



**COLORADO**

**Colorado Water  
Conservation Board**

Department of Natural Resources

1313 Sherman Street  
Denver, CO 80203

P (303) 866-3441  
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Jared Polis, Governor

Dan Gibbs, DNR Executive Director

Rebecca Mitchell, CWCB Director

TO: Colorado Water Conservation Board Members

FROM: Linda Bassi, Section Chief  
Kaylea White, Senior Water Resource Specialist  
Stream and Lake Protection Section

DATE: July 17-18, 2019 Board Meeting

AGENDA ITEM: **#19. City of Boulder Water Delivery Agreement from Gross Reservoir for Instream Flow Use in South Boulder Creek (Water Div. 1)**

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The City of Boulder ("Boulder") has offered to the Colorado Water Conservation Board a donation of a contractual interest in water releases associated with Case Nos. 16CW3160 and 17CW3212 ("Environmental Pool") from Gross Reservoir for instream flow ("ISF") use in South Boulder Creek from the outlet of Gross Reservoir to the confluence of South Boulder Creek and Boulder Creek, approximately 17 stream miles. See draft Water Delivery Agreement, **Attachment 1**. See location map, **Attachment 2**. The first and second meetings of the ISF Rule 6 two-meeting process for consideration of Boulder's offer occurred in March 2019 and May 2019. The Board may take final action at this meeting. While the two water court cases can proceed as filed, CWCB staff and Boulder have agreed to file a motion in each case to change the CWCB's status from "opposer" to "co-applicant" in each case for the limited purpose of obtaining a decreed right to use water released by Boulder from the Gross Reservoir Environmental Pool for instream flow use. Staff provided information to the Board on the background of this proposal and the factors the Board must consider at the March and May Board meetings.<sup>1</sup> Colorado Parks and Wildlife ("CPW") provided its recommendation at the May 2019 Board meeting, included as **Attachment 3**. The May 2019 Board memo is included (without attachments), as **Attachment 4**.

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<sup>1</sup> March 20-21, 2019 CWCB Board Meeting, Agenda Item 6. City of Boulder Water Delivery Agreement from Gross Reservoir for Instream Flow Use in South Boulder Creek (Water Div. 1). May 15-16, 2019 CWCB Board Meeting, Agenda Item 16. City of Boulder Water Delivery Agreement from Gross Reservoir for Instream Flow Use in South Boulder Creek (Water Div. 1)



Staff recommends that the Board:

1. Accept the interest in water that would be provided by Boulder under the Water Delivery Agreement;
2. Determine that the amounts set forth in the Water Delivery Agreement are appropriate to preserve the natural environment to a reasonable degree on the subject reach of the South Boulder Creek in the time, amounts and locations provided by the Agreement. The flow rates and uses are to preserve the natural environment to a reasonable degree within Segments 1 & 2 of the Subject Reach up to the CWCB/CPW Flow rates of 8 cfs in the winter and 15 cfs in the summer, and in Segment 3 up to 2.5 cfs in the winter and up to 5.8 cfs in the summer;
3. Determine that the best use of the interest in water to be acquired is in the time, amounts and locations provided by the Water Delivery Agreement; and
4. Authorize the CWCB Director to finalize and sign the Water Delivery Agreement.

**ATTACHMENTS:**

**Attachment 1** - Water Delivery Agreement (Draft)

**Attachment 2** - Location Map

**Attachment 3** - CPW recommendation letter, by Katie Birch, CPW Instream Flow Program Coordinator

**Attachment 4** - Board Memo. May 15-16, 2019 CWCB Board Meeting, Agenda Item 16. City of Boulder Water Delivery Agreement from Gross Reservoir for Instream Flow Use in South Boulder Creek (Water Div. 1)

## WATER DELIVERY AGREEMENT

The Colorado Water Conservation Board (“CWCB”) an agency of the State of Colorado, and the City of Boulder (“Boulder”), a home rule municipal corporation of the State of Colorado, in consideration of the mutual promises contained herein, agree as follows:

### RECITALS

- A. CWCB is an agency of the State of Colorado created to aid in the protection and development of the waters of the state for the benefit of the present and future inhabitants of the state. In 1973, the General Assembly vested the CWCB with the exclusive authority to appropriate waters of natural streams for minimum stream flows between specific points on a stream to preserve the natural environment to a reasonable degree.
- B. Pursuant to section 37-92-102(3), C.R.S. (2018), the CWCB may acquire by contractual agreement with any person, including any governmental entity, such water, water rights, or interests in water that are not on the Division Engineer’s abandonment list, in such amounts as the CWCB determines are appropriate for stream flows to preserve or improve the natural environment to a reasonable degree. This Water Delivery Agreement provides for the CWCB’s contractual acquisition of water or an interest in water, yielded from certain water rights, to be delivered as specified below to preserve the natural environment to a reasonable degree in a specified stream reach.
- C. On February 24, 2010, Boulder, the City of Lafayette (“Lafayette”), and the City and County of Denver (“Denver”) entered into the “Intergovernmental Agreement Between the City and County of Denver, The City of Boulder, and the City of Lafayette For An Environmental Pool in Gross Reservoir” (“Denver IGA”). In the Denver IGA, Denver granted Boulder and Lafayette the right to store up to 5,000 acre-feet of their decreed water rights in the Environmental Pool of enlarged Gross Reservoir. The Denver IGA also states the parties’ agreement and understanding that Boulder and Lafayette anticipate seeking decrees for new exchanges, changes of water rights, and/or a new storage right for the purposes of filling the Environmental Pool.
- D. On February 17, 2010, Boulder and Lafayette entered into the “Intergovernmental Agreement Between the City of Lafayette and the City of Boulder Regarding the Operation of the Environmental Pool in Gross Reservoir” (“Lafayette–Boulder IGA”). The Lafayette–Boulder IGA contains details about the parties’ storage of water in the Environmental Pool and sets out the targeted flows (“IGA Targeted Flows”) in South Boulder Creek between the enlarged Gross Reservoir and the confluence of South Boulder Creek and Boulder Creek, approximately 17 miles, (“Subject Reach”) that the parties seek to meet by releases of water from the Environmental Pool. The Subject Reach is generally depicted in the map attached hereto as **Exhibit A**. The Denver IGA and the Lafayette–Boulder IGA are collectively referred to herein as the “Gross Reservoir IGAs.”

- E. In Case No. 16CW3160, Water Division No. 1, Boulder filed for, among other things, adjudication of a conditional water storage right for proposed ponds known as Wittemyer Ponds that will divert water from Boulder Creek, as well as conditional rights of substitution and exchange that will, among other things, allow Boulder to deliver fully consumable water supplies to downstream appropriators on Boulder Creek, and to divert an equivalent amount of water at, among other locations, the Environmental Pool of enlarged Gross Reservoir. Boulder claimed instream flow uses to be made by the CWCB of water attributable to the conditional water storage right that is diverted by substitution or exchange into the Gross Reservoir Environmental Pool and subsequently released to South Boulder Creek, up to the IGA Targeted Flows within the Subject Reach identified in the Gross Reservoir IGAs.
- F. In Case No. 17CW3212, Water Division No. 1, Boulder and co-applicant Lafayette filed for a 5,000 acre-feet conditional water storage right for the Gross Reservoir Environmental Pool. Among other beneficial uses, and pursuant to the Gross Reservoir IGAs, Boulder sought a decreed instream flow use to be made by the CWCB of the Gross Reservoir Environmental Pool water storage right within the Subject Reach when water is released to meet the targeted flows in South Boulder Creek as described in the Lafayette–Boulder IGA.
- G. The water rights described in Paragraphs E and F above collectively shall be referred to herein as the “Subject Water Rights.”
- H. The CWCB holds the following decreed instream flow water rights on South Boulder Creek between the outlet of Gross Reservoir and South Boulder Road:

Decree	Stream	Upper Terminus	Lower Terminus	Flow rates in cfs (dates)	Appropriation Date
80CW0379 (Div. 1)	South Boulder Creek	outlet Gross Res	USGS gage 06729500	15 (5/1 - 9/30) 6 (10/1 - 4/30)	12/02/1980
80CW0379 (Div. 1)	South Boulder Creek	USGS Gage 06729500	South Boulder Road bridge	15 (5/1 - 9/30) 2 (10/1 - 4/30)	12/02/1980

The reaches for the CWCB’s instream flow water rights decreed in Case No. 80CW379 are generally depicted in the map attached hereto as **Exhibit A**.

- I. The CWCB and Boulder wish to cooperate in accomplishing and protecting the Targeted Flows identified in the Gross Reservoir IGAs in South Boulder Creek from the outlet of Gross Reservoir to the confluence of South Boulder Creek and Boulder Creek. The CWCB has approved of the flow rates recommended by the CPW to preserve the natural environment to a reasonable degree (“CWCB/CPW Flows”). The CWCB/CPW Flows are equal to or in excess of the existing appropriated and decreed instream flow rates through the IGA identified reaches. Some of the existing decreed instream flow rates were water

supply limited, but the original R2CRSSS measurements for the amount of water to preserve the natural environment to a reasonable degree is consistent with the new CWCB/CPW Flow rates.

- J. For the purposes of administration, the CWCB/CPW Flows will be met in whole or in part with existing CWCB instream flow water rights in the applicable stream segments, to the extent the existing instream flow rights are in priority. When the CWCB instream flow rights are out of priority, and/or when the CWCB instream flow water rights are insufficient to bring South Boulder Creek up to the IGA Targeted Flows, Environmental Pool releases will be made. Therefore, the amount of water to be protected from diversion or exchange in a given reach would be the amount released to meet the IGA Targeted Flow releases, plus any water available pursuant to existing instream flow rights in that reach, to the extent such rights are in priority, up to the CWCB/CPW Flows. The IGA Targeted Flows and the CWCB/CPW Flows are identified in Table 1 below.
- K. Pursuant to Rule 6. of the Rules Concerning the Colorado Instream Flow and Natural Lake Level Program, 2CCR 408-2, on [REDACTED], 2019, the CWCB found that deliveries of water under this Water Delivery Agreement are appropriate for stream flows to preserve the natural environment in three segments of the Subject Reach to a reasonable degree at rates up to the CWCB/CPW Flows.

NOW THEREFORE, the CWCB and Boulder agree as follows:

#### DELIVERY

1. Subject to the terms of this Water Delivery Agreement and in accordance with the Gross Reservoir IGAs, Boulder will release and deliver water stored in the Gross Reservoir Environmental Pool under its Subject Water Rights (“Environmental Pool Releases”), in the volumes and at rates of flow and times to be determined at the sole discretion of Boulder, but in consultation with the CWCB, to be necessary to meet the Targeted Flows set forth in the Lafayette–Boulder IGA, for exclusive use by the CWCB to help maintain stream flows to preserve the natural environment to a reasonable degree in the Subject Reach.
2. Delivery of water in accordance with this Water Delivery Agreement is subject to availability under the Subject Water Rights and the terms and conditions of the Gross Reservoir IGAs. Boulder is under no obligation to deliver water to the CWCB pursuant to this Water Delivery Agreement when: (1) water yielded from the Subject Water Rights is not in storage or available in the Environmental Pool; (2) Environmental Pool Releases are not necessary to preserve the natural environment up to the Targeted Flows in the IGA; or (3) Environmental Pool Releases are not being made by Boulder to meet the Targeted Flows that are set forth in the Lafayette–Boulder IGA.

3. The CWCBC shall, when notified by Boulder that water is being released pursuant to this Water Delivery Agreement, protect the delivered Environmental Pool Releases through the Subject Reach by requesting administration by the Colorado State and Division Engineers to prevent diversion or depletion of, or exchange upon, the water by other water users. In the event that CWCBC does not or cannot protect the full amount of the Environmental Pool Releases in accordance with the terms of this Water Delivery Agreement, nothing shall prevent Boulder from exercising its water rights in a manner consistent with its decrees as entered in Case Nos. 16CW3160 and 17CW3212.

**CONDITIONS OF THE CWCBC'S USE OF WATER DELIVERED BY BOULDER**

4. The CWCBC shall use the Environmental Pool Releases to help maintain stream flows in South Boulder Creek through the Subject Reach to preserve the natural environment at rates up to CWCBC/CPW Flows with the Subject Water Rights as follows:

Table 1.

IGA Targeted Flows and CWCBC/CPW Flows for Three South Boulder Creek Segments in the Subject Reach

Stream Segment	IGA TARGETED FLOWS				CWCBC/CPW FLOWS	
	Summer (May–Sept.)		Winter (Oct.–April)		Summer (May–Sept.)	Winter (Oct.–April)
	Average Year	Dry Year	Average Year	Dry Year	All Year Types	
<b>Segment 1</b> Gross Reservoir to USGS gage 06729500	10 cfs	7 cfs	7 cfs	5 cfs	15 cfs (Preserve)	8 cfs (Preserve)
<b>Segment 2</b> USGS gage 06729500 to South Boulder Road	10 cfs	7 cfs	7 cfs	5 cfs	15 cfs (Preserve)	8 cfs (Preserve)
<b>Segment 3</b> South Boulder Road to confluence with Boulder Creek	4 cfs	2 cfs	2.5 cfs	1.5 cfs	5.8 cfs (Preserve)	2.5 cfs (Preserve)

5. The release and delivery of water from the Gross Reservoir Environmental Pool by Boulder for the CWCBC's use for instream flows in no way provides the CWCBC an

operating interest or ownership in Boulder's facilities or other water rights as they exist now or may exist in the future. The City's obligations as provided in this Water Delivery Agreement are expressly subject to Section 121 of the Boulder Home Rule Charter and §11-1-32 of the Boulder Revised Code.

6. The CWCB's exclusive right to use water released from Gross Reservoir under the Subject Rights in the Subject Reach under this Water Delivery Agreement extends to and terminates at the downstream terminus of the Subject Reach at the confluence of South Boulder Creek and Boulder Creek.

#### USE OF THE SUBJECT WATER RIGHTS BY BOULDER DOWNSTREAM OF THE SUBJECT REACH

7. In accordance with section 37-92-102(3), C.R.S. (2018), section 37-87-102(4), C.R.S. (2018), and the decrees adjudicating the CWCB's right to use the Environmental Pool Releases for instream flow purposes, Boulder may redivert and bring about the beneficial use of its Subject Water Rights downstream of the Subject Reach as fully consumable reusable water.

#### ACCOUNTING AND REPORTING

8. Boulder shall be responsible for maintaining all records and accounting necessary for the implementation of this Water Delivery Agreement, using forms mutually agreeable to the parties, and all records required by the Division Engineer and water court decrees for administration of the Environmental Pool Releases.
9. Boulder will provide accounting related to the operation of this Water Delivery Agreement to the CWCB and to the Division Engineer when requested.

#### MISCELLANEOUS PROVISIONS

10. The term of this Water Delivery Agreement is perpetual unless terminated under the provisions of this paragraph. This Agreement may only be amended or terminated by the written agreement of the parties.
11. The CWCB is not responsible for modification of any structures that may be necessary for use of the Subject Water Rights to preserve the natural environment, including but not limited to, modification of the Community Ditch structure.
12. This Water Delivery Agreement shall not be assignable by any party without written consent of the other.

13. Pursuant to section 37-92-102(3), C.R.S. (2018), the terms of this Water Delivery Agreement shall be enforceable by each party as a water matter in the District Court for Water Division No. 1; provided, however, that before commencing any action for enforcement of this Water Delivery Agreement, the party alleging the violation shall notify the other party in writing of the alleged violation and the parties shall make a good faith effort to resolve their differences through informal consultation.
14. Specific performance of this Water Delivery Agreement shall be the exclusive remedy for failure of any party to comply with any provision of this Agreement.
15. This Water Delivery Agreement shall be construed in accordance with the laws of the State of Colorado and shall be interpreted broadly to effect its purposes.
16. Should any conflict appear to exist between this Water Delivery Agreement and either of the Gross Reservoir IGAs or any amendments thereto, or the decrees in Case Nos. 16CW3160 and 17CW3212, the parties shall consult on how to resolve the conflict.
17. Any notice or request required or permitted to be given under this Water Delivery Agreement will be in writing and considered effective when delivered by fax, email, hand delivery, Express Mail, Federal Express, or similar service, or on the third mail-delivery day after being deposited in the United States mail, postage prepaid, addressed to the parties as follows:

If to the CWCB:

Colorado Water Conservation Board  
Stream and Lake Protection Section  
1313 Sherman Street, Room 721  
Denver, CO 80203  
dnr\_cwcbisf@state.co.us

If to Boulder:

City of Boulder  
c/o/ Water Resources Manager  
P.O. Box 791  
Boulder, CO 80306-0791  
[taddeucci@bouldercolorado.gov](mailto:taddeucci@bouldercolorado.gov)  
[bloomj@bouldercolorado.gov](mailto:bloomj@bouldercolorado.gov)

18. Nothing contained in this Agreement is intended to or shall create a contractual relationship with, cause of action in favor of, or claim for relief for, any third party. Any third party receiving a benefit from this Agreement is an incidental and unintended beneficiary only.



IN WITNESS WHEREOF, the CWCB and Boulder have executed this Agreement as of the last date of execution.

**COLORADO WATER CONSERVATION BOARD**

By: \_\_\_\_\_  
Rebecca Mitchell, Director

Date: \_\_\_\_\_

**CITY OF BOULDER**

\_\_\_\_\_  
City Manager

ATTEST:

\_\_\_\_\_  
City Clerk

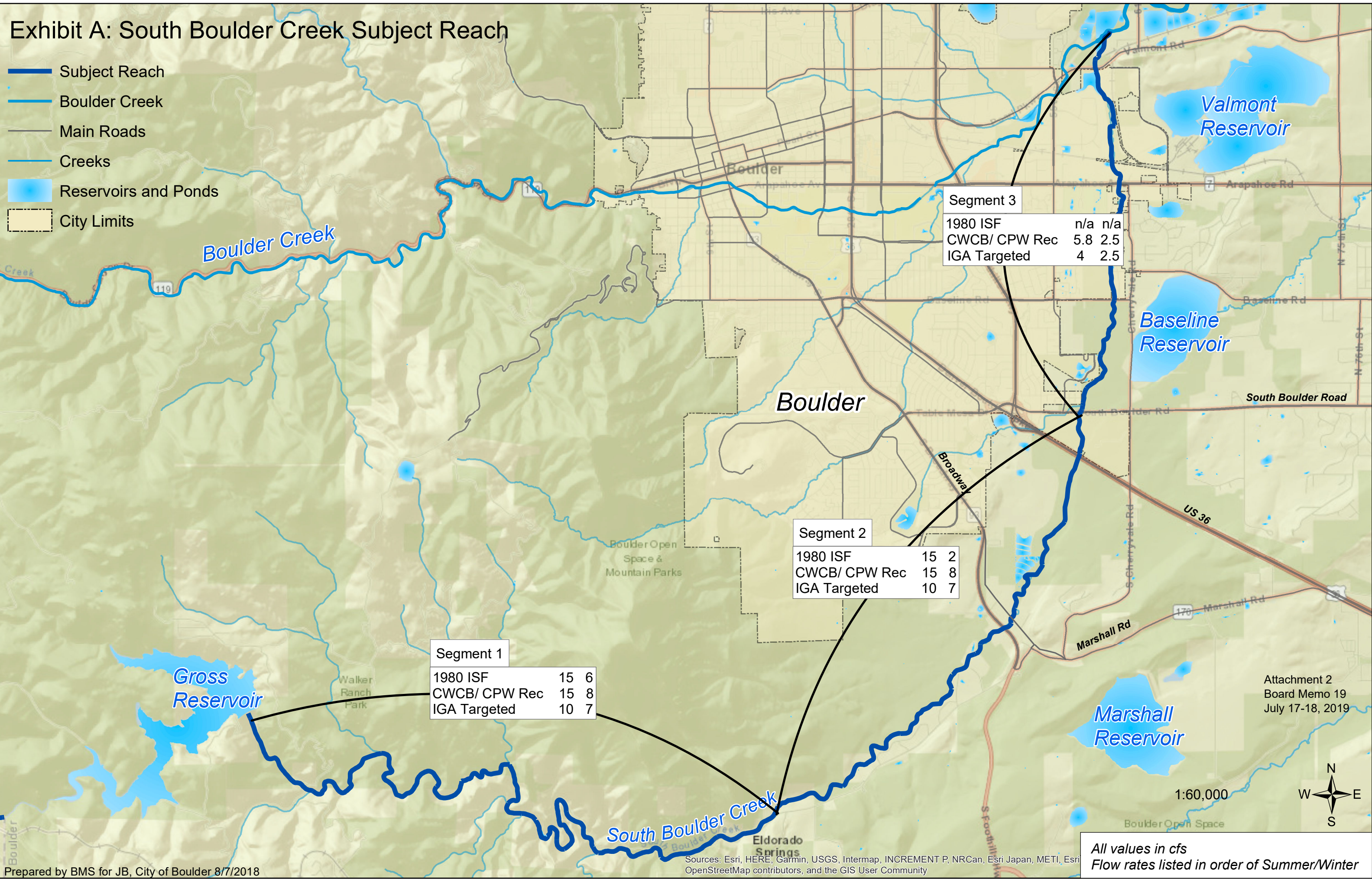
APPROVED AS TO FORM:

\_\_\_\_\_  
City Attorney's Office



Exhibit A: South Boulder Creek Subject Reach

- Subject Reach
- Boulder Creek
- Main Roads
- Creeks
- Reservoirs and Ponds
- City Limits



Attachment 2  
Board Memo 19  
July 17-18, 2019



1:60,000

All values in cfs  
Flow rates listed in order of Summer/Winter





# COLORADO

## Parks and Wildlife

Department of Natural Resources

Water Resources Section - Capital,  
Parks, and Trails Branch  
6060 Broadway  
Denver, CO 80216

Attachment 3  
Board Memo 19  
July 17-18, 2019

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May 2, 2019

Linda Bassi  
Kaylea White  
Colorado Water Conservation Board  
Stream and Lake Protection Section  
1313 Sherman Street, 7th Floor  
Denver, CO 80203

**SUBJECT:** Potential Contractual Interest in Water from Gross Reservoir for the Benefit of  
Instream Flows on South Boulder Creek

Linda and Kaylea:

The Colorado Water Conservation Board (CWCB) has requested Colorado Parks and Wildlife's (CPW) recommendation on the proposed acquisition of a contractual interest in stored water from the enlarged Gross Reservoir. The City of Boulder (the City) has offered to donate water that will be stored in the newly-created Environmental Pool in Gross Reservoir. Releases will be made to benefit the flow regime in South Boulder Creek. The following is CPW's analysis and recommendations regarding the proposed dedication of stored water to instream flow (ISF) use in South Boulder Creek below Gross Reservoir.

### General Information

The reach benefitting from the proposed releases would extend from the outlet of Gross Reservoir approximately 17 miles downstream to South Boulder Creek's confluence with Boulder Creek, shown in Figure 1. Reservoir releases will be primarily used for ISF use by CWCB and protected in the subject reach. Releases are intended to improve connectivity in the subject reach of South Boulder Creek, where there are a number of points prone to dry-up and low flow conditions, particularly during late-summer, fall, and winter periods.

Since the 1970's, the City has been investigating potential ways to address low flow conditions on South Boulder Creek but were lacking sufficient supplies to implement an instream flow program. Their instream flow program on Boulder Creek has been successful in bolstering flows in the creek since 1990. Implementing a similar program designed to restore flows on South Boulder Creek is a top priority for the City.

With Denver Water's proposal to enlarge Gross Reservoir, the City of Boulder and the City of Lafayette (Lafayette) entered into an Intergovernmental Agreement (IGA) with Denver Water in 2010 which created storage space for a 5,000 acre-foot (AF) permanent pool in Gross Reservoir that could be used for environmental purposes. Releases from the Environmental Pool contribute to project mitigation by increasing flows and addressing some of the aquatic impacts



in South Boulder Creek from the reservoir expansion. The IGA grants the City and Lafayette the ability to store up to 5,000 AF of their decreed water rights in the Environmental Pool and make releases to ISF use by means of a Water Delivery Agreement with CWCB. The Water Delivery Agreement outlines that the City will release water stored in the Environmental Pool as necessary to achieve stream flows up to the Target Flow rates, and CWCB will fully protect the delivered water through the stream reach. Water may then be recaptured and diverted to municipal supply for the City or Lafayette. A second IGA between the City and Lafayette guides the operations of the Environmental Pool and outlines the Target Flow rates (shown in Table 1).

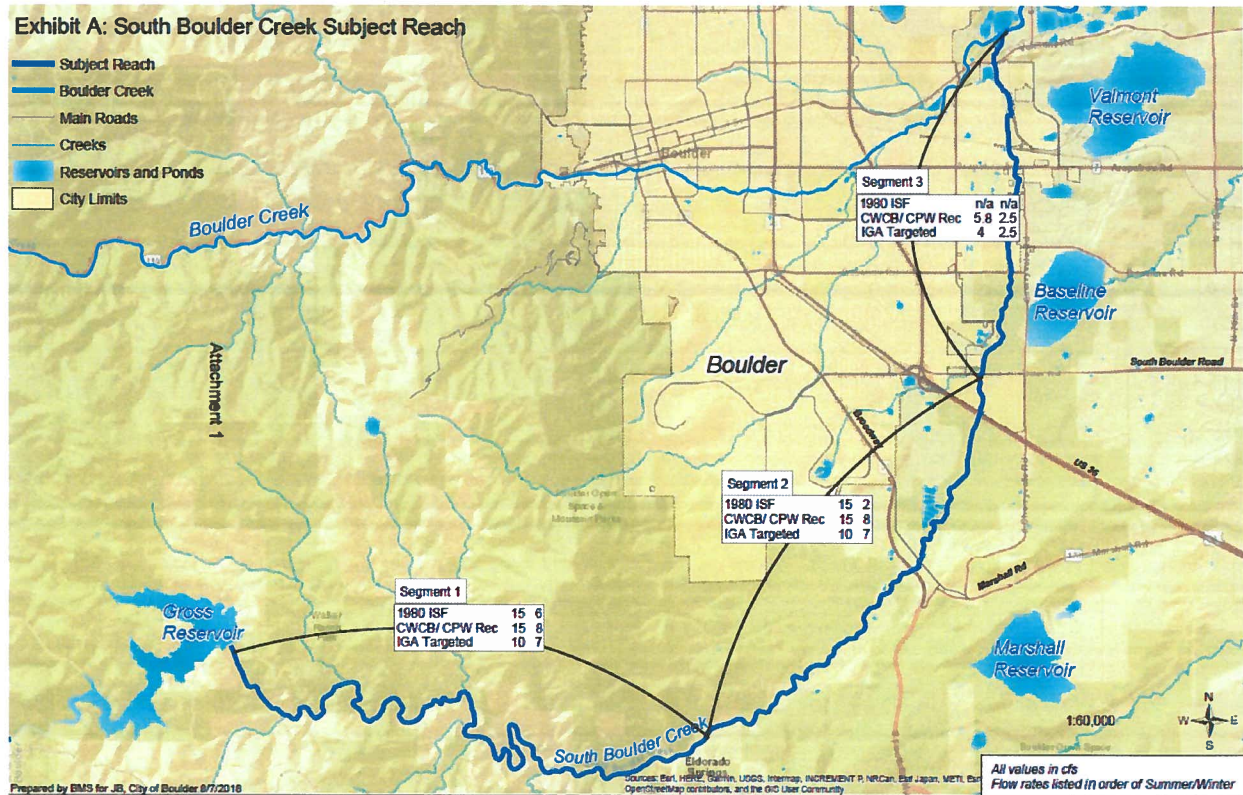


Figure 1. Vicinity Map of subject reach of South Boulder Creek

Table 1. IGA Target Flows				
Stream Segment	Summer (May–Sept.)		Winter (Oct.–April)	
	Average Year	Dry Year	Average Year	Dry Year
<b>Segment 1</b> Gross Reservoir to USGS gage 06729500	10 cfs	7 cfs	7 cfs	5 cfs
<b>Segment 2</b> USGS gage 06729500 to South Boulder Road	10 cfs	7 cfs	7 cfs	5 cfs
<b>Segment 3</b> South Boulder Road bridge to confluence with Boulder Creek	4 cfs	2 cfs	2.5 cfs	1.5 cfs

### **Field Data Collection**

Between 1976 and 1980, Colorado Division of Wildlife (DOW) surveyed a number of cross-sections on South Boulder Creek between the outlet of Gross Reservoir and Baseline Road to perform R2Cross analyses in order to quantify and recommend ISF reaches to the CWCB. Flow rates recommended by DOW to preserve the fishery in South Boulder Creek to a reasonable degree are shown in Table 2.

<b>Table 2. Historic CPW Flow Recommendation Summary</b>		
<b>Reach</b>	<b>Summer (May 1-Sept 30)</b>	<b>Winter (Oct 1-April 30)</b>
Outlet of Gross Reservoir to the gage near Eldorado Springs	15 cfs	8 cfs
USGS gage near Eldorado Springs to South Boulder Road bridge	15 cfs	8 cfs
South Boulder Road bridge to the confluence with Boulder Creek	5.8 cfs	2.5 cfs

### **Decreed ISF Rights**

In 1980, CWCB appropriated two ISF water rights on South Boulder Creek between the outlet of Gross Reservoir and South Boulder Road with support from DOW and the City (shown in Table 3). These ISF water rights were decreed in case 80CW0379.

<b>Table 3. CWCB Decreed ISF Reaches</b>		
<b>Reach</b>	<b>Summer (May 1-Sept 30)</b>	<b>Winter (Oct 1-April 30)</b>
Outlet of Gross Reservoir to USGS gage near Eldorado Springs	15 cfs	6 cfs
USGS gage near Eldorado Springs to South Boulder Road bridge	15 cfs	2 cfs

The biological recommendations initially put forth by DOW were reduced because of water availability driven by agricultural and municipal diversions in the subject reaches. In these cases, the ISF decree recognizes that the decreed ISF rate “is less than required to preserve the natural environment to a reasonable degree, but represents the amount of water available for appropriation.” Specifically, below Gross Reservoir, the winter recommendation was reduced from 8 cfs to 6 cfs, and below the Eldorado Springs gage, the winter recommendation was reduced from 8 cfs to 2 cfs. Additionally, CWCB does not hold an ISF water right below South Boulder Road because so little water was available for appropriation. The donation of the Target Flows outlined in Table 1 will supplement water availability in South Boulder Creek and help to achieve the original DOW biological recommendations shown in Table 2.

## **Natural Environment Information**

Over the past several decades, CPW and others have conducted fish surveys to monitor fishery resources on South Boulder Creek. This data supports the conclusion that a natural environment exists and that this natural environment that can be preserved to a reasonable degree with the water being made available from the acquisition.

The natural environment in South Boulder Creek supports a variety of plant and animal species including a fishery of both cold- and warm-water species. In the subject reach of South Boulder Creek, the creek transitions from a high-gradient, cold-water mountain canyon stream below Gross Reservoir to a cool/warm-water stream as it emerges out of the canyon near Eldorado Springs and flows northeasterly onto the plains valley floor.

A majority of the streamflow in South Boulder Creek is in the form of high-elevation snow accruals, however, operations of Denver Water's Moffat System affect the upper portions of South Boulder Creek as Colorado River water is imported into Gross Reservoir via the Moffat Tunnel. Gross Reservoir is an on-channel reservoir in the upper portions of South Boulder Creek storing water for Denver Water which is then diverted through the South Boulder Creek Diversion Conduit upstream of Eldorado Springs. There are significant modifications due to municipal, industrial, and agricultural diversions impacting flows throughout the transition zone. Flows in South Boulder Creek show a traditional peak due to snowmelt runoff in late-spring to early-summer, however, many segments of the stream experience periods of depleted baseflow and virtually no flow in certain segments, particularly during the winter storage season – late-fall through winter.

The fishery is predominantly made up of brown trout but includes other non-native species – rainbow trout, cutthroat rainbow trout hybrid, golden shiner, and bluegill – and native fish populations. Native fish species are most common between South Boulder Road and just downstream of Arapahoe Road, commonly found in warmer waters, backwater or off-channel habitats, and near complex microhabitat such as submerged vegetation and woody debris. Native fish species include longnose sucker, longnose dace, green sunfish, and plains topminnow. Creek chub, fathead minnow, and white sucker have been observed but are currently not widespread or abundant. A comparative study done by Colorado State University (Haworth & Bestgen 2016) on City of Boulder Open Space and Mountain Parks (OSMP) property found that since the mid 1990's, the fish community in South Boulder Creek has shifted from one dominated by native species to one which is predominantly non-native species. This is largely driven by the increased abundance of brown trout, which adapt to various habitats and outcompete other species.

South Boulder Creek also supports a diverse riparian community with high quality wetlands and cottonwood galleries. The floodplain supports habitat for three species of concern: the federally threatened Ute ladies'-tresses orchid and Preble's meadow jumping mouse, as well as Bobolink ground nesting birds. The riparian habitat along South Boulder Creek supports a host of other wildlife. The creek is also an important resource for the community because of its recreational and aesthetic values. The proposed acquisition will support all of these attributes.



## **Diversion Infrastructure and Habitat Improvements**

In order to deliver the Target Flows through the subject reach of South Boulder Creek, five diversion structures will be retrofit as necessary to bypass flows and incorporate measurement devices. These diversions are the Denver Water Diversion (S Boulder Diversion Conduit), Community Ditch, Dry Creek Carrier, East Boulder Ditch, and Leggett Ditch Inlet. Infrastructure upgrades will be coordinated between the City and structure owners. Upgrades should be done in consultation with CPW to ensure low flow bypass channels are modified to the extent necessary to pass flows and allow fish passage. These improvements may also provide the opportunity to revisit fish passage and species management in this reach of South Boulder Creek. There may be instances when keeping a physical barrier intact may be an important component to managing non-native species.

Additionally, a number of habitat improvements were completed by Boulder OSMP, Boulder Flycasters, and CPW on open space lands above South Boulder Road through a Fishing is Fun grant. This habitat improvement project added natural instream features, confined over winter flows via channel width reduction, and increased low-flow holding habitat in order to increase habitat diversity and improve aquatic conditions for native and sport fish. Streamflow enhancements in South Boulder Creek from the proposed acquisition will complement this project.

## **CPW Recommendations**

CPW is supportive of the proposed acquisition of a contractual interest in stored water from the enlarged Gross Reservoir to be donated by the City to CWCB for ISF use on South Boulder Creek. The addition of the Target Flows provides a unique opportunity to supplement the flow regime in South Boulder Creek – restoring habitat connectivity, increasing water availability, and making necessary increases towards preservation of the natural environment. CPW looks forward to working with the Board's staff and the City to implement logistical components of this project, including the necessary headgate modifications to deliver Target Flows through the subject reach.

As always, CPW staff will be in attendance at the May 2019 CWCB meeting in Gunnison to provide testimony or to answer any questions that the Board might have relating to this agenda item. Thank you for the opportunity to assist in this matter.

Sincerely,



Katie Birch,  
CPW Instream Flow Program Coordinator

CC: Conovitz, Spohn, Swigle, Wright, Nicholl, Corday, Armstrong, Cannon



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Conservation Board**

Department of Natural Resources

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TO: Colorado Water Conservation Board Members

FROM: Linda Bassi, Section Chief  
Kaylea White, Senior Water Resource Specialist  
Stream and Lake Protection Section

DATE: May 15-16, 2019 Board Meeting

AGENDA ITEM: **#16. City of Boulder Water Delivery Agreement from Gross Reservoir for Instream Flow Use in South Boulder Creek (Water Div. 1)**

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Staff recommends that the Board:

1. Accept the interest in water that would be provided by Boulder under the Water Delivery Agreement;
2. Determine that the amounts set forth in the Water Delivery Agreement are appropriate to preserve the natural environment to a reasonable degree on the subject reach of the South Boulder Creek in the time, amounts and locations provided by the Agreement. The flow rates and uses are to preserve the natural environment to a reasonable degree within Segments 1 & 2 of the Subject Reach up to the CWCB/CPW Flow rates of 8 cfs in the winter and 15 cfs in the summer, and in Segment 3 up to 2.5 cfs in the winter and up to 5.8 cfs in the summer;
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Attachment 4  
Board Memo 19  
July 17-18, 2019





## Background

In 2010, two intergovernmental agreements (“IGAs”) were finalized to effectuate agreements regarding an Environmental Pool in Gross Reservoir. One IGA is between Boulder and Lafayette, and the other is among Boulder, Lafayette, and Denver. The IGAs identified a storage pool of 5,000 acre-feet to be used to achieve stream flows up to the targeted flow rates identified in the IGAs and further described herein. See IGAs, **Attachments 3 & 4**. The Denver IGA and the Lafayette-Boulder IGA are collectively referred to herein as the “Gross Reservoir IGAs.” The Water Delivery Agreement is between only the CWCB and Boulder, even though Lafayette and Denver are also participants in the Gross Reservoir Environmental Pool.

The CWCB filed statements of opposition in Case Nos. 16CW3160 and 17CW3212, in part to negotiate the acquisition of interests in water for ISF use on South Boulder Creek. Boulder and co-applicant Lafayette had filed Case No. 17CW3212 for adjudication of the 5,000 acre-feet storage right for the Gross Reservoir Environmental Pool. Boulder filed Case No. 16CW3160 for storage in Wittermyer Ponds to allow substitutions and exchanges to various listed locations including to Gross Reservoir. Both water court applications allow reservoir releases from Gross Reservoir for ISFs for the CWCB to protect in the subject reach of South Boulder Creek. See map, **Attachment 2**.

In Case No. 16CW3160, Water Division No. 1, Boulder filed for a conditional water storage right for proposed ponds (“Wittermyer Ponds”) that will divert water from Boulder Creek. Boulder also filed for conditional rights of substitution and exchange that will, among other things, allow Boulder to deliver fully consumable water supplies to downstream appropriators on Boulder Creek, and to deliver an equivalent amount of water from the Environmental Pool in enlarged Gross Reservoir to the Subject Reach and other locations. Boulder also claimed ISF uses to be made by the CWCB pursuant to the Water Delivery Agreement from water attributable to the conditional water storage right that is diverted by substitution or exchange into the Gross Reservoir Environmental Pool, and subsequently released in amounts up to the IGA Targeted Flows within the Subject Reach identified in the Gross Reservoir IGAs.

In Case No. 17CW3212, Water Division No. 1, Boulder and co-applicant Lafayette filed for adjudication of a 5,000 acre-foot conditional water storage right for the Gross Reservoir Environmental Pool. Among other beneficial uses, and pursuant to the Gross Reservoir IGAs, Boulder sought approval of a decreed CWCB ISF use for the Gross Reservoir Environmental Pool water storage right within the Subject Reach when water is released to meet the IGA Targeted Flows in South Boulder Creek as described in the Lafayette-Boulder IGA. At this time, Boulder wishes to donate an interest in water released from Gross Reservoir to the CWCB to protect in South Boulder Creek, as described below and in the Water Delivery Agreement. See **Attachment 1**. CWCB will use and protect the water for ISF use to preserve the natural environment to a reasonable degree through South Boulder Creek to its confluence with Boulder Creek. However, if Gross Reservoir enlargement is unsuccessful, Boulder will continue to explore other avenues to improve South Boulder Creek streamflows and will work with CWCB as appropriate.

## The Board's Water Acquisition Procedures

Rule 6 of the Rules Concerning the Colorado Instream Flow and Natural Lake Level Program ("ISF Rules") sets forth the Board's procedures for acquiring water for ISF use. ISF Rule 6 requires a minimum of two Board meetings to allow for public input prior to taking final action on a proposed acquisition. The Board's initial consideration of this proposal occurred at the March 2019 Board meeting, which initiated the 120-day time period for the Board to consider the terms and conditions of the proposed acquisition. ISF Rule 6m.(4) provides that any person may request the Board to hold a hearing on the proposed acquisition, and that such a request must be filed within twenty days of the Board's initial consideration. No such request was filed and the time for filing such request has expired. Staff will request the Board to take final action on the proposal at this May 2019 Board meeting.

ISF Rules 6e. and 6f. require the Board to evaluate the appropriateness of the acquisition and determine how best to utilize the acquired water rights to preserve the natural environment. The Rules list several factors the Board may consider in its evaluation of the acquisitions. Several factors address water rights that need to be changed from irrigation or other uses to instream flow uses. Because this acquisition involves a new adjudication, those factors do not apply. This memo addresses the applicable factors.

Pursuant to statute, Staff has requested recommendations from Colorado Parks and Wildlife ("CPW"), the U.S. Department of Agriculture and the U.S. Department of Interior. Pursuant to ISF Rule 6m.(1), Staff has provided notice of the proposed acquisition to all persons included on the appropriate ISF Subscription Mailing Lists and provided notice to the State Engineer's Substitute Supply Plan Notification List. Staff has requested a biological analysis from CPW pursuant to Rule 6f.(2). CPW has reviewed this proposal, and has provided a final recommendation letter. See **Attachment 5**. CPW staff will be available to answer any questions at this Board meeting in support of the project.

## Water Proposed for Acquisition

The water rights proposed to be donated to the CWCB would be up to 5,000 acre-feet per year of water released from Gross Reservoir using the water rights claimed for the Gross Reservoir Environmental Pool, or water stored pursuant to 16CW3160 or 17CW3212 and exchanged into Gross Reservoir ("Acquired Water Rights").

## Reach of Stream Proposed for Use of the Acquired Water Rights

The reach of stream proposed for use of Boulder's releases from Gross Reservoir is on South Boulder Creek downstream from Gross Reservoir to the confluence with Boulder Creek. The segment extends through Eldorado Canyon and into the City of Boulder, approximately 17 river miles.

## Existing and Future ISF Water Rights

CWCB holds the following existing decreed ISF water rights on South Boulder Creek between the outlet of Gross Reservoir and South Boulder Road:

Decree	Stream	Upper Terminus	Lower Terminus	Flow Rates in cfs (dates)	Appropriation Date
80CW0379	South Boulder Creek	outlet Gross Res	USGS gage 06729500	15 (5/1 - 9/30) 6 (10/1 - 4/30)	12/02/1980
80CW0379	South Boulder Creek	USGS Gage 06729500	South Boulder Road Bridge	15 (5/1 - 9/30) 2 (10/1 - 4/30)	12/02/1980

The IGA Targeted Flow rates are slightly different from the decreed ISF rates. Furthermore, due to water availability, the CWCB does not currently hold an ISF water right within the lowest segment of South Boulder Creek to its confluence with Boulder Creek. CPW has been studying and collecting field data in South Boulder Creek for several decades and has developed flow recommendations to preserve the natural environment for this stream segment. Both the IGA Targeted Flow Rates and the CPW recommended ISF rates to preserve the natural environment (CWCB/CPW Flows”) are shown below:

Stream Segment	IGA TARGETED FLOWS				CWCB/CPW FLOWS	
	Summer (May-Sept.)		Winter (Oct.-April)		Summer (May-Sept.)	Winter (Oct.-April)
	Average Year	Dry Year	Average Year	Dry Year	All Year Types	
Segment 1 Gross Reservoir to USGS gage 06729500	10 cfs	7 cfs	7 cfs	5 cfs	15 cfs (Preserve)	8 cfs (Preserve)
Segment 2 USGS gage 06729500 to South Boulder Road Bridge	10 cfs	7 cfs	7 cfs	5 cfs	15 cfs (Preserve)	8 cfs (Preserve)
Segment 3 South Boulder Road to confluence with Boulder Creek	4 cfs	2 cfs	2.5 cfs	1.5 cfs	5.8 cfs (Preserve)	2.5 cfs (Preserve)

## **Natural Flow Regime**

The headwaters of South Boulder Creek originate at approximately 11,600 feet in elevation near Rogers Pass directly west of Rollinsville. The upper portions of South Boulder Creek are typical of a high-gradient mountain stream. As the creek emerges from Eldorado Canyon near Eldorado Springs, it transitions from a high-gradient, cold-water environment to a lower-gradient plains stream, flowing northeasterly onto the valley floor to its confluence with Boulder Creek near Valmont Road. The watershed's total drainage area is approximately 130 square miles.

A majority of the streamflow in South Boulder Creek is in the form of high-elevation snow accruals; however, operations of Denver Water's Moffat System affect the upper portions of South Boulder Creek as Colorado River water is imported into Gross Reservoir via the Moffat Tunnel. Gross Reservoir is an on-channel reservoir in the upper portions of South Boulder Creek, storing water for Denver Water, which is then diverted through the South Boulder Creek Diversion Conduit upstream of Eldorado Springs. In the narrow transition zone from a cold-water to warm-water fishery, there are significant modifications due to municipal and agricultural diversions. Below Eldorado Springs, flows in South Boulder Creek are depleted by diversions for agriculture, industrial, and municipal uses. Flows in South Boulder Creek show a traditional peak due to snowmelt runoff in late-spring to early-summer; however, many segments of the stream experience periods of depleted base-flow and virtually no flow in certain segments.

## **Existing Natural Environment**

The natural environment in South Boulder Creek supports a variety of plant and animal species including a fishery for both cold-water and warm-water species. The fishery is comprised predominantly of brown trout, but includes native fish populations and non-native species, such as rainbow trout, cutthroat rainbow trout hybrid, golden shiner, and bluegill. Native fish species are most prevalent between South Boulder Road and just downstream of Arapahoe Road, and are commonly found in back-water or off-channel habitat and in proximity to complex microhabitat, such as submerged vegetation and woody debris. Native fish populations include longnose sucker, longnose dace, green sunfish, and plains topminnow. South Boulder Creek is also an important resource for the community because of its recreational and aesthetic values.

## **Proposed Method of Acquisition**

Under this proposal, the CWCB would acquire a contractual interest in up to 5,000 acre-feet of releases from the enlarged Gross Reservoir. Boulder and CWCB are in the process of negotiating the terms of the Water Delivery Agreement. Following the Board's approval of such agreement, CWCB, Boulder and Lafayette will stipulate to a decree in each of Case Nos. 16CW3160 and 17CW3212, which will provide a decreed right for CWCB to use the acquired water for ISF purposes, and will provide terms and conditions that will protect CWCB's existing ISF water rights from injury.

Pursuant to the Water Delivery Agreement, Boulder will release and deliver water stored in the enlarged Gross Reservoir as necessary to meet the IGA Targeted Flows, for exclusive ISF use by the CWCB as an acquired interest in water. When Boulder notifies CWCB that such releases are being made, CWCB shall protect the delivered acquired water through the Subject Reach from diversion or exchange by other water users by requesting, when

necessary, administration by the Colorado State and Division Engineers to prevent diversion of or exchange upon the water within the Subject Reach by other water users.

#### **Proposed Use of the Acquired Water**

The acquired water would be used to preserve the natural environment in South Boulder Creek to a reasonable degree by protecting reservoir releases up to 10 cfs to meet the IGA Targeted Flows and CWCB/CPW Flow rates in South Boulder Creek. The CWCB would use the reservoir releases to help maintain stream flows in South Boulder Creek for preservation of the natural environment to a reasonable degree within Segments 1 & 2 of the Subject Reach up to the CWCB/CPW Flow rates of 8 cfs in the winter and 15 cfs in the summer; and in Segment 3 up to 2.5 cfs in the winter and up to 5.8 cfs in the summer.

#### **Historical Use and Historical Return Flows**

The Board does not need to consider historical use and return flows because this is a release of new junior storage water and does not involve a change of water right or other mechanism for which return flows would be owed.

#### **Location of Other Water Rights**

There are many other water rights located on South Boulder Creek; however, they will not be affected by this release and protection of water stored in priority.

#### **Material Injury to Existing Rights**

Any terms and conditions to prevent injury to other water rights are currently being negotiated and will be included in the final decrees filed in Case Nos. 16CW3160 and 17CW3212.

#### **Stacking Evaluation**

When water is available under the Water Delivery Agreement for ISF use in South Boulder Creek, the CWCB can use it in addition to any other appropriated or acquired water rights available to the CWCB for ISF use in this segment of South Boulder Creek to achieve a greater level of preservation of the natural environment and to meet the CPW flow recommendations to preserve the natural environment, as approved by the Board.

#### **Effect of Proposed Acquisition on Any Relevant Interstate Compact Issue**

The proposed acquisition does not negatively affect any interstate compact. The reservoir release will be used for ISF purposes and for other beneficial uses downstream of the lower terminus of the ISF stream segment.

#### **Effect on Maximum Utilization of Waters of the State**

This proposed acquisition will promote maximum utilization of waters of the State by delivering the water to downstream consumptive users, while at the same time the ISF preserves the natural environment to a reasonable degree along the delivery path of South Boulder Creek.

#### **Availability for Downstream Use**

Boulder and Lafayette will use the reservoir releases downstream of South Boulder Creek, and if not reused by Boulder and Lafayette will be used by other appropriators on Boulder Creek, St. Vrain Creek, and the South Platte River.

### **Administrability**

CWCB staff has discussed this project with the Division 1 Division Engineer. It is anticipated that once the water court case is closed and a final decree is issued, the reservoir release water from Gross Reservoir through South Boulder Creek will be administrable. There may be some needed modification of diversion structures and installation of some measuring devices for administration.

### **Potential Benefits of This Proposed Acquisition**

The proposed acquisition will increase stream flows in South Boulder Creek, provide water to current dry-up points in the creek below headgate diversions, and provide benefits to the fish species that live in this reach.

### **Cost to Complete Transaction**

No direct costs will be incurred by the CWCB because Boulder will donate the interest in water to the CWCB. However, as part of its normal work load, CWCB staff will continue to work on the acquisition documents, maintain records of the water use, and request administration, as needed to protect the released water through the Subject Reach. Boulder will be responsible for the costs of physical modifications of any existing diversion structures on the stream, installation and maintenance of any additional stream gages, and any additional consultant work.

### **ATTACHMENTS:**

**Attachment 1 - Water Delivery Agreement (Draft)**

**Attachment 2 - Location Map**

**Attachment 3 - Denver IGA, "Intergovernmental Agreement Between the City and County of Denver, the City of Boulder, and the City of Lafayette For an Environmental Pool in Gross Reservoir," dated February 24, 2010.**

**Attachment 4 - Lafayette-Boulder IGA, "Intergovernmental Agreement Between the City of Lafayette and the City of Boulder Regarding the Operation of the Environmental Pool in Gross Reservoir," dated February 17, 2010.**

**Attachment 5 - CPW recommendation letter, by Katie Birch, CPW Instream Flow Program Coordinator**