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Chapter 4. Consultation and Coordination

4.1 Public Scoping

Reclamation provided for an early and open process to determine the scope of significant issues to be addressed in the EIS. Scoping is not a single isolated action, but an ongoing process. The scoping process helps to:

- Inform the public and the affected agencies about the background, purpose, and features of the proposed project;
- Objectively identify public issues and concerns about the project;
- Gather additional information about the issues; and
- Identify a reasonable range of alternatives and potential impacts to be addressed.



Public Scoping Meeting

To identify the issues and concerns related to the WGFP, agency and public scoping was undertaken by Reclamation as follows.

4.1.1 Public Scoping Outreach Activities

Public scoping began with informal meetings with interested members of the public on July 22, 2003 in Granby, Colorado and on July 23, 2003 in Loveland, Colorado. Notice of the meetings was given via press releases and ads in local newspapers, as well as a mailing list of about 375 people. These meetings were used to inform the public about the proposed project and to initiate public involvement.

The formal scoping period began with publication of a Notice of Intent (NOI) in the Federal Register on September 8, 2003. The NOI (as well as other paid advertisements announcing public scoping meetings, a scoping announcement, and publication of project information on the District's and Reclamation's websites) was used to solicit comments on the proposed project and announce plans for additional public meetings. The formal scoping meeting was announced via press releases to 26 local and regional news media organizations (newspapers, radio, and television); and paid advertisements in 14 newspapers. Reclamation also distributed announcements of the scoping meetings to 415 individuals.

Reclamation held three public scoping meetings to solicit information on issues, concerns, and alternatives for the proposed project. A meeting was held in Granby on September 30, 2003; in Loveland on October 1, 2003; and in Lyons on October 2, 2003.

Reclamation conducted the scoping meetings in both an open house and formal presentation format. The meetings provided an opportunity for the public to review possible alternatives, view exhibits and maps, and ask questions. About 250 people attended the three scoping meetings. Comment sheets to encourage written comments were provided at each public meeting. Reclamation requested submission of the comments by November 7, 2003.

4.1.2 Agency Scoping Meeting

On September 17, 2003, Reclamation hosted an agency scoping meeting for representatives from various federal, state, and local agencies interested in the WGFP. Of the 28 agencies or individuals that were invited, seven people attended. The represented agencies included the Environmental Protection Agency, U.S. Fish and Wildlife Service (FWS), U.S. Army Corps of Engineers (Corps), Colorado Department of Public Health and Environment (CDPHE), and Grand County.

Three agencies requested participation in the WGFP EIS as cooperating agencies:

U.S. Army Corps of Engineers — because of potential effects to water and wetland resources.

Western Area Power Administration — because of the need to relocate a Western transmission line if Chimney Hollow Reservoir is built.

Grand County — because of potential effects to the West Slope environment, water, recreation, and other resources in the county, as well as regulatory issues for some alternatives.

The results of the public and agency scoping process are summarized in the WGFP Scoping Report (ERO 2003a). The report contained a summary of the outreach activities, public and agency scoping meetings, and a summary of comments received from the public and agencies.

4.1.3 Agency Consultation

Reclamation initiated preliminary consultation with the FWS during the preparation of the Draft EIS. Following completion of the Draft EIS, Reclamation consulted with the FWS on the projected depletions to the Colorado River associated with implementation of the Proposed Action, and the impact to endangered Colorado River fish. On February 12, 2010, the FWS issued a biological opinion on the Proposed Action (Appendix D). Reclamation will work with the FWS in finalizing the *Fish and Wildlife Coordination Act Report* prior to issuance of the Record of Decision (ROD).

Consultation with the Colorado State Historic Preservation Office (SHPO) was conducted throughout the NEPA process in developing the area of potential effect by identifying known resources and providing results of cultural resource surveys. Reclamation will complete a Memorandum of Agreement (MOA) or Programmatic Agreement (PA) with the SHPO to address mitigation for impacts to cultural resources prior to implementation of the project.

The Corps, as a cooperating agency, has been consulting with Reclamation throughout the EIS process. The Subdistrict submitted a 404 Permit application the Corps at the time the Draft EIS was released in 2008. The Corps comment period on the permit application ran simultaneously with the comment period on the Draft EIS. A Corps decision on the 404 Permit for the Proposed Action is a separate action that would be completed after the ROD.

The Western Area Power Administration (Western) is a cooperating agency that has provided review and comment on the EIS. If the Proposed Action is authorized, Western would coordinate with Reclamation and the Subdistrict in the relocation of the existing transmission line within the Chimney Hollow Reservoir footprint.

Following release of the Draft EIS, the Subdistrict worked cooperatively with the Colorado Division of Parks and Wildlife (CDPW) to develop a *Fish and Wildlife Mitigation Plan* (FWMP) per Colorado Revised Statute (C.R.S.) 37-60-122.2. The Colorado Wildlife Commission adopted the FWMP on June 9, 2011 and the Colorado Water Conservation Board adopted it on July 13, 2011. The mitigation measures from the FWMP (Appendix E) have been incorporated into the FEIS.

4.1.4 Draft EIS Public Hearing

A Notice of Availability of the Draft EIS was published in the Federal Register (Vol. 73, No. 169) on August 29, 2008. Publication of the notice initiated a 60-day comment period, which was extended to October 28, 2008. A CD of the entire EIS and a hard copy of the Executive Summary were sent to approximately 700 individuals, entities, and agencies from Reclamation's mailing list with an interest in the project. Hard copies of the Draft EIS

were also made available at Reclamation's Eastern Area Office in Loveland and the Corps' Chatfield office in Littleton, Colorado. Hard copies of the Draft EIS also were made available at 16 local libraries along the Front Range and in the Upper Colorado River Basin. A digital version of the Draft EIS was made available on Reclamation's website (www.usbr.gov/gp/ecaio).

Reclamation held two open house/public hearings during the comment period to give the public an opportunity to learn more about the alternatives and impacts, and to formally comment on the Draft EIS. Notice of the public hearings was included with the Federal Register notification; distribution of the Draft EIS; and publication in newspapers, Internet message boards and blogs, and by e-mail. The public hearings were held at the McKee Conference Center in Loveland on October 7, 2008 and at the Inn at Silver Creek in the Town of Granby on October 9, 2008. The meetings included an open house prior to the hearing to allow the public time to review exhibits about the project and to talk with Reclamation staff and consultants. The public hearing portion allowed everyone an opportunity to make a formal oral statement for the record, and a transcript of the hearing was taken by a court reporter. A total of 64 people signed in at the Loveland public hearing and 136 people signed in at the Granby hearing.

At the public's request, Reclamation extended the comment period 62 days to December 29, 2008, for a total comment period of 123 days. Reclamation and the Corps jointly notified individuals and entities on the mailing list on October 24, 2008 of the comment period extension. A Notice of Extension of the comment period also was published in the Federal Register on October 31, 2008. The comment period on the Corps' 404 application for the Proposed Action ran concurrent with Reclamation's comment period for the Draft EIS. Reclamation received approximately 1,150 letters, comment forms, and recorded written and oral comments, including 714 form letters, on a variety of topics. All of the comment material was systematically reviewed for content, organized into topics, and assigned codes. Responses to substantive public comments are included in Volume 2, Appendix F of this Final EIS including a list of everyone who commented.

4.2 Consultation

Government agencies, businesses, organizations, and Native American Tribes contacted or consulted during the preparation of the Draft EIS are listed in Table 4-1.

Table 4-1. List of agencies and organizations contacted for the Final EIS.

Cooperating Agencies
<ul style="list-style-type: none"> • U.S. Army Corps of Engineers (Corps) • Western Area Power Administration (Western) • Grand County Government
Federal Agencies
<ul style="list-style-type: none"> • Bureau of Land Management (BLM) • Environmental Protection Agency (EPA) • Rocky Mountain National Park • U.S. Fish and Wildlife Service (FWS) • U.S. Forest Service
State Agencies
<ul style="list-style-type: none"> • Colorado Department of Public Health and Environment (CDPHE)/Water Quality Control Division (WQCD) • Colorado Department of Transportation, Environmental Programs Branch • Colorado Division of Parks and Wildlife (CDPW) • Colorado State Engineer • Colorado State Historic Preservation Officer (SHPO), Colorado Office of Archaeology and Historic Preservation (OAHF) • Colorado State Land Board

Local Agencies and Special Districts
<ul style="list-style-type: none"> • Boulder County • Central Weld County Water District • City of Boulder • City of Broomfield • City of Denver • City of Fort Collins • City of Fort Lupton • City of Greeley • City of Lafayette • City of Longmont • City of Louisville • City of Loveland • Colorado River Water Conservation District • Grand County Commissioners and County Manager • Grand County Historical Association • Grand County Planning Department • Larimer County • Larimer County Parks and Open Lands • Larimer County Planning Department • Little Thompson Water District • Middle Park Water Conservancy District • Municipal Subdistrict, Northern Colorado Water Conservancy District • Northern Colorado Water Conservancy District • Northwest Colorado Council of Government • Platte River Power Authority • Town of Erie • Town of Evans • Town of Granby • Town of Superior • Weld County
Local Businesses
<ul style="list-style-type: none"> • Colorado River Center • Lakota Rafting • MAD Adventures
Local Organizations
<ul style="list-style-type: none"> • Colorado Natural Heritage Program • The Nature Conservancy • Trout Unlimited • Western Resource Advocates
Consulting and Legal Firms
<ul style="list-style-type: none"> • Bishop-Brogden Associates, Inc. • HabiTech, Inc. • HDR Engineering, Inc. • Sullivan Green Seavy, LLC • Trout, Raley, Montaña, Witwer & Freeman, P.C. • URS Corporation

Native American Tribes

- Apache Tribe of Oklahoma
- Cheyenne-Arapaho Tribes of Oklahoma
- Cheyenne River Sioux Tribe
- Comanche Nation of Oklahoma
- Crow Creek Sioux Tribe
- Fort Sill Apache Tribe
- Jicarilla Apache Tribe
- Kiowa Indian Tribe of Oklahoma
- Mescalero Apache Tribe
- Northern Arapaho Tribe
- Northern Cheyenne Tribe
- Northern Ute Tribe
- Oglala Sioux Tribe
- Pawnee Nation of Oklahoma
- Rosebud Sioux Tribe
- Shoshone Tribe (Eastern Band)
- Southern Ute Tribe
- Spirit Lake Sioux Tribe
- Standing Rock Sioux Tribe
- Ute Mountain Ute Tribe

4.3 Final EIS Distribution

Notice of the availability of the Final EIS was sent to area libraries, federal agencies, Native American organizations, state agencies, county agencies, city agencies, elected officials, and private individuals. Libraries received paper copies of the Final EIS; all others received an Executive Summary and a CD with an electronic version of the Final EIS. Paper copies can be reviewed at the libraries listed in Section 4.3.6 below and at:

- Reclamation's Eastern Colorado Area Office, 11056 W. County Rd. 18E, Loveland, Colorado 80537, 970-962-4410
- Corps of Engineers, Chatfield Reservoir Office, 9307 South Wadsworth Blvd., Littleton, Colorado 80128

A copy of the Final EIS is available on Reclamation's website at: <http://www.usbr.gov/gp/eca0>.

To receive a copy of the Final EIS on compact disk, please submit a written request to the attention of Lucy Maldonado through regular mail or e-mail:

Bureau of Reclamation
11056 W. County Rd. 18E
Loveland, Colorado 80537
lmaldonado@usbr.gov.

4.3.1 Federal Agencies

Arapaho-Roosevelt National Forest and Pawnee National
Grassland
Natural Resource Conservation Service
Rocky Mountain National Park
Upper Colorado River Commission
U.S. Army Corps of Engineers, Omaha District
U.S. Army Corps of Engineers, Sacramento District Field
Office
U.S. Army Corps of Engineers, Western Regulatory
Office

U.S. Bureau of Land Management
U.S. Bureau of Reclamation
U.S. Department of Energy
U.S. Environmental Protection Agency, Region 8
U.S. Fish and Wildlife Service
U.S. Forest Service
U.S. Forest Service, Pawnee National Grasslands
U.S. Geological Survey
Western Area Power Administration

4.3.2 Native American Organizations

Apache Tribe of Oklahoma
Cheyenne and Arapaho Tribes of Oklahoma
Cheyenne River Sioux Tribe
Comanche Nation of Oklahoma
Crow Creek Sioux Tribe
Fort Sill Apache Tribe
Jicarilla Apache Tribe
Kiowa Tribe of Oklahoma
Mescalero Apache Tribe
Northern Arapaho Tribe

Northern Cheyenne Tribe
Northern Ute Tribe
Oglala Sioux Tribe
Pawnee Nation of Oklahoma
Rosebud Sioux Tribe
Shoshone Tribe (Eastern Band)
Southern Cheyenne
Southern Ute Indian Tribe
Standing Rock Sioux Tribe
Ute Mountain Ute Tribe

4.3.3 State Agencies

Colorado Department of Agriculture
Colorado Department of Local Affairs
Colorado Department of Natural Resources
Colorado Department of Public Health and Environment
Colorado Division of Parks and Outdoor Recreation

Colorado Division of Water Resources
Colorado Division of Water Resources, South Platte River
Basin-Division 1
Colorado Division of Water Resources, Colorado River
Basin-Division 5

Colorado Division of Wildlife
 Colorado Office of Archaeology and Historic
 Preservation
 Colorado River Water Conservation District

Colorado Water Congress
 Colorado Water Conservation Board

4.3.4 Local Agencies

Big Thompson Watershed Forum
 Boulder County Parks and Open Space
 Boulder County Planning Department
 Boulder Public Works Department
 Broomfield Public Works
 Central Weld County Water District
 City of Fort Collins
 City of Greeley
 City of Longmont
 City of Louisville
 City of Loveland
 Denver Regional Council of Governments
 Denver Water Department
 East Grand Water Quality Board
 Erie Community Development
 Estes Park Department of Planning and Zoning
 Estes Park Water Department
 Estes Valley Recreation and Park District
 Evans Planning and Zoning
 Fort Collins Natural Resource Department
 Fort Collins Park Planning and Development Division
 Fort Collins Planning and Zoning Board
 Fort Collins-Loveland Water District
 Fraser Public Works
 Fraser Sanitation District
 Grand County Department of Zoning and Planning

Grand County Water and Sanitation
 Grand County Water Forum
 Greater Granby Area Chamber of Commerce
 Greeley Water and Sewer Department
 Kremmling Chamber of Commerce
 Lafayette Public Works
 Larimer County Information Manager
 Larimer County Parks and Open Lands
 Larimer County Planning and Building Services
 Little Thompson Water District
 Longmont Open Space and Trails Department
 Longmont Planning Division
 Loveland Utilities Commission
 Middle Park Water Conservancy District
 North Front Range Water Quality Association
 Northeastern Colorado Association of Local Governments
 Northwest Colorado Council of Governments
 Platte River Power Authority
 Superior Metropolitan District No. 1
 Three Lakes Water and Sanitation District
 Three Lakes Watershed Association
 Town of Estes Park
 Town of Superior
 Town of Winter Park
 Weld County Planning and Zoning Department
 Winter Park Water and Sanitation District

4.3.5 Elected Officials

U.S. Senators
 Colorado Congressman, Districts 2, 3, and 4
 Colorado State Senators, Districts 13, 14, 15, 16, 17, 18,
 and 23

Colorado State Representatives, Districts 3, 10, 11, 12,
 13, 33, 48, 49, 50, 51, 52, 53, 56, 57, 63, 65

Mayor, Breckenridge
 Mayor, Broomfield
 Mayor, Dillon
 Mayor, Erie
 Mayor, Evans
 Mayor, Fort Lupton
 Mayor, Fraser
 Mayor, Frisco
 Mayor, Granby
 Mayor, Grand Lake
 Mayor, Greeley
 Mayor, Hot Sulphur Springs

Mayor, Kremmling
 Mayor, Lafayette
 Mayor, Longmont
 Mayor, Louisville
 Mayor, Loveland
 Mayor, Silverthorne
 Mayor, Superior
 Mayor, Winter Park
 Boulder County Commissioners
 City and County of Broomfield Council Members
 Grand County Commissioners
 Larimer County Commissioners

Summit County Commissioners
Weld County Commissioners

Breckenridge Town Manager
Dillon Town Manager
Estes Park Town Administrator
Fraser Town Manager
Frisco Town Manager
Granby Town Manager

Grand County Manager
Grand Lake Town Manager
Grand Lake Town Planner
Kremmling Town Manager
Larimer County Manager
Silverthorne Town Manager
Summit County Manager
Winter Park Town Manager
Winter Park Town Planner

4.3.6 Libraries

Berthoud, Berthoud Public Library, 236 Welch Avenue
Broomfield, Mamie Eisenhower Public Library, 3
Community Park Road
Fort Collins, Fort Collins Public Library, 201 Peterson
Street
Ft. Lupton, Ft. Lupton Public Library, 425 South Denver
Avenue
Granby, Granby Branch Library, 13 East Jasper Avenue
Grand Lake, Juniper Library, 316 Garfield Street
Greeley, Centennial Park Branch, Weld Library District,
2227 23rd Avenue
Greeley, Farr Branch, Weld Library District, 1939 61st
Avenue

Greeley, Lincoln Park Branch, Weld Library District, 919
7th Street
Hot Sulphur Springs, Hot Sulphur Springs Branch
Library, 105 Moffat
Kremmling, Kremmling Branch Library, 300 South 8th
Street
Longmont, Longmont Public Library, 409 4th Avenue
Louisville, Louisville Public Library, 950 Spruce Street
Loveland, Loveland Public Library, 300 North Adams
Avenue
Lyons, Lyons Depot Library, 5th and Broadway
Morgan Library, Colorado State University, 501
University Avenue, Fort Collins

4.3.7 Organizations and Private Individuals

An executive summary and notification of the Final EIS's availability was sent via U.S. mail to approximately 700 recipients. A list of these recipients is maintained by Reclamation.

4.4 Preparers

This section includes a list of preparers and contributors to the EIS.

Name/Title	Responsibilities	Education	Experience
U.S. BUREAU OF RECLAMATION			
Will Tully	Project manager	B.S. Wildlife Management	36 years
Lucy Maldonado	EIS technical review	B.S. Range-Forest Management	19 years
Vernon LaFontaine	EIS technical review	B.S. Range and Wildlife Habitat Management	30 years
Tara Moberg	Natural resources	B.S. Environmental Resources Management	6 years
Bob Burton	Cultural resources	M.A. Anthropology B.A. Anthropology	45 years
Belinda Mollard	Cultural resources	M.A. Anthropology B.A. Anthropology	12 years
Kara Lamb	Public involvement and media relations	M.A. Environmental Ethics B.A. English and Philosophy	12 years

Name/Title	Responsibilities	Education	Experience
ERO RESOURCES CORPORATION			
Mark DeHaven	Project manager	M.S. Natural Resources B.A. Business	33 years
Barbara Galloway	Water quality, water resources, and stream morphology	M.S. Water Resources B.A. Biology and Environmental Conservation	25 years
Liz Payson Tucker	Vegetation	M.S. Biological Sciences B.S. English Literature	17 years
Craig Sommers	Socioeconomics	M.S. Agricultural Economics B.S. Soil and Water Science	30 years
Richard Trenholme	Quality assurance	B.S. Agronomy	31 years
Michael Galloway	Ground water	M.S. Geology B.S. Geology	38 years
Steve Dougherty	Wetlands	B.S. Biology	34 years
Denise Larson	Vegetation and wetlands	M.A. Biology and Plant Ecology B.A. Biology	16 years
Ron Beane	Wildlife	M.A. Biology B.S. Wildlife Biology	29 years
Clint Henke	Wetlands and wildlife	M.S. Environmental Sciences B.S. Biology	8 years
Bill Mangle	Recreation and land use	M.S. Natural Resource Policy and Planning B.A. History/Political Science	10 years
Scott Babcock	Recreation, land use, and socioeconomics	M.S. Resource Economics and Policy B.S. Biology and Environmental Conservation	10 years
Craig Sovka	Geology	B.S. Geology	17 years
Sean Larmore	Cultural resources	M.A. Anthropology B.A. Anthropology	13 years
David Hesker	Graphic design	B.A. Fine Arts	18 years
Jana Pedersen	GIS and maps	B.S. Geosciences	7 years
Kay Wall	Technical editor	B.A. Behavioral Science	27 years
Martha Clark	Technical editor	B.A. English	21 years

Name/Title	Responsibilities	Education	Experience
BOYLE ENGINEERING			
Blaine Dwyer	Water resources, hydrologic modeling, infrastructure layout, and cost estimates	M.S. Water Resources Engineering	29 years
Jeff Bandy	Water resources, hydrologic modeling, infrastructure layout, and cost estimates	M.S. Civil Engineering	12 years
Darren Brinker	Infrastructure layout and cost estimates	M.S. Civil Engineering	13 years
Meg Frantz	Water resources and hydrologic modeling	M.S. Water Resources and Hydrologic Engineering	25 years
Don Poulter	Geotechnical	M.S. Civil Engineering	32 years
Bill Bliton	Geology	B.S. Geology	37 years
Tom Roode	Water conveyance systems	M.A. Business Administration B.S. Mechanical Engineering	15 years
ECOLOGICAL RESOURCE CONSULTANTS			
Heather Thompson	Water resources and hydrologic modeling	M.S. Water Resources Engineering B.S. Civil Engineering	18 years
HYDROS AND AMEC EARTH AND ENVIRONMENTAL			
Jean Marie Boyer (Hydros Consulting)	Water quality	Ph.D. Civil Engineering M.S. Chemical Engineering B.S. Chemical Engineering	27 years
Christine Hawley (Hydros Consulting)	Water quality	M.S. Environmental Engineering B.S. Environmental Engineering	16 years
R. Blair Hanna (Hydros Consulting)	Water quality	Ph.D. Civil Engineering M.S. Civil Engineering B.S. Computer Science	18 years
Laura Belanger (AMEC)	Water quality	M.S. Civil Engineering B.A. Social Thought and Political Economy	15 years
John Winchester (AMEC)	Hydrology	M.S. Civil Engineering B.S. Watershed Science	19 years
MILLER ECOLOGICAL CONSULTANTS			
Bill Miller	Aquatic resources	Ph.D. Fisheries M.S. Recreation Resources B.A. Biology	30 years

Name/Title	Responsibilities	Education	Experience
HARVEY ECONOMICS			
Ed Harvey	Water demand projections	M.S. Economics B.A. Economics	36 years
Melinda Ogle	Demographic forecasting	B.A. Economics	8 years
Chris Goemans	Water provider forecasting	Ph.D. Economics	5 years
Andy Fritsch	Water provider forecasting	B.A. Economics	6 years
WESTERN CULTURAL RESOURCE MANAGEMENT, INC.			
Tom Lennon	Cultural resources	Ph.D. Anthropology M.A. Anthropology M.A. Human Communications B.A. History	36 years
Collette Chambellan	Cultural resources	M.A. Anthropology B.A. Anthropology	34 years
HOLDEMAN LANDSCAPE ARCHITECTURE, INC.			
Mark Holdeman	Visual resources	B.A. Landscape Architecture	27 years

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Glossary

acre-foot (AF): A volume of water equal to 1 foot in depth covering an area of 1 acre. Also 43,560 cubic feet or 325,851 gallons. Used to measure stored water quantities.

adjudicated water rights: Water rights that have been decreed in water court. Adjudicated water rights may be either an absolute water right, a conditional water right, a finding of reasonable diligence, an exchange, an augmentation plan, a change of water right, or a right to withdraw tributary water or ground water that is outside of a designated ground water basin.

adjudication date: The date when a water court enters a decree confirming a water right.

aggradation: The raising of streambeds or floodplains by deposition of sediment eroded and transported from upstream.

algae: Microscopic plants that grow in sunlit water containing phosphates, nitrates, and other nutrients. Algae add oxygen to the water and are important in the fish food chain.

allottees: Shareholders in a ditch company, the C-BT system, special water district, or other mutual water supply entity.

alluvial ground water: Ground water that is hydrologically part of a surface stream present in permeable soil material, usually small rock and gravel.

annual yield: The amount of water available during a given year. The annual yield may vary from year to year.

anoxic: The absence of oxygen, as in a body of water.

appropriation date: The date of appropriation of waters of the state. The appropriation date establishes the seniority of a water right.

appropriation: Placement of a specified portion of the waters of the state to a beneficial use pursuant to the procedures prescribed by law.

aquifer: An underground deposit of sand, gravel, or rock through which water can pass or is stored. Aquifers supply the water for wells and springs. In an unconfined aquifer, the upper surface of the saturated aquifer is a changing water table under atmospheric pressure. In a confined (artisan) aquifer, the water is maintained under pressure by nonporous rocks surrounding it.

augmentation plan: A court-approved plan that allows a water user to divert water out of priority so long as adequate replacement is made to the affected stream system preventing injury to the water rights of senior users.

augmentation: Replacing the quantity of water depleted from the stream system caused by an out-of-priority diversion.

average yield: The yield that is available during an average water year.

bankfull discharge: The stage at which a stream first begins to overflow its natural banks. Typically occurs every 1.5 to 2 years.

bedrock: Continuous solid rock that outcrops at the surface locally, but generally is overlain by unconsolidated material (such as alluvium).

benthic: Relating to the bottoms of lakes, reservoirs, and streams.

Best Management Practices (BMPs): Practices that provide sufficient data to clearly indicate their value, are technically and economically reasonable, are environmentally and socially acceptable, are reasonably capable of being implemented, and for which significant conservation or conservation-related benefits can be achieved.

big game: Large wildlife species that are hunted, such as elk, deer, antelope, and bighorn sheep.

buildout: The area of land that is projected to be developed as part of a municipality or district in the future. Generally, the prediction is for maximum capacity for the residential, commercial, industrial, and municipal development of that community.

call: The exercise of a senior water right holder of "calling" for his or her water rights, requiring upstream junior water right holders to allow water to flow to the senior right holder.

C-BT quota: The allocation of water per C-BT unit or share. The quota is set annually by C-BT

Directors and is usually expressed as a percentage of one acre-foot (e.g., 80% quota is equivalent to 0.8 AF).

C-BT share or C-BT unit: A share in, or unit of, the Colorado-Big Thompson project. A C-BT share (unit) ranges from 0.5 acre-feet to 1.0 acre-feet depending on the year.

C-BT: Colorado-Big Thompson Project. A project owned by the U.S. Bureau of Reclamation that collects water in the headwaters of the Colorado River and delivers it to water users on the northern Front Range of Colorado. The Northern Colorado Water Conservancy District is the local agency that was established to administer delivery of C-BT water to local water users.

chlorophyll *a*: The green pigments of plants.

Clean Water Act (CWA): The federal law that sets forth how the United States will restore and maintain the chemical, physical, and biological integrity of the country's waters (oceans, lakes, streams and rivers, ground water, and wetlands). The law provides protection to the country's surface waters from both point and nonpoint sources of pollution.

Conservancy District: Established by decree of a court under the Water Conservancy District Act of 1937. A conservancy district can obtain rights-of-way for works; contract with the United States or otherwise provide for the construction of facilities; assume contractual or bonded indebtedness; administer, operate, and maintain physical works; have authority to conserve, control, allocate, and distribute water supplies; and have contracting and limited taxing authority to derive the revenues necessary to accomplish its purposes. There are currently 46 conservancy districts in Colorado.

conservation: Obtaining the benefits of water more efficiently.

consumptive use: Any use of water that permanently removes water from the natural stream system.

Continental Divide: An imaginary boundary line that runs north-south along the crest of the Rocky Mountains, separating river and drainages that flow into the Atlantic Ocean or Gulf of Mexico from those that flow into the Pacific Ocean.

cooperating agency: A federal, state, tribal, or local agency having special expertise with respect to an environmental issue or jurisdiction by law. A cooperating agency has the responsibility to assist the lead agency by participating in the National Environmental Policy Act (NEPA) process at the earliest possible time; by participating in the scoping process; in developing information and preparing environmental analyses including portions of the environmental impact statement concerning which the cooperating agency has special expertise; and in making available staff support at the lead agency's request to enhance the lead agency's interdisciplinary capabilities.

cubic feet per second (cfs): A rate of water flow at a given point, amounting to a volume of 1 cubic foot for each second of time. Equal to 7.48 gallons per second, 448.8 gallons per minute, or 1.984 acre-feet per day.

cumulative impacts: The incremental impact of the proposed action when added to other past, present, and reasonably foreseeable future actions.

cyanobacteria: A group of phytoplankton that often cause nuisance conditions in water (blue-green algae).

decree: A court decision about a water right that is then administered by Colorado's Water Resources Department.

degradation: Any lowering of a streambed, such as from scouring of sediments.

demand management: Reduced water use, accomplished either through temporary measures such as restrictions during a drought, or through long-term conservation programs. These programs include replacement of inefficient fixtures with more efficient fixtures such as 1.6-gallon toilets, installation and maintenance of landscapes that have low water requirements, or changes in customer attitudes that lead to reduction in water use.

direct flow (also direct right): Water diverted from a river or stream for use without interruption between diversion and use except for incidental purposes, such as settling or filtration.

dissolved oxygen: Concentration of oxygen dissolved in water and readily available to fish and other aquatic organisms.

diversion: The removal of water from its natural course or location, or controlling water in its natural course or location by means of a ditch, canal, flume, reservoir, bypass, pipeline, conduit, well, pump, or other device.

domestic use water: Water used by people for personal needs (home and business) from an individual well. Also may refer to water use in restrooms in commercial and business buildings.

drought: A long period of below average precipitation.

effluent exchange: The practice of using wastewater effluent from transbasin water, non-tributary water sources, or other sources without causing injury to other water rights as a replacement source of water for diversion of water farther upstream that would otherwise have been out of priority.

effluent: Water discharged after use, as in water leaving a wastewater treatment plant; an outflowing branch of a stream or lake.

Endangered Species Act (ESA): The federal law that governs how animal and plant species whose populations are dangerously in decline or close to extinction will be protected and recovered. The law protects not only threatened and endangered species, but also the ecosystems upon which they depend.

ephemeral stream: An intermittent stream that flows only in direct and immediate response to precipitation, and has no prolonged flow from ground water sources.

epilimnion: The upper layer of water in a thermally stratified lake or reservoir.

eutrophic: A lake or body of water containing a rich supply of plant nutrients and characterized by seasonal periods of oxygen deficiency as a result of excessive growth of algae.

eutrophication: A process that depletes oxygen needed for fish and aquatic wildlife to thrive. Polluted runoff often contains nitrogen and phosphorous, nutrients that promote algae growth. As algae growth decomposes, water bodies are depleted of oxygen.

evapotranspiration (ET): The total moisture loss from an area controlled by climatic conditions and plant processes.

exchange: A process by which water, under certain conditions, may be diverted out of priority at one point by replacing it with a like amount of water at another point.

federal action: An action by a federal agency. Federal actions may include supplying funding for a project, authorizing or permitting a project, undertaking or sponsoring a project.

firm annual yield: The yearly amount of water that can be dependably supplied from the raw water sources of a given water supply system.

firring storage: Storage necessary to firm, or make available, a water right.

floodplain: That portion of a stream valley, adjacent to its channel, that is built of sediments deposited by the stream and is covered with water when the stream overflows its banks during floods.

flow duration curve: A cumulative frequency curve that shows the percentage of time that specified discharges are equaled or exceeded.

forebay: A reservoir used to regulate flow.

gaining stream: A reach of stream that receives inflow from ground water seepage or an underlying aquifer.

gallons per capita per day (gpcd): A term generally used to approximate the average amount of drinking or treated water used per day, per person, in a year's time.

ground water: Water found below the earth's surface. Typically stored in alluvial deposits or in bedrock.

hepatotoxin: A poisonous substance produced during the metabolism and growth of certain microorganisms that affects the liver.

historic use: The documented diversion and consumptive use of water over a period of years.

hydraulic conductivity: The rate of flow of water through a cross-section of an aquifer under a unit hydraulic gradient (units are gpd/ft², ft/sec, or m/sec).

hydrogeology: The study of the geology, movement, and chemistry of subsurface water (ground water).

hypolimnion: The bottom layer of cold water in a thermally stratified lake or reservoir.

indirect economic impact: The change in sales, income, or employment within the local region in industries that supply goods and services to directly affected businesses.

in-lieu C-BT borrowing: The existing Windy Gap Amendatory "Carriage" Contract between Reclamation, and the Municipal Subdistrict, Northern Colorado Water Conservancy District provides for the delivery of C-BT water to Windy Gap allottees in-lieu of Windy Gap water, also known as "borrowing." The borrowed water must be paid back with no injury to C-BT unit holders. The borrowed water is paid back with Windy Gap water when sufficient supplies exist. Currently, Windy Gap allottees may borrow an unlimited amount from CBT; however, they must obtain an equal amount of water as collateral to replace any possible loss of water to C-BT within the same year. When sufficient Windy Gap supplies do not exist to replace the entire amount borrowed, the C-BT project may call on the collateral water to make up the difference.

instantaneous delivery: Instantaneous delivery of Windy Gap water as allowed by the existing Carriage Contract between Reclamation, the NCWCD, and Municipal Subdistrict, Northern Colorado Water Conservancy District allows Windy Gap water in Granby Reservoir to be delivered to the Subdistrict anywhere in the C-BT system, with the same amount of water being exchanged with C-BT. Instantaneous deliveries reduce conveyance constraints in the Adams Tunnel.

instream flows: Water flowing in its natural streambed, such as water required for maintaining flowing streams, or for fish.

instream use: Any use of water that does not require a diversion.

intermittent stream: A stream that carries water only part of the time, generally in response to periods of heavy runoff from snowmelt or precipitation events.

junior water right: A water right that is more recent than an older or more senior right.

lek: An area used by sage grouse for mating displays.

losing stream: A stream reach that loses water by seepage into the ground.

macroinvertebrate: An animal lacking a backbone or internal skeleton that lives on or near the bottom of a body of water.

maximum contaminant level: The legal threshold limit on the amount of a hazardous substance that is allowed in drinking water under the Safe Drinking Water Act. The limit is usually expressed as a concentration in milligrams or micrograms per liter of water.

mesotrophic: A lake or water body of fresh water having an intermediate amount of plant nutrients and therefore moderately productive.

metalimnion: The middle layer of a thermally stratified lake or reservoir.

microcystin: A hepatotoxin that targets the liver and can be produced by some cyanobacteria.

mitigation measures: Measures taken to avoid or offset the adverse impacts resulting from an action or activity.

MODSIM: A general purpose simulation model for evaluating the operations of river and reservoir systems including the historical operation and administration of major direct flow and water storage rights.

Municipal Subdistrict, Northern Colorado Water Conservancy District: A water conservancy district organized under the Water Conservancy Act that developed, owns, and operates the original Windy Gap Project.

municipal water use: Domestic (residential) use plus commercial, industrial, and governmental use in urban areas.

National Environmental Policy Act (NEPA): The federal law enacted to ensure the integration of natural and social sciences and environmental design in planning and decision making for projects that may impact the quality of the human environment.

National Pollutant Discharge Elimination System (NPDES) Permit: A permit required under Section 401 of the Clean Water Act regulating discharge of pollutants to the nation's waterways.

nonpoint source: Pollution discharged over a wide land area, not from one specific location. Runoff from city streets, parking lots, home lawns, agricultural land, individual septic systems, and construction sites that finds its way into lakes and streams constitutes an important source of water pollutants.

officially eligible (for listing in the National Register of Historic Places): Historic or archaeological resources that have an official determination of eligibility from the State Historic Preservation Office (SHPO). The SHPO has concurred with the cultural resource specialist that the resource under consideration meets eligibility criteria codified under 36 CFR 60.4.

oligotrophic: A lake deficient in plant nutrients and contains little aquatic plant or animal life. It is characterized by an abundance of dissolved oxygen in its lower layer.

Participants: Municipalities, water districts, and entities in the Windy Gap Firing Project including the cities of Broomfield, Evans, Fort Lupton, Greeley, Lafayette, Longmont, Louisville, Loveland, the towns of Erie and Superior, Central Weld County Water District, Little Thompson Water District, Middle Park Water Conservancy District, and the Platte River Power Authority.

period of record: The historical period for which streamflow records exist.

permeability: In this document, used interchangeability with hydraulic conductivity when referring to water.

point of diversion: A specifically named place where water is removed from a body of water.

potable: Water considered safe for domestic consumption; drinkable.

prepositioning: Under the Proposed Action, prepositioning involves the storage of Colorado-Big Thompson Project water in Chimney Hollow Reservoir. Windy Gap water pumped into Lake Granby would then be exchanged for C-BT water stored in Chimney Hollow. Windy Gap water stored in Chimney Hollow would be delivered and allocated to the Windy Gap Firing Project (WGFP) Participants.

prior appropriation doctrine: A legal concept in which the first person to appropriate water and apply it to a beneficial use has the first right to use that amount of water from that source. Each successive appropriator may only take a share of the water remaining after all senior water rights are satisfied. This is the historical basis for Colorado water law and is sometimes known as the Colorado Doctrine or the principle of "first in time, first in right."

priority date: The date of establishment of a water right. The rights established by application have the application date as the date of priority.

priority: The right of an earlier appropriator to divert from a natural stream in preference to a later appropriator.

quota: See "C-BT quota".

raw water: Untreated water.

recharge: The addition of water to ground water.

reservoir: An impoundment of collected water controlled by a dam (raw water) or storage tank (potable water).

return flows: Unconsumed water that returns to its source—surface or ground water—after use.

reusable return flows: Return flows that the owner of a water right has the right to reuse.

reuse: To use water again; to intercept for subsequent beneficial use either directly or by exchange water that would otherwise return to the stream system.

riparian: Relating to the bank of a natural watercourse (as a river) or sometimes of a lake or a tidewater.

river basin: The land area surrounding one river from its headwaters to its mouth.

runoff: Water that flows on the earth's surface to streams, rivers, lakes, and oceans.

salinity: A measure of water quality—the amount of dissolved salts in water.

salmonid: belonging to, or characteristic of the family Salmonidae, which includes the salmon, trout, and whitefish

Secchi depth: A measure of the turbidity or clarity of water based on the depth at which a Secchi disk,

which is about 10-12 inches in diameter and painted in a black and white pattern, can no longer be seen.

secondary economic impact: The change in economic activity that results from subsequent rounds of re-spending tourism dollars or direct road construction expenditures. Secondary impacts may be further divided into indirect or induced impacts.

Section 404 permit: An authorization granted by the U.S. Army Corps of Engineers under Section 404 of the Clean Water Act to place dredged or fill material into a water of the U.S.

sediments: Soil particles eroded from land such as construction sites, cropland, and stream banks.

senior water right: A water right that is staked at the earliest date with the water court.

species of concern: Federally listed threatened and endangered species; species listed by the Colorado Division of Wildlife (CDOW) as state threatened, endangered, and other species of concern; and species ranked as rare, vulnerable, or imperiled in the state by the Colorado Natural Heritage Program (CNHP).

specific conductance: Measure of the ability of water to conduct an electrical current, expressed in micromhos per centimeter at 250C.

spill: A water release from a reservoir for operational reasons or because it is full.

storage right: A type of water right that is measured in terms of volume. Storage rights allow a water user to store water for later beneficial use.

storage to yield ratio: The relationship between the amount of storage necessary to provide for a given amount of firm yield.

stream morphology: The study of the form and structure of a stream, including its channel, banks, floodplain, and drainage area.

Subdistrict: The Municipal Subdistrict of the Northern Water Conservancy District, acting by and through the Windy Gap Firming Project water activity enterprise. The Subdistrict is the entity responsible for the Windy Gap Firming Project.

supply management: Methods by which a utility maximizes use of available raw water.

surface water: Water present on the earth's surface.

sustainability: A decision-making concept describing development that meets current needs without compromising the ability of future generations to meet their needs.

system loss: An amount of water, expressed as a percentage, lost from a water storage or distribution system due to leaks, evaporation, seepage, and unauthorized use.

tap: A physical connection made to a public water distribution system that provides service to an individual customer.

total dissolved solids (TDS): The combined content of all inorganic and organic substances contained in a liquid that are present in a molecular, ionized, or micro-granular form. Primary sources of TDS are agricultural runoff, leaching of soil contamination, and point source water pollution discharge from industrial or sewage treatment plants.

total water delivery: The amount of water that must be delivered to meet a Participant's water need.

transbasin diversion: The conveyance of water from its natural drainage basin into another basin for beneficial use.

transfer: The sale and/or purchase of a water right.

transmountain diversion: The conveyance of water from one drainage basin to another across the Continental Divide.

transpiration: The process by which plants remove soil moisture by losing water vapor through their leaves.

treated water: Water that has been filtered and/or disinfected; sometimes used interchangeably with "potable" water.

tributary: A stream or river that flows into a larger one.

Trophic State Index: A measure of the eutrophication of a body of water using a combination of measures of water clarity, chlorophyll *a* concentrations, and total phosphorus levels.

trophic state: A measure of the eutrophication or productivity of a lake based on variables such as phosphorus concentrations, chlorophyll *a*, Secchi disk depth.

turbidity: A cloudy condition in water due to suspended silt or organic matter.

unappropriated water: Water of the state that has not been placed in beneficial use by being diverted, stored, or captured.

ungulate: A hoofed mammal such as elk, deer, bighorn sheep, mountain goat, and moose.

upland: Areas on hills, plains, mesas, or any other areas not in a riparian area or wetland area, and where the vegetation is not supplied by hydrology from a stream or drainage.

water and sanitation districts: A special taxing district formed by the residents of the district for the combined purpose of providing potable water and sanitary wastewater services.

water audit: A service that identifies water waste and leaks, and offers ways to conserve water.

water court: A special division of the district court with a district judge (called the water judge) that deals with water matters.

water delivery: The amount of water delivered to a water user.

water demand: The amount of water that municipalities or regions require for everyday functioning.

water requirement: The amount of water required to achieve a specific delivery goal. Water requirements include system losses and evaporation, and generally are larger than the delivery goal. Water requirements are based on, but may not be equal to use, demand, and delivery goals.

water right: A property right to make beneficial use of a particular amount of water with a specified priority date.

waters of the U.S.: As defined in the Clean Water Act, all waters that are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters that are subject to the ebb and flow of the tide. All interstate waters including interstate wetlands. All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation,

or destruction of which could affect interstate or foreign commerce.

watershed: The area of land that catches rain and snow that drains or seeps into a marsh, stream, river, lake, or ground water. The highest ground, such as mountains or ridges, forms boundaries between watersheds.

wetlands: Areas with standing water or a high water table either permanently or for some significant period each year. Generally includes swamps, marshes, bogs, and areas with water-loving vegetation that grows in or around water.

Windy Gap Firming Project (WGFP): A project proposed by the Subdistrict to firm the yield from the Windy Gap Project.

Windy Gap Project: A project operated by the Municipal Subdistrict, Northern Colorado Water Conservancy District that collects and stores water on the western slope and delivers it through the C-BT project to the owners of allotment contracts for the original Windy Gap Project.

Xeriscape™: A landscape concept to describe beautiful landscaping that has low water needs. The term was developed by Denver Water in 1981.

yield: The amount of water that a water right supplies under a defined scenario.

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