



Draft Environmental Assessment Project No. 2015-048

Tri-Districts Long-Term Excess Capacity Contracts Colorado-Big Thompson Project

**United States Department of the Interior
Bureau of Reclamation, Great Plains Region
Eastern Colorado Area Office**



Photo Courtesy of Bureau of Reclamation

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MISSION STATEMENTS

The mission of the Department of the Interior is to protect and provide access to our Nation's natural and cultural heritage and honor our trust responsibilities to Indian Tribes and our commitments to 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.

ACRONYMS

ACOE	Army Corps of Engineers
af	acre-feet
Canyon Gage	Cache la Poudre at Canyon Mouth near Fort Collins
C-BT Project	Colorado-Big Thompson Project
CDPHE	Colorado Department of Public Health and Environment
CDWR	Colorado Division of Water Resources
cfs	cubic feet per second
CHSC	Charles Hansen Supply Canal
CPW	Colorado Division of Parks and Wildlife
EA	environmental assessment
East Larimer County	East Larimer County Water District
EIS	Environmental Impact Statement
FCNA Program	Fort Collins Natural Areas Program
FPA	Federal Power Act
Fort Collin-Loveland	Fort Collins-Loveland Water District
ft	feet
ITA	Indian Trust Asset
MGD	million gallons per day
M&I	Municipal and Industrial
NEPA	National Environmental Policy Act
NHA	National Heritage Area
NISP	Northern Integrated Supply Project
Northern Water	Northern Colorado Water Conservancy District
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resource Conservation Service
North Weld County	North Weld County Water District
NWI	National Wetland Inventory
Poudre River	Cache La Poudre River
PRPA	Paleontological Resource Protection Act
Reclamation	Bureau of Reclamation
SCFP	Soldier Canyon Filter Plant
Service	U.S. Fish and Wildlife Service
Subdistrict	Municipal Subdistrict of Northern Water
Tri-Districts	East Larimer County Water District, Fort Collins-Loveland Water District, and North Weld County Water District
United States	United States of America

Upper CLP

Upper Cache La Poudre Collaborative Water Quality Monitoring
Program

WSSC

Water Supply and Storage Company

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Canyon Gage, Tri-Districts Annual Contract Exchanges

ATTACHMENT D—North Poudre Supply Canal Structure Summary Report

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PURPOSE AND NEED

This environmental assessment (EA) has been prepared to evaluate environmental impacts associated with the Bureau of Reclamation's approval of long-term excess capacity storage, exchange, and conveyance contracts between Reclamation and East Larimer County Water District, Fort Collins-Loveland Water District, North Weld County Water District (collectively referred to as Tri-Districts as shown in Figure 1).

The contracts would allow Tri-Districts to utilize excess capacity in Horsetooth Reservoir when available for the storage, exchange and conveyance of the Tri-Districts' Cache la Poudre River (Poudre River) water supply to the Soldier Canyon Water Treatment Plant for delivery within Tri-Districts boundaries. Proposed contract terms would be for 40-years and would establish a long-term cost basis and other contractual certainties for water storage, exchange and conveyance capacity. The Proposed Action would provide Tri-Districts with the needed water management flexibility to address drought, changes in municipal demands, and temporary changes in the watershed affecting water quality.

This EA is prepared in compliance with the National Environmental Policy Act (NEPA) of 1969 (Public Law 91-190) and under current guidelines established by the Council on Environmental Quality, U.S. Department of the Interior, Bureau of Reclamation.

BACKGROUND

Tri-Districts and Soldier Canyon Filter Plant

Tri-Districts

Tri-Districts (Figure 1) is composed of three separate water districts (East Larimer County, Fort Collins-Loveland, and North Weld County), which in 1962 collectively built the Soldier Canyon Filter Plant (SCFP) below Horsetooth Reservoir to treat water supplies from the Colorado Big-Thompson Project (C-BT Project). Prior to 1962, there were no public water supplies for local homeowners and business who relied solely on irrigation water or wells to serve their needs. General information on each water district is provided below.

East Larimer County Water District's service area includes an area northeast of Fort Collins between Wellington and Timnath (see Figure 1). Fort-Collins-Loveland Water District's service area includes a general area between Fort-Collins and Loveland. North Weld County Water District's service area includes homes, businesses, and agricultural operations in an area north of Greeley, east of Fort Collins, south of Nunn, and west of the Gill/Galeton area.

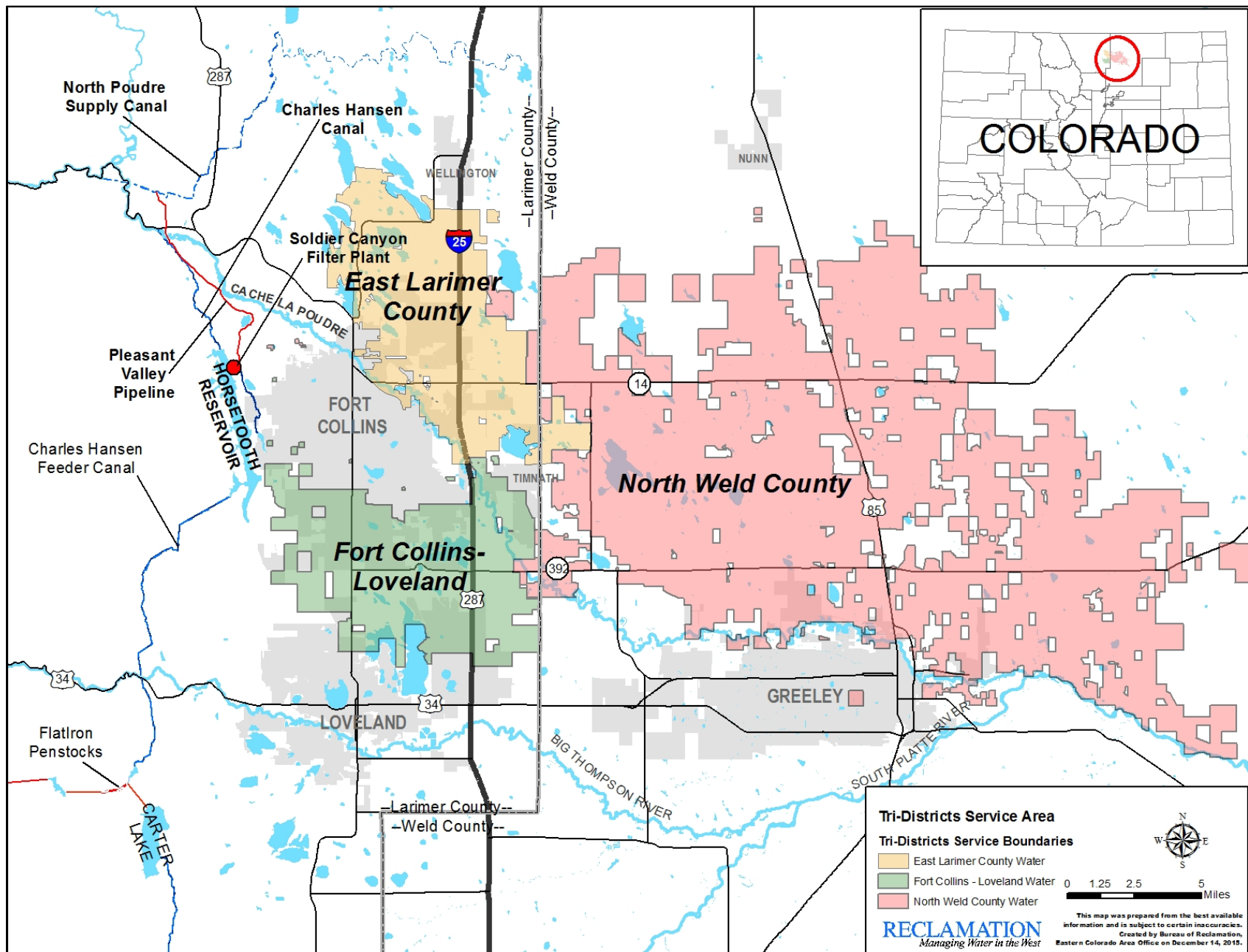


Figure 1-Tri-Districts Service Areas

Soldier Canyon Filter Plant

SCFP was constructed in 1962 west of Fort Collins and below Horsetooth Reservoir. The plant has a current capacity of 50 million gallons per day (MGD) and serves approximately 25,000 residential and commercial taps in Northern Colorado.

Raw water from both Horsetooth Reservoir and the Poudre River are delivered using existing pipelines and canals operated by the Northern Colorado Water Conservancy District (Northern Water). Prior to construction of the Pleasant Valley Pipeline in 2004, Horsetooth Reservoir was SCFP's only source of raw water. SCFP uses flocculation, sedimentation, filtration and disinfection to produce finished drinking water. Soda ash and lime are added as needed to accomplish corrosion control. Chlorine and fluoride are added depending upon flow rates of each of Tri-Districts' three water systems.

Excess Capacity Storage, Exchange, and Conveyance Contracts

Excess capacity storage, exchange, and conveyance contracts enable contractors to more efficiently use their non-project¹ water rights, by providing storage of non-project water for use at a later date or by providing an opportunity to exchange bypassed non-project water for C-BT Project water that would have been released from Horsetooth Reservoir. Consequently, excess capacity contracts meet contractor needs by providing valuable water storage and increase water management flexibility. The contractor can only store or exchange water "if and when" excess capacity is available in Horsetooth Reservoir.

By providing temporary excess capacity contracts for non-C-BT Project water, Reclamation will be acting pursuant to the Section 14 of the Reclamation Project Act of 1939 (43 U.S.C. 389) (the "1939 Act"); Section 4 of the Act of June 25, 1910, (36 Stat. 836); the Sundry Civil Expenses Appropriations Act for 1922 (43 U.S.C. § 395) (the "Contributed Funds Act"); Subsection B of Section 4 of the Act of December 5, 1924, (43 Stat. 702); the Finding of Feasibility dated December 21, 1937; the Act of August 9, 1937, (50 Stat. 595); and Senate Document No. 80, Colorado Big-Thompson Project, dated June 15, 1937, (Senate Document No. 80

Since 2012 Tri-Districts has annually requested a temporary excess capacity and storage contract for non-project water in Horsetooth Reservoir to mitigate poor water quality conditions in the Cache La Poudre River (Poudre River) due to increased particulate matter due to the High Park and Hewlett wildfires. Annual contracts have allowed Tri-Districts to exchange direct flow water rights and/or reservoir storage water releases for water releases from Horsetooth Reservoir. When approved by the State Engineers Office pursuant to Colorado water law, exchanges allow Tri-Districts to take immediate delivery of the exchanged water released from Horsetooth Reservoir for delivery through the Soldier Canyon Dam outlet works. The temporary contracts also allow exchanged water

¹ Non-Project water does not include Reclamation's CB-T Project water.

to be stored in Horsetooth Reservoir for later delivery through the Soldier Canyon Dam outlet works.

The Tri-Districts' annual excess capacity storage, exchange, and conveyance contract volumes previously approved by Reclamation are listed below:

<u>Contract No.</u>	<u>Year</u>	<u>Storage (af)</u>	<u>Exchange (af)</u>
12XX6C0118	Sept. 2012 to Aug. 2013	2,500	3,101
13XX6C0145	Sept. 2013 to Aug. 2014	1,250	1,250
14XX650106	Sept. 2014 to Aug. 2015	1,200	1,200
159E650103	Sept. 2015 to Aug. 2016	1,200	1,200

The following contracts authorize the use of C-BT Project facilities non-C-BT Project water: Windy Gap (Contract No. 15XX650003), City of Loveland (Contract No. 01WR6C0252) and Town of Berthoud (Contract No. 06XX6C0122). Neither the Loveland nor Berthoud contracts nor their associated NEPA compliance contemplated long-term storage in C-BT Project reservoirs (Reclamation 2000 & 2006).

The State of Colorado's Division of Water Resources (CDWR) *General Administration Guidelines for Reservoirs* (CDWR 2016) allows for Temporary Detention (72-Hour Rule), which generally allows for short-term detention without a specific storage right.

The guidelines (CDWR 2016) also describe exchanges, as follows:

In an exchange, water is generally provided at one point on a stream so that it may be diverted out of priority at another point upstream. Reservoirs may be part of exchanges. Some examples of possible exchanges that involve reservoirs include:

- Release from a downstream reservoir in exchange for diversion into an upstream reservoir
- Release of reusable effluent from a downstream treatment plant in exchange for diversion into an upstream reservoir
- Release from a downstream reservoir in exchange for diversions into an upstream ditch
- Leave consumptive use credits from a downstream changed direct right in the stream to replace water diverted from an upstream reservoir

As with all exchanges, the exchange must be approved by the CDWR Water Commissioner or Division Engineer and the release downstream timed so that the flow will be the same as if the upstream diversion had not taken place. Further, when a water right holder releases water allowing an upstream diversion by exchange, the diverted water takes on the "character" of the released water.

ALTERNATIVES

No Action Alternative

Under the No Action Alternative, Reclamation would not enter into a long-term contract with Tri-Districts for excess capacity storage, exchange, and conveyance in Horsetooth Reservoir. Tri-Districts would continue to utilize Tri-Districts' C-BT Project Units with deliveries from Soldier Canyon Dam and exchange their water rights when available. However, non-C-BT Project water could not be stored or delivered using C-BT Project facilities (i.e. Horsetooth Reservoir, Soldier Canyon Dam).

Proposed Action

Under the Proposed Action, Reclamation would enter into 40-year contracts with Tri-Districts for excess capacity exchange and storage in Horsetooth Reservoir. Each district would execute a separate contract with Reclamation with combined total exchange and storage contract volumes for Tri-Districts not to exceed 3,000 acre-feet (af). Northern Water also would be a party to each of the contracts.

Instead of making diversions from the Poudre River at the Munroe Supply Canal, exchanges would occur at the Charles Hansen Supply Canal (CHSC) (see Figure 2). Each exchange would move Tri-Districts' direct-flow or reservoir storage release Poudre River water supplies into Horsetooth Reservoir by bypassing diversions at the Munroe Canal and reducing an equal amount of C-BT Project water released from Horsetooth Reservoir. Exchanges could only occur when C-BT Project releases are being made to meet other downstream demands and Tri-Districts' water rights are either in priority or are augmented by a court-adjudicated decree or a Substitution Water Supply Plan approved by CDWR.

Exchanged water could either be instantaneously released to the SCFP from the Soldier Canyon Dam outlet works or stored in Horsetooth Reservoir as non-project water when excess storage capacity is available. Each district's non-project water stored in Horsetooth Reservoir would be released directly to the SCFP from the Soldier Canyon Dam outlet works when needed. Each district could exchange and store a maximum of 1,000 af of non-project water in Horsetooth Reservoir. Each of the 40-year contracts would establish an "Unused Capacity Service Floor" of 250 af for which each of the districts would be billed annually. Each District would notify Reclamation when it wishes to utilize additional unused capacity service, up to the maximum 1,000 af per contract. Each request for additional unused capacity service becomes the new unused capacity service floor and cannot be decreased.

Northern Water would require additional agreements with Tri-Districts for use of the Northern Water-owned CHSC.

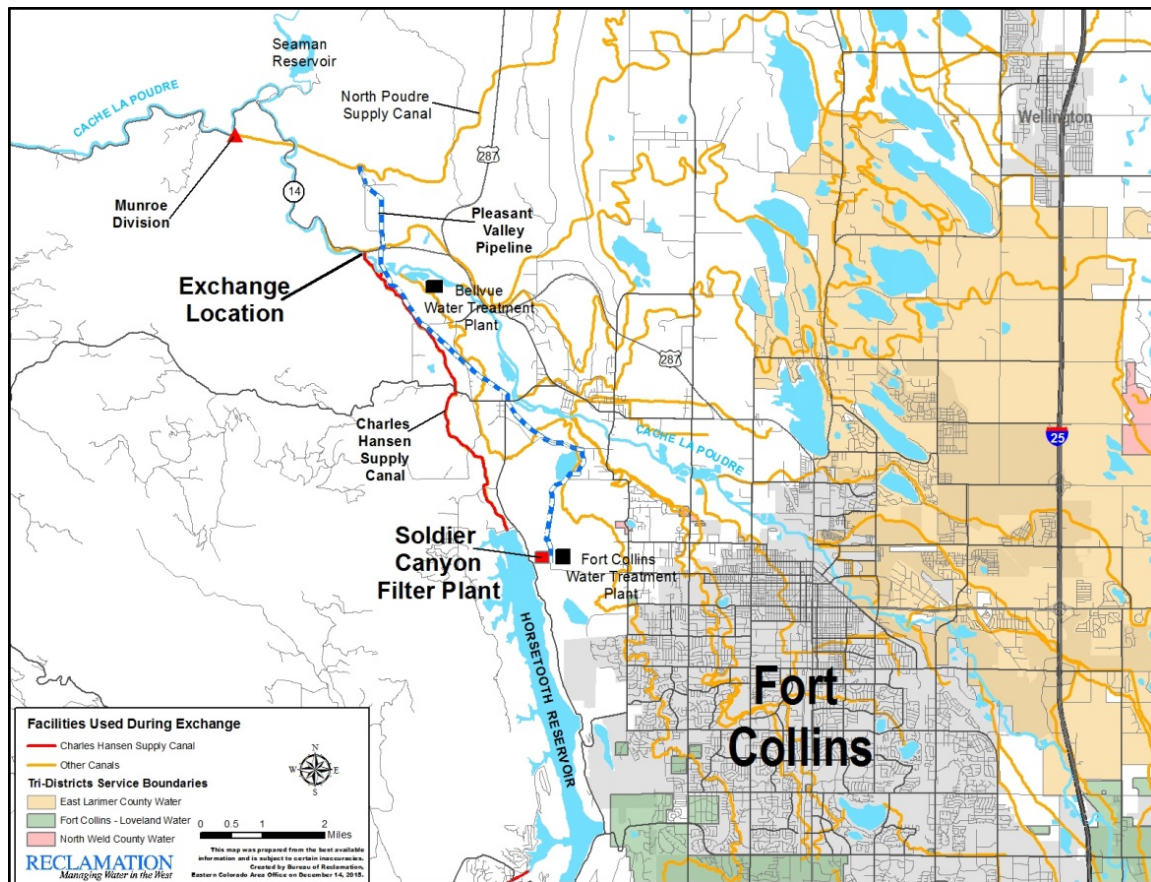


Figure 2-Facilities Used During Proposed Contract Exchanges

Other Alternatives Eliminated from Detailed Study

Continued use of annual excess capacity storage, exchange and conveyance contracts were eliminated from detailed study because they do not provide desired long-term assurance and operational flexibility when exchange potential and storage space is available. In addition, the effects of continuing annual excess capacity contracts would be similar to those described for the Proposed Action.

Reasonably Foreseeable Actions

Reasonably foreseeable actions were identified through public and agency scoping, and available data. Future actions were considered reasonably foreseeable and were included in the cumulative effects analysis if the action would occur in the same geographic area as the proposed project, if there is reasonable certainty as to the likelihood of the action occurring, and if there is sufficient information available to define the action and conduct a meaningful analysis. The likelihood of the action occurring is based on a public decision document and secured funding.

Because the Proposed Action would not result in any new infrastructure or ground disturbance, reasonably foreseeable actions were limited to those with overlapping effects

with the proposed project on water resources and are likely to occur within the proposed 40-year contract period. Reasonably foreseeable hydrologic conditions for cumulative effects analysis were based on anticipated changes in water demand, use and storage through 2056. Reasonable and foreseeable conditions considered include Windy Gap and Windy Gap Firming Projects as well as Soldier Canyon Micro Hydro Facility.

Windy Gap and Windy Gap Firming Project

The purposes of the Windy Gap Firming Project is to deliver a firm annual yield of about 30,000 af of water from the existing Windy Gap Project to meet a portion of the water deliveries anticipated from the original Windy Gap Project. Reclamation's Record of Decision was issued in December 19, 2014, and Contract No 15XX650003 between Reclamation and the Subdistrict, and Northern Water. The contract allows for the Subdistrict's use of Colorado-Big Thompson unused capacity including Horsetooth Reservoir. An Army Corps of Engineers (ACOE) decision regarding issuance of a Clean Water Act Section 404 Permit for construction of Chimney Hollow Reservoir is anticipated sometime in 2016.

Additional information on Windy Gap and Windy Gap Firming Projects are available at: <http://www.northernwater.org/WaterProjects/WindyGapProject.aspx> and <http://www.nwo.usace.army.mil/Missions/RegulatoryProgram/Colorado/EISWindyGapFirming.aspx>.

Soldier Canyon Micro Hydro Facility

A proposed 100-kilowatt buried micro hydro facility would be constructed by Soldier Canyon Filter Plant adjacent to an existing pressure-reducing vault located 1200 feet (ft) downstream of Soldier Canyon Dam outlet works. The powerhouse would annually generate about 880 megawatt-hours by taking water from the SCFP pipeline, bypassing the pressure reducing vault, and return it to the SCFP pipeline downstream of the vault. The Federal Energy Regulatory Commission (FERC) preliminarily determined that the Soldier Canyon Filter Plant's proposed Soldier Canyon Micro Hydro Facility meets the qualifying criteria of section 30(a) of the Federal Power Act (FPA) and is not required to be licensed under Part I of the FPA. FERC published the Notice of Preliminary Determination on June 24, 2015, (80FR 121, Pages 36328-36329).

Actions Not Considered Reasonably Foreseeable

Several potential actions not considered reasonably foreseeable were identified. Although these actions are not currently reasonably foreseeable, they could occur at some point in the future; however, based on the best available information, these actions would not be considered reasonably foreseeable at this time. Several potential actions not considered reasonably foreseeable were identified. Although these actions are not currently reasonably foreseeable, they could occur at some point in the future; however, based on the best available information, these actions would not be considered reasonably foreseeable at this time. NISP was not considered reasonably foreseeable because the

project is still being reviewed under NEPA compliance, there is no reasonable certainty that the project would be implemented, and if implemented, under what conditions. Halligan and Seaman Water Supply Projects were not considered reasonably foreseeable because each project is still being reviewed under NEPA compliance, there is no reasonable certainty that the project would be implemented, and if implemented, under what conditions.

Northern Integrated Supply Project (NISP)

NISP would provide 40,000 af of new reliable water supply, which would meet a portion of project participants' future water supply needs. On June 19, 2015, the NISP Supplemental Draft Environmental Impact Statement (EIS) was released for review by the ACOE. The preferred alternative includes contracts for the uses of C-BT Project facilities including Horsetooth Reservoir. A final EIS is expected to be completed in 2017.

Additional information on NISP is available at:

<http://www.nwo.usace.army.mil/Missions/RegulatoryProgram/Colorado/EISNISP.aspx>.

Reclamation has no approved basis for negotiating a contract with NISP proponents.

Halligan Water Supply Project

The City of Fort Collins has proposed to expand the existing Halligan Reservoir on the North Fork of the Poudre River from 6,000 af to about 14,500 af of water storage for additional municipal and industrial (M&I) supply. The ACOE is the lead federal agency and anticipates releasing a Draft EIS in 2017.

Seaman Water Supply Project

The City of Greeley has proposed to expand the existing Milton Seaman reservoir on the North Fork of the Poudre River from 5,000 af to about 53,000 af of water storage for additional M&I water supply. The ACOE is also the lead federal agency and anticipates releasing a Draft EIS in 2017.

Thornton Northern Water Supply Project

The City of Thornton is in the planning stages to build a pipeline that would move water from north of Fort Collins at the Larimer County Canal Division to Thornton sometime in the mid-2020s. This is a complex project that would involve various agencies, partnerships, permits, and construction efforts over many years. Few project details are available and proposed diversions would occur downstream of the CHSC. Therefore, the project was excluded from the cumulative effects analysis.

AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

The affected environment and environmental consequences, related to implementing the Proposed Action, are described for the following resources:

Colorado-Big Thompson Project

Existing Conditions

Reclamation constructed the C-BT Project as a multipurpose water supply project. It is one of the largest and most complex natural resource developments undertaken by Reclamation consisting of over 100 structures integrated into a trans-mountain water diversion system. The C-BT Project is spread over approximately 250 square miles within the State of Colorado, and stores, regulates and diverts water from the Colorado River on the western slope, and delivers the diverted water to the eastern slope of the Rocky Mountains (Attachment A). Authorized C-BT Project purposes include supplemental irrigation, M&I uses, and generation of hydroelectric power.

C-BT Project water is moved via tunnels, canals, siphons into a series of reservoirs and power plants to Horsetooth and Carter reservoirs. Below Horsetooth and Carter reservoirs, the Northern Water owns and operates the C-BT Project's east-slope distribution system, which delivers the water to agricultural and M&I users.

Under contracts with the United States, Northern Water has operation and maintenance responsibilities for C-BT Project collection and distribution facilities, including Horsetooth Reservoir. A 1938 repayment contract with Northern Water (Contract No. 9-07-70-W0020) requires repayment of Northern Water's share of the reimbursable irrigation portion of the construction costs and Northern Water's share of the C-BT Project's annual operation, maintenance and replacement costs.

The C-BT Project collects and delivers, on average, more than 200,000 af of water each year. C-BT Project water is delivered to more than 640,000 acres of farm and ranch land and 895,000 people in portions of eight northern Colorado counties within Northern Water's boundaries.

The yield of C-BT Project units is established each year by the Northern Water Board through what is known as the "Quota Setting Process". A C-BT Project unit is equal to 1/310,000 of the total quantity of water the board makes available in any particular year. The basis for setting the quota is to make every year look like an average water year. Regional native supply and local storage influence the quota to meet the supplemental needs of the regional as a whole. As a result, quotas are lower in wet years because native supplies are plentiful and local reservoir storage is robust, so less C-BT Project water is required to satisfy water demands.

More information on the C-BT Project can be found at:

http://www.usbr.gov/projects/Project.jsp?proj_Name=Colorado-Big+Thompson+Project.

The Munroe Diversion (North Poudre Diversion Dam) was completed in 1952 by Reclamation as part of the C-BT Project. The Munroe Diversion is located on the Poudre River approximately 11 miles northwest of Fort Collins, Colorado and has a diversion capacity of 250 cubic feet per second (cfs). In 2000 Public Law 106-376 authorized the transfer to Northern Water of all rights, title, and interest to the North Poudre Supply Canal and Diversion Works, as well as, other C-BT Project water distribution facilities.

The Munroe Diversion supplies the North Poudre Supply Canal (aka Munroe Gravity Canal) through a 2-mile tunnel under the Poudre River. It is listed as the diversion point, alternative point of diversion, and point of exchange for numerous water rights (CDWR 2016, see Attachment D-Structure Summary Report, North Poudre Supply Canal).

No Action Alternative

The No Action Alternative would have no effect on current C-BT Project operations.

Proposed Action

When storage space is available in Horsetooth Reservoir, Tri-Districts would exchange and store up to 3,000 af of their non-C-BT Project water rights in Horsetooth Reservoir under conditions described in the long-term contract. Non-project water could be either released directly to SCFP from the Soldier Canyon Dam outlet works or delivered to the Poudre River through the CHSC and then exchanged for upstream Munroe Diversions to the Pleasant Valley Canal.

Northern Water and Tri-Districts will also enter into a long-term agreement(s) for continued use of the Northern Water-owned CHSC to facilitate the required exchanges.

The Proposed Action would have no effect on C-BT Project water delivered to Tri-Districts pursuant to arrangements between Tri-Districts and Northern Water. Its rules and regulations are not subject to the terms and conditions of the proposed contracts.

The Proposed Action cannot cause injury to the C-BT Project or its beneficiaries. Protective language for the C-BT Project is required and included in all C-BT Project excess capacity contracts. Therefore, Reclamation, in consultation with Northern Water, determines if excess capacity storage space is available in Horsetooth Reservoir, and if Tri-Districts non-C-BT Project water may be stored, it is subject to evacuation from storage if excess capacity becomes unavailable. Should it be necessary at any time as determined by the Secretary of the Interior to evacuate water from storage, Reclamation will advise Tri-Districts and Northern Water of such necessity and of the quantity to be released, and of the timing of such releases. Such notification will be timely.

Water Rights

Existing Conditions

Tri-Districts' water supplies include both trans-basin and native Poudre River water rights (Table 1 & Figure 2). Trans-basin diversions from the Colorado and the Larimie river basins include water from the C-BT Project, the Water Supply and Storage Company (WSSC) and the Divide Canal Company. The Colorado River supplies most of Tri-Districts' potable water and is delivered through the C-BT Project. C-BT Project water is delivered through the C-BT Project system to Horsetooth and Carter reservoirs (See Attachment A). Once moved to Horsetooth Reservoir, Tri-Districts' C-BT Project units are delivered either directly to SCFP from the Soldier Canyon Dam outlet works or stored in Horsetooth Reservoir and released through Soldier Canyon Dam when needed.

Other water sources owned by Tri-Districts are exchanged to agricultural irrigators for the use of their C-BT Project water for M&I deliveries. All water exchanges in the South Platte River Basin are administered by the Division 1 Engineer, CDWR. Water exchanges are subject to Colorado water law and under exchanges, a substitute supply of water is made available to a downstream senior appropriator and an equal amount of water is then taken at an upstream point of diversion.

No Action Alternative

Under the No Action Alternative, Tri-Districts would continue to exercise their existing water rights. Tri-Districts would also continue to exchange its agricultural water for other C-BT Project units when available and approved by the Colorado State Engineer. Tri-Districts also have pending applications in Water Court, Water Division No. 1, to change the use of its agricultural water rights to M&I and other uses, which could affect some future exchanges.

Under the No Action Alternative, Tri-Districts could request future annual contracts to exchange and store non-project water in Horsetooth Reservoir in 2012 through 2016. However, absent an excess capacity storage, exchange, and conveyance contract, non-C-BT Project water could not be stored in Horsetooth Reservoir or delivered through the Soldier Canyon Dam.

Tri-Districts would continue to partner with key water suppliers to increase raw water storage and water management flexibility, and meet future delivery demands by:

- Partnering with the City of Greeley in purchasing and developing gravel pits along the Poudre River to meet augmentation (agricultural return flows) requirements;
- Continuing year-round exchange of water between the City of Fort Collins water treatment plant and SCFP; and
- Acquiring additional water rights, as needed.

Table 1-Water Supplies from Tri-Districts

Water Collection Company	East Larimer County			Fort Collins-Loveland			North Weld County		
	Shares or Units Owned	Firm Yield (af)	Avg. Yield (af)	Shares or Units Owned	Firm Yield (af)	Avg. Yield (af)	Shares or Units Owned	Firm Yield (af)	Avg. Yield (af)
CB-T Project	3,426.0	2,398.2	1,713.0	12,291.0	8,603.7	6,145.5	3,712	2,598.4	1,856.0
CB-T Project Fixed Rate				197.0	137.9	137.9			
North Poudre Irrigation Company	586.0	1,523.6	1,523.6	1,186.5	3,084.9	3,084.9	786.5	2,044.9	2,044.9
Divide Canal Company Class A	22.0	38.3	33.0	1,238.0	2,154.1	1,857.0	47	81.8	70.5
Divide Canal Company Class B (Sand Creek)	0.25	91.9	68.9	0.42	154.4	115.7	0.33	121.3	90.9
Jackson Ditch	2.3	249.8	245.7	1.04	115.6	113.7	0.82	90.8	89.3
Laramie-Poudre Tunnel				0.5	598.0	592.0	0.5	598.0	592.0
Coy Ditch	0.5	126.0	126.0						
John R Brown (Case No 05W264)	0.25	73.4	73.4	0.42	123.4	123.4	0.33	96.9	96.9
Arthur Ditch							94.79	192.4	148.8
New Mercer Ditch	0.06	1.1	1.0	0.06	1.1	1.0	0.06	1.1	1.0
Larimer County No. 2	0.33	8.3	6.5	0.33	8.3	6.5	0.33	8.3	6.5
Total		5,876.8	4,952.3		14,981.4	12,177.6		6,565.0	5,618.2

Sources: Tri-Districts Water Resources

Proposed Action

Tri-Districts would utilize use water right rights listed in Table 2 for potential exchanges and storage of non-C-BT Project water under the Proposed Action.

Table 2-Tri-Districts' Water Rights Proposed for Exchanges

Water Right	Colorado Water Right Case No.	Decreed Alternate Point of Diversion	Source
Larimer-Poudre Tunnel	06CW259	Munroe Diversion	Upstream trans-mountain source and point of re-diversion.
Water Supply and Storage Co.	03CW421 & 03CW422	Munroe Diversion	Poudre River
Jackson Ditch aka Dry Creek Ditch	08CW277	Munroe Diversion	Poudre River
JR Brown Ditch	05CW264	Munroe Diversion	Poudre River
John G. Coy Ditch	09CW282 & 13CW3166	Munroe Diversion	Poudre River
Arthur Ditch	14CW3144	Munroe Diversion	Poudre River
Divide Canal and Reservoir	89CW071	Munroe Diversion	Upstream trans-mountain source and point of re-diversion.

Under both the No Action and Proposed Action alternatives, Tri-Districts can divert these existing water rights from the Poudre River at the Munroe Gravity Canal as an alternative point of diversion.

Under the Proposed Action, Tri-Districts could also exchange these water rights to meet C-BT Project releases from Horsetooth Reservoir via the CHSC, when available and approved by the State Engineer. When the exchange occurs, non-C-BT Project water would be instantaneously released from Horsetooth Reservoir to the SCFP through the Soldier Canyon Dam or stored in Horsetooth Reservoir. Once stored, the non-C-BT Project water would be delivered to SCFP as needed through the Soldier Canyon Dam. Under the proposed contracts as currently defined, non-C-BT Project water could not be released to the Poudre River via the CHSC and exchanged up to the Munroe Diversion.

All future water rights acquired by Tri-Districts for use at SCFP would also be subject to Colorado water law as administered by CDWR. Any future conversion of acquired agricultural water rights to M&I and other uses would be the subject of change cases through Water Court, Water Division No. 1.

Through their respective existing Windy Gap Project and Windy Gap Firing Project contracts, Loveland, and Berthoud can each utilize C-BT Project facilities for delivery,

exchange and/or storage of non-C-BT Project water. Exchanges under these contracts also affect excess capacity for exchange and storage is available in Horsetooth Reservoir and CHSC.

Hydrology

Existing Conditions

Major water resources within the Project Area include Horsetooth Reservoir and Poudre River.

Horsetooth Reservoir was constructed as part of the C-BT Project and was completed in 1949. Horsetooth Reservoir was created by four large separate earthen dams and modernization was completed in 2004. The four dams are: Horsetooth Dam, Soldier Canyon Dam, Dixon Dam, and Spring Canyon Dam. The reservoir sits in the foothills west of Fort Collins Colorado (see Attachment A). Horsetooth Reservoir has a surface area of 2,040 acres at maximum water surface elevation of 5,430 ft and the reservoir's storage is about 156,735 af (Reclamation 2007).

Horsetooth Reservoir is filled during the months of November to May with deliveries through the C-BT Project's Hansen Feeder Canal. The Hansen Feeder Canal has a maximum capacity 550 cfs. Deliveries from Horsetooth to the Poudre River are made via the Hansen Supply Canal from April to October to meet irrigation demands.

Tri-Districts, along with the cities of Fort Collins and Greeley, treat C-BT Project water for domestic use by more than 300,000 people (Northern Water 2015). Water from Horsetooth Reservoir is delivered to Tri-Districts' and Fort Collins' treatment facilities year round from Soldier Canyon Dam. Greeley's Bellevue water treatment facility historically was supplied from a turnout on the Hansen Supply Canal. The Pleasant Valley Pipeline was added in 2004 to increase flexibility and reliability of water deliveries. The 8.5 mile-long pipeline delivers Poudre River and other trans-basin water using the Munroe Diversion on the Poudre River to deliver water to the Fort Collins and Soldier Canyon water treatment plants during the summer. During the winter, flows can be reversed in the Pleasant Valley Pipeline to supply C-BT Project water from Soldier Canyon Dam to Greeley's Bellevue facility. These facilities' locations are shown in Figure 2.

The Poudre River originates in the northern part of Rocky Mountain National Park and descends eastward through Poudre Canyon. It then flows through Fort Collins and Windsor before joining the South Platte River near Greeley, Colorado. Originating high in the Rocky Mountains, the Poudre River drops some 7,000 ft in elevation to the Great Plains. Its length is relatively short at about 125 miles and it is contained entirely within Larimer and Weld counties.

Figure 3 illustrates both water supply delivery systems to SCFP. Poudre River flows are measured at two stream gages; Cache la Poudre at Canyon Mouth near Fort Collins (Canyon Gage) and Poudre River at Fort Collins.

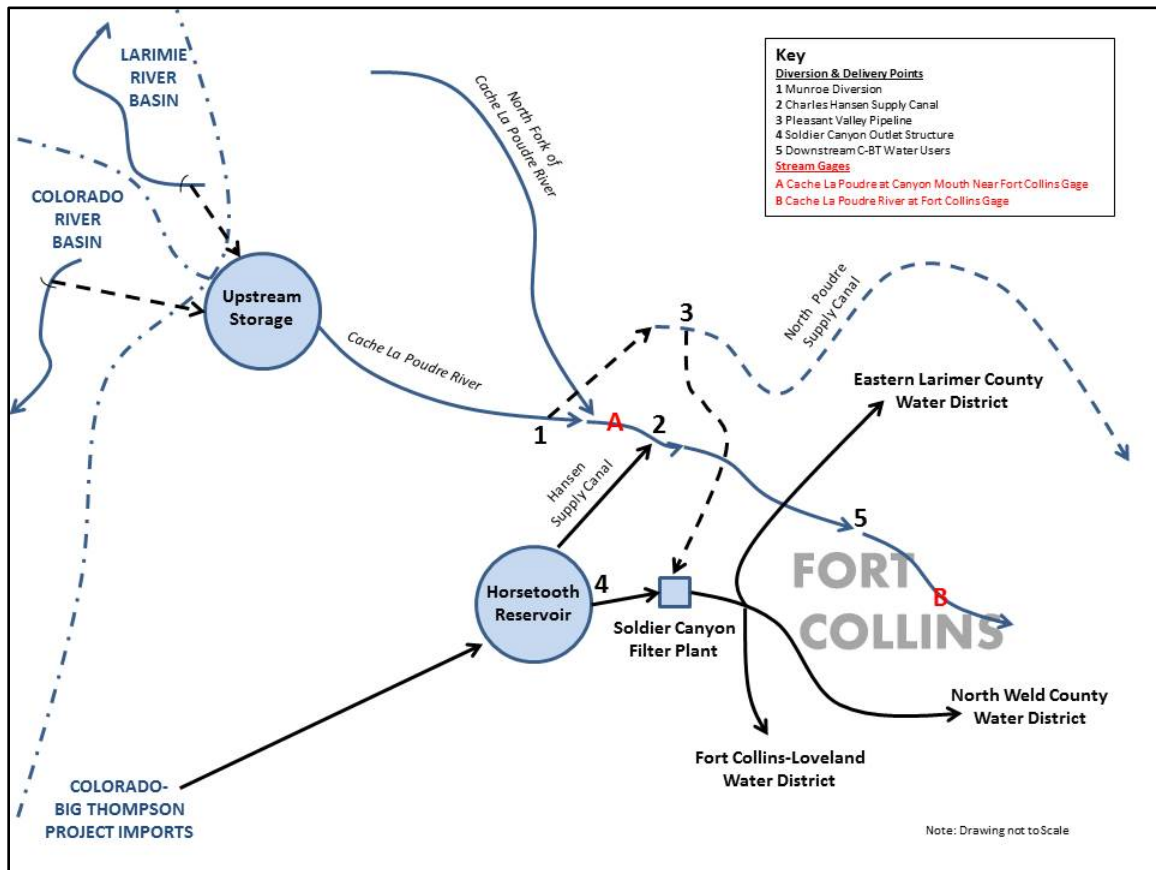


Figure 3-Poudre River Flow Diagram

Attachment C shows the Poudre River flows and exchanges that have occurred under the annual excess capacity contracts. Table 3 summarizes the daily exchanges, which were limited to the period April 1 - October 31 based on existing water rights and annual hydrology. Yearly exchange amounts under annual contracts between 2012 and 2015 ranged from 1.4% and 5.6% of Tri-Districts' water supply delivered to SCFP from Horsetooth Reservoir.

Table 3-2012-2015 Summary of Annual Excess Capacity Exchange Days and Rates

Year	# of Days of Exchange	Percent of Days April-Oct	Min. Exchange Rate (cfs)	Max. Exchange Rate (cfs)	Avg. Exchange Rate (cfs)	Total Direct Use+ (af)	Total to Storage+ (af)	C-BT Units Delivered (af)
2012	5 days	*	23.8	59.0	47.3	26.2	399.8	7,127.4
2013	58 days	27.1%	0.7	38.0	7.4	10.0	864.7	19,690.3
2014	40 days	18.7%	3.0	15.5	7.1	273.5	292.2	17,406.0
2015	34 days	15.9%	0.6	34.0	3.0	156.4	88.0	17,793.9

* September to December 2012 only; data provided by Northern Water

+ Prior to 10% shrinkage

No Action Alternative

Under the No Action Alternative, Tri-Districts could not exchange or utilize excess capacity storage potential in Horsetooth Reservoir. However, Tri-Districts would continue to utilize a balanced water right portfolio composed of both C-BT Project units and Poudre River supplies. Tri-Districts would continue to rely on their Poudre River supplies as much as possible when they yield from April through October, and make up any monthly shortfalls and meet winter delivery requirements with C-BT Project supplies. Water exchanged with water rights holders on the Poudre River for Munroe Diversion would continue when available, as administered by CDWR.

Under the No Action Alternative, Tri-Districts' non-C-BT Project water could not be stored in Horsetooth Reservoir. Fluctuations in Horsetooth Reservoir's water surface elevations and changes in Poudre River flows would be similar to those prior to issuance of Tri-Districts' 2012 annual contract.

Proposed Action

Reclamation conducted hydrologic analyses to evaluate potential changes in Horsetooth Reservoir elevations and flows in the Poudre River (Attachment B). Horsetooth Reservoir's water surface elevations and Poudre River flows under the No Action Alternative were compared those modeled for the No Action to predict potential hydrologic effects of the proposed 40-year contract.

Modeled changes in water surface elevations with storage of up to 3,000 af of non-C-BT Project water in Horsetooth Reservoir range from 1.43 ft. to 3.08 ft. An additional 3,000 af year-round storage would result in an average additional losses of to evaporation of 58 af. The Proposed Action includes language that incorporates evaporation and transit losses of 3% (shrinkage) and 3% for carry over.

Table 4 and Attachment C also illustrate exchanges between September 2012 and December 2015 under annual contracts. No exchanges occurred in April. Exchanges during the months May through August typically resulted in a 1% to 2% increase in flow downstream of the Munroe Diversion. However, in September 2012 and October 2013, exchanges increased flows in Poudre River for two days between 29% and 66% when flows would have dropped to as low as 12 cfs absent the exchange.

Under the Proposed Action exchanges, water that historically would have been diverted at North Poudre or Munroe Diversion would remain in the Poudre River. This increases flows in the 6.3 mile reach of the Poudre River between the Munroe Diversion and CHSC (Figure 4). The increased flows would be measured at the Canyon Gage. Below the CHSC, flows bypassing the Munroe Diversion would replace C-BT Project releases made from Horsetooth Reservoir. There would be a change in flows downstream of the CHSC as measured at the Poudre River near Fort Collins Gage. Tri-Districts' non-C-BT Project water could be immediately delivered from Soldier Canyon

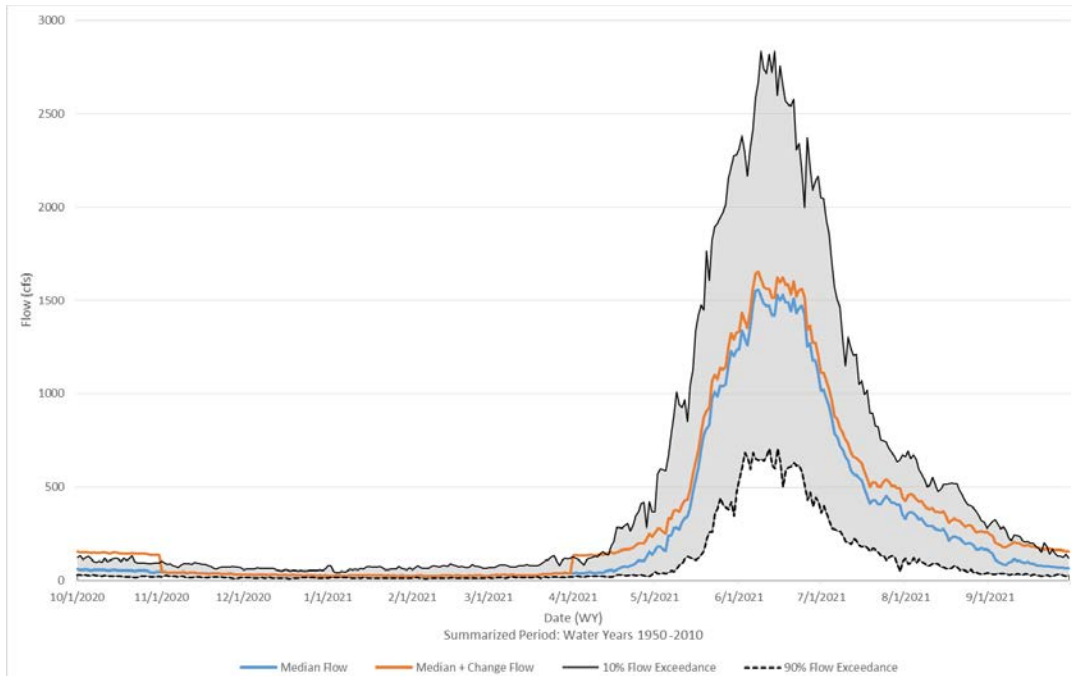


Figure 4-Poudre River at Canyon Mouth Near Fort Collins - Contextualization of Maximum Flow Change using 10-Percent Exceedence, Median and 90% Exceedence Flows.

Dam or stored in Horsetooth Reservoir and released later through Soldier Canyon Dam to SCFP when needed. Table 4 assumes a maximum monthly volume exchange and provides the maximum Poudre River flow increases between the Munroe Diversion and the CHSC that could occur under the Proposed Action.

Table 4- Modeled Monthly Exchanges and Maximum River Flow Changes between North Poudre Diversion and outflow of the Charles Hansen Supply Canal.

Month	Monthly Maximum Volume Exchanged (af)	Maximum Daily Exchange Rate (cfs)	Minimum Number of Days to Exchange Monthly Maximum	Median Flow (Cache La Poudre at Canyon Mouth; cfs)	Percent Increase over Median
12-Sep	300	93	2	84	111%
12-Oct	100	93	1	54	172%
12-Nov				40	0%
12-Dec				30	0%
13-Jan				26	0%
13-Feb				26	0%
13-Mar				33	0%
13-Apr	75	93	1	58	160%
13-May	675	93	4	579	16%
13-Jun	950	93	5	1410	7%
13-Jul	600	93	3	557	17%
13-Aug	300	93	2	255	36%
TOTAL	3000				

Reclamation's modeling uses a maximum capacity for the daily exchange of 93 cfs or 60 million gallons per day (mgd). SCFP currently has a capacity of 30 mgd. Sixty mgd was used in the analysis to account for future SCFP expansion, if any, during the 40-year contract period. Modeling results contextualize maximum flow changes within normal variation of the river, assuming Tri-Districts' water rights are in priority and available for exchange.

Water Quality

Existing Conditions

In 2007, Fort Collins, Greeley, and Tri-Districts partnered to design the Upper Cache La Poudre Collaborative Water Quality Monitoring Program (Upper CLP). Water quality is monitored at nineteen locations in the Upper Cache La Poudre watershed.

No significant concerns were identified that would immediately impact drinking water quality of treatment operations in the 2014 Upper CLP Annual Report (Fort Collins 2015). That said the Hewlett Gulch and High Park fires in 2012 and floods in 2013 have influenced water quality in the Upper Cache La Poudre Basin. Peak turbidity values on the Poudre River above its confluence with the North Fork were nearly two times greater in 2014 when compared to pre-fire and pre-flood conditions.

Collectively, the Hewlett Gulch and High Park fires burned approximately 95,000 acres. Since the fires ended, the U.S. Forest Service, Natural Resource Conservation Service, Fort Collins, Greeley, and Tri-Districts have partnered to implement emergency hillslope stabilization measures. Localized summertime thunderstorms continue to produce sediment and debris flow into the Poudre River but downstream water quality appears to recover within several hours following these events.

Major factors that affect water quality in Horsetooth Reservoir include (Fort Collins 2014):

- Low dissolved oxygen levels in the steep temperature gradient (thermocline or metalimnion) and lower layer (hypolimnion) of water in a stratified lake.
- Recurring episodes of the taste and odor compound geosmin.
- Changes in total organic carbon concentrations or characteristics that may increase the formation of disinfection by-products during water treatment.
- Potential impacts from proposed water supply projects.
- Watershed impacts related to climate change.

When Horsetooth Reservoir stratifies in the summer and fall, the isolated and colder bottom layer has no opportunity to replenish oxygen until the reservoir mixes. Low dissolved oxygen in the thermocline results from degrading organic matter flowing into the reservoir from the Hansen Feeder Canal. This can reduce Horsetooth Reservoir's water quality during periods of mixing and require additional water treatment at SCFP.

Geosmin is a naturally occurring organic compound produced by blue-green algae and filamentous bacteria. Although it is not a health risk, geosmin gives an earthy odor to the water.

When Horsetooth Reservoir is turning over in late October to early November, it is advantageous for SCFP to be able to switch to Poudre River water sources. Information on water quality at Horsetooth Reservoir can be found in the City of Fort Collins Utilities' report entitled *2013 Horsetooth Reservoir Water Quality Monitoring Program Report* (Fort Collins 2014).

SCFP operates under the Colorado Primary Drinking Water Regulations (5CCR 1002-11) promulgated by the Colorado Department of Public Health and Environment (CDPHE) Water Quality Control Commission. The regulation's purpose is to assure the safety of public drinking water supplies and enable Colorado to assume responsibility for enforcing standards established by the Federal Safe Drinking Water Act (Public Law 93-523), as amended.

SCFP also operates under Colorado Discharge Permit System General Permit No. COG-641000 (available at:

https://www.colorado.gov/pacific/sites/default/files/WQ%20COG641000%20PERMIT%20AND%20FS_0.pdf).

The permit regulates discharges under the National Pollutant Discharge Elimination System (NPDES) issued under the Clean Water Act, which prohibits anybody from discharging pollutants through a "point source" into a "water of the United States" without a NPDES permit. The permit limits what can be discharged, sets monitoring and reporting requirements, and includes other provisions to ensure that the discharge does not hurt water quality or human health. SCFP disposes of filtered sediments and other water treatment bio-products at approved landfills. SCFP is also working towards becoming a zero liquid discharge facility.

The 2012 and subsequent annual excess capacity storage, exchange, and conveyance contracts between Tri-Districts and Reclamation have helped mitigate the effects of poor water quality in the Poudre River due to fires and floods. When needed, Tri-Districts have been able to exchange Poudre River water for C-BT Project water that would have been released from Horsetooth Reservoir. This increased flexibility with Tri-Districts' water supplies, allows Tri-Districts to exchange, store and deliver non-C-BT Project water and respond to real-time changing water quality conditions in the both the Poudre River and Horsetooth Reservoir.

No Action Alternative

Under the No Action Alternative, Reclamation would not approve the excess capacity storage, exchange, and conveyance contract and Tri-Districts would not be able to exchange and store non-C-BT Project water in Horsetooth Reservoir.

Future seasonal storm events will affect water quality in the Poudre River as the watershed recovers from the 2012 fires and 2013 floods. Tri-Districts cannot rely on non-C-BT Project water stored in Horsetooth Reservoir when water quality decreases in the Poudre River. Tri-Districts' ability to respond to watershed changes from future fires, floods, spills, etc. would also be reduced when compared to the Proposed Action.

Independent of the Proposed Action, Tri-Districts intend to expand the treatment capacity of SCFP to 50 mgd (77 cfs) by 2026. Increases in SCFP's treatment capacity may require additional local, state and federal permits.

Proposed Action

Under the Proposed Action, SCFP would be able respond to changing water quality conditions when needed for both Poudre River and C-BT Project water supplies by using Non-Project water storage in Horsetooth Reservoir. SCFP would continue to blend water supplies to meet consumers' water quality preferences.

Storage of up to 3,000 af of non-project water is only about 1.9 % of the total storage volume in Horsetooth Reservoir. Modeled increases in reservoir elevation (1 .43 ft. to 3.08 ft.) would not result in significant effects on water quality or temperature and no adverse effects are predicted.

Wildlife and Vegetation Resources

Existing Conditions

Diversity of habitats along the Poudre River's riparian corridor is an important resource for wildlife. This EA uses previous wildlife and vegetation data analyses conducted by ACOE included in the NISP Supplemental Draft EIS (ACOE 2015).

The Fort Collins Natural Areas Program documented 230 species of birds, 32 mammals, 5 amphibians, and 8 species of reptiles with the Poudre River corridor from Highway 14 to Interstate-25 (FCNA Program 2011). Osprey and other raptors are known to nest along the Poudre River and forage in and around Horsetooth Reservoir and other local reservoirs.

Vegetation resources within the Project Area include both wetland and riparian habitats adjacent to the Poudre River and Horsetooth Reservoir (Figure 5). The riparian areas serve as transitional habitat between terrestrial and aquatic ecosystems adjacent to the Poudre River and Horsetooth Reservoir. Elevations along the Poudre River range from about 5,200 ft to 5,450 ft to between the CHSC and the Munroe Diversion. Horsetooth Reservoir's full elevation is listed at 5,430 ft.

The National Wetland Inventory (NWI) (Service 2016a) classifies the Poudre River upstream of its confluence with the Munroe Diversion as permanently flooded upper perennial riverine with unconsolidated bottom. The river's substrate consists of rock,

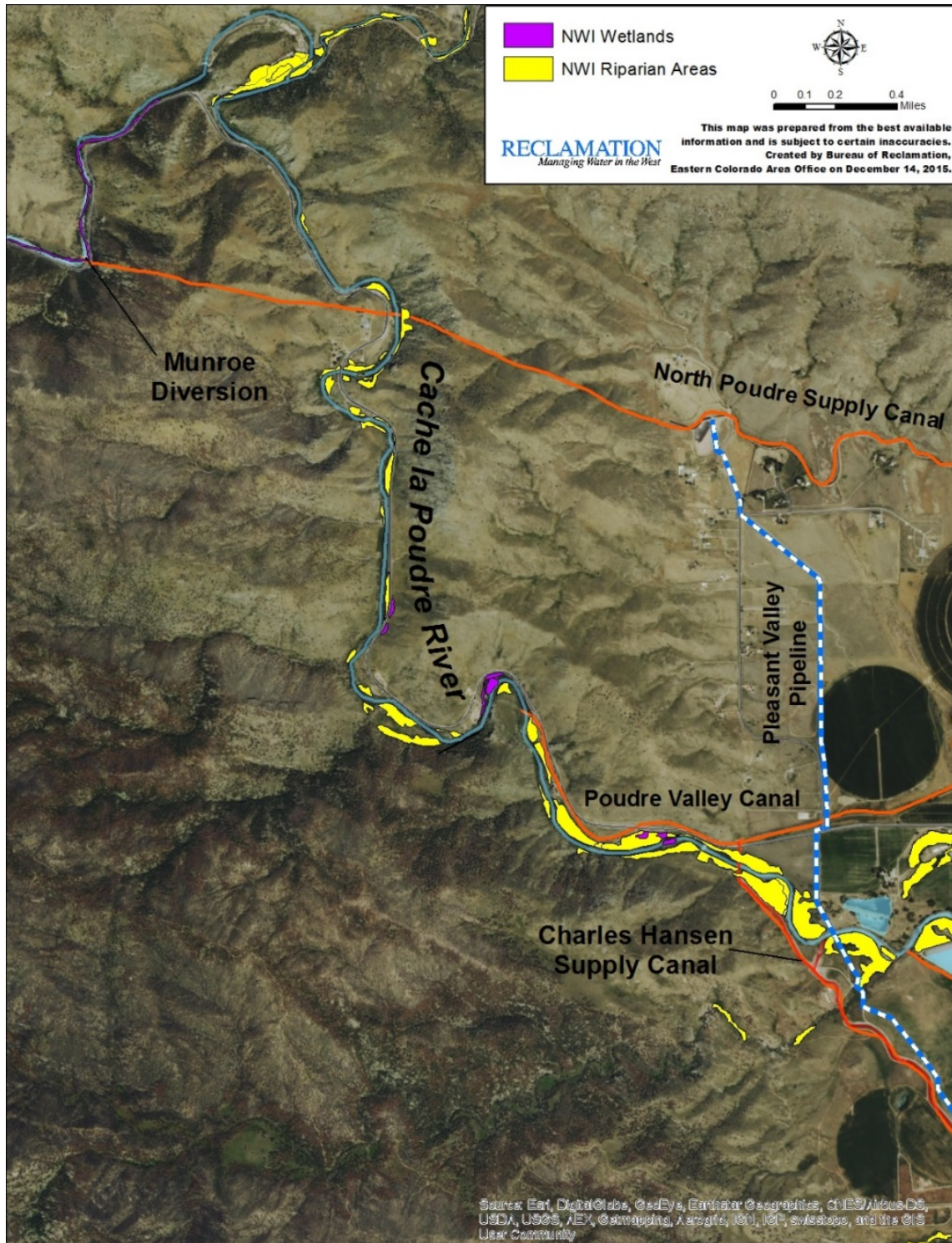


Figure 5-NWI Wetlands and Riparian Areas within the Project Area.

cobbles, or gravels with occasional patches of sand and there is very little floodplain development. At least 25% of the stream's bottom includes of particles smaller than stones and vegetation cover is less than 30%. Downstream to the Poudre River's confluence with the South Platte River, the Poudre River is described as intermittently

exposed lower perennial riverine with an unconsolidated bottom (R2UBG). The river's substrate consists mainly of sand and mud and the floodplain is well developed. Surface water is present throughout the year except in years of extreme drought.

Between the Munroe Diversion and the CHSC, wetland habitats adjacent to the Poudre River are limited and are comprised of only about 3.4 acres of palustrine wetlands (Table 5, Figure 5). The palustrine classification consists of non-tidal wetlands dominated by trees, shrubs, emergents, mosses or lichens (Federal Geographic Data Committee (FGDC) 2013).

Table 5-NWI Wetlands adjacent to the Munroe Diversion to CHSC Reach of the Poudre River.

Wetland Classification	Acres
Palustrine Scrub-Shrub, Temporarily Flooded	0.4
Palustrine Scrub-Shrub, Temporarily Flooded, Diked/Impounded	0.6
Palustrine Forested, Temporarily Flooded	1.7
Palustrine Emergent, Temporarily Flooded	0.7
Total	3.4

The NWI includes about 57.1 acres of riparian habitat adjacent to the Poudre River between the Munroe Diversion and the CHSC as shown in Table 6.

Table 6-NWI Riparian Areas adjacent to adjacent to the Munroe Diversion to CHSC Reach of the Poudre River.

Riparian Classification	Acres
Lotic, Emergent	4.1
Lotic, Forested	42.4
Lotic. Scrub-Shrub	10.6
Total	57.1

Riparian vegetation consists primarily of Fremont and narrow-leaf cottonwood, willows, alder, water birch, wild plum, hawthorn, mountain mahogany, and skunkbrush.

The NWI (Service 2016A) classifies Horsetooth Reservoir as being limnetic under the lacustrine system. Lacustrine refers to wetland habitats greater than 20 acres in size and limnetic includes all deepwater habitats greater than 2.5 meters deep. The classification lacks trees, shrubs, persistent emergents, emergent mosses or lichens with greater than 30% areal coverage. This classification is permanently flooded, diked/impounded with substrate consisting of unconsolidated bottom. The CHSC is concrete lined and there is no wetland or riparian habitat immediately adjacent to the CHSC.

Figure 5 also shows National Wetland Inventory mapped riparian areas within the Project Area.

No Action Alternative

Under the No Action Alternative, adjacent wetlands and riparian areas along the natural river bank would be mainly influenced by spring runoff and local ground water depth. Flows in the Poudre River would be similar to those experienced prior to the 2012 and subsequent annual excess capacity contracts under normal hydrologic conditions. Changes in wetland and riparian vegetation are not predicted to be significantly affected. The No Action Alternative is predicted to have no measurable effect on local wildlife.

Proposed Action

Under the Proposed Action, wetland and riparian vegetation would continue similar to existing conditions. These resources may benefit from increased flows in the Poudre River. However, any increases in river stage resulting from the Proposed Action would not result in flows above the normal bank's of the Poudre River for the Munroe Diversion to CHSC. Therefore, the Proposed Action is not predicted to measurably increase wetland and riparian vegetation. The Proposed Action would have no effect on local wildlife. Changes in hydrologic conditions, climate change and future water development could have both positive and negative effects on wetland and riparian resources. The Proposed Action is not predicted to result in significant cumulative effects to vegetation resources.

Aquatic Resources

Existing Conditions

Colorado Division of Parks and Wildlife (CPW) manages fisheries resources in the Poudre River within the Project Area as part of the Cache la Poudre River Canyon Management Area. The management area begins about 1 mile west of Highway 287 and Highway 14 (Ted's Place) and includes over 50 miles of public fishing from the mouth of Poudre Canyon up to Rocky Mountain National Park. This area is managed to provide for the best coldwater angling possibilities (CPW 2016).

Brown trout, rainbow trout, longnose dace, longnose sucker and whitefish have been documented by CPW in recent years. Cutthroat trout, Johnny darter, and longnose dace have all been documented upstream of the Project Area. Smallmouth bass are known to occur in the lower reaches of the river downstream from the Project Area. Species compositions at the Gateway Sampling Site at the confluence of the Poudre River and North Fork of Cache la Poudre for 2011 to 2013 CPW (2016) surveys are shown in Table 7. Naturally reproducing wild brown trout support the Poudre River population with no supplemental stocking. Stocked whirling disease resistant fish help maintain the rainbow trout fisheries in an attempt to restore wild rainbow populations.

The Gateway site was the hardest hit by floods, fire and whirling disease as shown in Table 7. In 2013, population estimates were down 70% over the six previous years' average. This site has the greatest channel alteration with a large diversion (Munroe

Diversion) and an entrenched river channel with little meander. Fish in this reach of the river likely found little slack water refuge and were forced to move downstream (CPW 2016A).

Table 7-Summary of CPW Annual Survey Data at Gateway Sample Site.

Year	Brown Trout		Rainbow Trout		Longnose Sucker		Whitefish	
	% Catch	lbs./ac	% Catch	lbs./ac	% Catch	lbs./ac	% Catch	lbs./ac
2013	84%	29	5%	na	5%	na	3%	2
2012	81%	85	4%	na	15%	50	na	na
2011	81%	50	3%	1	16%	36	na	na

*Data from CPW 2016.

About a mile of the Project Area between the Canyon Gage and the CHSC was included in the NISP Supplemental Draft Environmental Impact Statement's aquatic resources analysis conducted by GEI Consultants (2013). Segment A of the NISP study area included the Poudre River from the Canyon Gage to the Larimer-Weld Canal, and has a mixed assemblage of coldwater and warmwater fish (Table 8). Native species include Creek Chub, Fathead minnow, green sunfish, longnose dace, longnose sucker, and white sucker.

Table 8-Poudre River Fish Species, Canyon Gage to Larimer-Weld Canal

Species	1912-1984	1985-2000	2001-2012
Brook stickleback			X
Brown trout	X	X	X
Creek chub			X
Fathead minnow		X	
Green sunfish			X
Longnose dace	X	X	X
Longnose sucker	X	X	X
Mountain whitefish			X
Rainbow trout		X	X
Smallmouth bass			X
Walleye			X
White sucker	X	X	X
Yellow perch		X	X

(Data summarized from GEI Consultants 2013)

In 2003, about 1/3 of the fish assemblage was composed of brown and rainbow trout in Segment A of the Poudre River (GEI Consultants 2013).

Horsetooth Reservoir supports popular and dynamic sports fisheries that include walleye, smallmouth bass, rainbow, cutthroat, mackinaw and splake trout species, white bass, crappie, blue gill, and perch. CPW has managed Horsetooth Reservoir primarily for cool and cold-water species since the 1950s (CPW 2016B).

No Action Alternative

Under the No Action Alternative, the proposed storage, exchange, and conveyances would not occur and diversions at the Munroe Diversion would likely increase over time to meet Tri-Districts demands. In the short-term, the No Action Alternative would result

in minor decreases in river flows when compared to 2012-2015 resulting in minor reduction in river flows as measured at the Canyon Gage.

Absent the Proposed Action, additional water rights acquired to meet Tri-District's future demands would likely be exchanged with other downstream Poudre River diversions. This would likely result in reduced flows in frequency and duration downstream of the Munroe Diversion. Any reductions in Poudre River flows, especially during the late summer months would decrease habitat availability, increase water temperature, and negatively affect fisheries resources in the Poudre River.

Any affect to fisheries resources in Horsetooth Reservoir under the No Action Alternative are predicted to be insignificant.

Proposed Action

The Proposed Action would result in additional flows bypassing the Munroe Diversion and benefiting the 6.5-mile reach of Poudre River from Munroe Diversion to the CHSC. Increases have typically ranged between 1% to 2%, which would have no measurable effect (See Table 3 and Attachment C). However, when water is available for exchanges in the early spring and fall seasons, increases in river flows can be substantial during low flows. These increases in flow would increase slack water refuges within the Project Area, provide deeper pools, and lower water temperatures, all of which would benefit fisheries during low flow periods.

Increases in the frequency and duration of exchanges over time to meet future Tri-Districts demands are anticipated. This would leave additional water in Poudre River downstream of the Munroe Diversion when compared to the No Action Alternative. As mentioned previously, any additional flows in this reach of the Poudre River would benefit fisheries resources.

As in the No Action Alternative, changes in reservoir water surface elevation are predicted to be small and have no measureable affect to fisheries resources in Horsetooth Reservoir.

Threatened, Endangered and Other Species of Concern

Existing Conditions

Table 9 includes species, which are listed under the Endangered Species Act as endangered, threatened, or a candidate for listing and are found in Larimer County, Colorado (Service 2016b). Species with special designation by the State of Colorado are also included (CPW 2015).

Table 9-List of Threatened, Endangered and Sensitive Species with Potential to Occur in Larimer County, Colorado.

Common Name	Scientific Name	Status	General Habitat
Least Tern	<i>Centrocercus urophasianus</i>	FC, SE	Sand and gravel bars within a wide unobstructed river channel or open flats along shorelines along major lakes and rivers.
Mexican Spotted Owl	<i>Strix occidentalis lucida</i>	FT, ST	Old-growth or mature forest and canyons with riparian or conifer communities.
Piping Plover	<i>Charadrius melodus</i>	FT, ST	Sand and gravel bars within a wide unobstructed river channel, or open flats along shorelines along major lakes and rivers.
Whooping Crane	<i>Grus americana</i>	FE, SE	Breeds in freshwater marshes and prairies and uses grain fields, shallow lakes and marshes during migration.
Colorado Butterfly Plant	<i>Cnemidophorus neotesselatus</i>	FT	Occurs on sub-irrigated, alluvial soils on level or slightly sloping floodplains and drainage bottoms at elevations between 5,000-6,400 ft.
Western Prairie Fringed Orchid	<i>Platanthera praeclara</i>	FT	Tall grass prairie, most often found on unplowed, calcareous prairies and sedge meadows.
Arapahoe Snowfly	<i>Capnia arapahoe</i>	FC	Restricted to Elkhorn Creek and Young Gulch, tributaries to the Poudre River.
North Park Phacelia	<i>Phacelia formosula</i>	FE	Erodes soil outcrops of the Coalmont Formation at elevations between 8,000-8,300 ft in North Park of Jackson County.
Ute Ladies' - tresses	<i>Spiranthes diluvialis</i>	FT	Moist meadows associated with perennial stream terraces, floodplains, and oxbows at elevations between 4,300 and 7,000 ft.
Black-footed Ferret	<i>Mustela nigripes</i>	FE, SE	Depends exclusively on prairie dog burrows for shelter.
Canada Lynx*	<i>Lynx Canadensis</i>	FT, SE	Boreal forests with high-density snowshoe hare prey base.
Preble's Meadow Jumping Mouse*	<i>Zapus hudsonius preblei</i>	FT, ST	Inhabits well-developed riparian habitat with adjacent, relatively undisturbed grassland communities, and nearby water sources.
Northern Leopard Frog*	<i>Rana pipiens</i>	SC	A variety of aquatic habitats that include slow moving or still water along streams and rivers, wetlands, permanent or temporary pools, beaver ponds, and human constructed habitats such as earthen stock tanks and borrow pits.
Bald Eagle*	<i>Haliaeetus leucocephalus</i>	SC	Large rivers, lakes and seacoasts. Frequently nesting in large cottonwood trees.

Common Name	Scientific Name	Status	General Habitat
Greenback Cutthroat Trout	<i>Oncorhynchus clarki stomais</i>	FT	Cold-water streams and cold-water lakes with adequate stream spawning habitat present during spring. It is assumed that the original distribution included all mountain and foothill habitats of the South Platte and Arkansas river drainage systems, including drainages at lower elevations.
Pallid Sturgeon	<i>Scaphirhynchus albus</i>	FE	Bottom-oriented, larger river fish inhabiting the Missouri and Mississippi rivers and some tributaries from Montana to Louisiana.
Brassy Minnow	<i>Hybognathus hankinsoni</i>	ST	Cool, clear streams with abundant aquatic vegetation and mud and gravel substrate throughout the mainstem of the South Platte River.

(Service 2016b). FT = federally threatened; FE = federally endangered; FC = federal candidate; ST = state threatened; SE = state endangered; SC = state species of concern; * Species analyzed in detail.

No Action Alternative

Under the No Action alternative, there would be no effect to threatened, endangered, or candidate species in the Project Area.

Proposed Action

Under the Proposed Action, effects on federally and state listed, candidate, and species of concern are based on habitat requirements and the known distribution for each species (Table 9). Three species (Preble's meadow jumping mouse, northern leopard frog, and bald eagle) are identified as needing further analysis for potential effects.

Additional information is provided as follows:

Preble's Meadow Jumping Mouse

Preble's Meadow Jumping Mouse occurs along Colorado's Front Range at elevations typically below 7,600 ft. It utilizes riparian areas near flowing water. Its habitat can be characterized by well-developed riparian habitat with adjacent, relatively undisturbed grassland communities, with adjacent flowing streams. The riparian habitat includes a dense combination of grasses, forbs and shrubs; and taller shrubs and trees may also be present.

CPW (2016) data identifies the Project Area as being within the overall range for Preble's Meadow Jumping Mouse. The Poudre River and its floodplain downstream of the CHSC are also identified as the occupied range of Preble's Meadow Jumping Mouse. Areas adjacent to Horsetooth Reservoir and CHSC have also been identified as occupied habitat.

The Proposed Action would have no effect on Preble's Meadow Jumping Mouse habitat adjacent to the CHSC and Horsetooth Reservoir. The CHSC is a concrete-lined canal and exchanges are not anticipated to adversely affect riparian and wetland habitats within the Project Area. Under the Proposed Action, storage of non-C-BT Project water would not result in reservoir elevation changes outside the historic range. Tri-Districts would only be allowed to store non-C-BT Project water in Horsetooth Reservoir if and when space is available.

The project action will have no effect on Preble's Meadow Jumping Mouse.

Northern Leopard Frog

Northern leopard frogs live in wet meadows and the banks and shallows of marshes, ponds, lakes, reservoirs, streams, and irrigation ditches (CPW 2015). The species is distributed throughout Colorado but is scarce or absent in most of southeastern and portions of northeastern Colorado. The State of Colorado listed northern leopard frog as a species of concern.

Suitable habitat is limited within the Poudre Canyon but increases as the floodplain widens immediately downstream of the Project Area. No construction activities are associated with the Proposed Action, and the Proposed Action will have no adverse effects to the river, reservoir, or adjacent streams or wetlands. Therefore, the Proposed Action would not adversely affect the northern leopard frog.

Bald Eagle

Bald eagles are almost exclusively connected with water. In Colorado, they are often found near reservoirs and along major rivers during both the summer and winter. CPW (2016) has identified Horsetooth Reservoir and lands downstream of the Project Area as being a winter range for bald eagles. An active nest site occurs approximately ½ mile downstream of the CHSC but no other known bald eagle nests or winter roost sites within a ½ mile of the Poudre River from the Munroe Diversion to the CHSC or Horsetooth Reservoir. The proposed project is predicted to have no effect on bald eagle or suitable habitat.

Platte River Biological Opinion

Reclamation finalized commitments made pursuant to the 2006 Platte River Recovery Implementation Program Environmental Impact Statement and Programmatic Biological Opinion of effects from Platte River water users on listed species and designated critical habitat in the Platte River Basin. On March 10, 2015, the U.S. Fish and Wildlife Service (Service) concurred with Reclamation's determination that continued operations and maintenance activities associated with Reclamation's Eastern Slope C-BT Project will have no effect on Canada lynx, Colorado butterfly plant, and Ute ladies-tresses orchid, and may affect, not likely to adversely affect Preble's Meadow Jumping Mouse.

Reclamation has determined that neither the No Action nor the Proposed Action alternatives would have an effect on federal threatened, endangered, or other species of concern. In addition, no designated critical habitat is located within the Project Area.

Recreation and Land Use

Existing Conditions

The Poudre River and Horsetooth Reservoir offer numerous recreation activities including but not limited to, river rafting and tubing, fishing, camping, picnicking, hiking, and rock climbing.

Within the Project Area, the Poudre River from the City of Fort Collins's Filter Plant to Picnic Rock provides an easy reach for beginning river runners (See Figure 6). This portion of the river can be rafted at flows between 300 cfs and 2,500 cfs according to American Whitewater (2016). It is rated as Class II-III under normal flows, is about 2.4 miles in length, with an average gradient drop of 44 ft per mile.

The amount of available public land is a major feature of the Poudre River that attracts fly fishermen year-round as shown in Figure 6. Sport fisheries were previously discussed in the Aquatic Resources Section of the EA.

No Action Alternative

Although any increases in diversion at the Munroe Diversion result in reduced flows in the Poudre River downstream and have the potential to negatively affect recreation, the No Action Alternative is predicted to have no measureable effects to recreation resources.

Proposed Action

Under the Proposed Action, additional flows would bypass the Munroe Diversion resulting in increased flows downstream. The magnitude and frequency of increased river flows downstream of the Munroe Diversion under the Proposed Action (93 cfs maximum) are not predicted to increase the number of day flows between 300 cfs and 2,500 cfs occur during the rafting season. The Proposed Action is also not predicted to measurably increase or decrease fisherman access to the Poudre River between the Munroe Diversion and the CHSC.

A 1.43 ft to 3.08 ft increase in water surface elevations in Horsetooth Reservoir resulting from storage of non-project water under the Proposed Action would not adversely affect recreation resources. In general, a reservoir with more water increases boating and fishing opportunities.

Cumulatively over time, as Tri-Districts and other water providers acquire, change and/or develop additional irrigation water rights to meet future service demands, any increase in flows downstream of the Munroe Diversion would be likely be offset by an equal

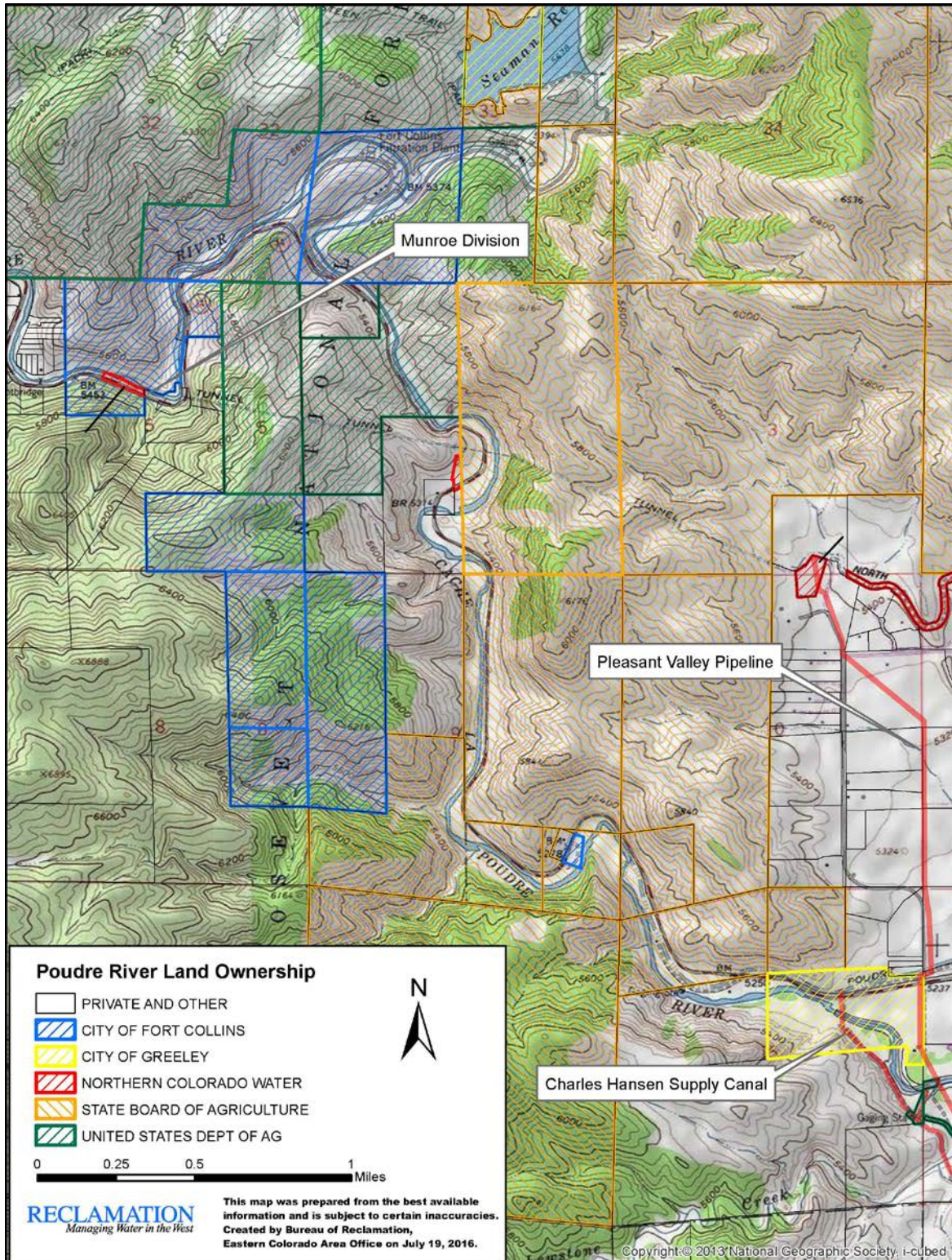


Figure 6-Land Ownership adjacent to the Poudre River.

reduction in flows downstream of the CHSC for changes in downstream diversion points to the Munroe Diversion. This could have a positive effect on recreation resources above the CHSC from increased river flows and a negative affect for recreation resources downstream from decreased river flows. It is important to note that decreased flows downstream are likely to occur under both the No Action and Proposed Action alternatives.

Socioeconomics and Environmental Justice

Existing Conditions

As discussed previously, Tri-Districts is composed of three rural water districts, which collectively built and operate the Soldier Canyon Filter Plant. Each district operates with independent governing boards and Table 10 shows the current approved service rates and fees for each district.

Table 10-Tri-Districts Current Rates Fees.

Water District	Monthly Water Usage (gal)	Monthly Rate	Range of Associated Tap Fees+	Number of Taps
East Larimer County	Residential ¹ Commercial ¹ Irrigation ¹ Multi-Family ¹ Mobile Home ¹	\$24.67- \$46.83 \$18.90-\$41.06 \$24.67-\$47.05 \$24.67-\$46.56 \$11.55	\$2,936 to \$17,074	+6,000
Fort Collins-Loveland ²	0-8,000 8,001-15,000 >15,000 and Based on Pipe Size	\$1.56 \$2.21 \$2.94 \$13.40-\$203.60	\$32,284 to \$2,002,359	+16,000
North Weld County	0-6,000 >6,000	\$18.30 \$3.05	\$16,750 To \$35,000	+3,800

¹ 2,000 gallon monthly minimum

² Area outside City of Fort Collins Service Area, usage rates within City Fort Collins Service Area increase to \$2.73, 3.57, and \$4.40

Executive Order 12898 on Environmental Justice requires Federal agencies to analyze programs to ensure that they do not disproportionately adversely affect minority or low-income populations or Indian Tribes.

Table 11 shows 2010-2014 Income and Poverty Statistics from the U.S. Census Bureau (2016) for Larimer and Weld Counties.

Table 11-Larimer and Weld County Income and Poverty Statistics.

	Larimer County	Weld County
Median household income	\$58,844	\$58,100
Per capita income	\$31,082	\$25,959
Persons in poverty	12%	10.5%

Table 12 provides a breakdown of the 2014 race and origin compositions for Larimer and Weld Counties.

Table 12-Larimer and Weld County Race and Origin Composition.

Race/Origin	Larimer County	Weld County
Caucasian	93.2%	93.1%
White	83.5%	66.7%
Hispanic	11.1%	28.8%
Not Reported	5.4%	4.5%
African American	1.1%	1.4%
American Indian or Native American	1.0%	1.7%
Asian	2.2%	1.5%
Native Hawaiian or Other Pacific Islander	0.1%	0.2%
Two or More Races	2.4%	2.1%

No Action and Proposed Action

Under both the No Action and Proposed Action Alternative, rate fees are anticipated to remain constant or increase based on future cost of living adjustments. Although the No Action Alternative does not include expenses associated with the Proposed Action, Tri-Districts would still need to develop other storage options to meet future demands, which could result in the need for additional rate increases.

The No Action and Proposed Action Alternatives are predicted to have no disproportionate adverse effects to minority or low-income populations or Indian Tribes.

Historic Properties

Historic properties are defined as significant cultural resources, including sites, districts, buildings, structures, objects, or properties of traditional religious and cultural importance to Native Americans, that are either included in, or eligible for inclusion in, the National Register of Historic Places. Section 106 of the National Historic Preservation Act requires Reclamation to consider effects on historic properties when planning and implementing actions. Section 106 is outlined in regulations issued by the Advisory

Council on Historic Preservation (36 CFR Part 800). Potential effects of the described alternatives on historic properties are the primary focus of this analysis.

No ground disturbing activities are associated with either the No Action or the Proposed Action Alternatives. Neither alternative will result in changes to the Poudre River outside the historic range of flows for the river. Additionally, storage in Horsetooth Reservoir will not increase pool elevations beyond normal operations. Existing facilities will continue to be used, and there will be no modifications to existing facilities, or changes in land use resulting from either the No Action or Proposed Action Alternatives. Pursuant to 36 CFR 800.3(a)(1), Reclamation has determined that the No Action and Proposed Action Alternatives have no potential to cause effects to historic properties.

Other Resources

Wild and Scenic Rivers

In 1986, Congress designated the Upper Poudre River includes a 75-mile stretch above Poudre Park as designated wild and scenic. This stretch of the river is about 3.5 miles upstream of the Project Area and includes 14 miles of river within Rocky Mountain National Park and 61 miles within the Roosevelt National Forest (USFS 1990).

The No Action and Proposed Action will have not affect the portion of the Poudre River designated as wild and scenic.

Natural Heritage Area

In 2009, congress passed legislation designating the Poudre River as a National Heritage Area (NHA) administered by the National Park Service. The Cache la Poudre River NHA includes a 44-mile reach of the Poudre River and its floodplain from the Roosevelt National Forest Boundary to its confluence with the South Platte River. The Project Area included in the Cache la Poudre River NHA tells the story of the river that set historic water law in the western United States. The contributions of the river to the development of water law in the western United States, evolution of water delivery systems, and shaping of the region's cultural heritage are all commemorated along the floodplain of this working river (NPS 2016).

No ground disturbing activities are associated with either the No Action or the Proposed Action alternatives. Changes in operations and river flows in this reach of the Poudre River are consistent with those of a working river. The No Action and Proposed Action alternatives are predicted to have no adverse effects to the Cache la Poudre River NHA.

Prime and Unique Farm Land

Prime and Unique Farmland is land that has the best combination of physical characteristics for producing food, feed, forage, fiber and oil seed crops and also available for these. Prime and unique farmlands can be cultivated land, pastureland, forest lands, or

other land, but it is not urban or built-up land or water areas. Reclamation reviewed the Natural Resource Conservation Service (NRCS) geographic information systems accessed via NRCS's Websoil Survey (NRCS 2016A). No prime and unique farmland occurs adjacent to the Poudre River between the Munroe Diversion and the CHSC.

In 1997, Colorado had approximately 1,696,800 acres of nonfederal prime farmland and 93% of the soils classified as prime farmland are being utilized as cropland (NRCS 2016B). As of September 2014, NRCS estimated prime farmland in Weld County at 740,628 acres and Larimer County at 204,777 acres (ACOE 2015).

Either the No Action or the Proposed Action alternatives directly affect prime and unique farmland. Neither alternative provides new water supplies or delivery systems. The current trend of new development and land conversions based on continued population growth in Northern Colorado is predicted to continue absent the Proposed Action.

Paleontological Resources

Paleontological resources are defined as any fossilized remains, traces, or imprints of organisms, preserved in or on the earth's crust, that are of paleontological interests and that provide information about the history of life on earth except those associated with archaeological resources or cultural items associated with the Native American Graves Protection and Repatriation Act (Paleontological Resources Preservation Act (PRPA) of 2009 (Public Law 111-011)). The PRPA mandates that Reclamation manage and protect paleontological resources on Federal land using scientific principles and expertise. Potential effects of the described alternatives on paleontological resources are the primary focus of this analysis. The affected environment for paleontological resources corresponds to the APE for direct effects for historic properties.

Because there are no ground disturbing activities associated with either the No Action or the Proposed Action alternatives, there is no potential to affect paleontological resources.

Indian Trust Assets

Indian Trust Assets (ITAs) are legal interests in property held by the United States for Indian Tribes or individuals. ITAs include, but are not limited to, lands, minerals, hunting and fishing rights, traditional gathering grounds, and water rights. The U.S. Department of the Interior's policy is to recognize and fulfill its legal obligations to identify, protect, and conserve the trust resources of federally recognized Indian tribes and tribal members, and to consult with the tribes on a government-to-government basis whenever plans or actions affect tribal trust resources, trust assets, or tribal health and safety (512 DM 2).

Under the U.S. Department of the Interior's policy, Reclamation is responsible for identifying any potential effects to ITAs as part of the planning process for the Proposed Action. Further, any effect to ITAs as a result of the Proposed Action must be addressed within this Environmental Assessment. When an effect to ITAs cannot be avoided, Reclamation will provide appropriate mitigation or compensation to the federally

recognized Indian tribes or individuals. The affected environment for ITAs corresponds to the APE for direct effects for cultural resources.

Reclamation will consult with the Bureau of Indian Affairs, Anadarko, Concho, Fort Peck, Northern Cheyenne, and Wind River Agencies to identify impacts to ITAs within the area of potential effect. There are currently no known ITA resources that have been identified that could be affected by either the No Action or the Proposed Action alternatives. Consultation results will be incorporated into the Final EA.

Climate Change

Discussion of potential for climate change to affect the hydrology of the Poudre River Basin relative to historical climate and hydrologic patterns was included in the NISP Supplemental Draft EIS (ACOE 2015) and in DiNatale and CDM Smith (2014). A reasonable range of potential impact of climate change impacts based on findings from historical trends in temperature and runoff, published studies, reports, and other scientific literature was used to guide the description of the potential impacts on hydrology and was translated into predicted effects for flow-related resources for NISP.

It is appropriate to rely on the NISP climate change analysis and findings for this EA. In summary, the NISP findings include:

- Global temperatures are increasing and precipitation trends may change in the future.
- In the western United States longer periods of drought are expected.
- Colorado Snowpack melting and spring runoff may occur earlier in the year and temperatures may increase by approximately 4°F by 2050, with summers warming more than winters.
- Little agreement on potential changes to precipitation in Colorado, although modeling of the Colorado River Basin indicates overall lower runoff on the West Slope.

The hydrology of the Poudre River is anticipated to change under climate change conditions that, in turn, may change current operations of diversion, storage and delivery of water.

Cumulative Impacts

Cumulative impacts are impacts on the environment, which result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions. Cumulative impact can result from individually minor but collectively significant actions taking place over a period of time.

The two projects identified as reasonably foreseeable (Windy Gap Firming and Soldier Canyon Micro Hydro projects) have sufficient detail to evaluate cumulative impacts and

are included with other existing projects that have potential to impact the environment, including:

- C-BT Project and Northern Water Contract No. 9-07-70-W0020
- Windy Gap and Northern Water and Municipal Subdistrict Contract No. 15XX650003
- City of Loveland Excess Capacity Exchange Contract No. 01WR6C0252
- Town of Berthoud Excess Capacity Exchange Contract No. 06XX6C0122
- City of Fort Collins Water Treatment Plant
- City of Greeley Bellevue Water Treatment Plant
- Windy Gap Firming Project (Reasonably Foreseeable)
- Soldier Canyon Micro Hydro Plant (Reasonably Foreseeable)

The C-BT Project and Municipal Subdistrict, City of Loveland and Town of Berthoud excess capacity contracts have priority over the Proposed Action and can affect excess capacity availability in Horsetooth Reservoir.

The Cities of Fort Collins and Greeley own and operate upstream reservoirs on the North Fork of the Poudre River and operate diversions immediately upstream and downstream of the Project Area. Both entities also utilize the Pleasant Valley Pipeline to deliver water to their respective water treatment facilities utilizing water supplies from the Poudre River and the C-BT Project. These diversions decrease flows in the Poudre River below the Munroe Diversion and cumulatively, the Proposed Action reduces the magnitude and duration of decreased flows resulting in cumulative beneficial effect to resources discussed in this EA.

Soldier Canyon Micro Hydro Plant, if constructed, would not directly increase or decrease flows in the Poudre River or water surface elevations in Horsetooth Reservoir. Under the Proposed Action, the hydropower project could benefit from increased water deliveries through Soldier Canyon Dam resulting in increased power generation.

Summary and Environmental Commitments

The primary effect of the Proposed Action would be to increase Tri-Districts' water management flexibility to address drought, meet changes in municipal demands, and respond to temporary changes in the watershed affecting water quality.

Increases in Poudre River flows during exchanges under the Proposed Action from the Munroe Diversion downstream to the CHSC provides benefits to river-dependent resources. In addition, minor increases in water surface elevations in Horsetooth Reservoir under the Proposed Action would not result in adverse effects to reservoir dependent resources.

Environmental Commitments and Mitigation Measures

The following environmental commitments would be implemented by Reclamation, Tri-Districts and Northern Water and the executed contract(s) will require that they be followed and met.

1. The proposed contract(s) shall not adversely affect C-BT Project.
2. Non-C-BT Project water can only be exchanged or stored in Horsetooth Reservoir when excess capacity is available in Horsetooth Reservoir and the CHSC.
3. All water right exchanges shall comply with Colorado water law and require approval of the Division Engineer, Water Division 1, Colorado Division of Water Resources.
4. All non-C-BT Project water exchanged and stored in Horsetooth Reservoir will be delivered to SCFP through Soldier Canyon Dam outlet works, except in the case of a spill.
5. The proposed contract(s) shall comply with all applicable Federal and State laws.
6. No mitigation measures are required for the Proposed Action.

CONSULTATION AND COORDINATION

Reclamation conducted informal discussions with federal, state and local agencies and non-governmental entities to identify issues and concerns associated with the Proposed Action.

Agency Coordination

Federal Agencies

Mr. Matthew Fairchild, Forest Fish Biologist, Arapaho & Roosevelt National Forests and Pawnee National Grasslands, U.S. Forest Service, Fort Collins, CO.

Mr. Larry Gamble, Chief, Branch of Planning & Project Stewardship, National Park Service, Estes Park, CO

State Agencies

Ms. Joanna Williams, State Engineers Office, Colorado Division of Water Resources, Denver, CO.

Mr. David Nettles, Division I Engineer, Colorado Division of Water Resources, Greeley, CO.

Mr. Ken Kehmeier, Senior Aquatic Biologist, Colorado Division of Parks and Wildlife, Fort Collins, CO.

Local Agencies and Non-Governmental Organizations

Mr. Chris Harris, Soldier Canyon Filter Plant, Fort Collins, CO

Mr. Richard Raines, Tri-Districts, Fort Collins, CO

Mr. Leif Lesoing, Tri-Districts, Fort Collins, CO

Mr. Andy Pineda, Northern Water, Berthoud, CO.

Mr. Alan Berryman, Northern Water, Berthoud, CO.

Mr. John Stokes, City of Fort Collins, Natural Area, Fort Collins, CO.

Cache la Poudre River Natural Heritage Area, Greeley, CO.

Mr. Mark Caughlan, Horsetooth District Manager, Larimer County Department of Natural Resources, Fort Collins, CO.

Ms. Kathleen Benedict, Poudre Heritage Alliance, Fort Collins, CO.

Ms. Mely Whiting, Colorado Trout Unlimited, Colorado Water Project, Denver, CO.

Mr. Gary Wockner, Save the Poudre, Fort Collins, CO

Ms. Mely Whiting, Colorado Water Project, Trout Unlimited

REFERENCES

ACOE. 2015. Supplemental Draft Environmental Impact Statement, Northern Integrated Supply Project, Applicant: Northern Colorado Water Conservancy District, Department of the Army, Corps of Engineers, Omaha District, Omaha, NE. June 2015.

American Whitewater. 2016. Cache la Poudre, Colorado, US 10. Below Filter Plant to Picnic Rock Access (Filter Plant) Website: <http://www.americanwhitewater.org/content/River/detail/id/372> accessed May 23, 2016.

CDWR. 2016. General Administration Guidelines for Reservoirs. Colorado Division of Water Resources. October 2011, Amended February 2016. Downloaded @ <http://water.state.co.us/DWRIPub/Documents/Reservoir%20Administration%20Guidelines.pdf> on June 15, 2016.

DiNatale Water Consultants and CDM Smith. 2014. Climate Change Hydrologic Impacts Analysis for the Common Technical Platform for the NISP and HSWSP Environmental Impact Statements. Prepared for the U.S. Army Corps of Engineers. March 2014.

FHA. North I-25 Final Environmental Impact Statement, Final Section 4(f) Evaluation. U.S. Department of Transportation, Federal Highway Administration and Colorado Department of Transportation. FHWA-CO-EIS-08-01-F. August 2011.

CPW. 2015. Species Profiles. Colorado Division of Parks and Wildlife. Website: <http://CPW.state.co.us/learn/Pages/SpeciesProfiles.aspx> accessed on August 26, 2015.

_____. 2016A. Cache la Poudre River Canyon, Fish Survey and Management Information. Colorado Division of Parks and Wildlife, Fort Collins, CO Website: <http://cpw.state.co.us/thingstodo/Pages/FisherySurveySummaries.aspx> accessed May 10, 2016.

_____. 2016B. Horsetooth Reservoir, Fish Survey and Management Information. Colorado Division of Parks and Wildlife, Fort Collins, CO Website: <http://cpw.state.co.us/thingstodo/Pages/FisherySurveySummaries.aspx> accessed May 10, 2016.

_____. 2016C. Colorado Division of Parks and Wildlife—Species Activity Data. Shapefiles dated February 22, 2016. Colorado Department of Natural Resources, Colorado Parks and Wildlife. Denver, Colorado. Downloaded from website: <http://www.arcgis.com/home/group.html?owner=rsacco&title=Colorado%20Parks%20and%20Wildlife%20-%20Species%20Activity%20Data> on May 23, 2016.

East Larimer County. 2007. Water Conservation Plan. Prepared by Clear Water Solutions for East Larimer County Water District. June 2007.

FCLWD. 2008. Water Conservation Plan. Prepared by Clear Water Solutions for Fort Collins-Loveland Water District. September 2008.

Fort Collins. 2015. 2014 Annual Report, Upper Cache La Poudre Watershed Collaborative Water Quality Monitoring Program. Prepared for Fort Collins Utilities, City of Greeley, and Tri-Districts by City of Fort Collins Utilities. July 28, 2015.

Fort Collins. 2014. 2013 Horsetooth Reservoir Water Quality Monitoring Program Report. Prepared by J. Heath and J. Oropeza, City of Fort Collins Water Resources and Treatment Services, Fort Collins, CO. June 27, 2014

FCNA Program. 2011. Cache la Poudre River Natural Areas Management Plan Update. Available at: <http://www.fcgov.com/naturalareas/pdf/poudre-management-plan2011.pdf>. Last updated: June 10, 2011.

FGDC. 2013. Classification of wetlands and deepwater habitats of the United States. FGDC-STD-004-2013. Second Edition. Wetlands Subcommittee, Federal Geographic Data Committee and U.S. Fish and Wildlife Service, Washington, D.C.

Hydros. 2013. Horsetooth Reservoir Modeling Report, Final. Hydros Consulting, Prepared for Northern Colorado Water Conservancy District, Tri-Districts' Soldier Canyon Filter Plant, and the Cities of Fort Collins and Greeley. Boulder, CO. March 14, 2013.

Northern Water. 2015. Horsetooth Water Quality Study. From Northern Colorado Water Conservancy District Website: <http://www.northernwater.org/WaterQuality/HorsetoothWaterQualityStudy.aspx> accessed on June 11, 2015.

NPS. 2016. Cache la Poudre River National Heritage Area, Quick Facts. National Park Service Website at <https://www.nps.gov/places/cache-la-poudre-river-national-heritage-area.htm> accessed on May 10, 2016.

NRCS. 2016A. Web Soil Survey. U.S. Department of Agriculture, Natural Resource Conservation Service. Website: <http://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm> accessed May 19, 2016.

NRCS. 2016B. NRCS Colorado Prime Farmland. U.S. Department of Agriculture, Natural Resource Conservation Service. Website: http://www.nrcs.usda.gov/wps/portal/nrcs/detail/co/technical/dma/nri/?cid=nrcs144p2_062784, accessed May 19, 2016.

NWCWD. 2009. 2009 Water Conservation Plan. Prepared by Clear Water Solutions for North Weld County Water District. April 2009.

Reclamation. 2007. Resource Management Plan and Environmental Assessment, Horsetooth Reservoir, Carter Lake, Pinewood Reservoir, Flatiron Reservoir. Bureau of Reclamation, Great Plains Region, Eastern Colorado Area Office and Larimer County Parks and Open Lands Department. June 2007.

_____. 2006. Town of Berthoud Long-term Conveyance Contract. Final Environmental Assessment. U.S. Department of the Interior, Bureau of Reclamation, Eastern Colorado Area Office, Loveland, CO. March 2006.

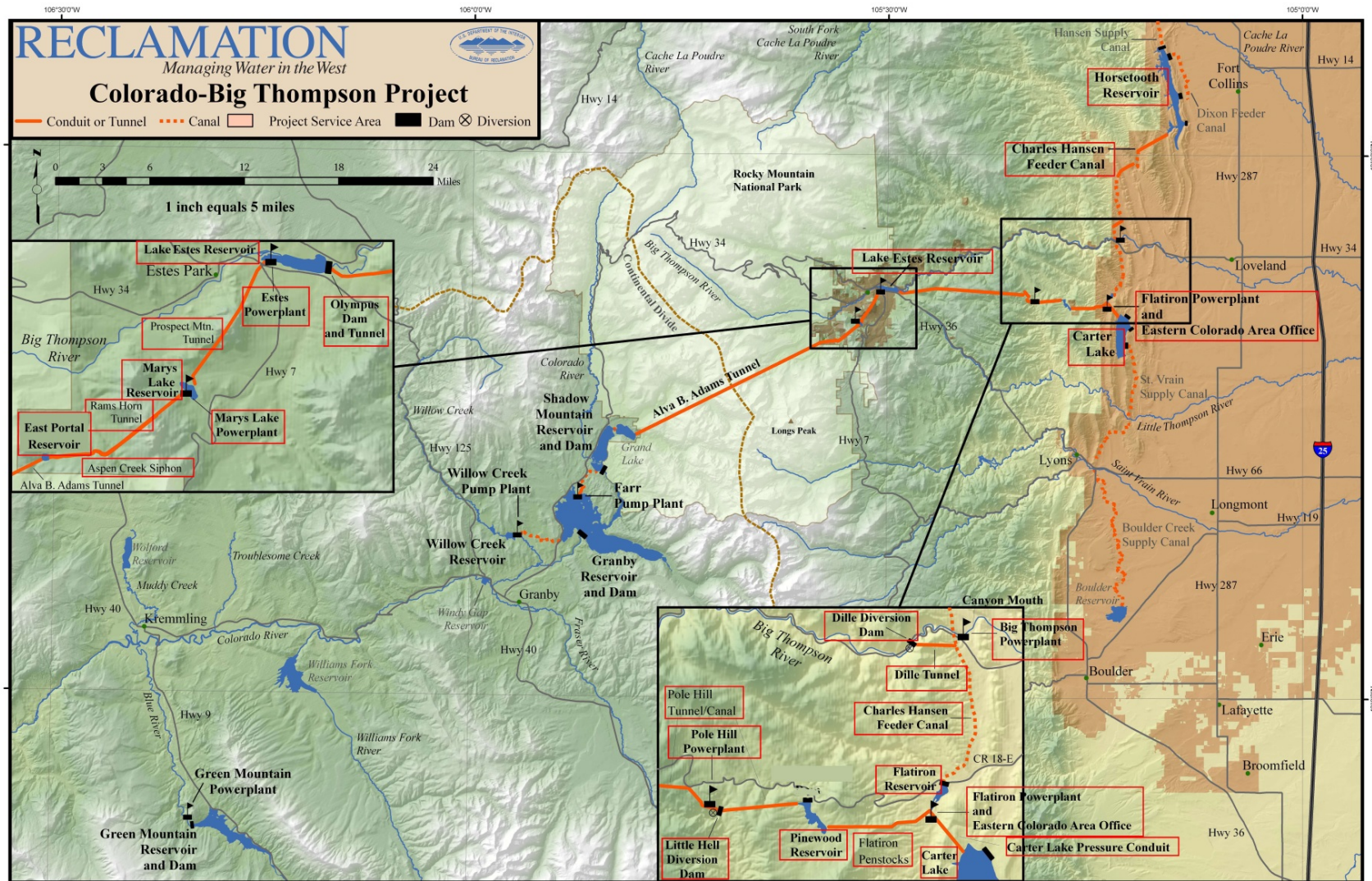
_____. 2000. Use of Colorado-Big Thompson Facilities to Convey City of Loveland Water Supplies to Expand Green Ridge Glade Reservoir. Final Environmental Assessment, ECAO-1300-98-1 Prepared for U.S. Department of the Interior, Bureau of Reclamation, Eastern Colorado Area Office and City of Loveland, Water and Power Department. Prepared by Water Consult, Engineering and Planning Consultants, Loveland, CO, May 2000.

Service. 2016A. National Wetlands Inventory, Wetlands Mapper, U.S. Department of Interior, Fish and Wildlife Service. Website: <https://www.fws.gov/wetlands/Data/Mapper.html> accessed May 19, 2016.

Service. 2016b. IPaC Trust Resources Report. U.S. Fish and Wildlife Service, Colorado Ecological Services Field Office, Denver, CO, Generated May 23, 2016.

U.S. Census Bureau. Quick Facts, United States Census Bureau. Website: <http://census.gov/quickfacts>, accessed May 19, 2016.

USFS. 1990. Cache la Poudre Wild and Scenic River Final Management Plan. United States Department of Agriculture, Forest Service, Rocky Mountain Region, Arapaho and Roosevelt National Forests, Estes-Poudre Ranger District, Larimer County, Colorado. March 1990.



C-BT Project Map

Poudre River Analysis:

The proposed excess capacity contract will cause or enable only one hydrologically noteworthy change to the Poudre River. See Figure 1 for a map of the affected area. When exchanges with C-BT Project water are occurring, water that historically would have been diverted at the North Poudre Diversion for use at the Soldier Canyon Treatment Plant remains in the Poudre River. It increases the flow from that point to the outlet of the CHSC. At that point, it replaces flows that would have been released from Horsetooth Reservoir, but were withheld to facilitate the exchange. Thus below the CHSC outlet, no net change in flows occurs in the Cache La Poudre River.

Several other potential changes to the system were considered and ultimately set aside as a more thorough understanding of how Tri-Districts were committed to operating the exchange. First, because there is no Tri-Districts Poudre River basin storage above the North Poudre Diversion, there is no possibility of the exchange producing a retiming of Tri-Districts' flows in the Poudre above the North Poudre Diversion. Second, the Tri-Districts assured Reclamation that non-project water stored in the reservoir would only be released to the Soldier Canyon Treatment Plant. This commitment eliminates the possibility of exchanges of the stored non-project water with other waters / agencies in the Poudre River. Therefore, there is no need to analyze the results of increased or retimed releases of flows arriving in the Cache La Poudre River from the Charles Hansen Supply Canal. (This potentiality was considered briefly in light of existing exchanges the Tri-Districts perform with C-BT Project water delivered using the Charles Hansen Feeder Canal that, following that delivery, is exchanged with other entities, outside of Reclamation oversight.)

In the context of three contracts being simultaneously sought, each with a maximum exchange / storage volume of 1,000 af annually, Reclamation performed analysis on the maximum total of 3,000 af. Beginning with the pattern of analysis made for the annual contract, but shifting May through August exchanges downward to achieve exactly 3,000 af of the exchange over the course of the year, see Table 1. The Maximum Daily Exchange Rate reflects the maximum capacity of the intake, 60 Mg/d (93 cfs).

Figure 1: Pleasant Valley Map

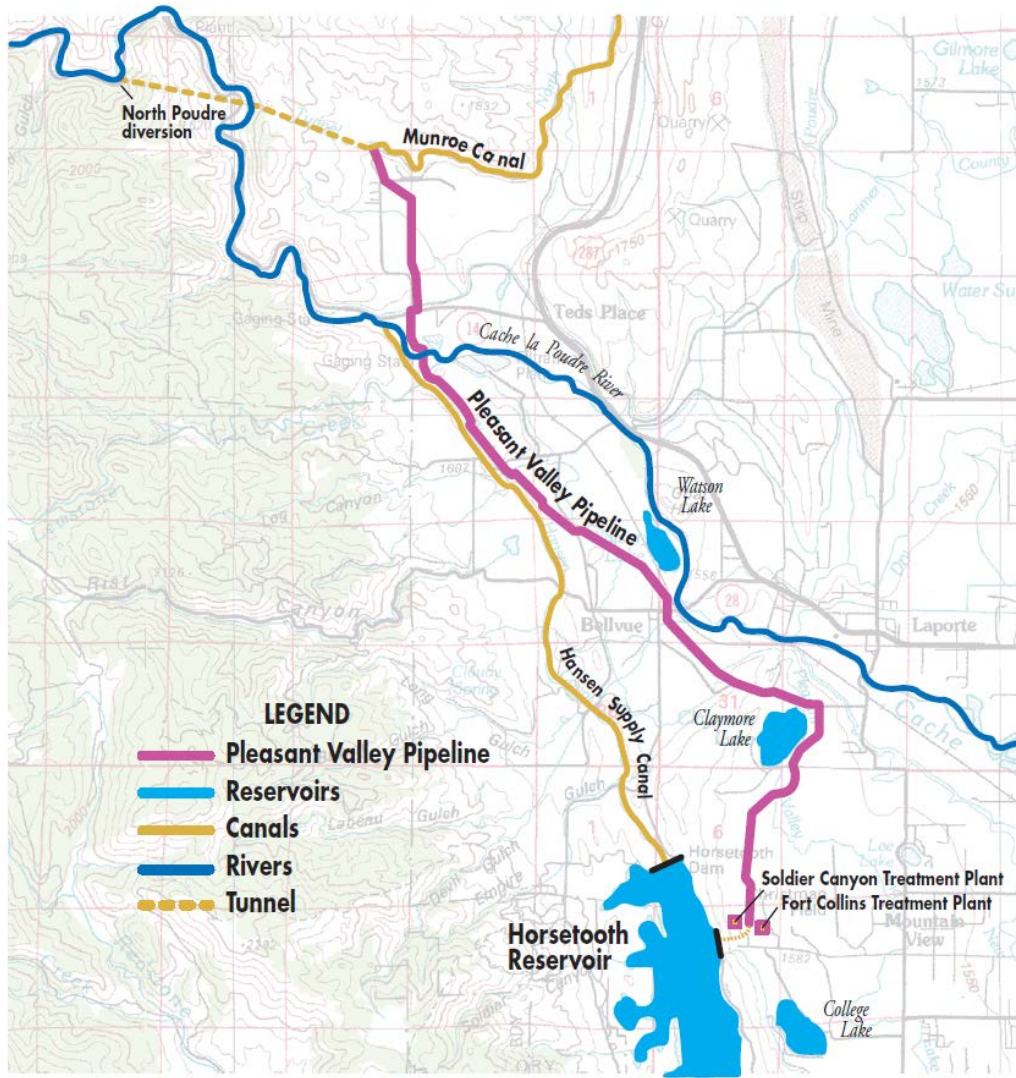


Table 1: Expected Monthly Exchanges and Maximum River Flow Changes between North Poudre Diversion and outflow of the Charles Hansen Supply Canal.

Col 1: Month	Col 2: Monthly Maximum Volume Exchanged (af)	Col 3: Maximum Daily Exchange Rate (cfs)	Col 4: Minimum Number of Days to Exchange Monthly Maximum	Col 5: Median Flow (Cache La Poudre at Canyon Mouth; cfs)	Col 6: Percent Increase over Median¹
12-Sep	300	93	2	84	111%
12-Oct	100	93	1	54	172%
12-Nov				40	0%
12-Dec				30	0%
13-Jan				26	0%
13-Feb				26	0%
13-Mar				33	0%
13-Apr	75	93	1	58	160%
13-May	675	93	4	579	16%
13-Jun	950	93	5	1410	7%
13-Jul	600	93	3	557	17%
13-Aug	300	93	2	255	36%
TOTAL	3000				

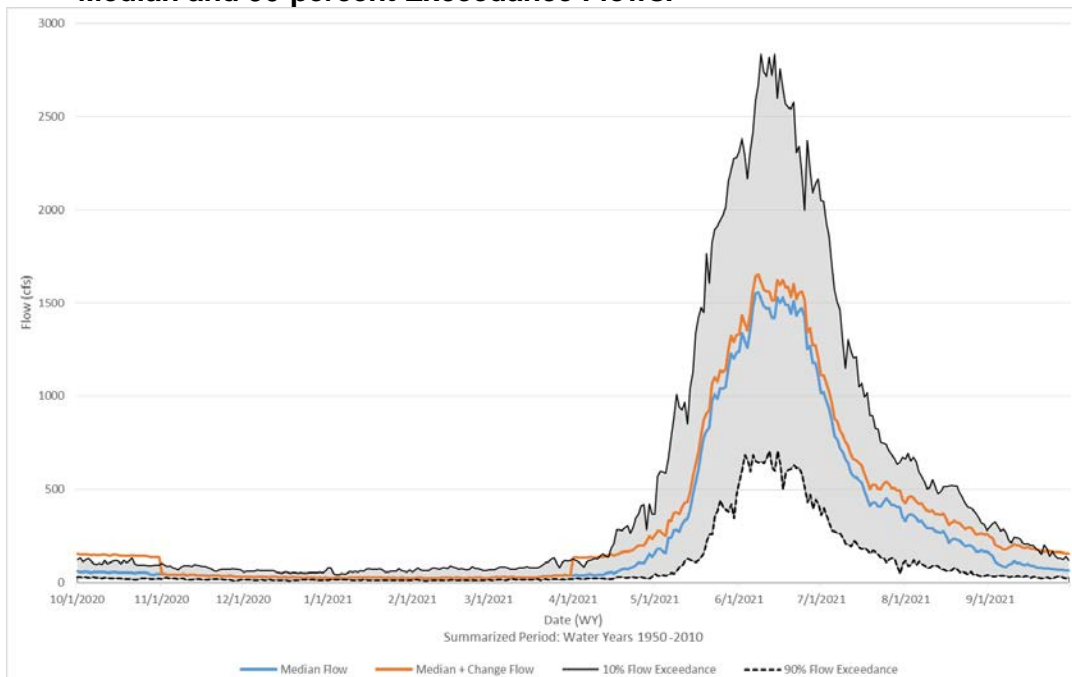
¹This is not to be confused with “Percent of Median”

The fourth column in Table 1 is the number of days required to effect the total change. For example, the maximum change when the full exchange is occurring would be in effect for 5 days in June. This change occurs, leaving additional flow in the River, from the point where it was traditionally diverted from the Poudre River at the North Poudre diversion to the outflow of the Charles Hansen Supply Canal. Furthermore, columns 5 and 6 show the monthly median flows in the reach in question and calculate the magnitude of that increase as a percentage of the median.

To contextualize the significance of these possible, maximum changes statistical analysis was done on daily time series for the Cache la Poudre at Canyon Mouth gage from November 1, 1949, through October 31, 2010. The time series was converted into an annual ensemble and shifted to the reference date of October 1, 2020. (This process takes each year’s October 1 value and the subsequent 12 months of daily values and creates a new time series—a trace—for each of the years, assigning the first time step a date of October 1, 2020. The combined product is an ensemble of annual traces.) Statistical analysis of the ensemble produced a median time series (comprising the median of each calendar day of the ensemble traces), a 10-percent exceedance time series, and a 90-

percent exceedance time series. Another time series was prepared using the monthly maximum daily exchange rate, for the same reference period. Figure 2 shows four time series: 1) the median time series, 2) a time series equal to the median time series plus the monthly maximum daily exchange rate, 3) a time series showing flows exceeded by less than 10 percent by the ensemble values (10% Flow Exceedance), and 4) a time series showing flows exceeded by 90 percent of the ensemble values (90% Flow Exceedance). Comparison of time series #2 and #3 shows that the maximum daily exchange rate will push the flows outside of regularly seen flows in late September, in October, and on a few days in April. Caution in interpretation of this analysis requires remembering that the maximum daily exchange rate will occur less than or equal to the above-referenced number of days in any given month—not all month or all year. While the analysis does show that on certain days in October, early-April, and mid-September the median plus change time series does exceed the 90-percent Flow Exceedance rates, analysis of flows coming into the Munroe Diversion typically are less than what would support an exchange of this magnitude. Additionally, exchanges at less than the maximum exchange rate will occur. Finally, increased flows in the River reach during the fall, low-flow season may be environmentally beneficial.

Figure 2: Cache La Poudre River at Canyon Mouth Near Fort Collins – Contextualization of Maximum Flow Change using 10-percent Exceedance, Median and 90-percent Exceedance Flows.



Horsetooth Reservoir Analysis:

The proposed excess capacity contract will result in increases in pool elevations at Horsetooth Reservoir. The exact nature of those increases will depend on how much water is retained in storage and the timing of storage use (increases through exchange and decreases through delivery to the treatment plant). To get a sense of the possibilities,

analysis was performed using a draft planning and operations simulation model. The model provided possible Horsetooth Reservoir elevations. Numerical manipulation used those values as a starting point to estimate how much higher the reservoir would be with 3,000 af of water. The values ranged from 1.43 ft to 3.08 ft, with an average of 1.72 ft. For comparison, the same values calculated with 1,000 af of water ranged from 0.48 ft to 1.04 ft, with an average of 0.58 ft. Note that these numbers are hypothetical. There is no expectation that the volume volumes would actually be maintained constant, year-round. With the increased volume in storage, not only will the pool elevation be higher, but the surface area will be greater, leading to increased evaporation losses. Using the simulated structure as before, the 3,000 af stored year-round would result in an average of 58 af of additional loss to evaporation; 1,000 af evaporates an additional 19 af. Again, there is no expectation that the volume volumes would actually be maintained constant, year-round. Any increase in seepage as a result of additional water is negligible.

Reclamation owns and operates (collaboratively with Northern Water) Horsetooth Reservoir. The anticipated contract articles will need to address issues of excess capacity availability and handling of evaporative losses. Within the context of these anticipated articles, the effects to the Reservoir are viewed positively. Higher reservoir levels enhance the recreational benefits. The levels also may result in an improvement in water temperatures (somewhat cooler) with associated quality improvements, although the magnitude of such changes are unlikely to be significant. Additionally, the excess capacity contract will allow Reclamation to restrict access to excess capacity storage if it is unavailable, preventing any harm from having too much water in the Reservoir.

Other Considerations:

The exchange would result in reduced flows (use) of the Charles Hansen Supply Canal and the Munroe Canal and Pleasant Valley Pipelines. Whereas these are constructed features with no environmental requirements or constraints, no additional analysis was performed on these reductions.

It was initially misunderstood that C-BT Project water from Horsetooth was preferred over Poudre River water for usage in the Soldier Treatment plant due to water quality issues. In fact, Reclamation learned that Poudre River water is generally of higher quality than water stored in Horsetooth. Retention of water in Horsetooth with the re-coloring of it through exchange is expected to produce no significant water quality changes.

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CY 2012							CY 2013							CY 2014							CY 2015						
Date	DISCHRG (cfs)	Min (cfs)	Max (cfs)	Diff (cfs)	Exch (cfs)	% of DISCHRG	Date	DISCHRG (cfs)	Min (cfs)	Max (cfs)	Diff (cfs)	Exch (cfs)	% of DISCHRG	Date	DISCHRG (cfs)	Min (cfs)	Max (cfs)	Diff (cfs)	Exch (cfs)	% of DISCHRG	Date	DISCHRG (cfs)	Min (cfs)	Max (cfs)	Diff (cfs)	Exch (cfs)	% of DISCHRG
4/1/2012	102	102	196	94			4/1/2013	29.4	12.2	58.4	46.2	0.0	0%	4/1/2014	188	188	246	58	0.0	0%	4/1/2015	213	204	237	33	0.0	0%
4/2/2012	197	183	234	51			4/2/2013	36.7	33.5	38.3	4.8	0.0	0%	4/2/2014	235	202	239	37	0.0	0%	4/2/2015	227	227	262	35	0.0	0%
4/3/2012	230	197	230	33			4/3/2013	35	23.7	35.4	11.7	0.0	0%	4/3/2014	196	176	199	23	0.0	0%	4/3/2015	247	208	247	39	0.0	0%
4/4/2012	197	101	197	96			4/4/2013	22.9	20.7	26.5	5.8	0.0	0%	4/4/2014	178	124	182	58	0.0	0%	4/4/2015	208	199	237	38	0.0	0%
4/5/2012	99.4	91.8	126	34.2			4/5/2013	21.8	19.6	31.9	12.3	0.0	0%	4/5/2014	123	113	191	78	0.0	0%	4/5/2015	197	190	236	46	0.0	0%
4/6/2012	106	97.3	120	22.7			4/6/2013	24.3	23.2	29.1	5.9	0.0	0%	4/6/2014	188	186	199	13	0.0	0%	4/6/2015	214	213	237	24	0.0	0%
4/7/2012	108	96.6	114	17.4			4/7/2013	27.7	25.2	30.5	5.3	0.0	0%	4/7/2014	186	184	198	14	0.0	0%	4/7/2015	222	213	248	35	0.0	0%
4/8/2012	102	41	458	417			4/8/2013	25.2	12.2	138	125.8	0.0	0%	4/8/2014	192	84.5	683	598.5	0.0	0%	4/8/2015	222	208	1080	872	0.0	0%
4/9/2012	104	91.1	124	32.9			4/9/2013	26.8	26.8	37.9	11.1	0.0	0%	4/9/2014	188	187	206	19	0.0	0%	4/9/2015	227	222	242	20	0.0	0%
4/10/2012	108	95.2	131	35.8			4/10/2013	29.1	15.4	29.1	13.7	0.0	0%	4/10/2014	208	207	258	51	0.0	0%	4/10/2015	222	213	222	9	0.0	0%
4/11/2012	127	114	187	73			4/11/2013	15.8	11.2	26.5	15.3	0.0	0%	4/11/2014	257	257	298	41	0.0	0%	4/11/2015	213	208	224	16	0.0	0%
4/12/2012	183	176	283	107			4/12/2013	20.7	20.7	30.5	9.8	0.0	0%	4/12/2014	296	296	352	56	0.0	0%	4/12/2015	209	204	222	18	0.0	0%
4/13/2012	269	215	269	54			4/13/2013	22.9	21.8	30.5	8.7	0.0	0%	4/13/2014	346	346	420	74	0.0	0%	4/13/2015	209	199	218	19	0.0	0%
4/14/2012	211	97.3	211	113.7			4/14/2013	23.8	21.8	30.8	9	0.0	0%	4/14/2014	397	298	397	99	0.0	0%	4/14/2015	208	180	231	51	0.0	0%
4/15/2012	96.6	67.2	96.6	29.4			4/15/2013	24.9	22.6	41.4	18.8	0.0	0%	4/15/2014	166	29.9	166	136.1	0.0	0%	4/15/2015	227	218	286	68	0.0	0%
4/16/2012	65.8	43.8	65.8	22			4/16/2013	52	11.4	84.1	72.7	0.0	0%	4/16/2014	84.5	84.5	144	59.5	0.0	0%	4/16/2015	282	281	346	65	0.0	0%
4/17/2012	43.8	41.9	53.9	12			4/17/2013	12.2	10.9	44.8	33.9	0.0	0%	4/17/2014	133	133	1230	1097	0.0	0%	4/17/2015	350	350	2780	2430	0.0	0%
4/18/2012	41	40.1	71.2	31.1			4/18/2013	30.5	21.8	45.2	23.4	0.0	0%	4/18/2014	146	146	173	27	0.0	0%	4/18/2015	360	326	388	62	0.0	0%
4/19/2012	51.7	40.1	106	65.9			4/19/2013	21	20.7	36.3	15.6	0.0	0%	4/19/2014	171	168	214	46	0.0	0%	4/19/2015	386	379	395	16	0.0	0%
4/20/2012	96.6	88.5	153	64.5			4/20/2013	39	39	65.2	26.2	0.0	0%	4/20/2014	211	211	270	59	0.0	0%	4/20/2015	398	398	444	46	0.0	0%
4/21/2012	131	109	149	40			4/21/2013	47.6	45.7	53.9	8.2	0.0	0%	4/21/2014	257	172	285	113	0.0	0%	4/21/2015	449	449	485	36	0.0	0%
4/22/2012	147	131	452	321			4/22/2013	47.6	47.6	60.8	13.2	0.0	0%	4/22/2014	194	194	296	102	0.0	0%	4/22/2015	490	490	600	110	0.0	0%
4/23/2012	458	146	464	318			4/23/2013	58.4	41.9	71.9	30	0.0	0%	4/23/2014	297	297	390	93	0.0	0%	4/23/2015	470	424	530	106	0.0	0%
4/24/2012	124	99.4	266	166.6			4/24/2013	46.2	45.7	56.1	10.4	0.0	0%	4/24/2014	340	201	340	139	0.0	0%	4/24/2015	535	535	596	61	0.0	0%
4/25/2012	216	129	591	462			4/25/2013	47.6	47.6	728	680.4	0.0	0%	4/25/2014	216	209	253	44	0.0	0%	4/25/2015	581	581	2780	2199	0.0	0%
4/26/2012	253	237	321	84			4/26/2013	49.7	49.7	74	24.3	0.0	0%	4/26/2014	253	253	311	58	0.0	0%	4/26/2015	612	612	856	244	0.0	0%
4/27/2012	270	264	456	192			4/27/2013	71.2	71.2	99.4	28.2	0.0	0%	4/27/2014	310	310	685	375	0.0	0%	4/27/2015	862	862	1130	268	0.0	0%
4/28/2012	389	165	389	224			4/28/2013	94.5	94.5	149	54.5	0.0	0%	4/28/2014	683	592	688	96	0.0	0%	4/28/2015	997	895	997	102	0.0	0%
4/29/2012	161	135	214	79			4/29/2013	138	92.8	171	78.2	0.0	0%	4/29/2014	598	478	610	132	0.0	0%	4/29/2015	904	778	1000	222	0.0	0%
4/30/2012	129	124	303	179			4/30/2013	127	81.7	147	65.3	0.0	0%	4/30/2014	484	470	555	85	0.0	0%	4/30/2015	988	988	1100	112	0.0	0%
5/1/2012	269	269	480	211			5/1/2013	111	76.3	131	54.7	0.0	0%	5/1/2014	540	507	550	43	0.0	0%	5/1/2015	1080	1080	1150	70	0.0	0%
5/2/2012	424	424	541	117			5/2/2013	76.3	45.7	76.3	30.6	0.0	0%	5/2/2014	524	495	524	29	0.0	0%	5/2/2015	1150	1080	1220	140	0.0	0%
5/3/2012	500	500	599	99			5/3/2013	47.6	47.1	91.1	44	0.0	0%	5/3/2014	490	486	538	52	0.0	0%	5/3/2015	1080	1040	1170	130	0.0	0%
5/4/2012	530	530	647	117			5/4/2013	98	62.1	195	132.9	0.0	0%	5/4/2014	524	524	626	102	0.0	0%	5/4/2015	1060	1060	1130	70	0.0	0%
5/5/2012	541	541	906	365			5/5/2013	170	114	200	86	0.0	0%	5/5/2014	616	616	874	258	0.0	0%	5/5/2015	1140	1130	1220	90	0.0	0%
5/6/2012	591	586	747	161			5/6/2013	204	138	222	84	0.0	0%	5/6/2014	890	890	971	81	0.0	0%	5/6/2015	1210	1210	1300	90	0.0	0%
5/7/2012	591	532	606	74			5/7/2013	138	96.6	153	56.4	0.0	0%	5/7/2014	957	957	1100	143	0.0	0%	5/7/2015	1300	1300	1640	340	0.0	0%
5/8/2012	527	210	532	322			5/8/2013	105	96.6	126	29.4	0.0	0%	5/8/2014	1140	1140	1210	70	0.0	0%	5/8/2015	1630	1620	1900	280	0.0	0%
5/9/2012	210	210	274	64			5/9/2013	122	122	206	84	0.0	0%	5/9/2014	1230	1140	1280	140	0.0	0%	5/9/2015	1920	1920	2770	850	0.0	0%
5/10/2012	210	206	378	172			5/10/2013	206	158	226	68	0.0	0%	5/10/2014	1090	979	1090	111	0.0	0%	5/10/2015	2780	2590	2810	220	0.0	0%
5/11/2012	276	269	422	153			5/11/2013	215	127	219	92	0.0	0%	5/11/2014	995	995	1100	105	0.0	0%	5/11/2015	2580	2300	2580	280	0.0	0%
5/12/2012	356	297	356	59			5/12/2013	131	131	297	166	0.0	0%	5/12/2014	1010	868	1010	142	0.0	0%	5/12/2015	2360	2180	2370	190	0.0	0%
5/13/2012	291	261	327	66			5/13/2013	303	303	475	172	0.0	0%	5/13/2014	863	774	863	89	0.0	0%	5/13/2015	2170	2140	2190	50	0.0	0%
5/14/2012	256	205	264	59			5/14/2013	485	485	580	95	0.0	0%	5/14/2014	823	801	843	42	0.0	0%	5/14/2015	2150	2030	2180	150	0.0	0%
5/15/2012	199	199	315	116			5/15/2013	582	582	859	277	0.0	0%	5/15/2014	557	557	655	98	0.0	0%	5/15/2015	2020	2000	2050	50	0.0	0%
5/16/2012	248	248	430	182			5/16/2013	728	520	728	208	0.0	0%	5/16/2014	657	657	784	127	0.0	0%	5/16/2015	2000	1820	2000	180	0.0	0%
5/17/2012	351	343	384	41			5/17/2013	552	552	1030	478	0.0	0%	5/17/2014	796	796	1000	204	0.0	0%	5/17/2015	1830	1720	1840	120	0.0	0%
5/18/2012	340	335	555	220			5/18/2013	694	694	1100	406	0.0	0%	5/18/2014	1020	1020	1170	150	0.0	0%	5/18/2015	1710	1650	1710	60	0.0	0%
5/19/2012	448	444	529	85			5/19/2013	702	524	719	195	0.0	0%	5/19/2014	1160	1160	1360	200	0.0	0%	5/19/2015	1720	1720	2350	630	0.0	0%
5/20/2012	503	444																									

8/12/2012	106	105	258	153			8/12/2013	253	145	253	108	1.0	0%	8/12/2014	694	655	719	64	4.0	1%	8/12/2015	349	343	360	17	0.0	0%
8/13/2012	258	258	280	22			8/13/2013	161	149	199	50	1.0	1%	8/13/2014	640	600	640	40	4.0	1%	8/13/2015	354	349	380	31	0.8	0%
8/14/2012	280	264	280	16			8/14/2013	192	192	212	20	1.0	1%	8/14/2014	616	616	706	90	3.3	1%	8/14/2015	395	343	395	52	1.0	0%
8/15/2012	264	243	264	21			8/15/2013	196	192	258	66	1.0	1%	8/15/2014	655	572	655	83	8.3	1%	8/15/2015	344	288	344	56	1.0	0%
8/16/2012	243	243	253	10			8/16/2013	258	243	258	15	1.0	0%	8/16/2014	616	559	655	96	7.7	1%	8/16/2015	288	252	366	114	1.0	0%
8/17/2012	253	187	253	66			8/17/2013	248	248	258	10	0.3	0%	8/17/2014	595	595	666	71	6.0	1%	8/17/2015	292	237	292	55	1.0	0%
8/18/2012	197	187	197	10			8/18/2013	253	243	258	15	0.0	0%	8/18/2014	616	578	616	38	6.0	1%	8/18/2015	237	213	237	24	2.5	1%
8/19/2012	187	187	265	78			8/19/2013	243	240	243	3	0.0	0%	8/19/2014	586	568	606	38	8.7	1%	8/19/2015	221	218	227	9	3.0	1%
8/20/2012	272	272	309	37			8/20/2013	238	142	238	96	0.0	0%	8/20/2014	592	553	608	55	10.0	2%	8/20/2015	218	208	242	34	3.0	1%
8/21/2012	309	269	309	40			8/21/2013	142	138	142	4	0.0	0%	8/21/2014	553	538	561	23	10.0	2%	8/21/2015	227	182	227	45	3.0	1%
8/22/2012	269	187	269	82			8/22/2013	138	134	142	8	0.0	0%	8/22/2014	538	468	538	70	10.0	2%	8/22/2015	182	161	182	21	3.0	2%
8/23/2012	192	179	192	13			8/23/2013	142	142	298	156	0.0	0%	8/23/2014	450	416	468	52	6.3	1%	8/23/2015	161	128	161	33	3.0	2%
8/24/2012	183	51.7	183	131.3			8/24/2013	222	165	222	57	0.0	0%	8/24/2014	414	414	546	132	5.0	1%	8/24/2015	131	120	131	11	3.0	2%
8/25/2012	50.7	43.3	50.7	7.4			8/25/2013	165	163	269	106	0.0	0%	8/25/2014	516	488	608	120	8.3	2%	8/25/2015	120	115	120	5	1.5	1%
8/26/2012	43.8	38.3	43.8	5.5			8/26/2013	269	269	282	13	0.0	0%	8/26/2014	634	475	634	159	10.0	2%	8/26/2015	116	112	116	4	1.0	1%
8/27/2012	38.3	25	38.4	13.4			8/27/2013	269	174	269	95	0.0	0%	8/27/2014	522	475	528	53	10.0	2%	8/27/2015	115	115	123	8	1.0	1%
8/28/2012	38.8	34.2	43.3	9.1			8/28/2013	178	172	206	34	0.0	0%	8/28/2014	518	402	518	116	10.0	2%	8/28/2015	115	115	156	41	1.0	1%
8/29/2012	41	25.2	43.8	18.6			8/29/2013	209	185	214	29	0.0	0%	8/29/2014	397	307	397	90	5.5	1%	8/29/2015	134	64.2	134	69.8	1.0	1%
8/30/2012	24.9	21.8	37.5	15.7			8/30/2013	197	119	197	78	0.0	0%	8/30/2014	302	266	307	41	4.0	1%	8/30/2015	64.2	51.7	64.2	12.5	1.0	2%
8/31/2012	38.3	38.3	74	35.7			8/31/2013	118	112	127	15	0.0	0%	8/31/2014	270	262	296	34	4.0	1%	8/31/2015	50.8	20.9	50.8	29.9	1.0	2%
9/1/2012	65.8	40.1	65.8	25.7	0.0	0%	9/1/2013	121	108	157	49	0.0	0%	9/1/2014	288	235	550	315	4.0	1%	9/1/2015	26.7	26.7	40.2	13.5	1.0	4%
9/2/2012	53.9	47.6	58.4	10.8	0.0	0%	9/2/2013	136	77.4	136	58.6	0.0	0%	9/2/2014	544	490	544	54	7.3	1%	9/2/2015	38.6	33.9	48.9	15	1.0	3%
9/3/2012	45.7	41.4	197	155.6	0.0	0%	9/3/2013	76.3	43.8	76.3	32.5	0.0	0%	9/3/2014	488	475	492	17	3.0	1%	9/3/2015	47.1	45.8	56.4	10.6	1.0	2%
9/4/2012	192	187	197	10	0.0	0%	9/4/2013	43.8	25.2	74	48.8	1.5	3%	9/4/2014	475	472	497	25	0.0	0%	9/4/2015	56.9	56.9	109	52.1	1.0	2%
9/5/2012	187	185	236	51	0.0	0%	9/5/2013	71.2	71.2	91.1	19.9	2.5	4%	9/5/2014	500	290	500	210	0.0	0%	9/5/2015	99.1	81.1	99.1	18	1.0	1%
9/6/2012	225	210	225	15	0.0	0%	9/6/2013	98.1	84.6	552	467.4	2.5	3%	9/6/2014	312	223	312	89	0.0	0%	9/6/2015	94.3	91.9	213	121.1	1.0	1%
9/7/2012	190	157	190	33	0.0	0%	9/7/2013	153	124	153	29	2.5	2%	9/7/2014	258	114	258	144	0.0	0%	9/7/2015	213	187	213	26	1.0	0%
9/8/2012	174	81	175	94	0.0	0%	9/8/2013	124	124	148	24	2.5	2%	9/8/2014	109	103	189	86	0.0	0%	9/8/2015	190	182	195	13	1.0	1%
9/9/2012	79.2	59.2	143	83.8	0.0	0%	9/9/2013	151	151	185	34	2.5	2%	9/9/2014	180	174	218	44	0.0	0%	9/9/2015	182	135	182	47	1.0	1%
9/10/2012	62.1	58.4	76.3	17.9	0.0	0%	9/10/2013	187	165	192	27	2.5	1%	9/10/2014	221	221	353	132	0.0	0%	9/10/2015	136	125	136	11	1.0	1%
9/11/2012	58.4	50.2	58.4	8.2	0.0	0%	9/11/2013	170	170	698	528	2.5	1%	9/11/2014	323	235	323	88	0.0	0%	9/11/2015	125	117	125	8	1.0	1%
9/12/2012	58.4	53.4	96.2	42.8	0.0	0%	9/12/2013	1140	1140	6360	5220	0.7	0%	9/12/2014	235	207	235	28	0.0	0%	9/12/2015	117	62.3	139	76.7	0.3	0%
9/13/2012	65.8	64.3	95.6	31.3	0.0	0%	9/13/2013	6360	4960	6360	1400	0.0	0%	9/13/2014	207	204	219	15	0.0	0%	9/13/2015	60.8	42.8	85.6	42.8	0.0	0%
9/14/2012	83.4	71.2	83.4	12.2	0.0	0%	9/14/2013	4740	3200	4740	1540	0.0	0%	9/14/2014	203	203	318	115	0.0	0%	9/14/2015	39.4	25.7	64.2	38.5	0.0	0%
9/15/2012	69.2	48.6	71.5	22.9	0.0	0%	9/15/2013	3590	3220	3720	500	0.0	0%	9/15/2014	312	296	316	20	0.0	0%	9/15/2015	62.8	48.9	65.2	16.3	0.0	0%
9/16/2012	63.3	58.4	63.3	4.9	0.0	0%	9/16/2013	3740	2950	3800	850	0.0	0%	9/16/2014	328	306	329	23	0.0	0%	9/16/2015	66.3	52.2	68.3	16.1	0.0	0%
9/17/2012	59	51.7	60.8	9.1	0.0	0%	9/17/2013	2920	2260	2920	660	0.0	0%	9/17/2014	307	306	318	12	0.0	0%	9/17/2015	51.2	35	56.9	21.9	0.0	0%
9/18/2012	51.7	51.7	60.8	9.1	0.0	0%	9/18/2013	2300	1760	2300	540	0.0	0%	9/18/2014	318	110	318	208	0.0	0%	9/18/2015	52.2	38.6	60.3	21.7	0.0	0%
9/19/2012	53.9	49.7	53.9	4.2	0.0	0%	9/19/2013	1780	1470	1800	330	0.0	0%	9/19/2014	104	68.9	105	36.1	0.0	0%	9/19/2015	38.6	32.4	48.2	10.4	0.0	0%
9/20/2012	49.7	45.7	49.7	4	0.0	0%	9/20/2013	1460	1190	1460	270	0.0	0%	9/20/2014	105	98.4	172	73.6	0.0	0%	9/20/2015	32.4	30.9	42.3	11.4	0.0	0%
9/21/2012	45.7	43.8	45.7	1.9	0.0	0%	9/21/2013	1190	977	1190	213	0.0	0%	9/21/2014	171	171	192	21	0.0	0%	9/21/2015	38.6	37	78.9	41.9	0.0	0%
9/22/2012	43.8	43.8	43.8	0	0.0	0%	9/22/2013	971	842	971	129	0.0	0%	9/22/2014	192	171	211	40	0.0	0%	9/22/2015	74.6	64.2	74.6	10.4	0.0	0%
9/23/2012	43.8	43.8	43.8	0	0.0	0%	9/23/2013	859	765	920	155	0.0	0%	9/23/2014	192	161	192	31	0.0	0%	9/23/2015	64.2	64.2	68.3	4.1	0.0	0%
9/24/2012	43.8	41.9	47.6	5.7	0.0	0%	9/24/2013	756	581	756	175	0.0	0%	9/24/2014	161	100	161	61	0.0	0%	9/24/2015	66.3	64.2	69.3	5.1	0.0	0%
9/25/2012	47.6	42.8	47.6	4.8	0.0	0%	9/25/2013	573	510	577	67	0.0	0%	9/25/2014	100	80.1	116	35.9	0.0	0%	9/25/2015	64.2	51.2	64.2	13	0.0	0%
9/26/2012	47.6	45.7	74.4	28.7	0.0	0%	9/26/2013	530	421	530	109	0.0	0%	9/26/2014	78.4	68.9	78.4	9.5	0.0	0%	9/26/2015	49.4	45.4	52.6	7.2	0.0	0%
9/27/2012	69.2	69.2	117	47.8	0.0	0%	9/27/2013	421	362	421	59	0.0	0%	9/27/2014	65.9	63.1	132	68.9	0.0	0%	9/27/2015	48.9	47.1	48.9	1.8	0.0	0%
9/28/2012	78.6	74	92.6	18.6	0.0	0%	9/28/2013	359	354	368	14	0.0	0%	9/28/2014	131	131	142	11	0.0	0%	9/28/2015	46.2	45.4	60.3	14.9	0.0	0%
9/29/2012	76.3	74	114	40	23.8	31%	9/29/2013	354	335	354	19	0.0	0%	9/29/2014	144	144	184	40	0.0	0%	9/29/2015	50.8	50.8	62.3	11.5	0.0	0%
9/30/2012	113	111	118	7	47.5	42%	9/30/2013	335	177	335	158	0.0	0%	9/30/2014	197	197	257	60	0.0	0%	9/30/2015	58.9	58.4	64.2	5.8	0.0	0%
10/1/2012	114	105	114	9	53.3	47%	10/1/2013	172	47.4	172	124.6	0.0	0%	10/1/2014	245	187	245	58									

Structure Summary Report								HydroBase	
State of Colorado									
Structure Name:		NORTH POUDRE SUPPLY CNL				Water District: 3		Structure ID Number: 905	
Source:		Cache la Poudre River							
Location:		Q10	Q40	Q160	Section	Twnshp	Range	PM	
		SW	SW	NE	5	8N	70W	S	
Distance From Section Lines:		From N/S Line:			From E/W Line:				
UTM Coordinates (NAD 83):		Northing (UTM y):		4504558		Easting (UTM x):		478442	
Latitude/Longitude (decimal degrees):				40.691636				Spotted from PLSS distances from section lines	
								-105.255147	
Water Rights Summary:		Total Decreed Rate(s) (CFS):			Absolute:		273.7000		Conditional: 384.3000
									AP/EX: 732.6646
		Total Decreed Volume(s) (AF):			Absolute:		0.0000		Conditional: 0.0000
									AP/EX: 7579.6750

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Water Rights -- Transactions									
Case Number	Adjudication Date	Appropriation Date	Administration Number	Order Number	Priority Number	Decreed Amount	Adjudication Type	Uses	Action Comment
05CW0323	1882-04-11	1861-06-01	4170.00000	0		0.0784 C	O,AP	2	ALTERNATE POINT TO FORT COLLINS IRRIGATION
92CW0129	1882-04-11	1861-06-01	4170.00000	0		0.1984 C	O,AP	2	ALTERNATE POINT TO FORT COLLINS IRRIGATION
W1424	1882-04-11	1861-06-01	4170.00000	0		0.0925 C	O,AP	128	ALT PT TO FT COLLINS IRR CNL
80CW0193	1882-04-11	1861-09-01	4262.00000	0		0 C	O,AP	1248	ALT PT TO PLEASANT VALLEY LAKE CNL SEE DCR FOR
03CW0421	1882-04-11	1862-03-01	4443.00000	0		0.1390 C	O,AP	X	NWCWD APOD TO LARIMER COUNTY DITCH
03CW0422	1882-04-11	1862-03-01	4443.00000	0		0.4002 C	O,AP	102543678	ELCO ALTERNATE POINT TO LARIMER COUNTY CANAL
07CW0190	1882-04-11	1862-03-01	4443.00000	0		0.4040 C	O,AP	2	ALTERNATE POINT TO LARIMER COUNTY DITCH
80CW0193	1882-04-11	1864-06-10	5275.00000	0		0 C	O,AP	1248	ALT PT TO PLEASANT VALLEY LAKE CNL SEE DCR FOR
03CW0421	1882-04-11	1864-09-15	5372.00000	0		0.1790 C	O,AP	X	NWCWD APOD TO LARIMER COUNTY DITCH
03CW0422	1882-04-11	1864-09-15	5372.00000	0		0.5167 C	O,AP	102543678	ELCO ALTERNATE POINT TO LARIMER COUNTY CANAL
07CW0190	1882-04-11	1864-09-15	5372.00000	0		0.5210 C	O,AP	2	ALTERNATE POINT TO LARIMER COUNTY DITCH
09CW0282	1882-04-11	1865-04-10	5579.00000	0		1.8100 C	O,AP	2	ALT PT TO OVERLAND TRAIL DIVERSION OF COY DITCH
13CW3166	1882-04-11	1865-04-10	5579.00000	0		0.8000 C	O,AP	2	ALT PT TO OVERLAND TRAIL DIVERSION OF COY DITCH
05CW0264	1882-04-11	1865-05-01	5600.00000	0		2.0300 C	O,AP	X2	ALT PT TO LARIMER COUNTY NO 2 D; TRI-DISTRICTS
05CW0323	1882-04-11	1866-07-01	6026.00000	0		0.2358 C	O,AP	2	ALTERNATE POINT TO FORT COLLINS IRRIGATION
92CW0129	1882-04-11	1866-07-01	6026.00000	0		0.5967 C	O,AP	2	ALTERNATE POINT TO FORT COLLINS IRRIGATION
W1424	1882-04-11	1866-07-01	6026.00000	0		0.2783 C	O,AP	128	FT COLLINS IRR CNL
05CW0323	1882-04-11	1867-10-01	6483.00000	0		1.6608 C	O,AP	2	ALTERNATE POINT TO NEW MERCER DITCH; FORT
92CW0129	1882-04-11	1867-10-01	6483.00000	0		1.8953 C	O,AP	2	ALTERNATE POINT TO NEW MERCER DITCH; FORT
W1424	1882-04-11	1867-10-01	6483.00000	0		0.6406 C	O,AP	128	ALT PT TO NEW MERCER DITCH
03CW0421	1882-04-11	1868-03-15	6649.00000	0		0.0600 C	O,AP	X	NWCWD APOD TO LARIMER COUNTY DITCH
03CW0422	1882-04-11	1868-03-15	6649.00000	0		0.0744 C	O,AP	102534876	ELCO ALTERNATE POINT TO LARIMER COUNTY CANAL
03CW0422	1882-04-11	1868-03-15	6649.00000	0		0.0993 C	O,AP	102543687	ELCO ALTERNATE POINT TO LARIMER COUNTY CANAL
07CW0190	1882-04-11	1868-03-15	6649.00000	0		0.0750 C	O,AP	2	ALTERNATE POINT TO LARIMER COUNTY DITCH
07CW0190	1882-04-11	1868-03-15	6649.00000	0		0.1000 C	O,AP	2	ALTERNATE POINT TO LARIMER COUNTY DITCH
05CW0323	1882-04-11	1868-06-01	6727.00000	0		0.2358 C	O,AP	2	ALTERNATE POINT TO FORT COLLINS IRRIGATION
92CW0129	1882-04-11	1868-06-01	6727.00000	0		0.5967 C	O,AP	2	ALTERNATE POINT TO FORT COLLINS IRRIGATION
W1424	1882-04-11	1868-06-01	6727.00000	0		0.2783 C	O,AP	128	FT COLLINS IRR CNL
05CW0323	1882-04-11	1869-06-01	7092.00000	0		0.1819 C	O,AP	2	ALTERNATE POINT TO FORT COLLINS IRRIGATION
92CW0129	1882-04-11	1869-06-01	7092.00000	0		0.4603 C	O,AP	2	ALTERNATE POINT TO FORT COLLINS IRRIGATION
W1424	1882-04-11	1869-06-01	7092.00000	0		0.2145 C	O,AP	128	FT COLLINS IRR CNL
05CW0323	1882-04-11	1869-09-01	7184.00000	0		0.6925 C	O,AP	2	ALTERNATE POINT TO NEW MERCER DITCH; FORT
92CW0129	1882-04-11	1869-09-01	7184.00000	0		1.1242 C	O,AP	2	ALTERNATE POINT TO NEW MERCER DITCH; FORT
W1424	1882-04-11	1869-09-01	7184.00000	0		0.3800 C	O,AP	128	NEW MERCER DITCH
05CW0323	1882-04-11	1871-04-01	7761.00000	0		3.4498 C	O,AP	2	ALTERNATE POINT TO FORT COLLINS IRRIGATION
92CW0129	1882-04-11	1871-04-01	7761.00000	0		8.7289 C	O,AP	2	ALTERNATE POINT TO FORT COLLINS IRRIGATION
W1424	1882-04-11	1871-04-01	7761.00000	0		4.0670 C	O,AP	128	FT COLLINS IRR CNL
05CW0323	1882-04-11	1871-10-10	7953.00000	0		1.3834 C	O,AP	2	ALTERNATE POINT TO NEW MERCER DITCH; FORT
92CW0129	1882-04-11	1871-10-10	7953.00000	0		2.2457 C	O,AP	2	ALTERNATE POINT TO NEW MERCER DITCH; FORT
W1424	1882-04-11	1871-10-10	7953.00000	0		0.7591 C	O,AP	128	ALT PT TO NEW MERCER DITCH
80CW0288	1882-04-11	1872-03-10	8105.00000	0		0 C	O,AP	1248	ALT PT TO CHAFFEE IRR D FOR EXCHANGE
05CW0323	1882-04-11	1872-07-01	8218.00000	0		2.2412 C	O,AP	2	ALTERNATE POINT TO NEW MERCER DITCH; FORT
92CW0129	1882-04-11	1872-07-01	8218.00000	0		4.0440 C	O,AP	2	ALTERNATE POINT TO NEW MERCER DITCH; FORT
W1424	1882-04-11	1872-07-01	8218.00000	0		1.3669 C	O,AP	128	ALT PT TO NEW MERCER DITCH
80CW0193	1882-04-11	1872-07-19	8236.00000	0		0 C	O,AP	1248	ALT PT TO PLEASANT VALLEY LAKE CNL SEE DCR FOR
05CW0323	1882-04-11	1872-07-20	8237.00000	0		3.6307 C	O,AP	2	ALTERNATE POINT TO FORT COLLINS IRRIGATION
92CW0129	1882-04-11	1872-07-20	8237.00000	0		5.0521 C	O,AP	2	ALTERNATE POINT TO FORT COLLINS IRRIGATION
03CW0421	1882-04-11	1873-03-20	8480.00000	0		0.0520 C	O,AP	X	NWCWD APOD TO LARIMER COUNTY DITCH
03CW0422	1882-04-11	1873-03-20	8480.00000	0		0.1488 C	O,AP	10253476A	ELCO ALTERNATE POINT TO LARIMER COUNTY CANAL

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07CW0190	1882-04-11	1873-03-20	8480.00000	0	0.1500 C	O,AP	2	ALTERNATE POINT TO LARIMER COUNTY DITCH
05CW0323	1882-04-11	1873-04-01	8492.00000	0	28.0767 C	O,AP	2	ALTERNATE POINT TO LARIMER COUNTY NO 2 DITCH;
92CW0129	1882-04-11	1873-04-01	8492.00000	0	68.6991 C	O,AP	2	ALTERNATE POINT TO LARIMER COUNTY NO 2 DITCH;
W1424	1882-04-11	1873-04-01	8492.00000	0	10.6939 C	O,AP	128	ALT PT TO LARIMER C NO 2 IRR D
05CW0323	1882-04-11	1873-09-01	8645.00000	0	6.8932 C	O,AP	2	ALTERNATE POINT TO FORT COLLINS IRRIGATION
92CW0129	1882-04-11	1873-09-01	8645.00000	0	14.4095 C	O,AP	2	ALTERNATE POINT TO FORT COLLINS IRRIGATION
W1424	1882-04-11	1873-09-01	8645.00000	0	2.3539 C	O,AP	148	FT COLLINS IRR CNL
W1424	1882-04-11	1873-09-01	8645.00000	0	6.7137 C	O,AP	128	ALT PT TO FT COLLINS IRR CNL
05CW0323	1882-04-11	1875-04-15	9236.00000	0	91.5384 AF	O,AP	2	ALTERNATE POINT TO WARREN LAKE RESERVOIR;
92CW0129	1882-04-11	1875-04-15	9236.00000	0	184.2118 AF	O,AP	2	ALTERNATE POINT TO WARREN LAKE RESERVOIR;
92CW0129	1904-12-09	1875-04-15	9236.00000	0	573.8049 AF	O,AP	2	ALTERNATE POINT TO WARREN LAKE RESERVOIR;
03CW0421	1882-04-11	1878-04-01	10318.00000	0	0.0930 C	O,AP	X	NWCWD APOD TO LARIMER COUNTY DITCH
03CW0422	1882-04-11	1878-04-01	10318.00000	0	0.2690 C	O,AP	102543678	ELCO ALTERNATE PIONT TO LARIMER COUNTY CANAL
07CW0190	1882-04-11	1878-04-01	10318.00000	0	0.2710 C	O,AP	2	ALTERNATE POINT TO LARIMER COUNTY DITCH
80CW0193	1882-04-11	1879-08-18	10822.00000	0	0 C	O,AP	1248	ALT PT TO PLEASANT VALLEY LAKE CNL SEE DCR FOR
W0560	1882-04-11	1880-02-01	10989.00000	0	200.0000 C	O,AP	1	ALT PT TO NORTH POUDE SUPPLY CANAL
05CW0323	1882-04-11	1880-02-15	11003.00000	0	8.3819 C	O,AP	2	ALTERNATE POINT TO NEW MERCER DITCH; FORT
92CW0129	1882-04-11	1880-02-15	11003.00000	0	13.6066 C	O,AP	2	ALTERNATE POINT TO NEW MERCER DITCH; FORT
W1424	1882-04-11	1880-02-15	11003.00000	0	12.3929 C	O,AP	128	ALT PT TO NEW MERCER DITCH
03CW0421	1882-04-11	1881-04-25	11438.00000	0	5.9800 C	O,AP	X	NWCWD APOD TO LARIMER COUNTY DITCH
03CW0422	1882-04-11	1881-04-25	11438.00000	0	17.2236 C	O,AP	102543678	ELCO ALTERNATE POINT TO LARIMER COUNTY CANAL
07CW0190	1882-04-11	1881-04-25	11438.00000	0	17.3600 C	O,AP	2	ALTERNATE POINT TO LARIMER COUNTY DITCH
05CW0323	1882-04-11	1893-01-10	15716.00000	0	285.1349 AF	O,AP	2	ALTERNATE POINT TO WARREN LAKE RESERVOIR;
05CW0323	1922-04-22	1908-07-27	21392.00000	0	150.9646 AF	S,AP	2	ALTERNATE POINT TO WARREN LAKE RESERVOIR;
92CW0129	1922-04-22	1908-07-27	21392.00000	0	303.8009 AF	S,AP	2	ALTERNATE POINT TO WARREN LAKE RESERVOIR;
03CW0421	1945-12-18	1914-09-28	23646.00000	0	3.1830 C	O,AP	X	NWCWD APOD TO LARIMER COUNTY DITCH
03CW0422	1945-12-18	1914-09-28	26409.23646	0	9.1679 C	S,AP	102543678	ELCO ALTERNATE POINT TO LARIMER COUNTY CANAL
07CW0190	1945-12-18	1914-09-28	26409.23646	0	9.2400 C	S,AP	2	ALTERNATE POINT TO LARIMER COUNTY DITCH
05CW0323	1953-09-10	1872-07-01	35050.08218	0	4.5671 C	S,AP	2	ALTERNATE POINT TO NEW MERCER DITCH SPRING
92CW0129	1953-09-10	1872-07-01	35050.08218	0	7.4139 C	S,AP	2	ALTERNATE POINT TO NEW MERCER DITCH SPRING
05CW0323	1953-09-10	1873-04-01	35050.08492	0	28.0767 C	S,AP	2	ALTERNATE POINT TO LARIMER COUNTY NO 2 SPRING
92CW0129	1953-09-10	1873-04-01	35050.08492	0	68.6991 C	S,AP	2	ALTERNATE POINT TO LARIMER COUNTY NO 2 SPRING
05CW0323	1953-09-10	1879-05-24	35050.10736	0	15.4452 C	S,AP	2	ALTERNATE POINT TO MAIL CREEK DITCH; FORT
92CW0129	1953-09-10	1879-05-24	35050.10736	0	25.0726 C	S,AP	2	ALTERNATE POINT TO MAIL CREEK DITCH; FORT
05CW0323	1953-09-10	1880-02-15	35050.11003	0	22.5866 C	S,AP	2	ALTERNATE POINT TO NEW MERCER DITCH SPRING
92CW0129	1953-09-10	1880-02-15	35050.11003	0	36.6653 C	S,AP	2	ALTERNATE POINT TO NEW MERCER DITCH SPRING
CA11217	1953-09-10	1943-01-12	35050.33979	0	202.0000 C	S,CA	1	MADE ABS 09/10/1960 AKA ED MONROE GRAVITY CNL
CA11217	1953-09-10	1943-01-12	35050.33979	0	250.0000 C	S,C	1	1045 ASP 2160 W-3194 AKA ED MONROE GRAVITY CNL
W3194	1953-09-10	1943-01-12	35050.33979	0	48.0000 C	S,CA	1	MADE ABS 11/10/1975 AKA ED MONROE GRAVITY CNL
W0105	1970-12-31	1943-01-12	43829.33979	0	48.0000 C	S,C	1	AKA ED MUNROE GRAVITY CANAL 87CW332
05CW0323	1978-12-31	1906-08-04	46751.20669	0	38.1899 AF	S,AP	2	ALTERNATE POINT TO SHERWOOD RESERVOIR; FORT
92CW0129	1978-12-31	1906-08-04	46751.20669	0	96.6296 AF	S,AP	2	ALTERNATE POINT TO SHERWOOD RESERVOIR; FORT
03CW0405	1980-12-31	1980-05-02	47604.00000	0	3000.0000 C	S,C,AP	0	ALT PT TO GREY MTN RES FOR STRG IN GLADE MTN
92CW0130	1992-12-31	1992-12-11	52210.00000	0	250.0000 C	S,C,EX	X	EXCH FM N POUDE RES 16 AKA HALLIGAN
92CW0130	1992-12-31	1992-12-11	52210.00000	0	150.0000 C	S,C,EX	X	EXCH FM N POUDE CNL
92CW0130	1992-12-31	1992-12-11	52210.00000	0	250.0000 C	S,C,EX	X	EXCH FM MILTON SEAMAN RES
92CW0130	1992-12-31	1992-12-11	52210.00000	0	250.0000 C	S,C,EX	X	EXCH FM FOSSIL CR RES INLET
92CW0130	1992-12-31	1992-12-11	52210.00000	0	85.0000 C	S,C,EX	X	EXCH FM CACHE LA POUDE RES INLET
92CW0130	1992-12-31	1992-12-11	52210.00000	0	250.0000 C	S,C,EX	X	EXCH FM LARIMER & WELD IRR CNL
92CW0130	1992-12-31	1992-12-11	52210.00000	0	250.0000 C	S,C,EX	X	EXCH FM FOSSIL CR RES
92CW0130	1992-12-31	1992-12-11	52210.00000	0	250.0000 C	S,C,EX	X	EXCH FM HORSETOOTH RES
92CW0130	1992-12-31	1992-12-11	52210.00000	0	80.0000 C	S,C,EX	X	EXCH FM CACHE LA POUDE DITCH

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92CW0130	1992-12-31	1992-12-11	52210.00000	0	250.0000	C	S,C,EX	X	EXCH FM NEW CACHE LA POUDRE CNL
92CW0130	1992-12-31	1992-12-11	52210.00000	0	250.0000	C	S,C,EX	X	EXCH FM GREY MTN RES
92CW0130	1992-12-31	1992-12-11	52210.00000	0	250.0000	C	S,C,EX	X	EXCH FM POUDRE VLY CNL
02CW0225	1992-12-31	1992-12-18	52217.00000	0	11.5600	C	S,CA,EX	1234568AW	EXCH FM FOSSIL CR RES MADE ABS 5/19/2009
02CW0225	1992-12-31	1992-12-18	52217.00000	0	3.0000	C	S,CA,EX	1234568AW	EXCH FM CLAYMORE LK MADE ABS 5/19/2009
05CW0323	2005-12-31	1992-12-18	52217.00000	0	250.0000	C	O,C,EX	2	EXCH FM POUDRE VALLEY CANAL; FORT COLLINS
05CW0323	2005-12-31	1992-12-18	52217.00000	0	18.0000	C	O,C,EX	2	EXCH FM GREELEY PIPELINE; FORT COLLINS
05CW0323	2005-12-31	1992-12-18	52217.00000	0	250.0000	C	O,C,EX	2	EXCH FM LARIMER COUNTY CANAL; FORT COLLINS
05CW0323	2005-12-31	1992-12-18	52217.00000	0	27.0000	C	O,C,EX	2	EXCH FM NEW MERCER DITCH; FORT COLLINS
05CW0323	2005-12-31	1992-12-18	52217.00000	0	81.0000	C	O,C,EX	2	EXCH FM LARIMER COUNTY NO 2 CANAL; FORT
05CW0323	2005-12-31	1992-12-18	52217.00000	0	36.0000	C	O,C,EX	2	EXCH FM FT COLLINS IRRIGATION CANAL AKA ARTHUR
05CW0323	2005-12-31	1992-12-18	52217.00000	0	250.0000	C	O,C,EX	2	EXCH FM LARIMER AND WELD CANAL; FORT COLLINS
05CW0323	2005-12-31	1992-12-18	52217.00000	0	150.0000	C	O,C,EX	2	EXCH FM LAKE CANAL; FORT COLLINS
05CW0323	2005-12-31	1992-12-18	52217.00000	0	150.0000	C	O,C,EX	2	EXCH FM NORTH POUDRE CANAL; FORT COLLINS
05CW0323	2005-12-31	1992-12-18	52217.00000	0	26.0000	C	O,C,EX	2	EXCH FM FT COLLINS WWTP#2; FORT COLLINS
05CW0323	2005-12-31	1992-12-18	52217.00000	0	7.0000	C	O,C,EX	2	EXCH FM FT COLLINS WWTP#1; FORT COLLINS
05CW0323	2005-12-31	1992-12-18	52217.00000	0	18.0000	C	O,C,EX	2	EXCH FM FT COLLINS WWTP#3; FORT COLLINS
05CW0323	2005-12-31	1992-12-18	52217.00000	0	15.0000	C	O,C,EX	2	EXCH FM SHERWOOD LAKE; FORT COLLINS
05CW0323	2005-12-31	1992-12-18	52217.00000	0	250.0000	C	O,C,EX	2	EXCH FM HALLIGAN RESERVOIR; FORT COLLINS
05CW0323	2005-12-31	1992-12-18	52217.00000	0	250.0000	C	O,C,EX	2	EXCH FM SEAMAN RESERVOIR; FORT COLLINS
05CW0323	2005-12-31	1992-12-18	52217.00000	0	250.0000	C	O,C,EX	2	EXCH FM FOSSIL CREEK RESERVOIR; FORT COLLINS
05CW0323	2005-12-31	1992-12-18	52217.00000	0	10.0000	C	O,C,EX	2	EXCH FM CLAYMORE LAKE; FORT COLLINS
05CW0323	2005-12-31	1992-12-18	52217.00000	0	40.0000	C	O,C,EX	2	EXCH FM WARREN LAKE; FORT COLLINS
92CW0129	1992-12-31	1992-12-18	52217.00000	0	250.0000	C	S,C,EX	2	EXCH FM HALLIGAN RES; FORT COLLINS
92CW0129	1992-12-31	1992-12-18	52217.00000	0	250.0000	C	S,C,EX	2	EXCH FM SEAMAN RES; FORT COLLINS
92CW0129	1992-12-31	1992-12-18	52217.00000	0	150.0000	C	S,C,EX	2	EXCH FM NORTH POUDRE CNL; FORT COLLINS
92CW0129	1992-12-31	1992-12-18	52217.00000	0	250.0000	C	S,C,EX	2	EXCH FM POUDRE VALLEY CNL; FORT COLLINS
92CW0129	1992-12-31	1992-12-18	52217.00000	0	18.0000	C	S,C,EX	2	EXCH FM GREELEY PL; FORT COLLINS
92CW0129	1992-12-31	1992-12-18	52217.00000	0	250.0000	C	S,C,EX	2	EXCH FM LARIMER CTY CNL; FORT COLLINS
92CW0129	1992-12-31	1992-12-18	52217.00000	0	27.0000	C	S,C,EX	2	EXCH FM NEW MERCER DITCH; FORT COLLINS
92CW0129	1992-12-31	1992-12-18	52217.00000	0	81.0000	C	S,C,EX	2	EXCH FM LARIMER CTY #2 CNL; FORT COLLINS
92CW0129	1992-12-31	1992-12-18	52217.00000	0	10.0000	C	S,C,EX	2	EXCH FM CLAYMORE LK; FORT COLLINS
92CW0129	1992-12-31	1992-12-18	52217.00000	0	36.0000	C	S,C,EX	2	EXCH FM FT COLLINS IRR CNL AKA ARTHUR DITCH;
92CW0129	1992-12-31	1992-12-18	52217.00000	0	250.0000	C	S,C,EX	2	EXCH FM LARIMER AND WELD CNL; FORT COLLINS
92CW0129	1992-12-31	1992-12-18	52217.00000	0	150.0000	C	S,C,EX	2	EXCH FM LAKE CNL; FORT COLLINS
92CW0129	1992-12-31	1992-12-18	52217.00000	0	40.0000	C	S,C,EX	2	EXCH FM WARREN LK; FORT COLLINS
92CW0129	1992-12-31	1992-12-18	52217.00000	0	15.0000	C	S,C,EX	2	EXCH FM SHERWOOD LK; FORT COLLINS
92CW0129	1992-12-31	1992-12-18	52217.00000	0	250.0000	C	S,C,EX	2	EXCH FM FOSSIL CR RES; FORT COLLINS
92CW0129	1992-12-31	1992-12-18	52217.00000	0	7.0000	C	S,C,EX	2	EXCH FM FT COLLINS WWTP#1; FORT COLLINS
92CW0129	1992-12-31	1992-12-18	52217.00000	0	26.0000	C	S,C,EX	2	EXCH FM FT COLLINS WWTP#2; FORT COLLINS
92CW0129	1992-12-31	1992-12-18	52217.00000	0	18.0000	C	S,C,EX	2	EXCH FM FT COLLINS WWTP#3; FORT COLLINS
13CW3037	1998-12-31	1998-08-06	54274.00000	0	5.4000	C	S,CA	12348A	MADE ABSOLUTE
98CW0435	1998-12-31	1998-08-06	54274.00000	0	18.3000	C	S	12348A	
98CW0435	1998-12-31	1998-08-06	54274.00000	0	161.7000	C	S,C	12348A	
00CW0251	2000-12-31	1998-08-06	54786.54274	0	180.0000	C	S,C	1234568AW	FOR STORAGE IN OVERLAND TRAIL RESERVOIRS
00CW0251	2000-12-31	2000-12-31	55152.00000	0	180.0000	C	S,C,EX	1234568AW	EXCH FM OVERLAND TRAIL RESERVOIRS
03CW0421	2003-12-31	2003-12-08	56224.00000	0	3.8000	C	S,C,EX	0X	NWCWD EXCH FM BOXELDER SAN DIST WWTP
03CW0421	2003-12-31	2003-12-08	56224.00000	0	250.0000	C	S,C,EX	0X	NWCWD EXCH FM FOSSIL CREEK RES
03CW0421	2003-12-31	2003-12-08	56224.00000	0	250.0000	C	S,C,EX	0X	NWCWD EXCH FM OVERLAND TRAIL RESERVOIRS
03CW0421	2003-12-31	2003-12-08	56224.00000	0	250.0000	C	S,C,EX	0X	NWCWD EXCH FM HALLIGAN RES
03CW0421	2003-12-31	2003-12-08	56224.00000	0	250.0000	C	S,C,EX	0X	NWCWD EXCH FM MILTON SEAMAN RES
03CW0421	2003-12-31	2003-12-08	56224.00000	0	250.0000	C	S,C,EX	0X	NWCWD EXCH FM WORSTER RES

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03CW0421	2003-12-31	2003-12-08	56224.00000	0	75.0000 C	S,C,EX	0X	NWCWD EXCH FM CONFLUENCE POUDRE & NORTH FK
03CW0422	2003-12-31	2003-12-08	56224.00000	0	1.0000 C	S,C,EX	014253678	ELCO EXCH FM FT COLLINS WWTP NO 1
03CW0422	2003-12-31	2003-12-08	56224.00000	0	1.0000 C	S,C,EX	014253678	ELCO EXCH FM FT COLLINS WWTP NO 2
03CW0422	2003-12-31	2003-12-08	56224.00000	0	3.8000 C	S,C,EX	014253678	ELCO EXCH FM BOXELDER SAN DIST WWTP
03CW0422	2003-12-31	2003-12-08	56224.00000	0	250.0000 C	S,C,EX	014253678	ELCO EXCH FM OVERLAND TRAILS RESERVOIRS
03CW0422	2003-12-31	2003-12-08	56224.00000	0	250.0000 C	S,C,EX	012536748	ELCO EXCH FM HALLIGAN RESERVOIR
03CW0422	2003-12-31	2003-12-08	56224.00000	0	250.0000 C	S,C,EX	025413678	ELCO EXCH FM MILTON SEAMAN RES
03CW0422	2003-12-31	2003-12-08	56224.00000	0	75.0000 C	S,C,EX	012345678	ELCO EXCH FM WORSTER RES
03CW0422	2003-12-31	2003-12-08	56224.00000	0	250.0000 C	S,C,EX	014253678	ELCO EXCH FM FOSSIL CREEK RES
06CW0259	2006-12-31	2006-12-12	57324.00000	0	50.0000 C	S,C,EX	2	EXCH FM MILTON SEAMAN RESERVOIR
06CW0259	2006-12-31	2006-12-12	57324.00000	0	50.0000 C	S,C,EX	2	EXCH FM NORTH POUDRE RES 16
07CW0328	2007-12-31	2005-05-24	57343.56757	0	10.2000 C	S,EX	2	EXCH FM CONFLUENCE CACHE LA POUDRE & NORTH
07CW0328	2007-12-31	2005-07-04	57343.56798	0	10.0000 C	S,EX	2	EXCH FM HANSEN SUPPLY CANAL
07CW0125	2007-12-31	2007-06-06	57500.00000	0	250.0000 C	S,C,EX	2	EXCH FM HALLIGAN RESERVOIR
07CW0125	2007-12-31	2007-06-06	57500.00000	0	250.0000 C	S,C,EX	2	EXCH FM MILTON SEAMAN RESERVOIR
07CW0190	2007-12-31	2007-08-27	57582.00000	0	250.0000 C	S,C,EX	2	EXCH FM SEAMAN RES VIA CONFLUENCE CACHE LA
07CW0190	2007-12-31	2007-08-27	57582.00000	0	100.0000 C	S,C,EX	2	EXCH FM HANSEN SUPPLY CANAL WSSC CBT UNITS
07CW0328	2007-12-31	2007-12-10	57687.00000	0	240.0000 C	S,C,EX	2	EXCH FM HANSEN SUPPLY CANAL
07CW0328	2007-12-31	2007-12-10	57687.00000	0	239.8000 C	S,C,EX	2	EXCH FM CONFLUENCE CACHE LA POUDRE & NORTH
11CW0265	2011-12-31	2011-12-23	59161.00000	0	250.0000 C	S,C,EX	2	FORT COLLINS EXCH FM HALLIGAN RESERVOIR
11CW0265	2011-12-31	2011-12-23	59161.00000	0	150.0000 C	S,C,EX	2	FORT COLLINS EXCH FM NORTH POUDRE CANAL
11CW0265	2011-12-31	2011-12-23	59161.00000	0	250.0000 C	S,C,EX	2	FORT COLLINS EXCH FM SEAMAN RESERVOIR
11CW0265	2011-12-31	2011-12-23	59161.00000	0	250.0000 C	S,C,EX	2	FORT COLLINS EXCH FM POUDRE VALLEY CANAL
11CW0265	2011-12-31	2011-12-23	59161.00000	0	250.0000 C	S,C,EX	2	FORT COLLINS EXCH FM GLADE RESERVOIR
11CW0265	2011-12-31	2011-12-23	59161.00000	0	250.0000 C	S,C,EX	2	FORT COLLINS EXCH FM LARIMER COUNTY DITCH
11CW0265	2011-12-31	2011-12-23	59161.00000	0	50.0000 C	S,C,EX	2	FORT COLLINS EXCH FM JACKSON DITCH
11CW0265	2011-12-31	2011-12-23	59161.00000	0	81.0000 C	S,C,EX	2	FORT COLLINS EXCH FM LARIMER COUNTY CANAL NO
11CW0265	2011-12-31	2011-12-23	59161.00000	0	10.0000 C	S,C,EX	2	FORT COLLINS EXCH FM CLAYMORE LAKE
11CW0265	2011-12-31	2011-12-23	59161.00000	0	50.0000 C	S,C,EX	2	FORT COLLINS EXCH FM OVERLAND TRAIL RESERVOIR
11CW0265	2011-12-31	2011-12-23	59161.00000	0	250.0000 C	S,C,EX	2	FORT COLLINS EXCH FM LARIMER & WELD CANAL
11CW0265	2011-12-31	2011-12-23	59161.00000	0	15.0000 C	S,C,EX	2	FORT COLLINS EXCH FM LINDENMEIR LAKE
11CW0265	2011-12-31	2011-12-23	59161.00000	0	50.0000 C	S,C,EX	2	FORT COLLINS EXCH FM RIGDEN STORAGE
11CW0265	2011-12-31	2011-12-23	59161.00000	0	7.0000 C	S,C,EX	2	FORT COLLINS EXCH FM MULBERRY WWTP
11CW0265	2011-12-31	2011-12-23	59161.00000	0	26.0000 C	S,C,EX	2	FORT COLLINS EXCH FM DRAKE WWTP
11CW0265	2011-12-31	2011-12-23	59161.00000	0	250.0000 C	S,C,EX	2	FORT COLLINS EXCH FM FOSSIL CREEK RESERVOIR
11CW0265	2011-12-31	2011-12-23	59161.00000	0	200.0000 C	S,C,EX	2	FORT COLLINS EXCH FM TIMNATH RESERVOIR INLET

Water Rights -- Net Amounts											
Adjudication Date	Appropriation Date	Administration Number	Order Number	Priority/Case Number	Rate (CFS)			Volume (Acre-Feet)			
					Absolute	Conditional	API/EX	Absolute	Conditional	API/EX	
1882-04-11	1861-06-01	4170.00000	0	05CW0323	0	0	0.3693				
1882-04-11	1862-03-01	4443.00000	0	07CW0190				0	0	808.0000	
1882-04-11	1862-03-01	4443.00000	0	07CW0190	0	0	0.9432				
1882-04-11	1864-09-15	5372.00000	0	07CW0190				0	0	808.0000	
1882-04-11	1864-09-15	5372.00000	0	07CW0190	0	0	1.2167				
1882-04-11	1865-04-10	5579.00000	0	13CW3166				0	0	199.4000	
1882-04-11	1865-04-10	5579.00000	0	13CW3166	0	0	2.6100				
1882-04-11	1865-05-01	5600.00000	0	05CW0264	0	0	2.0300				
1882-04-11	1866-07-01	6026.00000	0	05CW0323	0	0	1.1108				
1882-04-11	1867-10-01	6483.00000	0	05CW0323	0	0	4.1967				
1882-04-11	1868-03-15	6649.00000	0	07CW0190				0	0	808.0000	
1882-04-11	1868-03-15	6649.00000	0	07CW0190	0	0	0.4087				
1882-04-11	1868-06-01	6727.00000	0	05CW0323	0	0	1.1108				
1882-04-11	1869-06-01	7092.00000	0	05CW0323	0	0	0.8567				
1882-04-11	1869-09-01	7184.00000	0	05CW0323	0	0	2.1967				
1882-04-11	1871-04-01	7761.00000	0	05CW0323	0	0	16.2457				
1882-04-11	1871-10-10	7953.00000	0	05CW0323	0	0	4.3882				
1882-04-11	1872-07-01	8218.00000	0	05CW0323	0	0	7.6521				
1882-04-11	1872-07-20	8237.00000	0	05CW0323	0	0	8.6828				
1882-04-11	1873-03-20	8480.00000	0	07CW0190				0	0	808.0000	
1882-04-11	1873-03-20	8480.00000	0	07CW0190	0	0	0.3508				
1882-04-11	1873-04-01	8482.00000	0	05CW0323	0	0	107.4697				
1882-04-11	1873-09-01	8645.00000	0	05CW0323	0	0	30.3703				
1882-04-11	1875-04-15	9236.00000	0	92CW0129				0	0	849.5551	
1882-04-11	1878-04-01	10318.00000	0	07CW0190				0	0	808.0000	
1882-04-11	1878-04-01	10318.00000	0	07CW0190	0	0	0.6330				
1882-04-11	1880-02-01	10989.00000	0	W0560	0	0	200.0000				
1882-04-11	1880-02-15	11003.00000	0	05CW0323	0	0	34.3814				
1882-04-11	1881-04-25	11438.00000	0	07CW0190				0	0	808.0000	
1882-04-11	1881-04-25	11438.00000	0	07CW0190	0	0	40.5636				
1882-04-11	1893-01-10	15716.00000	0	05CW0323				0	0	285.1349	
1922-04-22	1908-07-27	21392.00000	0	05CW0323				0	0	454.7655	
1945-12-18	1914-09-28	23646.00000	0	03CW0421				0	0	808.0000	
1945-12-18	1914-09-28	23646.00000	0	03CW0421	0	0	3.1830				
1945-12-18	1914-09-28	26409.23646	0	07CW0190	0	0	18.4079				
1953-09-10	1872-07-01	35050.08218	0	05CW0323	0	0	11.9810				
1953-09-10	1873-04-01	35050.08492	0	05CW0323	0	0	96.7758				
1953-09-10	1879-05-24	35050.10736	0	05CW0323	0	0	40.5178				
1953-09-10	1880-02-15	35050.11003	0	05CW0323	0	0	59.2519				
1953-09-10	1943-01-12	35050.33979	0	W3194	250.0000	0	0				
1970-12-31	1943-01-12	43829.33979	0	W0105	0	48.0000	0				
1978-12-31	1906-08-04	46751.20669	0	05CW0323				0	0	134.8195	
1980-12-31	1980-05-02	47604.00000	0	03CW0405	0	0	3000.0000				
1992-12-31	1992-12-11	52210.00000	0	92CW0130	0	0	2565.0000				
1992-12-31	1992-12-18	52217.00000	0	05CW0323	0	0	4156.0000				
1998-12-31	1998-08-06	54274.00000	0	13CW3037	23.7000	156.3000	0				
2000-12-31	1998-08-06	54786.54274	0	00CW0251	0	180.0000	0				
2000-12-31	2000-12-31	55152.00000	0	00CW0251	0	0	180.0000				
2003-12-31	2003-12-08	56224.00000	0	03CW0421	0	0	2409.6000				

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2006-12-31	2006-12-12	57324.00000	0	06CW0259	0	0	100.0000
2007-12-31	2005-05-24	57343.56757	0	07CW0328	0	0	10.2000
2007-12-31	2005-07-04	57343.56798	0	07CW0328	0	0	10.0000
2007-12-31	2007-06-06	57500.00000	0	07CW0125	0	0	500.0000
2007-12-31	2007-08-27	57582.00000	0	07CW0190	0	0	350.0000
2007-12-31	2007-12-10	57687.00000	0	07CW0328	0	0	479.8000
2011-12-31	2011-12-23	59161.00000	0	11CW0265	0	0	2389.0000

Irrigated Acres Summary -- Totals From Various Sources

GIS Total (Acres):	12564.58	Reported: 2010
Diversion Comments Total (Acres):	0	Reported: 2001
Structure Total (Acres):		Reported:

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Year	Land Use	Irrigated Acres From GIS Data					Acres Total
		Acres Flood	Acres Furrow	Acres Sprinkler	Acres Drip	Acres Groundwater	
1956	***Year Total***	13897.64	0	0	0	2944.49	13897.64
1956	ALFALFA	2340.37	0	0	0	569.70	2340.37
1956	CORN	2427.19	0	0	0	557.90	2427.19
1956	DRY_BEANS	1294.55	0	0	0	248.58	1294.55
1956	GRASS_PASTURE	5583.03	0	0	0	931.57	5583.03
1956	SMALL_GRAINS	522.32	0	0	0	203.08	522.32
1956	SUGAR_BEETS	1730.19	0	0	0	433.66	1730.19
1976	***Year Total***	13362.36	0	906.37	0	3622.61	14268.73
1976	ALFALFA	2282.80	0	57.52	0	686.47	2340.32
1976	CORN	2293.99	0	201.34	0	711.17	2495.33
1976	DRY_BEANS	1104.71	0	129.52	0	322.28	1234.23
1976	GRASS_PASTURE	5582.26	0	335.36	0	1242.09	5917.62
1976	SMALL_GRAINS	469.07	0	27.58	0	189.58	496.65
1976	SUGAR_BEETS	1629.52	0	155.06	0	471.01	1784.58
1987	***Year Total***	11870.38	0	2812.92	0	3655.65	14683.30
1987	ALFALFA	2041.46	0	662.76	0	780.56	2704.22
1987	CORN	2861.23	0	1107.72	0	1306.05	3968.96
1987	DRY_BEANS	856.50	0	122.02	0	253.57	978.52
1987	GRASS_PASTURE	3897.27	0	405.15	0	700.51	4302.43
1987	SMALL_GRAINS	2020.40	0	343.08	0	552.69	2363.48
1987	SUGAR_BEETS	193.52	0	172.19	0	62.27	365.70
1997	***Year Total***	10170.13	0	3513.76	0	3711.00	13683.89
1997	ALFALFA	2252.90	0	829.03	0	877.01	3081.92
1997	CORN	1971.97	0	991.36	0	805.45	2963.34
1997	DRY_BEANS	226.77	0	9.86	0	118.51	236.63
1997	GRASS_PASTURE	4556.93	0	884.35	0	1310.42	5441.29
1997	SMALL_GRAINS	174.05	0	128.75	0	80.94	302.81
1997	SUGAR_BEETS	987.50	0	670.40	0	518.65	1657.90
2001	***Year Total***	9148.46	0	4236.74	0	3662.49	13385.19
2001	ALFALFA	3809.62	0	1600.47	0	1511.04	5410.09
2001	CORN	1414.87	0	1079.18	0	706.45	2494.05
2001	DRY_BEANS	418.40	0	241.87	0	240.92	660.27
2001	GRASS_PASTURE	2705.48	0	49.03	0	524.87	2754.51
2001	ORCHARD_WO_COVER	31.33	0	7.68	0	17.24	39.00
2001	SMALL_GRAINS	445.06	0	496.80	0	298.64	941.86
2001	SOD_FARM	51.06	0	0	0	51.06	51.06
2001	SUGAR_BEETS	187.31	0	215.44	0	132.07	402.75
2001	VEGETABLES	85.31	0	546.28	0	180.21	631.59
2005	***Year Total***	8464.69	0	4388.20	0	2962.63	12852.88
2005	ALFALFA	1087.96	0	1279.13	0	576.41	2367.09
2005	CORN	958.20	0	1309.01	0	734.13	2267.21
2005	DRY_BEANS	209.36	0	74.72	0	147.10	284.08
2005	GRASS_PASTURE	5451.95	0	621.27	0	804.57	6073.22
2005	SMALL_GRAINS	86.67	0	200.45	0	15.33	287.11
2005	SOD_FARM	9.47	0	57.28	0	57.28	66.75
2005	SUGAR_BEETS	197.81	0	201.14	0	186.03	398.95
2005	VEGETABLES	463.26	0	645.20	0	441.79	1108.46
2010	***Year Total***	8325.83	0	4238.75	0	2786.71	12564.58
2010	ALFALFA	1020.56	0	1172.56	0	549.34	2193.12
2010	BARLEY	36.85	0	0	0	11.91	36.85
2010	CORN	806.74	0	1520.95	0	640.88	2327.69
2010	DRY_BEANS	199.56	0	115.27	0	25.73	314.83
2010	GRASS_PASTURE	5873.92	0	785.31	0	1087.59	6659.23
2010	SMALL_GRAINS	82.16	0	265.60	0	205.49	347.77
2010	SUGAR_BEETS	109.07	0	136.10	0	100.39	245.17
2010	VEGETABLES	65.06	0	41.25	0	95.56	106.31
2010	WHEAT_FALL	131.90	0	169.10	0	69.84	301.00
2010	WHEAT_SPRING	0	0	32.62	0	0	32.62

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Diversion Summary in Acre-Feet - Total Water Through Structure

Year	FDU	LDU	DWC	Maxq & Day	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Total
1954	1954-04-27	1954-09-23	150	252 05-21	0	0	0	0	0	595	10243	7385	5157	4774	2979	0	31133
1955	1955-05-01	1955-09-23	133	236 05-09	0	0	0	0	0	0	11766	1930	3594	3671	1025	0	21987
1956	1956-05-03	1956-09-22	125	200 05-30	0	0	0	0	0	0	3063	4197	6331	2358	4136	0	20085
1957	1957-06-10	1957-10-31	144	355 08-01	0	0	0	0	0	0	0	8007	10679	11909	12794	1749	45139
1958	1958-05-09	1958-10-11	156	251 07-30	0	0	0	0	0	0	639	7049	11788	11770	6212	1438	38896
1959	1959-06-01	1959-09-30	122	345 08-14	0	0	0	0	0	0	0	7734	13119	12448	7795	0	41096
1960	1960-05-26	1960-09-24	120	236 06-24	0	0	0	0	0	0	1148	9251	11294	8957	5429	0	36080
1961	1961-05-29	1961-09-28	90	235 07-08	0	0	0	0	0	0	506	1646	9416	6339	6726	0	24633
1962	1962-05-02	1962-09-29	151	264 09-21	0	0	0	0	0	0	7369	4425	11724	11123	12230	0	46872
1963	1963-04-27	1963-09-28	155	247 06-10	0	0	0	0	0	71	8852	8975	10572	8928	5490	0	42889
1964	1964-05-10	1964-09-26	140	249 05-22	0	0	0	0	0	0	6684	8606	10503	6881	2430	0	35104
1965	1965-05-05	1965-10-01	148	218 08-21	0	0	0	0	0	0	4961	3219	8475	8952	3237	119	28963
1966	1966-05-05	1966-09-24	143	250 06-09	0	0	0	0	0	0	7474	10804	10298	7462	5292	0	41330
1967	1967-05-25	1967-10-16	110	250 09-13	0	0	0	0	0	0	432	2515	655	11752	11022	2154	28531
1968	1968-05-21	1968-09-28	131	218 07-19	0	0	0	0	0	0	764	4935	11118	6383	2436	0	25635
1969	1969-05-14	1969-09-26	136	250 06-09	0	0	0	0	0	0	2343	9737	11207	12423	5183	0	40892
1970	1970-05-12	1970-09-26	138	279 06-01	0	0	0	0	0	0	4610	11244	10465	10772	6012	0	43103
1971	1971-05-24	1971-09-24	123	270 07-13	0	0	0	0	0	0	1137	9182	14511	13157	6115	0	44101
1972	1972-05-16	1972-09-23	131	256 06-05	0	0	0	0	0	0	4366	10959	11671	8319	3792	0	39107
1973	1973-05-17	1973-09-29	136	398 06-30	0	0	0	0	0	0	4017	13000	11788	7059	5974	0	41838
1974	1974-05-10	1974-09-26	140	277 06-15	0	0	0	0	0	0	6341	11552	12252	12411	7101	0	49657
1974 *											2295	516	436				3247
1975	1975-05-14	1975-10-31	166	246 08-13	0	0	0	0	0	0	4707	5720	10382	12367	7549	1968	42693
1976	1976-05-24	1976-09-25	124	252 07-08	0	0	0	0	0	0	2815	13000	13573	8190	8347	0	45924
1977	1976-11-09	1977-09-24	130	279 07-05	280	0	0	0	0	0	8948	11032	8327	3870	4099	0	36555
1978	1978-05-23	1978-09-29	121	257 05-27	0	0	0	0	0	0	3953	10842	11724	7001	2243	0	35764
1979	1979-05-21	1979-09-26	113	248 07-09	0	0	0	0	0	0	1142	7591	12282	3072	5268	0	29355
1980	1980-06-05	1980-09-25	97	250 06-10	0	0	0	0	0	0	0	11023	12552	9448	1789	0	34812
1981	1981-05-15	1981-09-17	107	241 06-28	0	0	0	0	0	0	1293	7443	10777	9152	3741	0	32406
1982	1982-06-10	1982-09-07	88	221 06-20	0	0	0	0	0	0	0	5544	8239	7553	919	0	22255
1983	1983-06-20	1983-09-26	99	248 07-16	0	0	0	0	0	0	0	2297	11375	12393	7190	0	33255
1984	1984-05-11	1984-09-26	139	262 07-24	0	0	0	0	0	0	5141	8920	14578	8154	3823	0	40616
1985	1985-04-16	1985-09-16	153	249 06-25	0	0	0	0	0	1658	6674	13537	10226	9035	3473	0	44605
1986	1986-04-28	1986-09-24	150	247	0	0	0	0	0	452	10223	11830	13948	11126	5634	0	53215
1987	1987-05-04	1987-09-13	130	253	0	0	0	0	0	0	9440	7706	10568	2961	1323	0	31998
1988	1988-05-11	1988-09-25	138	252 06-17	0	0	0	0	0	0	8255	14061	10969	5143	4328	0	42756
1989	1989-05-05	1989-09-21	138	249	0	0	0	0	0	0	8815	6048	13387	6482	3067	0	37798
1990	1990-05-14	1990-09-21	126	203 05-20	0	0	0	0	0	0	5760	7008	3752	2899	1959	0	21378
1991	1991-05-09	1991-09-23	135	211 07-21	0	0	0	0	0	0	2933	4000	8779	3187	2171	0	21071
1992	1992-05-05	1992-09-24	143	217 05-14	0	0	0	0	0	0	8037	4181	6246	2942	1825	0	23231
1993	1993-05-13	1993-09-29	140	230 07-08	0	0	0	0	0	0	4911	6431	9269	4820	3398	0	28828
1994	1994-05-11	1994-09-22	135	221	0	0	0	0	0	0	7708	10687	9630	3080	2085	0	33191
1995	1995-06-05	1995-09-28	116	222	0	0	0	0	0	0	0	4352	8013	7968	3759	0	24092
1996	1996-05-08	1996-09-23	139	236 05-22	0	0	0	0	0	0	7865	5685	7823	3796	2201	0	27370
1997	1997-05-09	1997-09-22	125	224	0	0	0	0	0	0	6192	7771	9866	1988	2110	0	27928
1998	1998-05-12	1998-09-24	136	231 07-06	0	0	0	0	0	0	6254	7232	8134	3009	2739	0	27368
1999	1999-06-02	1999-09-21	97	155 07-20	0	0	0	0	0	0	0	2221	8632	4800	4304	0	19957
2000	2000-05-11	2000-09-22	135	229 05-26	0	0	0	0	0	0	6807	8313	7557	7297	2816	0	32790
2001	2001-05-09	2001-09-23	138	181	0	0	0	0	0	0	4815	7573	7928	8999	3944	0	33260
2002	2002-05-09	2002-09-06	121	221	0	0	0	0	0	0	7531	10513	6379	3138	524	0	28084
2003	2003-05-14	2003-08-28	107	244 08-03	0	0	0	0	0	0	6321	10453	4294	2313	0	0	23380
2004	2004-05-05	2004-10-31	180	235	0	0	0	0	0	0	6643	1823	4209	4350	1005	4833	22862
2005	2004-11-01	2005-10-27	174	252	45	0	0	0	0	0	5089	10255	11752	10872	4131	672	42796

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2006	2006-05-08	2006-09-05	121	214		0	0	0	0	0	0	8107	9491	8737	7744	867	0	34945	
2007	2007-05-10	2007-09-15	129	229		0	0	0	0	0	0	4727	10608	11705	3442	888	0	31368	
2008	2008-05-19	2008-10-31	134	235	07-03	0	0	0	0	0	0	4199	12671	10124	5623	2894	240	35751	
2009	2008-11-01	2009-10-31	200	224	06-10	844	84	0	0	0	0	3808	6506	8995	7642	5183	1456	34517	
2010	2009-11-01	2010-10-31	189	348		441	0	0	0	0	0	3134	8034	10528	10760	7396	1285	41580	
2011	2010-11-01	2011-10-31	177	210	07-27	10	0	0	0	0	0	2826	5465	10451	9015	6100	1063	34930	
2012	2011-11-01	2012-09-11	171	219	06-26	1981	275	0	0	0	0	2097	9158	8917	6737	7946	1844	0	38954
2013	2013-05-16	2013-10-18	127	230	07-09	0	0	0	0	0	0	2235	6469	3019	3710	3128	2880	21440	
2014	2014-04-23	2014-10-15	162	232		0	0	0	0	0	0	933	5048	6734	6742	4234	5294	369	29354
Minimum:				155		0	0	0	0	0	0	0	516	436	1988	0	0	3247	
Maximum:				398		1981	275	0	0	0	0	2097	11766	14061	14578	13157	12794	4833	53215
Average:				245		59	6	0	0	0	0	95	4686	7691	9343	7203	4242	332	33464

62.00 years with diversion records

Notes: The average considers all years with diversion records, even if no water is diverted.
The above summary lists total monthly diversions.
* = Infrequent Diversion Record. All other values are derived from daily records.
Average values include infrequent data if infrequent data are the only data for the year.

Diversion Comments			
IYR	NUC Code	Acres Irrigated	Comment
1955			ALL ARE WEEKLY AVGS
1956		32000	
1958		32000	
1959		32000	
1960		32000	
1961		32000	
1962		32000	
1963		32000	
1964		32000	
1965		32000	
1966		32000	
1967		32000	
1968		30000	
1969		30000	
1970		30000	
1971		30000	
1972		30000	
1973		30000	
1974		30000	
1975		30000	
1976		30000	
1990		0	AKA MUNROE CNL
1992		0	AKA MUNROE CANAL
1993		0	AKA MUNROE CANAL
1994		0	AKA MUNROE CANAL
1995		0	AKA MUNROE CANAL
1996		0	AKA MUNROE CANAL
1997		0	AKA MUNROE CANAL
1998		0	AKA MUNROE CANAL
1999		0	AKA MUNROE CANAL
2000		0	AKA MUNROE CANAL
2001		0	AKA MUNROE CANAL
2002			AKA MUNROE CANAL
2003			AKA MUNROE CANAL
2004			PLEASANT VALLEY PIPELINE STARTED MAY 5, 2004 FOR MUNICIPAL USES
2005			PLEASANT VALLEY PIPELINE DIVERTS FROM DITCH FOR MUNICIPAL USES
2008			AKA MUNROE CANAL: PLEASANT VALLEY PIPELINE DIVERTS FROM DITCH FOR MUNICIPAL USES
2009			AKA MUNROE CANAL: PLEASANT VALLEY PIPELINE DIVERTS FROM DITCH FOR MUNICIPAL USES
2010			AKA MUNROE CANAL: PLEASANT VALLEY PIPELINE DIVERTS FROM DITCH FOR MUNICIPAL USES
2011			AKA MUNROE CANAL: PLEASANT VALLEY PIPELINE DIVERTS FROM DITCH FOR MUNICIPAL USES
2012			AKA MUNROE CANAL, PLEASANT VALLEY PIPELINE DIVERTS FROM DITCH FOR MUNICIPAL USES
2013			AKA MUNROE CANAL, PLEASANT VALLEY PIPELINE DIVERTS FROM DITCH FOR MUNICIPAL USES
2014			AKA MUNROE CANAL, PLEASANT VALLEY PIPELINE DIVERTS FROM DITCH FOR MUNICIPAL USES

Note: Diversion comments and reservoir comments may be shown for a structure, if both are available.