide filtered water; residual disinfection would be the responsibility of Participants at their respective delivery points. All Participants would receive filtered water.

Participants also participating in the Master Contract (a separate excess capacity storage and exchange contract with Southeastern) would receive their non-Fry-Ark Project water stored in excess capacity space in Pueblo Reservoir via the AVC Project or other existing or future delivery systems, exchanged upstream, or released to the Arkansas River, depending on the Participants' needs.

Participants identified in the 2014 AVC ROD and 2013 FEIS are shown in table 1. The table also includes each AVC Project Participant's 2010 population and water demand and projected 2070 population and water demand. For Participants whose 2070 demands are not fully met with AVC Project deliveries, their proposed 2070 operations include blending AVC Project water with existing alluvial wells, deep wells, and/or future supplies. Additional details are available in the 2013 FEIS.

**Table 1: 2013 FEIS Identified AVC Participants**

AVC Participant	Population		Water Demand (acre-ft)		Master Contract Storage Request (acre-ft)	Requested Maximum Annual AVC Deliveries (acre-ft) **
	2010	2070*	2010	2070*		
Pueblo County						
Avondale	2,000	3,570	160	238	0	164
Town of Boone	324	580	66	111	0	94
St. Charles Mesa	10,937	19,540	1,660	2,651	2,000	2,651
Crowley County						
96 Pipeline Co.	160	254	56	85	25	27
Crowley County Water Association	3,130	4,965	580	883	1,000	617
Town of Crowley	200	317	34	51	0	51

# Arkansas Valley Conduit Supplemental Information Report

**Table 1: 2013 FEIS Identified AVC Participants**

AVC Participant	Population		Water Demand (acre-ft)		Master Contract Storage Request (acre-ft)	Requested Maximum Annual AVC Deliveries (acre-ft) **
	2010	2070*	2010	2070*		
Town of Olney Springs	390	619	40	59	125	59
Town of Ordway	1,270	2,015	240	366	750	366
Town of Sugar City	280	444	82	127	0	127
<b>Bent County</b>						
Hasty Water Co.	285	355	32	33	0	33
City of Las Animas	4,405	5,488	570	602	300	602
McClave Water Association	440	550	56	70	0	59
<b>Prowers County</b>						
City of Lamar	8,171	9,500	2,400	2,157	0	1,241
May Valley Water Association	1,500	1,740	410	435	300	222
Town of Wiley	434	505	24	28	0	28
<b>Kiowa County</b>						
Town of Eads	626	625	250	232	50	116
<b>Otero County</b>						
Beehive Water Association	165	210	8	10	18	10
Bents Fort Water Co.	900	1,160	63	81	10	81
Cheraw	193	250	48	57	0	30
East End Water Association	75	100	11	13	0	13
Eureka Water Co.	330	425	74	86	0	86
Fayette Water Association	60	80	12	14	16	14
Town of Fowler	1,700	2,183	210	223	50	220
Hancock, Inc.	150	195	17	18	0	18

**Table 1: 2013 FEIS Identified AVC Participants**

AVC Participant	Population		Water Demand (acre-ft)		Master Contract Storage Request (acre-ft)	Requested Maximum Annual AVC Deliveries (acre-ft) **
	2010	2070*	2010	2070*		
Hilltop Water Co.	284	365	45	50	35	40
Holbrook Center	50	65	18	22	12	22
Homestead	67	85	7	9	6	9
City of La Junta	7,102	9,120	2,040	2,421	2,000	2,299
Town of Manzanola	476	610	39	50	60	50
Newdale-Grand Valley Water Co.	463	595	57	60	50	60
North Holbrook	40	50	7	8	0	8
Patterson Valley	96	125	15	17	40	17
City of Rocky Ford	3,994	5,130	890	1,031	1,200	576
Southside	48	60	7	7	8	5
South Swink Water Co.	610	780	86	92	80	92
Town of Swink	664	850	38	49	0	49
Valley Water Co.	325	415	38	39	47	39
Vroman	150	195	32	37	41	37
West Grand Valley	84	110	25	30	15	15
West Holbrook	23	30	14	17	0	9
Totals	52,601	74,255	10,461	12,569	8,238	10,256

\* As projected in 2013 FEIS.

\*\* Some Participants will blend AVC water with existing supplies. In these cases, the requested AVC deliveries may be less than the projected 2070 demands.

Note: Holbrook Center = Holbrook Center Soft Water Association; Homestead = Homestead Improvement Association, North Holbrook = North Holbrook Water Company, Southside = Southside Water Association; West Grand Valley = West Grand Valley Water, Inc., West Holbrook = West Holbrook Water Pipeline Association.

## Reconfigured AVC Project

The Reconfigured AVC Project shifts 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 will fund, construct, and own the trunk line and appurtenant features such as the injection sites and regulating tanks. Southeastern will finance, construct, and own the spur and delivery pipelines and their appurtenant features such as the pumping station on the Eads Spur. In 2009, Congress amended the original Fry-Ark Project legislation in Public Law 111-11, which authorized annual Federal funding, as necessary, for constructing the AVC Project, and provided that 35 percent of total Project construction costs would be repaid by local Project beneficiaries over a period of no more than 50 years.

The cost to construct spurs and delivery pipelines will count toward the required 35 percent non-Federal cost-share for the AVC Project. Table 2 provides a preliminary comparison of pipeline construction alignments subject to final design. Figure 1 provided a general overview of the Reconfigured AVC Project. Additional maps are included in the appendices that provide detailed changes in pipeline locations and AVC Project features.

**Table 2: Reconfigured AVC Project Pipelines with FEIS/ROD Selected Alternative**

Pipeline Type	Reconfigured AVC Project	Comanche North Alternative (FEIS/ROD)	Difference
Trunk line	120.0 miles <sup>1</sup>	144.7 miles	-24.7 miles
Spur pipeline	54.3 miles	54.4 miles	+0.1 miles
Delivery pipeline	58.7 miles	28.2 miles	+30.6 miles

<sup>1</sup> Length includes about 6.3 miles of new trunk line from Pueblo Connection Point to North Avondale and elimination of about 1.2 miles of trunk line from JUP Wye to Whitlock WTP and about 35.1 miles of trunk line from WTP Treatment to St. Charles Mesa and Avondale.

## Participants

St. Charles Mesa – which would have received up to 2,651 acre-ft/yr of AVC Project water and 2,000 acre-ft/yr from the Master Contract – is no longer participating in the AVC Project. Instead, St. Charles Mesa is pursuing other opportunities to meet its future water demands.

Riverside has requested to participate in the AVC Project. Riverside distributes pumped water to about 90 people from two groundwater wells located in Otero County. Riverside is currently under enforcement orders from CDPHE for excessive levels of radionuclides and bromate. Riverside has requested 20 acre-ft/yr to meet its projected 2070 water demand.

The AVC Project FEIS 2070 total demand was estimated at 10,256 acre-ft/yr, as previously shown in table 1. With the changes in Participants, revised 2070 demands

are estimated to be 7,625 acre-ft/yr [10,256 acre-ft/yr – 2,651 acre-ft/yr (St. Charles Mesa) + 20 acre-ft/yr (Riverside)].

## Pipeline Realignments and Associated Facilities

### Pueblo Reservoir to Pueblo Connection Point Trunk Line

With the proposed Contract, Pueblo Water will convey AVC Project water from Pueblo Reservoir through the existing JUP to the Whitlock WTP. Pueblo Water will use its existing capacity below the JUP Wye to deliver water to Whitlock WTP, and AVC Project water will mix with other Pueblo Water sources at the Whitlock WTP. This change eliminates the need for about 1.2 miles of AVC Project trunk line from the JUP Wye to Whitlock WTP and separate AVC Project water treatment facilities.

Via the Contract with Pueblo Water, Segment 1 of the AVC Project will use the existing Pueblo Water system to treat and deliver about 3 Mgal/d of treated AVC Project water from Pueblo Reservoir to the Pueblo Connection Point east of Pueblo without additional improvements. Pueblo Water will retain ownership of all facilities within its system. Reclamation's ownership of facilities will begin at the Pueblo Connection Point. Upsizing some of Pueblo Water's existing pipelines would occur as needed over time to increase delivery capability at the Pueblo Connection Point up to 13 Mgal/d to meet Participants' 2070 estimated demands. Figure 7, shown later in the "Reconfigured AVC Project Affected Environment" section of this report, is a map of Pueblo Water's delivery system and anticipated existing pipelines that may be upsized in the future by Pueblo Water to meet the AVC 2070 estimated demands. Based on the current AVC Project construction schedule and estimated Participants' demands, some of the Pueblo Water improvements may be needed around 2030. The actual AVC Project construction schedule is subject to annual congressional appropriations.

The Contract eliminates the need for separate AVC Project water treatment facilities at Whitlock WTP. Also, the AVC Project's portion of Pueblo Water's future capital improvement costs would be addressed in the Contract as a one-time capital improvement fee.

The Reconfigured AVC Project eliminates about 24.7 miles of trunk line; however, an additional delivery pipeline to Avondale is needed due the elimination of the trunk line from St. Charles Mesa to Avondale. The Avondale delivery pipeline is discussed later in Segment 2 of the AVC Project Affected Environment Section.

AVC Project raw water supplies can be delivered to the Whitlock WTP by using the JUP, which originates at Pueblo Dam's South Outlet Works and terminates at the Whitlock WTP and/or diverting from the Arkansas River downstream of Pueblo Reservoir from Pueblo Water's Northside and Southside Arkansas River intakes. Pueblo Water's Northside intake has a maximum capacity of 57 Mgal/d, and the Southside intake has a flow capacity between 30 and 40 Mgal/d. The 66-inch-diameter JUP has a total capacity of 140 Mgal/d, and Pueblo Water's portion has a maximum flow of about 84 Mgal/d.

AVC Project water would mix with Pueblo Water's own water at the Whitlock WTP and be delivered through the Pueblo Water system to the Pueblo Connection Point east of Pueblo.

### **Boone Reach Trunk Line**

About 6.3 miles of new trunk line will be needed to connect the Pueblo Water system at the Pueblo Connection Point to the FEIS's Comanche North alignment. The trunk line parallels U.S. 50 before connecting to the FEIS's selected alignment along Colorado 96, east of the Town of Boone, Colorado. Reclamation is also evaluating rerouting a portion of trunk line so that the alignment would cross Colorado 96 at North Baker Avenue in Boone and follow Railroad Street and the Colorado Canal east of Boone (see appendix A). Potential reroutes include: (1) crossing Colorado 96 at Pueblo County Road 601 (IL Road) and paralleling the north side of Colorado 96 to east of Boone, or (2) moving the trunk line alignment south from Colorado 96 along Church Avenue and 1st Street before connecting to the FEIS's Comanche North alignment east of Boone.

Pueblo Water will require a backflow prevention device to connect the AVC trunk line to the Pueblo Water system. A backflow prevention device is used to ensure that the AVC system cannot backflow into the Pueblo Water system. It will be installed in the Boone Reach somewhere between the Pueblo Connection Point and Injection Site No. 1. Additional design review and discussions with Pueblo Water are needed to determine the type and exact location of the backflow prevention device.

### **Injection Sites**

Two chemical injection facilities along the trunk line adjacent to U.S. 50 will be constructed to remove chloramines added by Pueblo Water. Chloramines will be removed by injecting water treatment additives to produce filtered (non-potable) water. The general locations of Injection Sites No. 1 and 2 are shown in figure 5. Participants would be responsible for adding a disinfectant residual (likely free-chlorine) at the entry points to their distribution systems.

Preliminary details for each injection site (subject to final design) are given below.

#### **Injection Site No. 1**

Injection Site No. 1 will consist of a chemical building(s); a supervisory control and data acquisition (SCADA) building; a radio tower; yard piping and valving (buried and above ground); access roadway; various mechanical and electrical features such as heating, ventilation, and air-conditioning (HVAC), lighting, engine generator, transformer, water analyzers, and fiber wire; and various site features such as gravel surfacing, fencing, guard posts, and gates. The size of Injection Site No. 1 is assumed to be approximately 1.5 acres and will be purchased in fee title from an adjacent, willing, private landowner.

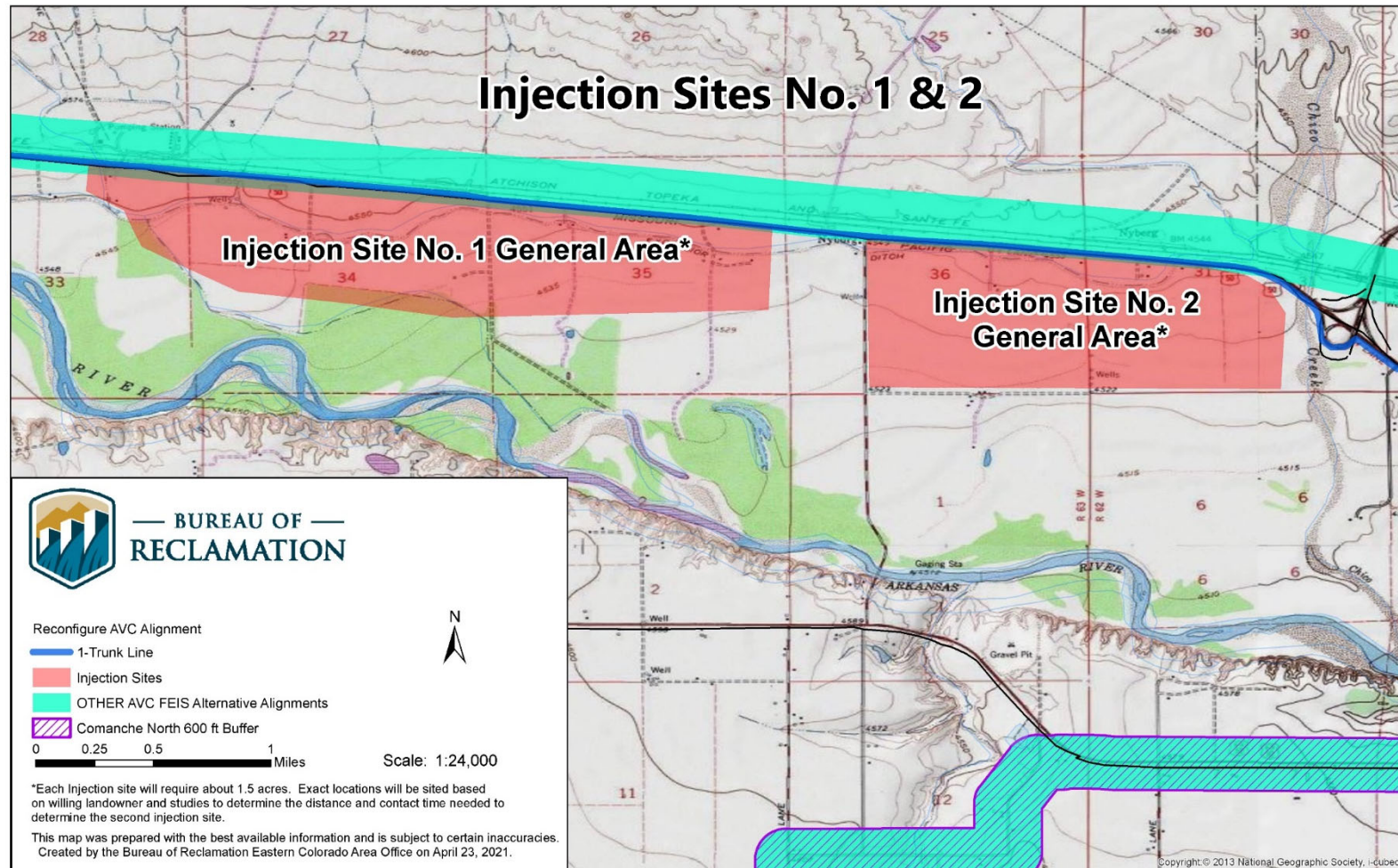


Figure 5: Planned areas to locate injection sites.

## Arkansas Valley Conduit Supplemental Information Report

Injection Site No. 1 will be used to inject both sodium hypochlorite and sodium bisulfite into the AVC Project trunk line to remove chloramines from treated water delivered from Pueblo Water during the initial AVC Project deliveries. Sodium bisulfite will be stored onsite for several years until Injection Site No. 2 is constructed. The chemical building will house these chemicals in tanks/totes and will require HVAC, lighting, and potable water from the trunk line prior to injection of additives. The SCADA building will house the controls equipment for Injection Sites No. 1 and No. 2. It will also house data read-out equipment for the entire AVC Project. A 30-meter radio tower will be constructed at Site No. 1 to provide communication between the other AVC sites and Injection Site 1. In order to ensure communications from all AVC sites to the radio tower at Injection Site 1, it may be necessary to construct additional towers in other locations or lease existing radio tower space. The trunk line will run along U.S. 50 to Injection Site No. 1 and through a series of valves and pipes for chemical injection, flow measuring, and water analysis, before exiting the site and returning to the trunk line along U.S. 50.

The current plan is to use an existing access road from U.S. 50 to enter Injection Site No. 1. The access road will likely need improvements, with widening and slight realignment, to allow for construction traffic. Culvert/bridge improvements over existing U.S. 50 drainage will need to be increased as well. Construction work on the site will include excavation, concrete placement, masonry, pre-engineered building installation, material hauling (soil and gravel), steel work, and general construction.

### ***Injection Site No. 2***

Injection Site No. 2 will consist of a chemical building(s); yard piping and valving (buried and above ground); access roadway; various mechanical and electrical features such as HVAC, lighting, engine generator, transformer, water analyzers, and fiber wire; and various site features such as gravel surfacing, fencing, guard posts, and gates. The size of Injection Site 2 is assumed to be approximately 1.0 acre.

Injection Site No. 2 will be used to inject sodium bisulfite into the AVC Project trunk line to remove free chloramine left in the water after the first chemical injection at Injection Site No. 1 for larger AVC Project deliveries that will occur after the downstream trunk line is constructed. The chemical building at Injection Site No. 2 will house sodium bisulfate in tanks/totes and will require HVAC, lighting, and potable water. The trunk line will continue along U.S. 50 to Injection Site No. 2 and through a series of valves and pipes for chemical injection, flow measuring, and water analysis, before exiting Injection Site No. 2 and returning to the main transmission line along U.S. 50.

The current plan is to use an existing roadway that connects to U.S. 50 to access Injection Site No. 2. This roadway will likely require improvement, with widening and slight realignment, to allow for construction traffic. It is possible that the size of the culvert/bridge over U.S. 50 drainage will need to be increased as well. Construction work on the site will include excavation, concrete placement, masonry, pre-engineered building installation, material hauling (soil and gravel), steel work, and general construction.

### **Pumping Plants**

The Reconfigured AVC Project will be able to facilitate gravity flow for most of the system by modifying regulating tank and pumping plant locations. Pumping Plant No. 1 at the Whitlock WTP in the FEIS's Comanche North Alternative was eliminated based on the hydraulics analysis. Appendix A includes general site locations for the two regulating tanks (referred to as surge tanks in the FEIS) and the remaining pumping plant. Site-specific details will be developed during final design for each facility.

The Reconfigured AVC Project's remaining pumping plant will be located along Bent County Road 34, near the Fort Lyons Canal on the Eads Spur pipeline (referred to as Pumping Plant No. 2 in the FEIS). The pumping plant will remain in the same general location.

### **Regulating Tanks**

#### ***Regulating Tank No. 1***

Regulating Tank No. 1, located northwest of the Sugar City Spur connection with the trunk line, was moved to a higher elevation, and about 0.6 mile of additional parallel pipelines will be needed (1.2 miles of pipe). An existing powerline access road will need improvements to provide construction and operation and maintenance (O&M) access to the tank from Crowley County Lane 3.

#### ***Regulating Tank No. 2***

Regulating Tank No. 2 will remain in the same general location along the trunk line, about halfway between the cities of Rocky Ford and Las Animas, Colorado. Access to Regulating Tank No. 2 will be from Las Animas County Road HH.

### **Spur Pipelines**

All spur pipeline alignments remain relatively unchanged for the Reconfigured AVC Project with only a reduction of about 0.15 mile. All spur pipelines remain within the Comanche North alignment as described and evaluated in the FEIS; however, some reaches of the Comanche North Alternative's trunk line are now classified as spur pipeline. Specific details for spur lines will be developed during final design. Design, funding, and construction of spur pipelines will be the responsibility of Southeastern and credited towards the 35-percent AVC Project cost-share requirements.

### **Delivery Pipelines**

Reconfigured AVC Project changes in delivery pipeline alignments were made to address differences in desired delivery points for Participants' existing distribution systems. Approximately 30.6 miles of delivery pipelines were added to the Reconfigured AVC Project and were previously considered an improvement to Participants' existing systems.

Patterson Valley and Hilltop provided comments to Reclamation indicating that the draft EIS's delivery pipeline connection points were in the wrong locations. Reclamation responded in the FEIS, "...At this point engineering designs are at an appraisal-level. Alternatives are study corridors rather than exact alignments. After a preferred alternative

## Arkansas Valley Conduit Supplemental Information Report

is identified in the Record of Decision, Reclamation will collect design data and prepare a final design and cost estimate, if an action alternative is selected. Your comment will be carefully considered during the next phase of engineering design” (Reclamation, 2013).

Table 3 provides a breakdown of changes to delivery pipeline lengths based on the 2016 Feasibility Design Report (Reclamation, 2016). Site-specific details for each delivery pipeline will be developed during final design. Delivery pipelines will be funded and constructed by Southeastern, Participants, and/or others and will be credited towards the 35-percent AVC Project cost-share requirements.

**Table 3: Changes to Delivery Line Lengths**

AVC Participant/ Delivery Point	Alignment Name*	Additional Pipeline (miles)	2070 Demand (acre- ft/yr)	2070 Average Monthly Demand (Mgal/d)
Boone delivery	B DP	1.50	94	0.138
Avondale**	-	1.20	164	0.241
Fowler	F DP	0.40	220	0.324
Sugar City	SC DP	2.50	127	0.187
Valley Water	VW DP	2.50	39	0.057
Patterson Valley	PV DP	2.25	17	0.025
Hilltop	HT DP	0.40	40	0.059
West Grand Valley	WGVW DP	2.70	15	0.022
Riverside	DP RS	1.40	20	0.029
North Holbrook	NH DP	0.50	8	0.012
West Holbrook	WH DP	0.75	9	0.013
Holbrook Center	H CTR SWA DP	0.90	22	0.032
Cheraw	C DP	2.40	30	0.044
Southside	SS WA DP	1.20	5	0.007
East End	EE DP	1.30	13	0.016
Swink – U.S. 50 route	S50 DP	0.50	24.5	0.036
Swink – Fairview delivery point	SFV DP	2.40	46	0.068
Swink – Fairmont delivery point	SFM DP	0.90	46	0.068
Homestead	H IA DP	0.40	9	0.013
La Junta	LJ DP	0.10	1,150	1.692
Wiley	W DP	1.30	28	0.041
May Valley delivery point 1	MV DP	1.00	111	0.163
May Valley delivery point 2	MV2 DP	2.10	111	0.163
	Avg	1.3	99	0.146
	Median	1.10	29	0.043
	<b>Total</b>	<b>30.6</b>	<b>2,185</b>	<b>3.450</b>

\*Reference the 2016 Feasibility Design Report, appendix I.

\*\* There was no Avondale delivery line in the 2016 Feasibility Design Report because the main trunk line went directly through Avondale as part of the South Charles Mesa alignment.

### **Pueblo Water Contract**

The FEIS contemplated a contract with Pueblo Water to utilize excess capacity in the JUP and to filter AVC Project water at AVC Project facilities constructed at the Whitlock WTP. Under the Reconfigured AVC Project, Reclamation will enter into the Contract with Pueblo Water to convey AVC Project water from Pueblo Reservoir to Whitlock WTP and integrate water treatment into Pueblo Water's existing operations. AVC Project water would be released from Pueblo Reservoir and be mixed with Pueblo Water's other sources at the Whitlock WTP for treatment. AVC Project water will be delivered by Pueblo Water to the Pueblo Connection Point through Pueblo Water's existing delivery system as previously discussed.

Improvements, such as upsizing pipe segments, will be necessary in the future to meet Participants' 2070 estimated demands of 13.0 Mgal/d (maximum monthly demands). The Whitlock WTP currently has adequate unused capacity to meet the full AVC demands; however, with AVC using that excess capacity, Pueblo Water may need to implement improvements in the future to meet increases in demand elsewhere in its system. Improvement would be phased in conjunction with Pueblo Water's 2040 Water Plan and will be based on future demands within its service area. Upsizing, replacing, and/or adding approximately 1.5 miles of 30-inch, 8.5 miles of 24-inch, and 0.25 mile of 16-inch pipeline within the current city limits are anticipated to meet the future needs.

Proposed changes in the AVC Project trunk line eliminate the need for a separate pumping plant at Whitlock WTP and additional filter and storage facilities. The proposed changes will also make water deliveries to Participants about 10 years earlier than FEIS's Comanche North Alternative by utilizing the Pueblo Water system.

Pueblo Water's capital improvements will ensure that Whitlock WTP will maintain its capability to treat and deliver up to 13.0 Mgal/d of AVC Project water to meet the Participants' 2070 maximum month demands. A 2017 assessment of Whitlock WTP determined that existing facilities have capacity to treat 84 Mgal/d (Black & Veatch, 2017). Any improvement or additional facilities would be provided by Pueblo Water to meet the Contract's flow rates and water pressure requirements at the Pueblo Connection Point.

### **AVC Project Management**

#### **AVC Project Charter and Project Management Plan**

Reclamation and Southeastern signed a Project Charter and Project Management Plan (PMP) in April 2020, which guide the cooperative management in implementing the AVC Project (Reclamation, 2020). The Project Charter included the following agreement as shown in figure 6.



CO-OPERATIVE MANAGEMENT OF PROJECT
Reclamation and Southeastern agree to co-operatively manage the execution of this Project. Additional details and terms of this co-operative project management arrangement and the division of responsibilities will be contained in a Project Management Plan (PMP).
Both parties agree to:
<ol style="list-style-type: none"><li>1. Work together in good faith towards the shared goal of constructing the AVC and delivering clean water quickly, efficiently, and in accordance with the Project authorization.</li><li>2. Endeavor towards a positive and effective working relationship defined by transparency, accountability, collaboration, trust, and respect.</li></ol>

Figure 6: AVC Project Charter excerpt.

### AVC Project Segments

The Reconfigured AVC Project has been divided into “segments” from west to east (i.e., going downstream) primarily for the purposes of communicating the overall plan and status externally and in recognition of the fact that upstream segments, as they are completed, will deliver tangible benefits even though downstream segments have yet to be completed. These segments are also used for the purposes of nomenclature of pipe reach sections.

The AVC Project trunk line is defined as the single continuous conveyance pipeline stretching from the Pueblo Connection Point to the Lamar delivery point. Spurs are like delivery pipelines, but generally are longer sections of pipe, that deliver water to multiple Participants. Delivery pipelines are defined as any other pipelines which branch off the trunk line or spurs.

The segment maps are provided in appendix A, and segments are defined below.

#### ***Segment 1 – Pueblo Reservoir to Pueblo Connection Point***

Segment 1 consists of the Contract with Pueblo Water to convey raw AVC Project water from Pueblo Reservoir to its Whitlock WTP, and then to convey treated water through Pueblo Water’s distribution system to the AVC trunk line at the Pueblo Connection Point.

#### ***Segment 2 – Pueblo Connection Point to Rocky Ford***

Segment 2 begins at the Pueblo Connection Point and ends at Rocky Ford. It includes the AVC Project trunk line between the Pueblo Connection Point and Rocky Ford, the Sugar City Spur, and delivery pipelines including Participants south of Rocky Ford. Segment 2 also includes the two injection sites west of Boone. Note that figure 7 shows a “Breakpoint Chlorination Facility” near Boone. This facility has been eliminated and replaced by Injection Sites No. 1 and No. 2.

## Arkansas Valley Conduit Supplemental Information Report

### ***Segment 3 – Rocky Ford to Las Animas***

Segment 3 begins at Rocky Ford and ends at Las Animas. It includes the AVC Project trunk line between Rocky Ford and Las Animas, the La Junta Spur, and delivery pipelines to all Participants between Rocky Ford and Las Animas (including Las Animas).

### ***Segment 4 – Las Animas to Lamar/Eads***

Segment 4 begins at Las Animas and includes the remainder of the AVC Project trunk line, the Eads Spur, and all delivery pipelines between Las Animas and Lamar/Eads.

The PMP divided the AVC Project into Reclamation and Southeastern subprojects. Each subproject is described below (Reclamation, 2020).

### **Reclamation Subproject**

Reclamation will serve as lead on, seek funding for, and retain ownership of the trunk line portion of the AVC Project. Also included are any treatment facilities, regulation tanks, pumping stations, and other features which are directly in line or adjacent to the trunk line and that are required to convey water through the main trunk line and deliver filtered (non-potable) water to Participants.

The trunk line will include turnouts that consist of approximately a 20-foot pipe section with an isolation valve and blind flange for spur and delivery line connections. Participants will be responsible for adding a disinfectant residual at the entry points to their distribution systems.

Additionally, the Reclamation Subproject will include the following:

- Hydraulic analysis and high-level design of the entire system including delivery and spur pipelines
- Establishment of high-level design constraints for the final design of delivery and spur pipelines
- Environmental and cultural compliance for the entire AVC Project
- Negotiation and signing of any contracts which Reclamation must be party to and which are required to construct and operate the AVC Project
- Design and construction of the Injection Sites No.1 and No. 2 facilities
- Review of design specifications and construction plans developed for the Southeastern Subproject

### ***Southeastern Subproject***

Southeastern will serve as lead on and retain ownership of the spur and delivery lines portion of the AVC Project. Southeastern will seek funding to design and construct these portions of the AVC Project, \$100 million of which has already been secured from the Colorado Water Conservation Board.

There are three spur pipelines included in this subproject, which are defined as follows:

1. Sugar City Spur: Begins at the point where the pipeline forks prior to Olney Springs and Manzanola. The Sugar City Spur follows Colorado 96 towards Sugar City.
2. La Junta Spur: Begins at the point where the pipeline forks after Rock Ford. The La Junta Spur is the pipeline that follows U.S. 50 towards Swink and La Junta.
3. Eads Spur: Begins at the point where the pipeline forks prior to the Wiley delivery line. The Eads Spur approximately parallels U.S. Route 287 towards Eads. The Eads Spur also includes a pumping station required to convey water to Eads.

Close coordination and reviews will be required to ensure that the non-Reclamation designed pipelines function properly with the entire system. Delivery requirements for Pueblo Water are as follows:

1. Pueblo Water system to provide AVC Project with startup flow estimated between 0.10 Mgal/d and 0.34 Mgal/d to meet 2020 Boone and Avondale demands and up to 13 Mgal/d for future AVC Project maximum monthly demand.
2. Pueblo Water to maintain pressure ranging from 90 to 145 pounds per square inch (psi) at the Pueblo Connection Point during peak hour – maximum day demand condition.
3. Downtime (i.e., maintenance or fire flows) where pressure at Pueblo Connection Point is below 90 psi must not exceed 3 hours.

All Participants will receive a minimum of 20 psi at their respective delivery points. Most Participants will require a pressure-reducing valve to facilitate delivery from the AVC Project system. Some Participants may need to have a booster pump constructed if higher pressures are required. Booster pumps, if needed, will be addressed during final designs for each delivery pipeline.

## Final Design and Construction

For planning purposes, Reclamation and Southeastern developed design and construction targets for the AVC Project trunk line and spur pipelines based on the tentative schedule shown in table 4. Design and construction contract awards are subject to continued congressional appropriations and availability of other funding sources.

**Table 4: Tentative Design and Construction Schedule**

Segment/Reach	Final Designs Complete	Construction Start	Construction Complete
Segment 2, Boone Reach 1	June 2021	October 2022	October 2024
Segment 2, Boone Reach 2	February 2023	October 2023	November 2024
Segment 2, Injection Facility No. 1	March 2022	TBD	TBD
Segment 2, Injection Facility No. 2	TBD	TBD	TBD
Segment 2, Crowley Reach 1	February 2024	October 2024	May 2026
Segment 2, Crowley Reach 2	December 2024	August 2025	March 2027
Segment 2, Regulating Tank No. 1	June 2025	March 2026	February 2027
Segment 2, Sugar City Spur and Delivery Lines	July 2022	April 2023	December 2024
Segment 2, Manzanola Reach	October 2025	June 2026	April 2028
Segment 2, Rocky Ford Reach 1	October 2026	April 2027	June 2028
Segment 2, Rocky Ford Reach 2	June 2027	March 2028	September 2029
Segment 3, La Junta Spur and Delivery Lines	March 2025	July 2026	July 2028
Segment 3, Regulating Tank No. 2 Reach 1	April 2028	December 2028	July 2030
Segment 3, Regulating Tank No. 2 Reach 2	April 2029	December 2029	July 2031
Segment 3, Regulating Tank No. 2	October 2029	November 2030	June 2031
Segment 3, Las Animas Reach	March 2029	November 2030	February 2033
Segment 4, Hasty Reach	March 2031	November 2031	October 2034
Segment 4, Wiley Reach	March 2032	November 2032	March 2035
Segment 4, Eads Spur and Delivery Lines	September 2028	April 2032	March 2033
Segment 4, Lamar Reach	July 2032	April 2033	September 2035

Note: TBD = to be determined

## **Reconfigured AVC Project Affected Environment**

Discussion of affected environment focuses only on those portions of the Reconfigured AVC Project that fall outside the Comanche North Alternative, as described in the FEIS and ROD. Where portions of the Reconfigured AVC Project alignment and/or facilities are within other alternatives described in the FEIS, Reclamation relies on the affected environment descriptions and analysis in the FEIS. When the affected environment for the Reconfigured AVC Project falls outside the FEIS analysis area, the affected environment is identified and discussed under the appropriate AVC Project segment.

All Reconfigured AVC Project pipeline and facility alignments are subject to final engineering design and require site-specific cultural resource compliance. Historic and cultural resources are discussed at the end of this document.

Additional environmental review will be required if these features are moved outside the anticipated construction easement or located on privately owned parcels acquired by Reclamation or Southeastern.

### **Segment 1 – Pueblo Reservoir to Pueblo Connection Point**

#### **AVC Project Water Supply and Demand**

As previously discussed, Segment 1 utilizes the existing JUP and Pueblo Water's raw water delivery system to deliver raw AVC Project water from Pueblo Reservoir to Whitlock WTP for treatment. Under the Reconfigured AVC Project, AVC Project water and Participants' Master Contract water will be mixed with Pueblo Water's raw water supply and treated at the Whitlock WTP. There are no changes to water supplies described in the FEIS.

With the departure of St. Charles Mesa as an AVC Project Participant, 2070 AVC Project estimated demands are reduced by 2,651 acre-ft/yr. This 2,651 acre-ft/yr of water would remain available to the other Fry-Ark Project beneficiaries and would continue to be allocated by Southeastern under the existing Fryingpan-Arkansas Project Operating Principles. St. Charles Mesa's 2,000 acre-ft/yr of excess capacity storage in Pueblo Reservoir, as identified in the FEIS under Master Contract, would remain available to St. Charles Mesa. However, the 2,000 acre-ft/yr included in Master Contract could not be physically delivered to St. Charles Mesa via the AVC Project and may require additional NEPA and environmental analysis.

Any changes in Arkansas River flows related to the Reconfigured AVC Project would be limited to the reach of the Arkansas River between Pueblo Dam and Pueblo Water's intake structures upstream of the Whitlock WTP. Pueblo Water

## **Arkansas Valley Conduit Supplemental Information Report**

already has considerable flexibility in how it picks up its existing water supplies that are stored or pass through Pueblo Reservoir. No other changes in river or stream flows from those previously described in the FEIS upstream of Pueblo Reservoir or the Arkansas River downstream are predicted.

### **Whitlock WTP Improvements**

The FEIS contemplated a separate AVC Project water treatment facility co-located with the Whitlock WTP to filter AVC Project and Participants' Master Contract water. The Reconfigured AVC Project eliminates the need for separate AVC Project water treatment facilities and would deliver treated water to the Pueblo Connection Point. Combining the water treatment with Whitlock WTP will not impact wetlands or permanent riparian areas adjacent to Whitlock WTP. Any Whitlock WTP improvements are anticipated to occur within the existing compound. As part of the proposed Contract with Pueblo Water, Reclamation would pay a one-time capacity fee for the use of Pueblo Water's system, including any future improvements and future water treatment processes required to meet the Participants' 2070 deliveries. Any improvements to Whitlock WTP would be based on Pueblo Water's future needs and not just the Participants' demands.

AVC Project improvements to the Whitlock WTP were analyzed in the FEIS. Under the Reconfigured AVC Project, Pueblo Water will construct and own WTP improvements. Any future improvements associated with the AVC Project will be funded through the capacity fee included in the Contract between Reclamation and Pueblo Water.

### **Pueblo Water Delivery System**

Similar to Whitlock WTP, improvements to the Pueblo Water delivery system will be implemented over time as needed to meet the Participants' 2070 deliveries. Pueblo Water currently anticipates needing to improve approximately 1.5 miles of 30-inch, 8.5 miles of 24-inch, and 0.25 mile of 16-inch existing pipeline over the life of the Contract between Reclamation and Pueblo Water, based on the delivery pressure evaluation completed by Black and Vetch (2020) for Southeastern.

An analysis was performed to determine the pressure range likely to be seen at the Pueblo Connection Point during maximum daily and maximum hour conditions for a variety of AVC flow rates. Additional evaluation also took place to determine what additional water lines would have to be in place to deliver the various flows without impacting Pueblo Water operations to meet a 13-Mgal/d maximum daily demand at the Pueblo Connection Point. The analysis identified the following water line improvements to meet the 13-Mgal/d demand by 2040. The proposed improvements are described in more detail below and are shown in figure 7.

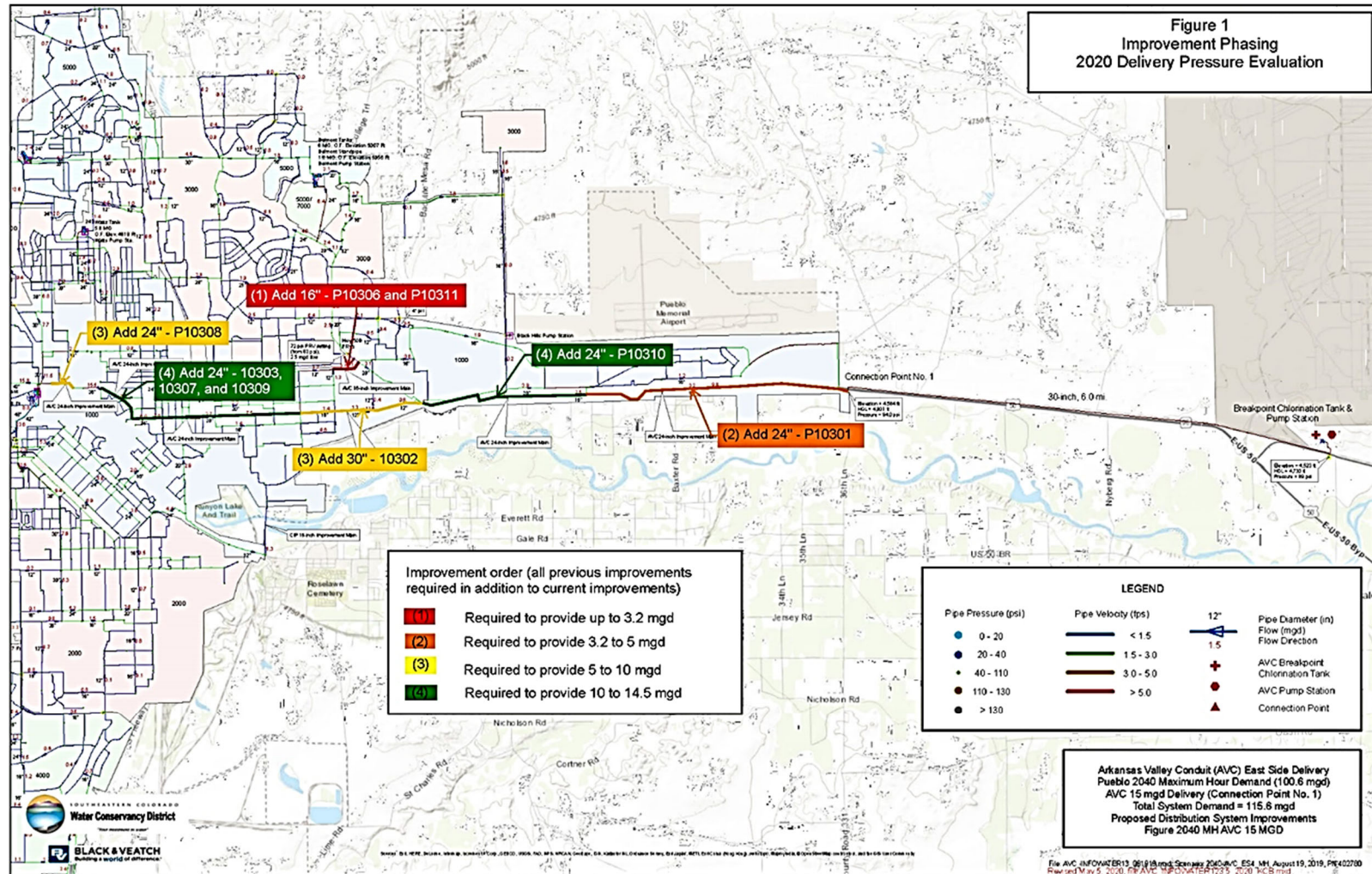


Figure 7: Pueblo Water pipeline improvements (from Black and Veatch, 2020).

## **Arkansas Valley Conduit Supplemental Information Report**

### ***12th Street Improvements***

- 1,400 feet of 16-inch water line on 12th Street from Troy Avenue to York Street.
- 700 feet of 16-inch water line from 12th Street and York Street and then heading northeast and crossing U.S. 50.

### ***U.S. 50 Improvements***

- 17,000 feet of 24-inch water line parallel to U.S. 50 from 29th Lane to the Pueblo Connection Point.
- 10,900 feet of 24-inch water line from Atwater Drive and U.S. 50 along railroad to east of Bella Plain Avenue. Cross railroad and U.S. 50, and then continue east along south side of U.S. 50 to 29th Lane.

### ***Cheyenne Avenue – W. 11th Street Improvements***

- 1,600 feet of 24-inch water line from Cheyenne Avenue and W. 11th Street east to the rail, and then south to connect to the 42-inch water line under the railroad.

### ***N. Portland Avenue – Atwater Drive Improvements***

- 8,200 feet of 30-inch water line from N. Portland Avenue east of 4th Street to Merritt Court. Continue along 4th Street across U.S. 50 to Atwater Drive.

### ***Merlin Street – W. 4th Street Improvements***

- 3,000 feet of 24-inch water line from Merlin Street and Carmen Road southeast to W. 8th Street (paralleling existing 24-inch water line), and then continuing along Midtown Circle Drive to W. 4th Street.

### ***W. 4th Street to N. Santa Fe Avenue Improvements***

- 3,300 feet of 24-inch water line from Midtown Circle Drive and W. 4th Street (Colorado 96) east to N. Santa Fe Avenue.

### ***4th Street Improvements***

- 7,600 feet of 24-inch water line from N. Santa Fe Avenue to N. Portland Avenue along 4th Street.

### **Segment 1 Trunk Line**

Use of Pueblo Water's delivery system would eliminate about 27 miles of AVC Project trunk line from the Whitlock WTP to St. Charles Mesa and Avondale, before paralleling Colorado 96 west of the Town of Boone. Approximately 6.3 miles of new AVC Project trunk line will be added along U.S. 50 from the Pueblo Connection Point to the FEIS Comanche North Alternative's alignment west of



the Town of Boone (Boone Reach). Boone Reach is discussed in greater detail below under “Segment 2 – Pueblo Connection Point to Rocky Ford.”

### **Pueblo Reservoir Excess Storage Capacity Contract with Pueblo Water**

As part of the Reconfigured AVC Project, Pueblo Water has requested authorization for continued use of excess storage capacity in Pueblo Reservoir for a period of 50 years. Pueblo Water currently has a contract with Reclamation to store up to 15,000 acre-ft/yr of its own water in Pueblo Reservoir, which expires in 2025. Pueblo Water is also requesting to reduce the base storage volume from 15,000 acre-ft/yr to 10,000 acre-ft/yr with the ability to increase storage up to 25,000 acre-ft over the life of the Contract. In addition, Pueblo Water is requesting to add the ability to store Bessemer Ditch water rights, acquired in the early 2000s, in Pueblo Reservoir.

The FEIS’s hydrologic analysis assumed that Pueblo Water’s use of 15,000 acre-ft/yr of excess storage capacity in Pueblo Reservoir would continue into the future and that a new contract would be needed for storage beyond 2025. However, storage of Pueblo Water’s Bessemer Ditch water rights in excess capacity was not included in the 2000 contract or EA. The Colorado Water Court issued a decree for Pueblo Water’s Bessemer Ditch water rights entered on December 5, 2019, for Case No. 17CW3050. Additional environmental analysis will be needed to incorporate Pueblo Water’s Bessemer Ditch water rights and address its 25,000-acre-ft/yr maximum storage request.

Reclamation intends to rely heavily on a 2018 programmatic EA and FONSI completed for continuation of Reclamation’s Pueblo Reservoir Temporary Excess Capacity Contracting Program (Reclamation, 2018). The 2018 analysis included all existing long-term excess capacity contract storage in Pueblo Reservoir, with up to 25,000 acre-ft/yr of temporary excess capacity contracts. The programmatic EA assumed Pueblo Water’s future excess capacity storage was 15,000 acre-ft/yr and treated it as reasonably foreseeable.

### **Segment 2 – Pueblo Connection Point to Rocky Ford**

Segment 2 is broken into three general reaches: Boone, Fowler/Manzanola, and Manzanola to Rocky Ford as shown in appendix A. Each reach is discussed in greater detail below.

#### **Boone Reach**

The Boone Reach of the AVC Project trunk line will be the first AVC Project feature constructed under the Reconfigured AVC Project and will make initial water deliveries to the Towns of Boone and Avondale. Approximately 5.6 miles of new AVC Project trunk line will be added along U.S. 50 and Colorado 96, from the Pueblo Connection Point to the FEIS’s Comanche North Alternative’s alignment

## Arkansas Valley Conduit Supplemental Information Report

west of the Town of Boone, as shown in appendix A. Other changes include Injection Sites No. 1 and No. 2, U.S. 50/Colorado 96/Avondale, and Boone. The trunk line will connect to Pueblo Water's system just west of Pueblo County Road 331 (also known as 36th Lane near Divine, Colorado) and parallel U.S. 50 within the Colorado Department of Transportation's (CDOT) existing highway and railroad right-of-way. The 6.3 miles of new trunk line fall within the general alignments described in the FEIS's JUP North and Pueblo North Alternatives, with exception to the U.S. 50/Colorado 96 junction. Under the Reconfigured AVC Project, the trunk line remains entirely within the U.S. 50/Colorado 96 right-of-way south of the Pueblo Plex Off Ramp as shown in figure 8.

A backflow prevention device, water sample taps, and Injection Sites No. 1 and No. 2 for water treatment will also be constructed south of the trunk line between the Pueblo Connection Point and the U.S. 50/Colorado 96 junction. The facilities will need to be located outside of the CDOT right-of-way on private parcels acquired by Reclamation. Each injection site will require up to 1.5 acres, as previously discussed. In addition, approximately 1.2 miles of Avondale delivery pipeline will be funded and constructed by Southeastern, which replaces the pipeline from St. Charles Mesa included in the FEIS's Comanche North Alternative.

Figure 9 illustrates potential reroutes in trunk line alignment south of the Town of Boone that are still under evaluation. The FEIS's Comanche North Alternative's alignment proposed to cross Colorado 96 near North Baker Avenue and parallel Railroad Avenue east of Boone and north of Colorado 96. Other alternatives consider staying south of Colorado 96 (one alternative follows 1st Street to avoid clustered utilities along Colorado 96).

The Reconfigured AVC Project also includes a delivery pipeline from the trunk line to Boone Water Treatment Plant north of the Town of Boone. Two potential alignments are under consideration that would be funded and constructed by Southeastern and the Town of Boone. One alignment would follow North Baker Avenue to an existing tank and water treatment facilities. The other alignment would start east of Boone's wastewater treatment plant and run north to Boone's existing tank or water treatment facilities. The longest of the two alignments would be about 1.5 miles in length.

The Boone Reach crosses two ephemeral streams: Chico Wash and Boone Creek, south of U.S. 50 and Colorado 96. Both crossings will use an open trench construction method during periods when the creek bottoms are dry and follow the general conditions for Clean Water Act (CWA) Section 404 Nationwide Permit No. 58 - Utility Line Activities for Water and Other Substances.

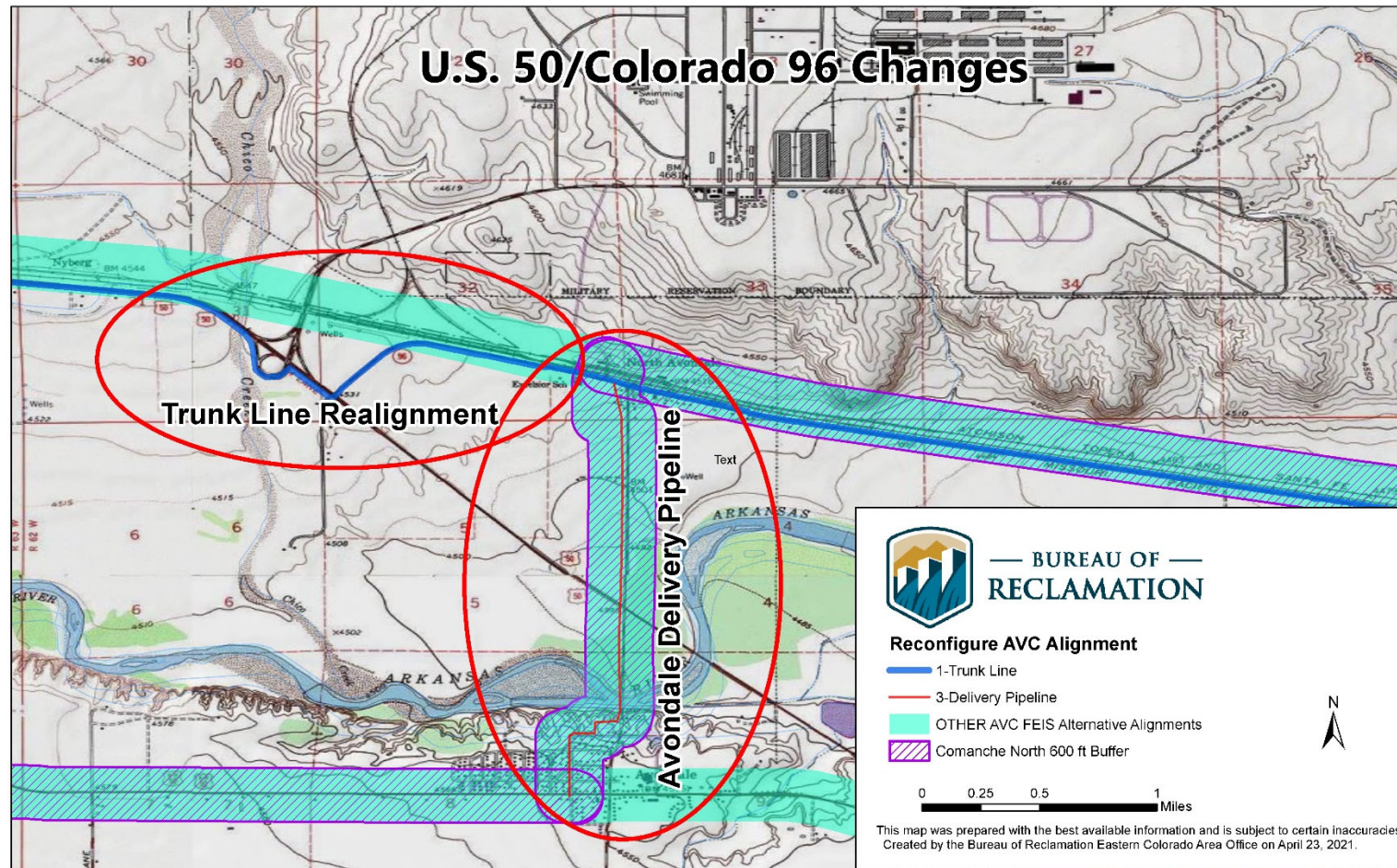


Figure 8: U.S. 50/Colorado 96/Avondale trunk line and delivery pipeline changes.



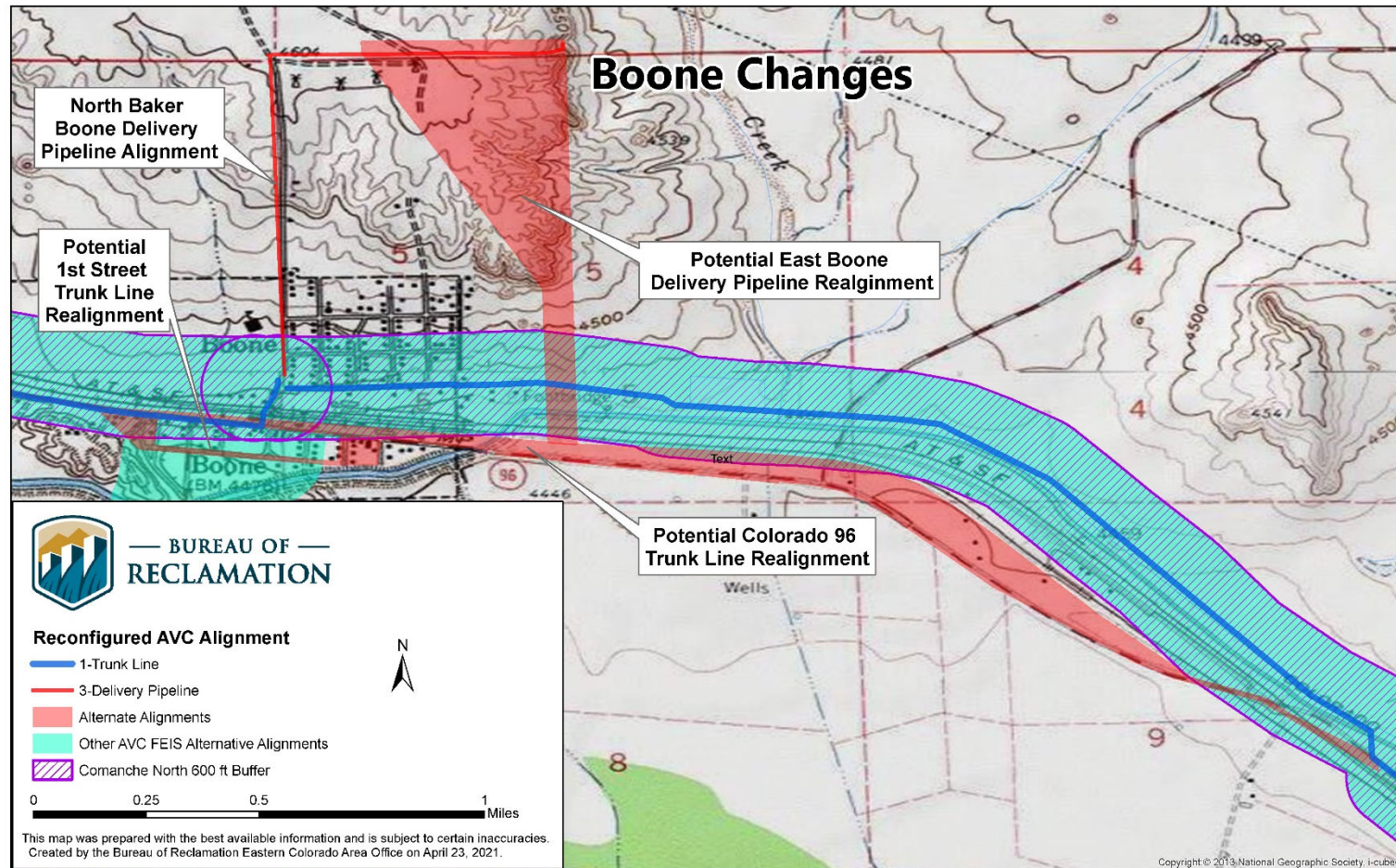


Figure 9: Boone area trunk line and delivery pipeline changes.

### **Fowler/Manzanola Reach**

The AVC Project trunk line in the Fowler and Manzanola areas remains within the FEIS's Comanche North Alternative's alignment, subject to final design as shown in appendix A. The trunk line continues to parallel Colorado 96 east and then departs and travels cross country to Crowley County Lane 6. The Sugar City Spur pipeline continues northeast following Colorado 96. The trunk line heads south along County Lane 6 and then turns east and parallels Crowley County Road B.5 to Crowley County Lane 8. The trunk line then parallels Crowley County Lane 8 south to Crowley County Road B and parallels it east to Colorado 207. Finally, the trunk line then follows Colorado 207 south across the Arkansas River to Manzanola.

The one exception to the trunk line's alignment being completely within the FEIS's Comanche North Alternative is associated with moving Regulating Tank No. 1 to a higher elevation based on hydraulic analysis. Figure 10 shows the general trunk line alignment east of the FEIS's proposed regulating tank. The new alignment includes a double trunk line to bring water to and from the regulation tank. Access for construction and O&M of the regulating tank will be from Crowley County Lane 3 along an existing two track road.

Figure 10 also shows that the Fowler delivery pipeline will be extended an additional 0.4 mile to connect to the existing Fowler water system. The delivery pipeline will be funded and constructed by Southeastern and the Town of Fowler and will generally follow Main Street south to the existing facilities.

Valley Water's delivery pipeline, east of Manzanola, will also be extended about 2.5 miles east of the FEIS's delivery point as shown in figure 11. The additional delivery pipeline will run west from U.S. 50, along Otero County Road KK, and then south along Otero County Road 8 to an existing storage tank.

### **Manzanola to Rocky Ford Reach**

The trunk line from Manzanola to Rocky Ford remains within the FEIS's Comanche North Alternative's alignment, paralleling Otero County Road 811 east of Manzanola before turning south on Otero County Road 13, as shown in appendix A. The trunk line then turns east and parallels Otero County Road HH, turns south and east along Otero County Road 13.5 to Colorado 14, and then parallels Otero County Road GG east to Otero County Road 16. The trunk line then heads east along Colorado 202 and then south along Otero County Road 17. Finally, the trunk line then parallels Otero County Road EE to Rocky Ford.

Between Manzanola and Rocky Ford, only the Patterson Valley delivery pipeline alignment has been modified under the Reconfigured AVC Project. This delivery pipeline will be funded and constructed by Southeastern and Patterson Valley and includes about 2.25 miles of pipeline extending from the trunk line. The pipeline will parallel Otero County Road 14 and terminate at an existing storage tank south of the Rocky Ford Highline Canal as shown in figure 12.



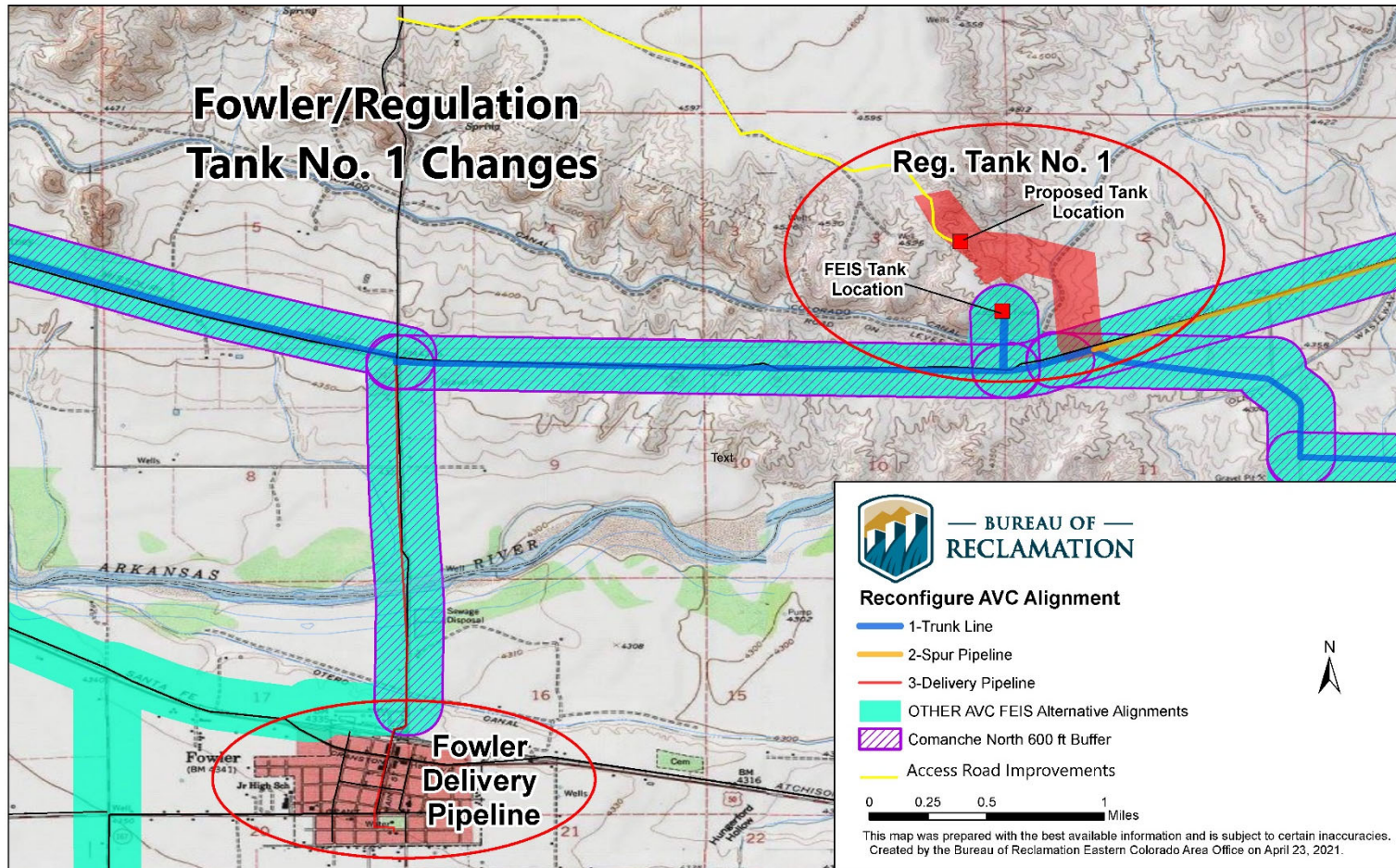


Figure 10: Fowler/Regulating Tank No. 1 delivery pipeline changes.



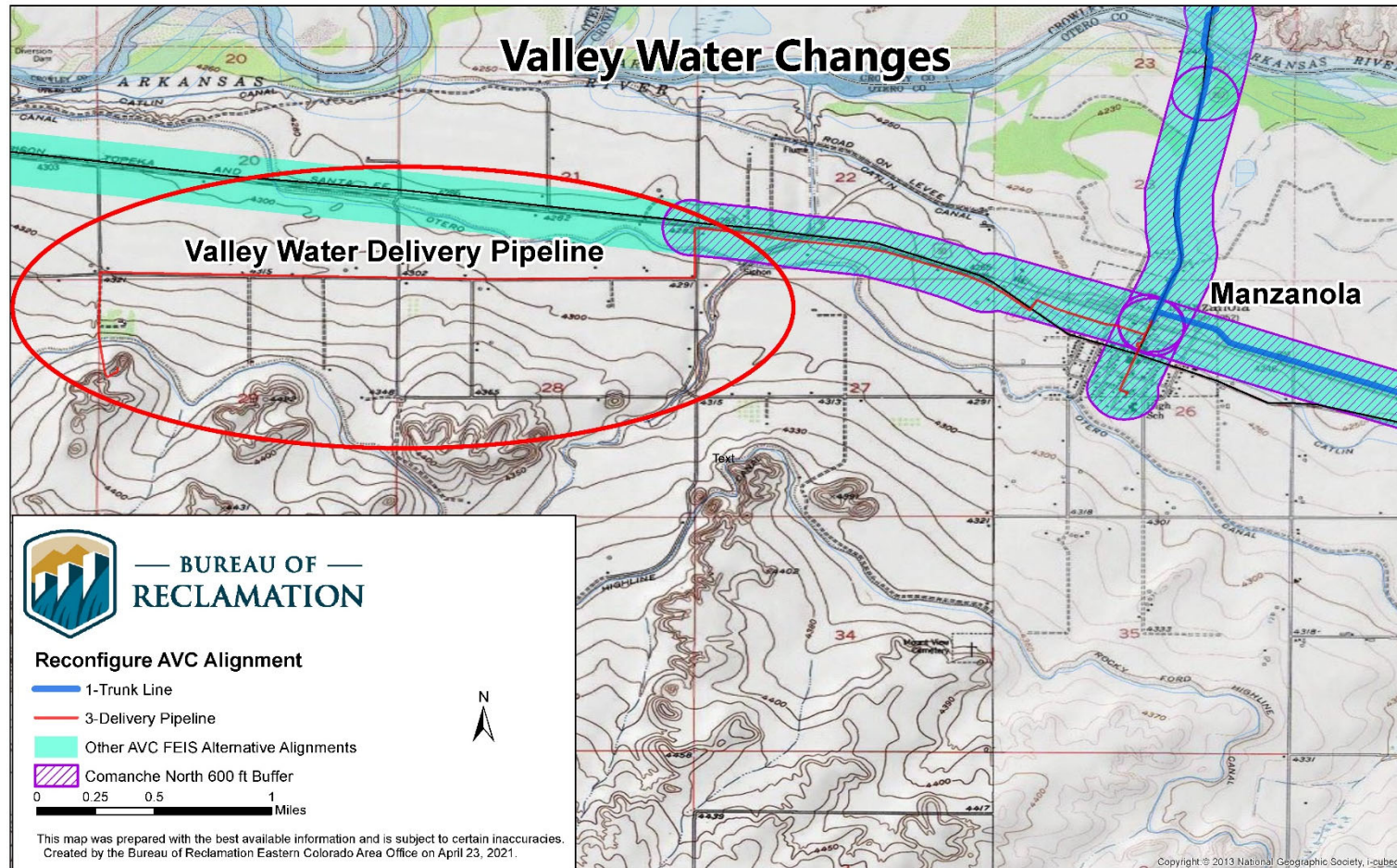


Figure 11: Valley Water delivery pipeline changes.

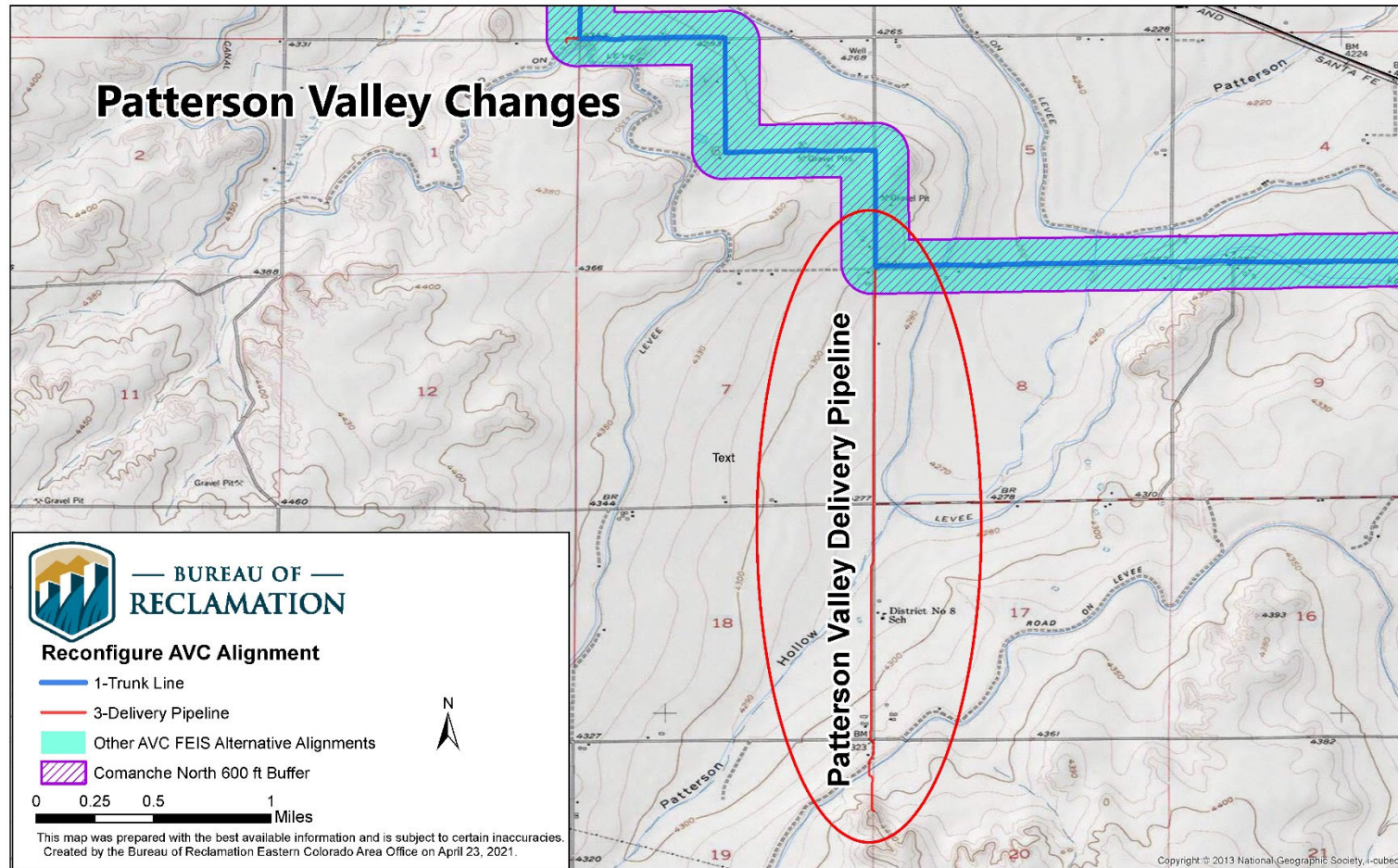


Figure 12: Patterson Valley delivery pipeline changes.



## **Segment 3 – Rocky Ford to Las Animas**

The Reconfigured AVC Project does not change the trunk line alignment for this segment, as described in the FEIS. The trunk line from Rock Ford to La Junta has been changed to a spur pipeline and will be funded and constructed by Southeastern and the Participants. The La Junta Spur pipeline is discussed later in this document.

Segment 3 includes two trunk line reaches: Rocky Ford/Cheraw and Las Animas. Each reach is discussed in greater detail below and appendix A.

### **Rocky Ford/Cheraw Reach**

This reach starts at Rocky Ford, heads east across several open irrigated fields, and connects and then follows with Otero County Road EE east and then north along Otero County Road 21. The La Junta Spur pipeline also branches off from the trunk line near its intersection with Otero County Road 21. The trunk line then travels north, then parallels Colorado 266, and crosses the Arkansas River. The trunk line then continues east on Colorado 266, past Holbrook Reservoir, and becomes Otero County Road HH near Cheraw Lake. It continues east on Otero County Road HH and then follows Colorado 194 east. From Colorado 194, the trunk line heads south and crosses the Animas River before entering Las Animas. Regulating Tank No. 2 is located within this reach and will remain in the same general location.

Delivery pipeline lengths are increased for the following Participants: Hilltop, West Grand Valley, Riverside, North Holbrook, West Holbrook, Holbrook Center, Cheraw, Southside, and East End. Each water provider is discussed in greater detail below.

### **Hilltop**

The Hilltop delivery pipeline extends from Colorado 71, south of Rocky Ford, paralleling Otero County Road DD east to an existing storage tank, as shown in figure 13. The additional delivery pipeline length is about 0.4 mile and will be funded and constructed by Southeastern and Hilltop.

### **West Grand Valley**

West Grand Valley delivery pipeline will be extended approximately 2.7 miles to its existing well and pumping facilities. The additional pipeline will follow Colorado 71 south to Otero County Road Z and then parallel County Road Z heading west, and then north, along Otero County Road 18, as shown in figure 14. The additional delivery pipeline will be funded and constructed by Southeastern and West Grand Valley.

### **Riverside**

Riverside is a new Participant included in the Reconfigured AVC Project in Otero County. It provides water service to a small unincorporated area of about 90 people located south of Colorado 266 between the Arkansas River and Holbrook Reservoir.

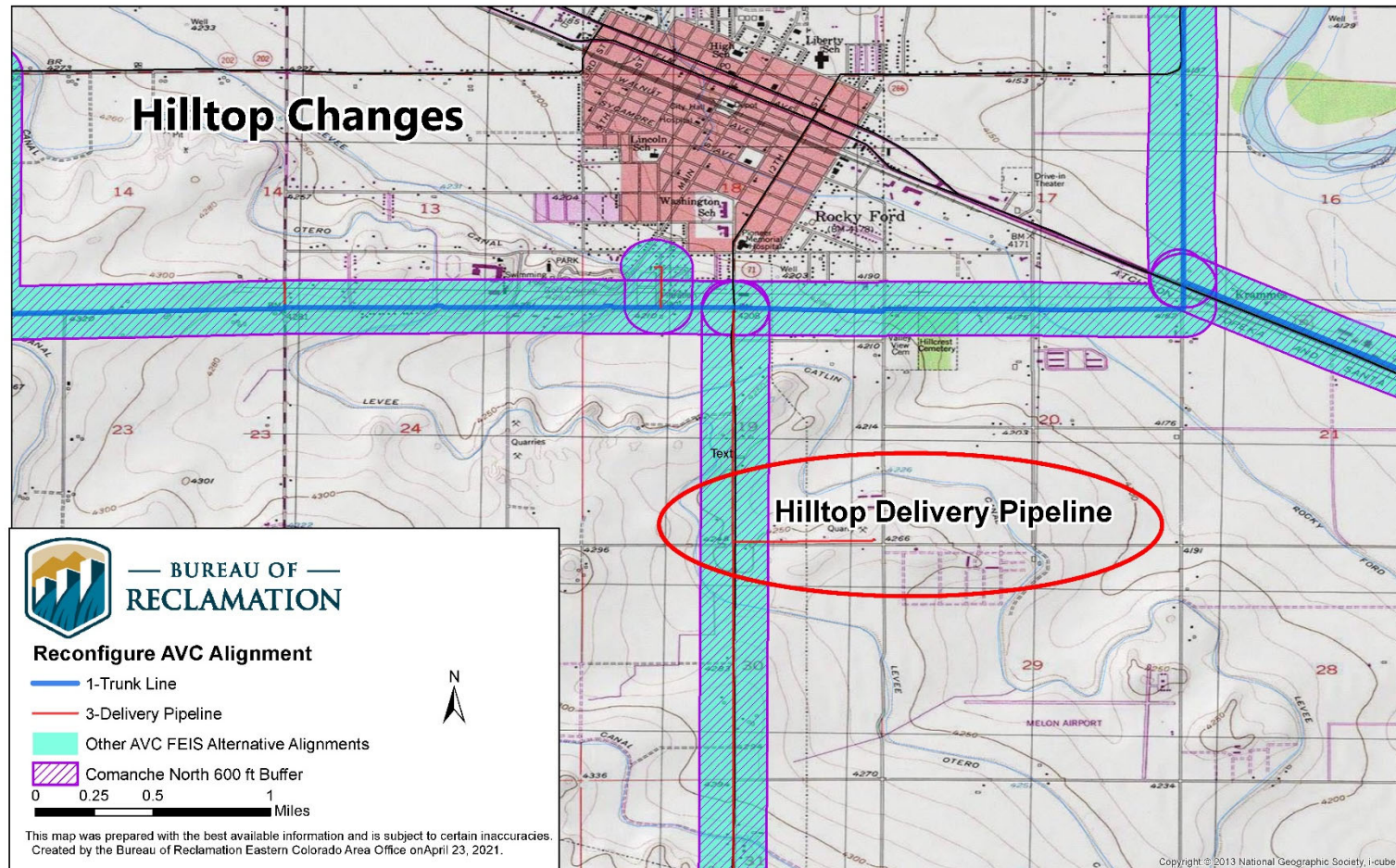


Figure 13: Hilltop delivery pipeline changes.



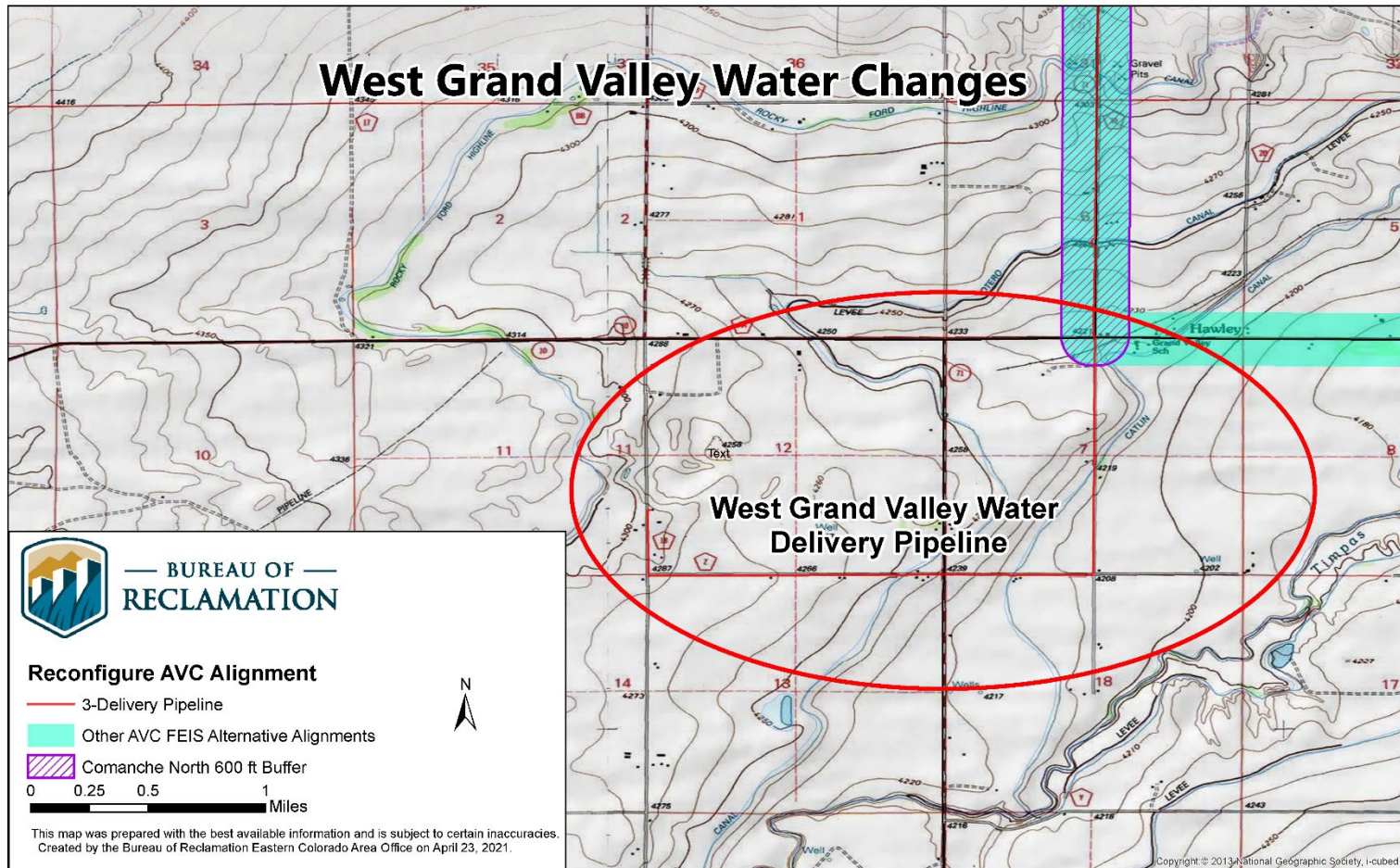


Figure 14: West Grand Valley delivery pipeline changes.

## **Arkansas Valley Conduit Supplemental Information Report**

Riverside distributes water pumped to about 90 people from two groundwater wells and is currently under enforcement orders from the CDPHE for violations for radionuclides and bromate. Riverside has requested 20 acre-ft/yr to meet its projected 2070 water demand.

Riverside's delivery pipeline will extend from the trunk line south along Otero County Road 24.5, approximately 1.4 miles, as shown in figure 15. The additional delivery pipeline will be funded and constructed by Southeastern and Riverside.

### **North Holbrook**

North Holbrook's delivery pipeline will be extended about 0.5 mile south from the trunk line off of Colorado 266 along Otero County Road 27, adjacent to a small pond, also shown in figure 15. The delivery pipeline will be funded and constructed by Southeastern and North Holbrook.

### **West Holbrook**

West Holbrook's delivery pipeline starts about a mile east of North Holbrook's tap along Colorado 266 and will follow Otero County Road 28 north to existing facilities located adjacent to Holbrook Canal Road. The pipeline will be extended approximately 0.75 mile, as shown in figure 15, and will be funded and constructed by Southeastern and West Holbrook.

### **Holbrook Center**

Holbrook Center's delivery pipeline will start about 0.9 mile east of West Holbrook's tap along Colorado 266 (see figure 15 above). The delivery pipeline alignment is included in Trunk Line alternative routes evaluated and analyzed in the FEIS along Otero County Road 29. The delivery pipeline will be funded and constructed by Southeastern and Holbrook Center.

### **Cheraw**

The Cheraw delivery pipeline will be extended from the trunk line along Colorado 29 at its junction with Colorado 109 and Otero County Road HH. The pipeline will parallel Colorado 109 north to the Town of Cheraw, with a pipeline length of about 2.4 miles, and terminate at the Town's facilities at 3rd Street and Railroad Avenue, as shown in figure 16. The delivery pipeline will be funded and constructed by Southeastern and Cheraw.

### **Southside**

The Southside delivery pipeline will be extended from the trunk line along Otero County Road HH approximately 3 miles east of Cheraw. The extension will follow Otero County Road 33 north to Otero County Road JJ and then turn west along Road JJ to Southside's existing facilities, as also shown in figure 16. The delivery pipeline length will be about 1.2 miles. The additional delivery pipeline will be funded and constructed by Southeastern and Southside.



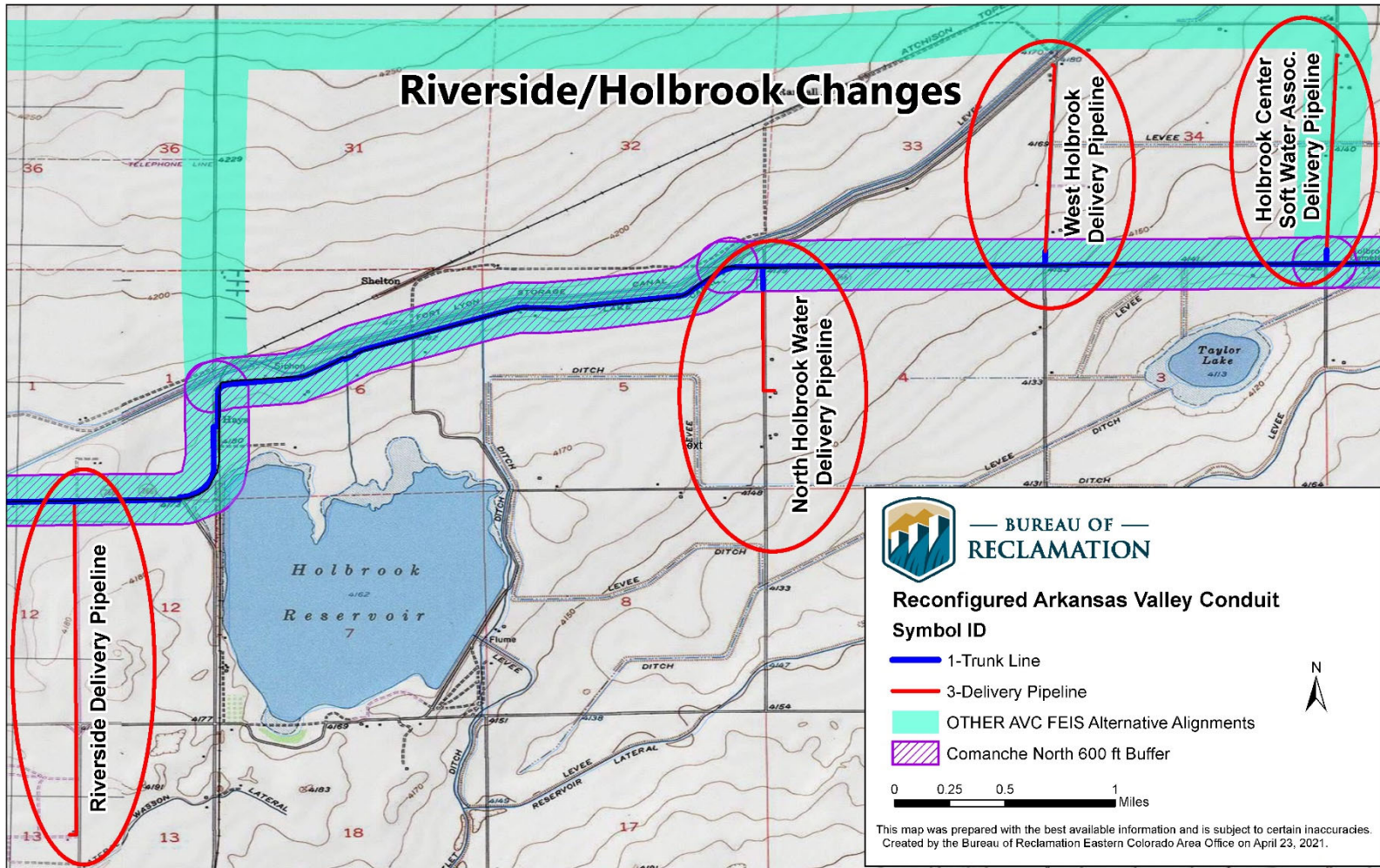


Figure 15: Riverside/North Holbrook delivery pipeline changes.

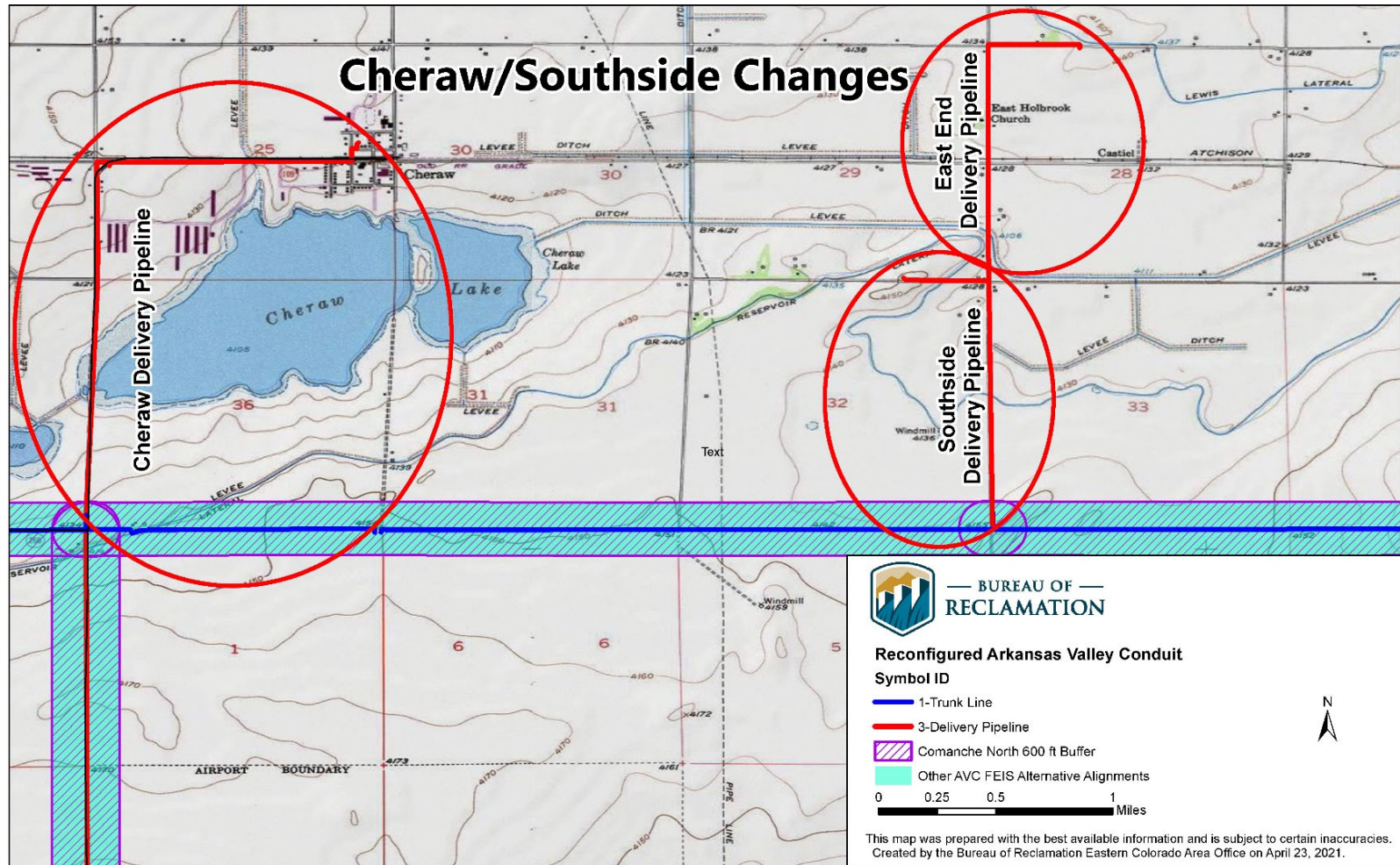


Figure 16: Cheraw/Southside/East End delivery pipeline changes.

### **East End**

The East End delivery pipeline will extend about 1.3 miles north of the delivery pipeline along Otero County Road 33 and then east, paralleling Otero County Road KK near the Lewis Lateral. The delivery pipelines will be funded and constructed by Southeastern, Southside, and East End.

### **Segment 4 – Las Animas to Lamar**

Segment 4 of the AVC Project trunk line remains within the FEIS's Comanche North Alternative's alignment (see appendix A). The trunk line will parallel U.S. 50 west of Las Animas to Prowers County Road 1 east of the JBS Five Rivers Feed Lot. It will head south along Prowers County Road 1 and then continue south across the Amity Canal and Arkansas River, before turning east along Prowers County Road HH. The trunk line then heads south along Prowers County Road 5, then turns east along a two-track road that joins with Prowers County Road GG to Lamar. The trunk line heads south along South 14th Street, near the Lamar High School, and then follows a two-track road in a southeasterly direction. The trunk line then crosses U.S. 385, near the golf course, before ending at Lamar's existing facilities and storage tank.

Only the Wiley delivery pipeline will be modified in Segment 4 and is discussed below.

### **Wiley**

An additional Wiley delivery pipeline approximately 1.3 miles in length will be added along Bent County Road 1 east of Eads, as shown in figure 17. The pipeline will be funded and constructed by Southeastern and the Town of Wiley terminates at existing storage tanks located adjacent to the Wiley cemetery.

### **Sugar City Spur**

The Sugar City Spur pipeline parallels Colorado 96 as it runs northeast to Olney Springs, Crowley, Ordway, and Sugar City, as shown in appendix A. The spur pipeline remains within the FEIS's Comanche North Alternative's alignment and only changes to the Sugar City delivery pipeline included in the Reconfigured AVC Project.

### **Sugar City**

The Sugar City delivery pipeline will be extended for Colorado 96 north along Crowley County Lane 22.5. The pipeline turns east, crossing the West Ditch, and parallels existing fence to Crowley County Lane 23. The pipeline then parallels Crowley County Lane 23 north and terminates at its intersection with Crowley County Road K west of Horse Creek. Existing groundwater wells are located west of Horse Creek and south of Crowley County Road K, as shown in figure 18. The additional delivery pipeline will be funded and constructed by Southeastern and Sugar City.



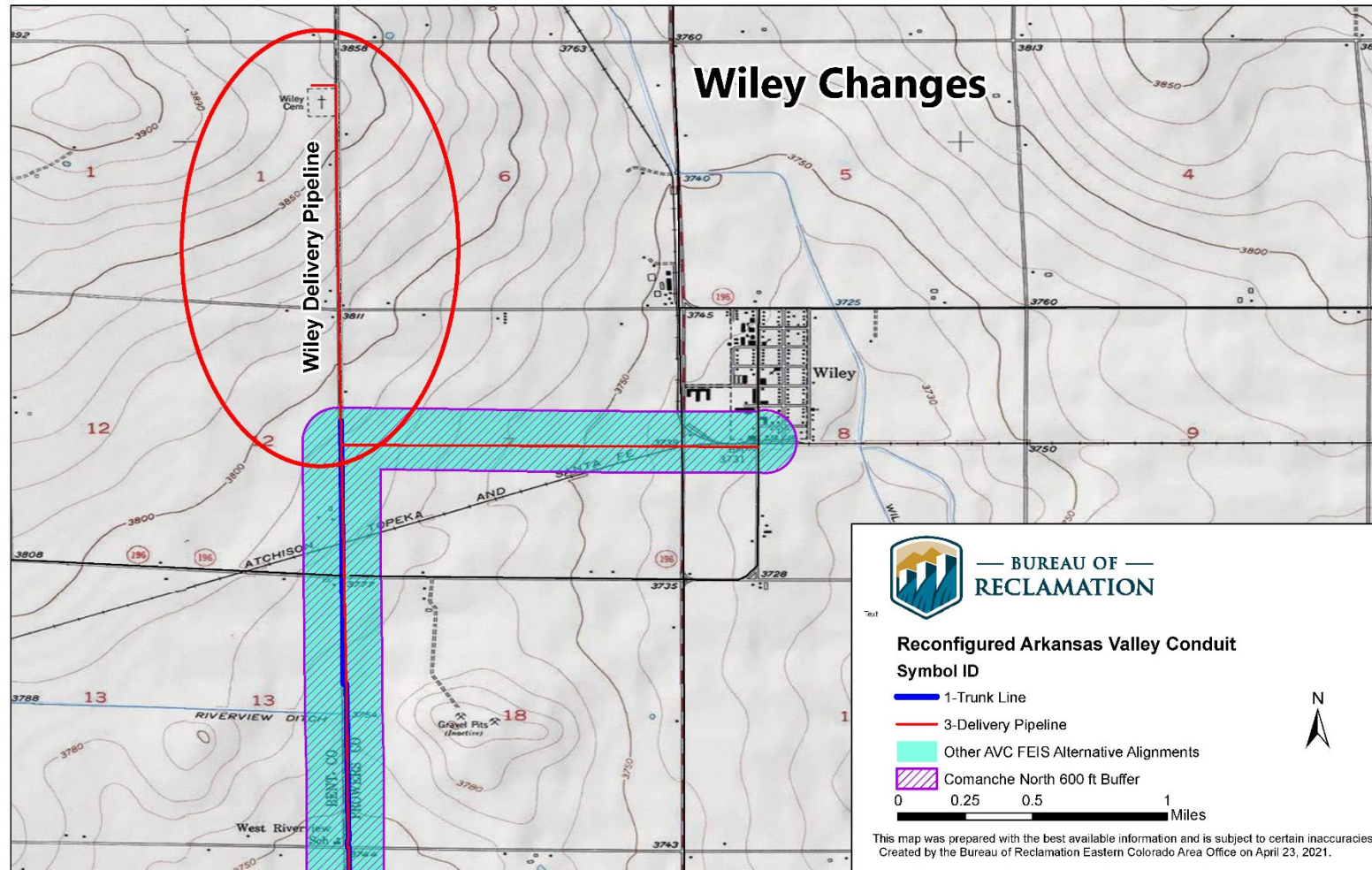


Figure 17: Wiley delivery pipeline changes.



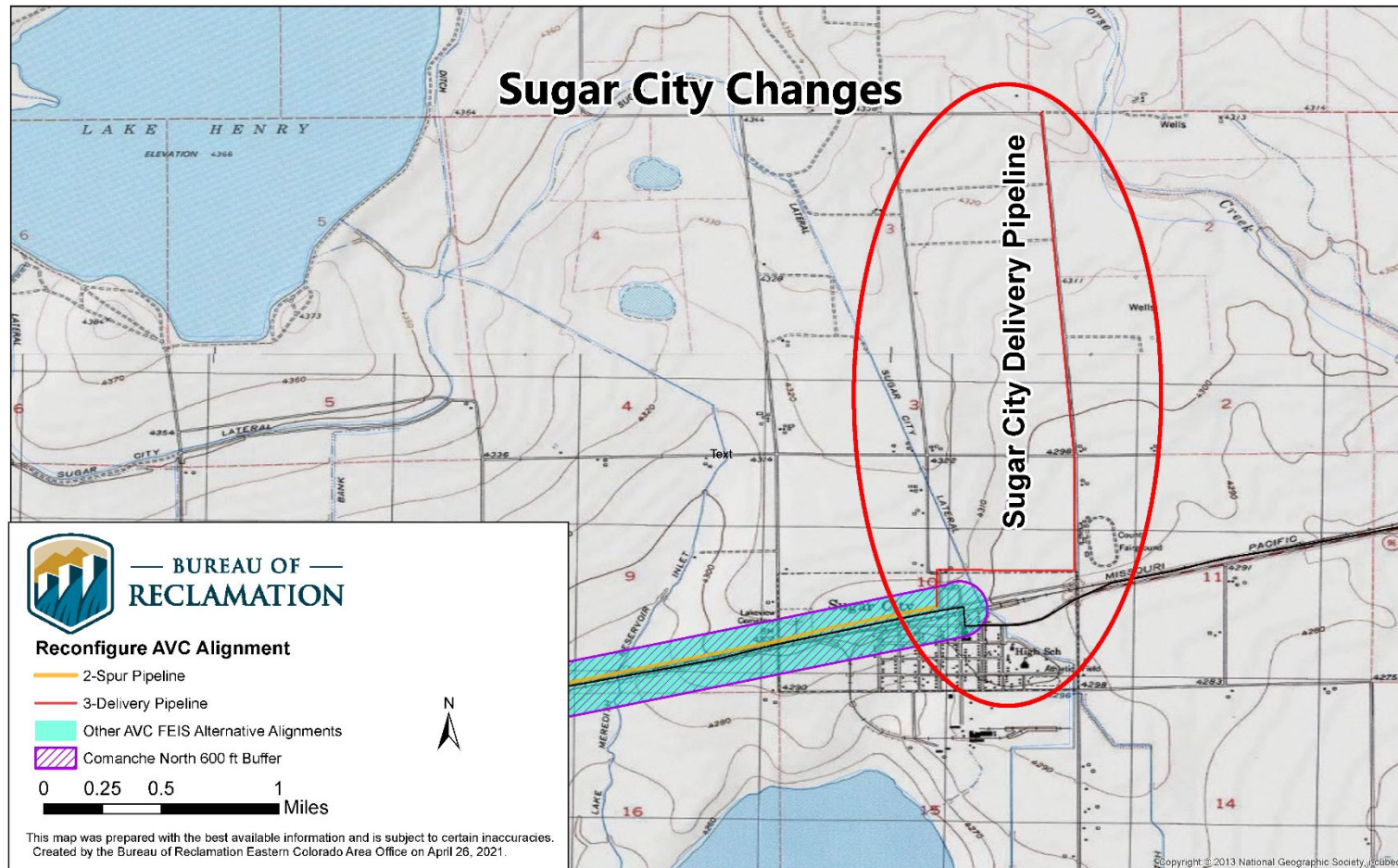


Figure 18: Sugar City delivery pipeline changes.

## **Arkansas Valley Conduit Supplemental Information Report**

### **La Junta Spur**

The FEIS's Comanche North Alternative's trunk line from Rocky Ford to La Junta has been changed to a spur pipeline that will be funded and constructed by Southeastern and the Participants. The spur pipeline alignment remains unchanged, as shown in appendix A. However, Reconfigured AVC Project changes have been made to the Swink, Homestead, and La Junta delivery pipelines and are described below.

### **Swink**

Alignments for Swink delivery pipelines included in the Reconfigured AVC Project include the modifications to U.S. 50, Fairmont, and Fairview delivery pipelines, as shown in figure 19. The Swink U.S. 50 pipeline will be extended south about 0.5 mile through the Town of Swink, parallel Columbia Avenue, and then turn west along Otero Country Road CC, terminating at an existing storage tank. The Fairview delivery pipeline will be extended about 2.4 miles west along Colorado 10 to an existing tank and water treatment facilities. The Fairmont delivery pipeline will continue about 0.9 mile south on Otero County Road 25 to an existing tank and facilities along Otero County Road Z. The Swink delivery pipelines will be funded and constructed by Southeastern and the Town of Swink.

### **Homestead Improvement Association**

The Homestead delivery pipeline will be extended by about 0.40 mile, continuing to parallel Otero County Road 28 near Homestead Lane, as shown in figure 20. The Homestead delivery pipeline will be funded and constructed by Southeastern and Homestead.

### **La Junta**

The Reconfigured AVC Project extends the La Junta delivery pipeline about 0.10 mile to the east of Anderson Arroyo from West 6th Street along Gardner Avenue and West 5th Street. This minor change is also shown in figure 20. The La Junta delivery pipeline will be funded and constructed by Southeastern and the City of La Junta.

### **Eads Spur**

The Eads Spur pipeline will parallel Bent County Road 34 north to Bent County Road WW, as shown in appendix A. It will then parallel Bent County Road WW west to Kiowa County Road 40 and follow Kiowa County Road 40 north, around the Nesopah Reservoir complex, and head east for a short distance on Kiowa County Road HH, before heading north again on Kiowa County Road 40 in Eads. In Eads, the spur pipeline heads east along Lowell Street before turning north along Main Street. The spur pipeline terminates at Eads facilities east of U.S. 287 and north of Colorado 96. A pumping plant along the Eads spur pipeline continues to be needed for the Reconfigured AVC Project. It remains in the same general location as described in the FEIS's Comanche North Alternative along Bent County Road 34 near the Fort Lyons Canal.

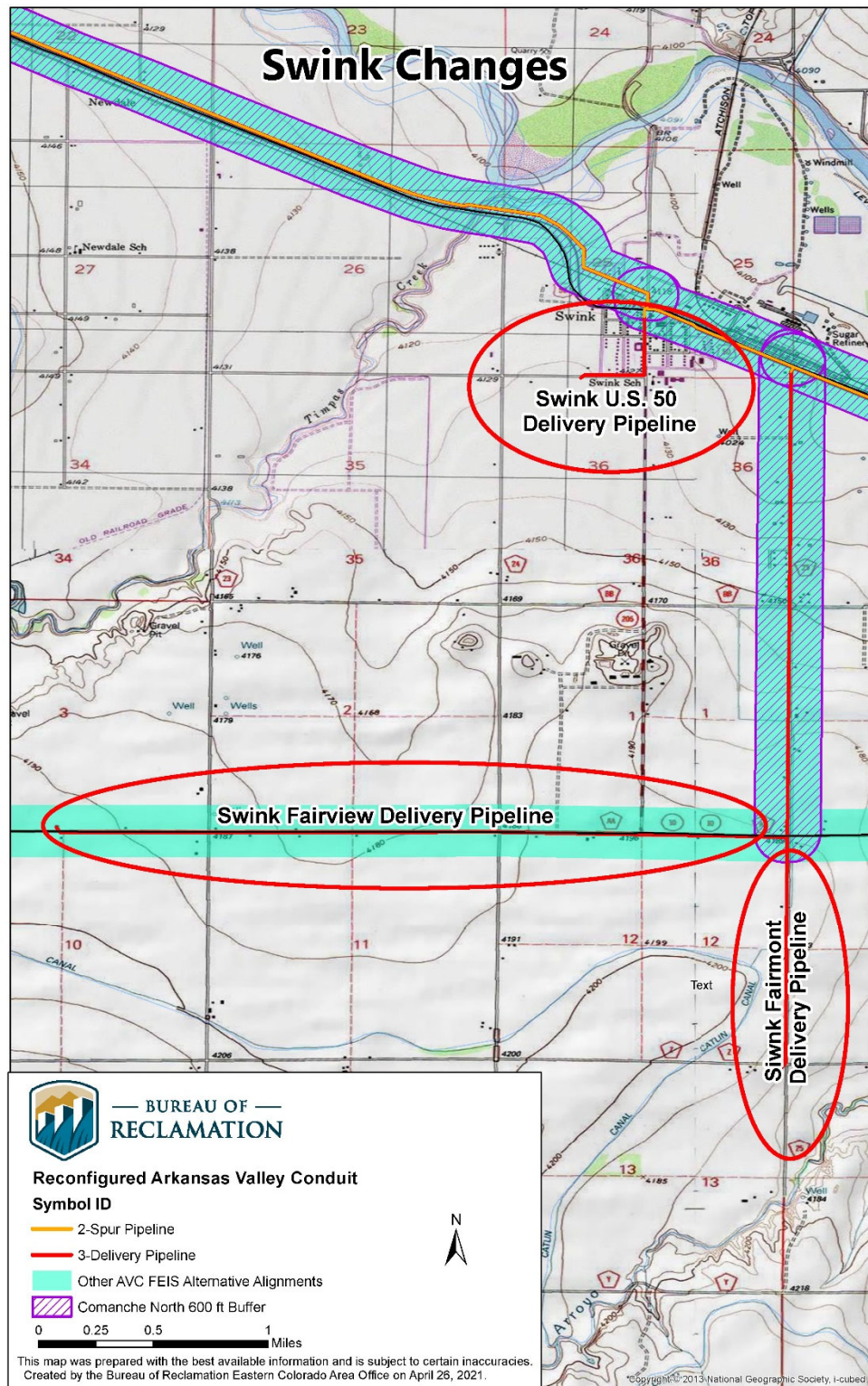


Figure 19: Swink delivery pipeline changes.





Delivery pipelines associated with the May Valley area will be extended as part of the Reconfigured AVC Project, as shown in figures 21 and 22. The May Valley pipeline will be extended about 1 mile east along Prowers County Road SS. The May Valley 2 delivery pipeline will extend from Bent County Road SS, paralleling Bent County Road 35, south to an existing storage tank located about 0.2 mile south of Bent County Road PP. The additional length of the delivery pipeline is about 2.1 miles. Both May Valley delivery pipelines will be funded and constructed by Southeastern and May Valley.

## Endangered Species Act Compliance

Reclamation completed a biological assessment and initiated informal consultation with the U.S. Fish and Wildlife Service (Service) under Section 7 of the Endangered Species Act for the AVC Project on June 28, 2013. Based on the information provided in the June 28, 2013, letter and an August 9, 2013, U.S. Army Corps of Engineers' email, the Service concluded that the proposed AVC Project may affect, but is not likely to adversely affect, the interior least tern and piping plover. Furthermore, the Service concluded that the AVC Project will not jeopardize the continued existence of the lesser prairie-chicken. The Service's concurrence also included a statement, "Should project plans change, or if additional information on the distribution of listed or proposed species becomes available, this determination may be reconsidered."

Since completion of the 2013 Section 7 AVC consultation, the Eastern black rail was listed, on November 9, 2020, as a threatened species under the Endangered Species Act. This is considered new information, and Reclamation will need to evaluate potential effects to this new listed species.

Eastern black rails have been reliably located within the Arkansas River Valley of Colorado and are a presumed breeder in the state (Service, 2018). Suitable habitat has dense or thick emergent vegetation with high vegetation density (interspersed), as well as a mixture of new and residual growth. The species are known to use shallow wetlands dominated by cattails, hardstem bulrush, soft-stemmed bulrush, and willow in the overstory. Eastern black rails were also detected exclusively in extensive cattail marshes with standing water. Critical habitat has not been designated for this species.

Reclamation will need to evaluate the Reconfigured AVC Project for habitat and potential effects to Eastern black rails. If it is found that the Reconfigured AVC Project "may affect" or "adversely affect" the Eastern black rail, Reclamation will initiate consultation with the Service as required under Section 7 of the Endangered Species Act.



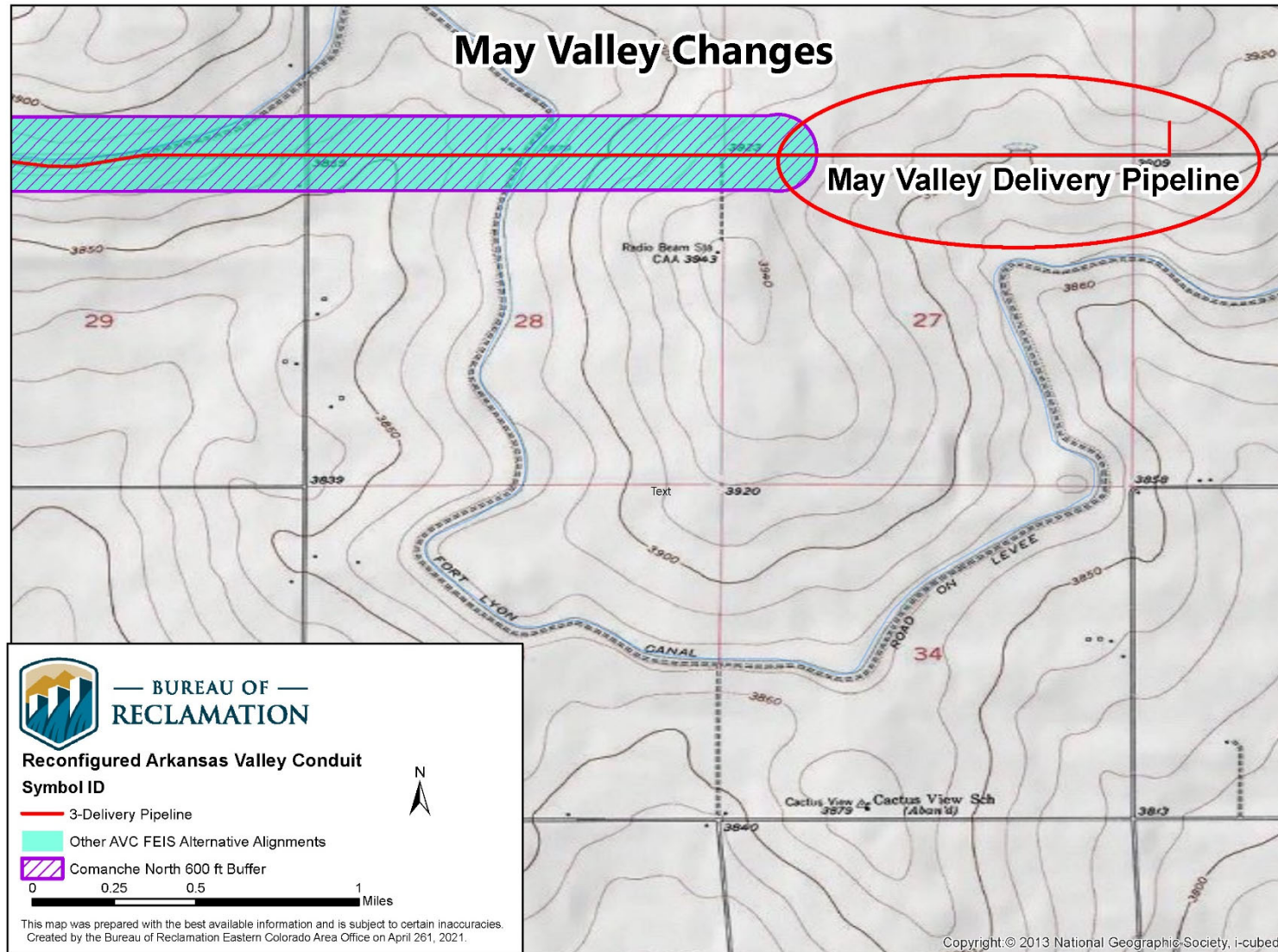


Figure 21: May Valley delivery pipeline changes.

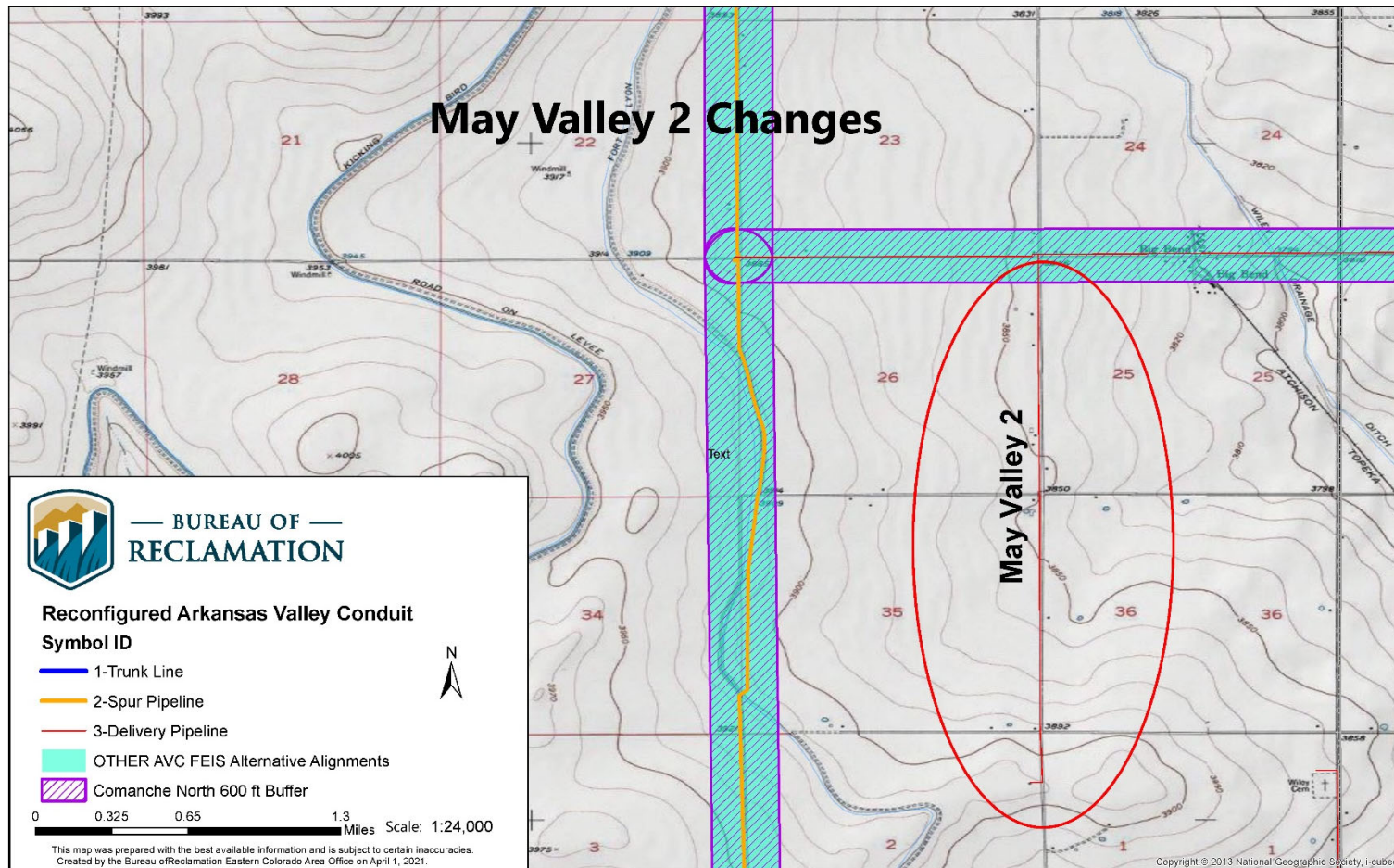


Figure 22: May Valley 2 delivery pipeline changes.

## Historic and Cultural Resources Compliance

As part of the EIS process for the AVC Project to address Reclamation's Historic Preservation Act Section 106 requirements, Reclamation entered into a programmatic agreement (PA) with the Colorado State Historic Preservation Officer (SHPO) (appendix B). The PA (Agreement No. R13MU60034) was executed on July 31, 2013, and filed with the Advisory Council on Historic Preservation. Consulting parties, including all invited Indian Tribes under the PA, include:

National Park Service	Bent County Historic Preservation Advisory Board
Kiowa County Historic Preservation Committee	Otero County Historic Preservation Advisory Board
Apache Tribe of Oklahoma	Northern Cheyenne Tribe
Comanche Nation	Oglala Sioux
Cheyenne-Arapaho Tribe of Oklahoma	Crow Nation
Fort Sill Apache	Crow Creek Sioux
Kiowa Tribe of Oklahoma	Eastern Shoshone
Jicarilla Apache	Mescalero Apache
Pueblo of Cochiti	Arapaho Tribe of the Wind River
Rosebud Sioux	Ohkay Owingeh
Standing Rock Sioux	Pawnee Nation of Oklahoma
Zuni Pueblo	Santa Ana Pueblo
Santa Clara Pueblo	Southern Ute
Pueblo de San Ildefonso	Arapaho Tribe of the Wind River
Ute Mountain Ute	Northern Arapaho Tribe
Assiniboine and Sioux Tribe of the Fort Peck Indian Reservation	Pueblo of Santa Ana

The Area of Potential Effect (APE), as defined in the PA, encompassed an area sufficient to accommodate all of the proposed undertakings as of the date of execution of the PA. Section 1B of the PA states that the APE may be modified by Reclamation, in consultation with the SHPO, when Tribal consultation, additional



## Arkansas Valley Conduit Supplemental Information Report

field research or literature review, consultation with consulting parties, or other factors indicate that qualities and values of historic properties that lie outside the boundaries of the current defined APE may be affected directly, indirectly, or cumulatively. Agreement to modify the APE will not require an amendment to the PA, but consulting parties and affected land management agencies will be notified.

A Class I Literature Review was completed by ERO Resources Corporation (ERO)(2013) that included a 1-mile buffer of all five alternative AVC configurations evaluated in the FEIS. The purpose of the Class I analysis was to compile all existing cultural resource data previously documented within the study area. The gathered data were used in three ways: (1) to evaluate the anticipated effects to potential historic properties for the six pipeline alternatives under consideration; (2) to empirically assess the potential for unknown cultural resources within the AVC Project's APE using environmental variables; and (3) to provide background data required under Section 106 of the National Historic Preservation Act (NHPA, 1966, as amended) compliance that was completed for the FEIS's selected Comanche North Alternative.

The ERO report stated: "AVC, once completed, will include a pipeline corridor including both construction and permanent easements, associated facilities such as water treatment plants and pumping stations, new access roads, and the maximum pool limits of Pueblo and John Martin reservoirs, the levels of which will be affected by the distribution of AVC water."

All changes associated with the Reconfigured AVC Project trunk line, spur lines, and associated facilities will be located within the 1-mile buffered Class I analysis area described in the ERO 2013 report. However, Regulating Tank No. 2's access road and portions of delivery pipeline extensions for Sugar City, Patterson Valley, West Grand Valley, Riverside, Cheraw, Southside, East End, Wiley, and May Valley 2 may be outside the 2011 Class I analysis area or need additional Class I analyses to maintain the 1-mile buffer around the reconfigured project area.

ERO also completed a sample intensive survey (ERO, 2014) of over 37.5 miles within a variable-width corridor of 200, 400, and 600 feet of the Comanche North Alternative, depending on where the pipeline was situated with respect to land status, access, and existing rights-of-way, such as state highways and active railroads. However, right of entry was not granted for all requested properties. No surveys took place within the CDOT right-of-way.

Additional Class I surveys for Reconfigured AVC Project alignments outside the ERO 2013 inventory will need to be completed. Class III inventories (intensive field surveys) and additional SHPO consultation, as described in the PA, will also need to be completed for the Reconfigured AVC Project as required. A copy of the PA is included as appendix B.



## References

Black and Veatch, 2020. Final Arkansas Valley Conduit – 2020, Delivery Pressure Evaluation. B&V Project No. 405734, B&V File No. 41.1000. Prepared for Southern Colorado Water Conservancy District by Black and Veatch, June 17, 2020.

ERO, 2014. Arkansas Valley Conduit, Reconnaissance Survey and Cultural Resource Evaluation, Bent, Crowley, Kiowa, Otero, Prowers, and Pueblo Counties, Colorado. ERO Resources Corporation. State Permit No. 2013-60, ERO Project No. 4709-30, February 2014.

ERO, 2013. Arkansas Valley Conduit, Class I Cultural Resource Overview. ERO Resources Corporation with contributions from Avalon Archaeology, LLC. July 2013.

Reclamation, 2020. Arkansas Valley Conduit Project Management Plan. U.S. Department of the Interior, Bureau of Reclamation and Southeastern Colorado Water Conservancy District. April 2020, with six change orders approved between July and December 2020.

Reclamation, 2018. Final Programmatic Environment Assessment and Finding of No Significant Impact (FONSI Number 2019-01) for Pueblo Reservoir Temporary Excess Capacity Storage and Contracting Program, Fryingpan-Arkansas Project. Project No. 2015-05. U.S. Department of the Interior, Bureau of Reclamation, Eastern Colorado Area Office, December 2018.

Reclamation, 2016. Technical Memorandum No. 382-AVC-8140-FEA-2016-01, Volume 1 – Feasibility Design Report (Primary) & Appendices A-M. Arkansas Valley Conduit, Fryingpan-Arkansas Project, Great Plains Region. U.S. Department of the Interior, Bureau of Reclamation, Technical Service Center, September 2016.

Reclamation, 2014. Record of Decision for the Arkansas Valley Conduit and Long-term Excess Capacity Master Contract Final Environmental Impact Statement. U.S. Department of the Interior, Bureau of Reclamation, Great Plains Region, February 7, 2014.

Reclamation, 2013. Arkansas Valley Conduit and Long-Term Excess Capacity Master Contract Final Environmental Impact Statement. U.S. Department of the Interior, Bureau of Reclamation, Great Plains Region, Eastern Colorado Area Office, August 2013.

Reclamation, 2010. Value Planning Final Report – Arkansas Valley Conduit Project. Conducted in cooperation with and for Southeastern Colorado Water Conservancy District and the Bureau of Reclamation, Great Plains Region. U.S. Department of the Interior, Bureau of Reclamation, Technical Resources, May 2010.

## Arkansas Valley Conduit Supplemental Information Report

Service, 2018. Species Status Assessment Report for the Eastern Black Rail (*Laterallus Jamaicensis Jamaicensis*). Version 1.2. U.S. Fish and Wildlife Service, Region 4, Atlanta, Georgia, June 2018.