RECLAMATION

Managing Water in the West

FONSI No. 2019-03
Project No. 2017-34

Water Service Contract Renewal between the United States and the Town of Estes Park

Environmental Assessment

Finding of No Significant Impact

Approved: _____ Date: October 21, 2019
Area Manager

U.S. Department of the Interior
Bureau of Reclamation
Great Plains Region
Eastern Colorado Area Office

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Mission Statements

The mission of the Department of the Interior is to protect and manage the Nation's natural resources and cultural heritage; provide scientific and other information about those resources; and honor its trust responsibilities or special commitments to American Indians, Alaska Natives, and affiliated island communities.

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

FINDING OF NO SIGNIFICANT IMPACT

In accordance with the National Environmental Policy Act (NEPA) of 1969, as amended, and the Council on Environmental Quality's Regulations for implementing the procedural provisions of the National Environmental Policy Act (40 CFR Part 1500-1508), the Bureau of Reclamation has prepared an environmental assessment (EA) for issuing an in-perpetuity 500 acre-feet water repayment contract between the Bureau of Reclamation and the Town of Estes Park. The Final Environmental Assessment analyzes No Action and Proposed Action alternatives.

The Town of Estes Park requested renewal of their existing water service contract (Contract No. 4-07-60-W1075) to continue receiving up to 500 ac-ft of Colorado-Big Thompson (C-BT) Project water per year. Based on the following, Reclamation has determined that the Proposed Action will not result in a significant impact on the human environment.

Background

Reclamation currently provides Estes Park with up to 500 ac-ft of C-BT Project water through Contract No. 4-07-60-W1075, also known as Contract Water, which is described in the original 1938 C-BT Project repayment contract (Contract No. 9-7-70-W0020) between the United States and the Northern Colorado Water Conservancy District (Northern Water). The Contract Water is used to meet a portion of Estes Park's domestic water demands. Contract No. 4-07-60-W1075 will expire on November 23, 2019. Reclamation intends to issue an in-perpetuity repayment contract.

Amendments to the water service contract were executed in 1970, 1976, 1977, and 1994 to reflect changes in Estes Park's water system. These amendments were made to:

- Reflect completion of C-BT Project facilities;
- Reflect completion of the Marys Lake Gatehouse connection;
- Provide for continued use of existing connection at the Estes Powerplant Penstocks;
- Provide for power interference payments for Marys Lake Gatehouse water deliveries;
- Delete requirements to furnish domestic water service to C-BT Project facilities;
- Delete requirements to provide fire protection to C-BT Project facilities; and,
- Delete, amend, and modify the contract to reflect current operational circumstances and contractual developments which have occurred since execution of the original contracts.

Purpose and Need

Reclamation intends to issue an in-perpetuity repayment contract. An in-perpetuity repayment contract addresses reliability, improves operational efficiency, and assists in meeting future water demands as described in Estes Park's 2015 Comprehensive Water Master Plan. Estes Park operates two water treatment plants: Marys Lake Water Treatment Plant (MLWTP) and Glacier Creek Water Treatment Plant (GCWTP).

Estes Park's existing water supplies to MLWTP are insufficient to operate MLWTP on a year-round basis and GCWTP's water supplies are insufficient to meet peak-use season demands. An additional delivery point in Lake Estes will provide added flexibility to meet Estes Park's current and future water demands. By making water exchanges possible, Estes Park can use an expanded GCWTP to meet peak and year-round demands.

Project Alternatives

Proposed Action

Under the Proposed Action, Reclamation and Estes Park would enter into an in-perpetuity water repayment contract. The new water repayment contract would:

- Maintain the existing Marys Lake Gatehouse connection that services MLWTP;
- Remove an Estes Powerplant Penstocks delivery location; and
- Add Lake Estes outlet works as an additional delivery location.

Estes Park would continue to treat the Contract Water at the MLWTP into the near future. Estes Park has also filed for additional water rights on the Big Thompson River that includes a new diversion structure (Big Thompson Intake). Once finalized in Colorado Water Court, Contract Water delivered to Lake Estes could be exchanged to the upstream Big Thompson Intake and treated at GCWTP. The Big Thompson Intake would be approximately 0.9 miles downstream of GCWTP.

A raw water pipeline (GCWTP Pipeline) would be constructed to transport diversions at Big Thompson Intake upstream to GCWTP and parallel an existing distribution finished water pipeline and two-track road maintenance road across lands owned by the Young Men's Christian Association of the Rockies (YMCA). A pump station would also be needed to lift diverted water up to an expanded GCWTP. Estes Park is seeking funding from the Department of Agriculture Rural Development Program grants and long-term, low interest loans for GCWTP expansion and intends to begin construction within the next one to five years.

Once the Big Thompson Intake is constructed, Estes Park proposes to exchange Contract Water currently delivered to MLWTP to the Big Thompson Intake for treatment at GCWTP. Estes Park would also continue to use the existing Glacier Creek Pipeline diversion. Estes Park also intends to exchange C-BT Project and Windy Gap Project shares currently delivered to MLWTP. The exchanges would provide water treatment redundancy and MLWTP could be decommissioned if no longer needed. All exchanges between Lake Estes and Glacier Creek would be administered by the Colorado Division of Water Resources (CDWR) and subject to Colorado water law and Estes Park water rights decrees.

Storage of delivered Contract Water in Lake Estes is not allow under the Proposed Action. However, Reclamation would reserve the right to deliver all or a portion of Contract Water from C-BT Project water already in Lakes Estes when beneficial for C-BT Project operations.

All exchanges of Contract Water from Lake Estes to the Big Thompson Intake could only occur if the existing water service contract is amended and exchanges are administered by CDWR. The amount and timing of exchanges of Contract Water and C-BT Project and Windy Gap Project water would be conditioned on not causing injury to the C-BT Project and subject to appropriated water rights. Construction and operation of the Big Thompson Intake and GCWTP Pipeline, and Contract Water exchanges to the Big Thompson Intake are all included in the Proposed Action.

Expansion of GCWTP and exchanges of C-BT and Windy Gap Project water are considered reasonably foreseeable future actions that could occur independent of the Proposed Action.

No Action

Under the No Action Alternative, Reclamation would administratively renew Estes Park's Contract No. 4-07-60-W1075 for delivery of up to 500 ac-ft per year per the terms of the existing contract for an additional 25 years. It would be updated to include required edits to standard contract articles. There would be no changes to power interference charges for the delivery of Contract Water that bypasses Marys Lake Powerplant. Under the No Action Alternative, the Contract Water would not be available for exchange in Lake Estes to GCWTP.

Consultation and Coordination

Reclamation conducted informal discussions with and/or utilized other Federal, State and local agencies websites to identify issues and concerns associated with renewal of the Town of Estes Park Contract.

On August 15, 2019, Reclamation issued a news release announcing the availability of the Draft EA for public review and comment. The Draft EA was available on Reclamation's website at: https://www.usbr.gov/gp/ecao/nepa/estes_park_water.html. Reclamation also sent a news release to 3 media contacts, 8 media groups and 1,635 entities and individuals.

Comments on the draft EA were requested by September 13, 2019. Reclamation received no comments on the draft EA received. After additional internal review, minor edits were made to the draft EA. However, these edits did not change the analysis or predicted environmental effects.

Summary of Environmental Impacts

During the environmental review process, potential effects resulting from the Proposed Action were identified by reviewing existing information and discussions with other federal, state and local agencies. In the Final EA, Reclamation evaluated the environmental consequences associated with implementing No Action or Proposed Action. No unavoidable adverse impacts or irreversible and irretrievable commitment of resources are expected to occur under both the No Action or Proposed Action.

Environmental effects associated with No Action and Proposed Action are summarized below. Cumulative effects associated with reasonably foreseeable future exchanges to GCWTP are also predicted. With implementation of environmental commitments associated with the Proposed Action, predicted changes in streamflow in the Big Thompson River results in negligible to minor effects to the human environment.

Resource	Proposed Action	Cumulative Impacts
Water Resources	-No changes in flows under current operations. Minor decreases in stream flow in Big Thompson River between Big Thompson Intake and Lake Estes during exchanges. -Largest predicted streamflow decreases (5.8% to 7.2% from a 0.7 cfs diversion at Big Thompson Intake) would occur in March prior to spring runoff.	-Negligible decreases in stream flow predicted when exchanges of C-BT Project and Windy Gap Project water between Big Thompson and Lake Estes occur.
Water Rights	-All exchanges would be subject to water right decrees and administered by the State of Colorado.	Same as Proposed Action.
Fish and Wildlife Resources	-No effect under current operations. -Negligible effects to fisheries resources from decreased streamflow in Big Thompson River above Lake Estes during exchanges. -Big Thompson Intake would use a fish friendly design to allow fish passage and minimize fish entrainment. -No effect to fisheries resources downstream of Lake Estes. -Minor, temporary displacement of local wildlife during construction of Big Thompson Intake, GCWTP expansion, and GCWTP Pipeline. No long-term effects predicted.	Same as Proposed Action.
Threatened and Endangered Species	-No effect and there are no new depletions from either Colorado or Platte River basins associated with the Proposed Action.	-Same as Proposed Action.
Water Quality	--No changes in water quality under current operations. -Additional flexibility at GCWTP may result in taste improvements to water delivered at the tap.	-Same and Proposed Action.
Waters of the United States	-No effect to Water of the United States under current operations. Minor discharges associated with construction of the Big Thompson Intake. All permanent discharges associated with construction activities result in loss of less than $1/10^{th}$ acre of Water of the United States. -Temporary impacts to lower and upper wet areas during construction of GCWTP Pipeline. -Compliance with NWP 12 would help minimize impacts to a negligible level. -Implementation of BMPs associated with NPDES	-No cumulative impacts anticipated.
Land Use and Recreation	--No changes in land use under current operations.	-No cumulative impacts predicted.

Resource	Proposed Action	Cumulative Impacts
	-Minor temporary impacts to local land uses during construction activities associated with Big Thompson Intake, GCWTP expansion, and GCWTP Pipeline. -Temporary YMCA trail closures along Glacier Creek during construction may be required during construction activities for public safety.	
Visual Resources and Noise	-No impacts to visual resource or increased noise under current operations. -Minor temporary construction related impacts associated with Big Thompson Intake GCWTP expansion and GCWTP Pipeline. -Revegetation of pipeline alignment and associated construction areas would minimize any long-term effects on visual resources.	- Minor temporary impacts associated with GCWTP expansion. -Use of non-reflective materials painted with natural color tones would minimize any potential visual impacts associated with construction and operation of new water treatment facilities at GCWTP.
Air Quality	-No impacts to air quality under current operations. -Implementation of construction BMPs and dust abatement during construction would minimize any temporary impacts.	-No cumulative impact predicted.
Socioeconomics	-Proposed Action intended to assist Estes Park and the Estes Valley in meeting the current and future water service needs of the community.	Same as Proposed Action.
Hydropower	-No additional effects under current operations. -Potential to increase power generation by 0.2% during Contract Water exchanges.	-Potential to increase power generation by 0.4% with Contract Water, C-BT Project, and Windy Gap Project exchanges.
Historic Resources	-No effect to cultural resources under current operations. -Cultural resource inventories would be conducted prior to any ground disturbing activities associated with Big Thompson Intake, GCWTP expansion and GCWTP Pipeline. -Any historic resources eligible for National Register of Historic Places identified during the inventories would be avoided. Any impacts to historic resources would be mitigated as identified during the Section 106 process with the Colorado State Historic Preservation Officer.	Same as Proposed Action.
Indian Trust Assets	No ITAs have been identified that could be affected by the Proposed Action. .	
Environmental Justice	No effect.	
Other Resources	No effect.	

Environmental Commitments

The following mitigation measures and environmental commitments measures would be implemented and followed by Estes Park and their contractors. Mitigation measures are intended to minimize or eliminate environmental effects associated with the future construction of the Big Thompson Intake and expansion of the GCWTP.

1. **Colorado-Big Thompson Project Operations:**
   a. Contract Water deliveries cannot adversely impact Colorado-Big Thompson Project operation and maintenance activities.
   b. All water must be transported, released and/or exchanged in accordance with Colorado water law.
2. **Future Glacier Creek Water Treatment Plant Expansion**:

   a. Visual Resources: Future expansion and improvement of Glacier Creek Water Treatment Plant and construction of the Big Thompson Intake shall incorporate the use of natural screening and nonreflective natural colors in each feature's design.

   b. Cultural Resources: To mitigate any potential impacts to historic resources associated with Contract Water exchanges from Lake Estes to the Big Thompson Intake, Estes Park shall complete and submit to Reclamation, cultural resource inventories prior to construction of the Big Thompson Intake and Glacier Creek Water Treatment Plant Pipeline. All cultural resource inventories shall include a Class III surveys of potential disturbances within construction footprint, staging areas, and borrow/disposal sites. Estes Park shall coordinate inventories with Reclamation archaeologist and all contracted Cultural Resource professional must hold valid permits issued by the state of Colorado. More information on permit and inventory requirements can be found at: https://www.historycolorado.org/archaeology-and-paleontology-law-permits.

   Once cultural resource inventories are completed, Reclamation shall determine if any sites eligible to the National Register of Historic Places and complete the National Historic Preservation Act Section 106 consultation process with the Colorado State Historical Preservation Office. In the event historic resources are identified and would be adversely affected by the Proposed Action, mitigation measures shall be developed and implemented pursuant to a Memorandum of Agreement (MOA) between Reclamation, Colorado State Historical Preservation Office, and the Town of Estes Park. Reclamation shall also invite the Advisory Council on Historic Preservation and any eligible local historic preservation entity to participate in development of the MOA.

   In the unlikely event that historic resources are encountered during all ground disturbing construction activities, all construction related activities shall be stopped and Reclamation notified. Reclamation shall evaluate the discovery and complete the National Historic Preservation Act 106 consultation process and implement protective measures as appropriate, prior to resuming ground disturbing construction activities.

c. Clean Water Act 404 Compliance: Estes Park shall consult with the Army Corps of Engineers if construction of facilities necessary to use the Contract Water requires Clean Water Act Section 404 compliance, which may include obtaining a 404 permit.

RECLAMATION
Managing Water in the West

Water Service Contract Renewal between the United States and the Town of Estes Park

Final Environmental Assessment

Project 2017-034
Colorado-Big Thompson Project
Eastern Colorado Area Office
Great Plains Region

October 2019

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.

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Appendices

ACRONYMS

ac-ft	acre-feet
AOP	Annual Operating Plan
APE	Area of Potential Effect
BLM	Bureau of Land Management
BMPs	Best Management Practices
C-BT Project	Colorado-Big Thompson Project
CDPHE	Colorado Department of Public Health and Environment
CPDS	Colorado Permit Decision System
CDWR	Colorado Division of Water Resources
cfs	cubic feet per second
Contract Water	Water Service Contract Water
CPW	Colorado Division of Parks and Wildlife
EA	Environmental Assessment
ESA	Endangered Species Act
Estes Park	Town of Estes Park
GCWTP	Glacier Creek Water Treatment Plant
gpcd	gallon per capita day
kwh	kilowatt/hour
mgd	million gallons per day
MLWTP	Marys Lake Water Treatment Plant
mwh	megawatt/hour
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
Northern Water	Northern Colorado Water Conservancy District
NPS	National Park Service
NWP	Nationwide Permit
PBO	Programmatic Biological Opinion
PCN	Preconstruction Notice
PFYC	Potential Fossil Yield Classification
Reclamation	Bureau of Reclamation
Service	U.S. Fish and Wildlife Service
SPWRAP	South Platte Water-related Action Plan
SUP	Special Use Permit
Town	Town of Estes Park
USACE	U.S. Army Corps of Engineers
YMCA	Young Men’s Christian Association of the Rockies

Chapter 1 – Purpose & Need

1.1 Introduction

This environmental assessment (EA) has been prepared to evaluate potential impacts associated with issuing an in-perpetuity 500 acre-feet (ac-ft) water repayment contract between the Bureau of Reclamation (Reclamation) and the Town of Estes Park (Estes Park) (Appendix A).

Estes Park proposes to renew their existing water service contract (Contract No. 4-07-60-W1075) to continue to receive up to 500 ac-ft of Colorado-Big Thompson Project (C-BT Project) water per year. Contract No. 4-07-60-W1075 expires on November 23, 2019 and Estes Park has requested the following changes associated with its renewal:

1) Remove the delivery point at the Estes Powerplant Penstock.
2) Add an additional delivery point at Lake Estes.
3) Change the contract to an in-perpetuity water repayment contract.

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, and Reclamation.

1.2 Purpose and Need

Reclamation currently provides Estes Park with up to 500 ac-ft of C-BT Project water through Contract No. 4-07-60-W1075, also known as Contract Water, which is described in the original 1938 C-BT Project repayment contract (Contract No. 9-7-70-W0020) between the United States and the Northern Colorado Water Conservancy District (Northern Water). The Contract Water is used to meet a portion of Estes Park's domestic water demands. Contract No. 4-07-60-W1075 will expire on November 23, 2019. Reclamation intends to issue an in-perpetuity repayment contract.

An in-perpetuity repayment contract addresses reliability, improves operational efficiency, and assists in meeting future water demands as described in Estes Park's Comprehensive Water Master Plan (FEI Engineers 2015). Estes Park operates two water treatment plants: Marys Lake Water Treatment Plant (MLWTP) and Glacier Creek Water Treatment Plant (GCWTP) (See Figure 1).

Estes Park's existing water supplies to MLWTP are insufficient to operate MLWTP on a year-round basis and GCWTP's water supplies are insufficient to meet peak-use season demands. An additional delivery point in Lake Estes will provide added flexibility to meet Estes Park's current and future water demands. By making water exchanges possible, Estes Park can use an expanded GCWTP to meet peak and year-round demands.

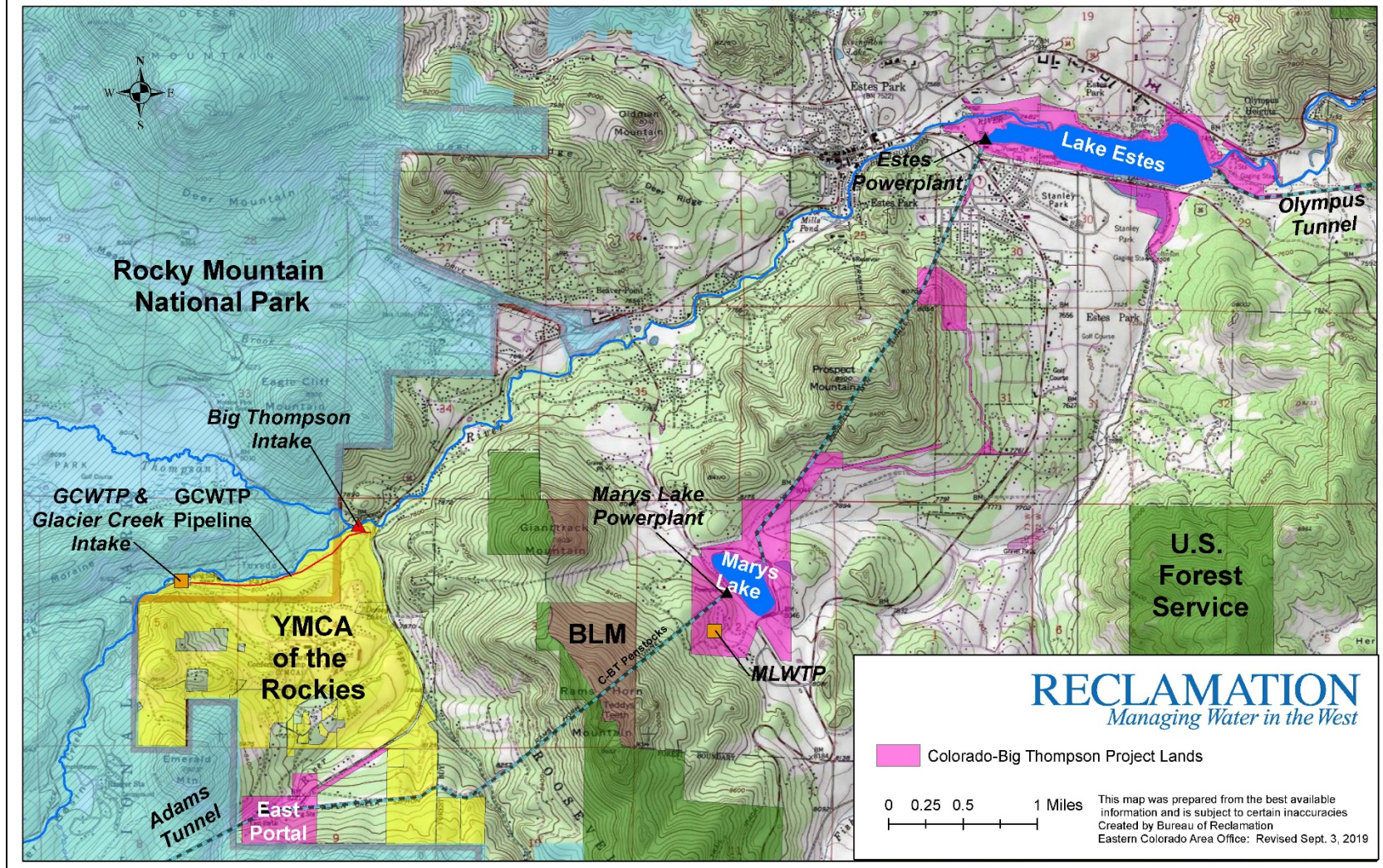

Figure 1-Project Area Map

1.3 Background

1.3.1 Colorado-Big Thompson Project

Reclamation constructed the C-BT Project as a multipurpose water supply project between 1938-1956. It is one of the largest and most complex natural resource developments undertaken by Reclamation and consists of more than 100 structures integrated into a trans-mountain water diversion system. The C-BT Project is spread over approximately 250 square miles in Colorado. It stores, regulates and diverts water from the Colorado River on the western slope of the Rocky Mountains, and delivers water to the eastern slope.

C-BT Project Water is moved via tunnels, canals, and siphons into a series of reservoirs and powerplants for terminal storage in Horsetooth Reservoir and Carter Lake. C-BT Project Water is used for power generation, and supplemental irrigation, municipal and industrial uses.

Contract No. 9-07-70-W0020 with Northern Water requires repayment of reimbursable irrigation portions of the construction costs and the annual operation, maintenance and replacement costs. In Contract No. 9-07-70-W0020, Northern Water also agreed that:

> "*…the Unites States may dispose of to the Town* (Estes Park)*, for domestic purposes up to but not to exceed 500 ac-ft of water per annum, the perpetual use of which Northern Water acquired under the provision of the contract.*"

1.3.2 Estes Park Water Service Contract

Reclamation and Estes Park entered into a November 6, 1939 water service contract to annually deliver 500 acre-feet of Contract Water for municipal purposes. Amendments to the water service contract were executed in 1970, 1976, 1977, and 1994 to reflect changes in Estes Park's water system. The 1994 amendatory contract (Contract No. 4-7-60-W1075) extended water service for an additional 25-years and included a 25-year renewal option subject to the following conditions:

> "*Prior to renewal, all terms and conditions, excluding the Annual Water Supply as defined in Article 1e will be renegotiated by the parties hereto subject to applicable Federal and State laws and Reclamation policy in effect or as established by the Secretary of the Interior at that time*".

The 1994 amendatory water service contract also:

- Reflected completion of C-BT Project facilities;
- Reflected completion of the Marys Lake Gatehouse connection;
- Provided for continued use of existing connection at the Estes Powerplant Penstocks;
- Provided for power interference payments for Marys Lake Gatehouse water deliveries;
- Deleted requirements to furnish domestic water service to C-BT Project facilities;
- Deleted requirements to provide fire protection to C-BT Project facilities; and,
- Deleted, amended, and modified the contract to reflect current operational circumstances and contractual developments which have occurred since execution of the original contracts.

1.4 Issues and Concerns

Reclamation conducted internal scoping to help identify issues and concerns associated with the Proposed Action. Reclamation also discussed the Proposed Action with various agencies including National Park Service (NPS), Colorado Division of Water Resources (CDWR) and Colorado Division of Parks and Wildlife (CPW) to assist in defining the scope of the analysis, potential impacts, and avoid the duplication of existing information.

General issues and concerns associated with the Proposed Action include:

- Aquatic Life
- Aquatic Recreation
- Channel Stability and Morphology
- Cumulative Effects
- Historic Properties
- Human Environment
- Rocky Mountain National Park
- Surface Water Hydrology
- Socioeconomics
- Vegetation
- Visual Resources
- Water Quality
- Water Rights
- Wildlife

Chapter 2-Proposed Action and Alternatives

2.1 Water Service Contract

The Reclamation Manual Directives and Standards *Un-matured Receivables for Construction Repayment Contracts* (FIN 06-30) defines water service contracts as contracts with public entities based on water rates to recover costs of water delivery, operations and maintenance, construction repayment, and deficits. These contracts provide Project Water at contractually established water rates pursuant to subsection 9 (c)(2) or 9(e) of the Reclamation Project Act of 1939, Section 9 of the Water Conservation and Utilization Act, the Sale of Water for Miscellaneous Purposes Action of 1920, or other authority. Water service contracts can be authorized under general or project specific legislation, or a combination of both.

2.2 Alternatives

2.2.1 No Action Alternative

Under the No Action Alternative, Reclamation would administratively renew Estes Park's Contract No. 4-07-60-W1075 for delivery of up to 500 ac-ft per year per the terms of the existing contract for an additional 25 years. It would be updated to include required edits to standard contract articles. There would be no changes to power interference charges for the delivery of Contract Water that bypasses Marys Lake Powerplant. Under the No Action Alternative, the Contract Water would be delivered to MLWTP and not available for exchange in Lake Estes. Reasonably foreseeable future actions that may occur independent of the Proposed Action are discussed in Section 3.1.

2.2.2 Proposed Action

Under the Proposed Action, Reclamation and Estes Park would enter into an in-perpetuity water repayment contract. The new water repayment contract would:

- Maintain the existing Marys Lake Gatehouse connection that services MLWTP;
- Remove an Estes Powerplant Penstocks delivery location; and
- Add Lake Estes outlet works as an additional delivery location.

Estes Park would continue to treat the Contract Water at the MLWTP into the near future. Estes Park has also filed for additional water rights on the Big Thompson River (Case Nos. 18CW3229, 2019CW3065, and 2019CW3080) that includes a new diversion structure (Big Thompson Intake). Once finalized in Colorado Water Court, Contract Water delivered to Lake Estes could be exchanged to the upstream Big Thompson Intake and treated at GCWTP. The Big Thompson Intake would be approximately 0.9 miles downstream of GCWTP.

A raw water pipeline (GCWTP Pipeline) would be constructed to transport diversions at Big Thompson Intake upstream to GCWTP. The GCWTP Pipeline would parallel an existing distribution finished water pipeline and two-track road maintenance road across lands owned by the Young Men's Christian Association of the Rockies (YMCA). A pump station would also be

needed to lift diverted water up to an expanded GCWTP. Estes Park also intends to seek funding from the Department of Agriculture Rural Development Program grants and long-term, low interest loans for GCWTP expansion within the next one to five years.

GCWTP would be expanded as described in its Comprehensive Water Master Plan (FEI Engineers 2015). More information can be found at: https://www.rd.usda.gov/programs-services/water-waste-disposal-loan-grant-program.

Once the Big Thompson Intake is constructed, Estes Park proposes to exchange Contract Water currently delivered to MLWTP to the Big Thompson Intake for treatment at GCWTP. Estes Park would also continue to use the existing Glacier Creek Pipeline diversion. Estes Park also intends to exchange C-BT Project and Windy Gap Project shares currently delivered to MLWTP. The exchanges would provide water treatment redundancy and MLWTP could be decommissioned if no longer needed. All exchanges between Lake Estes and Glacier Creek would be administered by the Colorado Division of Water Resources (CDWR) and subject to Colorado water law and Estes Park water rights decrees.

Storage of delivered Contract Water in Lake Estes is not allowed under the Proposed Action. However, Reclamation would reserve the right to deliver all or a portion of Contract Water from C-BT Project water already in Lakes Estes when beneficial for C-BT Project operations.

All exchanges of Contract Water from Lake Estes to the Big Thompson Intake could only occur if the water repayment contract is in place and the exchanges are administered by CDWR. The amount and timing of exchanges of Contract Water and C-BT Project and Windy Gap Project water would be conditioned on not causing injury to the C-BT Project and subject to appropriated water rights. Construction and operation of the Big Thompson Intake and GCWTP Pipeline, and Contract Water exchanges to the Big Thompson Intake are all included in the Proposed Action.

Expansion of GCWTP and exchanges of C-BT and Windy Gap Project water are considered reasonably foreseeable future actions that could occur independent of the Proposed Action. Reasonably foreseeable future actions are discussed and evaluated in greater detail in Section 3.1 and included in the cumulative impact analysis.

Chapter 3-Affected Environment and Environmental Consequences

This chapter describes the affected environment and discloses direct, indirect and cumulative environmental consequences of the No Action and Proposed Actions. It focuses on these resources: water rights, water resources and C-BT Project Operations, water quality, aquatic resources, recreation, threatened and endangered species, socioeconomics, and historic resources. Potential cumulative impacts related to present and reasonably foreseeable future actions are also discussed at the end of each resource section.

3.1 Reasonably Foreseeable Future Actions

Reasonably foreseeable future actions include those federal and non-federal activities not yet undertaken, but sufficiently likely to occur, that a responsible official of ordinary prudence would take such activities into account in reaching a decision (43 CFR 46.30). Reasonably foreseeable future actions must be considered in the analysis of cumulative impact and include activities for which there are existing decisions, funding, or proposals identified by the Reclamation. Reasonably foreseeable future actions do not include those actions that are highly speculative or indefinite. Reasonably foreseeable actions include the following:

3.1.1 Recovery Implementation Programs

The C-BT Project operations rely on two Recovery Implementation Programs for compliance with the Endangered Species Act (ESA) of 1973. The Upper Colorado River Recovery Implementation Program established in 1988 to recover the humpback chub, bonytail, Colorado pikeminnow, and razorback sucker in the Upper Colorado River Basin. The Platte River Recovery Implementation Program was formed in 1997 to address the recovery needs for whooping crane, least tern, pallid sturgeon, and piping plover in the Platte River Basin. Both recovery implementation programs address recovery actions while continued water development occurs. It is reasonably foreseeable that both recovery implementation programs will continue in the future. More information on each program can be found at: http://www.coloradoriverrecovery.org/ and https://platteriverprogram.org/.

3.1.2 C-BT Project and Windy Gap Project Units

Estes Park holds 1,217 C-BT Project units and 3 Windy Gap Project units under allocation contracts with Northern Water and its Municipal Subdistrict. Each C-BT Project unit represents 1 ac-ft of which 50 percent is considered a firm water supply. Each Windy Gap unit represents 100 ac-ft, but none of the Windy Gap water supply is considered firm. In 2014, Reclamation signed a Record of Decision (ROD) and Contract No 15XX650003 with Northern Water and its Municipal Subdistrict that allows for the connecting to C-BT Project facilities to firm Windy Gap Project yield by providing 90,000 ac-ft of storage in Chimney Hollow Reservoir. The Army Corps of Engineers (USACE) issued a Clean Water Act Section 404 Permit for construction of Chimney Hollow Reservoir in 2017. Additional information on C-BT Project Water allotment can be found at: http://www.northernwater.org/AllotteeInformation/AllotteeInformation.aspx. Information on the Windy Gap Firming Project can be found at: https://www.usbr.gov/gp/ecao/wgfp_feis/index.html and https://www.northernwater.org/sf/wgfp/home.

Construction of Chimney Hollow Dam is anticipated to begin in 2020 subject to pending litigation. Reclamation considers the Windy Gap Firming Project as reasonably foreseeable.

3.1.3 Estes Park Water Rights and Appropriative Right of Exchange

Estes Park submitted water rights applications (Case Nos. 18CW3229, 2019CW3065, and 2019CW3080) in Colorado Water Court. The applications include a conditional right to divert 10 cfs, with a priority date of December 28, 2018, at the Big Thompson Intake for municipal uses within and without (inside and outside) Estes Park, with right to fully consume the water by initial uses, reuse, successive use or disposition following first use or any subsequent use. The

point of diversion is about 200 feet downstream of its confluence with Glacier Creek. Copies of the applications are included in Appendix B.

In the application, Estes Park claims an appropriative right to exchange water at the Big Thompson Intake, including releases of substitute supply in Lake Estes for direct releases of Contract Water, C-BT Project and Windy Gap water to Lake Estes, reusable flows from the Estes Park Sanitation District and Upper Thompson Sanitation District discharges to the Big Thompson River immediately downstream of Lake Estes.

Figures 1 illustrates a general location of the Big Thompson Intake structure and GCWTP pipeline alignment needed to deliver exchanged water to GCWTP for treatment.

3.1.4 Glacier Creek Water Treatment Plant Expansion

GCWTP, completed in 1972, is a conventional treatment plant (HDR 2012). It is located along Glacier Creek with access only through the YMCA property (see Figure 2). Minor improvements to the facility were made in 2003 when the filter media was replaced. GCWTP has a buried concrete clearwell that was constructed in 1971 and a 1 million gallon buried concrete storage tank that was added in 1995.

Estes Park's plans call for replacing the existing GCWTP with a membrane plant on the same site with eventual treatment capacity expansion from 3 to 6 million gallons per day (mgd). The estimated cost of replacement plant and associated features is $35,000,000.

Expansion of GCWTP is also dependent on the disposition of Case Nos. 18CW3229, 2019CW3065, and 2019CW3080 and Estes Park's ability to execute the exchanges as previously described in Section 3.1.3. Within a five-year period, Estes Park intends to upgrade and expand water treatment at GCWTP to 6 mgd to meet an estimated 2034 demand (FEI Engineers 2015). Upgraded treatment processes are also expected at GCWTP to comply with the State of Colorado's Disinfection Outreach and Verification Project. Funding for the upgraded and expanded GCWTP could come from several sources including U.S. Department of Agriculture's Rural Development Water Program, Colorado's State Revolving Fund Loan Program, and other sources. In March 2019, Estes Park purchased additional land from YMCA for future expansion of GCWTP.

Also, physically moving Contract Water delivered from the Marys Lake Gatehouse to GCWTP for treatment could technically be achieved but would require additional pipelines and pumping connecting the two treatment plants. This option would require additional private land owner easements, an additional license agreement for any connections on Reclamation lands and would be too expensive to implement. The issuance of a license agreement would also require additional NEPA analysis. A pipeline from Marys Lake Gatehouse to GCWTP is not considered reasonably foreseeable and therefore not considered in this EA's cumulative effects analysis.

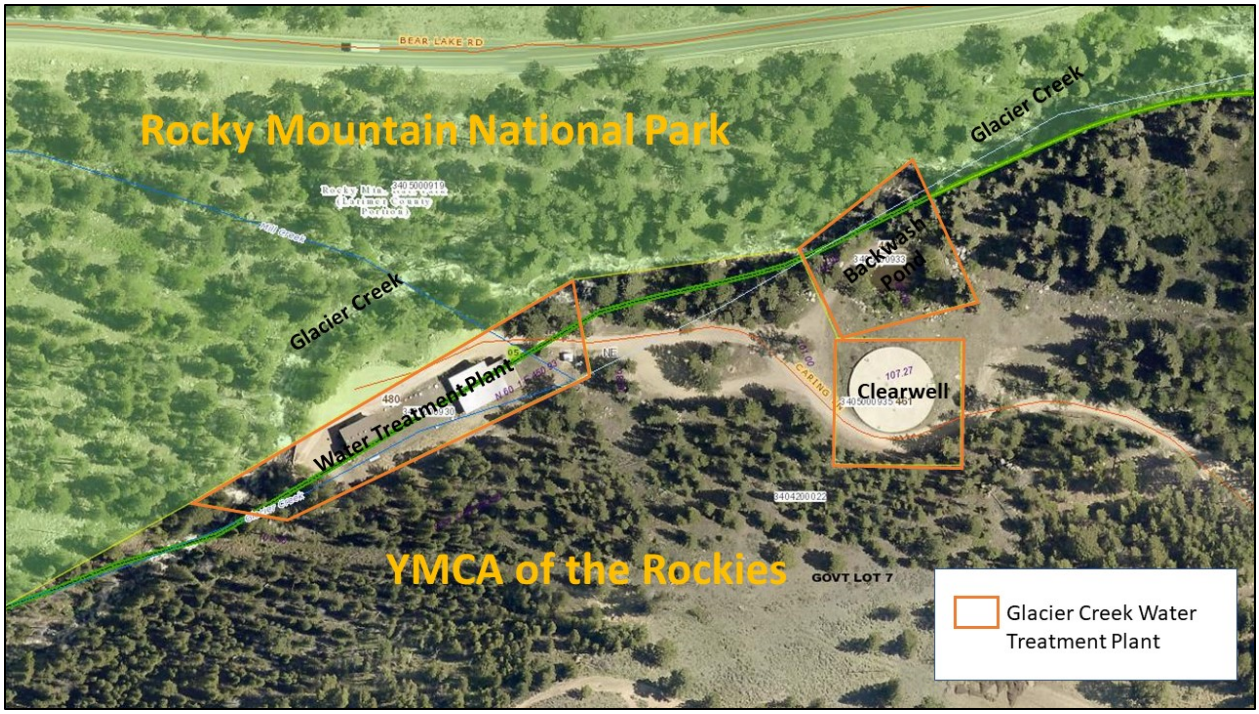

Figure 2-Glacier Creek Water Treatment Plant

3.2 Water Resources

Surface water resources discussed in this EA include the Big Thompson River Basin and east slope C-BT Project facilities upstream of the Big Thompson Powerplant (See Appendix C: C-BT Project Map). The Big Thompson River is tributary to the South Platte River with its confluence near Greeley, Colorado. The South Platte River then continues to flow northeasterly and enters Nebraska near Julesburg, Colorado.

For analysis purposes, the Big Thompson River is broken into three reaches which include:

- Upper Big Thompson River (upstream of Lake Estes)
- Big Thompson Canyon (Estes and Big Thompson Powerplants)
- Lower Big Thompson River (below Big Thompson Powerplant)

3.2.1 Upper Big Thompson River

The Big Thompson River originates high in Rocky Mountains along the east slope of the Continental Divide in Rocky Mountain National Park. Major stream tributaries to the Big Thompson River upstream of Lake Estes include Fall River, Glacier Creek, Black Canyon Creek, and Fish Creek.

3.2.2 Big Thompson Canyon

From Lake Estes, the Big Thompson River flows easterly and parallels U.S. Highway 34 as the river cuts through granite and igneous rock formations. The North Fork of the Big Thompson River joins with the Big Thompson River near Drake and then leaves Big Thompson Canyon near the Dam Store and Big Thompson Powerplant west of Loveland, Colorado.

About 5 miles east of Drake, the C-BT Project's Dille Diversion Dam can physically divert up to 400 cfs when there is sufficient space in the Charles Hansen Supply Canal. Reclamation also diverts water at the Dille Diversion needed to satisfy downstream senior water rights and the water is used to generate power at the Big Thompson Powerplant before being returned to the Big Thompson River. This diversion and temporary use of water to generate power, also known as Skim water, is discussed in greater detail in the Water Rights Section of this Chapter.

3.2.3 Lower Big Thompson River

For purposes of this EA, the lower Big Thompson River includes the Big Thompson River downstream of the Big Thompson Powerplant to its confluence with the South Platte River just southeast of Greeley, Colorado. The Little Thompson River includes a large watershed that starts southeast of Estes Park and includes Berthoud and surrounding farms. The Little Thompson River converges with the Big Thompson River in Milliken, Colorado.

3.2.4 Colorado-Big Thompson Project

With construction beginning in 1938 and essentially completed by 1959, the C-BT Project diverts water from the Colorado River on the western slope and provides supplemental water for irrigation, municipal and industrial use, hydroelectric power, and water-oriented recreation opportunities. Lake Granby, Shadow Mountain Reservoir, Grand Lake, and Willow Creek Reservoir located on the western slope provide for the collection, storage, and movement of water across the Continental Divide via the Adams Tunnel. The C-BT Project imports about 260,000 ac-ft of water via the Adams Tunnel annually from the western slope.

Imported west slope water remains isolated as it flows through a series of tunnels, siphons and penstocks before dropping through Marys Lake and Estes Powerplants (See Appendix C). Estes Powerplant discharges directly into Lake Estes were the imported water mixes with Big Thompson River native flows. From Lake Estes, water can be released to the Big Thompson River or Olympus Tunnel. A majority of C-BT Project water is diverted through the Olympus Tunnel and runs through the C-BT Project powerplants and then is stored in Horsetooth Reservoir and Carter Lake for water deliveries as needed. Some direct water deliveries are also made through the Big Thompson River.

The C-BT Project can also generate additional power at Pole Hill and Flatiron Powerplants when making additional releases from Lake Estes through the Olympus Tunnel and returning it back to the Big Thompson River through the Big Thompson Powerplant. Up to 400 cfs of skim water from the Big Thompson River can also be diverted at the Dille Diversion and used to generate power at Big Thompson Powerplant before returning it downstream.
Additional discussion on water rights associated with the C-BT Project are included in Section 3.3.

C-BT Project Facilities within the Big Thompson Watershed include:

- Adams Tunnel
- East Portal of Adams Tunnel
- Aspen Creek Siphon
- Rams Horn Tunnel
- Marys Lake Powerplant
- Marys Lake
- Prospect Mountain Tunnel
- Estes Powerplant
- Lake Estes
- Olympus Tunnel

- Pole Hill Tunnel
- Pole Hill Canal
- Pole Hill Powerplant
- Rattlesnake Tunnel
- Pinewood Reservoir
- Bald Mountain Tunnel
- Flatiron Powerplant
- Flatiron Reservoir
- Charles Hansen Supply Canal
- Dille Diversion
- Dille Tunnel
- Big Thompson Powerplant

Under contracts with the United States, Northern Water has operation and maintenance responsibilities for C-BT Project collection and distribution facilities, including Horsetooth Reservoir and Carter Lake. 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 annual operation, maintenance and replacement costs. The reimbursable irrigation portion of the construction costs was fully repaid in 2002. Additional information on the C-BT Project can be found at: https://www.usbr.gov/projects/index.php?id=432 and http://www.northernwater.org/WaterProjects/C-BTProject.aspx.

3.2.5 Effects to Surface Waters

Surface waters affected by Reclamation delivery of the Contract Water is limited to Glacier Creek, Big Thompson River upstream of Lake Estes, and Lake Estes. Under both the No Action and Proposed Action, the 500 ac-ft volume of Contract Water delivery to Estes Park remains unchanged.

Under the No Action Alternative, direct deliveries from Marys Lake and Estes penstocks would not result in changes in Big Thompson River streamflow upstream or downstream of Lake Estes. Water treated at MLWTP and GCWTP would be delivered through Estes Park's water distribution system and wastewater (return flows) would be treated at Estes Park and Upper Thompson Sanitation Districts.

Under the Proposed Action, Contract Water would continue to be delivered to MLWTP for treatment until the Big Thompson Intake is constructed. Once constructed and additional exchange rights are decreed in Case No. 18CW3229, Contract Water would be delivered to Lake Estes for instantaneous exchange to the Big Thompson Intake and the existing Glacier Creek Pipeline for treatment at GCWTP. The volume exchanged would be ensured at the Olympus Dam outlet works. The outlet works can release water to the Big Thompson River directly downstream of Olympus Dam or release water to the Olympus Tunnel. The Olympus Tunnel carries water to Pole Hill, Flatiron, and Big Thompson Powerplants; Big Thompson River; Pinewood, Flatiron and Horsetooth Reservoirs; and Carter Lake.

The exchange of Contract Water would result in up to 500 ac-ft diverted annually at the Big Thompson Intake and would reduce streamflows from the Big Thompson Intake to Lake Estes by the volume delivered to Lake Estes. Contract Water would not be stored in Lake Estes and releases from Lake Estes to the Big Thompson River and Olympus Tunnel would remain unchanged. Table 1 shows the monthly total deliveries to MLWTP that occurred from November 2004 through December 2018 (CDWR 2019).

Table 1-Contract Water delivered to MLWTP from Water Year 2004 to 2018 (ac-ft/month).

	Monthly Diversion in ac-ft.												
Year	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Total***
2003/04	2.00	61.00	88.40	86.60	97.90	92.40	72.00	0.00	0.00	0.00	0.00	0.00	500.30
2004/05	0.00	2.00	11.70	85.20	93.50	97.60	105.70	61.50	21.90	8.00	1.00	0.00	488.10
2005/06	0.00	0.00	20.00	85.20	94.00	103.10	94.60	27.40	3.00	1.30	6.50	65.00	500.10
2006/07	78.80	1.00	1.60	79.30	101.00	101.10	113.70	23.50	0.00	0.00	0.00	0.00	500.00
2007/08	0.70	0.60	33.70	88.70	94.00	95.30	103.50	64.90	19.00	0.00	0.00	0.00	500.40
2008/09	0.00	0.00	0.00	1.00	0.00	0.00	19.00	132.00	8.00	1.00	1.00	1.00	163.00
2009/10	1.10	0.00	9.80	71.70	102.50	91.80	123.20	100.00	0.00	0.00	0.00	13.80	513.90
2010/11	91.40	90.80	94.50	95.70	94.80	31.90	0.00	0.00	0.00	0.00	0.00	0.00	499.10
2011/12	0.03	0.00	0.02	0.01	41.71	102.75	145.32	206.46	3.70	0.00	0.00	0.00	500.00
2012/13	0.18	0.34	0.00	0.06	0.09	51.01	126.98	230.48	90.70	0.00	0.00	0.00	499.84
2013/14	103.35	3.26	0.00	0.00	0.21	59.88	110.66	169.88	52.70	0.00	0.00	0.00	499.94
2014/15	0.00	0.00	0.31	0.13	49.71	94.94	99.34	173.64	81.90	0.00	0.00	0.00	499.97
2015/16	0.01	0.00	0.07	0.02	25.23	95.16	116.25	158.10	105.60	0.00	0.00	0.00	500.44
2016/17	0.00	0.01	0.01	0.20	30.40	92.00	120.60	134.10	81.50	41.30	0.00	0.00	500.12
2017/18	0.00	0.00	0.00	0.00	2.10	82.30	132.70	217.60	65.30	0.00	0.00	0.00	500.00
Avg.	**18.50**	**10.60**	**17.34**	**39.59**	**55.14**	**79.42**	**98.90**	**113.30**	**35.55**	**3.44**	**0.57**	**5.32**	**477.68**
Min.	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**163.00**
Max.	**103.35**	**90.80**	**94.50**	**95.70**	**102.50**	**103.10**	**145.32**	**230.48**	**105.60**	**41.30**	**6.50**	**65.00**	**513.90**

*Contract Year is November through October.

Average annual Contract water volume treated at MLWTP was 477.68 ac-ft per year or about 71% of the total for all water treated at MLWTP for 2003/04 through 2017/2018 which averaged 679.5 ac-ft per year.

Reported daily inputs at MLWTP and GCWTP in gallons from 2009 to 2018 (CDWR 2019) were used to calculate the average daily diversions at each water treatment plant. Estimated daily diversions are summarized in Table 2 in cubic feet per second (cfs).

Table 2-Estimated Total* Daily Diversions at MLWTP and GCWTP, 2009 to 2018.

	Jan	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**July**	**Aug**	**Sept**	**Oct**	**Nov**	**Dec**
	Average Daily Diversion at MLWTP (cfs)											
Avg.	0.33	0.41	0.67	1.30	1.96	3.23	1.99	0.80	0.36	0.23	0.37	0.19
Min.	0.00	0.00	0.00	0.00	0.00	0.56	0.00	0.00	0.00	0.00	0.00	0.00
Max.	0.47	0.79	1.11	1.64	2.64	3.78	3.07	1.54	0.79	0.37	0.43	1.99
	Average Daily Diversion at GCWTP (cfs)											
Avg.	1.28	1.08	0.87	0.30	0.12	0.19	1.74	2.48	2.42	1.55	1.13	1.36
Min.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Max.	2.25	2.22	1.96	1.93	2.07	2.45	4.28	4.39	3.82	3.88	2.07	2.22

*Includes all of Estes Park's Water Supplies

Table 3 shows average daily Contract Water deliveries in cfs to MLWTP for 2009-2018.

Table 3-Average Daily Contract Water Deliveries at MLWTP (cfs).

	Jan (cfs)	**Feb** (cfs)	**Mar** (cfs)	**Apr** (cfs)	**May** (cfs)	**Jun** (cfs)	**Jul** (cfs)	**Aug** (cfs)	**Sept** (cfs)	**Oct** (cfs)	**Nov** (cfs)	**Dec** (cfs)
Avg.	0.17	0.32	0.69	1.07	1.70	2.38	0.89	0.18	0.00	0.02	0.32	0.17

Table 4 shows average monthly streamflow contribution by each sub-watershed for the Big Thompson River above Lake Estes. These estimates were based on two active and one historic stream gages above Lake Estes. Under the Proposed Action, when Contract Water is delivered to Lake Estes, exchanges to the Big Thompson Intake would result in reduced streamflow from the Big Thompson Intake to Lake Estes.

Table 4-Monthly Upper Big Thompson River Flows by Watershed from 1991-2018 (cfs).

Location	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sept**	**Oct**	**Nov**	**Dec**
Big Thompson above Glacier Creek+	4.8	4.7	8	24	121	292	143	47	35	21	10.6	6.6
Glacier Creek*	2.6	2.6	1.3	13.1	60.3	123.5	69.9	27.2	13.3	13.0	4.5	3.3
Other Tributaries#	6.8	7.1	1.5	15.7	86.8	196.2	94.0	37.5	7.3	19.0	7.9	7.4
Big Thompson above Lake Estes+	15.5	15.5	11.6	53.1	268.3	612.0	308.7	114.2	58.0	54.6	24.2	18.6

+Active Stream Gage, *Historic Stream Gage, #Estimated

MLWTP deliveries in Tables 2, 3, and 4 were used to predict changes in streamflow from the proposed Big Thompson Intake to Lake Estes in Table 5. Table 5 estimates flows when water supplies currently delivered to MLWTP are exchanged to the proposed Big Thompson Intake and treated at GCWTP.

Under the Proposed Action, the largest changes in monthly average flows are predicted to occur in March (Table 6). A March diversion of 0.6 cfs diversion results in a 7.2% decrease to the Big Thompson River flow immediately below the Big Thompson Intake and a 5.8% decrease in flow at the Big Thompson Above Lake Estes (BTABLESCO) gage under the Proposed Action. Tributary inflows downstream of the Big Thompson Intake help reduce the diversion effects associated with GCWTP.

June diversion volumes of up to 2.4 cfs under the Proposed Action and 3.2 cfs under the cumulative analysis have a smaller effect on streamflow because of higher Big Thompson River flows from snowmelt. Historically, diversion volumes were greatest in May, June and July to

Table 5-Estimated Streamflow changes (in cfs) from Big Thompson Intake to Lake Estes under the Proposed Action.

Location	Alternative	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Big Thompson River & Glacier Creek Confluence	**No Action**	7.4	7.3	9.3	37.1	181.3	415.5	212.9	74.2	48.3	34.0	15.1	9.9
	Proposed Action	7.2	7.0	8.6	36.0	179.6	413.1	212.0	74.0	48.3	34.0	14.8	9.7
	Cumulative	7.1	6.9	8.6	35.8	179.3	412.3	210.9	73.4	47.9	33.8	14.7	9.7
Big Thompson River Above Lake Estes	**No Action**	15.5	15.5	11.6	53.1	268.3	612.0	308.7	114.2	58.0	54.6	24.2	18.6
	Proposed Action	15.3	15.2	11.0	52.0	266.6	609.6	307.8	114.0	58.0	54.6	23.8	18.4
	Cumulative	15.2	15.1	11.0	51.8	266.3	608.7	306.7	113.4	57.6	54.3	23.8	18.4

No Action = Existing MLWTP Deliveries; Proposed Action = Contract Water Exchanged to GCWTP; Cumulative = Contract Water, C-BT Shares, and Windy Gap Exchanged to GCWTP

Table 6-Estimated Diversions and Percentage of Big Thompson River Flow.

PROPOSED ACTION	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Avg.
Diversion (cfs)	-0.2	-0.3	-0.7	-1.1	-1.7	-2.4	-0.9	-0.2	0.0	0.0	-0.3	-0.2	-0.7
Percent Change in Flow at BTABLESCO	-1.1%	-2.1%	**-5.8%**	-2.0%	-0.6%	-0.4%	-0.3%	-0.2%	0.0%	0.0%	-1.3%	-0.9%	-1.2%
Percent Change in Flow below Big Thompson Intake	-2.3%	-4.4%	**-7.2%**	-2.9%	-0.9%	-0.6%	-0.4%	-0.2%	0.0%	-0.1%	-2.2%	-1.7%	-1.9%

CUMULATIVE ANALYSIS	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Avg.
Diversion (cfs)	-0.3	-0.4	-0.7	-1.3	-2.0	-3.2	-2.0	-0.8	-0.4	-0.2	-0.4	-0.2	-1.0
Percent Change in Flow at BTABLESCO	-2.1%	-2.6%	**-5.8%**	-2.4%	-0.7%	-0.5%	-0.6%	-0.7%	-0.6%	-0.4%	-1.5%	-1.0%	-1.6%
Percent Change in Flow below Big Thompson Intake	-4.5%	-5.6%	**-7.2%**	-3.5%	-1.1%	-0.8%	-0.9%	-1.1%	-0.7%	-0.7%	-2.5%	-1.9%	-2.5%

accommodate peak summer visitation at Rocky Mountain National Park and the Estes Valley. However, in recent years, the peak visitation has shifted to June through September.

3.3 Water Rights

Water rights are adjudicated in Colorado Water Court and are administered by CDWR under the "First in time, First in right" Prior Appropriations Doctrine. Water rights grant the owner authority to put native flows to beneficial use according to availability.

The South Platte River Basin has a long history of water management with over 18,600 decreed points of diversion (CWI 2013). The era of irrigation development in the South Platte River Basin began in the early 1860s and the first large scale irrigation project was initiated by the Union Colony near Greeley, Colorado in 1870. The South Platte River Basin is currently over-appropriated -- there is not enough native flow to meet demands at all times. CWDR administers a "call" when requested by senior water rights holders who cannot divert enough flows to meet their senior rights.

Table 7 shows historic calls that occurred on the Big Thompson River between 2009 and 2018 (CDWR 2019). Appendix D breaks down the measured flows at BTABLESCO and at the South Platte River at the Colorado-Nebraska Stateline (South Platte River at Julesburg, Colorado (PLAJUCCO). Appendix D also breaks down by date, if the call was limited to the Big Thompson River, a downstream South Platte River senior water right, or both.

Table 7- Historic Big Thompson and Platte River Calls 2009-2018.

Year	Big Thompson River Calls Only		Downstream South Platte River Calls Only		Big Thompson & Downstream South Platte River Calls*		Total Days with Active Calls	
	Days	Percent	Days	Percent	Days	Percent	Days	Percent
2019	59	16%	114	31%	83	23%	256	70%
2010	58	16%	36	10%	165	45%	259	71%
2011	140	38%	6	2%	143	39%	289	79%
2012	8	2%	85	23%	182	50%	275	75%
2013	0	0%	156	43%	126	36%	282	77%
2014	38	10%	15	4%	36	10%	91	25%
2015	126	35%	8	2%	43	12%	177	49%
2016	89	24%	0	0%	167	46%	256	70%
2017	52	14%	80	22%	145	40%	277	76%
2018	35	10%	17	5%	275	75%	275	75%
Avg.	**60.5**	**17%**	**51.7**	**14%**	**136.5**	**37%**	**243.7**	**67%**

*Number of days when call are active on both the Big Thompson River and South Platte River downstream of the Big Thompson River.

The Colorado Water Court publishes a monthly resume of water rights applications to inform the public of pending water right cases. Owners of water rights may file a statement of opposition to any water right application they think may injure their water right. The Colorado State Engineer may allow a water exchange without a court decree, if the water is available in priority and the exchange will not cause injury to other water rights. For more information on Colorado water rights, please visit https://www.colorado.edu/geography/class_homepages/geog_4501_s14/readings/CG-Law2004.pdf and http://water.state.co.us/Home/Pages/ default.aspx.

Table 8 summarizes Estes Park's water rights and their estimated firm yield. Firm yield is the dependable annual water supply volume used to meet water demands. As previously discussed in Section 3.1.3, Estes Park has also submitted a water rights application to divert up to 10 cfs of Big Thompson River flows when needed to meet peak demands (see Case Nos. 18CW3229, 2019CW3065, and 2019CW3080).

Water rights associated with Glacier Creek Pipeline, Estes Park Town Company Pipeline and Estes Park Water Company Pipeline are all Big Thompson River Basin native flows. C-BT and Windy Gap Project water are all imported from the Western Slope. Because the waters are imported into the South Platte River Basin, the importer can generally reuse the imported water to extinction. C-BT Project water is unique because Contract No. 9-7-70-W0020 requires Northern Water to reallocate C-BT Project return flows as a supplemental supply for downstream irrigation users within Northern Water's boundaries. Hence, this limits Estes Park's ability to reuse Contract Water and C-BT Project return flows from Estes Park Sanitation District and Upper Thompson Sanitation District. Windy Gap return flows can, however, be reused by Estes Park to extinction.

Table 8- Estes Park Water Right Summary Table

Water Right Name	Annual Amount	Daily Limit (mgd)	Annual Estimated Firm Yield[1]	Daily Estimated Firm Yield	Point of Use
Bureau of Reclamation (Contract Water)	500 ac-ft		500 ac-ft		MLWTP[4]
C-BT Project Allotment	1,217 ac-ft	No daily mgd limit	608.5 ac-ft[2]	No daily limit	MLWTP[4]
Windy Gap Allotment	3 Units (300 ac-ft)	No daily mdg limit	150 ac-ft[3]	No daily limit	MLWTP[4]
Glacier Creek Pipeline	2 cfs		1,448 ac-ft	1.29 mgd	GCWTP[5]
Estes Park Town Company Pipeline and Estes Park Water Company Pipeline	2 cfs		1,448 ac-ft	1.29 mgd	GCWTP

[1]Annual volume and maximum daily volume requirements must be met. Limitations exist on these rights which reduce yield.
[2]608.5 ac-ft is based on a 50% quota.
[3]Requires "integrated operations" in Windy Gap Carriage contract, aka "in lieu program" (2014 Windy Gap Firming Project Contract No. 15XX650003 between Reclamation and Northern Water's Municipal Subdistrict).
[4]Annual firm water at MLWTP is 1,285 ac-ft which is not enough to supply the town. MLWTP needs additional water to be reliable all year.
[5]Maximum daily available water at GCWTP is 2.4 mgd, short of future demand. GCWTP needs additional water and expanded capacity to be reliable all year.

3.3.1 Effects of Water Rights

Under the Proposed Action, Contract Water would be delivered by Reclamation consistent with existing water rights. Senior water rights would be protected through the river administration based on Estes Park's water right decrees.

In Colorado Water Court, Estes Park has requested an appropriate right of exchange that would allow Contract Water delivered to Lake Estes to be exchanged upstream to the Big Thompson Intake. The exchange would have no effect on senior water rights above the Big Thompson Intake and below Lake Estes.

In its water rights applications, Estes Park has also applied for the right to exchange C-BT Project Water, Windy Gap Project Water, and Windy Gap Project return flows upstream to the Big Thompson Intake and GCWTP intake. These exchanges are not dependent on Contract Water exchanges occurring but would utilize the same infrastructure at the GCWTP. Effects to senior water rights would be similar to those described for Contract Water exchanges.

3.4 Fish and Wildlife Resources

3.4.1 Fisheries Resources

For purposes of the EA, fisheries resources are focused on the reach of the Big Thompson River downstream of its confluence with Glacier Creek to Lake Estes. As it leaves Rocky Mountain National Park, the Big Thompson River runs through various sections of public and private property as if flows through Estes Park and into Lake Estes. This section is generally passed over by fishermen for better water upstream and downstream that support rainbow, brown, brook, and greenback cutthroat trout.

When Contract Water is delivered to MLWTP, there would be no changes to Big Thompson River flows and no effect to fisheries resources. However, when Contract Water is delivered to Lake Estes, exchanges between Lake Estes and the Big Thompson Intake result in reduced average flow of 1.2% to 1.9% as shown in Table 6.

Intervening flows contributed by Beaver Brook, Fall River and Black Canyon Creek reduce diversion effects as they provide up to 30 percent of the Big Thompson River flow as measured at BTABESCO. The impacts would be greatest in March before spring runoff begins and exchanges would result in a 5.8% to 7.2% reduction in March average monthly flow. Table 6 in Section 3.2.5 displays the predicted decreases in average monthly flow. Cumulative effect of exchanging C-BT and Windy Gap units is also included. All changes are minor and predicted to have no measurable effect on the fishery resources in the Big Thompson River (CPW 2019). The Proposed Action will have no effect on fishery resources in Rocky Mountain National Park above the proposed Big Thompson Intake.

Estes Park has committed to design the Big Thompson Intake to be fish friendly to allow fish movement upstream and downstream of the structure and minimize fish entrainment, and it will be a condition of the repayment contract. Section 404 of the Clean Water Act regulates the discharge of dredge and fill material into Waters of the United States including the construction, maintenance, or repair of utility lines including intake structures. Regional conditions under Nationwide Permit No. 12: Utility Line activities require preconstruction notification for utility line activities that propose open trenching in perennial waters or for the purposes of creating a water intake. Please see Section 3.6 for more information on 404 permit requirements. Additional consultation with CPW regarding intake design should also occur to streamline the Section 404 permitting process.

Water levels in Lake Estes, flows above the Big Thompson River's confluence of Glacier Creek and below Olympus Dam would not be affected by the Proposed Action. The Proposed Action would have no effect to fishery resources in these waters.

3.4.2 Wildlife Resources

Wildlife resources are abundant in Rocky Mountain National Park and adjacent lands including the Estes Valley.

Common wildlife found within the Project Area include but are not limited to: mule deer, elk, black bear, mountain lion, bobcat, least chipmunk, golden-mantled squirrel, Wyoming ground squirrel, pine squirrel, and Merriam's turkey. Moose sightings occur frequently on the west side of Rocky Mountain National Park and are also occasionally seen in the Estes Valley. Additional information on wildlife found in and adjacent to Rocky Mountain National Park is available at https://www.nps.gov/romo/learn/nature/animals.htm.

Reclamation utilized CPW's Species Activity Mapping Data (CPW 2018) to evaluate potential impacts to wildlife associated with construction of Big Thompson Intake, GCWTP Pipeline and expanded water treatment plant. CPW list the Project Area as a conflict area between black bears and humans, because black bears frequent the area in the summer and fall. Elk concentrate in the Project Area year-round and it supports both migratory and resident populations. Elk also utilize the Project Area for calving and as severe winter range. CPW lists the Project Area as summer and winter range for moose. Migrant and resident mule deer concentrate in Project Area year-round and utilize it as severe winter range. CPW also includes the Project Area as within the overall range of plains and terrestrial garter snake, prairie lizard, plateau fence lizard and boreal toad.

NPS led an interagency planning team that included eight federal, state and local agencies with the primary goal of restoring the natural range of variability in Rocky Mountain National Park's elk population and affected plant communities. The NPS (2008) selected a strategy that takes a gradual approach to elk culling and uses a variety of other conservation tools including fencing, vegetation restoration, redistribution, and adaptive management to restore natural conditions.

Local wildlife may avoid the Project Area during construction activities but are expected to return once all construction activities are completed. Although it is unlikely that construction activities would occur during a severe winter, limiting construction activities and particularly the use of heavy construction equipment during a severe winter when recommended by CPW will reduce wildlife conflicts for deer and elk. Estes Park should coordinate any severe winter-time construction activities with CPW to minimize potential impacts to wintering deer and elk populations. In addition, minimizing ground disturbance to the minimum footprint necessary to construct the Big Thompson Intake and pipeline and the revegetating disturbed areas with native grasses would also assist in minimizing impacts to local wildlife.

As Estes Park and Rocky Mountain National Park visitations continue to increase and the demand for local resources also increases, local and migratory wildlife will likely experience increased disturbance and displacement. However, these impacts would likely occur

independent of the Proposed Action if continue to provide Estes Park with 500 ac-ft per year of Contract Water.

3.5 Threatened and Endangered Species

Reclamation is required to analyze the potential effects to threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitats as required under Section 7(c) of the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531 *et seq.*). Reclamation utilized the U.S. Fish and Wildlife Service's (Service) Information for Planning and Consultation to request a list of species that may occur in the Project Area (Service 2019a). Reclamation identified three species with potential to occur within the Project Area and/or could be affected by the Proposed Action as shown in Table 8. Reclamation evaluated potential effects resulting from the proposed water service contract on Canada lynx, Mexican spotted owl, and Colorado butterfly plant and these species are discussed in greater detail in this Section.

Effects to listed species in the Platte River in Nebraska are evaluated and discussed as they related to the Platte River Recovery Implementation Program. Effects to listed species are also evaluated and discussed as they related to the Upper Colorado River Endangered Fish Recovery Program. For Section 7 consultation purposes, this EA serves as Reclamation's biological assessment.

Table 9- Federally Listed Species with Potential to Occur in Project Area.

Common Name	Scientific Name	Status+	Habitat Requirements	Potential to Occur within Project Area
Canada lynx	*Lynx canadensis*	T	Classic boreal forest zone into subalpine forests of the western United States.	No effects determination.
Preble's meadow jumping mouse	*Zapus hudsonius preblei*	T	Shrub riparian/wet meadow habitat.	No. Inventory completed, no mice found.
Interior least tern*	*Sterna altrillarum athalassos*	E	Sandy/pebble beaches on lakes, reservoirs, and rivers	Included in the Platte River Programmatic Biological Opinion (PBO).
Mexican spotted owl	*Strix occidentalis*	T	Closed canopy forest in steep canyons	No effects determination.
Piping plover*	*Charadrius melodus*	T	Sandy lakeshore beaches and river sandbars	Included in the Platte River PBO.
Whooping crane*	*Grus americana*	E	Mudflats around reservoirs and in agricultural areas.	Included in the Platte PBO.
Greenback cutthroat trout	*Oncorhynchus clarkia stomias*	T	Coldwater streams and lakes with adequate stream spawning habitat present during the spring.	Included in the Platte River PBO.
Pallid sturgeon*	*Scaphirhynchus albus*	E	Large, turbid, free-flowing rivers with a strong current and gravel or sandy substrate.	Included in the Platte River PBO.
Colorado pikeminnow*	*Ptychocheilus lucius*	E	Colorado River and major tributaries.	Included in the 15-Mile Reach PBO.
Razorback sucker*	*Xyrauchen texanus*	E	Colorado River and major tributaries.	Included in the 15-Mile Reach PBO.
Bonytail*	*Gila elegans*	E	Colorado River and major tributaries.	Included in the 15-Mile Reach PBO.

Humpback chub*	*Gila cypha*	E	Colorado River and major tributaries.	Included in the 15-Mile Reach PBO.
Arapahoe snowfly	*Arsapnia arapahoe*	C	Restricted to Elkhorn Creek and Young Gulch, tributaries to the Cache La Poudre River.	No.
Ute ladies'-tressess orchid	*Sprianthes divluvalis*	T	Moist to wet alluvial meadows, floodplains of perennial streams, and around springs and lakes below 6,500 feet in elevation.	No.
Western prairie fringed orchid*	*Platanthera praeclara*	T	Moist to wet prairies and meadows along the Platte River.	Included in the Platte River PBO.
Colorado butterfly plant	*Gaura neomaxicana var. coloradensis*	T	Typically found in wetland habitats along meandering streams among native grasses.	No effects determination.
North Park phacelia	*Phacelia formosula*	E	Limited to eroded soil outcrops composed of barren exposures of the Coalmont Formation at 8,000 to 8,300 feet in elevation. Found only in North Park of Jackson County, Colorado.	No.

T = threatened, E = endangered, C = candidate, * Species occur in downstream habitats address in Recovery Implementation Programs

3.5.1 Canada Lynx

Canada lynx is listed as threatened and is found in dense subalpine conifer forests with deep snow and boreal forests with scattered moist forest types with high hare densities. In these areas, lynx incorporate a matrix habitat into their home ranges and use it for traveling between patches of boreal forest that support high hare densities where most foraging occurs.

CPW (2017) identified potential lynx habitat in Rocky Mountain National Park, Roosevelt National Forest, and adjacent private lands owned by YMCA and others upstream from the Project Area. CPW defines these areas as having the highest potential population of lynx in the state and usually contain positive, probably, or possible reports and modeling of potential lynx habitat. The Proposed Action will have no effect on boreal forests or identified matrix habitats considered as potential habitat. Therefore, the Proposed Action will have no effect on Canada lynx.

3.5.2 Mexican Spotted Owl

The Mexican spotted owl is one of three subspecies of spotted owls that occur in North America and is listed as threatened. Nesting and roosting habitats are primarily limited to forested and rocky-canyon habitats and most commonly associated with mature or old growth stands with complex structure. Critical habitat was designated in 1994 and revised in 2004. Critical habitat has been designated in Arizona, New Mexico, Utah and southern Colorado. No known populations of Mexican spotted owl occur within or immediately adjacent to the proposed Big Thompson Intake site, GCWTP pipeline, and GCWTP. Estes Park would utilize the existing roads and trails to construct the GCWTP Pipeline and to expand GCWTP. Estes Park's construction activities would not affect closed canopy forests in steep canyons preferred by Mexican spotted owl. Therefore, the Proposed Action would have no effect on Mexican spotted owl.

3.5.3 Colorado Butterfly Plant

The Colorado butterfly plant is listed as threatened and is typically found in wetland habitats along the meandering stream channels on the high plains between 5,000 and 6,400 feet in

elevation. In undisturbed areas, it grows among native grasses and generally prefers open habitat not substantially overgrown by other vegetation. Estes Park's Big Thompson Intake site, GCWTP Pipeline, and GCWTP are all at elevations of 7,780 feet or higher. In addition, the immediate Project Area lacks suitable wetland habitats along the Big Thompson River. Therefore, the Proposed Action will have no effect on Colorado butterfly plant.

3.5.4 Colorado and Platte River Recovery Implementation Programs

In 1999, Reclamation and other federal agencies initiated a programmatic Section 7 consultation with the Service and received the Final Programmatic Biological Opinion (PBO) for Bureau of Reclamation's Operations and Depletions, Other Depletions, and Funding and Implementation of Recovery Program Actions in the Upper Colorado River above the confluence with the Gunnison River (Service 1999).

The PBO addresses effects of existing and new depletions and included West Slope depletions associated with Reclamation's C-BT Project. A December 19, 2018 memorandum from the Service determined that the Recovery Program continues to make sufficient progress to avoid jeopardy for water projects and depletions and currently provides ESA compliance by the Upper Colorado River Endangered Fish Recovery Program. A copy of the memorandum is included in Eastern Colorado Area Office Project File 2017-34. Based on the Service's (2018) Assessment of Sufficient Progress Memorandum, the Recovery Program continues to provide ESA compliance for Reclamation's issuance of a water service contract for 500 ac-ft of Contract Water. Depletions associated with the Windy Gap Project were also addressed in this PBO. No additional ESA Section 7 consultation is required for the endangered Colorado River fishes.

The Platte River Recovery Implementation Program addresses depletions associated with native flows in the South Platte River Basin for effects to whooping crane, least tern, pallid sturgeon, and piping plover in Nebraska.

Reclamation's issuance of a water repayment contract that would continue delivery of 500 ac-ft of Contract Water does not result in new depletions to the Platte River and therefore will have no effect on the Platte River species. However, if there are any new depletions associated with Estes Park's water right application, these depletions would need to be addressed through the process outlined in the PBO for the Platte River Implementation Program and water-related activities affecting flow volume and timing in the central and lower reaches of the Platte River in Nebraska. The Big Thompson Intake will likely require a 404 permit from the USACE and may trigger additional requirements under the Platte River PBO for USACE to prepare a biological assessment to the Service.

Typically, project proponents need to provide a certificate of South Platte Water-related Action Plan (SPWRAP) membership along with the biological assessment during consultation. SPWRAP is a nonprofit corporation formed by Colorado water users to assist the State of Colorado in complying with its Program obligations. Funds are provided to water users and SPWRAP members to help support Colorado's participation in the Platte River Recovery Implementation Program. More information can be found at: https://platteriverprogram.org/. Additional discussion of 404 permit requirements is discussed in Section 3.7.

3.5.5 Arapahoe Snowfly

The Arapahoe snowfly (*Arsapnia arapahoe*) is a federal candidate species as threatened or endangered and is included in the order of Plecoptera (stoneflies). Candidate species receive no statutory protections under the ESA but the Service encourages voluntary cooperative conservation efforts for these species because by definition, warrant future protection under ESA.

Stoneflies are typically found in cold, clean, well oxygenated streams and rivers that have pebble, cobble, or bedrock substrates that support a hyporheic zone (saturated area beneath the streambed) for immature during winter months (Young et al. 2016). Prior to 2013, this species had only been collected in two small tributaries of the Cache la Poudre River on the Roosevelt National Forest. Intensive inventories between 2013 and 2017 identified additional Arapaho snowfly present in 21 first-order tributaries with steep slopes in Cache la Poudre, Big Thompson, Saint Vrain, and South Platte watersheds (Fairchild et al. 2017).

Arapahoe snowfly are not known to occur within Rocky Mountain National Park but the limited species occurrence data and NPS modeling indicate Arapahoe snowfly potentially occurs at elevations from 5,575 to 6,900 feet. (NPS 2018). Recent genetic research conducted by Young et al. (2018) indicates that Arapahoe snowfly is the product of non-introgressive hybridization in the limited area of syntopy between two widely distributed taxa. In hybridization areas, only males exhibit the characteristics of *A. arapahoe.* Females in these areas lack the distinguishing characteristics among many female capniid stoneflies. The Service has reviewed this new information and is in the process of removing the Arapahoe snowfly as a candidate species under ESA (Service 2019b).

NPS's map (2018) of Arapahoe snowfly modeled suitable habitat includes the Big Thompson River from its confluence with Glacier Creek upstream to near the Moraine Park Discovery Center although the species has not been documented in this reach. Implementation of construction BMP's associated with the Big Thompson Intake are adequate to minimize changes in water quality that have potential to affect aquatic resources. Also, minimizing removal of streamside vegetation (ponderosa pine, cottonwood, willow and other riparian species) at the Big Thompson Intake will minimize impacts to stoneflies and other species that utilize streambank habitats. A list of recommended construction-related BMPs is included as Appendix G.

3.6 Water Quality

There are two federal statutes that regulate water quality, the Clean Water Act (33 U.S.C. §1251 et seq (1972) and Safe Drinking Water Act (42 U.S.C. §300f et seq. (1974). The Clean Water Act establishes the basic structure for regulating discharges of pollutants into Waters of the United States. Waters of the United States and discharges of dredge or fill material are discussed in Section 3.7—Waters of the United States.

The Safe Drinking Water Act was established to protect the quality of drinking water in the U.S. and focuses on all water actually or potentially designed for drinking use. EPA establishes minimum standards to protect tap water and requires all owners or operators of public water systems to comply with these primary (health-related) standards. In addition, the Colorado

Water Quality Control Commission promulgated the Colorado Primary Drinking Water Regulations (5 CCR 1002-11) to assure public drinking water supplies and to enable the state of Colorado to assume responsibility for enforcing the standards established by the Safe Drinking Water Act. The regulations apply to each public water system, unless they meet specific exemptions. MLWTP and GCWTP are operated under these regulations.

More information on Safe Drinking Water Act and Colorado's regulations are available at https://www.epa.gov/laws-regulations/summary-safe-drinking-water-act, and https://www.colorado.gov/pacific/cdphe/drinking-water.

Under the Proposed Action, Estes Park will continue to be required to operate MLWTP and GCWTP facilities in compliance with the Safe Drinking Water Act, Clean Water Act, and Colorado Primary Drinking Water Regulations. Cumulatively, drinking water quality may improve slightly based on Estes Park's additional operation flexibility to meet more of its drinking water needs from the GCWTP.

3.7 Waters of the United States

Waters of the United States are regulated under the Clean Water Act for any discharges of dredge/fill and include the ordinary high-water line of the Big Thompson River and Glacier Creek. Other Waters of the United States in the Project Area include jurisdictional wetlands based on the presences of hydric soils, hydrophytes and sufficient hydrology to support hydric soil and hydrophytes. For this analysis, Reclamation utilized the 1987 Corps of Engineers Wetlands Delineation Manual and Regional Supplements wetland definition (USACE 1987 and 2010).

Under the Proposed Action, Estes Park would construct the Big Thompson Intake in the Big Thompson River below its confluence with Glacier Creek (Figure 3). Figure 4 shows the Big Thompson River just downstream of the confluence with Glacier Creek on the left side of the photograph.

These riverine systems are upper perennial (R5UBH), fast-flowing, permanent streams (Service 2019). Within the Project Area, the streams are characterized by their high gradient, high dissolved oxygenate, and rocky bottom with cobble and gravel. There is also very little floodplain development.

From the Big Thompson Intake, Estes Park also proposes to construct and operate a pump and raw water line which would parallel GCWTP's existing finished water pipeline. The finished water pipeline follows and is adjacent to the YMCA's Lower Cookout horse and hiking trail as shown in Figure 3.

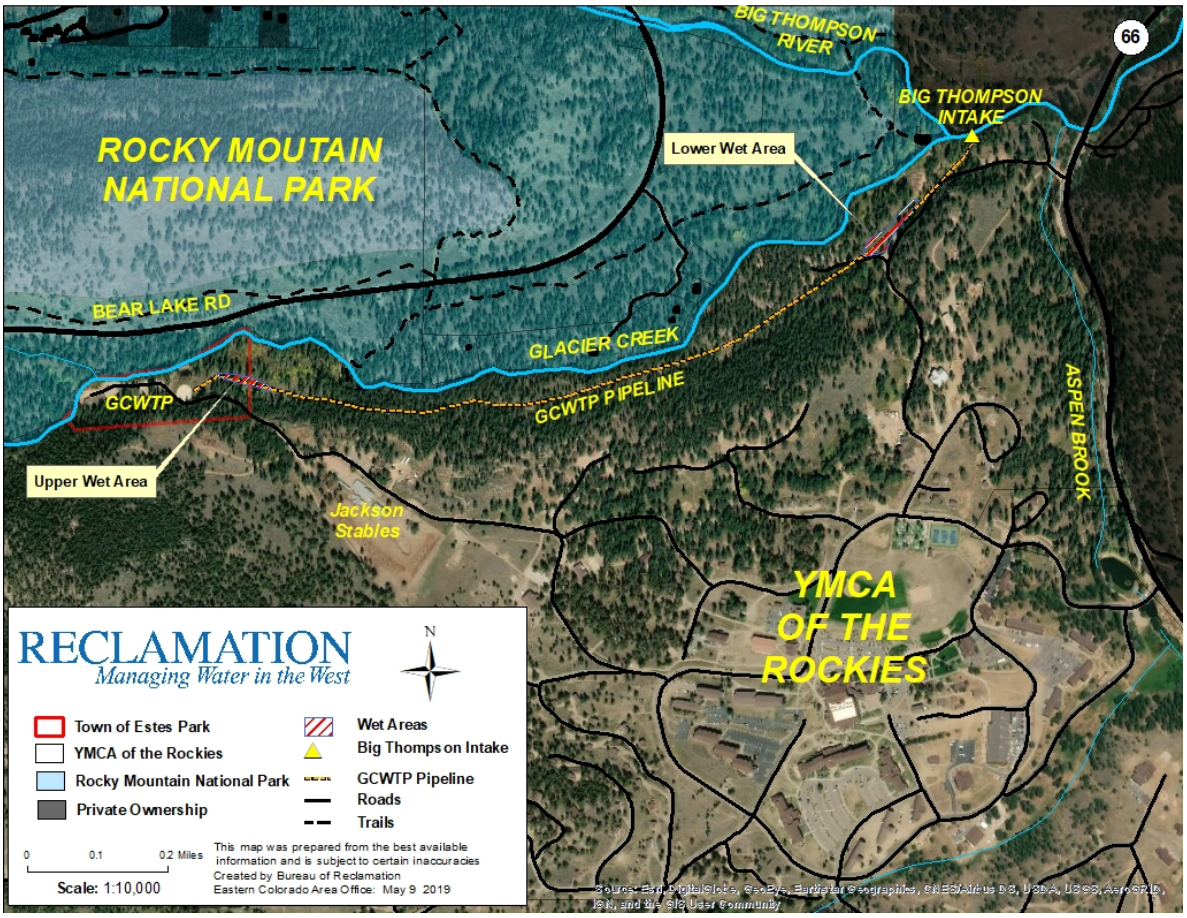

Figure 3-GCWTP Pipeline Alignment


Figure 4-Big Thompson River and Glacier Creek Confluence

Lower and upper wet areas occur along the existing GCWTP finished water line. The GCWTP Pipeline would also cross these areas. This lower area is adjacent to the YMCA's Outpost Camp. Reclamation observed flowing water at the Lower wet area as shown in the picture taken on May 6, 2019 (Figure 5). The lower wet area is approximately 1-acre in size. The upper wet area is located about 300 feet downslope from the GCWTP's clear well tank and is about 0.5-acre in size. The upper wet area was damp but no flowing water was observed as shown in Figure 6.

Figure 5- Lower Wet Area

Figure 6-Upper Wet Area

Both sites appear to support at least some hydrophytic plants with sufficient hydrology to support wetlands. Soil testing was not completed to determine the presence or absence of hydric soils. For purposes of this EA, both sites are assumed to be jurisdictional wetlands that require treatment as Waters of the United States under Section 404 of the Clean Water Act.

Nationwide Permit Number 12 (NWP 12)-Utility Line Activities, renewed in 2017 includes activities required for construction, maintenance, repair and removal of utility lines and associated facilities in waters of the United states provide the activity does not result in the loss of greater than ½-acre of Waters of the United States for each single and complete project.

For utilities lines, NWP 12 authorizes discharges of dredge or fill material into Waters of the United States and structures or work in navigable waters for crossing of those waters associated with the construction, maintenance, or repair of utility lines, including outfall and intake structures. There must be no change in pre-construction contours of Water of the United States.

A utility line is defined as any pipe or pipeline for the transportation of any gaseous liquid, liquescent, or slurry substance, for any purpose, and any cable, line, or wire for transmission for any electrical, telephone, and telegraph messages and internet, radio, and television communication.

Materials resulting from trench excavation may be temporarily side-cast into Waters of the United States for no more than three months, provided the material is not placed in such a manner that it is dispersed by currents or other forces. In wetlands, the top 6 to 12 inches of the trench should normally be backfilled with topsoil from the trench. The trench cannot be constructed or backfilled in such a manner as to drain Waters of the United States. Any exposed slopes and streambanks must be stabilized immediately upon completion of the utility line crossing of each waterbody.

In Colorado, NWP 12 requires notification to the District Engineer in accordance with General Condition No. 32. A pre-construction notification (PCN) is required for all utility line activities that propose open trenching in perennial waters or for the purposes of creating a water intake. More information can be found on NWP 12 at: https://usace.contentdm.oclc.org/utils/getfile/collection/p16021coll7/id/8593. Additional information of NWP 12's regional conditions for Colorado can be accessed at: https://www.nwo.usace.army.mil/Missions/Regulatory-Program/Colorado/.

Submitting the required PCN to the Denver Regulatory Office of the Army Corps of Engineers and Estes Park's strict compliance with NWP 12 and any other applicable requirements will ensure that GCWTP Pipeline crossings will only have temporary impacts to Waters of the United States. All discharges into the Big Thompson River associated with construction of the Big Thompson Intake are predicted to result in losses of less than 1/10th of an acre of Waters of the United States.

Estes Park will provide to Reclamation written confirmation from the Army Corps of Engineers regarding Section 404 compliance associated with construction of the Big Thompson Intake and GCWTP Pipeline prior to requesting Contract Water deliveries to Lake Estes for exchanges.

Backwash associated with operation of MLWTP are discharged to the Upper Thompson Sanitation District for treatment. Discharges associated with GCWTP operations are authorized under Colorado Discharge Permit System (CDPS) Permit No. CO641063 and discharged to a single cell backwash pond where decant water is discharged to Glacier Creek. Under the Proposed Action, Estes Park would continue to operate GCWTP in compliance with the existing discharge permit.

Estes Park will need to obtain authorization from the State of Colorado under CDPS. The State regulation (5 CCR 1002-61) covers discharges from specific types of industries including construction sites, and storm sewer systems for certain municipalities. Construction activities refer to ground surface disturbing activities, which include, but are not limited to, clearing, grading, excavation, demolition, installation of new or improved haul roads and access roads, staging areas, stockpiling of fill materials, and borrow areas. Construction sites that disturb one acre or greater or are part of a larger common plan of development disturbing one acre or greater,

are covered under Colorado's stormwater permitting requirements. Additional information can be found at https://www.colorado.gov/pacific/cdphe/wq-construction-general-permits.

3.8 Land Use and Recreation

General land ownership includes both federal and private lands. Estes Parks provides a majority of the water service to the Estes Valley from the GCWTP and MLWTP (see Figure 1). Details on Estes Park's water distribution system and service area can be found in Estes Park's Final Water Comprehensive Water Master Plan (FEI 2015) and can be accessed at: https://www.colorado.gov/pacific/sites/default/files/Water%20Master%20Plan%202015%20Complete.pdf.

The property on which GCWTP was constructed is owned by Estes Park and was originally constructed in 1971 and later renovated in 2003. In March of 2019, Estes Park purchased additional land from YMCA for future expansion of GCWTP. In 1991, Reclamation also authorized Estes Park to construct, operate, and maintain MLWTP water treatment plant and appurtenant facilities on Reclamation lands through issuance of a Special Use Permit and grant of easement. Construction of MLWTP was completed in 1992. A pump station was also added in 2003 to pump raw water from Marys Lake.

Construction footprints for the Big Thompson Intake and GCWTP Pipeline include lands owned by Estes Park, YMCA, and a private landowner. Glacier Creek and the Big Thompson River separate these parcels from each other as shown in Figure 7. The 2019 Larimer County Assessor data shows the private land is owned by Dunraven LTD.

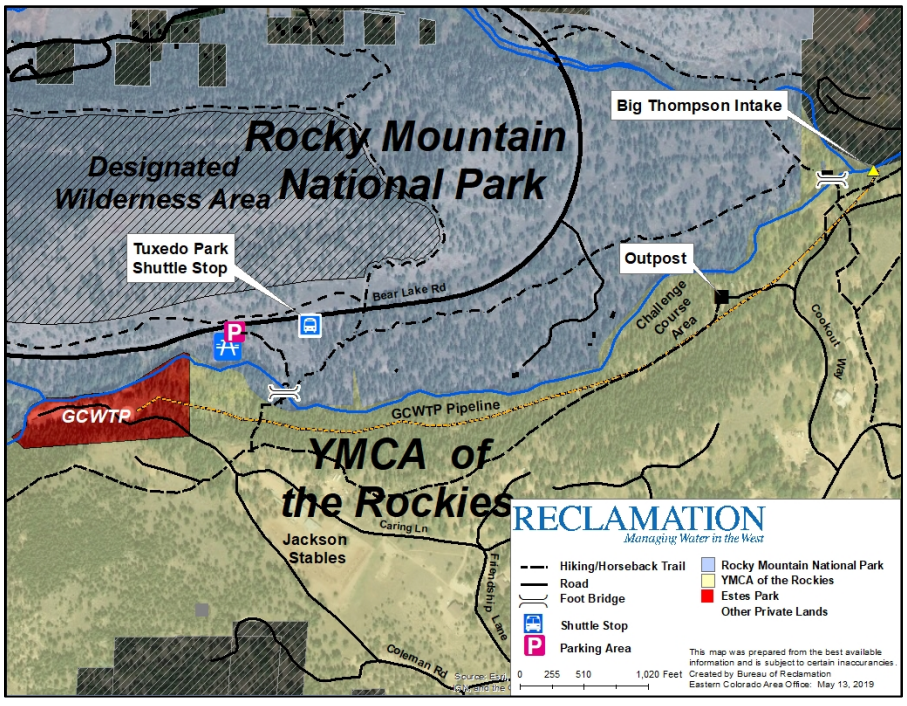

Figure 7-Land Use and Property Ownership within the Project Area.

Marys Lake, Marys Lake Penstocks, Marys Lake Powerplant, and Mary Lake Campground are adjacent to MLWTP. Reclamation operates and maintains the Marys Lake Powerplant and appurtenant structures. Estes Valley Recreation and Park District, under a management agreement with Reclamation, manages recreation on C-BT Project land in the Estes Park Valley including East Portal, Marys Lake, and Lake Estes. The Proposed Action will have no effect on land uses adjacent to MLWTP, Marys Lake, or Lake Estes.

Land use within the GCWTP Project area is rural in nature consisting primarily of recreational use including hiking, backpacking and equestrian. These hiking and horseback trails connect the YMCA property to Rocky Mountain National Park and cross several footbridges over Glacier Creek. Estes Park also holds an easement from YMCA for the GCWTP finish water line that follows Glacier Creek. Estes Park has requested to expand the width of this easement to accommodate construction of a raw water pipeline that parallels GCWTP's finished water pipeline. Portions of the finished water line alignment also serves as or crosses hiking/horseback trails connecting the YMCA to Rocky Mountain National Park.

3.8.1 YMCA of the Rockies

YMCA is a 501(c)(3) non-profit organization whose mission puts Christian principles into practice through programs, staff, and facilities in an environment that builds healthy spirit, mind and body for all. They accomplish this by serving conferences of a religious, educational, or recreational nature; providing unifying experiences for families, offering traditional summer camping experiences for boys and girls, and serving its staff with leadership opportunities and productive work experiences (YMCA 2019).

Recreation resources at the YMCA includes numerous outdoor activities including archery, astronomy, campfires, challenge courses, disc golf, fishing and fly fishing, hiking, horseback riding, mini golf, rock climbing, snowshoeing, yoga, and ziplining.

Use of YMCA lands requires fee payment in the form of annual memberships or passes. If you're not a member of the YMCA or are not staying on-grounds, you must purchase a wristband day pass to participate in activities. Cost are $25 for adults, $10 for children 6-12, and children under 5 are free. The YMCA also offers a number of summer day camp opportunities for youth.

The YMCA operates and maintains the Outpost Summer camp, challenge course and several hiking/horseback trails within the Project Area. Figure 4 shows the Big Thompson Intake adjacent to Glacier Creek and the GCWTP alignment on YCMC. A detailed map of the YMCA is included as Appendix E.

Temporary trail closures of portions of hiking/horseback trails along Glacier Creek may be required to safely construct the GCWTP pipeline. The YMCA is a private-fee based facility and does not provide free public access to Rocky Mountain National Park from the YMCA as previously discussed. Estes Park holds an existing easement to access and maintain the GCWTP finished water pipeline. Estes Park would be responsible for coordinating all construction activities consistent with its agreements with YMCA. Impacts to YMCA would be temporary in

nature and would be minimized by constructing the GCWTP pipeline during times when periods YMCA visitation is lower. No long-term impacts to YMCA's use of its property are anticipated. More information on the YMCA can be accessed at: https://ymcarockies.org.

3.8.2 Rocky Mountain National Park

In 1915, the Sixty-third Congress reserved and withdrew lands from settlement, occupancy, or disposal under the laws of the United States to create Rocky Mountain National Park (16 USC 191). It was dedicated and set apart as a public park for the benefit and enjoyment of the people of the United States. The Act also authorized Reclamation to enter upon and utilize the flowage or other purposed for the development and maintenance of a Government reclamation project.

The NPS manages the approximately 415-square mile Rocky Mountain National Park with dramatic elevation ranging from 7,600 feet to 14,259 feet as it straddles the Continental Divide (see Appendix F). Its purpose is to preserve the high-elevation ecosystem and wilderness characters of the southern Rocky Mountains within its borders and to provide the freest recreational use of and access to the park's scenic beauties, wildlife, natural features and processes, and cultural objects (NPS 2019).

In 2018, NPS reported its highest visitation with 4,590,493 visitors entering Rocky Mountain National Park. About 95 percent or 252,298 acres of Rocky Mountain National Park is designated wilderness (Public Law 111-11). Within the park, Trail Ridge Road is the highest continuous paved highway in North American at its highest elevation reaching 12,183 feet.

NPS lands adjacent to the Project Area are commonly referred to as Tuxedo Park. NPS operates a shuttle bus stop, parking area, and picnic area which serves the Tuxedo Park area of Rocky Mountain National Park. Glacier Creek flows between GCWTP and the parking and picnicking areas (see Figure 6). The 1930 vintage Norlin, Grosvenor, and Tinsley cabins and parcels were purchased by NPS in the 1960s are located about ¼ mile east of the Tuxedo Park shuttle stop and are accessible by a "Park Staff Only" service roads.

Under the Proposed Action, no construction activities or changes in land use would occur in Rocky Mountain National Park (see Figure 6). The dense vegetation and steep topography screen views of GCWTP from Bear Lake Road. No land use permits or other authorization from NPS are required to construct, expand, operate or maintain GCWTP, GCWTP Pipeline, or Big Thompson Intake.

3.9 Visual Resources and Noise

Visual resources are an important aspect of the Estes Valley and Rocky Mountain National Park. Its vistas and views are a major resource that makes Estes Park a popular tourist destination. The Rocky Mountains dominate the landscape with elevations ranging from 7,500 ft in the Estes Valley to over 13,000 ft in the Mummy Range, 12,000 ft on Trail Ridge Road, and the 14,259 ft Longs Peak.

GCWTP is located along Glacier Creek adjacent to Rocky Mountain National Park and is naturally screened by topography and vegetation when traveling along Bear Creek Road in

Rocky Mountain National Park (see Figure 6 in Section 3.7). GCWTP is also not noticeable when hiking along the trail that connects Glacier Basin Campground to YMCA's Jackson Stables. The building and facilities use natural colors to blend in.

Expansion and improvements to GCWTP and construction of the Big Thompson Intake would be designed to maintain the natural screening. Vegetation removal would be limited to that necessary to safely construct and operate the facilities. Facilities would be non-reflective and painted to blend with the Project Area background and no additional power lines are anticipated at this time. The GCWTP Pipeline would parallel the existing treated water line from the GCWTP to the Big Thompson Intake and utilize existing trails and service roads to minimize new ground disturbance.

Prior to expansion of GCWTP and construction of Big Thompson Intake, facility designs should be reviewed by the Estes Park Community Development's Planning Division and approved by the Estes Valley Planning Commission to ensure compliance with the Estes Valley Comprehensive Plan. The Proposed Action is not predicted to adversely affect visual resources.

3.10 Air Quality

The Project Area is included in the Denver Metro/North Front Range Region monitoring area for air quality, which includes Adams, Arapahoe, Boulder, Broomfield, Denver, Douglas, Jefferson, Larimer, and Weld Counties. The monitoring area includes the largest population within the State of Colorado (CDPHE 2018). Since 2002, the region has met all National Ambient Air Quality Standards, except for ozone. It was designated as a 30 "nonattainment" area in 2007. This designation was re-affirmed in 2012 when the Environmental Protection Agency designated the region as a "marginal" nonattainment area for the more stringent ozone standard adopted by EPA in 2008. In 2015, EPA reviewed criteria for ozone and related photochemical oxidants and revised the primary and secondary 8-hour ozone standards further to a level of 0.070 parts per million.

The Denver Metro/North Front Range Region also includes RMNP and several wilderness areas. Research and monitoring are showing the air quality in RMNP is affected by a variety of human sources (NPS 2019). Air pollution in the park reduces visibility, increases ozone levels and causes excess nitrogen deposition. Current visibility in RMNP varies between 30 and 90 miles. However, there are days when visibility is greater than 200 miles.

The RMNP Air Quality Initiative was formed in 2004 and recommends strategies related to air quality. The initiative consists of CDPHE, Estes Park and NPS. The initiative's primarily focus is atmospheric nitrogen deposition, ozone and regional haze. More information is available at: https://www.colorado.gov/cdphe/rocky-mountain-national-park-initiative.

In Colorado, any business that emits air pollution may be required to report its emissions and/or apply for a permit. Submitting an Air Pollutant Emissions Notice (APEN) is required to report emissions, apply for a permit, or modify a permit. Before constructing a new source of air pollution or when modification of an existing source commences, provided the emissions resulting from the new or modified source combined with the emissions from all other emission

points at the facility that require an Air Pollutant Emission Notice will equal or not exceed Permit Threshold (CPDHE 2019).

Effects on air quality are primarily limited to potential increases in particulate matter (PM_{10} and $PM_{2.5}$) during construction related activities associated with Big Thompson Intake, GWTP, and GCWTP Pipeline. For PM_{10} and $PM_{2.5}$ pollutant categories, the threshold is 5 tons per year in attainment areas and 1 ton per year in non-attainment areas. Implementation of a fugitive dust abatement program during construction activities would minimize potential for fugitive dust impacts to air quality.

Estes Park should contact CDPHE prior to initiating construct activities to determine if an air quality permit is required. More information can be found at: https://www.colorado.gov/pacific/cdphe/air/air-permit. Implementation of dust abatement during construction, reseeding disturbed areas, and other best management practices (BMPs) are predicted to minimize potential air quality impacts associated with the Proposed Action.

3.11 Socioeconomics

Tables 10 and 11 provides demographic data for Estes Park, Larimer County, and the State of Colorado (Colorado DOLA 2019, U.S. Census 2019).

Table 10- Population and Income Data by Area

	Estes Park	Larimer County	Colorado
Population (2017)	6,276	343,853	5,609,445
Population Change (2010 to 2017)	379	43,321	559,113
Total Employment	5,124	201,699	3,309,391
Median Household Income (2017)	$53,025	$64,980	$65,458
Percent below Poverty Line	12.3%	12.4%	11.5%

Table 11- Race and National Origin Percentage by Area.

Race	Estes Park	Larimer County	Colorado
White	98.2%	92.8%	76.6%
Black or African American	0%	1.1%	13.4%
American Indian and Alaskan Native	0.4%	1.0%	1.3%
Asian	0.2%	2.4%	5.8%
Native Hawaiian or Other Pacific Islander	0.1%	0.1%	0.2%
Two More Races	0.8%	2.6%	2.7%
Hispanic Origin	**Estes Park**	**Larimer County**	**Colorado**
Hispanic or Latino	7.0%	11.4%	18.1%

The Estes Valley is a special planning district of Larimer County and consists of Estes Park and the surrounding Estes Valley. The Estes Valley Planning Commission is a seven-member Town/County commission that reviews development proposals and subdivision proposals within the Estes Valley, both inside and outside of Estes Park. The Estes Valley Comprehensive Plan articulates a common vision for the future; it informs citizens, landowners, and developers of the

goals, guidelines and desired future land use character throughout the Valley; and it provides a means for communication and coordination between the Town and Larimer County, as well as federal, state and other governmental agencies. The Estes Valley Comprehensive Plan is accessible at: https://www.colorado.gov/pacific/townofestespark/comprehensiveplan. Estes Park and Larimer County are in the process of rewriting the plan with the majority of the public process occurring in 2019 and 2020.

Estes Park also has an approved water conservation plan (HDR 2012). Estes Park is largely surrounded by Rocky Mountain National Park and Roosevelt National Forest. Future growth is limited to the boundaries of the water service area and the population varies significantly from winter to summer. The Estes Park Water Conservation Plan estimated a peak summer tourist population of 22,350 and projected a 46% increase by 2030. The gallons per capita per day (gpcd) was estimated at 96 gallons per day in 2007. Estes Park's Town of Board Trustees adopted Estes Park Water Conservation Plan on April 24, 2012, with plans to officially review and update the plan every 10 years. There are eight water conservation components for implementation, which are as follows:

1. Water Saving Fixtures
2. Town Irrigation System Improvements
3. Third Stage Treatment
4. Bleeder Automation
5. Town Website
6. Customer Meter Testing and Replacement
7. Leak Detection and Repair
8. Tracking of Breaks and Repairs

The Comprehensive Water Master Plan (FEI Engineers 2015) estimates the 2034 resident peak season per capita demand between 91 gpcd and 100 gpcd and the tourist/non-resident workforce per capita demand of 31 gpcd. The continued uses of the 500 acre-feet of Contract Water are needed to meet these demands. Estes Park's 2018 water right application and the proposed expansion of the GCWTP discussed in Sections 3.1.3 and 3.1.4 are based on these demand projections.

Estes Park's water rates structure includes both a base fee by meter size and a volume charge by rate class per 1,000 gallons (Estes Park 2019). The 2018 fee schedule was approved in 2015 and includes a rate structure for both urban and rural uses as shown in Table 12. Its Water Division is in the process of completing a new rate study and the 2018 rates will continue into 2019 until the new rate study is complete and the rates are approved by the Estes Park Town Board.

The Proposed Action is intended to assist Estes Park and the Estes Valley with the current and future water service needs of the community. Absent proposed exchanges of Contract Water from Lake Estes to the Big Thompson Intake, Estes Park would likely need to continue to operate both MLWTP and GCWTP in the future to meet year-round and peak water service demands.

Table 12- Estes Park's 2018 Water Rate Schedule.

Base Fee by Meter Size*		
	2018 Rate Fee	
Meter Size	**Urban**	**Rural**
5/8" to 3/4"	$32.56	$52.09
1"	$54.37	$86.99
1 ½" to 10"	$108.41 to $2,496.14	$173.46 to $3,993.82
Volume Charge by Rate Class per 1,000 Gallons		
Rate Class	**Urban**	**Rural**
Residential	$5.26	$8.42
Commercial	$5.40	$8.64
Pumped Flow	$7.37	$11.79
Bulk Water**	$5.90	$11.39

*Most residential meters are 3/4". **A volume charge per 1,000 gallons is assessed to existing bulk pumped flow customers in lieu of a connection charge.

General construction costs associated with the Big Thompson Intake, GCWTP Pipeline, and GCWTP expansion are estimated at $35 million. Construction activities may result in temporary increases in the transient workforce while the facilities and improvement are being built but are not likely to affect Estes Park's schools, roads or local services.

Any Contract Water planned for delivery to MLWTP foregoes power generation at Marys Lake Powerplant and is subject to Article 5.B.i of the water service contract (see Appendix A) under both the Proposed Action and No Action alternatives. This article addresses power interference payments for loss lost power generation at Marys Lake, Estes, Pole Hill and Flatiron powerplants. Water delivered to Lake Estes for exchange can be used by Reclamation to generate additional power at Marys Lake and Estes powerplants. C-BT Project and Windy Gap Firming Project contracts both have similar language regarding power interference payments requirement for water deliveries that bypass Reclamation's powerplants.

3.12 Hydropower

C-BT Project Water flows from Grand Lake on the west slope of Colorado via the Adams Tunnel to the east slope and descends about 2,800 vertical feet to the foothills. Reclamation operates 6 hydropower plants as part of the C-BT Project. The powerplants are Green Mountain, Marys Lake, Estes, Pole Hill, Flatiron, and Big Thompson. Green Mountain powerplant is located on the Blue River below Green Mountain Reservoir and will not be affected by the Proposed Action.

All of the C-BT Project powerplants have produced an average annual accumulated gross generation total of 605 gigawatt hours of electricity for a 30-year period (Reclamation 2018). Roughly 11% of the power generation is used to operate pumps to move water from Granby to Shadow Mountain on the West Slope and from Flatiron to Carter Lake on the East Slope. Western Area Power Administration markets and transmits this power as part of the Pick-Sloan Missouri Basin Program through its Rocky Mountain Division which serves Colorado, Kansas, Nebraska and Wyoming with 830 megawatts of installed capacity and 3,432 miles of transmission line (WAPA 2019).

Using the 2018 Annual Operating Plan's (AOP) most probable power generation forecasts for the C-BT Project's East Slope powerplants (October through September), Reclamation estimates the additional power production that could occur as a result of the Proposed Action (Table 13).

Table 13- Estimated C-BT Project Power Generation Increases

C-BT Project East Slope Powerplant	2017 AOP	Avg. Power Generation	Gross Power Production	Contract Water		Cumulative*	
	kaf	kwh/af	mwh	mwh	% Increase	mwh	% Increase
Marys Lake	259.6	151	39,200	75.5	0.2%	190	0.5%
Lake Estes	259.6	440	114,224	2,20	0.2%	554	0.5%
Pole Hill	397.9	496	197,358	2,48	0.1%	624	0.3%
Flatiron	262.5	755	198,188	377.5	0.2%	950	0.5%
Big Thompson	55.4	64	3,546	32	0.9%	81	2.3%
Total				**953**	**0.2%**	**2,399**	**0.4%**

*Assumes 500 ac Contract Water, 608.5 ac (50% quota) C-BT Project and 150 ac of Windy Gap Project
Source: Reclamation 2018

Contract Water delivered to MLWTP does not generate power. Under the Proposed Action when the Contract Water exchanges occurs, the water is delivered to Lake Estes and can generate power at Marys Lake and Lake Estes powerplants. The Contract Water could generate up to an additional 295.5 mwh or electricity assuming both powerplants are available and on-line during Contract Water deliveries. This equates to about 0.2% of these two plants annual power generation. There are also times when Contract Water deliveries allow additional power generation at Pole Hill, Flatiron and Big Thompson Powerplants that could result in the generation of up to 953 mwh or 0.2% of the powerplants' annual generation.

Under the cumulative effect analysis, exchanges of Estes Park's C-BT and Windy Gap Project water could increase power generation by up to an estimated 744 mwh or 0.5% at Marys Lake and Lake Estes plants. Up to a 2,399 mwh increase in power generation could occur if all C-BT Project's East Slope powerplants are used. This would represent a 0.4% increase in total power generated by East Slope C-BT Project powerplants.

3.13 Historic Resources

Historic properties are protected by a number of Federal statutes, regulations, and policies. Section 106 of the National Historic Preservation Act of 1966 (NHPA) mandates that federal agencies take into account the potential effects of a proposed federal undertaking (Proposed Action) on historic properties. Historic properties are defined as any prehistoric or historic district, site, building structure, or object included in, or eligible for, inclusion in the National Register of Historic Places (NRHP). Potential effects of the described alternatives on historic properties are the primary focus of this analysis.

The affected environment for historic resources corresponds to the area of potential effects (APE), as defined in the Section 106 implementing regulations of the NHPA (36 CFR part 800). The APE is the geographic area or areas with which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist (36 CFR Part 800.16(d)). The APE for direct effect for the Proposed Action includes the total area of potential ground disturbance, including construction areas, staging areas, and access associated with the Proposed Action. The APE for indirect effects includes the total area where new visual impacts to historic resources may occur as a result of the Proposed Action. Operations and reservoir elevations at the Lake Estes will remain unchanged. All potential changes in flows in Glacier Creek and the Big Thompson River between GCWTP and Lake Estes will be within the normal seasonal variation.

The APE for the Proposed Action is limited to lands that may be disturbed associated with construction of the GCWTP Pipeline and Big Thompson Intake, and GWTP enlargement. Prior to construction of any GCWTP facilities, pipelines, and Big Thompson Intake associated with the exchange of Contract Water, Estes Park would be required to provide detailed site plans to Reclamation. Reclamation would require cultural resource inventories and complete the Section 106 consultations process with the Colorado State Historic Preservation Officer.

In the event that during cultural inventories, historic resources are identified that could be adversely affected by the Proposed Action, Reclamation would require appropriate mitigation measures through consultation as identified during the Section 106 process which would be implemented prior to allowing any Contract Water to be delivered for exchange to the Big Thompson Intake. Reclamation would also encourage Estes Park to participate in the Section 106 process and would provide the results of any such consultation to the Army Corps of Engineers or any other federal agency that may provide federal funding or permitting associated with construction of the Big Thompson Intake and/or GCWTP.

No additional Class III cultural resource surveys or NHPA Section 106 consultation are required for continued delivery of Contract Water to MLWTP via the Marys Lake Gatehouse. Continued water delivery to MLWTP under the Proposed Action would have no potential to effect historic resources.

3.14 Indian Trust Assets (ITA)

Indian trust assets (ITA) are legal interests in property held in trust by the United States for Indian tribes or individuals. The Secretary of the Interior acts as the trustee and all Department of the Interior agencies share the Secretaries duty to act responsibly to protect and maintain Indian trust assets reserved or granted by the United States to Indian tribes or individuals by treaty, statue, and executive orders. Examples include lands, minerals, hunting and fishing rights, and water rights. To date, none have been identified through the numerous government to government consultations associated with water service contracts for the use of C-BT Project facilities with the Big Thompson River Basin.

There are currently no known ITA resources that have been identified that could be affected by the Proposed Action alternative. However, Reclamation will consult with the Bureau of Indian

Affairs, Anadarko, Concho, Fort Peck, Northern Cheyenne, and Wind River Agencies to identify impacts to ITA associated with future construction of the Big Thompson Intake and GCWTP when cultural resource inventories are completed.

3.15 Environmental Justice

Executive Order 12898, issued on February 11, 1994, directs federal agencies to identify and address disproportionately high and adverse human health or environmental effects of their actions on minority and low-income populations, to the greatest extent practicable and permitted by law. Tables 10 and 11 in Section 3.11 previously displayed household income data by area compared race and ethnicity composition in the analysis area to Colorado based on 2010 U.S. Census data.

No disproportionately high and adverse human health or environmental effects on minority and low-income populations have been identified. Therefore, the Proposed Action is predicted to have no effect on environmental justice.

3.16 Other Resources

The Proposed Action will have no effect on other resources that include unique geographical characteristics such as wilderness, wild and scenic rivers, national landmarks, and prime farmlands.

BMPs would be implemented during construction to ensure protection of wildlife, water and air quality and soils. Based on the existing development in the area and the size of the construction footprint, any impacts associated with construction would be temporary and are predicted not to be significant.

3.17 Summary of Impacts and Environmental Commitments

Table 14 summarizes impacts associated with implementation of the Proposed Action. With implementation of the environmental commitments listed in Section 3.18, the Proposed Action is predicted to result in negligible to minor effects to the human environment.

Table 14- Summary of Impacts

Resource	Proposed Action	Cumulative Impacts
Water Resources	-No changes in flows under current operations. Minor decreases in stream flow in Big Thompson River between Big Thompson Intake and Lake Estes during exchanges. -Largest predicted streamflow decreases (5.8% to 7.2% from a 0.7 cfs diversion at Big Thompson Intake) would occur in March prior to spring runoff.	-Negligible decreases in stream flow predicted when exchanges of C-BT Project and Windy Gap Project water between Big Thompson and Lake Estes occur.
Water Rights	-All exchanges would be subject to water right decrees and administered by the State of Colorado.	Same as Proposed Action.
Fish and Wildlife Resources	-No effect under current operations.	Same as Proposed Action.

Resource	Proposed Action	Cumulative Impacts
	-Negligible effects to fisheries resources from decreased streamflow in Big Thompson River above Lake Estes during exchanges. -Big Thompson Intake would use a fish friendly design to allow fish passage and minimize fish entrainment. -No effect to fisheries resources downstream of Lake Estes. -Minor, temporary displacement of local wildlife during construction of Big Thompson Intake, GCWTP expansion, and GCWTP Pipeline. No long-term effects predicted.	
Threatened and Endangered Species	-No effect and there are no new depletions from either Colorado or Platte River basins associated with the Proposed Action.	-Same as Proposed Action.
Water Quality	--No changes in water quality under current operations. -Additional flexibility at GCWTP may result in taste improvements to water delivered at the tap.	-Same and Proposed Action.
Waters of the United States	-No effect to Water of the United States under current operations. Minor discharges associated with construction of the Big Thompson Intake. All permanent discharges associated with construction activities result in loss of less than 1/10th acre of Water of the United States. -Temporary impacts to lower and upper wet areas during construction of GCWTP Pipeline. -Compliance with NWP 12 would help minimize impacts to a negligible level. -Implementation of BMPs associated with NPDES	-No cumulative impacts anticipated.
Land Use and Recreation	--No changes in land use under current operations. -Minor temporary impacts to local land uses during construction activities associated with Big Thompson Intake, GCWTP expansion, and GCWTP Pipeline. -Temporary YMCA trail closures along Glacier Creek during construction may be required during construction activities for public safety.	-No cumulative impacts predicted.
Visual Resources and Noise	-No impacts to visual resource or increased noise under current operations. -Minor temporary construction related impacts associated with Big Thompson Intake GCWTP expansion and GCWTP Pipeline. -Revegetation of pipeline alignment and associated construction areas would minimize any long-term effects on visual resources.	- Minor temporary impacts associated with GCWTP expansion. -Use of non-reflective materials painted with natural color tones would minimize any potential visual impacts associated with construction and operation of new water treatment facilities at GCWTP.

Resource	Proposed Action	Cumulative Impacts
Air Quality	-No impacts to air quality under current operations. -Implementation of construction BMPs and dust abatement during construction would minimize any temporary impacts.	-No cumulative impact predicted.
Socioeconomics	-Proposed Action intended to assist Estes Park and the Estes Valley in meeting the current and future water service needs of the community.	Same as Proposed Action.
Hydropower	-No additional effects under current operations. -Potential to increase power generation by 0.2% during Contract Water exchanges.	-Potential to increase power generation by 0.4% with Contract Water, C-BT Project, and Windy Gap Project exchanges.
Historic Resources	-No effect to cultural resources under current operations. -Cultural resource inventories would be conducted prior to any ground disturbing activities associated with Big Thompson Intake, GCWTP expansion and GCWTP Pipeline. -Any historic resources eligible for National Register of Historic Places identified during the inventories would be avoided. Any impacts to historic resources would be mitigated as identified during the Section 106 process with the Colorado State Historic Preservation Officer.	Same as Proposed Action.
Indian Trust Assets	No ITAs have been identified that could be affected by the Proposed Action. .	
Environmental Justice	No effect.	
Other Resources	No effect.	

3.18.1 Mitigation Measures and Environmental Commitments

The following mitigation measures and environmental commitment measures would be implemented and followed by Estes Park and their contractors. Mitigation measures are intended to minimize or eliminate environmental effects associated with the future construction of the Big Thompson Intake and expansion of the GCWTP.

1. **Colorado-Big Thompson Project Operations:**
   a. Contract Water deliveries cannot adversely impact Colorado-Big Thompson Project operation and maintenance activities.
   b. All water must be transported, released and/or exchanged in accordance with Colorado water law.

2. **Future Glacier Creek Water Treatment Plant Expansion**:
   a. Visual Resources: Future expansion and improvement of Glacier Creek Water Treatment Plant and construction of the Big Thompson Intake shall incorporate the use of natural screening and nonreflective natural colors in each feature's design.

   b. Cultural Resources: To mitigate any potential impacts to historic resources associated with Contract Water exchanges from Lake Estes to the Big Thompson Intake, Estes Park shall complete and submit to Reclamation, cultural resource inventories prior to construction of the Big Thompson Intake and Glacier Creek Water Treatment Plant Pipeline. All cultural resource inventories shall include a Class III surveys of potential disturbances within construction footprint, staging areas, and borrow/disposal sites. Estes Park shall coordinate inventories with Reclamation archaeologist and all contracted Cultural Resource professional must hold valid permits issued by the state of Colorado. More information on permit and inventory requirements can be found at: https://www.historycolorado.org/archaeology-and-paleontology-law-permits.

   Once cultural resource inventories are completed, Reclamation shall determine if any sites eligible to the National Register of Historic Places and complete the National Historic Preservation Act Section 106 consultation process with the Colorado State Historical Preservation Office. In the event historic resources are identified and would be adversely affected by the Proposed Action, mitigation measures shall be developed and implemented pursuant to a Memorandum of Agreement (MOA) between Reclamation, Colorado State Historical Preservation Office, and the Town of Estes Park. Reclamation shall also invite the Advisory Council on Historic Preservation and any eligible local historic preservation entity to participate in development of the MOA.

   In the unlikely event that historic resources are encountered during all ground disturbing construction activities, all construction related activities shall be stopped and Reclamation notified. Reclamation shall evaluate the discovery and complete the National Historic Preservation Act 106 consultation process and implement protective measures as appropriate, prior to resuming ground disturbing construction activities.

   c. Clean Water Act 404 Compliance: Estes Park shall consult with the Army Corps of Engineers if construction of facilities necessary to use the Contract Water requires Clean Water Act Section 404 compliance, which may include obtaining a 404 permit.

Chapter 4-Consultation and Coordination

4.1 General

Reclamation and Estes Park held informal discussions with local, State and Federal agencies to identify issues and concerns associated with the Proposed Action. Reclamation also utilized agency websites to access public data used in the EA analysis.

4.2 Comments Received on Draft EA

On August 15, 2019, Reclamation issued a news release announcing the availability of the Draft EA for public review and comment. The Draft EA was available on Reclamation's website at: https://www.usbr.gov/gp/ecao/nepa/estes_park_water.html. Reclamation also sent a news release to 3 media contacts, 8 media outlets and 1,635 entities and individuals. A copy of the distribution list is available upon request.

Reclamation requested comments on the Draft EA by September 13, 2019 and no comments were received. After additional internal review, minor edits were made to the draft EA. However, these edits did not change the analysis or predicted environmental effects.

4.3 Agency Consultations

Reclamation consulted with and/or utilized other federal, state and local agencies' data and websites to assist with the analysis of potential effects associated with the Proposed Action. Agencies included but are not limited to:

Army Corps of Engineers
Colorado Department of Public Health and Environment
Colorado Division of Parks and Wildlife
Colorado Division of Water Resources
Estes Valley Park and Recreation District
Larimer County
National Park Service
Town of Estes Park Water Department
U.S. Census Bureau
U.S. Department of Agriculture
U.S. Fish and Wildlife Service
YMCA

4.3.1 Cooperating Agencies

For the purposes of this environmental assessment, Reclamation is the lead federal agency. The U.S. Department of Agriculture is participating as a cooperating federal agency and intends to utilize Reclamation's environmental analysis for additional NEPA compliance to obligate USDA funds for GCWTP improvements if selected for federal cost-share funding under U.S. Department of Agriculture's Rural Development Program.

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