

EXHIBIT E



Community Planning & Permitting

Courthouse Annex • 2045 13th Street • Boulder, Colorado 80302 • Tel: 303.441.3930

Mailing Address: P.O. Box 471 • Boulder, Colorado 80306 • www.bouldercounty.org

December 17, 2020

To: Denver Water
 From: Summer Frederick, AICP – Planning Division Manager
 Re: Docket SI-20-0003: Gross Reservoir & Dam Expansion

Per Article 8-508.C.12 of the Boulder County Land Use Code, the Community Planning & Permitting (formerly Land Use) staff is charged with reviewing application materials required in Article 8-507 for compliance with the Comprehensive Plan, purpose and intent of Article 8, criteria found in Article 8-511, sound planning, and comments from referral agencies and individuals. Community Planning & Permitting (CP&P) staff recognizes that the originally submitted materials generally address the application requirements of Article 8-507, however, staff finds that additional information is needed to understand the proposed project's specifics and to perform a thorough and complete review and analysis of the proposed project's land use impacts.

Staff recognizes that the nature and extent of the proposed project involves the potential for significant potential for environmental damage (i.e., loss of natural resources, alteration of wildlife habitat, changes to groundwater, increased disturbance along roadways, etc.) and so requires Denver Water provide specifics related to less environmentally damaging alternatives. Such alternative might include information related to significantly increased conservation measures to be implemented by Denver Water, smaller infrastructure improvements at a number of locations throughout Denver Water's supply network, various fee structures to incentivize conservation or fine for overuse.

The inconsistent information, out-of-date data, and lack of information contained in the application related is insufficient for staff to conduct a comprehensive review and analysis of the code criteria. Staff understands Denver Water's application materials rely heavily on materials submitted for federal permitting processes but points out that the Boulder County land use application and review process is significantly different from those federal processes. Based on reviews conducted in the initial referral period staff finds significant additional information is necessary before the application can be considered complete. As you revise the application materials you should review the application requirements (8-507), purpose and intent section (8-202), and the standards for approval (8-511) found in Article 8 of the Boulder County Land Use Code. Denver Water should then submit a response based on the above requirements addressing all issues raised in these referral comments.

In reviewing the 16,000+ pages of application materials submitted, staff identified inconsistencies of information, these include but are not limited to:

- Discrepancies in listing the number served by Denver Water – materials list number of people dependent on Denver Water for their water needs both as 1.5 million and 1.3 million.
- References within plan sheets sets – within various plan sets there are sheets that are provided but not listed on the overall Key Map (e.g., C8.404 not shown on “Area 8 Miramonte Multi-Use Trail Key Map Figure 26-2”, areas labeled as Staging Areas on one map are labeled as Stockpile Areas on a different map.
- Overall grading calculations are listed in the FERC document as 1.6 million cubic yards while the Air Quality Impact Study attributes approximately 1.23 million cubic yards to the batch plant alone.
- Number of trees proposed to be removed in the FEIS is 200,000 while application materials state 650,000 trees are to be removed.

Deb Gardner County Commissioner

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In order to ensure staff is reviewing the complete and accurate proposal, the applicant must review application materials thoroughly to identify inconsistent information and data throughout, edit materials accordingly to provide clear and precise information and data, and provide updated materials for review.

Throughout the document various Plans are discussed, but specific information related to these Plans were not provided. In order to analyze land use impacts that might result through such Plans, complete drafts of Plans discussed are needed. Information included in Plans should include, but is not limited to the following:

- Specifics related to routes to be used outside of the project area is crucial to analyzing on-going traffic impacts to state and county roads, as well as roads located in other jurisdictions, and potential traffic impacts to residents. This should include demarcation for all staging and activity areas related to the project.
- Information related to mitigation measures to address potential air pollution from activities such as truck traffic (fugitive dust), operation of numerous diesel engines at the proposed batch plant and quarry operation.
- Information related to mitigation measures to address potential noise pollution from activities such as batch plant and quarry operations, truck traffic, overall construction and road improvements. The Table of Contents of the provided Noise Study (Exhibit 15) lists “Mitigation Recommendations and Discussion” as being Section 7 of the document. However, within Section 7 of the document staff finds no discussion of specific mitigation measures.
- Construction timing – application materials discuss different phases of the proposed project spanning the project’s projected seven-year construction timeline. Specifics such as but not limited to type of construction activities, anticipated hours of operation, amount of average daily trips, natural resource impacts (e.g., water quality, habitat removal, tree clearing, etc.) for each phase are needed.
- Application materials include a single rendering of the project area after proposed construction is complete and the reservoir is full, but additional discussion and depiction is needed of visual impacts related to ultimate dam height, increased water area, completed reservoir area at less than full capacity, quarry operation site scar, on-going staging areas, all lighting associated with project, construction signage, anticipated fencing.

The out-of-date nature of the data and information used for the applicant’s analysis presented in application materials does not allow staff to conduct a thorough review and analysis of the proposed project. For example:

- The data used to establish the need for the proposed project in the Integrated Water Plan is from 2002, almost 18 years ago. While this data was examined and verified prior to review in 2010 - more than 10 years ago - by the U.S. Army Corps of Engineers (the Corps), the data remains outdated.
- Application materials indicate the Corps eliminated Denver Water’s alternatives 6 and 7, Indirect Potable Reuse Project and Reusable Water respectively, however, CP&P staff believes significant additional information and discussion is required as part of the application in order to address Article 8-202.B.10: *Require that municipal and industrial water projects shall emphasize the most efficient use of water, including, to the extent permissible under existing law, the recycling and reuse of water.*
- Information and data related to other aspects of the project are also significantly outdated, evidenced in information such as conservation measures implemented by Denver Water – statement that 29,000 AF/yr conservation between 1980 and 2000, wildlife populations – elk herd post-hunt population numbers from 2009 and mountain lion and black bear data from 1994, and reliance on floodplain mapping that is not the most accurate available (CHAMP mapping provided to FEMA in 2018).

Application materials also lack information related to the proposed project's potential impacts on climate change. Climate change is an issue identified by Boulder County elected officials as one that is significant. County Commissions have consistently instructed staff to review applications with an eye on proposed projects' potential impact on climate change and to recommend conditions of approval intended to mitigate any potential negative impacts. Denver Water's application materials do not address this issue in any detail, and staff requests additional, detailed information related to the potential impacts of the Dam and Reservoir Expansion project on climate change. For example, the proposed removal of 650,000 trees represents a significant loss of biomass, how is this proposed to be offset? The proposed preservation of the Toll Property ensures biomass located on those acres will not be lost but does not address the loss of the biomass located within the proposed project area.

Community Planning & Permitting staff anticipates additional questions and discussions will result after the review of any revised or additional information submitted by the applicant and looks forward to collaborating with Denver Water during this process.



COLORADO
Department of Transportation

Permit Unit - Traffic & Safety
2829 W. Howard Place
Denver, CO 80204

MEMORANDUM

TO: Summer Frederick, Planning Manager
FROM: Rick Solomon, Region 1 Permit office
RE: Gross Reservoir Expansion – 1041 Review (354 pp summation report)
DATE: December 16, 2020

CDOT Oversize-Overweight Office

- Truck configurations. Namely weight and dimensions. - Details Needed
- "No Hauling in City of Boulder" - that was listed under "Tree Removal Operations" only. The opportunity appears to still be there for other movements. Need clarity if all loads - makes sense not to utilize due to mileage.
- Use of US 6 (Clear Creek Canyon) - Do not recommend due to road dynamics - traffic and dimensions.
- Use of SH 119 through Black Hawk - 36 loads. (Possible timed restriction for movement)
- Bullet items #2 & #4 are linked due to traffic concerns through the casino area (#4) and then through Nederland and Boulder/Boulder Canyon.

CDOT Environmental Unit

Biologist:

The main concern would be any impacts associated with any necessary transportation improvements on SH 72 or the intersection of SH 72 and SH 93. In the draft 1041, under transportation improvements they note:

"Denver Water will make any necessary road improvements. The roadways of particular interest are SH 72 from SH 93 to the turnoff for Gross Dam Road and Gross Dam Road from SH 72 to the railroad tracks."

CDOT just finished constructing a permanent flood repair project along SH 72 (SA 20334) from MP 24.5 to MP 12.22 in Gilpin, Jefferson, and Boulder Counties. We have a variety of SB 40 mitigation planting locations along the Coal Creek adjacent to SH 72. In addition, there is occupied Preble's meadow jumping mouse habitat near the lower section of SH 72 near the intersection with SH 93 (in the Coal Creek floodplain).

If transportation improvements are proposed along SH 93 or SH 72 we would want to see field work and the standard bio submittals completed to ensure compliance with Section 7 and Section 404. We would also require SB40 be completed and also need to check if SB 40 mitigation constructed by 20334 is within any potential disturbance areas being proposed by Denver Water's transportation improvements.

Historian:

Based on this review, the proposed improvements to the intersection of SH 72 and Gross Dam Road will require review by CDOT historians and will likely require SHPO consultation. Based on the description of work at SH 72 and Gross Dam Road, which would move the intersection, add new signage, and add a new turn lane, a qualified historian (meeting the standards set forth by the Secretary of the Interior) will be required to prepare the SHPO submittal. This submittal will require a draft SHPO letter, APE map, a site form to document a logical segment of SH 72, and up to 3 other site forms if necessary.

Once a qualified historian has been selected, CDOT historians would like to meet with the historian to discuss the project scope.

As discussed in DWB Traffic Impact Analysis, 6-4, based on traffic models, additional turn lanes or other improvements to SH 119 are not required. If they do become part of this project, we will need to review any improvements along SH 119 for history, and such work will need to be added to the historian's scope if needed.

The proposed improvements at SH 72 and Gross Dam Road are in Boulder County. Do you anticipate Region 4 or Region 1 reviewing the future work?

Planner:

This expansion of Gross Reservoir does not contain elements that would interfere with and planned CDOT work on SH-72, pending details on the intersection of Gross Dam Road and SH-72. CDOT does not have any projects planned along this segment of SH-72, so R1 Planning concurs with this proposal.

Previous remarks sent in on Dec 7, 2020 regarding the 1041 application:

Page 7 – says 6 years to complete, chart / table 4 shows 7. We presume the top line represents “years?”

Page 8, table 4, the line that says “Site Mobilization” should clarify that this is the time frame when the access permits should be applied for onto SH 72 (Region1) and onto SH 119 (Region 4) and both intersections reconstructed as warranted in preparation for construction traffic. Site Mobilization is also the recommended time for the contractor to secure oversize-overweight permits, that pertain to and covers different aspects from the access permits.

Page 14-15 Table 5 ID’s “State permits required to construct the project”. Should aspects from CDOT which are mentioned above be included as line items? They are not listed.

Page 25, table 6. There is mention that Denver Water is considering creating a “staging area” for the contractor(s) near the intersection of SH 72 & SH 93. The DWB did mention this to CDOT at an earlier meeting in conversation but had no plans or details to share. CDOT advised that Access permits will be required for such an operation if access is from either highway.

Page 65 8-507 makes reference to “Additional right-of-way or easements for new or expanded Transportation facilities.” It says look at figure 26-2 – but that figure was not part of this packet to examine. From preliminary (30%) sketches CDOT has seen, we expect & anticipate additional RoW, possibly other easements near the reconstructed Gross Dam Rd/SH 72 intersection.

Pages 299-311 Contains a significant amount of verbiage about “Transportation Impacts”. Please note that it is not the purpose or purview of CDOT Access Permits to address noise from construction related traffic or associated air quality matters. CDOT has requested a meeting to discuss the matter of haul routes and its effect on local and pass-through traffic; that meeting is scheduled for Thursday Dec. 10. Additional issues could be identified (verbally) at that time.

Generally, the document contains references to a Traffic Study that was prepared by Stantec. We believe this to be what was presented to CDOT in a previous referral as a "60% Design Memorandum". Please note that for CDOT Access Permitting, this document is not aligned with the requirements as outlined in our Access Code 2.3(5) "Traffic Impact Studies". The TIS we will require from Boulder County to accompany the permit application for the connection of Gross Dam Rd to SH 72, is much different and will need to be tailored to the specific point of Access.

CC: CDOT Region 4, Permit office
CDOT Oversize-Overweight office
File



Community Planning & Permitting

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MEMO TO: Agencies and adjacent property owners
FROM: Summer Frederick, AICP, Planning Division Manager
DATE: September 30, 2020
RE: **Docket SI-20-0003**

Docket SI-20-0003: Gross Reservoir & Dam Expansion

Request: Areas and Activities of State Interest (1041) review for the expansion of Gross Dam and Reservoir to store an additional 77,000 acre-feet total of water, which includes increasing the dam height by approximately 131 feet, the dam length by approximately 790 feet, and the spillway elevation by approximately 126 feet; quarry operations to obtain aggregate required for construction; construction of a temporary concrete batch/production plant and an aggregate processing plant; permanent road improvements to Gross Dam Road from State Highway 72 to the Gross Reservoir; temporary road improvements to FS35 (Winiger Ridge Road) and FS 97 (Lazy Z Road); and the relocation of the Miramonte Multi-Use Trail.

Location: 3817 Gross Dam Road, at parcel 157928000006, north end of Gross Dam Road approximately 5 miles north of its intersection with State Highway 72, in Section 28, Township 1S, Range 71W.

Zoning: Forestry
Applicant: Denver Water, c/o Jeff Martin
Property Owners: Denver Water, City and County of Denver, U.S. Forest Service

This process includes public hearings before the Board of County Commissioners and may include a public hearing before the Boulder County Planning Commission. Adjacent property owners and holders of liens, mortgages, easements or other rights in the subject property are notified of these hearings.

The Community Planning & Permitting staff, Planning Commission, and County Commissioners value comments from individuals and referral agencies. Please check the appropriate response below or send a letter to the Community Planning & Permitting Department at P.O. Box 471, Boulder, Colorado 80306 or via email to GrossReservoir@bouldercounty.org. All comments will be made part of the public record and given to the applicant.

You may view or download the application materials at www.boco.org/GrossReservoir.

You are welcome to call the Community Planning & Permitting Department at 303-441-3930 or email GrossReservoir@bouldercounty.org to request more information. If you have any questions regarding this application, please contact the Community Planning & Permitting office at (720) 564-2603 or via email at sfrederick@bouldercounty.org.

As required per article 8-508(C)1.a, referral responses must be returned within 14 days or **October 14, 2020**. *As noted in section 8-508(C)1.b, an extension may be expressly granted by the Director. (Please note that due to circumstances surrounding COVID-19, application timelines and deadlines may need to be modified as explained in the CPP Notice of Emergency Actions issued March 23, 2020 (see <https://boco.org/covid-19-cpp-notice-20200323>).

We have reviewed the proposal and have no conflicts.
 Letter is enclosed.

Deb Gardner County Commissioner **Elise Jones** County Commissioner **Matt Jones** County Commissioner

Signed _____ PRINTED Name Jill Carlson
Agency or Address Colorado Geological Survey



Public Works

November 11, 2020

To: Summer Frederick, Current Planning Division

From: Mike Thomas, P.E., County Engineer

Subject: SI-20-0003, Gross Reservoir and Dam Expansion – Comments and Requirements

I have reviewed this docket and offer the following comments:

1. The Application Letter, P. 2, states that the FERC 7/16/2020 order amends the hydropower license and requires construction of the project according to specified deadlines and milestones. The applicant needs to provide a concise schedule for review prior to approval of the 1041 Permit.
2. As part of approval of this 1041 permit, Boulder County shall be party to any road maintenance, tree hauling or other road use plans and agreements with the US Forest Service, including route approval and maintenance methods for all county owned or maintained roads in the current tree hauling plan prior to implementation of the work under this permit. These roads include Lazy Z Road/CR 97 and Magnolia Road.
3. As part of approval of this 1041 permit, and similar to the aforementioned maintenance agreement with the US Forest Service, the applicant will also be required to enter into a Road Maintenance Agreement for Gross Dam Road/CR 77S for the duration of the project.
4. Boulder County must approve the tree removal plan prior to 1041 permit approval.
5. A Traffic Impact Analysis (TIA), 60% Design Memorandum, included with the application materials, was reviewed by staff. The County does not recognize the “in-process “60%” TIA. In order for staff to evaluate traffic impacts for the proposed development, a Final Design Memorandum must be submitted for review and approval by staff prior to 1041 Permit approval.
6. Given the recommendation in the submitted 60% DM to not improve the Magnolia Road / SH 119 Intersection, the applicant is required to demonstrate the ability to meet design standards at this intersection. This includes corner radii, approach grades, auxiliary lanes, and any other roadway geometry utilizing similar vehicle turning templates and traffic volume data as on other roads and intersections in this project.
7. As part of approval of the 1041 permit, the applicant will be required to make improvements to Lazy Z and Magnolia as required by log hauling truck usage as specified in the application materials, similar to Gross Dam Road (CR 77S). All

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curves, road widths and clearances shall be measured and documented and submitted to Boulder County for review prior to project use. The County will have 14 days to review road improvement plans for all county roads submitted for approval prior to implementation, and no work shall commence until plans and specifications are approved by the county. Each timeframe for submittal for approval will require 14 days to review. The applicant will make all required improvements at their cost and within the timeframe specified by the permit, but no later than 30 days prior to use of the roadway by the project.

8. The county would need to inspect and approve the improvements to Gross Dam (CR 77S), Lazy Z, and Magnolia Roads as prescribed in the FDM, including, without limitation:
 - a. Gravel depth
 - b. Side slopes
 - c. Compaction
 - d. Drainage structures
 - e. Erosion control
 - f. Dust control
9. As stated in the TIA, all signing and other Traffic Control Devices necessary for the project will be proposed to and approved by Boulder County prior to placement.
10. Page 2-1 of the 60%DM indicates that truck traffic will not be expected to travel through the city of Boulder. However, p. 3-4 of the 60%DM states the route of truck traffic for tree removal is expected to travel on SH 93 in order to reach the city of Longmont as its final destination. As such, travel through the city of Boulder would be unavoidable. The applicant shall better define the truck route for travel from Gross Reservoir to Longmont if staying out of the city of Boulder is expected. The tree hauling routes would potentially be all on State Highways. The county requires Denver Water to be part of a discussion with the county, CDOT, Jefferson and Gilpin Counties, Colorado State Patrol, and any other local agency expected to be impacted by tree hauling operations within their jurisdictions. The routing must be approved by Boulder County prior to approval of the 1041 permit.
11. The applicant will be required to obtain any and all necessary permits required by the appropriate roadway and highway authorities for tree haling and raw cement material deliveries as part of the 1041 approval.
12. Prior to commencement of the project, signing shall be placed westbound in advance of and at the intersection of Gross Dam Road (CR 77S) with Crescent Park Drive to direct trucks to stay on CR 77S to its intersection with SH 72.
13. As has been discussed in the past, Denver Water is required to submit an Access Permit application to Colorado Department of Transportation (CDOT), Region 1 for the proposed realignment of the SH 72 / CR 77S intersection. CDOT has stated that Boulder County is to be the applicant on that Permit. While Denver Water will act as the agent in that application, Boulder County must approve all plans, specifications, requirements and other documentation prior to access permit application submittal. Further, Boulder County will not sign the application until final 1041 permit approval has been granted by the Boulder County Board of Commissioners.
14. The Field Inspection Review (FIR) level design plans for the intersection of Gross Dam Road/CR 77S and SH 72 appear to be adequate for showing the proposed basic

alignment and accessibility. The alignment appears reasonable given the expected need of the projected turning truck traffic and construction ingress/egress at this location. However, given the challenging topographic constraints, Boulder County cannot consent to the final intersection alignment until Denver Water has progressed design to a point where constraints are identified, and mitigation is proposed and designed.

15. The plan sets for roadway improvements along CR 77S must be completed as part of the 1041 approval. The current level of plan completion is not adequate.
16. Approval of this 1041 permit application does not constitute approval of future permanent access points on Boulder County Roads.
17. A Storm Water Quality Permit (SWQP) is required to be obtained from Boulder County, in addition to any other Stormwater Permitting required from the State of Colorado or any other local, state or federal agency. Since additional staffing or consultant services are needed by Boulder County to monitor the SWQP for this project, the applicant will be required to procure the services of a project overseer to administer, process, inspect, monitor, and closeout the SWQP activities. The overseer selected for this effort will be approved by Boulder County Public Works prior to application for the SWQP for this project. Administration, processing, inspection, monitoring and closeout of the SWQP is expected to be required for a minimum of five years. This overseer shall be both independent of the primary construction contractor and project engineer and have the authority to alter, direct and/or stop any activity that will result in adverse environmental or safety conditions or violates the conditions of the permit(s), county approval, or accepted construction standards. The project overseer/inspector shall provide reports to the Public Works Department on a weekly basis during construction activity. Weekly reports shall consist of a diary of observations throughout the construction process and progress. This overseer is in addition to any other overseer required for the project.

Let me know if you have any questions. This concludes our comments at this time.

C: Amelia Willits, Boulder County Community Planning & Permitting, Engineering Review
Jennifer Severson, Boulder County Community Planning & Permitting, Engineering Review



Community Planning & Permitting

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Building Safety & Inspection Services Team

MEMO

TO: Summer Frederick, AICP, Planning Division Manager
FROM: Michelle Huebner, Plans Examiner Supervisor
DATE: October 19, 2020

RE: Referral Response, Docket SI-20-0003: Gross Reservoir & Dam Expansion.

Areas and Activities of State Interest (1041) review for the expansion of Gross Dam and Reservoir to store an additional 77,000 acre-feet total of water, which includes increasing the dam height by approximately 131 feet, the dam length by approximately 790 feet, and the spillway elevation by approximately 126 feet; quarry operations to obtain aggregate required for construction; construction of a temporary concrete batch/production plant and an aggregate processing plant; permanent road improvements to Gross Dam Road from State Highway 72 to the Gross Reservoir; temporary road improvements to FS35 (Winiger Ridge Road) and FS 97 (Lazy Z Road); and the relocation of the Miramonte Multi-Use Trail.

Location: 3817 Gross Dam Road, at parcel 157928000006, north end of Gross Dam Road approximately 5 miles north of its intersection with State Highway 72, in Section 28, Township 1S, Range 71W.

Thank you for the referral. We have reviewed the proposal and have the following comments for the applicants:

1. **Building Permits.** Separate building permits, plan reviews and inspection approvals are required for all; temporary structures, permanent structures and electrical equipment that are part of this proposal. This includes but is not limited to; the dam control building, the quarry operations, construction of a temporary concrete batch/production plant, aggregate processing plant, batch plant offices, crusher office, pump station building, relocated or reconstructed maintenance building, powerhouse, testing lab building, receiving office trailer, office complex trailers, staging area trailers, shop trailers, storage area trailers, all recreation facilities, any retaining walls greater than four feet (measured from the bottom of the footing to the top of the wall), and fences greater than 6 feet tall.

For a complete list of when building permits are required, please refer to the county's adopted 2015 editions of the International Codes and code amendments, which can be found via the internet under the link:

2015 Building Code Adoption & Amendments, at the following URL:
<http://www.bouldercounty.org/dept/landuse/pages/default.aspx>

The Commercial Plan Submittal Checklist:
<http://www.bouldercounty.org/doc/landuse/b70commercialplanchecklist.pdf>

2. **Grading Permits.** Grading permits are required for trails and roads and any other grading that is in excess of 50 cubic yards. Plan review and inspection approvals are required for the proposed work.

Please refer to the county's adopted 2015 editions of the International Codes and code amendments, including the most applicable portion, Appendix J (grading) of the International Building Code ("IBC"), which can be found via the internet under the link:

3. **Engineering Observations.** Observation reports from the design engineer or another qualified engineer stating that the grading work has been accomplished in substantial conformance with the approved grading plans will be required to be submitted to Building Safety & Inspection Services for review and approval prior to final approval of the work covered by the grading permit.
4. **Ignition-Resistant Construction and Defensible Space.** Please refer to Section R327 of the Boulder County Building Code for wildfire hazard mitigation requirements, including ignition-resistant construction and defensible space. A separate referral response will be forthcoming from one of the county's wildfire mitigation specialists. Wildfire mitigation in the area surrounding all structures will be required.
5. **Minimum Plumbing Fixtures for the recreation facilities and permanent structures.** The plumbing fixtures count needs to meet or exceed the requirements of IBC Chapter 29, including the need for accessible restrooms and fixtures.
6. **Accessibility For the recreation facilities and permanent structures where applicable.** Chapter 11 of the IBC and referenced standard ICC A117.1-09 provide for accessibility for persons with disabilities. Any building permit submittals are to include any applicable accessibility requirements, including accessible parking, signage, accessible routes and accessible fixtures and features.

7. **Design Wind and Snow Loads.** The current design wind and snow loads for the property are approximately 170 mph (Vult) and 50 psf (ground), respectively.
8. **Plan Review.** The items listed above are a general summary of some of the county's building code requirements. A much more detailed plan review will be performed at the time of building permit(s) application, when full details are available for review, to assure that all applicable minimum building codes requirements are to be met. Building Safety forms, handouts and other publications can be found at:
<http://www.bouldercounty.org/property/build/pages/bldingdf.aspx>
9. **Meeting.** When you are ready to review construction drawings with the plan review team. Please contact our Plans Examiner Supervisor Michelle Huebner to make an appointment. mhuebner@bouldercounty.org 720-564-2616.

If the applicants should have questions or need additional information, we'd be happy to work with them toward solutions that meet minimum building code requirements. We can be reached at (720) 564-2640 or via e-mail at building_official@bouldercounty.org.



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- Construction timing – application materials discuss different phases of the proposed project spanning the project’s projected seven-year construction timeline. Specifics such as but not limited to type of construction activities, anticipated hours of operation, amount of average daily trips, natural resource impacts (e.g., water quality, habitat removal, tree clearing, etc.) for each phase are needed.
- Application materials include a single rendering of the project area after proposed construction is complete and the reservoir is full, but additional discussion and depiction is needed of visual impacts related to ultimate dam height, increased water area, completed reservoir area at less than full capacity, quarry operation site scar, on-going staging areas, all lighting associated with project, construction signage, anticipated fencing.

The out-of-date nature of the data and information used for the applicant’s analysis presented in application materials does not allow staff to conduct a thorough review and analysis of the proposed project. For example:

- The data used to establish the need for the proposed project in the Integrated Water Plan is from 2002, almost 18 years ago. While this data was examined and verified prior to review in 2010 - more than 10 years ago - by the U.S. Army Corps of Engineers (the Corps), the data remains outdated.
- Application materials indicate the Corps eliminated Denver Water’s alternatives 6 and 7, Indirect Potable Reuse Project and Reusable Water respectively, however, CP&P staff believes significant additional information and discussion is required as part of the application in order to address Article 8-202.B.10: *Require that municipal and industrial water projects shall emphasize the most efficient use of water, including, to the extent permissible under existing law, the recycling and reuse of water.*
- Information and data related to other aspects of the project are also significantly outdated, evidenced in information such as conservation measures implemented by Denver Water – statement that 29,000 AF/yr conservation between 1980 and 2000, wildlife populations – elk herd post-hunt population numbers from 2009 and mountain lion and black bear data from 1994, and reliance on floodplain mapping that is not the most accurate available (CHAMP mapping provided to FEMA in 2018).

Application materials also lack information related to the proposed project's potential impacts on climate change. Climate change is an issue identified by Boulder County elected officials as one that is significant. County Commissions have consistently instructed staff to review applications with an eye on proposed projects' potential impact on climate change and to recommend conditions of approval intended to mitigate any potential negative impacts. Denver Water's application materials do not address this issue in any detail, and staff requests additional, detailed information related to the potential impacts of the Dam and Reservoir Expansion project on climate change. For example, the proposed removal of 650,000 trees represents a significant loss of biomass, how is this proposed to be offset? The proposed preservation of the Toll Property ensures biomass located on those acres will not be lost but does not address the loss of the biomass located within the proposed project area.

Community Planning & Permitting staff anticipates additional questions and discussions will result after the review of any revised or additional information submitted by the applicant and looks forward to collaborating with Denver Water during this process.



Community Planning & Permitting

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November 13, 2020

TO: Summer Frederick, Planning Division Manager; Community Planning & Permitting, Development Review Team - Zoning

FROM: Amelia Willits, Engineering Development Review Planner II; Community Planning & Permitting, Development Review Team - Engineering

SUBJECT: Docket # SI-20-0003: Gross Reservoir & Dam Expansion
3817 Gross Dam Road, at parcel number 1579258000006

The Development Review - Engineering Team has reviewed the above referenced docket and has the following comments. Please note, these referral comments are in addition to those provided by Mike Thomas, P.E., County Engineer, under separate cover.

Legal Access

1. The subject property is accessed via Gross Dam Road, a gravel-surfaced, Boulder County owned and maintained right-of-way (ROW) with a Functional Classification of Collector, from the point at which it departs from State Highway 72 (also known as Coal Creek Canyon Drive), a Colorado Department of Transportation (CDOT) ROW, to the Union Pacific Railroad tracks; this portion of Gross Dam Road is also known as County Road 77S. From the Union Pacific Railroad tracks extending to Flagstaff Road (a Boulder County owned and maintained ROW, with a Functional Classification of Collector), Gross Dam Road is owned and maintained by Denver Water. Legal access has been demonstrated via adjacency to the identified public ROWs.
2. Portions of private property exist adjacent to Gross Dam Road, along sections that the applicant has identified for road improvements. Denver Water shall provide documentation of all roadway easements and fee rights-of-way procured for the project where required by roadway improvements or realignments as a result of this project. Roadway Improvement Plans must identify adjacent property owners.

Traffic Impacts

1. A Traffic Impact Analysis (TIA): 60% Design Memorandum, completed by Stantec Consulting Services, September 17, 2020, included with the application materials, was reviewed by staff. The County does not recognize the "in-process" 60% TIA. In order for staff to evaluate traffic impacts for the proposed development, a Final Design Memorandum must be submitted for review and approval by staff.
2. With the submission of the Final Design Memorandum, additional clarification of the following components is required:
 - a. Tree removal truck estimations are provided for all phases of the project in average per day/per hour. The applicant must also provide these numbers in average daily traffic (ADT), following industry standard, for accurate comparison and understanding of impacts to the existing traffic system;

- b. A system of shuttles for workers was briefly proposed in the 60% TIA, with limited detail. A detailed shuttle plan for workers must be included in the Final Design Memorandum;
 - c. For construction generated traffic, the report used the assumption of 3.0 passenger car equivalency factor for trailer trucks. Staff believes that the more appropriate equivalency number is 2.5 passenger cars to trailer trucks. The applicant must explain their assumption in the Final Design Memorandum;
 - d. The applicant is required to implement Transportation Demand Management strategies to reduce the number of trips to the site. Carpooling/vanpooling, or shuttles, with an offsite parking area for workers on the project are two possible strategy examples;
 - e. Recreational traffic estimates must reflect actual conditions more so than outlined in the 60% TIA, which included a traffic count conducted in December 2015, and were adjusted by 10 trips to and 10 trips from the site to account for seasonal differences. Staff does not feel that the recreational traffic estimates accurately reflect the current conditions, nor the peak recreational traffic during the summer months and must be updated.
3. Additional comments and requirements for traffic impacts are outlined in the referral response provided by the County Engineer.
 4. The applicant must also develop a Transportation Management Plan (TMP), which must also be approved by the Boulder County Public Works Department and the Community Planning & Permitting Department prior to building permit or Roadway Construction Permit issuance.
 - a. A Transportation Management Plan (TMP) is a documented set of coordinated transportation management strategies used to manage the impacts of construction projects. The purpose of a TMP is to minimize disruptions to motorists, emergency response vehicles, cyclists, pedestrians and communities without compromising public or worker safety, or the quality of work being performed;
 - b. Boulder County has a TMP Guidance document and TMP template which will allow the applicant to develop a TMP that is comprehensive in nature. The template is attached to this referral.

Plans

1. Multiple phases of construction are proposed by the applicant. Updated plans must be provided as part of the approval of this 1041 permit which reflects activities associated with each phase of construction, including, but not limited to: traffic impacts, trail construction, construction staging and parking, staging locations, erosion control and stabilization of disturbed earth, cut and fill locations for earthwork, grading and drainage plans.
2. Cut and fill locations must be identified for each phase and must also demonstrate the proximity to the reservoir and to private property. New trail construction must also be reflected in cut/fill plans.
3. Interior haul roads must be designed and constructed to [Boulder County Multimodal Transportation Standards](#) (the Standards). Updated plans must be submitted that identify the location of all haul roads to be constructed and demonstrate compliance with the Standards.
4. Spoils areas are indicated on the preliminary plans. Updated plans must indicate what erosion control methods are planned and where those methods will be installed. Erosion control plans

must also indicate how and when the spoils areas will be revegetated and restored upon completion of construction activities.

5. Any staging areas near the reservoir will require slope stability and stormwater controls to ensure that stormflows do not negatively impact nearby waterways or the reservoir. The stormwater controls must be indicated on updated plans.
6. Several discrepancies were identified between plan sheets provided in the application materials, such as Staging Area 1-2, as identified on page 49 of Exhibit 1: Figures and Design Drawings, labeled as a stockpile area on page 50; Staging Areas 1-1, 1-2, 3-3, 3-4 area identified on several figures – staff was uncertain if any staging areas were omitted, such as 2-1 or 2-2, etc. Updated plans submitted for review must be consistent with labeling and must agree with one another.
7. Final grade cuts and fills shall not be steeper than a 1.5 to 1 slope. Grades steeper than a 1-½ to 1 slope will need to be supported by a retaining wall. Retaining walls or series of walls greater than four feet in height measured from the bottom of the footer to the top of the wall require building permits for construction. Calculations shall be submitted for all retaining wall heights over 6 feet in height.

Gross Dam Road Improvements

1. The applicant provided plans for improvements along portions of Gross Dam. Updated plans must be submitted as part of the approval of this 1041 permit which include:
 - a. Existing and proposed road widths must be included on the plans, for all areas that are proposed to be improved. Staff requires this information to ensure that the improved areas meet the Standards for width;
 - b. Curve radii must be included on updated plans to demonstrate that the improvements will accommodate the anticipated heavy truck traffic;
 - c. Slopes at a 0.5:1 ratio are allowed only in areas of cut in competent bedrock; fill slopes may not exceed 1.5:1 slopes. A geotechnical report will be required for any slopes that exceed those listed above. The geotechnical report must be submitted to the Community Planning & Permitting Department for review and approval along with the updated plans;
 - d. All road improvement plans must demonstrate positive drainage elements that meet the Standards.
2. The applicant must provide detailed plans for the roads identified on Figure 1-2: Gross Reservoir Components for relocation; no plans were included with the application materials. All new roads must demonstrate that they meet the Standards, for both design and appropriate drainage.
3. The applicant must provide detailed plans for the roads that will be abandoned, if those sections of road will remain un-inundated by the new high-water level. The plans must demonstrate how the roads will be revegetated and restored.

Project Grading

1. Language included in Exhibit 05e: FERC Supplemental EA states that 1.6 million cubic yards of material is required for the construction of the dam. Language included in the Exhibit 14: Air Quality Impact Study states that total quarry design production is given as 1,235,100 cubic yards. Staff requests that the applicant clarify and compare these numbers against total earthwork calculations and verify the quantity of material that will be removed from on-site quarries.

Recreational and Public Parking

1. The plans submitted with the application included locations and quantities of relocated public parking areas, but the plans included little detail for their construction. Updated parking plans must be submitted to staff which demonstrate how the relocated lots will be designed to comply with [Section 5.6.2](#) of the Boulder County Multimodal Transportation Standards (“MMTS”) for Parking Lot Design and the Boulder County Land Use Code (LUC) [Article 4-513.D](#) for a Multimodal Parking Facility, by including dimensions for parking spaces and the manner in which the lots will be constructed to ensure the final number of spaces constructed meet the standards, including dimensions for ADA accessible parking spaces and location and quantities of bicycle parking.
2. In order for staff to evaluate the impacts to recreational and public parking, the applicant must provide information on the number of parking spaces that will be lost due to the expansion of the reservoir. The applicant must provide information as to whether parking will be replaced at a 1:1 ratio or if the total number of recreational and public parking spaces will be different than existing quantities.

Construction

1. A preconstruction meeting with Public Works and Community Planning and Permitting staff is required prior to the commencement of construction activities. At this meeting, the hours of work, access points, snow removal in the construction zone, traffic management and traffic control and construction and inspection schedules will be discussed.
2. Any access blockage or closure to the public ROW or private driveways must be opened by the end of the workday. A minimum of 48-hours’ notice must be given to all property owners as well as the County Public Works Traffic Operations Engineer prior to any road or driveway blockage.
3. The Boulder County Public Works Department requires that the applicant include in their scope of work a project overseer, approved by the County Engineer, to monitor and inspect the project and ensure compliance with Roadway Construction Permit conditions and all other county requirements specific to the Public Work’s Department’s issues and concerns, as documented here and in subsequent review activities. This overseer shall be both independent of the primary construction contractor and project engineer and have the authority to alter, direct and/or stop any activity that will result in adverse environmental or safety conditions or violates the conditions of the permit(s), county approval, or accepted construction standards. The project overseer/inspector shall provide reports to the Public Works Department on a weekly basis during construction activity. Weekly reports shall consist of a diary of observations throughout the construction process and progress. This overseer is in addition to any other overseer required for the project.
4. The applicant must coordinate with the Boulder County Community Planning & Permitting Communications Specialist for signage and public information dissemination related to project timelines.
5. Prior to project commencement, the applicant’s contractor must photo-document the conditions of all county roads to be used during construction. All affected roadways must be restored to pre-project conditions or better. Photo-documentation shall be submitted prior to construction.

Required Permits

Permits that are necessary for construction include, but are not limited to, the following:

1. A Roadway Construction Permit is required for the permanent road improvements proposed in the Boulder County ROW. The applicant shall abide by the Standards and comply with the conditions of the Roadway Construction Permit. The applicant should also note that when construction activity is parallel to Boulder County rights-of-way, the rights-of-way shall not be utilized for any construction-related activity including, but not limited to, stockpiling of material, staging construction materials, parking for workers or construction vehicles.

Note that, among other things, hours of work are regulated by the Roadway Construction Permit.

2. Stormwater Quality Permit
As a part of Boulder County's water quality protection and municipal separate storm sewer system construction program, a stormwater quality permit (SWQP) is required because the area of disturbance on the subject property exceeds one acre in size. The SWQP application will need to be submitted with any building or grading permit applications and obtained prior to any work beginning on this project.
3. Oversize/Overweight Permit
Heavy equipment traffic, including for water delivery, will be subject to any and all weight limit restrictions along adjacent roadways, and will be responsible for repair of the roads should there be any damage, as identified by the County Engineer. If necessary, the applicant shall obtain Oversize/Overweight Permits from the appropriate jurisdictions. Contact Bill Eliassen at (720) 564-2661.
4. Dewatering Permit
The applicant must provide evidence with building permit application materials that a State of Colorado Dewatering Permit has been obtained, if necessary, or documentation that it is not required.

This concludes our comments at this time. Staff review of the updated plans may result in additional comments and/or requests for information.

BOULDER COUNTY COMMUNITY PLANNING AND PERMITTING DEPARTMENT

TRANSPORTATION MANAGEMENT PLAN

**FOR: FOURMILE WATERSHED COALITION BLACK SWAN
RESTORATION PROJECT**

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How to use this TMP

The purpose of this Transportation Management Plan (TMP) is to minimize disruptions to motorists, the freight industry and the community without compromising public or worker safety, or the quality of work being performed.

This TMP details the transportation management strategies which shall be used to manage the work zone impacts of this project. It is also a reference tool to assist in the monitoring activities required by this TMP.

This document is NOT a Traffic Control Plan (TCP). A TCP is a component of the overall TMP and information within the TMP helps guide the development of the TCP.

Important: This TMP may be changed throughout the project to effectively manage conditions experienced on-site and on the transportation system.

A copy of the most up-to-date TMP must be on-site at all times.

BACKGROUND INFORMATION

Summary

This summary is an at-a-glance reference for the location of the project, along with limits of the project footprint, the work that will be done on the site, the reason for the work, and the planned transportation strategies employed within the TMP.

Summary		
Location/Limits:		
Proposed Improvements:		
Goals/Objectives of TMP:		
Temporary Traffic Control strategies included in this plan:	<input type="checkbox"/> Construction phasing/staging <input type="checkbox"/> Full road closures <input type="checkbox"/> Lane shifts or closures <input type="checkbox"/> One-lane two-way operation <input type="checkbox"/> Night/weekend work <input type="checkbox"/> Temporary pavement <input type="checkbox"/> Work hour restriction <input type="checkbox"/> Pedestrian/bicycle access improvements <input type="checkbox"/> Business access improvements/coordination	<input type="checkbox"/> Off-site detours/alternate routes <input type="checkbox"/> Temporary signs <input type="checkbox"/> Variable message signs <input type="checkbox"/> Flaggers and uniformed traffic control officers <input type="checkbox"/> Contracting strategies <input type="checkbox"/> Project Coordination <input type="checkbox"/> Innovative construction techniques (precast or rapid cure materials) <input type="checkbox"/> Other (please specify):
Transportation Operations strategies included in this plan:	<input type="checkbox"/> Transit service improvements <input type="checkbox"/> Shuttle services <input type="checkbox"/> Signal timing/coordination improvements <input type="checkbox"/> Temporary signals (fixed or portable) <input type="checkbox"/> Turn/parking restrictions <input type="checkbox"/> Truck/heavy vehicle restrictions <input type="checkbox"/> Project coordination <input type="checkbox"/> Construction speed zone <input type="checkbox"/> Temporary or moveable traffic barriers <input type="checkbox"/> Crash cushions <input type="checkbox"/> Temporary rumble strips	<input type="checkbox"/> Intrusion alarms <input type="checkbox"/> Warning lights <input type="checkbox"/> TMP monitor/inspection team <input type="checkbox"/> Mile-post markers <input type="checkbox"/> Local detour routes <input type="checkbox"/> Incident/emergency management coordination <input type="checkbox"/> Incident/emergency response plan <input type="checkbox"/> Police presence/enforcement <input type="checkbox"/> Automated enforcement <input type="checkbox"/> Increased penalties <input type="checkbox"/> Other (please specify):
Public Information strategies included in this plan:	<input type="checkbox"/> Brochures/Mailers <input type="checkbox"/> Press releases/media alerts <input type="checkbox"/> Paid advertisements <input type="checkbox"/> Public Information Centers <input type="checkbox"/> Telephone hotline <input type="checkbox"/> Project web site <input type="checkbox"/> Coordination with schools, businesses, emergency services <input type="checkbox"/> Visual information	<input type="checkbox"/> Temporary motorist information sign <input type="checkbox"/> Variable/Dynamic message signs <input type="checkbox"/> Highway information network <input type="checkbox"/> Traveler information systems <input type="checkbox"/> Project information hotline <input type="checkbox"/> Email alerts <input type="checkbox"/> Other (please specify):

Project Description

The project description provides greater detail about the project. It also provides the timeline that the project will be underway and any constraints that the project may need to operate under.

Project Description	
Applicant:	
Type of Project:	
Corridor:	
Location/Limits:	
Existing Conditions:	
Proposed Improvements:	
Schedule/Timeline:	
Goals:	

TMP Team—Roles and Responsibilities

The TMP Team section includes contact information and roles and responsibilities of major personnel involved in the transportation management of the project. Responsibilities for specific strategies and monitoring activities are identified in the appropriate sections of this TMP.

TMP Implementation/Monitoring Managers	
Contractor	Project Manager
Name/Title:	Name/Title:
Contractor:	Agency:
Phone:	Phone:
Email:	Email:
Roles and Responsibilities:	

TMP Implementation Task Leaders	
Contractor	Traffic Control Supervisor
Name/Title:	Name/Title:
Contractor:	Contractor:
Phone:	Phone:
Email:	Email:
Roles and Responsibilities:	

Public Information – Liaison	
Agency Staff Member	Contractor
Name/Title:	Name/Title:
Agency:	Contractor:
Phone:	Phone:
Email:	Email:
Roles and Responsibilities:	

Emergency Service Contacts	
Fire and Emergency Medical Services (FEMS)	Sheriff's Office
Name/Title:	Name/Title:
FPD:	
Phone:	Phone:
Email:	Email:

Existing Conditions

This section identifies characteristics related to the corridor and general area that may impact or be impacted by the project.

Project Data	Information
Project Limits	
Location	
Limits	
Length	
Location of Other Projects	
Project	
Traffic Data	
Average Daily Trips (ADT)	
Roadway Information	
Functional Classification of Road	
Terrain	
Speed Limit	
Sight Distance	
Pavement Type	
Right-of-Way Width	
Land Use	
Use of Adjacent Property(ies)	
Transit Service	
Type	
Frequency	
Special Events	
Service/School Bus Routes	
Emergency service	
Bus route	
Mail Service	
Trash Service	

PROJECT INFORMATION

Work Zone Impact Assessment

This section identifies the potential impacts the project will have on public traffic and other projects.

Work Zone Impact Assessment	Information
Road closures	
Detours	

Facility Conditions	
Time Restrictions	
Other Projects in Corridor or Region	
Access Needs	
Material Haul Routes	
Other Traffic Issues	

Work Zone Impact Management Strategies

This section discusses outlines the specific strategies, along with the responsible parties and associated conditions that each strategy must adhere to.

TEMPORARY TRAFFIC CONTROL

Below are listed the temporary traffic control strategies required for the project. Strategies may be checked of as they are implemented.

Temporary Traffic Control	Responsible Party	Information	√
Control Strategies			
Construction phasing/staging			<input type="checkbox"/>
Work hour restrictions for peak travel			<input type="checkbox"/>
Pedestrian/bicycle access improvements			<input type="checkbox"/>
Traffic Control Devices			
Temporary signs			<input type="checkbox"/>
Variable message signs (VMS)			<input type="checkbox"/>
Flaggers and uniformed traffic control officers			<input type="checkbox"/>
Project Coordination Strategies			
Other area projects			<input type="checkbox"/>
Other transportation infrastructure			<input type="checkbox"/>

TRAFFIC OPERATION

Below are listed the traffic operation strategies required by the project. Strategies may be checked of as they are implemented.

Transportation Operations	Responsible Party	Information	√
Demand Management Strategies			
Shuttle services			<input type="checkbox"/>
Corridor/Network Management Strategies			
Parking restrictions			<input type="checkbox"/>
Coordination with adjacent construction site(s)			<input type="checkbox"/>
Work Zone Safety Management Strategies			
TMP monitor/inspection team			<input type="checkbox"/>

PUBLIC INFORMATION

Below are listed the traffic operation strategies required by the project. Strategies may be checked of as they are implemented.

Public Information and Outreach	Responsible Party	Information	√
Public Awareness Strategies			
Brochures and mailers			<input type="checkbox"/>
Press releases/media alerts			<input type="checkbox"/>
Telephone hotline			<input type="checkbox"/>
Project website			<input type="checkbox"/>
Coordination with schools/emergency services			<input type="checkbox"/>
Visual information			<input type="checkbox"/>
Motorist Information Strategies			
Variable message signs			<input type="checkbox"/>
Temporary motorist information signs			<input type="checkbox"/>

TMP Monitoring

The project management staff, in conjunction with the traffic control supervisor (TCS), must monitor the work zone and TMP. Any changes to the work zone or TMP should be consistent with the decisions made in the original TMP and involve the TCS. All changes to the work zone and TMP must be approved by the Boulder County Community Planning and Permitting Department and must be documented in the TMP.

TMP Monitoring	√	Information
Performance Monitoring		
Document monitoring activities		
Are queues within acceptable limits?		
Are speed limits being observed through work zone?		
Are there any obvious safety issues related to the TMP, such as, inadequate lane widths, tight turning radii, inadequate advance warning?		
Are crashes being documented and corrective action being taken if necessary?		
Is the construction progressing on schedule?		
Are lane closure hours being observed?		
Is public feedback being documented?		
Is the work zone incident response/management plan meeting pre-established response and clearance times?		

Has the project construction zone adversely impacted adjacent construction zones or has it been impacted by other projects?		
Changes to TMP		

APPENDIX A
Public Outreach Mailers Template

SAMPLE DOOR HANGER LANGUAGE

A XXXXXXXXXXXXX project will take place in this area from Month Day, Year to Month Day, Year. Working hours are – XX:XX a.m. to XX:XX p.m., Monday through Friday. If you have any questions or comments, please contact

**Company
Name
Phone Number
Email**

The purpose of this project is to...

Thank you for your patience and understanding while we complete this work.

(PUT COMPANY LOGO ON BOTTOM OR REVERSE SIDE IF POSSIBLE)

SAMPLE LETTER

DATE

Hello Resident,

A (INSERT PROJECT NAME) will take place in this area from Month Day, Year to Month Day, Year. Working hours are XX:XX a.m. to XX:XX p.m., Monday through Frriday.

The purpose of the project is to...

If you have questions, comments, or concerns, please contact NAME at PHONE NUMBER or EMAIL. You can also contact Boulder County Transportation at 303-441-3900 or transportation@bouldercounty.org.

Thank you for your patience and understanding while we complete this work.

Have a good day.

(COMPANY LOGO)

APPENDIX B
Traffic Control Plan

APPENDIX C

Haul Route

BOULDER COUNTY COMMUNITY PLANNING AND PERMITTING DEPARTMENT

T M P GUIDE

**GUIDANCE FOR THE DEVELOPMENT OF TRANSPORTATION
MANAGEMENT PLANS**

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Section I: Introduction

A Transportation Management Plan (TMP) is a documented set of coordinated transportation management strategies used to manage the impacts of construction projects. The purpose of a TMP is to minimize disruptions to motorists, emergency response vehicles, cyclists, pedestrians, the freight industry and communities without compromising public or worker safety, or the quality of work being performed.

This document focuses on the needs for project-level TMPs, as that is the level of project that is most often encountered and for which documentation is most often needed. Descriptions of the various types of TMPs are provided below.

The goal of the project-level TMPs will be to address the traffic related impacts of the construction projects in a cost-effective and timely manner while minimizing interference to the traveling public through the effective application of traditional and innovative traffic mitigation strategies. TMPs use multifaceted and multi-jurisdictional programs of operational, communications, and demand management strategies to maintain acceptable levels of traffic flow during periods of construction activities.

Some of the key benefits of a TMP are to help:

- Address the broader safety and mobility impacts of work zones at the corridor and network levels.
- Promote more efficient and effective construction phasing and staging, and minimize duration of the project.
- Improve work zone safety for construction workers and the traveling public.
- Minimize the traffic and mobility impacts of a work zone.
- Improve public awareness.
- Minimize negative impacts to the traveling public and local businesses and communities.
- Minimize circulation, access, and mobility impacts to local communities and businesses.
- Improve intra- and inter-agency coordination.
- Identify responsibilities and actions.

Types of TMPs

Some projects are likely to have much greater effects on traffic conditions in and around their work zones than other projects will. So it is reasonable to pay more attention to the effects of certain projects, such as those that we think will cause greater congestion, compromise road safety, or greatly reduce access to businesses. Recognizing that not all projects cause the same level of work zone impacts, this guide establishes a category of projects called "significant projects."

A significant project is defined as:

- It will, alone or in combination with other concurrent projects nearby, cause sustained work zone impacts at a location for three or more consecutive days with either intermittent or continuous lane closures.
- It will impact the traveling public at the local or regional level.
- It has a moderate to high level of public interest.
- It will directly impact a moderate to large number of travelers.

TMPs for Significant Projects must include:

- Temporary Traffic Control Plan (TTCP)
- Transportation Operations (TO) strategies
- Public Information & Outreach (PI) strategies

The level of detail required for each each section depends on expected impacts and scalability of the project.

Projects that are classified as non-significant may still require some or all of the TMP components listed above but they will generally include fewer and/or less intensive strategies.

How to Use this Guidance and Template

This document provides guidance for the development of a TMP. The template that accompanies this document has been offered as a convenient format for a TMP but it is not required that this format be used. Other formats are acceptable as long as the elements identified in this guidance are addressed.

A TMP may be developed by the applicant, the contractor, or Boulder County Community Planning and Permitting Department staff depending on the agreements made between the applicant and the County, by contract or otherwise.

Below is a step-by-step approach to developing a TMP.

TMP Development

1. Compile Project Material

TMP developers should begin by compiling available project materials such as:

- Project definition (project scope, roadway and traffic characteristics, other factors such as public outreach, community information, etc.).
- Construction phasing/staging approaches and plans.
- Preliminary work zone management strategies (when available).
- Information from other projects in the corridor to evaluate the combined or cumulative impact of the projects.

In those cases where contractors will develop TMPs, the plans and specifications of the project should contain the skeleton of the TMP developed by the Boulder County Community Planning and Permitting Department during its planning and design processes, and the provisions for completing TMP development under the contract.

2. Determine TMP Needs

The components of a TMP for a project are based on the expected work zone impacts of a project and whether the project is determined to be significant. The definition for a significant project is found in Section I under the heading *Types of TMPs*.

TMP developers should determine if the project is significant or non-significant in impacts. Additionally, a determination of which general components will be included in the TMP should be made.

Guidance for TMP components can be found in [Section I](#) of this document.

3. Develop TMP

Developers should:

- Identify [team members](#) responsible for implementing, monitoring and revising the TMP
- Identify [existing work zone conditions](#)
- [Assess work zone impacts](#)
- Identify [TMP strategies](#)
- Identify [monitoring requirements](#)

Guidance for TMP roles, work zone conditions, strategies and monitoring requirements can be found in [Section II](#) of this document.

The completed TMP must be approved by the Boulder County Community Planning and Permitting Department unless explicitly noted otherwise.

TMP Implementation

The TMP will be implemented during construction. Team members responsible for implementation of the TMP should identify which elements must be implemented in advance of construction (e.g., public relations campaign, improvements to detour routes, etc.) and determine the timing of the implementation to ensure the strategy goals are met.

Other strategies should be put in place as construction begins.

TMP Monitoring

Monitoring the performance of the work zone and that of the TMP during construction is important to see if the predicted impacts closely resemble the actual conditions in the field and if the strategies in the TMP are effective in managing the impacts.

The TMP should identify monitoring and performance requirements as well as the frequency for monitoring.

If performance requirements are not met, the TMP should be revisited and alternate management strategies and/or phasing/staging approach(es) should be considered. Any revisions to the TMP must be approved by the Boulder County Community Planning and Permitting Department unless explicitly noted otherwise.

Section II: TMP Components

The information below provides an overview of the various TMP components – what each is and what the intended function of each component is.

Summary

The summary should provide an at-a-glance overview of the project and TMP, and should include:

- Certain project description elements: Identify the location and/or limits of the project. Include a description of improvements related to the project;
- The goals or objectives of the project; and,
- The strategies included in the TMP.

As this section should be a one page summary of the TMP, it should be the last section completed. The information needed to populate this section can be found in later sections of the TMP.

Project Description

The project description section provides information about the project and includes:

- Applicant: Include agency name, name of point of contact and contact information.
- Type of project: May include statements such as, road reconstruction project, stream restoration project, bridge reconstruction project, private development project, or other brief description.
- Corridor: Identify the canyon and/or road corridor in which the project is located.
- Location/limits (include a map showing the limits of the work): Identify the location of the project via an address(es) or mile marker. For linear projects, include information regarding the limits of the project via distances from local features.
- Existing conditions: Briefly describe the existing conditions that are prompting the project.
- Proposed improvements: Briefly describe the improvements planned.

- Schedule/timeline: Note the expected start and end dates. Note significant milestones for the project. This may include structure deliveries, concrete pours, expected road closure dates, etc.
- Goals: Briefly describe expected outcomes for project. This may include statements such as: complete permanent repairs to road, bring road into compliance with Transportation Standards, increase resiliency to stream corridor, provide permanent access to private property, etc.
- Constraints: Briefly describe any physical, environmental, or other constraints affecting the project.

TMP Team—Roles and Responsibilities

This section identifies primary personnel involved in the project and what roles and responsibilities they have with regard to the TMP as well as emergency contact information. It includes:

- TMP Implementation/Monitoring Managers: Agency/Contractor personnel who have primary responsibility for implementing and monitoring the TMP.
- TMP Implementation Task Leaders: Responsible for managing, completing, overseeing, or assisting in specific transportation management tasks during the work.
- Public Information Officers: Responsible for ensuring information is communicated to the public during work and that outreach efforts are implemented.
- Emergency Contacts: Public and semi-public agencies, such as hospitals, schools, health clinics, the US Postal Service, emergency response, etc., who must be kept informed about the work zone activities, especially in case of a road closure.

Existing Conditions

Prior to developing the TMP strategies, work zone information should be collected and organized. Only include information that is directly applicable to the TMP. Consider the list of possible work zone information below:

- Project limits: Physical location, limits, and length of the project.
- Location of other construction projects: Other projects near the work zone, including project durations, that may impact the temporary traffic control. Typically used to determine conflicting projects. May need to be updated as other projects are started in the same corridor or area.
- Traffic Data: Data related to the movement of vehicles, pedestrians, bikes, etc. on a roadway. Typical traffic data examples are: Average daily traffic (ADT) volume and accident data.
- Roadway information (roadway types, conditions, capacity, etc.): Information related to the roadway prism and roadway network. Roadway classification, terrain, speed limits, sight distance, pavement type, general clear zone information, and right-of way widths are typical roadway characteristics expected. Also note the presence of a designated bicycle and/or transit route.
- Land use (location of residences, businesses, industry, etc.): How the land adjacent to the project is being used and how that impacts the project. May include road approaches.
- Existing Size Restrictions: Width, height, weight, or other highway restrictions that limit vehicles travelling on a highway.
- Transit service within area (type, frequency, etc.): Public transportation facilities located or serviced within the work zone. Typically these services have to be maintained during the project.
- Special events: Local or regional events that may impact the temporary traffic control or be impacted by the project.
- ADA/Pedestrian accommodations: Existing ADA/pedestrian facilities located within the work zone. ADA/pedestrian accommodation should be maintained during the project.
- Emergency Services/School Bus Routes: Services that are maintained through the work zone. Depending on whether or not these services are disrupted the TTC strategy may need to accommodate these services.

- Seasonal restrictions (traffic variations, weather-related work windows, etc.) Restrictions that only occur during a certain time of year. May impact the TTC strategy.
- Delivery services such as mail, UPS, FedEx, utilities.

Work Zone Impact Assessment

The work zone impact assessment should discuss of the potential impacts the project will have on public traffic and other projects. The Impact Assessment is qualitative and generally will involve a brief discussion on how the project is expected to impact project users.

Questions that should be part of the assessment of work zone impacts include:

- Closures
 - Does the project include a long-term closure and/or extended weekend closure?
- Detours
 - Can traffic be detoured?
 - Is the local alternate detour route in good condition?
 - Who is responsible to maintenance of detour route?
 - Will the detour route have a detrimental impact on emergency vehicles, school buses, or other sensitive traffic?
 - Are there load limit restrictions on the detour?
 - Are there bridge/culvert height or width restrictions on the detour?
 - Can property owners access their homes with the detour in place?
- Facility Conditions
 - Is the existing shoulder sufficient to support traffic during construction?
 - Is additional width required on culverts or bridges to maintain traffic?
 - Is there a pedestrian/bicycle facility that must be maintained?
 - Would a temporary structure(s) be required?
 - Could maintenance of traffic have an impact on existing or proposed utilities?
 - Does it appear that maintenance of traffic will require additional right-of-way?
- Time Restrictions
 - Can the contractor restrict the roadway during the time periods listed?
 - a.m. peak hours, one direction
 - p.m. peak hours, one direction
 - a.m. peak hours, both directions
 - p.m. peak hours, both directions
 - Overnight
 - Holidays or weekends
 - Special events
- Other Projects in Corridor or Region
 - Are there any projects to be considered along the corridor or in the region?

- Projects in the immediate area that may affect traffic or the contractor's operations?
- Projects on other roads that may affect the use of alternate routes?
- Local property development in immediate area?

Material haul routes

- Have haul routes been identified?
- Has condition of haul routes been photo documented?
- Will traffic control be required on portions of the haul routes?
- Are there size and weight restrictions for vehicles on the identified haul routes?
- Should there be time restriction for haul routes?
- Are there coordination issues to consider with haul routes for other projects?
- Should there be seasonal and/or work hour restrictions?
- Access Issues
 - Are there access issues for this or other projects in the immediate area?
 - Sight distance constraints
 - Legal access constraints
 - Topographic constraints
 - Temporary water crossings
 - Should turning movements be restricted?
 - Full turning movements
 - $\frac{3}{4}$ turning movements
 - Right in, right out
- Are there other maintenance of traffic issues? If so, specify.

Work Zone Impact Management Strategies

This section provides strategies to minimize traffic delays, maintain or improve motorist, cyclist, pedestrian and worker safety, and maintain access for businesses and residents. For the TMP, work zone impact management strategies should be identified for both the mainline and detour routes for the selected construction phasing/staging approach(es).

Work zone strategies are divided into the following subheadings: temporary traffic control (TTC), traffic operations (TO), and public information and outreach (PI&O). Most strategies will be the responsibility of the contractor, but the project manager also may have responsibilities.

The following construction strategies list is intended to be a list of possible strategies/measures that a designer can pick from to provide temporary traffic control. This set of strategies is not meant to be all-inclusive, but offers a large number to consider, as appropriate, in developing TMPs. Where appropriate, traffic control plans should be developed based upon the strategy chosen. All traffic control plans shall conform to the latest edition of the MUTCD.

Descriptions for each of the work zone management strategies and guidance on when and how to apply them are located in Section 4.0 and Appendix B of [Developing and Implementing Transportation Management Plans \(TMPs\) for Work Zones](#).

Temporary Traffic Control

The temporary traffic control section discusses the overall temporary traffic control strategy used for the project, including construction stages and phases. It is not intended to be a traffic control plan (TCP) or a method for handling traffic (MHT). The information found in this section of the TMP should be incorporated into the TCP, as appropriate, by the Traffic Control Supervisor (TCS).

Control Strategies

This category includes various traffic control approaches used to accommodate transportation system users within the work zone or the adjoining corridor in an efficient and safe manner, while providing adequate access to the roadway for the required construction, maintenance, or utility work to be performed.

- **Construction phasing/staging:** Staging typically refers to how the contractor will position the equipment and materials. Phasing refers to the sequencing of the aspects of a project, completing portions of the project one part at a time. The impacts of a work zone on traffic may be minimized by using operationally-sensitive phasing and staging throughout the life of the project.
- **Full roadway closures:** This strategy involves complete closure of the roadway for various time periods to minimize the duration of the project and improve worker safety by reducing traffic conflicts. Full closures may be brief (e.g., intermittent, off-peak), short-term (e.g., night, weekend), or long-term (e.g., continuous for the duration of the project).
- **Lane shifts or closures:** Lane shifts or closures last for varying durations of time. They may be intermittent, off-peak, night, weekend, for a single project phase, or continuous for the duration of the project. This strategy involves multiple approaches including:
 - **Reduced lane widths to maintain number of lanes (constriction):** This involves reducing the width of one or more lanes in order to maintain the existing number of lanes on the facility while permitting work access to part of the facility.
 - **Lane closures to provide worker safety:** This strategy closes one or more existing traffic lanes to accommodate work activities.
 - **Reduced shoulder width to maintain number of lanes:** This involves reducing the width of the inside and/or outside shoulder to maintain the existing number of lanes on the facility while allowing access for the work activities to take place.
 - **Shoulder closures to provide worker safety:** This strategy closes the shoulder for use by the public, making it available to accommodate the work activities.
 - **Lane shift to shoulder/median to maintain number of lanes:** This strategy involves diverting traffic onto the shoulder, or a portion of the shoulder, for use as a traffic lane.
- **One-lane, two-way operation:** One lane, two-way traffic control involves using one lane for both directions of traffic, allowing work activities to occur in the other lane that is now closed.
- **Two-way traffic on one side of divided facility (crossover):** This strategy involves closing one side of a divided facility to permit the work to proceed without traffic interference while both directions of traffic are accommodated on the opposing side of the roadway.
- **Night work:** Work is performed at night (end of evening peak period to beginning or morning peak period) to minimize work zone impacts on traffic and adjacent businesses.
- **Weekend work:** Construction work (all or individual phases) is restricted to weekend periods from the end of the Friday afternoon peak period to the beginning of the Monday morning peak period.
- **Temporary pavement:**

- Work hour restrictions for peak travel: This involves restricting work hours such that work that impacts traffic does not occur during periods of peak travel demand and congestion (e.g., peak hours, holidays, special events).
- Pedestrian/bicycle access improvements: This strategy involves providing alternate facilities for bicyclists and pedestrians (including those with disabilities in accordance with the Americans with Disabilities Act of 1990) in places where the work zone impacts their accessibility.
- Business access improvements: Some projects will have a direct impact on businesses, particularly to accessibility. Accessibility improvements for businesses may include signage or information to direct motorists to the business(es) and/or relocation of access locations.
- Off-site detours/use of alternate routes: This strategy involves re-routing some or all traffic off of the roadway under construction and to other existing roadways.

Traffic Control Devices

The contractor shall employ a certified Traffic Control Supervisor (TCS) to develop a project TCP incorporating the MUTCD standards, guidelines, and other information pertaining to installing, maintaining, and operating traffic control devices on streets and highways. Part 6 of the MUTCD, “Temporary Traffic Control,” addresses safety, mobility, and constructability issues in work zones, and is applicable to all types of roadway work from major construction on high-volume freeways to minor maintenance on residential streets, and everything in-between.

Traffic control devices and other safety devices used for work zones include:

- Temporary signs.
- Variable message signs (VMS).
- Arrow panels.
- Channelizing devices.
- Temporary pavement markings.
- Flaggers and uniformed traffic control officers.

Project Coordination, Contracting, and Innovative Construction Strategies

- Project coordination: Project coordination strategies having the potential to reduce mobility and safety impacts of work zone activities include:
 - Coordination with other projects: This involves coordinating, sequencing, and scheduling projects to minimize motorist delay and impacts to potentially affected businesses and communities.
 - Utilities coordination: This involves coordinating and scheduling utility work both within the impacted work zone area and near the project to minimize potential work disruptions or interruptions due to utility work, and reduce overall construction duration. Coordination can also reduce the recurrence of work zones by doing two jobs together. For example, the installation of a communications conduit (for traffic management, ITS, etc.) along a highway corridor may coincide with a pavement reconstruction project on that highway.
 - Right-of-way coordination: Increased consideration of potential right-of-way needs and issues may help reduce project delays and duration.
 - Coordination with other transportation infrastructure: Coordination with non- highway transportation facilities such as transit junctions, railroad crossings, and intermodal facilities can help minimize traffic disruptions.
- Contracting strategies: These strategies typically involve contractual agreements to reduce the project duration or traffic impacts including:

- Design-build: This strategy involves the use of one contract to design and build the project thus reducing project duration by allowing construction to begin prior to design completion.
- A+B bidding: A+B bidding encourages contractors to minimize construction impacts by reducing construction time. Part A refers to the contractor's bid for the actual items of work, and Part B is the total of the number of days bid to complete the project multiplied by the daily road user cost stipulated in the contract. The combined values of the A and B portions determine the winning bid. The contractor's payment is based on both Part A and the actual number of days used under Part B.
- Incentive/disincentive clauses: This strategy involves the use of incentives and/ or disincentives in the construction contract to minimize construction duration.
- Innovative construction techniques (precast members, rapid cure materials): These strategies involve the use of special materials such as quick curing concrete or precast items (e.g., culverts, bridge deck slabs, and pavement slabs) to minimize the duration of construction or maintenance activities where traffic restrictions need to be minimized (e.g., roadways with high volumes), and when work activities need to be completed during night or weekend periods to allow reopening travel lanes for normal weekday travel.

Traffic Operations

Transportation operations strategies are used to mitigate work zone impacts through the use of improved transportation operations and management of the transportation system. TO strategies typically include demand management, corridor/network management, work zone safety management strategies, and traffic/incident management and enforcement strategies.

Demand Management Strategies

Demand management strategies include a wide range of techniques intended to reduce the volume of traffic traveling through the work zone by such means as diverting travelers to alternate modes, shifting trips to off-peak hours, or shifting vehicles to alternate routes. These strategies include:

- Transit service improvements. Where appropriate, transit service improvements may include the modification of transit schedules and/or routes, increases in frequency, or the establishment of transit service in the corridor.
- Shuttle services. Shuttles and charter buses can reduce traffic volumes through a work zone if a sufficient number of users along the corridor are anticipated to use the service.

Corridor/Network Management Strategies

This category includes strategies to optimize traffic flow through the work zone corridor and adjacent roadways using various traffic operations techniques and technologies, including:

- Signal timing/coordination improvements: This involves retiming traffic signals to increase throughput of the roadway(s), improve traffic flow, and optimize intersection capacity in and around the work zone.
- Temporary traffic signals: The installation of temporary traffic signals can be used to improve traffic flow through and near the work zone. At a corridor or network level, using temporary traffic signals is more effective than stop signs or flaggers for providing mobility through the work zone area. These temporary traffic signals may also be coordinated with existing signals .
- Turn restrictions: This involves restricting turn movements for driveways and/ or intersections to increase roadway capacity, reduce potential congestion and delays, and improve safety. Restrictions may be applied during peak periods or all day.
- Parking restrictions: This strategy involves the elimination of parking in all or part of the work zone and/or alternate routes, or parking restrictions during work hours or peak traffic periods. Parking restrictions can be used to increase capacity by converting the parking lane to an additional travel lane, reduce traffic conflicts, or provide improved access to the work area.
- Truck/heavy vehicle restrictions: This strategy, which imposes restrictions on truck travel through the work zone either during specific periods or at all times, can increase passenger vehicle capacity of the roadway

when a facility normally has a high truck volume. When using this strategy, the requirements of 23 CFR Part 658.11 (d) (1) and (g) must be followed.

- Coordination with adjacent construction site(s): This involves combining or coordinating projects within a specific corridor to minimize the combined impacts on the motoring public and community. Coordination typically involves scheduling projects within a corridor to ensure that adequate capacity remains available to accommodate the anticipated travel demand within the corridor by not implementing work zones on adjacent or parallel highways at the same time. This may entail communicating about the timing of lane closures and occurrence of incidents, and coordinating diversion routes. It may also involve the completion of needed capacity and safety improvements on a highway prior to its use to carry traffic diverted or detoured from another project.

Work Zone Safety Management Strategies

This category includes devices, features, and management procedures used to address traffic safety concerns in work zones. Work zone safety management strategies include:

- Speed limit reduction/variable speed limits: A reduced speed limit may improve traffic safety in a work zone and help protect workers. Speed limit reductions may be implemented through an entire work zone, or only in active work areas or adjacent to workers. Reduced speed limits may also be appropriate on detours where traffic volumes and conflicts are increased.
- Temporary traffic signals: This involves the installation of temporary traffic signals to address safety concerns. In some work zones, temporary traffic signals can be used in place of traffic control officers or flaggers, which can increase safety by removing these personnel from the roadway.
- Temporary traffic barrier: Temporary traffic barriers provide positive physical separation between travel lanes and the adjacent work space, or between opposing travel lanes. Screens may be mounted on the top of temporary traffic barriers to discourage gawking and reduce headlight glare.
- Movable traffic barrier systems: This system consists of a mechanical transfer machine, which quickly shifts temporary barrier laterally up to the full width of a travel lane while both the transfer operation and traffic in the work zone are protected. This system permits the rapid and safe reconfiguration of the traffic barrier system, allowing daily opening and closing of lanes for reversible lane operations and to provide additional space for the contractor to work during off-peak conditions.
- Crash-cushions: Also known as an impact attenuator, a crash cushion is a fixed or mobile barrier used to protect a temporary hazard or prevent vehicle intrusion into the workspace or other hazardous area. It works by gradually decelerating the vehicle to a stop or by redirecting the vehicle away from the hazard.
- Temporary rumble strips: Rumble strips are grooves or raised strips placed across or adjacent to a travel lane to alert motorists to a change in roadway conditions, or that they have strayed out of the travel lane.
- Intrusion alarms: This strategy involves the use of various types of sensors to detect vehicles that stray out of the travel lane approaching or adjacent to the workspace and into the work area. When an intrusion is detected, a loud siren and/or flashing lights provide a warning to workers.
- Warning lights: Various types of warning lights, as described in the MUTCD, are available to alert drivers and pedestrians and draw attention to critical signs, channelizing devices, and other work zone features.
- TMP monitor/inspection team: This strategy involves the establishment of a team (or person) to monitor and inspect implementation and monitoring of the work zone transportation management strategies.

Traffic/Incident Management and Enforcement Strategies

This category includes various strategies to manage work zone traffic operations. Work zone traffic management strategies involve monitoring traffic conditions and making adjustments to traffic operations based on changing conditions. Some of those changing conditions involve traffic incidents, so this category also looks at management strategies that have specific applicability to traffic incidents. Strategies in this area include:

- Mile-post markers: Mile-post markers consist of a sign located in the median or shoulder, which lists location information (direction, route, mile, and tenths of a mile). Some areas may refer to these as location reference markers, since they can be used to mark direction; route, bridge or overpass names; intersection names; etc. in addition to mileage information.
- Local detour routes: Advance identification and approval/authorization of local detour routes is an especially useful strategy to address major traffic delays and incidents, particularly for high volume and incident prone work zones.
- Incident/emergency management coordination: This strategy provides a designated individual with overall responsibility for incident and emergency management on a project. Responsibilities may include developing incident and/or emergency response plans, overseeing implementation and monitoring of the work zone management strategies, and overall management of incidents or emergencies.
- Incident/emergency response plan: This involves the development of a plan with information needed to respond to an incident. This information typically includes roles and responsibilities, response agencies, processes/procedures, actions to take for various incident types and levels, contact information, alternate routes, personnel and equipment information, staging area locations, and other information as appropriate to the individual project.
- Dedicated (paid) police enforcement: This strategy provides police patrols in the work zone under a contractual arrangement with the agency or contractor.
- Cooperative police enforcement: Cooperative enforcement is similar to dedicated enforcement, except it is implemented through a cooperative agreement between the police and agency.
- Automated enforcement: Automated enforcement involves the use of various technologies such as radar, cameras, video, and sensors to detect and record vehicle speed or traffic signal violations. When a vehicle speed exceeds a specified threshold or a red signal violation occurs, the vehicle's license plate and/or driver are photographed. The citation with the photo(s) is then mailed to the registered owner of the vehicle.
- Increased penalties for work zone violations: This strategy involves the imposition of increased penalties for speeding or other violations in work zones. Such penalties include increased fines, increased points, license suspension, and even mandatory prison terms for serious violations.
- Emergency pull-offs.

Public Information and Outreach

The public information and outreach section discusses the public awareness and motorist information strategies utilized for the project. The information program informs the public of the overall purpose of the project so as to generate and maintain public support. The program also encourages changes in driver, cyclist and pedestrian behavior during the project to help minimize congestion by recommending alternate routes during construction.

The public information campaign may need to start prior to project construction. The purpose of this approach is to make the public aware of the project and potential impacts prior to construction, and to inform the public about the construction status and the available TMP program elements such as alternative travel routes, additional shuttle service, or improved transit services.

These strategies include both public awareness strategies and motorist information strategies.

Public Awareness Strategies

Public awareness strategies include various methods to educate and reach out to the public, businesses, and the community concerning the road project and work zone:

- Brochures and mailers: Brochures and mailers are printed material containing project-related information such as advanced notice of the project's start date, schedules, pictures/graphics of the project, a description of the need for the project, alternative routes, etc. These may be passed out to motorists at key locations (e.g., large employers in the project area, rest stops, travel information centers), via automobile associations, or mailed to affected businesses or communities.

- Press releases/media alerts: This strategy provides project-related information to the news media, affected businesses, and other affected or interested parties using print and/or electronic media.
- Paid advertisements: Paid announcements of an upcoming major project may use newspaper, radio, and television ads, as well as billboards. Paid advertisements can also be used for progress updates or to provide information regarding major changes to the work zone configuration and management approach.
- Public information center: This is a facility typically located on or near the project site that contains such materials as scale model displays, maps, brochures, videos, etc. describing the project, its potential impacts, and available alternatives to minimize the impacts.
- Telephone hotline: This traveler information system provides traffic or travel information for the work zone using a toll-free telephone number. It can include prerecorded messages and/or real-time interactive request and response information.
- Planned lane closure web site: This strategy is typically not for one specific project, but is usually implemented for an entire State, district, or geographic region. The web page summarizes planned lane closures for public information, listing the routes involved as well as the closure start and end dates, both in text and graphical form.
- Project web site: This traveler information system provides traffic or travel information for the work zone via the web/Internet. It can include both long term static information and/or real-time interactive information.
- Coordination with schools/businesses/emergency services: This strategy involves coordinating with various community and business media groups that are likely to be impacted by the work zone, or that can disseminate needed information. Examples of these groups include schools and school districts, local major employers/businesses, and local emergency services (fire, police, and ambulance). Various mechanisms such as fax, e-mail, phone message, mailings, etc. can be established to communicate project-related information including start dates, project schedules, significant traffic pattern changes, and traffic crashes and incidents within the work zone.
- Visual information (videos, slides, presentations) for meetings or for web- based dissemination. This involves the use of videos, slides, and presentations to supplement public meetings, public information center displays, or press releases.

Motorist Information Strategies

These strategies provide current and/or real-time information to road users regarding the project work zone. Motorist information strategies include:

- Variable message signs (VMS). These are fixed or portable message boards placed along roadways to notify road users of lane and road closures, work activities, incidents, potential work zone hazards, queues and slowed or stopped traffic ahead, and travel time or delay information, as well as alternate routes in or around the work zone. VMS can be placed at key locations before potential diversion points to give motorists an opportunity to divert to an alternate route or take other appropriate measures based on the information provided. As an enforcement tool, these signs can be used to inform drivers of speed limit reductions and enforcement activities in a work zone.
- Temporary motorist information signs: Temporary conventional signs mounted in the ground, overhead, or on vehicles to provide traveler information to guide motorists through the work zone and warn of potential hazards.
- Dynamic speed message sign: This portable system can be mounted as a fixed sign or located on a portable trailer. Radar measures the speed of approaching vehicles, which is displayed on the sign along with or near the work zone speed limit. The objective of this system is to enhance safety by reducing speeding and speed variations.
- Highway information network (web-based): A highway information network is a web site where multiple stakeholder groups can place information related to the roadway. The web site is shared among the various

stakeholder groups, each with their own data storage areas (including control of functionality, security, data quality, etc.).

- Traveler information systems (wireless, handhelds): This strategy provides motorists with work zone-related information, static (e.g., project dates) and/or real time (e.g., potential delays), using such technology as cell phones, pagers, in-vehicle systems, and e-mail notifications.
- Project information hotline.
- Email alerts.

TMP Monitoring

The TMP Monitoring section outlines the requirements for monitoring the work zone and the TMP. It includes who is responsible for monitoring tasks

Monitoring the performance of the work zone and of the TMP during construction is important to see if the predicted impacts closely resemble the actual conditions in the field and if the strategies in the TMP are effectively managing the impacts. Monitoring Plans should be a component of the TMP for all significant projects.

The project management staff, in conjunction with the traffic control plan (TCP) designer, should monitor the work zone and TMP performance and, if necessary, make changes to the TMP. Any changes to the work zone or TMP should be consistent with the decisions made in the original TMP and involve the TCP Designer, and should be documented in the TMP.

Monitoring should consider both the performance of individual TMP strategies and overall performance of the work zone and work zone impact area during construction. Monitoring for oversight includes:

- Determining and documenting how strategies are being implemented and verifying that specified TMP elements are happening on schedule and in the manner planned.
- Identification of TMP performance monitoring processes and ensuring that monitoring is carried out.
- Verification of work zone setup (via MHTs and Daily TCS Diaries)
- Assuring that Changeable Message Signs, Highway Advisory Radio and other media tools provide accurate and timely information to motorists, bicyclists and pedestrians regarding lane closure times and other project information.
- Identifying approaches for performance of corrective actions when TMP strategies are not carried out or performance measures are not met.
- Project contract documents should specify the contractor TMP implementation responsibilities and compliance documenting should be in the project files

TMP Performance Measures of Effectiveness

- Mobility
 - Throughput volumes
 - Delay and travel time reliability
 - Queues
- Safety
 - Crashes
 - Worker Accidents
 - Speed reduction compliance
 - Surrogate Vehicle Safety Models

- Customer Satisfaction
 - Work zone quality perceptions
 - Travel conditions ratings through the work zone
 - Complaint frequency
- Agency and Contractor Productivity and Efficiency
 - Percent of Allowable Days worked
 - Lane closure hours occurring outside of allowed work windows
 - Measurements of work completed
 - Average hours of work activities that adversely affect mobility or safety

Special Considerations

Any special considerations related to the TMP should be identified under this component. This may reiterate special provisions, highlight considerations that may need to be included in contracting documents, identify work zone management strategies that require implementation prior to construction (public information meetings, brochures, web sites, rideshare programs, coordination with local agencies for detour routes, etc.), and so forth.

Attachments

Appendices may be included in the TMP to include information that may be relevant or of interest to the TMP implementer or TMP manager, including maps of the project site, traffic plans and detour routes.

Appendix

Possible TMP or Building Permit Conditions

- Contractor shall submit a traffic control plan (TCP) that prescribes the necessary traffic control measures for the work to be performed for approval prior to the commencement of work activities.
- Applicant shall identify a point of contact that shall be available while the project maintains a presence in the right of way with the authority to correct any traffic control deficiencies.
- Contractor shall designate a person assigned to the project who will have the primary responsibility, with sufficient authority, for implementing the TMP.
- Applicant shall designate a person assigned to the project that will have the primary responsibility, with sufficient authority, for implementing the TCP and other safety and mobility aspects of the work.
- Applicant and contractor shall ensure that person(s) assigned to the TMP and TCP work activity are trained in traffic control to a level commensurate with their responsibilities.
- Contractor shall maintain a copy of the TMP and TCP at the work site.
- Applicant shall implement and monitor the work zone to ensure compliance with TMP and TCP.
- Applicant shall recommend traffic control improvements to the Community Planning and Permitting Department to address field conditions pertaining to traffic flow, visibility, and worker/motorist/pedestrian safety.



Community Planning & Permitting

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MEMO TO: Summer Frederick, AICP, Planning Division Manager
FROM: Molly Marcucilli
DATE: November 12, 2020
RE: Docket SI-20-0003

Dear Summer,

On November 5, 2020, Boulder County Community Planning and Permitting staff presented the development proposal, SI-20-0003: Gross Dam Expansion, to the Historic Preservation Advisory Board (HPAB). Staff requested that HPAB provide comments on the proposal as it relates to impacts on cultural and historic resources. The following comments reflect the conditions of approval requested by HPAB during this meeting:

1. The applicant shall provide County staff with a copy of all documentation included in the signed Programmatic Agreement including the HAER documentation and the HPMP.
2. The applicant installs interpretational signage related to the history of the dam and flume for public education.
 - a. All plans, which shall include signage location and content, for interpretational signage shall be reviewed and approved by HPAB or Community Planning & Permitting staff before installation.
3. A monitor shall be on site during construction to ensure additional historic/cultural resources are documented before being damaged or lost from construction activity.

HPAB also requested additional information on the following:

- Existing conditions and other applicable information on other historic/cultural resources in the project area that were identified in the Cultural Survey that are either not going to be impacted or would be lightly impacted to ensure HPAB can adequately comment on them if they are found to be disturbed by the project in the future.

Please reach out if you have any questions related to these comments.

Best,

Molly Marcucilli
Planner I



Community Planning & Permitting

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TO: Summer Frederick, CP&P Development Review
FROM: Hannah Hippely, CP&P Long Range Planning
RE: SI-20-0003, Gross Reservoir & Dam Expansion project at 3817 Gross Dam Road, at parcel 157928000006.
DATE: November 13, 2020

Denver Water's Gross Reservoir Expansion Project application (the application) dated 9/21/20 is a 370 page document which then includes multiple exhibit documents which must be referenced to obtain pieces of information not included in the application. These exhibit documents are each 100s of pages and present different information than is presented in the application. The application should provide complete summary information of the detailed reports provided as exhibits. The application should be amended to provide all relevant information in a complete and consistent manner so that it may be understood when reviewed by agencies, the public, and decisions makers.

Denver Water's need for the project is discussed in an 18 year old Integrated Water Resource Plan (2002) referred to as Exhibit 2 and to an extant on page 5 and 6 of the application. In the 2002 plan the Gross Dam and Reservoir Expansion would help address drought concerns at the Moffatt Treatment Plant (MTP) as the plan states "the problem is not lack of overall water supply...but unequal distribution of the available water. That is, Denver Water currently has adequate water supply in its supply systems but not enough water is available for treatment at the Moffat plant". (Figure 7-1 of Exhibit 2 is referenced to show the North and South System however in Exhibit 2 there isn't a Figure 7-1 as the figures are titled using roman numerals.) The Moffatt Treatment Plan is being replaced by a new plant at Ralston Reservoir so the conclusions of the 2002 IWRP which are based on the problems with the MTP are hard to understand given the changes in the Denver Water system. The plan includes adding new water to the system and supporting hydroelectric power development at Gross Dam as benefits. It isn't clear if this document is relevant at this point as the application mentions on page 5 only the need to add storage and supply to the system in addition to adding storage to the north portion of Denver Water's system to balance the system. It isn't clear how the hydroelectric portion of the project has factored into Denver Water's consideration or development of the Gross Dam project. Is hydroelectric generation a primary purpose of this project? An updated IWRP would also be useful in understanding Denver Water's current situation as the 2002 plan includes and discussion on conservation and projects that were proposed to be completed by now and to understand if the shortfall described were reduced through the implementation of the Plan's near term "the period up to the year 2030" strategies. The Moffatt System is shown on the Integrated Water Resource Plan (IWRP) table of Long-Term Supply options Table which includes "West Slope Storage; East Slope Storage; Conjunctive Use" as opportunities, is this the portion of the 2002 plan being implemented by the project or is additional expansion of Gross Dam anticipated?

On page 1-16 of the EIS Figure 1-5 shows the 34,000 AF deficit anticipated by the Denver Water in 2032. While conservation measures are anticipated to address 16,000 AF of this deficit a Gross Reservoir expansion of 72,000 AF is to address the remaining 18,000 AF 2032 shortfall. Why is a storage amount four times the identified 18,000 AF shortfall that is

needed being proposed? Has there been climate change impact analysis which factored into Denver water's needs assessment and the impact analysis of this project? Is the proposed Gross Reservoir expansion anticipated to also play a role in resolving Denver Water's year 2050 89,700 AF shortfall? If not has Denver Water begun planning to address this longer term shortfall?

Neither the EIS or the 2002 IWRP reflect the new Northwater Treatment Plant next to Ralston Reservoir, the system analysis is out of date. Additionally, much of the analysis and rationale for the project is based on a system analysis where lack of available water at the Moffatt Treatment Plant is the critical flaw being resolved by this project. Updated materials reflecting a more accurate picture of the Denver Water system should be provided.

The 2002 IWRP on page 66 notes (as options to solve the water availability problem at the MTP) "other potential solutions – enlarging Gross Reservoir; building a new off-channel reservoir; or recycling water for drinking purposes- would have the additional benefit of adding new water to Denver Water's system to help meet future demand". Though the construction of an off-channel reservoir and water recycling projects were identified as options in 2002 they are not included in the alternatives analysis presented in the Environmental Impact Statement. No alternatives analysis was presented in the application. The EIS includes Chapter 2 Proposed Action and Alternatives in which several variations of a Gross Reservoir expansion are discussed. No alternatives to an expansion of Gross Reservoir were considered: why wasn't the construction of an off-channel reservoir(s) examined as suggested in 2002? A new Leyden Gulch Reservoir is considered but no discussion of expanding Ralston Reservoir is mentioned. It is understandable that Denver Water does not see a no action alternative as acceptable but, it isn't clear that any options other than expanding Gross Reservoir have been explored. The alternatives analysis provided in the EIS is unacceptable for the purposes of this 1041 application.

In Colorado's Water Plan former Governor Hickenlooper is quoted as saying that "every conversation about water should start with conservation" but conservation efforts are not discussed in any depth in the application, rationalization for the project, and no commitment to conservation projects or programs is made. According to the application "the system capacity of Denver Water's collection system ... identified a 34,000 acre-feet per year (AF/yr) deficit in Denver Water's supply compared to projected demand. This shortfall would be met by 16,000 AF/yr of additional conservation and the 18,000 AF/yr Project (72,000 acre-foot [AF] expansion of Gross Reservoir). Denver Water has committed to implement the programs necessary to realize 16,000 AF/yr of conservation savings by 2030. None of the materials provided in the application indicate what these programs are or will be and it isn't clear if these programs could do more to reduce the shortfall and thus reduce the need for new water supplies. How was the conservation portion of the shortfall determined? Of particular concern is that conservation efforts discussed in Section V of the 2002 Integrated Water Resource Plan report no new conservation measures implemented after 1998. A 2001 study cited in the IWRP indicated that achieving the goal 29,000 acre foot annual savings by 2050 was not possible given current conservation measures. Following the 2001 study Denver Water staff analyzed additional potential conservation measures but made no commitments to additional conservation efforts. Additionally, the EIS states on page 1-23 "there is no compelling analyses or basis to be confident that these savings will occur." What are the additional conservation methods to be implemented? Since growth in Denver Water service area is a driver of water demand how

have water saving actions been incorporated into land use planning within the service area? Water conservation is an aspect the use and development of the water resource in a sustainable manner, sustainability is a cross-cutting theme of the Comprehensive Plan but also a specific goal. How has Denver Water implemented sustainability efforts within their service area and as part of the proposed project?

The Additional Countywide Policies portion of the Comprehensive Plan was approved by Planning Commission in 1983. CW 1.04 and CW 1.09 speak to the desirability of reviewing expansions of water systems and assessing the environmental impacts of land use proposals. These long standing policies remain relevant today as the 1041 process and its environmental impact assessment and alternatives analysis implement these policies. Without a thorough application and critical review of such proposals these Comprehensive Plan policies are disregarded as is the guiding principal which directs the County to pursue “goals and policies that achieve significant reductions in our environmental footprint”.

The Environmental Resources Element of the Boulder County Comprehensive Plan (BCCP) identifies a number of resources in the project area including: Winiger Ridge Environmental Conservation Area (ECA), Overland Habitat Connector which links the Winiger Ridge ECA to the Hawking Gulch/Walker Ranch/Upper Eldorado Canyon ECA to the east, an Elk Migration Corridor, Riparian Areas and Wetlands along the creeks flowing into the reservoir, Winiger Gulch a High Biodiversity Significance Area to the southwest of and adjacent to the reservoir, and Winiger Ridge Natural Landmark. These areas are all anticipated to be impacted by the project contrary to the various policies in the element which seek to protect and preserve them. Additionally, the first goal found in the sustainability element directs the County to promote outcomes consistent with the principals of sustainability focusing on the protection of resources.

The transportation impacts of this project are anticipated to be significant and enduring for years. These impacts are not only traffic related but also result in the emissions of climate impacting greenhouse gasses and impacting local air quality. The Comprehensive Plan Goal 4 of the Sustainability Element directs the County to reduce such emissions. Transportation Element policies direct the County to Design Complete Corridors (TR1.02), Prioritize Travel Corridors (TR 3.01), Enhance the Bicycle and Pedestrian Network (TR 1.03), Encourage Alternative Transportation (TR2.02), Reduce Single-Occupant-Vehicle Travel (TR 4.01), Minimize reliance on Fossil Fuels (Goal 5), and Promote Public Safety (TR 6.04). Coal Creek Canyon (HWY 72) is a narrow winding corridor that provides one of only a few access points into the region along and beyond the corridor. The anticipated traffic impacts along this corridor conflict with these stated goals and policies. What is Denver Water doing to address the sustainability and traffic impact concerns related to transportation impacts?

The project entails a six year long project (operating 24 hours per day at times) to increase the height of the existing dam by 131 feet and thus increasing the reservoir storage capacity inundating additional areas to add 124 feet in elevation to the current water surface elevation achieving 72,000 (77,000 is also stated in the application) acre feet of additional water storage. The project includes an on site quarry and concrete plant and area road improvements. Traffic to the site includes supply trucks, tree hauling, construction equipment and workforce commuting. It is clear that the proposed project will have permanent substantial impacts within Boulder County and significant additional impacts during the six year construction phase.

As proposed Boulder County bears a significant burden to meet the needs of Denver Water yet the application fails to describe any actions by Denver Water which attempt to relieve this burden and locate the impacts of the water utility needs within the Denver Water service area and require those benefitting from the service to minimize demand through deep and meaningful conservation and land use planning programs. Given the lack of information and the concerns identified it is difficult to find the application on compliance with Comprehensive or the Land Use Code.

This concludes the Department of Community Planning & Permitting comments at this time. We look forward to continuing to provide feedback and input throughout this process.



COLORADO

Parks and Wildlife

Department of Natural Resources

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November 12, 2020

Summer Frederick
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RE: 1041 permit application for the Gross Reservoir Expansion Project

Dear Ms. Frederick,

Thank you for the opportunity to comment on the Gross Reservoir Expansion Project 1041 permit application. CPW's statutory mission is to perpetuate the wildlife resources of the state, to provide a quality state parks system, and to provide enjoyable and sustainable outdoor recreation opportunities that educate and inspire current and future generations to serve as active stewards of Colorado's natural resources. This mission is implemented through our 2015 Strategic Plan and the goals it embraces, which are designed to make CPW a national leader in wildlife management, conservation, and sustainable outdoor recreation for current and future generations.

CPW'S role in participating in the analysis of the Gross Reservoir Expansion Project (aka Moffat Firing Project) has been to protect the interests of Colorado's fish and wildlife resources. We have fulfilled this role by participating as a cooperating agency and by requiring that the project proponent, the City and County of Denver, acting by and through its Board of Water Commissioners (Denver Water), commit to mitigation and enhancement measures required under Colorado law (Section 37-60-122.2, C.R.S.). In accordance with this law, a Fish and Wildlife Mitigation Plan (FWMP) and a Fish and Wildlife Enhancement Plan (FWEP) were developed by Denver water and subsequently recommended by the Colorado Parks and Wildlife Commission and the Colorado Water Conservation Board as the state position on the mitigation of fish and wildlife resources for the Moffat Firing Project; this position was communicated by Governor Hickenlooper to the U.S. Army Corps of Engineers on October 11, 2011. Significant portions of the FWMP were included as a condition of the U.S. Army Corps of Engineer's Record of Decision for the project. Furthermore, Colorado Parks and Wildlife entered into a Memorandum of Understanding with Denver Water on March 24, 2014 to memorialize the commitments and understandings of the FWEP. The FWMP and FWEP continue to reflect CPW's position on fish and wildlife mitigation and enhancement for this project.



Thank you again for the opportunity to comment on this project. If you have any questions please do not hesitate to contact District Wildlife Manager Sam Peterson at 970-776-6939 or samuel.peterson@state.co.us.

Sincerely,

A handwritten signature in black ink, appearing to read "Jason Duetsch", written over a horizontal line.

Jason Duetsch
Area Wildlife Manager

Cc. M. Leslie, K. Cannon, L. Martin, K. Armstrong, J. Spohn, B. Swigle, S. Schaller, B. Kraft, J. Ewert

Moffat Collection System Project Fish and Wildlife Mitigation Plan

Prepared for:
The Colorado Wildlife Commission
In accordance with CRS 37-60-122.2

Prepared by:
Denver Water

June 9, 2011

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Water Collection System

EXECUTIVE SUMMARY

The City and County of Denver, acting by and through its Board of Water Commissioners (Denver Water) is proposing to construct the Moffat Collection System Project (Moffat Project), a project designed to provide 18,000 acre-feet (AF) per year of new water supply to Denver Water's customers. Denver Water proposes to enlarge its existing 42,000-AF Gross Reservoir, which is located in Boulder County, Colorado approximately 35 miles northwest of Denver and 6 miles southwest of the city of Boulder. The purpose of this Fish and Wildlife Mitigation Plan (FWMP) for the Moffat Project is to comply with the requirements of Colorado state law (CRS 37-60-122.2), as implemented by the procedural rules for the Colorado Wildlife Commission.

The Moffat Project must comply with the National Environmental Policy Act (NEPA) by preparing an Environmental Impact Statement (EIS) and the Clean Water Act by applying for a Section 404 Permit from the U.S. Army Corps of Engineers (Corps). Denver Water will also apply to the Federal Energy Regulatory Commission (FERC) to amend its hydropower license for the Gross Reservoir hydroelectric facility.

Denver Water is committed to comply with all mitigation measures in the FWMP, the Corps' Record of Decision and Section 404 Permit, and the FERC license.

Denver Water is also submitting a separate *Fish and Wildlife Enhancement Plan (Enhancement Plan)* in cooperation with the Municipal Subdistrict of the Northern Colorado Water Conservancy District (Subdistrict), proposing to enhance fish and wildlife resources over and above current conditions in the Colorado River below the Windy Gap diversion.

Since the Subdistrict is seeking approval through the state and federal regulatory processes for the WGFP concurrent with Denver Water's Moffat Project, both Denver Water and the Subdistrict have agreed to cooperate in a process of simultaneous development of mitigation and enhancement plans pursuant to CRS 37-60-122.2.

In addition to the required mitigation measures in the FWMP and voluntary enhancements in the *Enhancement Plan*, Denver Water and Grand County have reached a proposed agreement to provide environmental enhancements to benefit the aquatic environment in the Fraser, Williams Fork and Upper Colorado rivers, including participation in the cooperative effort called Learning by Doing (LBD).

Denver Water will mitigate for environmental impacts of the Moffat Project through the measures identified in this FWMP. Additionally, Denver Water is proposing to improve the aquatic and riparian habitat of the Colorado River in Grand County with measures identified in the separate *Enhancement Plan* and the LBD Cooperative Effort. The FWMP, *Enhancement Plan*, and LBD Cooperative Effort are conditioned upon Denver Water improving the reliability of the Moffat Collection System water supplies through successful permitting of the Moffat Project. The LBD Cooperative Effort is only being offered to enhance existing conditions in Grand County and is not intended to reduce the amount of mitigation the U.S. Army Corps of Engineers (Corps) will require to mitigate the identified impacts of the Moffat Project.

1.0 INTRODUCTION

1.1 Project Overview

The City and County of Denver, acting by and through its Board of Water Commissioners (Denver Water) is proposing to construct the Moffat Collection System Project (Moffat Project), a water supply project designed to provide 18,000 acre-feet (AF) per year of new water supply to Denver Water's customers. Denver Water proposes to enlarge its existing 42,000-AF Gross Reservoir, which is located in Boulder County, Colorado approximately 35 miles northwest of Denver and 6 miles southwest of the city of Boulder. Using existing infrastructure, water from the Fraser River, Williams Fork River, and South Boulder Creek would be diverted and delivered to Gross Reservoir during average-to-wet years via the Moffat Tunnel and South Boulder Creek. In order to provide 18,000 AF of new water supply, Gross Dam would be raised 125 feet to provide an additional 72,000 AF of storage capacity. The surface area of the reservoir would increase by 400 acres from 418 to 818 acres. Existing facilities, including the South Boulder Diversion Canal and Conduits 16 and 22, would be used to deliver water from the enlarged Gross Reservoir to the Moffat Water Treatment Plant and raw water customers.

In 2003, Denver Water notified the Corps of their intent to apply for a permit, pursuant to Section 404 of the Clean Water Act (Section 404 Permit), to place fill in jurisdictional waters of the U.S., including wetlands for a water supply project. The Corps determined that an Environmental Impact Statement (EIS) was needed to evaluate the direct and indirect effects of a range of reasonable alternatives. The Corps published their Draft EIS on the Moffat Project in October 2009.

The Draft EIS identified potential environmental impacts of the Moffat Project, including impacts to fish and wildlife resources. Pursuant to CRS 37-60-122.2(1), Denver Water prepared this Fish and Wildlife Mitigation Plan (FWMP) in consultation with the Colorado Division of Wildlife (CDOW) to mitigate fish and wildlife impacts from the Moffat Project identified in the Corps' Draft EIS. If, upon release of the Final EIS for the Moffat Project, impacts to fish and wildlife resources are identified that were not described in the Draft EIS, Denver Water will propose additional mitigation, if needed, for these new impacts. The additional mitigation will be developed in cooperation with the CDOW prior to submittal to the Corp for its consideration as a Section 404 permit condition for the Moffat Project. Denver Water will also reserve funds as an "insurance policy" to mitigate any new Moffat Project impacts to fish and wildlife resources identified in the Final EIS and required by the Corps.

In addition, to address existing stream conditions, Denver Water is submitting to the Colorado Wildlife Commission, pursuant to regulations implementing CRS 37-60-122.2(2), a proposal for enhancing fish and wildlife resources over and above the levels existing without the Moffat Project. Denver Water is also providing a copy of the proposed LBD Cooperative Effort agreement as an information piece for the Wildlife Commission. For an understanding of the environmental enhancements Denver Water is proposing, refer to the document titled, "*Moffat Collection System Project Fish and*

Wildlife Enhancement Plan” (*Enhancement Plan*), which includes a copy of the proposed LBD Cooperative Effort agreement. The *Enhancement Plan* is being submitted concurrently with the FWMP.

1.2 Regulatory Process

The Moffat Project is subject to numerous permits and approvals that require mitigation to offset environmental effects attributable to the proposed Gross Reservoir enlargement. Some of the key regulatory review processes evaluating fish and wildlife resources include the following:

NEPA/ Section 404: The Corps is the lead federal agency preparing the EIS in accordance with the National Environmental Policy Act (NEPA) and the Corps’ regulations for implementing NEPA (33 CFR 325, Appendix B). The U.S. Environmental Protection Agency (USEPA) and Federal Energy Regulatory Commission (FERC) are cooperating agencies, and Grand County is a consulting agency, in the EIS process. The Corps issued the Draft EIS in October 2009 for an extended agency and public comment period of 138 days. The Corps is currently in the process of responding to comments received. The Final EIS and Record of Decision are anticipated to be released by the Corps near the end of 2011. If the Corps issues a Section 404 permit, it will contain special conditions and mitigation measures to offset environmental effects resulting from unavoidable impacts to aquatic resources as well as special conditions to satisfy public interests.

FERC Hydropower License Amendment: Because Gross Reservoir is a FERC-licensed hydroelectric facility, Denver Water will apply to FERC to amend its hydropower license for Gross Reservoir. A Draft FERC Hydropower License Amendment Application was submitted by Denver Water to stakeholders and FERC in October 2009 for public comment. A final amendment application will be submitted to FERC following the Corps’ release of the Final EIS. In the amended license, FERC may impose license conditions for environmental protection within the Gross Reservoir project area. In addition, license conditions may be imposed by the U.S. Forest Service (USFS) for the protection of USFS lands under Section 4e of the Federal Power Act. The following is a list of license conditions (by associated license article number) that Denver Water currently complies with under its existing FERC license:

- 401: Erosion Control
- 402: Dissolved Oxygen (DO) and Water Temperature Monitoring of South Boulder Creek below Hydroelectric Facility
- 403/404: Ramping Rate Compliance
- 405: Rehabilitation and Restoration Plan (USFS Condition 104)
- 406: Weed Management Plan (USFS Conditions 107 and 108)
- 407: Forest Management Plan
- 410: Plan to Protect Rare and Sensitive Species in the Project Boundary
- 411: Participation in the Recovery Implementation Program for Endangered Fish Species in the Upper Colorado River Basin

- 412/413: Participation in the Platte River Endangered Species Recovery Implementation Program
- 414: Visual Resource Protection Plan (USFS Condition 105)
- 415: Archaeological or Historic Sites
- 416/417: Recreation Management Plan (USFS Condition 106)
- 110: Channel Instability and Bank Erosion (USFS Condition 110)

Denver Water will prepare specifications for drainage, erosion control, revegetation, etc. as part of the dam construction plan approval with FERC.

USFWS Section 7 Consultation: The Corps initiated consultation with the U.S. Fish and Wildlife Service (USFWS) under Section 7(a) of the Endangered Species Act regarding effects of the Moffat Project on federally listed species and/or designated critical habitat. The USFWS issued a Biological Opinion on July 31, 2009 and determined that proposed depletions to the Colorado River and Platte River would be covered under Denver Water's existing Recovery Agreement on the Colorado River and continued participation in the South Platte Water-Related Activities Program, Inc. (SPWRAP), respectively. In 2010, based on a review of the Draft EIS, the USFWS recommended that the Corps reinstate Section 7 consultation for the Moffat Project and amend the Biological Assessment to address the greenback lineage populations of cutthroat trout within the Project Area.

State FWMP: CRS 37-60-122.2 requires CDOW and Colorado Water Conservation Board (CWCB) review and input on mitigation for fish and wildlife impacts resulting from a federally approved water project. The rules at Section 1604B. instruct the Wildlife Commission to ensure that "the mitigation plan is economically reasonable and reflects a balance between protecting the fish and wildlife resources and the need to develop the state's water resources." Although the procedures for CRS 37-60-122.2 do not require public review and input, Denver Water and CDOW have been involved in extensive efforts to allow for public participation. To date, the Wildlife Commission has provided the following public meetings to solicit input on the potential impacts and mitigation for the Moffat Project:

- Wildlife Commission Workshop, December 9, 2010, Colorado Springs – CDOW presented the potential fish and wildlife impacts of the Moffat Project
- Wildlife Commission Public Meetings ("1313" Meetings), January 18, 2011 in Granby and January 20, 2011 in Boulder – Wildlife Commissioners solicited public comment on the potential fish and wildlife impacts of the Moffat Project
- Public Comment Period on Draft Enhancement and Mitigation Plans, Feb. 10-24, 2011 – CDOW invited public review and comment on the February 9th draft plans. The input was considered by CDOW, Denver Water and the Subdistrict in preparing the April 7th plans.
- Wildlife Commission Meeting, March 10, 2011 – Members of the public provided comments on the February 9th draft plans and review process.
- Wildlife Commission Meeting, May 6, 2011 – Members of the public provided comments on the April 7th plans submitted to the Wildlife Commission.

The FWMP will be reviewed by the Wildlife Commission to ensure that the state's fish and wildlife resources affected by the proposed water project are reasonably protected.

State Fish and Wildlife Enhancement Plan: CRS 37-60-122.2(2) makes a specific distinction between mitigation of impacts caused by the proposed project, and enhancing fish and wildlife resources over and above current conditions. This distinction is further defined in the Procedural Rules for the Wildlife Commission (Chapter 16), and clarified in a memorandum dated December 9, 2010 to the Director of the CDOW and the Wildlife Commission from the First Assistant Attorney General, Natural Resources and Environment Section. Accordingly, this FWMP includes mitigation measures to address the impacts that have been identified in the NEPA process for the proposed project. Denver Water has also prepared a separate *Enhancement Plan*, in accordance with CRS 37-60-122.2(2) to address issues raised by CDOW and other stakeholders regarding the current condition of the aquatic environment in the Colorado River, which includes proposed enhancement measures to enhance fish and wildlife resources over and above levels existing without the Moffat Project.

The Wildlife Commission has provided the following public meetings to solicit input on enhancement suggestions:

- Stakeholder Workshops, January 24-25, 2011, Winter Park – CDOW solicited input on options for fixing the upper Colorado River between Windy Gap and the Kemp-Breeze State Wildlife Area to ensure a functioning river that supports fish and wildlife resources given anticipated future flows.
- Public Comment Period on Draft Enhancement and Mitigation Plans, Feb. 10-24, 2011 – CDOW invited public review and comment on the draft plans. The input was reviewed by CDOW, Denver Water and the Subdistrict while preparing the April 7th plans.
- Wildlife Commission Meeting, March 10, 2011 – Members of the public provided comments on the February 9th draft plans and review process.
- Wildlife Commission Meeting, May 6, 2011 – Members of the public provided comments on the April 7th plans submitted to the Wildlife Commission on April 7, 2011.

1.3 Fish and Wildlife Mitigation Plan Stakeholders

Even before the public participation coordinated by the CDOW, Denver Water has been consulting and conferring with a broad range of federal and state agencies, as well as local governments and environmental groups, to solicit input on appropriate mitigation for the impacts identified in the Moffat Project Draft EIS. Meetings with these entities started in 2008 when Denver Water prepared the applicant's proposed mitigation plan for the Draft EIS. To date, these entities include:

- Federal: Corps, USEPA, FERC, USFS, and USFWS
- State: CDOW and Colorado Department of Public Health and Environment (CDPHE)
- Local: Grand County, Boulder County, cities of Boulder and Lafayette, and Town of Hot Sulphur Springs
- Non-governmental organizations: Trout Unlimited, and landowners along the upper Colorado River and in the Fraser River basin

1.4 Concurrent and Related Activities

Windy Gap Firing Project

The Windy Gap Firing Project (WGFP) is a proposed water supply project that would provide more reliable water deliveries to Front Range and West Slope communities and industries. The Municipal Subdistrict, Northern Colorado Water Conservancy District, acting by and through the WGFP Water Activity Enterprise (Subdistrict) is seeking to construct the project on behalf of the 13 WGFP Participants. Project Participants include the City and County of Broomfield, the towns of Erie and Superior, the cities of Evans, Fort Lupton, Greeley, Lafayette, Longmont, Louisville, Loveland, Little Thompson Water District, Central Weld County Water District, and the Platte River Power Authority.

The proposed WGFP is to add water storage and related facilities to the existing Windy Gap operations capable of delivering a firm annual yield of about 30,000 AF to Project Participants. The Subdistrict's Proposed Action is the construction of Chimney Hollow Reservoir to store Windy Gap Project water. The WGFP Draft EIS was issued by the U.S. Bureau of Reclamation in 2008.

The Moffat Project would increase diversions from the Fraser River Basin upstream of the Windy Gap Project diversion site on the Colorado River and would affect the availability of water for the WGFP. Diversions for the WGFP and Moffat Project would result in changes to flows in the Colorado River below the Windy Gap dam. Denver Water and the Subdistrict have agreed to cooperate with each other and with the Colorado Department of Natural Resources (DNR) and CDOW in concurrent development of the mitigation plans required under CRS 37-60-122.2 for the two projects. They will jointly develop stream temperature monitoring stations as mitigation (refer to Section 3.1.2 of this FWMP). Additionally, Denver Water and the Subdistrict have proposed enhancements with significant resources and funding to improve current conditions in the river. (Refer to the Enhancement Plans prepared by Denver Water and the Subdistrict, which include a discussion of the LBD Cooperative Effort.)

2.0 AVOIDANCE AND MINIMIZATION

The Corps conducted a detailed alternatives analysis, beginning with over 300 alternatives, to determine the range of reasonable alternatives to be analyzed in the EIS to avoid and minimize environmental impacts. The Applicant's preferred alternative to enlarge Gross Reservoir by 72,000 AF has been designed to avoid or minimize direct effects to wetlands and other waters of the U.S. to those that are unavoidable due to dam construction and reservoir inundation. As part of the federal and state permits and approvals, Denver Water will implement a variety of best management practices (BMPs) during and following construction to reduce erosion, protect water quality, suppress dust and noise, revegetate temporarily disturbed areas, and protect or avoid important wildlife habitat. Some of these environmental permits and approvals with BMPs and environmental protection measures include, among others:

- Migratory Bird Treaty Act Compliance
- CDPHE Fugitive Dust Control Plan
- CDPHE Stormwater Management Plan
- CDPHE Section 401 Water Quality Certification

The CDOW has also developed BMPs for the oil and gas industry to minimize adverse impacts to wildlife resources. Denver Water will develop appropriate BMPs when preparing final design and construction plans, and will consult with CDOW to avoid or minimize impacts on wildlife resources.

3.0 FISH AND WILDLIFE MITIGATION

Denver Water and CDOW have worked together, with input from numerous stakeholders, to ensure reasonable mitigation measures are recommended to offset the impacts to fish and wildlife resources identified in the Draft EIS for the Moffat Project. Tables 1- 7 present the proposed impacts of the project identified in the Moffat Project Draft EIS, the proposed mitigation measure and the agency responsible for ensuring compliance with the measure.

Denver Water's collection system is comprised of two major systems: the North System (also known as the Moffat Collection System) and the South System. Refer to the attached figure. The two collection systems are geographically distinct and are not physically connected. Operation of the Moffat Project would affect operations, diversion and stream flow regimes in both of Denver Water's collection systems. Of the 18,000 AF of new water supply to be provided by the Moffat Project, the approximate quantities of water that would be diverted annually from the following river systems are as follows:

- | | |
|---|-----------|
| • Moffat System (Fraser and Williams Fork rivers) | 10,000 AF |
| • Blue River | 5,000 AF |
| • South Platte River | 2,000 AF |
| • South Boulder Creek | 1,000 AF |

Under its existing water rights, Denver Water would increase diversions primarily during average and wet years during the runoff months of May, June and July. There would be no additional diversions in dry years because Denver Water already diverts the maximum amount physically and legally available.

The discussion of impacts and mitigation measures are organized as follow:

- West Slope
 - Fraser and Williams Fork rivers
 - Upper Colorado River
 - Blue River
- East Slope
 - Gross Reservoir
 - South Boulder Creek
 - North Fork South Platte River
 - South Platte River

3.1 West Slope

3.1.1 Fraser and Upper Williams Fork Rivers

Operation of the Moffat Project would result in additional diversions in the Fraser River, upper Williams Fork River, and their tributaries. Flows would decrease in average and wet years due to the additional diversions by the Moffat Project. These additional diversions would be concentrated during the runoff months of May, June, and July and from September through April flow changes would be 1 cfs or less. During dry years, there would be no additional diversions. The Draft EIS determined that reductions in flow during runoff could decrease aquatic habitat availability in the Fraser River basin and the four headwater tributaries of the Williams Fork River: Steeleman, Bobtail, Jones and McQueary creeks. The reductions in flow could also result in increasing frequency of approaching or exceeding stream temperature standards at some locations. Temperatures exceeding the standards have occurred in the Fraser River and Ranch Creek in July and August based on data collected by the Grand County Water Information Network (GCWIN) in 2007 and 2008.

Tables 1 and 2 present the impacts and mitigation for the Fraser River and Williams Fork River, respectively.

Mitigation - Colorado River and Greenback Cutthroat Trout Habitat Improvements

One of CDOW's goals for West Slope headwaters is to reestablish a viable fishery for Colorado River cutthroat trout, a state species of special concern and Greenback cutthroat trout, a federally listed threatened species. The CDOW, USFWS and USFS are all signatories to a Conservation Agreement to reduce threats to Colorado River cutthroat trout, to stabilize or enhance its populations, and to maintain its ecosystems. To partially compensate for reduced flows and subsequent potential decrease in aquatic habitat in the Fraser and Williams Fork rivers and tributaries, Denver Water is proposing to construct new habitat for the Colorado River cutthroat trout and Greenback cutthroat trout. CDOW will select a headwater stream in Grand County that currently does not support cutthroat trout, construct a barrier at the downstream end of the habitat area, eradicate all the trout in the stream upstream of the barrier, and then reintroduce a core conservation population of cutthroat trout. Denver Water will provide funding to the CDOW for the habitat creation project and assist the CDOW in constructing the fish passage barrier. CDOW will obtain the necessary permits and approvals to conduct this work in the stream.

Mitigation – Stream Temperature Monitoring and Reductions in Diversions

Denver Water will pay USGS to install, monitor and maintain a real-time temperature monitoring station on Ranch Creek at the existing USGS gaging station near Fraser, CO (USGS gage #09032000). A real-time gaging and temperature station is currently operational on the Fraser River below Crooked Creek near Tabernash, CO (USGS gage #09033300). When specified temperature values are exceeded between July 15 and August 31, Denver Water will forgo up to 250 AF of diversions from its Fraser River Collection System by releasing up to 4 cubic feet per second (cfs) per day. The 250 AF is an estimate of the amount of water that would be diverted by the Moffat Project during

the month of August. The 250 AF will be available in all years except for droughts in Denver Water's Collection System. Since the proposed Moffat Project will not divert water during dry years, the additional 250 AF of bypass flows will not be made when Denver Water places its customers on water use restrictions as part of a drought response.

For the purposes of this mitigation plan, the threshold temperature will be 21.2°C ([70.2° F] Daily Maximum) and 17°C ([62.6° F] Maximum Weekly Average) as measured at the following locations:

1. USGS gage #09032000 – Ranch Creek near Fraser, CO
2. USGS gage #09033300 – Fraser River below Crooked Creek at Tabernash, CO

As stream temperatures approach these two thresholds, coordination will take place between Denver Water and CDOW as to what facilities will be bypassing water. Then, if stream temperature reaches these thresholds, water can be bypassed in an effort to address the temperature concerns. Denver Water will also cooperate with future studies to determine what factors, other than water flow, have effects on water temperatures in the Fraser River and its tributaries below Denver Water diversion structures.

The release of 250 AF of water may be suspended in the event that and at such times as there is no material causal relationship between the Moffat Collection System Project operations and any exceedance of the temperature thresholds at the monitoring stations identified above. For the purposes of this paragraph, a "material causal relationship" is defined as either an actual measurable impact on temperature using readily available monitoring technology or a modeled impact on temperature that is not *de minimus* and is based on a computer model or studies accepted by CDOW.

Denver Water will continue its participation in and support GCWIN to monitor stream temperatures in the Fraser River basin and the Colorado River. The GCWIN stream temperature monitoring program includes 31 monitoring sites in Grand County. Monitoring of stream temperatures in the Fraser River basin will also be a component of the LBD Cooperative Effort to be implemented with Grand County. Refer to the *Enhancement Plan* for details. If the stream temperature monitoring in the Fraser River Basin indicates a need for action, the LBD Cooperative Effort could coordinate the use of the 1,000 AF of bypasses in LBD with the 250 AF described above to address the identified temperature issue in the Fraser Basin or reserve the use of that water for addressing a temperature issue in the Colorado River downstream of the Windy Gap diversion.

Mitigation –Aquatic Habitat Improvements

Denver Water will provide up to \$750,000 for stream habitat restoration to compensate for reduced flows and subsequent potential decrease in aquatic habitat in the Fraser and upper Williams Fork rivers and tributaries. Denver Water will work with the CDOW and participants in the proposed LBD Cooperative Effort to design and implement stream habitat mitigation projects. All parties will work in good faith to ensure the project design and implementation compliments the enhancement efforts in the Basin. CDOW will be responsible for the actual design of the projects in consultation with the

Management Team for LBD and Denver Water will be responsible for permitting, implementing and maintaining the aquatic habitat improvements.

Funds may be used for stream improvements on private lands, but preference will be given to those lands where public access is allowed or on private lands where matching funds are provided. Any stream improvement on private lands will require landowner permission and a permanent easement with Denver Water or CDOW to ensure the mitigation measures remain effective for offsetting identified impacts from the Moffat Project.

3.1.2 Colorado River

Operation of the Moffat Project would cause depletions to the upper Colorado River basin, which may result in elevated stream temperatures on hot summer days. The reductions in flow would indirectly affect four endangered fish species: bonytail chub, Colorado pikeminnow, humpback chub and razorback sucker. Under the Endangered Species Act, the Corps initiated formal Section 7 Consultation with the USFWS regarding the depletion effects on these federally-listed species. The USFWS issued a Biological Opinion (BO) for the Moffat Project in July 2009 determining that the proposed depletions associated with the Moffat Project would be covered under Denver Water's Recovery Agreement as new depletions. Denver Water signed a Recovery Agreement with the USFWS in 2000, which governs consultations under Section 7 of the Endangered Species Act with respect to depletions caused by water users. New depletions of more than 100 AF/yr are assessed a one-time fee to help support the Upper Colorado River Endangered Fish Recovery Program.

Table 3 presents the impacts and mitigation for the Colorado River.

Mitigation - Upper Colorado River Endangered Fish Recovery Program

Denver Water will comply with the BO and make a payment as determined by the USFWS to help support the Upper Colorado River Endangered Fish Recovery Program.

Mitigation - Colorado River Basin Temperature Monitoring and Reductions in Diversions

Denver Water will work with the Subdistrict to install, monitor and maintain two continuous real-time temperature monitoring stations on the Colorado River to be located at the Windy Gap stream gage and upstream of the Williams Fork River confluence. When specified temperature values are exceeded between July 15 and August 31, Denver Water will forgo up to 250 AF of diversions from its Fraser River Collection System by releasing up to 4 cubic feet per second (cfs) per day. The 250 AF is an estimate of the amount of water that would be diverted by the Moffat Project during the month of August. The 250 AF will be available in all years except for droughts in Denver Water's Collection System. Since the proposed Moffat Project will not divert water during dry years, the additional 250 AF of bypass flows will not be made when Denver Water places its customers on water use restrictions as part of a drought response. The total amount of water available for temperature issues on the Fraser River, its tributaries, and the Colorado River shall not exceed 250 AF in any one year.

For the purposes of this mitigation plan, the threshold temperatures will be 23.8°C ([74.8° F] Daily Maximum) and 18.2°C ([64.8° F] Maximum Weekly Average). As stream temperatures approach these two thresholds, coordination will take place between Denver Water and CDOW as to what facilities will be bypassing water. Then, if the stream temperature reaches these thresholds, water can be bypassed in an effort to address temperature concerns. Denver Water will also cooperate with future studies to determine what factors, other than water flow, have effects on water temperatures in the Colorado River below Windy Gap to its confluence with the Blue River.

The release of 250 AF of water may be suspended in the event that and at such times as there is no material causal relationship between the Moffat Collection System Project operations and any exceedance of the temperature thresholds at the monitoring stations identified above. For the purposes of this paragraph, a “material causal relationship” is defined as either an actual measurable impact on temperature using readily available monitoring technology or a modeled impact on temperature that is not *de minimus* and is based on a computer model or studies accepted by CDOW.

3.1.3 Blue River

Flows in the Blue River basin would decrease about 5 percent in average and wet years during summer months, and increase slightly during winter months due to differences in Robert Tunnel diversions and spills at Dillon Reservoir. The Draft EIS identified no adverse effects to the aquatic habitat of the Blue River.

3.2 East Slope

3.2.1 Gross Reservoir

The expansion of Gross Reservoir would cause the loss of 1.95 acres of wetlands (1.84 acres due to reservoir inundation and tree clearing up to elevation 7,410 feet, and 0.11 acre due to the dam construction). These wetlands occur along drainages that are tributary to Gross Reservoir and along the shoreline of the reservoir.

About 4 acres of riparian resources would also be inundated by the expansion of Gross Reservoir. The majority of the riparian impacts would occur around the reservoir shoreline and Forsythe Gulch.

The initial filling of Gross Reservoir may increase organic matter in the reservoir, which could result in a minor short-term decrease in water quality. Once the organic matter has decayed or is removed from the reservoir, water quality should return to pre-construction conditions.

Table 4 presents the impacts and mitigation for Gross Reservoir.

Mitigation – Compensatory Wetlands

The wetland compensatory mitigation rule (*Federal Register*, Vol. 73, No. 70, April 10, 2008, 19670) establishes a priority for the use of wetland mitigation banks to compensate for wetland impacts. Denver Water proposes to purchase sufficient credits from an approved wetland mitigation bank to compensate for the 1.95 acres of lost wetlands.

As an alternative to the purchase of mitigation bank credits, Denver Water could create permittee-responsible mitigation in the South Boulder Creek watershed, including the area around Gross Reservoir. The mitigation areas would provide similar functions and values to the wetlands impacted as required by the Corps' compensatory mitigation rule.

Mitigation – Riparian Habitat Plantings

Similar to the existing riparian resources at Gross Reservoir, it is anticipated that the lost riparian resources would reestablish over time at the upper portions of an expanded Gross Reservoir. Denver Water will determine areas that likely will support riparian vegetation and plant native woody riparian vegetation in these areas to speed the establishment of riparian vegetation. To provide a supportive hydrology for the riparian vegetation, these plantings will occur once an expanded Gross Reservoir is filled.

Denver Water will prepare a riparian vegetation establishment plan for the CDOW and Corps that will:

- Establish a schedule for the proposed plantings
- Identify the areas (location and size) for proposed riparian establishment
- Identify the quantity, size, and species of plant materials
- Establish success criteria and monitoring requirements

Mitigation – Water Quality Monitoring

Denver Water will remove as much of the organic material (i.e., vegetation) as practicable from the inundation area prior to filling the reservoir. CDOW will monitor and evaluate metal levels in fish tissue for five years after the initial fill of the enlargement. In addition, Denver Water will continue its current water quality monitoring program.

3.2.2 South Boulder Creek

Operation of the Moffat Project would generally increase flows in South Boulder Creek upstream of Gross Reservoir, which could result in a minor impact to fish and invertebrates due to a potential reduction in fish habitat availability.

The expansion of Gross Reservoir would permanently impact approximately 8,356 linear feet of streams tributary to the reservoir. Approximately 8,180 linear feet of stream channel would be inundated by the expanded reservoir including:

- South Boulder Creek (2,575 feet)
- Winiger Gulch and a tributary (3,024 feet)
- Forsythe Gulch (1,420 feet)
- Unnamed Tributary (1,160 feet)

Approximately 176 linear feet of stream channel downstream of the dam would be impacted by the expanded dam footprint, including:

- South Boulder Creek (4 feet)
- Advent Gulch, an intermittent drainage (172 feet)

Table 5 presents the impacts and mitigation for South Boulder Creek.

Mitigation – Environmental Pool

Denver Water will compensate for the impacts to aquatic habitat in South Boulder Creek and the loss of stream channel tributary to Gross Reservoir by enhancing low flows in South Boulder Creek downstream of Gross Reservoir. This will be accomplished through a collaborative effort with the cities of Boulder and Lafayette to create an Environmental Pool in the expanded reservoir. Approximately 17 miles of aquatic habitat in South Boulder Creek from Gross Dam to the confluence with Boulder Creek would benefit by the release of water from the Environmental Pool during historic low flow conditions.

Discussions with CDOW, cities of Boulder and Lafayette, Boulder County, and Trout Unlimited indicated that the priority for aquatic habitat improvements on South Boulder Creek is downstream of Gross Reservoir below the South Boulder Diversion Canal. To address this priority, Denver Water would create an additional 5,000 AF Environmental Pool at Gross Reservoir. This additional storage would be filled with water rights owned and provided by the cities of Boulder and Lafayette and released for environmental flows. None of Denver Water's existing or future water supply would be stored in the Environmental Pool. Gross Dam would need to be raised approximately 6 feet, beyond the proposed expansion of the 7,400-foot spillway elevation, to a spillway elevation of 7,406 feet. The additional 5,000 AF of mitigation water stored in Gross Reservoir would be managed under an Intergovernmental Agreement, and released appropriately with the goal of meeting minimum in-stream flows in South Boulder Creek below Gross Reservoir. Denver Water entered into the Environmental Pool arrangement to serve as mitigation for any projected adverse aquatic impacts of the Moffat Project to South Boulder Creek and streams tributary to Gross Reservoir, and to provide the flexibility to enhance aquatic habitats downstream of Gross Reservoir.

Mitigation – Monitoring of Stream Bank Stability

Denver Water currently monitors for channel instability and bank erosion on USFS lands along South Boulder Creek between the Moffat Tunnel and Gross Reservoir. This is a USFS condition within Denver Water's existing FERC license. Denver Water will continue the current monitoring program and, if determined by CDOW, will add an additional monitoring site near the inlet to Gross Reservoir. In the event that localized areas of erosion are detected, Denver Water and the USFS will jointly develop protective measures to be implemented by Denver Water.

3.2.3 North Fork South Platte River

Operation of the Moffat Project would change Denver Water's releases from the Roberts Tunnel into the North Fork South Platte River (North Fork) downstream of the Roberts Tunnel outlet. Flows would generally be lower during winter months and higher during summer months. The lower flows during the winter months are due to a change in the artificial flow regime maintained in the North Fork by the importation of water from the Blue River and are not the result of any changes to the natural hydrology of the North Fork. These flow changes would potentially result in minor decreases in available habitat for brown trout and minor adverse effects to benthic invertebrate populations.

Table 6 presents the impacts and mitigation for North Fork South Platte River.

Mitigation – Aquatic Habitat Improvements

To compensate for reduced flows and subsequent potential decrease in aquatic habitat in the North Fork, Denver Water will implement the following actions:

1. Aquatic Habitat Improvements on the South Platte River. Denver Water will provide up to \$1.5 million for stream habitat improvements. For example, pool habitat could be created by a combination of boulder placement and grade controls. A management committee consisting of Denver Water, CDOW, and USFS will be established to identify locations for improvements. This committee will operate by consensus and make a good faith effort to resolve any conflicts. The committee will also coordinate with the South Platte Enhancement Board to ensure consistency with the South Platte Protection Plan and protection of the Resource Values. CDOW will be responsible for the actual design, permitting, and implementation of aquatic habitat improvements. These funds will be used for stream improvements primarily on public land. Funds may be used for stream restoration on private land, but only where a conservation easement is in place that allows public access. Any restoration activities on private land may be funded by other sources or may be funded through a program of matching private funds with public funds.
2. Bank Stabilization on the North Fork South Platte River. Denver Water will establish a stream bank stability monitoring program at up to five sites on USFS lands along the North Fork to monitor for evidence of bank erosion. If any bank erosion is observed, Denver Water will contribute up to \$250,000 for structural modification projects on USFS lands. These projects will be done in cooperation with the USFS and CDOW.

3.2.4 South Platte River

Operation of the Moffat Project would cause new depletions to the South Platte River, which could indirectly affect threatened or endangered species and associated habitat in the Platte River in Nebraska, including whooping crane, interior least tern, piping plover, pallid sturgeon, and western prairie fringed orchid. Under the Endangered Species Act, the Corps initiated formal Section 7 Consultation with the USFWS regarding the depletion effects on these federally-listed species. The USFWS issued a BO in July 2009 and determined that the proposed depletions associated with the Moffat Project would be covered under Denver Water's participation in the South Platte Water-Related Activities Program, Inc. (SPWRAP), which provides compliance with Section 7 requirements under the Platte River Recovery Implementation Program.

Table 7 presents the impacts and mitigation for South Platte River.

Mitigation – Platte River Recovery Program

Denver Water will continue participating in SPWRAP.

4.0 COST AND SCHEDULE

If permitted in 2011, Moffat Project is anticipated to start construction in 2013/2014. The estimated construction period is 4 years and operation would begin in 2017/2018. A schedule for implementing the mitigation measures will be developed with CDOW and presented in the final FWMP. The following is a summary of the estimated funding Denver Water will provide for the mitigation measures:

River Basin	Proposed Mitigation	Estimated Costs
Fraser River and upper Williams Fork River	--Colorado River Cutthroat Trout Habitat Improvements	--\$72,500
	-- Aquatic Habitat Restoration	--\$750,000
	-- Temperature Monitoring Station	-- \$20,000
Colorado River	--Temperature Monitoring Stations	-- \$50,000
	--BO Compliance	--\$280,000
Gross Reservoir	-- Riparian Vegetation Plantings	--\$40,000
	--Compensatory Wetlands	--\$300,000
	--Water Quality Monitoring	--\$0
South Boulder Creek	--Environmental Pool (total cost \$8 million)	--\$4,000,000 (DW share)
	-- Streambank Monitoring	--\$0
North Fork South Platte River and/or South Platte	--Aquatic habitat Restoration,	--\$1,500,000
	-- North Fork Bank Erosion with Aquatic Habitat Improvements	--\$250,000
	--SPWRAP	--\$0
TOTAL ESTIMATED COST		\$7,262,500

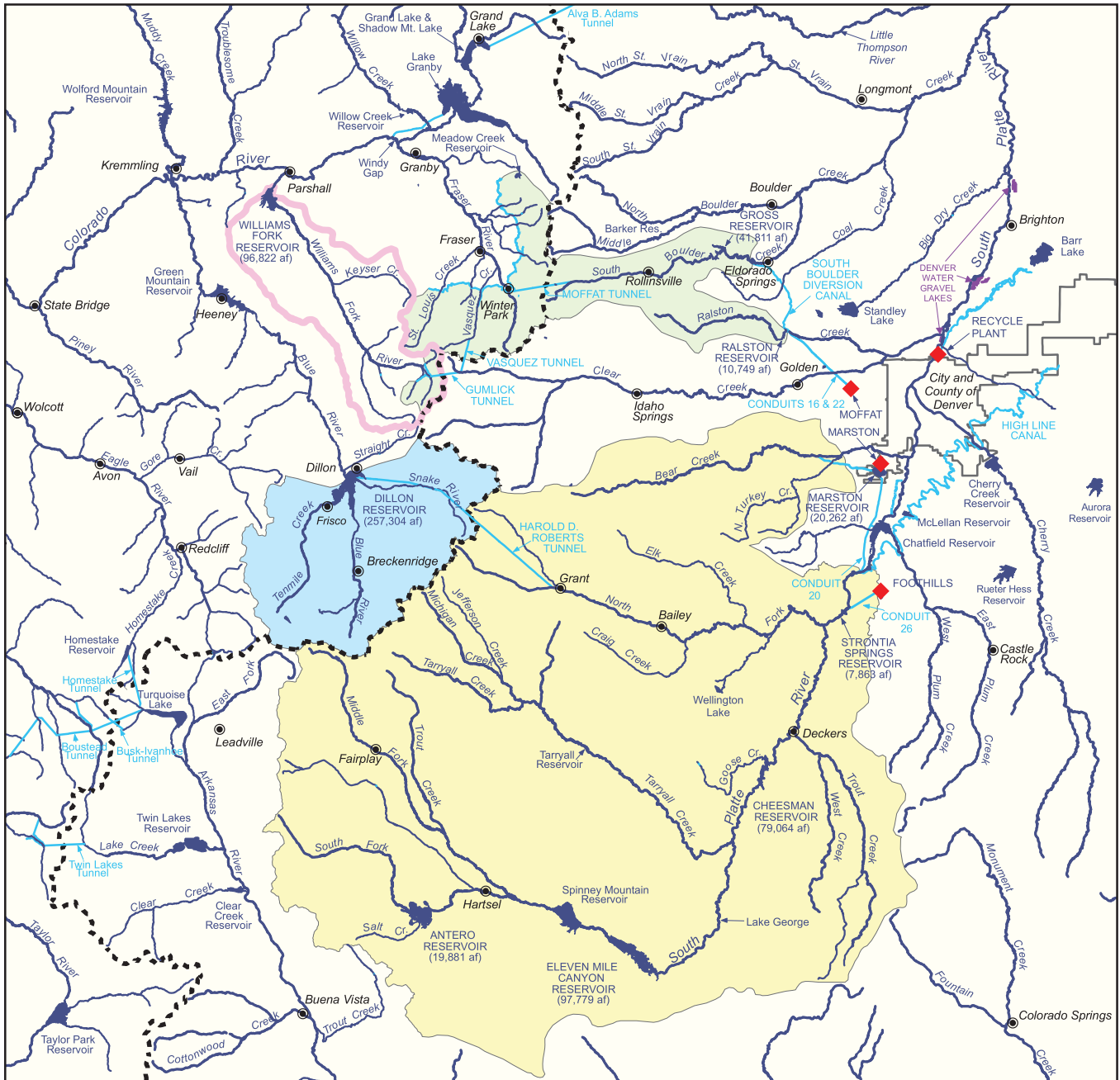
Mitigation Insurance Policy - The mitigation listed above is based on the Draft EIS for the Moffat Collection System Project that was released for public comment in October of 2009. Since that time and based on comments to the Draft EIS, the Corps has conducted additional studies related to the preparation of the Final EIS that in part are designed to further refine the analysis of environmental impacts of the proposed action. If new impacts to fish and wildlife resources are identified in the Final EIS that were not discussed in the Draft EIS and not addressed in this mitigation plan, Denver Water will propose mitigation for these new impacts. The additional mitigation will be developed in cooperation with the CDOW prior to submittal to the Corps for its consideration as a Section 404 Permit condition. Denver Water will reserve \$600,000 for any new impacts to fish and wildlife resources identified by the Final EIS and required by the Corps. If the Corps does not identify new impacts requiring mitigation, Denver Water will have no further obligation to reserve this money.

In addition to the funding identified above, there is significant additional funding in the *Enhancement Plan* for fish and wildlife resources. The goal is to coordinate the actions listed as mitigation and the actions listed as environmental enhancements to assure the environment receives the maximum benefit.

5.0 CONCLUSION

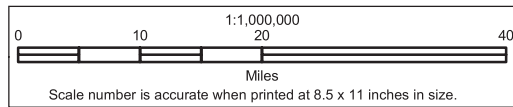
The FWMP presents a broad range of mitigation actions to address the potential fish and wildlife impacts of the Moffat Project. If accepted by the Colorado Wildlife Commission and CWCB, this mitigation plan will represent the official state position on the Moffat Project. Since the state-adopted FWMP is not enforceable by itself, Denver Water anticipates that the Corps and USFS will determine these mitigation measures are adequate and will impose them within their regulatory requirements in the Section 404 Permit and Section 4e conditions of the FERC license, respectively.

City and County of Denver Board of Water Commissioners Water Collection System



LEGEND

 South Platte Collection System	 Denver Water Treatment Plant
 Roberts Tunnel Collection System	 Town
 Moffat Collection System	 Continental Divide
 Williams Fork Reservoir Watershed	 Major Canal or Tunnel
 Major Lake or Reservoir	 Major Stream or River



Proposed Mitigation for the Moffat Collection System Project

06/09/2011

Table 1 - WEST SLOPE - Fraser River		
EIS Impacts	Proposed Mitigation	Mitigation Agency
<p>Surface Water</p> <p><u>Surface water flows:</u> Flows in the Fraser River basin would decrease in average and wet years during the runoff months due to Denver Water's additional diversions. Additional diversions would be highly concentrated during the runoff months primarily in May, June, and July and typically would be greatest in wet years following dry year sequences. Average annual flows in the Fraser River at the Granby gage would decrease 9% (12 cfs). Denver Water currently diverts 63,800 AF through the Moffat Tunnel (66,500 AF at full use of existing system). Will increase to 76,800 with the Moffat Project.</p> <p><u>Surface Water Quality:</u> The Ranch Creek tributary could experience moderate impacts due to a potential increase in frequency of approaching or exceeding the stream temperature standard.</p> <p>The mainstem of the Fraser River downstream of the Town of Fraser could experience negligible to minor impacts due to a potential increase in frequency of approaching or exceeding the stream temperature standard.</p> <p><u>Stream Morphology and Sedimentation:</u> Only minor amounts of localized sediment deposition are anticipated. Locations along the Fraser River where traction sand currently increases the natural sediment supply are and would remain the most susceptible to local deposition. Any deposition that occurs should be limited in extent and magnitude and should pose only minor changes to channel morphology.</p> <p>Groundwater Changes in the Fraser River stream flow would cause indirect impacts to localized groundwater gradients and water levels near the river as the hydrologic system balances the different stream flows with changes in the groundwater input component to the stream. This would likely result in a negligible impact to the groundwater.</p> <p>Riparian/Wetland <u>Upper Fraser River:</u> Considering the small amount of area involved and the likely response of vegetation to the change in stream stage, the impact on riparian vegetation is expected to be negligible. <u>Lower Fraser River:</u> No measurable impacts to riparian vegetation would be expected in this area.</p> <p>Wildlife Impacts to wildlife from changes in river flows would not have a noticeable impact on wildlife habitat or wildlife species.</p>	<p>Denver Water to provide \$72,500 for cutthroat trout habitat protection/enhancement and \$750,000 for Aquatic Habitat Improvements.</p> <p>Install, monitor and maintain a real-time temperature gage on the USGS station (Gage #09032000) on Ranch Creek. Denver Water will forgo up to 250 AF of diversions from its Fraser River Collection System by releasing up to 4 cfs if the Moffat Project is diverting. Continued support of GCWIN monitoring.</p> <p>None</p> <p>None</p> <p>None</p> <p>None</p> <p>None</p> <p>None</p>	<p>CDO and Corps</p> <p>CDO and Corps</p> <p>---</p> <p>---</p> <p>---</p> <p>---</p> <p>---</p> <p>---</p>

Table 1 - WEST SLOPE - Fraser River		
EIS Impacts	Proposed Mitigation	Mitigation Agency
Special Status Species Flow changes would adversely affect Colorado River system endangered fish species (Colorado pikeminnow, bonytail chub, humpback chub, razorback sucker). Minimal effects to bald eagles, river otter, boreal toad. No effects to Colorado River cutthroat trout are anticipated.	Continued participation in the Upper Colorado River Endangered Fish Recovery Program per the U.S. Fish and Wildlife Service (USFWS) Biological Opinion.	USFWS
Aquatic Resources <u>Fraser River - Mainstem:</u> Flushing of fine sediment would continue with the Moffat Project because the flows would be much higher than needed to transport sediment. There would be no increase in sedimentation and no impact to channel morphology.	None	---
<u>Fraser River - Tributaries:</u> In most of the Fraser River tributary streams, the reductions in runoff flows during the runoff months of wet years would result in a minor adverse impact compared to full use of existing system.	See Surface Water Flows.	CDOW and Corps
Recreation During average and wet years, the Moffat Project would result in a major long-term effect to boating. On average, the number of days within the optimum flow range of 400-700 cfs would drop from 14 to 9 days. This also equates to an approximate loss of 3-4 days per year within optimum flow levels. In wet years, the impact on boating used would be negligible. In dry years, boating would not be impacted. Flow reductions during high flow periods are not likely to adversely affect the quality of the fishing experience. The reductions in flow in North Fork Ranch could have a minor adverse impact on the fish communities, and thus an associated minor adverse impact on the quality of the fishing experience.	None	---

Proposed Mitigation for the Moffat Collection System Project

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Table 2 - WEST SLOPE - Williams Fork River

EIS Impacts		Proposed Mitigation	Mitigation Agency
Surface Water			
<u>Williams Fork Reservoir surface water elevation fluctuation</u> :			
The average differences in end-of-month content translates to a drop in elevation of less than 1 foot in any month.	None		---
<u>Surface water flows</u> :			
Below Reservoir: Flows in the Williams Fork basin would decrease in average and wet years during the runoff months due to Denver Water's additional diversions. Additional diversions would be highly concentrated during the runoff months primarily in May, June, and July and typically would be greatest in wet years following dry year sequences. Average annual flows in the Williams Fork River below the reservoir would decrease approximately 2% (equals 2 cfs).		Denver Water to provide \$72,500 for cutthroat trout habitat protection/enhancement and \$750,000 for Aquatic Habitat Improvements.	CDOW and Corps
Above Reservoir: Four headwater tributaries are affected by Denver Water diversions: Steelman, Bobtail, Jones, McQueary creeks. Average annual flows would decrease due to increased diversions during the runoff months primarily in May, June, and July through Gumlick Tunnel. These diversions would be greatest in wet years following dry years. During dry years no additional water is diverted as Denver Water currently diverts all available water during dry years.			
<u>Stream Morphology and Sedimentation</u> :			
Annual peaks would generally be the same or lower under the Moffat Project, implying the same or reduced areas of inundation for the flood of a given return interval. Lower frequency events (high flows, return intervals greater than 2 to 5 years) are likely to be the same, while higher frequency events are likely to be reduced. Despite the predicted reductions in sediment transport capacity, the sediment transport capacity for the project remains orders of magnitude greater than sediment supply. These results indicate that the system is sediment limited and the morphology of the channel is not expected to be impacted by flow reductions.		See Surface Water Flows.	CDOW and Corps
Groundwater			
Decrease in flows for an average year would occur upstream (i.e., Darling Creek gage) and downstream of the Williams Fork Reservoir. Changes in the Williams Fork stream flow would cause indirect impacts to localized groundwater gradients and water level near the river as the hydrologic system balances the different stream flows with changes in the groundwater input component to the stream. Groundwater quality would result in negligible impacts to the Williams Fork groundwater system. Gaining streams supported by groundwater. There may be localized effects, but minimal.	None		---
Riparian/Wetland			
The area affected by reduction in inundation area would be small (0.02 - 0.18 acres/per mile). This, combined with the higher elevation of these sites where precipitation and hillside runoff is likely to play an important role in supporting riparian vegetation, would result in no measureable adverse impacts to riparian vegetation.	None		---
Wildlife			
Impacts to wildlife from changes in river flows would not have a noticeable impact on wildlife habitat or wildlife species.	None		---

Proposed Mitigation for the Moffat Collection System Project

06/09/2011

Table 2 - WEST SLOPE - Williams Fork River		
EIS Impacts	Proposed Mitigation	Mitigation Agency
<p>Special Status Species</p> <p>Flow changes would adversely affect Colorado River system endangered fish species (Colorado pikeminnow, bonytail chub, humpback chub, razorback sucker). Minimal effects to boreal toad. No effects to Colorado River cutthroat trout are anticipated.</p>	Continued participation in the Upper Colorado River Endangered Fish Recovery Program per the U.S. Fish and Wildlife Service (USFWS) Biological Opinion.	USFWS
<p>Aquatics Resources</p> <p><i>Williams Fork River - Mainstem :</i></p> <p>There would be no changes in water quality, riparian vegetation or channel morphology that would affect fish and invertebrates in the Williams Fork. Minor changes to spawning period for brook trout.</p> <p><i>Williams Fork River - Tributaries</i></p> <p>The flow reductions during runoff with the project would have a minor adverse on the fish and invertebrate populations in McQueary, Jones, Bobtail, and Steelman creeks. Although there would be no change in the critical winter flow, the project would reduce the flow passing the diversions in wet months and extend the period when these streams are fully diverted.</p>	None	---
<p>Recreation</p> <p>No impacts are expected to occur to the quality of fishing experience along the Williams Fork as a result of the project.</p>	See Surface Water Flows.	CDOW and Corps
	None	---

Proposed Mitigation for the Moffat Collection System Project

Table 3 - WEST SLOPE - Colorado River

EIS Impacts	Proposed Mitigation	Mitigation Agency
<p>Surface Water</p> <p><i>Surface water flows :</i></p> <p>Flows along the Colorado River mainstem would decrease in average and wet years during the runoff months due to changes in surface water flows in Fraser, Williams Fork, and Blue river basins, which would translate downstream and into the Colorado River. Average annual flows in the Colorado River near Kremmling would decrease 2%.</p> <p><i>Stream Morphology and Sedimentation :</i></p> <p>Annual peaks would be generally the same or lower under the Moffat Project, implying the same or reduced areas of inundation for the flood of a given return interval. Lower frequency events (high flows, return intervals greater than 2 to 5 years) are likely to be the same, while higher frequency events are likely to be reduced. Despite the predicted reductions in sediment transport capacity, the sediment transport capacity for the project remains orders of magnitude greater than sediment supply. These results indicate that the system is sediment limited and the morphology of the channel is not expected to be impacted by flow reductions.</p>	<p>Install, monitor and maintain two real-time temperature gages on the Colorado River (one at Windy Gap and the other upstream of the Williams Fork River confluence). Denver Water will forgo up to 250 AF of diversions from its Fraser River Collection System by releasing up to 4 cfs if the Moffat Project is diverting. Continued support of GCWIN monitoring.</p>	<p>CDOW and Corps</p>
<p>Groundwater</p> <p>Decreases in flows for an average year would occur downstream of the Windy Gap gage and the Kremmling gage. These decreases in surface water flow would result in lower river water levels, a narrower width of the river, and the potential for indirect impacts on the groundwater gradient to the river and water levels in the vicinity of the river.</p>	<p>None</p>	<p>---</p>
<p>Riparian/Wetland</p> <p>The reduction in inundation area would be 0.002 acres within the 953-foot study segment and 0.01 acre when extrapolated over a 1-mile distance. These impacts along the Colorado River would be negligible.</p>	<p>None</p>	<p>---</p>
<p>Wildlife</p> <p>Impacts to wildlife from changes in river flows would not have a noticeable impact on wildlife habitat or wildlife species.</p>	<p>None</p>	<p>---</p>
<p>Special Status Species</p> <p>Flow changes would adversely affect Colorado River system endangered fish species (Colorado pikeminnow, bonytail chub, humpback chub, razorback sucker). Minimal effects to bald eagle and river otter.</p>	<p>Continued participation in the Upper Colorado River Endangered Fish Recovery Program per the U.S. Fish and Wildlife Service (USFWS) Biological Opinion.</p>	<p>USFWS</p>
<p>Aquatic Resources</p> <p>There would be no changes in water quality, riparian vegetation or channel morphology that would affect fish and invertebrates in the Colorado River.</p>	<p>None</p>	<p>---</p>
<p>Recreation</p> <p>Overall, the Project would have a negligible or no impact on boating uses on the Colorado River. No impacts to fishing are anticipated. The optimum flow range for rafting is 700-2,000 cfs. The Project would not affect the number of days within this flow range. There would be a minor beneficial effect on kayaking, slightly increasing the number of days when flow falls within the desired range of 400-1,100 cfs from May through Sept. (98.6 on average to 101.2 days).</p>	<p>None</p>	<p>---</p>

Table 4 - EAST SLOPE - GROSS RESERVOIR		
EIS Impacts	Proposed Mitigation	Mitigation Agency
<p>Surface Water</p> <p><u>Reservoir Volume and Fluctuation</u> : Gross Reservoir would increase by 72,000 AF to volume of 113,811 AF. Normal high water level would increase by 118 feet and surface area would increase by 400 acres to 818 acres. Gross Reservoir would be at its lowest level at the end of April, reach its highest level in June or July, and be drawn down through the fall and winter. Gross would have a higher outflow during the winter, which would increase flow between Gross and the South Boulder diversion canal compared to Full Use conditions. Although not identified as an impact in the DEIS the Colorado Division of Wildlife (CDOW) has safety concerns for the ice fisherman due to the potential increased void space between the ice and surface water elevation of the reservoir as a result of removing more water in the wintertime. <u>Reservoir Evaporation (average annual evaporative loss)</u> : Evaporative losses would increase to 991 AF annually (compared to 477 AF under existing conditions).</p>	<p>Expansion would create an additional 400 acres of open water habitat.</p>	<p>CDOW and Corps</p>
<p><u>Reservoir Water Quality</u> : Initial filling operations of Gross Reservoir may increase the organic matter resulting in minor, short-term decrease in water quality.</p>	<p>Denver Water will remove as much debris as possible from the inundation area before filling the reservoir. CDOW will evaluate levels of metals in the fish for 5-years following completion of the first fill of expanded reservoir. DW will continue existing monitoring program to evaluate water quality.</p>	<p>CDOW and Corps</p>
<p>Groundwater</p> <p><u>Seepage and Groundwater Mounding</u> : Increase in groundwater levels due to increased seepage from enlarged reservoir. Resulting in a decrease in hydraulic gradients upstream of the reservoir.</p>	<p>None</p>	<p>---</p>
<p>Riparian/Wetlands</p> <p><u>Direct impacts to wetlands</u> : Permanent impact to 1.95 acres of wetlands (1.83 acres from reservoir inundation and 0.12 from dam footprint) and 0.12 acres of temporary impact.</p>	<p>Mitigation for these impacts will be determined by the U.S. Army Corps of Engineers either by: Purchase sufficient credits from an approved wetland mitigation bank to offset for lost wetlands, OR Create permittee-responsible mitigation wetlands within the South Boulder Creek watershed, including area around Gross Reservoir.</p>	<p>Corps</p>
<p><u>Direct impacts to other waters of the U.S.</u> : Permanent impact to 3.53 acres (1.58 miles) of tributaries (South Boulder Creek, Winiger Gulch, Forsythe Gulch) and 0.49 acres (453 feet) of temporary impact.</p>	<p>Creation of an Environmental Pool to enhance low flows in South Boulder Creek downstream of Gross Reservoir to the confluence of Boulder Creek per an Intergovernmental Agreement (IGA) with the cities of Boulder and Lafayette.</p>	<p>Corps</p>

Proposed Mitigation for the Moffat Collection System Project

06/09/2011

Table 4 - EAST SLOPE - GROSS RESERVOIR		
EIS Impacts	Proposed Mitigation	Mitigation Agency
<p><u>Direct impacts to riparian habitats</u> :</p> <p>Permanent impact to 4.08 acres of riparian habitat and <0.1 acre of temporary impact.</p>	<p>Identify planting areas around Gross Reservoir that will support native woody riparian vegetation and prepare a riparian vegetation establishment plan. Plantings will be wildlife friendly, directed towards bears. Plan will be reviewed by U.S. Forest Service (USFS).</p>	<p>CDOW, Corps and USFS</p>
<p><u>Vegetation</u></p> <p><u>Loss of vegetation</u> :</p> <p>Permanent impact to 456 acres of vegetation and 52 acres of temporary impact (456 acres includes 400 acres for reservoir inundation area, plus dam footprint, roads, auxiliary spillway, quarries, spoil areas, tree removal).</p>	<p>Implement revegetation, forest management and weed control plans per Federal Energy Regulatory Commission (FERC) license amendment.</p>	<p>FERC, Corps and USFS</p>
<p><u>Loss of sensitive habitats</u> :</p> <p>Loss of 17% of Winiger Gulch Potential Conservation Areas (PCA), 10.5% of South Boulder Creek PCA, and 7% of Winiger Ridge Environmental Conservation Area (ECA).</p>	<p>Incorporate with mitigation for riparian vegetation. Re-establish plant communities lost during construction activities.</p>	<p>CDOW, Corps and USFS</p>
<p><u>Wildlife</u></p> <p><u>Effects on elk crucial seasonal habitats</u> :</p> <p>Permanent impact to 246 acres of elk severe winter range and 269 acres of winter concentration area. The habitat impacted represents less than 2% of the severe winter range and 3% of the winter concentration area within 3 miles of the reservoir.</p>	<p>See Vegetation.</p>	<p>CDOW, Corps and USFS</p>
<p><u>Effects on other big game species</u> :</p> <p>Loss of non-crucial habitat for mule deer, black bear, and mountain lion. Potential collisions along haul roads and temporary displacement during construction are likely. The impacted area represents a very small percentage of the available habitat in the surrounding area.</p>	<p>See Vegetation.</p>	<p>CDOW, Corps and USFS</p>
<p><u>Habitat fragmentation</u> :</p> <p>Inundation of South Boulder Creek and Winiger Gulch above the reservoir would have a minor effect on big game movement.</p>	<p>None</p>	<p>---</p>
<p><u>Raptor and other migratory birds</u> :</p> <p>Construction-related activities may affect nesting birds. Long-term loss of habitat for forest birds.</p>	<p>Compliance with the Migratory Bird Treaty Act. Pre-construction surveys to identify active nests in Project footprint area and timing of land-clearing activities to avoid breeding season. Include CDOW's Best Management Practices (BMPs) for wildlife into final design.</p>	<p>CDOW, Corps and USFWS</p>

Proposed Mitigation for the Moffat Collection System Project

06/09/2011

Table 4 - EAST SLOPE - GROSS RESERVOIR		
EIS Impacts	Proposed Mitigation	Mitigation Agency
Special Status Species Loss of habitat and possible mortality to dwarf shrew and northern leopard frog during construction. Loss of habitat for several forest bird species. Temporary, minor, indirect impacts to several bird and bat species during construction.	Observe CDOW's BMPs for special status species.	CDOW
Aquatic Resources The enlargement of the reservoir would support more fish than the existing reservoir and may provide opportunities for additional species of fish to become established. Construction activities during the enlargement would have a temporary direct moderate adverse impact on the fish and invertebrate community. The impact would last until construction activities are complete.	None	CDOW

Table 5 - EAST SLOPE - South Boulder Creek

EIS Impacts	Proposed Mitigation	Mitigation Agency
<p>Surface Water</p>		
<p><u>Surface water flows</u> : Flows in South Boulder Creek upstream of Gross Reservoir would increase in average and wet years during the runoff months due to Denver Water's additional diversions thru the Moffat Tunnel. Average annual flow at the Pinecliff gage would increase 10%.</p>		
<p>From Gross Reservoir to the South Boulder Diversion Canal, changes in flow reflect reservoir operations. In general, flows would be higher during winter months as water would be moved out of Gross Reservoir and into Ralston Reservoir in response to the water treatment plant load shift. Average annual flow would increase 8%.</p>	<p>Creation of an Environmental Pool at Gross Reservoir to enhance winter low flows in South Boulder Creek per an Intergovernmental Agreement (IGA) with the cities of Boulder and Lafayette.</p>	<p>Corps</p>
<p>Downstream of the South Boulder Diversion Canal, flows would generally decrease on average because Denver Water would divert more native South Boulder Creek water. Average annual flow would decrease 2%.</p>		
<p><u>Stream Morphology and Sedimentation</u> : Increases in flow would result in an increase in sediment transport capacity along South Boulder Creek. It is possible that the transport capacity is orders of magnitude greater than available sediment supply. Reductions in sediment transport capacity resulting from the Moffat Project are expected to have negligible impacts on channel morphology.</p>	<p>Stream channel stability monitoring above Gross Reservoir is a Federal Energy Regulatory Commission (FERC) component and will be continued. Possibly add a photo documentation station on South Boulder Creek near the inlet to Gross Reservoir.</p>	<p>FERC and CDOW</p>
<p>Groundwater The impacts to stream flow changes on groundwater are expected to be negligible.</p>		<p>---</p>
<p>Riparian/Wetlands <u>Indirect Impacts</u> : Flows would both increase and decrease at different times of year, but changes would be within range of variability. Minimal effects, if any, on riparian and wetland vegetation. Slight shift in species composition towards plants that are more tolerant of wetter conditions.</p>		<p>---</p>
<p><u>Direct Impacts</u> : Inundation of 2,575 feet of South Boulder Creek upstream of Gross Reservoir; 4 feet of South Boulder Creek downstream of Gross Reservoir will be lost due to the expanded dam footprint.</p>	<p>See Surface Water Flows.</p>	<p>Corps</p>
<p>Wildlife Inundation of South Boulder Creek above Gross Reservoir would have minor effects on big game movement.</p>		<p>---</p>
<p>Special Status Species Flow changes would contribute to adverse effects on Platte River system threatened and endangered species (whooping crane, piping plover, least tern, and pallid sturgeon). May affect, but not likely to adversely effect Preble's meadow jumping mouse and Ute ladies-tresses and their habitat downstream of South Boulder Diversion Canal diversion point.</p>	<p>Compliance with the Endangered Species Act and Biological Opinion (BO) issued by the US Fish & Wildlife Service (USFWS). Participation in the Platte River Recovery Implementation Program.</p>	<p>USFWS</p>

Table 5 - EAST SLOPE - South Boulder Creek

EIS Impacts	Proposed Mitigation	Mitigation Agency
<p>Aquatic Resources Increases in runoff flows would have minor adverse impacts to fish and invertebrates due to a potential reduction in fish habitat availability in South Boulder Creek upstream of Gross Reservoir. Downstream of Gross Reservoir, the increases in winter flows and reductions in runoff flows would have a moderate beneficial impact to fish and invertebrates due to potential increase in habitat availability.</p>	<p>See Surface Water Flows.</p>	<p>Corps</p>
<p>Recreation Boating: Impact on boating above and below Gross Reservoir would be minor/beneficial and negligible, respectively. Fishing: Based on changes in fish habitat availability (see above), there may be a minor, adverse impact on the quality of fishing on the Upper South Boulder Creek due to a potential reduction in fish habitat availability. There may be a minor beneficial impact to the fishing experience on Lower South Boulder Creek.</p>	<p>None</p>	<p>---</p>

Table 6 - EAST SLOPE - North Fork South Platte River

EIS Impacts	Proposed Mitigation	Mitigation Agency
<p>Surface Water</p> <p>Diversion through the Roberts Tunnel during the winter months would be lower on average, which results in equivalent lower flows in the North Fork South Platte in these months. Summer diversions through Roberts Tunnel would generally be higher, and consequently flows would be higher on average from May through September. Average annual flow below Geneva Ck gage would increase 3%. A decrease of winter flow (25-30%) would occur Nov-March (Decrease of 30% equals 30cfs). An increase of summer flow (13-29%) would occur May-Aug (Increase of 29% equals approximately 50 cfs, depending on the month).</p> <p><u>Water Quality:</u></p> <p>Changes in the concentrations of copper, iron and nickel are anticipated. Concentrations of these constituents are anticipated to increase during periods of reduced deliveries from the Roberts Tunnel. Concentrations are anticipated to decrease during periods of increased deliveries through the Roberts Tunnel leading to negligible impacts.</p> <p><u>Stream Morphology and Sedimentation:</u></p> <p>Flow changes upstream of Shawnee could result in an increase in sediment transport capacity, which could lead to minor amounts of localized bed and bank erosion. Flow changes upstream of Pine are expected to have negligible to no impact on stream morphology.</p>	<p>Denver Water proposes up to \$1.5 million worth of stream habitat improvements in the North Fork South Platte or the South Platte River. Plan would be developed with U.S. Army Corps of Engineers (Corps), Colorado Division of Wildlife (CDOW), U.S. Forest Service (USFS), and Landowners.</p> <p>Denver Water will continue to participate in the South Platte Protection Plan.</p>	<p>CDOW, Corps and USFS</p>
<p>Groundwater</p> <p>Below the Geneva Creek gage, flows would decrease in winter and increase in the summer in an average year. The maximum expected increases and decreases in flow would have minor effects on groundwater and would be limited to only the areas near the river and are well within normal seasonal fluctuations.</p>	<p>Denver Water will establish up to 5 stream bank monitoring points on U.S. Forest Service (USFS) lands. If stream bank erosion is observed, Denver Water will allocate up to \$250,000 for stream bank stabilization.</p>	<p>Corps and USFS</p>
<p>Riparian/Wetland</p> <p>The area affected over the study reach would be less than 0.01 acre, and only 0.01 to 0.02 acre when extrapolated over a 1-mile distance. Therefore, any impacts on riparian vegetation would be negligible.</p>	<p>None</p>	<p>---</p>
<p>Wildlife</p> <p>Impacts to wildlife from changes in river flows would not have a noticeable impact on wildlife habitat or wildlife species.</p>	<p>None</p>	<p>---</p>
<p>Special Status Species</p> <p>Flow changes would contribute to adverse effects on Platte River system threatened and endangered species (whooping crane, piping plover, least tern, and pallid sturgeon). May affect, but not likely to adversely effect Preble's meadow jumping mouse critical habitat between Waterton Canyon and above Chatfield Reservoir. Minimal effects on bald eagle.</p>	<p>Compliance with the Endangered Species Act and Biological Opinion (BO) issued by the US Fish & Wildlife Service (USFWS). Participation in the Platte River Recovery Implementation Program. Compliance with the Migratory Bird Treaty Act.</p>	<p>USFWS</p>

Table 6 - EAST SLOPE - North Fork South Platte River

EIS Impacts	Proposed Mitigation	Mitigation Agency
<p>Aquatic Resources Increases in runoff flows and higher concentrations of copper would have a minor adverse impact to fish and invertebrates</p>	See Surface Water Flows.	CDOW, Corps and USFS
<p>Recreation Boating: Increase in flow in summer months would have a minor beneficial impact on boating use. Fishing: Increases in flow in the summer may make it slightly more difficult to fish during periods of high flows, but overall impact is minor, possibly resulting in a shift in the period of use to later in the season.</p>	See Surface Water Flows.	CDOW, Corps and USFS

Proposed Mitigation for the Moffat Collection System Project

Table 7 - EAST SLOPE - South Platte River		
EIS Impacts	Proposed Mitigation	Mitigation Agency
Surface Water		
<u>Antero Reservoir surface water elevation fluctuation</u> : The maximum increase and decrease in reservoir elevation (averaged over the month) for any month over the 45-year study period between Full Use of Existing System and the Project is 9 feet to 7 feet, respectively. Antero is utilized for multi-year droughts, therefore is not affected by the project.	None	---
<u>Eleven Mile Canyon Reservoir surface water elevation fluctuation</u> : The maximum increase and decrease in reservoir elevation (averaged over the month) for any month over the 45-year study period between Full Use of Existing System and the Project is 4 feet to 3 feet, respectively. Eleven Mile is utilized for multi-year droughts, therefore is not affected by the project.	None	---
<u>Cheesman Reservoir surface water elevation fluctuation</u> : The maximum increase and decrease in reservoir elevation (averaged over the month) for any month over the 45-year study period between Full Use of Existing System and the Project is 61 feet to 6 feet, respectively.	None	---
<u>Strontia Springs Reservoir surface water elevation fluctuation</u> : Reservoir evaporation, contents, and elevation changes to Strontia Springs Reservoir would be negligible. No recreation is allowed on Strontia Springs Reservoir.	None	---
<u>Chatfield Reservoir surface water elevation fluctuation</u> : Reservoir evaporation, contents, and elevation changes to Chatfield Reservoir would be negligible. The project has no impact on storage or operations of Chatfield Reservoir.	None	---
<u>Surface water flows</u> : Flow changes along the South Platte would be relatively minor and vary depending on the location. South Platte flows at the Waterton Canyon gage would decrease on average in summer months (max. decrease of 5% in June) due to Denver Water's additional direct diversions and exchanges to Strontia Springs Reservoir and Conduit 20. There would be little change in flows at the Waterton gage in most winter months (1% in Dec and 0% in Jan-March). Flows at the Henderson gage would increase on average during winter months from Oct-Nov (2-9%) and little change in flow May-Sept.	None	---
<u>Stream Morphology and Sedimentation</u> : Given the minor flow changes to the South Platte, impacts to channel morphology under the project are likely to be negligible.	None	---
Groundwater		
Below Chatfield Reservoir and at the Denver gage, flows increase in the winter and decrease in late summer in an average year. The maximum expected increases and decreases in flow would have minor effects on groundwater and would be limited to only the areas near the river and would be well within the normal seasonal fluctuations typical for aquifers along streams in mountainous terrain.	None	---
Riparian/Wetland		
The changes in stream flow associated with the Moffat Project would have no measurable effects to wetlands, other waters, and riparian area along the South Platte.	None	---

Table 7 - EAST SLOPE - South Platte River

EIS Impacts	Proposed Mitigation	Mitigation Agency
<p>Wildlife Impacts to wildlife from changes in river flows would not have a noticeable impact on wildlife habitat or wildlife species.</p>	None	---
<p>Special Status Species Flow changes would contribute to adverse effects on Platte River system threatened and endangered species (whooping crane, piping plover, least tern, and pallid sturgeon). May affect, but not likely to adversely effect Preble's meadow jumping mouse critical habitat between Waterton Canyon and Chatfield Reservoir, habitat along South Platte between Cheesman and Chatfield reservoirs. Minimal effects on bald eagle. No effect to other species.</p>	Compliance with the Endangered Species Act and Biological Opinion (BO) issued by the US Fish & Wildlife Service (USFWS). Continued participation in the Platte River Recovery Implementation Program.	USFWS
<p>Aquatic Resources More favorable winter flows would have a minor beneficial impact to fish and invertebrates in the section of the South Platte between Chatfield Reservoir and Bear Creek.</p>	None	---
<p>Recreation Boating: The impacts to boating on the South Platte resulting from these flow changes would be negligible. Fishing: Minor beneficial effect to fishing due to reduced flows.</p>	None	---

From: [Brucker - DNR, Sarah](#)
To: [Frederick, Summer](#)
Cc: [Jeff Deatherage](#); [Michael Hein](#)
Subject: Re: Referral for SI-20-0003, Gross Reservoir & Dam Expansion project at 3817 Gross Dam Road, at parcel 157928000006
Date: Monday, October 19, 2020 10:18:22 AM
Attachments: [image001.png](#)
[Gross Reservoir Referral Form.pdf](#)

This office has reviewed the application materials for the Gross Reservoir & Dam Expansion project, SI-20-0003, and has no formal comments to provide at this time. The signed referral form is attached for your records. The Division of Water Resources' Dam Safety Branch is reviewing the project separately with Denver Water and their engineers from a dam safety perspective and has been engaged with Denver Water for the past 2+ years to ensure that all dam safety comments have been addressed. Any comments or concerns regarding aggregate mining at the site will be addressed through the Division of Reclamation, Mining and Safety permitting process at the time a reclamation permit is applied for. Denver Water has indicated that a temporary water supply will likely be required for office use at the Gross Reservoir site for a period of approximately five years. Denver Water has committed to working with this office to ensure a legal source of water for the site.

Sarah Brucker
Water Resources Engineer



COLORADO
Division of Water Resources
Department of Natural Resources

P 303.866.3581 x 8249
1313 Sherman St., Suite 821 Denver CO 80203
sarah.brucker@state.co.us | <https://dwr.colorado.gov>

On Wed, Sep 30, 2020 at 5:02 PM Milner, Anna <amilner@bouldercounty.org> wrote:

Please find attached the electronic Referral memo for *SI-20-0003, Gross Reservoir & Dam Expansion* project at *3817 Gross Dam Road, at parcel 157928000006*.

Please visit www.boco.org/GrossReservoir to access the complete applications materials.

Please return responses and direct any questions to [Summer Frederick](#) by **October 14, 2020**.
(Boulder County internal departments and agencies: Please attach the referral comments in Accela.)

Best Regards,

Anna

Anna Milner | Admin. Lead Tech.

Boulder County Community Planning & Permitting (formerly *Land Use and Transportation*) – [We've become a new department!](#)

Pronouns: she/her/hers

Physical address: 2045 13th St., Boulder CO 80302

Mailing address: PO Box 471, Boulder, CO 80306

(720) 564-2638 (Direct) | (303) 441-4856 (Fax)

amilner@bouldercounty.org

www.bouldercounty.org



PLEASE NOTE: In an effort to mitigate the spread of COVID-19, the Boulder County Community Planning & Permitting physical office at 2045 13th St. in Boulder is CLOSED to the public until further notice. We will continue to operate remotely, including the online acceptance of building permits and planning applications. Please visit our webpage at www.boco.org/cpp for more detailed information and contact emails for groups in our department. You may also leave a message on our main line at 303-441-3930 and the appropriate team member will return your call. *Thank you for your adaptability and understanding in this extraordinary time!*



Community Planning & Permitting

Courthouse Annex • 2045 13th Street • Boulder, Colorado 80302 • Tel: 303.441.3930
Mailing Address: P.O. Box 471 • Boulder, Colorado 80306 • www.bouldercounty.org

MEMO TO: Agencies and adjacent property owners
FROM: Summer Frederick, AICP, Planning Division Manager
DATE: September 30, 2020
RE: **Docket SI-20-0003**

Docket SI-20-0003: Gross Reservoir & Dam Expansion

Request: Areas and Activities of State Interest (1041) review for the expansion of Gross Dam and Reservoir to store an additional 77,000 acre-feet total of water, which includes increasing the dam height by approximately 131 feet, the dam length by approximately 790 feet, and the spillway elevation by approximately 126 feet; quarry operations to obtain aggregate required for construction; construction of a temporary concrete batch/production plant and an aggregate processing plant; permanent road improvements to Gross Dam Road from State Highway 72 to the Gross Reservoir; temporary road improvements to FS35 (Winiger Ridge Road) and FS 97 (Lazy Z Road); and the relocation of the Miramonte Multi-Use Trail.

Location: 3817 Gross Dam Road, at parcel 157928000006, north end of Gross Dam Road approximately 5 miles north of its intersection with State Highway 72, in Section 28, Township 1S, Range 71W.

Zoning: Forestry

Applicant: Denver Water, c/o Jeff Martin

Property Owners: Denver Water, City and County of Denver, U.S. Forest Service

This process includes public hearings before the Board of County Commissioners and may include a public hearing before the Boulder County Planning Commission. Adjacent property owners and holders of liens, mortgages, easements or other rights in the subject property are notified of these hearings.

The Community Planning & Permitting staff, Planning Commission, and County Commissioners value comments from individuals and referral agencies. Please check the appropriate response below or send a letter to the Community Planning & Permitting Department at P.O. Box 471, Boulder, Colorado 80306 or via email to GrossReservoir@bouldercounty.org. All comments will be made part of the public record and given to the applicant.

You may view or download the application materials at www.boco.org/GrossReservoir.

You are welcome to call the Community Planning & Permitting Department at 303-441-3930 or email GrossReservoir@bouldercounty.org to request more information. If you have any questions regarding this application, please contact the Community Planning & Permitting office at (720) 564-2603 or via email at sfrederick@bouldercounty.org.

As required per article 8-508(C)1.a, referral responses must be returned within 14 days or **October 14, 2020**. *As noted in section 8-508(C)1.b, an extension may be expressly granted by the Director. (Please note that due to circumstances surrounding COVID-19, application timelines and deadlines may need to be modified as explained in the CPP Notice of Emergency Actions issued March 23, 2020 (see <https://boco.org/covid-19-cpp-notice-20200323>).

We have reviewed the proposal and have no conflicts.
 Letter is enclosed.

Deb Gardner County Commissioner

Elise Jones County Commissioner

Matt Jones County Commissioner

Signed  PRINTED Name Sarah Brucker, P.E.
Agency or Address Colorado Division of Water Resources



Community Planning & Permitting

Courthouse Annex • 2045 13th Street • Boulder, Colorado 80302 • Tel: 303.441.3930

Mailing Address: P.O. Box 471 • Boulder, Colorado 80306 • www.bouldercounty.org

November 12, 2020

To: Summer Frederick, AICP, Planning Division Manager
From: Virginia Gazzetti, Floodplain Program Planner

Subject: Docket SI-20-0003: Gross Reservoir Dam and Expansion
Request: Dam and Reservoir to store an additional 77,000 acre-feet total of water, which includes increasing the dam height by approximately 131 feet, the dam length by approximately 790 feet, and the spillway elevation by approximately 126 feet; quarry operations to obtain aggregate required for construction; construction of a temporary concrete batch/production plant and an aggregate processing plant; permanent road improvements to Gross Dam Road from State Highway 72 to the Gross Reservoir; temporary road improvements to FS35 (Winiger Ridge Road) and FS 97 (Lazy Z Road); and the relocation of the Miramonte Multi-Use Trail.

Location: 3817 Gross Dam Road, at parcel 157928000006, north end of Gross Dam Road approximately 5 miles north of its intersection with State Highway 72, in Section 28, Township 1S, Range 71W.

The Community Planning & Permitting Department – Floodplain Management Program has reviewed the above referenced docket and has the following comments:

General Permitting Requirements

The proposed project is located within the county’s Floodplain Overlay District. An Individual Floodplain Development Permit (FDP) is required prior to construction. In addition, because the proposed project would require substantial revisions to the Preliminary Flood Insurance Study (FIS) and Flood Insurance Rate Maps (FIRMs), a Conditional Letter of Map Revision (CLOMR) must be approved by FEMA before an FDP may be issued. Upon project completion, a Letter of Map Revision (LOMR) must be approved by FEMA to revise the regulatory floodplain.

The regulatory floodplain for South Boulder Creek upstream of Eldorado Springs, which includes Gross Reservoir, is the result of a flood hazard study conducted by the Colorado Water Conservation Board (CWCB). This study was completed through the Colorado Hazard Mapping Program (CHAMP) and submitted to FEMA in 2018. On September 30, 2019, FEMA released a Preliminary FIS and FIRMs based on this study. On January 1, 2020, the Boulder County Board of County Commissioners approved Land Use Docket Z-19-0001, thereby incorporating the Preliminary FIS and FIRMs into the county’s Floodplain Overlay District. The county anticipates that these will supersede the currently effective FIS and FIRMs in 2022.

The CLOMR application must include an analysis and report conducted by a Colorado-licensed Professional Engineer that fully demonstrate the impacts of the project on base (1% annual chance) flood hydrology, hydraulics, and floodplain map compared with

the Preliminary FIS and FIRM for South Boulder Creek. The hydrologic analysis must also demonstrate the impacts of the project on other flood recurrence intervals for South Boulder Creek that are included in the Preliminary FIS. The required CLOMR application, analysis, and report must be completed in accordance with FEMA standards.

Pursuant to Boulder County Land Use Code Article 4-404.2.E.4.d, any increase in base flood elevations that are a direct result of the proposed project and that impact an insurable building will not be allowed. This includes any increases resulting from greater 1% annual chance discharges from the proposed spillway.

Any roadwork, grading, construction staging, or material stockpiling in the Floodplain Overlay District will also require an Individual FDP. All staging and stockpiling areas must avoid the regulatory floodplain unless it is demonstrated to the county's satisfaction that doing so is unavoidable. Staging or stockpiling in the regulatory floodway will not be permitted without an approved evaluation of alternatives and emergency evacuation plan.

1041 Review and Request for Additional Information

Our review of the application materials revealed that the applicant has not provided a quantitative analysis of the project's impact on regulatory base (1% annual chance) flood discharges, flood elevations, and floodplain extent on South Boulder Creek. Without a quantitative analysis based on regulatory data, the county cannot evaluate the impacts of the project on the regulatory floodplain.

The CLOMR application process, which is required for the Individual FDP, will allow both the county and FEMA to review floodplain impacts. However, in accordance with the 1041 Review Criteria, the impacts downstream of Gross Reservoir must be more thoroughly evaluated as part of the 1041 Review to determine whether the project will result in any rises in base flood elevations that impact insurable buildings downstream of the reservoir. In accordance with Boulder County Land Use Code Article 4-404.2. E.4.d, such rises will not be allowed.

Therefore, in order to complete our 1041 Review of the proposed project, the applicant must provide an analysis and report conducted by a Colorado-licensed Professional Engineer that describe the impacts of the project on regulatory base flood hydrology, hydraulics, and floodplain extent downstream of Gross Reservoir, based on the Preliminary FIRM and FIS for South Boulder Creek. The analysis and report must either a) certify that there will be no changes to the regulatory hydrology or hydraulics downstream of the reservoir, or b) describe the changes to the regulatory hydrology, hydraulics, and floodplain extent downstream of the reservoir and certify that no insurable buildings will be impacted by any rise in base flood elevations resulting from the project.

The regulatory hydrology for South Boulder Creek downstream of Gross Reservoir comes from the MIKE 11 rainfall-runoff model completed by the City of Boulder in 2007 (CH2M, 2008). The results of the MIKE 11 model were used to set the flows in the CHAMP hydraulic analyses and to tie-in with existing floodplain mapping through the City of Boulder. The MIKE 11 rainfall-runoff model accounts for flood storage in Gross Reservoir. The regulatory hydrology for South Boulder Creek upstream of Gross Reservoir is based on

a HEC-HMS model completed by the Colorado Department of Transportation and CWCB (CH2M 2015).

The regulatory hydraulics and mapping for South Boulder Creek are the results of the CHAMP study and are modeled in HEC-RAS 4.1.0.

Please contact Virginia Gazzetti, Floodplain Program Planner, at 720-564-2865 or vgazzetti@bouldercounty.org to discuss this referral and to obtain the effective hydraulic model and supporting materials for South Boulder Creek.

This concludes our comments at this time.



Gilpin County Colorado

Commissioners

Ron Engels, District 1
Linda Isenhardt, District 2
Gail Watson, District 3

County Manager

Abel Montoya

County Attorney

Bradford Benning

Located in the Historic
Gilpin County Courthouse
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Facebook
Gilpin County Colorado

Twitter
[@GilpinCounty](https://twitter.com/GilpinCounty)

December 17, 2020

TO: Denver Water, Boulder County Board of County Commissioners, City of Boulder, Nederland, Jefferson County Board of County Commissioners; City of Black Hawk, City of Central, Golden; and CDOT.

RE: Gross Reservoir Expansion Project ("Project") – Impacts

The Gilpin County Board of County Commissioners ("Board") expresses their opposition to the Gross Reservoir Expansion Project ("Project"). Impacts on Gilpin County and other eastern slope communities have not been adequately considered and addressed. The Board respectfully requests that the Boulder County Board of County Commissioners and Denver Water not proceed with the Gross Reservoir Expansion Project as currently proposed until Gilpin County, Denver Water, and the above-addressed jurisdictions meet to discuss and address the concerns and serious impacts from the Project. This discussion is necessary to provide a fair and objective review and resolution of the concerns Gilpin County and other impacted communities have related to this Project. Here are a few of the Project impacts that need to be considered and addressed:

- **Environmental Impacts.** The removal of 600,000 trees, creating a new quarry site, and building an enlarged dam is an ecological disaster for this area. We do not believe the Project should be approved but at the very least a new Environmental Impact Statement should be required.
- **Wildlife Impacts.** The headwaters for South Boulder Creek are located in Gilpin County and the channelization of this creek for the purpose of filling Gross Reservoir in the 1950's is visible to this day. We are concerned about the loss of fish habitat that will occur when maximum water flows are needed to fill the proposed enlarged reservoir.
- **Sustainability and Conservation.** Water conservation rather than expansion was not considered as a viable alternative to the expansion Project. Beautiful forests and treasured wilderness and environmental areas should not be sacrificed to perpetuate continued non-sustainable water use and inefficient water irrigation practices in metropolitan areas and elsewhere. Colorado has a semi-arid climate and is considered a high dessert. We need to adjust to that reality with our water practices and become champions of water conservation.
- **Traffic Impacts.** As currently proposed, Gilpin County's most used and relied on county-wide roadway, SH 119, will see the addition of at least 36 heavy trucks per day hauling tree materials from the Project through Gilpin County. SH 119, which is west of Gross Reservoir and runs south from the Nederland area through Gilpin County, is a two-lane road through an historic and scenic natural area, specifically the Peak to Peak Scenic and Historic Byway. SH 119 also serves as a major access point for Gilpin County citizens, businesses and employees as well as visitors seeking to enjoy the businesses and beauty of Gilpin County. SH 119 is also the only highway that traverses the entire County, serving as a gateway to the County from both the north and south of the County.

US 6, part of the Project's planned SH 119 route for transport of tree removal material, serves many Gilpin County residents, businesses, and visitors as they travel to Gilpin County and others heading west to or east from I-70. US 6 is also already overburdened with heavy truck traffic from the Frei Quarry located along US 6. Additionally, US 6 and SH 119 serve as a major route for the millions of visitors for the recreation opportunities in Gilpin County including the casinos, which generate significant revenue for the County and the State.

We are also concerned about impacts to other roads serving Gilpin County. Coal Creek Canyon (CO 72) is the state highway that serves many of our residents in northern Gilpin County. The impact that construction and logging trucks will have on this curvy mountain road is so extreme that it will create dangerous conditions for residents commuting to work or to services below.

It appears other more direct, shorter, safer, faster, less costly, less polluting, wider (multiple lanes per direction) and more eco-friendly routes are available for transporting tree materials from the Project. As presently proposed, 15 percent of truck traffic hauling tree materials destined for Longmont will travel an additional 90 miles, approximately 30 miles of which is through Gilpin County, to avoid a direct route to the north through Boulder. Additionally, the Union Pacific's Moffat Tunnel Subdivision rail line appears to be a possible alternative. UP's Moffat Tunnel Subdivision line travels west from Denver and comes very near Gross Reservoir where it crosses and is accessible from Gross Dam Road. This rail line also travels close to SH 72 and SH 93 and crosses those highways at various locations providing additional access points for transferring tree and other materials for transport south or north on SH 93, or to I-70, or for taking materials and equipment to Gross Reservoir.

We understand this proposed Project will impact several communities. We look forward to discussing all of these issues so that impacts are fairly and effectively addressed.

Sincerely,


Gilpin County Board of County Commissioners



Gail Watson, Chair, District 3



Ron Engels,
Commissioner, District 1



Linda Iserhart,
Commissioner, District 2



Grand County
Colorado



DATE: November 13, 2020

TO:
Boulder County Community Planning & Permitting Department
Attn: Summer Frederick, Planning Division Manager
PO Box 471
Boulder, CO 80306

SUBMITTED VIA EMAIL: GrossReservoir@bouldercounty.org

FROM:

Grand County
Barbara Green
Sullivan Green Seavy, LLC
Special Counsel to Grand County
303-355-4405
barbara@sullivangreenseavy.com

Northwest Colorado Council of Governments
Torie Jarvis
Director and Staff Attorney
NWCCOG Water Quality/ Quantity Committee
970-323-4330
qqwater@nwccog.org

RE: Comments on Docket SI-20-0003: Gross Reservoir & Dam Expansion

Thank for you for the opportunity for Grand County and the Northwest Colorado Council of Governments, by and through its Water Quality/ Quantity Committee (NWCCOG), to submit comments on the Gross Reservoir and Dam Expansion Project (“Project”) proposed by Denver Water.

Grand County is providing these comments as a signatory to the Colorado River Cooperative Agreement (“CRCA”) between west slope local governments and Denver Water. The CRCA includes a range of benefits to the water resources in Grand County and the headwaters of the Colorado River Basin that are tied to the Gross Reservoir Expansion. The impetus of the CRCA was, in part, to address the impacts that have occurred in the Upper Colorado River watershed during dry years and in dry seasons because of Denver Water’s existing, pre-law water diversions through the Moffat Tunnel. In addition, Grand County has a long

history of using 1041 regulations to address impacts to the County from water projects, and was a defendant in the earliest cases that upheld county authority to regulate water projects proposed by municipal governments.¹ Grand County supports Boulder County's tenacious efforts to regulate through such means.

NWCCOG's interest in this matter includes the fact that several member counties are signatories to the CRCA described above, and because it has been focused for more than 45 years on preserving county authority to permit municipal water projects. NWCCOG is the designated regional water quality management agency for the region that includes the headwaters of the Colorado River, where additional water will be taken to Gross Reservoir. In this role, NWCCOG adopts and implements the regional water quality management plan under Section 208 of the Clean Water Act, 33 U.S.C. § 1288(a) ("208 Plan").² The primary goal of the NWCCOG 208 Plan is "the protection of the existing water quality and designated uses of waters in the region."³

NWCCOG, Grand County, and other local government members of NWCCOG have been focused on water quality issues associated with the Moffat Tunnel transmountain diversion system since the 1970s. NWCCOG members, including Grand County, have used 1041 authority to regulate, and even deny, major water projects that did not meet 1041 standards. Grand County and NWCCOG have long supported and protected 1041 authority and continue to support Boulder County's authority to regulate this Project through 1041 permitting just as NWCCOG members have done for decades.

Unfortunately, the headwaters region will not gain the benefits negotiated in the CRCA that are designed to address the environmental and socio-economic impacts caused by Denver Water's historic, pre-law water diversions with the Project in place. Only by allowing the new diversions during wet years that would be made possible by the Project can we ensure additional releases of water during the critical low flow periods that are necessary for the survival of aquatic life and the aquatic environment.

Grand County and NWCCOG recognize a shared interest with Boulder County in protecting water resources and offer their experience with permitting major water projects that have resulted in net water quality gains for affected water segments. Grand County and NWCCOG believe that a collaborative, problem solving approach could allow Boulder County to issue a 1041 permit for the Gross Reservoir Expansion that can benefit the area where Project impacts are to be experienced- Boulder County- and also provide the Upper Colorado River system with the water that is so crucial to protecting the aquatic environment.

¹ *Denver Water vs. Grand County Comm'rs*, 782 P.2d 753 (Colo. 1989).

² See also 5 Colo. Code Regs. § 1002-23 (2019).

³ NWCCOG, Regional Water Quality Management Plan, Vol. I (Policy Plan), at 4 (2012). Available at http://nwccog.org/wp-content/uploads/2015/04/Vol-1_Policy-Plan-2012-208-Plan.pdf.

EFFICIENT UTILIZATION OF WATER SUPPLY CONSIDERATIONS

The Boulder County 1041 regulations explicitly consider the efficient utilization of the Gross Reservoir and Dam Expansion Project, including the source of the needed water supply.⁴ As Denver Water points out briefly in its 1041 Permit Application, the source of the water supply for the Project is the Fraser and Williams Fork Rivers and tributaries, which will be diverted through the existing Moffat Tunnel transmountain diversion to be stored in the expanded Gross Reservoir.⁵

The Project would allow Denver Water to use existing water rights in the headwaters to the Colorado River. This Project is expected to increase diversions in wet years from these basins by 15-20%. When paired with existing Denver Water diversions, an estimated 80% of flows will be diverted from the Fraser River.⁶ When the Project was first proposed, Grand County and NWCCOG were alarmed that this Project would exacerbate the already-degraded conditions of the Fraser and Upper Colorado River caused in large part by existing water diversions from the Colorado River system to the Front Range. Their first instinct was “not another drop.”

However, Grand County, NWCCOG, and its member local governments ultimately decided that negotiating with Denver Water (which resulted in the CRCA) was a more prudent course of action than the scorched-earth litigation which has characterized water wars for over 100 years. The benefits derived from these negotiations should be taken into account when Boulder County assesses Denver Water’s efficient utilization of water supplies, under Section 8-511.C.2. of the County’s Land Use Code. Elements of the CRCA are evidence the Project would satisfy this standard, including:

- An adaptive management process that takes into account current, pre- and post-Project, and cumulative impacts on the Colorado Headwaters. That process, called Learning By Doing, makes Denver Water a key funder and partner along with Grand County, other west slope governments, nonprofits like Trout Unlimited, state agencies, and others who work jointly to adaptively manage river health.⁷ Learning By Doing is an historic approach to managing water supplies that for the first time asks the Project proponent to remain engaged for the life of the Project. Impacts to the environment of water projects cannot be predicted with accuracy, and mitigation is not an exact science. Thus, meeting regularly to assess real world changes to the environment rather than relying on pre-packaged mitigation is the only way to make protect environmental resources, especially in light of climate change.

⁴ Boulder County Land Use Code (BCLUC), 8-511.C.2.

⁵ Denver Water, Gross Reservoir Expansion Project Areas and Activities of State Interest (1041) Permit Application (“1041 Permit Application”), submitted September 21, 2020, at 41.

⁶ Army Corps of Engineers, Moffat Final Environmental Impact Statement (“Moffat FEIS”) Chapter 5, 2014, at p. 5-19, available at <https://usace.contentdm.oclc.org/digital/collection/p16021coll7/id/740>.

⁷ More on Learning By Doing available at <https://www.grandcountylearningbydoing.org/>.

- Additional “wet water” for towns, districts, and ski areas in Grand and Summit Counties to service the needs of the communities and improve water quality and environmental health, and funding to improve existing degraded conditions.
- Limiting the use of transmountain diversion water to Denver Water’s existing service area. The vast majority of water supply for the Project, as a result, will not result in an expansion of Denver Water’s service area that would otherwise contribute to urban sprawl on the Front Range.
- Extensive conservation and reuse throughout Denver Water’s system, including conservation of 29,000 AF of water by 2045, consistent with Denver Water’s 1996 Integrated Water Management Plan. In order to reuse transmountain water to extinction, or as close as possible, Denver Water also committed to the construction of 30,000 AF of gravel pit storage and construction of its recycled water system, which is currently accepting contracts.

With the commitments made in the CRCA, the NWCCOG region will see improved water quality, environmental health, recreational flows, and collaborative partnerships with Denver Water, and the Project would be consistent with NWCCOG’s 208 Plan.

LESSONS LEARNED FROM RECENT TRANSMOUNTAIN DIVERSION EXPANSION PROPOSALS

Grand County and NWCCOG understand and support Boulder County’s emphasis on water quality protection and mitigation of overall project impacts to the County through its 1041 regulations. Grand County recently issued a 1041 permit for the Windy Gap Firming Project, another expansion of an existing transmountain diversion project by Northern Water Conservancy District (“Northern”).

In that instance, Northern agreed to apply for a 1041 permit “under protest.” Commitments made in a series of Intergovernmental Agreements (IGAs) were incorporated as conditions of Grand County’s 1041 permit to ensure that 1041 standards were met. Commitments included Northern’s participation in Learning By Doing and water and funding commitments for the impacted area on a similar level to the CRCA. This led to NWCCOG’s determination that, with all of these commitments, Northern’s project will be consistent with the NWCCOG 208 Regional Water Quality Plan, and with Grand County’s issuance of the 1041 permit.

Now, because of these negotiated commitments, Denver Water and Northern are already meeting regularly with Grand County, NWCCOG, other local governments, and the environmental community. This group, through Learning By Doing, jointly issues and plans system operations that take into account the aquatic environment and local socio-economic impacts, not just water supply goals. In 2017, Learning By Doing collaboratively developed a river restoration project on the Fraser River that shows promising initial

signs of greatly improved fish habitat.⁸ Relationships continue to grow, and Learning By Doing is working well.

POTENTIAL 1041 PERMIT CONDITIONS FOR COUNTY CONSIDERATION

Based on Grand County and NWCCOG's experience, this comment letter includes some potential 1041 permit conditions that the County may wish to consider, or may already be considering, while evaluating the Project against Boulder County's 1041 regulations.

Possible Condition(s): Adaptive Management and commitments to collaborative responses to Project impacts

Drawing on the early success of the Grand County Learning By Doing Adaptive Management Committee, Boulder County could benefit from integrating adaptive management or ongoing collaborative commitments into permit conditions in order to flexibly address impacts from the Project in Boulder County as they are realized.

For example, in Section 8-507.D.7.b.ii.C, Denver Water references Condition 15 of its § 401 state water quality certification as a mechanism to mitigate impacts to surface water quality from the Project. Condition 15 states that, if monitoring Denver Water has committed to perform indicates water quality impairment, Denver Water will initiate an investigation and deliver a report to Colorado Department of Public Health and Environment. If the impairment is shown to be because of the operation of the Project, then Denver Water would prepare a mitigation plan.⁹

This Project mitigation would lend itself to an adaptive decision making body that includes a broader group than just Denver Water. We would be happy to work with the County to explain some of the procedures we have developed through Learning By Doing which Boulder County might find interesting.

Possible Condition(s): Review and approval of all plans serving as mitigation in other agreements

As a 1041 Permit condition for the Windy Gap Firming Project, Grand County required Northern Water to submit monitoring plans for approval. Grand County is currently working with Northern Water to resolve its concerns. Boulder County may wish to consider the same approach for monitoring requirements.

⁸ Nathaniel Minor, *Rehab of Colorado's Fraser River Shows Early Signs of Success*, Colorado Public Radio, Oct. 16, 2017, available at <https://www.cpr.org/2017/10/16/rehab-of-colorados-fraser-river-shows-early-signs-of-success/>.

⁹ Project 1041 Application, § 8-507.D.7.b.ii.C at 111.

Examples of plans that Boulder County may want to review and approve for consistency with the 1041 application include the Pit Development and Reclamation Plan,¹⁰ the Tree Removal Plan,¹¹ and various monitoring commitments made as conditions in the § 401 state water quality certification.¹²

Possible Condition(s): Incorporate existing agreements into the 1041 permit

The Windy Gap Firing Project 1041 incorporated relevant existing agreements that were necessary to mitigate impacts under the 1041 permit. Existing agreements are likely essential to evaluating the Project 1041 permit application as well. Examples of existing agreements that serve as mitigation include:

- Denver Water/USFS Settlement Agreement, which includes wetlands construction, invasive species management, and wildlife habitat protections.¹³
- Agreements that led to the environmental pool in Gross Reservoir, including the 2010 Intergovernmental Agreement (IGA) between Denver Water and the cities of Boulder and Lafayette and requirements in the FERC permit.¹⁴

The processes established in the above agreements would benefit from ongoing reporting to, and participation from, Boulder County on actions taken under those existing agreements as they relate to standards in the 1041 permit.

Grand County and NWCCOG encourage the Boulder County BOCC to consider the recent outcomes of negotiated agreements in the Colorado River headwaters and consider similar approaches to ensure impacts are addressed and properly mitigated. As the west slope learned through the CRCA and Windy Gap Firing Project negotiations, mitigating impacts from projects in a meaningful way that considers ongoing real-time impacts, not just modeled and anticipated impacts, is possible and prudent.

Thank you for your consideration of these comments. We welcome any questions you might have.

Sincerely,



Torie Jarvis
Director and Staff Attorney (#46848)
NWCCOG/QQ
970-323-4330
qqwater@nwccog.org

Barbara Green
Special Counsel to Grand County
303-355-4405
barbara@sullivangreenseavy.com

¹⁰ Project 1041 Application , § 8-507.D.6.b at 55.
¹¹ Project 1041 Application, § 8-507.D.7.b.ii.C at 109
¹² *Id.* at 111.
¹³ *Id.* at 138.
¹⁴ *Id.*

From: [Steve Durian](#)
To: [Frederick, Summer](#); [Thomas, Mike](#)
Cc: [Kate Newman](#); [Jeanie Rossillon](#); [Donald Davis](#); [Steve Durian](#)
Subject: Jefferson County Comments regarding Gross Reservoir
Date: Monday, December 14, 2020 9:41:19 AM

Summer and Mike,

Thank you for reaching out to me last week to review the truck routing related to the tree clearance and construction being planned at Gross Reservoir. This project is currently in a Boulder County Land Use Review process. The issues of concern from our meeting were:

1. There will be as many as 228 truck trips per day or 17 to 25 trucks per day accessing the site during different phases of the project between 2024 and 2026.
2. Denver Water has stated that truck traffic will not utilize routes through the city of Boulder to access a processing site in Longmont. The number of trucks accessing Longmont will be fewer than 20% of the total truck trips. All other traffic will access the landfill site at SH93 just south of SH 72.
3. Alternative routes to between Gross Reservoir and Longmont that do not enter the city of Boulder could impact other municipal and unincorporated areas both within and outside of Jefferson County.
4. There is no specific plan described in the application for truck routing other than a broad statement that trucks will be utilizing SH 72 (Coal Creek Canyon) and SH 93.
5. All truck traffic within Jefferson County will use CDOT-maintained roads and CDOT has limited authority to dictate the route of legally-loaded, non-oversized trucks.

Please let me know if I am incorrect in describing any of these facts. In response to your request for comments related to the land use case for the Gross Reservoir expansion, please see the following Jefferson County comment:

Jefferson County requests more specific information about the planned routing of trucks accessing Gross Reservoir to and from both the east and west sides of the project. Jefferson County's concerns include the noise and traffic impact of trucks to unincorporated areas of Jefferson County and incorporated areas including the cities of Golden, Arvada, and Wheat Ridge. If routing of trucks will occur through incorporated areas within Jefferson County, the applicant should conduct outreach to staff at those cities.

.....
Steve Durian, PE, AICP
 Director, Transportation and Engineering Division

Jefferson County
 100 Jefferson County Parkway, Suite 3500
 Golden, CO 80419
 303-271-8498
 sdurian@jeffco.us



From: [Jana Easley](#)
To: [Frederick, Summer](#)
Subject: Referral memo for SI-20-0003, Gross Reservoir & Dam Expansion project at 3817 Gross Dam Road, at parcel 157928000006.
Date: Wednesday, September 30, 2020 5:34:43 PM

Hello Summer,
No comments or concerns from Lafayette on this referral.
Thanks,
Jana

Jana Easley

AICP | Interim Planning & Building Director

City of Lafayette

(303) 661-1271 (office)

(720) 595-0450 (cell)

jana.easley@cityoflafayette.com



Town of Nederland, Colorado

45 West First Street – P.O. Box 396
Nederland, CO 80466-0396

Phone: (303) 258-3266

FAX: (303) 258-1240

December 1, 2020

Dear Boulder County Commissioners,

We support and appreciate your application of the 1041 regulations to Denver Water's proposed expansion of Gross Reservoir. We agree that it is critical that the project be thoroughly and carefully reviewed under Boulder County's land use and environmental regulations.

We have concluded because of data provided that the proposed expansion is unnecessary and that the installation of water conservation low flow devices and more efficient toilets, as well as xeriscaping in homes within Denver Water's service area would achieve the same conservation goals, while providing more jobs and no negative environmental impacts.

The expansion project will have severe negative environmental impacts by releasing massive amounts of carbon into the atmosphere. The expansion will require the removal of 200,000 trees, that are badly needed for carbon sequestration. It will require millions of tons of cement that also releases massive amounts of carbon when processed. There will be tens of thousands of trucks traveling on Boulder County roads damaging them severely with unrecoverable costs that will be passed on to taxpayers. The truck traffic will also have a very negative impact on our already deteriorating air quality. This project is completely inappropriate in the middle of a climate crisis. Climate change makes it extremely unlikely that the reservoir will ever be filled because of decreasing moisture and increasing temperatures and evaporation rates.

The Colorado River is overwhelmed with too many states demanding water. A project planning to withdraw water from the river is a very shortsighted, misguided idea.

We oppose the project and respectfully request that you deny it.

Sincerely,

A handwritten signature in black ink, appearing to read "Kristopher Larsen".

Mayor Kristopher Larsen on behalf of the Nederland Board of Trustees



Community Planning & Permitting

Courthouse Annex • 2045 13th Street • Boulder, Colorado 80302 • Tel: 303.441.3930
Mailing Address: P.O. Box 471 • Boulder, Colorado 80306 • www.bouldercounty.org

MEMO TO: Agencies and adjacent property owners
FROM: Summer Frederick, AICP, Planning Division Manager
DATE: September 30, 2020
RE: **Docket SI-20-0003**

Docket SI-20-0003: Gross Reservoir & Dam Expansion

Request: Areas and Activities of State Interest (1041) review for the expansion of Gross Dam and Reservoir to store an additional 77,000 acre-feet total of water, which includes increasing the dam height by approximately 131 feet, the dam length by approximately 790 feet, and the spillway elevation by approximately 126 feet; quarry operations to obtain aggregate required for construction; construction of a temporary concrete batch/production plant and an aggregate processing plant; permanent road improvements to Gross Dam Road from State Highway 72 to the Gross Reservoir; temporary road improvements to FS35 (Winiger Ridge Road) and FS 97 (Lazy Z Road); and the relocation of the Miramonte Multi-Use Trail.

Location: 3817 Gross Dam Road, at parcel 157928000006, north end of Gross Dam Road approximately 5 miles north of its intersection with State Highway 72, in Section 28, Township 1S, Range 71W.

Zoning: Forestry

Applicant: Denver Water, c/o Jeff Martin

Property Owners: Denver Water, City and County of Denver, U.S. Forest Service

This process includes public hearings before the Board of County Commissioners and may include a public hearing before the Boulder County Planning Commission. Adjacent property owners and holders of liens, mortgages, easements or other rights in the subject property are notified of these hearings.

The Community Planning & Permitting staff, Planning Commission, and County Commissioners value comments from individuals and referral agencies. Please check the appropriate response below or send a letter to the Community Planning & Permitting Department at P.O. Box 471, Boulder, Colorado 80306 or via email to GrossReservoir@bouldercounty.org. All comments will be made part of the public record and given to the applicant.

You may view or download the application materials at www.boco.org/GrossReservoir.

You are welcome to call the Community Planning & Permitting Department at 303-441-3930 or email GrossReservoir@bouldercounty.org to request more information. If you have any questions regarding this application, please contact the Community Planning & Permitting office at (720) 564-2603 or via email at sfrederick@bouldercounty.org.

As required per article 8-508(C)1.a, referral responses must be returned within 14 days or **October 14, 2020**. *As noted in section 8-508(C)1.b, an extension may be expressly granted by the Director. (Please note that due to circumstances surrounding COVID-19, application timelines and deadlines may need to be modified as explained in the CPP Notice of Emergency Actions issued March 23, 2020 (see <https://boco.org/covid-19-cpp-notice-20200323>).

We have reviewed the proposal and have no conflicts.

Letter is enclosed.

Deb Gardner County Commissioner

Elise Jones County Commissioner

Matt Jones County Commissioner



City of Boulder Open Space & Mountain Parks

2520 55th St. | Boulder, CO 80301; 303-441-3440

<http://www.osmp.org>

MEMORANDUM

To: Summer Frederick, AICP, Planning Division Manager, Boulder County Community Planning and Permitting

From: Bethany Collins, Real Estate Supervisor, City of Boulder Open Space and Mountain Parks

Date: December 17th, 2020

Re: Docket SI-20-0003
Gross Reservoir & Dam Expansion 1041 Review

Thank you for the opportunity to comment on this application. The subject property is located outside the Planning Area for the Boulder Valley Comprehensive Plan (BVCP), a jointly adopted plan by the city and county. However, in the spirit of the ongoing cooperation between the City and County, and consistent with the Boulder Valley Comprehensive Development Plan Intergovernmental Agreement, we are providing the following referral comments. Additionally, as discussed below, the City of Boulder also has an interest in an environmental pool in the enlarged Gross Reservoir that will be used by Boulder to enhance stream flows in South Boulder Creek.

The City submitted comments and participated in other major permitting processes for Denver Water’s proposed project, including the FERC licensing, US Army Corps of Engineers’ Record of Decision on the Environmental Impact Statement, Section 404 permit, and Section 410 certification. Those processes have resulted in construction requirements, mitigation measures and enhancement projects the city finds acceptable. Should the project be modified, changed or altered in any way, the city requests the opportunity to review and comment on proposed changes and potential impacts to city interests.

In addition to participating as a referral agency in the previous permitting efforts, the City’s comments on this 1041 application are provided in the context of the City and County’s ongoing efforts around water resource planning, as summarized in the following policies of the BVCP:

3.26 Protection of Water Quality

Water quality is a critical health, economic and aesthetic concern. The city and county have been protecting, maintaining and improving water quality and overall health within

the Boulder Valley watersheds as a necessary component of existing ecosystems and as a critical resource for the human community. The city and county will continue to reduce point and nonpoint sources of pollutants, protect and restore natural water systems and conserve water resources. Special emphasis will be placed on regional efforts, such as watershed planning, and priority will be placed on pollution prevention over treatment.

Should the project be approved, the City expects Denver Water will mitigate the construction impacts and perform their ongoing regulatory requirements identified in Table 6 of the application and as required under other permits and agreements, including the water quality monitoring measure; prevention of aquatic invasive species.

3.27 Water Resource Planning & Acquisition

Water resource planning efforts will be regional in nature, consider climate change and incorporate the goals of water quality protection as well as surface and groundwater conservation. The city will use a variety of strategies, such as water conservation, demand management, reuse and acquisition of additional water supplies to meet the adopted municipal water supply reliability goals while balancing in-stream flow maintenance and preservation of sustainable agriculture. The city will seek to minimize or mitigate the environmental, agricultural and economic impacts to other jurisdictions and seek to prevent the permanent removal of land from agricultural production elsewhere in the state in its acquisition of additional municipal water rights. The city and county may continue to acquire water rights for Open Space purposes.

Should the project be approved, the City expects Denver Water will mitigate the construction impacts and perform their ongoing regulatory requirements identified in Table 6 of the application and as required under other permits and agreements. The City also expects that construction impacts will not negatively impact operation of water rights or water supplies.

3.29 In-Stream Flow Program

The city will pursue expansion of the existing in-stream flow program consistent with applicable law and manage stream flows to protect riparian and aquatic ecosystems within the Boulder Creek watershed.

Should the project be approved, the City expects the project will be consistent with this policy upon implementation of the environmental pool described further below. The city requests that Boulder County not place conditions or requirements on the project approval that would conflict with the operation of the environmental pool.

Supported by these policies, and pursuant to the 2010 Intergovernmental Agreement amongst the City of Boulder, City of Lafayette and Denver Water, Denver Water will establish a 5,000 AF environmental pool in the enlarged Gross Reservoir. Boulder and Lafayette will store their Boulder Creek basin water rights in the environmental pool and coordinate releases to meet target stream flows in South Boulder Creek. Boulder is also party to a 2017 Intergovernmental Agreement with Denver Water for the South Boulder Creek Stream Restoration Project. Accordingly, Boulder supports the mitigation measures proposed by Denver Water to mitigate

impacts to the aquatic resources in South Boulder Creek associated with the Gross Reservoir Expansion Project.

Additional comments/requests for clarification:

1. The City requests confirmation that there will be no interruption to normal stream flow through the reservoir to downstream water users during construction.
2. Please revise the last paragraph on page 2-1 of the Traffic Impact Analysis and other documents and permits as necessary to include the following sentence. "If heavy construction traffic or tree removal traffic anticipate traveling on streets in the City of Boulder the contractor will contact the City's Transportation & Mobility Department to ensure there are no weight or size limits on those streets."



Parks & Open Space

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To: Summer Frederick, Planner Division Manager, Community Planning & Permitting
 From: Jeff Moline, Planning Manager
 RE: SI-20-0003, Gross Reservoir and Expansion Project

The Boulder County Parks and Open Space Department (BCPOS) staff has reviewed this application and associated materials. If you or the applicant have questions regarding this referral, please contact me at jmoline@bouldercounty.org (303-678-6270).

Introduction

The department's review of the application materials covered both the discussion of environmental resources in the project area as well as the projected impacts to those resources. BCPOS staff concentrated our attention to sections of the application that described wetlands, riparian areas, and other vegetative and forest resources as well as terrestrial and aquatic life. Along with those natural resources, staff reviewed the application for its discussion of impacts to the environmental resources identified by the Boulder County Comprehensive Plan (BCCP) that occur in the area: Winiger Ridge Environmental Conservation Area (ECA), Winiger Gulch High Biodiversity Area, and the Winiger Elk Herd Migration Corridor. Additionally, staff reviewed the application's discussion about visual resources and recreation impacts, especially as that applies to nearby county open space properties. Finally, staff provided comments on forestry aspects of the project. Several attachments to the referral provide more detail 1. BCPOS Wildlife Staff's comments about Preble's Meadow Jumping Mouse, 2. BCPOS Wildlife Staff's comments about the Toll Mitigation property, 3. BCPOS Wildlife Staff's comments on the Environmental Resource impacts of the project, 4. BCPOS Plant Ecology Staff's comments on the proposal, 5. BCPOS Forestry Staff's comments about the proposed tree removal plan, and 6. POSAC minutes.

General Summary

Staff recognizes that while this single project will have dramatic effects on hundreds of acres of forested lands, some of the more critical environmental resource impacts are to relatively small areas that are already uncommon in the overall landscape yet often provide habitat values critical to animal species that range into other portions of the region including more common forest types. For example, this project will directly impact four acres of riparian habitats, representing less than one percent of the total area affected. However, the importance of those four acres to the ecosystem within the project area extends outside those lost acres and into the habitat types of the surrounding and adjacent forest as many terrestrial animals are drawn to those areas at critical times during their life histories. Additionally, some of these relatively small areas, such as wetlands and riparian zones, are habitat for many rare and sensitive species of flora and fauna, the Sprengle's sedge community for example. These areas harbor crucial biodiversity to the area. While the application's treatment of the project effects on these small sites will be discussed below, staff finds the impacts to some of the affected resources to be either significant or unknown at this time, raising important concerns about the project.

While some of the most critical environmental resources and predicted project impacts are on those uncommon elements of biodiversity, staff finds that other project impacts are best viewed through a regional “geographic area” lens. At this more local scale, losses of the effective habitat of the site are better gauged to assess the real impact to wildlife and natural communities. For example, the application notes that the project will result in the loss of 198.8 acres of effective habitat on U.S. Forest Service (USFS) lands which is a very small change in the overall acreage when viewed at the forest-wide perspective—the Arapaho and Roosevelt National Forest (ARNF) totals approximately 860,000 acres of effective habitat according to application documents. However, when viewed locally, this represents a notable reduction from 59% to 55.5% in the effective habitat of the Thorodin Geographic Area—the ARNF land management unit that includes the Gross Reservoir project. In a wildland urban interface landscape such as this, impacts to effective habitat, high biodiversity areas, and environmental conservation areas will have significant effects since the local plant and animal communities will respond to impacts at these smaller geographic components of the landscape. These effects are compounded because there are many existing impacts to the landscape upon which this project will add to in a cumulative manner. Staff concludes that the local impact of the proposal does represent a significant loss of wildlife habitat for species remaining in the area.

The remainder of the report is organized to present staff’s review of the existing resources, the project’s impacts upon them, and then in a second part to assess those impacts with compliance to the Boulder County Comprehensive Plan and the environmental resources sections of the 1041 Standards of Approval. Comments are included in each section of this memo as appropriate.

Part 1. Existing Resources and Proposed Impacts

Wetlands

BCPOS acknowledges that the project has wetlands impacts as outlined in the application and recommends that these sites be resurveyed prior to construction to document any changes since their initial mapping. The relatively small amount of wetland acreage impacted by the project is notable; due to the steep terrain in this climatic regime, only small ribbons of wetland habitats are found along stream courses. The U. S. Army Corps of Engineers (USACE) in their 404 Permit for the project indicated that the project will not significantly change the aerial extent of wetlands in the area. The application includes correspondence between Denver Water and the USACE acknowledging and approving the acquisition of 3.36 acres of wetland mitigation credits at the Four Mile Mire site near Fairplay in South Park, Colorado. While acknowledging the importance of the mitigation credits, BCPOS staff requests the applicant describe how the proposed mitigation addresses wetland impacts to the project area.

Comments:

1. An updated wetland survey prior to project commencement would provide the most accurate wetland acreage impacts.
2. A description of how the proposed wetlands mitigation addresses wetland impacts to the project area is critical to properly assess the project impacts.

Vegetation

BCPOS staff acknowledges that the project will result in the permanent loss of 455.8 acres of vegetative communities. While the scope of this level of vegetative impact is nearly unprecedented for a single project, a critical aspect of this impact is the loss of 4.9 acres of sensitive plant communities. The applicant states that no federal or state threatened and endangered plants are projected to be impacted. However, there are impacts to special status plants and, because the applicant has not completed full surveys for CNHP and Boulder County plant species of concern, the impact to these rare and imperiled species and communities is unknown at this time. The USACE considered the riparian impacts of the proposal to be “major.” The sensitive plant communities also included about one acre of ponderosa pine old growth (0.1 percent of the total old growth on the whole ARNF) and impacts to Sprengle’s Sedge (a special status plant). The applicant proposes that the protection of the Toll Property, which includes 253 acres of riparian woodlands, should offset impacts at the Gross Reservoir site. Additionally, the applicant has proposed that if sensitive plant species are encountered there would be an effort to relocate individual plants to other locations. Staff recognizes the significant challenges with these kinds of efforts and given their typical unsuccessful outcomes, does not consider this an appropriate mitigation, rather a last-ditch effort to save plants that would otherwise be destroyed. Staff recommends the applicant provide a specific plan in order to guarantee greater success of a transplanting effort and document other locations where such relocations have been successful in the semi-arid, southern Rocky Mountains.

Old growth development areas occupy 450 acres above the existing reservoir, about half of the terrestrial habitat on USFS lands in the project area and the application indicates that 195.4 acres of low-elevation old growth development area would be permanently lost. Given these numbers, this represents a loss of about 43% of this resource in the project area. This is a significant loss from a cumulative impacts standpoint particularly for low elevation stands. Staff assumes that “low elevation” corresponds to ponderosa pine/Douglas fir forest; only 1 percent of existing old growth on the entire ARNF is ponderosa pine—a rare habitat that will lose a significant amount of future acreage with this proposal.

From the application, Denver Water has committed to develop an Invasive Plant and Noxious Weed Species Management Plan for Forest Service lands in consultation with the USFS. Staff recommends that a similar plan be prepared for Denver Water lands inside the project area.

Comments:

1. In order for staff to fully assess the impacts of the project, it must be determined if Boulder County and CNHP special plant or plant communities are present in the project area and if they will be impacted. Staff is expecting this information will be supplied by the applicant.
2. If special plant or plant communities will be impacted, staff expects that the applicant should propose methods for successfully mitigating those impacts.
3. While not viewed as adequate mitigation, staff recommends that the applicant prepare a specific plan for the relocation of individual rare and sensitive plant species in order to improve chances of success in this effort.
4. Staff recommends that an Invasive Plant and Noxious Weed Species Management Plan be prepared for Denver Water lands inside the project area.

Terrestrial Animals

The application describes overall impacts and habitat loss for mammals, raptors, other birds, and reptiles and amphibians. Salient points from the application note that the movements of some of these species will be affected through the modification and loss of a variety of wildlife habitats including old growth, forested and open corridors, and interior forests. The application cites the final EIS for the project which found that inundation of the enlarged reservoir footprint would result in moderate, direct long-term effects on wildlife and associated habitat through the permanent loss or modification of range, migration corridor use, and winter concentration areas for large mammals such as elk. It found that temporary wildlife displacement during construction, especially on the east side of the reservoir, would occur, but that these effects would not likely adversely or permanently affect overall wildlife populations. Nesting avian species could be affected during construction but these effects would be minor and short-term. And finally, although some minor, long-term loss of habitat for forest birds would occur, operation of the reservoir would provide beneficial loafing and foraging habitat for resident and migratory waterfowl.

In terms of species of concern, the application notes that for Colorado Natural Heritage Program (CNHP Species) species presence has not been documented. It is unclear if a survey was completed for such species or how many species are being considered as “CNHP Species.” CNHP-tracked invertebrate species that were not surveyed include, for example, rhesus skipper, hops-feeding azure, mottled duskywing, and Moss’s elfin. These species’ plant hosts are all found in the area – blue grama, wild hops, *Ceanothus sp.*, and *Sedum sp.*, respectively. These impacts are of particular note, since the Colorado Natural Heritage Program has designated a Potential Conservation Area at Winiger Gulch, and the project would impact 71 acres, or 3.8% of its total area.

While BCPOS agrees with some of the assessments for the species examined, there are four important areas where staff disagrees with the applicant’s assertions about terrestrial animal impacts. First, successful trapping results for Preble’s meadow jumping mice on the nearby Walker Ranch Open Space, have led staff to request that the applicant conduct surveys of the project area to determine if this federally threatened species occurs there (see Attachment 1). This year, BCPOS staff conducted a reconnaissance of the project area and confirms that suitable habitat does exist for this species in the project area and that the proximity to the known populations on county open space warrant a field survey of the site. The project’s potential impacts to a threatened species are of critical importance in order to fully assess the project’s environmental effects.

Second, staff closely reviewed the projected impacts to elk and finds them significant. The project will cause the loss of 465 acres of both severe winter range and migration corridor as well as 269 acres of winter concentration area. This results in the direct habitat loss of one to two percent of winter concentration area and severe winter range currently used by the herd unit. Severe winter range is the most important, and most limiting, type of elk range in the county and in the overall state. Previous and on-going losses of severe winter range in Colorado have been documented by CPW along with their impacts. The application states that about seven percent of the migration corridor would be lost. The applicant notes that the project would lead to changed use patterns in winter habitats and could potentially result in increased conflicts between big game and private landowners. While staff agree that these impacts are not likely to result in the loss of the elk in the area entirely, staff feels that the project adds to the cumulative impacts to these habitats and does not find these predicted

effects to be consistent with USFS or Colorado Parks and Wildlife (CPW) management goals for the area which according to the application are to maintain and enhance the flora and fauna in the Winiger Ridge critical elk winter range. The project neither maintains nor enhances but would rather significantly reduce and degrade this critical elk winter range. Coupled with the other cumulative impacts – such as the extensive county and USFS road system, water infrastructure, trails in the region, and the impacts of human activities from house sites in the locale (including free-ranging pet dogs) – the additional one percent of permanent impact to this resource is substantial.

Third, a critical aspect of the proposal’s impacts on terrestrial animals in the project area is its reduction of effective habitat. While most areas of effective habitat remain in the overall project area, 198.8 acres on USFS lands are lost due to inundation—a loss of 37% of the effective habitat on USFS lands in the project area. This represents a reduction from 59% to 55.5% in the effective habitat of the Thorodin Geographic Area, a local impact that represents a very important loss of wildlife habitat for species remaining in this portion of Boulder County.

Lastly, the applicant evaluated Boulder County’s wildlife species of concern list and assessed the potential for their occurrence in the project area (Exhibit 17 of the application documents). Apparently, most of these species assessments were based on published literature cited in the exhibit and that there were no field inventories conducted for a large number of these species, even the ones that Exhibit 17 shows that are “known or likely to occur.” In the instances that field work was completed for species, the surveys for many of those appear to be about 15 years old (there were field inventories for a minimum number of select species at later dates, e.g., northern goshawk and other raptors). There are also no conclusions or even discussions about the project’s likely impacts on the county’s wildlife species of concern. Without this information, staff is unable to assess the full impact of this project. One example is bat species, where the application mentions that the primary impacts would be a loss of roosting trees around the perimeter of the reservoir for the 465 acres of impact area; many bat species are declining and considered species of concern, but the application doesn’t detail which species are present nor how they could be impacted.

Comments:

1. Based on the confirmation of occupied habitat by Preble’s meadow jumping mouse in close proximity to Gross Reservoir and confirmed suitable habitat within Winiger Gulch, BCPOS disagrees with the determination by the applicant and concurrence by U.S. Fish and Wildlife Service (in the 2006 Biological Opinion) that ‘project activities impacting these sites should not have direct adverse effects to Preble’s or Preble’s habitat.’ Please see the attached 1041 review document (Attachment 1) by BCPOS staff for details.
2. Given that additional information regarding Preble’s, as outlined above, has become available, the county should require the applicant re-initiate consultation with USFSW in accordance with the 2006 Biological Opinion.
3. Staff also reviewed the Habitat Conservation Plan for PMJM provided by Denver Water and provides comments and recommendations for the applicant on the management of Leyden Gulch and Ralston Creek to improve conditions for PMJM.
4. If Preble’s are found in the area, the applicant would need to detail impacts and propose mitigation.

5. In order for staff to assess the true environmental impacts of this project, the applicant must provide information about all of the Boulder County species of concern, whether they occur on the site, if they will be impacted by the proposal, and whether any impacts are to be mitigated.
6. Many of the studies included in the application are several years old now. Staff is concerned that the proposal could have environmental impacts on resources that have changed.
7. The application notes that many county species of concern (both flora and fauna) may occur in the project area but that the applicant has not surveyed for their presence. There are also no conclusions or even discussions about the project's likely impacts on the county species of concern. Without these species being surveyed for and the project's impacts assessed on their presence, BCPOS is unable to assess the environmental impacts of the project on these elements of the landscape that provide crucial biodiversity to the area.
8. While the application finds that the project will have an impact on elk, BCPOS staff concludes that the impact will be significant. The applicant has not proposed mitigation for these effects such as increased conflicts with private landowners as noted in the application.

Aquatic Species

The 1041 application materials noted that additional fish species may be established at Gross Reservoir after completion of expansion. Staff requests that no new gamefish species be added to those already established. This is consistent with the South Boulder Creek mitigation plan and local stream restoration for native fish. Introduced game fish are the primary threat, along with low minimum stream flows, to the survival of state-listed native fish species. Escapement downstream, and migration upstream, of these newly introduced species of non-native gamefish will only serve to exacerbate the threats to native fish of county and state concern.

1. Staff requests that no new gamefish species be added to those already established in the existing reservoir.

Visual and Recreation Resources

BCPOS staff found it challenging to assess the visual impacts of the project since only one visual rendering was included in the main application exhibits. Based on the application, it does appear that the project and associated activities will not be significantly visible to visitors of trails at Walker Ranch. However, there will be impacts visible to visitors of Walker Ranch that venture into open areas of the property that are off trail. More visual impact renderings from various locations are necessary to better assess the visual impact of the application.

In terms of recreational resources and impacts to Denver Water facilities and USFS lands, the plans of the two agencies to accommodate the new reservoir do not change recreational opportunities in the long term in the area. Rather, the proposal is to primarily relocate and replicate the facility types and capacities. The application identifies the existing recreation areas at the reservoir, and generally states that the applicant would keep as many of these

sites and amenities open as feasible during the construction timeframe and re-install as many of them in locations above the waterline of the expanded reservoir. A series of exhibits in the application show the plans for the new recreation areas. The attributes of each existing facility at the reservoir are mentioned in the application, but the discussion primarily addresses temporary closures during construction. The application notes that recreation opportunities overall on both USFS and Denver Water lands will be unchanged under an updated Recreation Management Plan (RMP). However, an update has not been submitted, and no consultation on it from stakeholders, including BCPOS, is noted. The application indicates that no additional developed recreation sites are proposed. While the plans are preliminary at this time, the facilities include 98 parking spaces in total for all of the Denver Water recreation sites.

BCPOS staff will need to review a draft, updated Recreation Management Plan for the Denver Water Gross Reservoir public facilities and USFS lands in order to better assess the impacts of this aspect of the project. Staff supports the inclusion of the FERC-required recreation management measures for USFS lands such as the Human-Bear Interaction Plan and Recreation Adaptive Management Plan. However, staff recommends that the applicant takes a forward-looking approach to addressing visitation and site capacity issues that are likely to arise at the expanded reservoir. For example, during this last spring and summer, the adjacent Walker Ranch Open Space experienced its highest visitation rates ever (certainly in part due to the pandemic); at times, parking demand far exceeded the available 115-space capacity at the property.

Additionally, because of the proximity of the two sites, Gross Reservoir and Walker Ranch, indirect impacts could and possibly would be substantial on both properties. Increased public use of the reservoir is likely to be significant, and that increase in recreational visits to the area would likely raise visitation rates at Walker Ranch especially since access to recreation areas on the north side of Gross Reservoir is provided primarily from Flagstaff Road (the main access to Walker Ranch trailheads) any increase in visitor use at Gross Reservoir is very likely to increase use both at Walker Ranch and on the USFS lands to the west. Staff is concerned that 98 spaces will not be adequate to accommodate visitation to the area post-development. Additionally, trying to minimize vehicle traffic to the site in the future while accommodating potential higher visitation rates will be challenging.

The 1041 process requires that the application detail the potential impact of the proposal upon public outdoor recreation and open space areas; but this is challenging given the current information provided in the application. BCPOS supports the plans to keep facilities open as much as possible during construction. Staff also recommends that the applicant consider a trail connection in the area as depicted in the BCCP Trail Map. BCPOS has experienced dramatically increased visitation recently at Walker Ranch. Staff recommends that the applicant anticipate increasing visitation when sizing new facilities and work to find methods to offset increases with multi-modal transit. Staff anticipates that access to USFS lands on the west side of the reservoir will generally remain unchanged but modified to accommodate the heightened reservoir. Staff supports keeping visitation and recreational development on the west side of at current rates.

Comments

1. In order to assess the visual impacts of the project, additional visual renderings and discussion shall be provided by the applicant.

2. The applicant shall update the Recreation Management Plan for the area and address: how the future recreation sites in the project area will accommodate increased visitation; measures to reduce traffic on local roads by recreationists; input from local stakeholders including BCPOS; and the proposed BCCP regional trail in the area.
3. BCPOS will provide the applicant with updated visitation information for Walker Ranch so that any potential recreation and visitation impacts to Walker Ranch can be better determined.

Forestry

BCPOS agrees with the applicant about the general scope of the impacts as described in the application. Approximately 234,000 trees will be cut creating 24,422 tons of woody material to remove and process. BCPOS Forestry staff has previously provided the applicant detailed comments about Air Curtain Destructors for biomass removal and have been involved in the review of a Tree Removal Plan. Some of these comments are repeated below.

Comments

1. The harvesting plan should be run on the current version of LOGCOST, 12.0 to accurately reflect corrected calculations & current conditions.
2. Ground-based operations with wheeled equipment should be limited to areas with less than 30-35% slope maximum due to the unstable soils located within the project area.
3. Cable yarding units should be limited due to the extensive temporary road construction required.
4. Aerial yarding would be highly preferred for harvesting units where ground-based operations are not feasible/desired due to site damage potential.
5. Boulder County requests that a BMP plan as it relates to vegetation removal & water quality plan be submitted for review.
6. Boulder County is opposed to the use of Air Curtain Destructors as proposed as a primary means of residue disposal due to the volume over duration and the subsequent effect on the airshed.
7. The project should explore every avenue, within reason, for utilization of the harvested material. Following the example of the USFS Stewardship contract is recommended.
8. Applicant should ensure that the associated impacts with the proposed primary haul routes and secondary roads for the Tree Removal Plan are factored into the overall project transportation impacts.

Toll Property Mitigation Proposal

The applicant cites the Toll property numerous times in the application as a mitigation site for many different environmental resources. However, BCPOS has not been able to assess the environmental impacts and benefits of the applicant's proposed off-license agreement with the U. S. Forest Service. While BCPOS has been able to review the off-license agreement (OLA) and understands that Denver Water would donate the property to the USFS, staff has not been able to determine exactly which parcels will be transferred or how they will be managed to protect their environmental values. The agreement mentions they would be managed consistent with the current Forest Plan, but in order to better assess these

impacts, staff needs to understand if that means they would be managed in accord with the land use designations of adjacent parcels. Some of the larger parcels lie between two different USFS management categories, prompting staff to wonder how those sites would be managed. Finally, given increased recreation impacts on the National Forest in this district, the applicant needs to detail how the lands would be managed on the ground to protect and steward the environmental resources on these lands as described in the application.

Comments

1. The application notes the importance of the 539-acre Toll Property as an off-license agreement environmental mitigation site. BCPOS needs more information to understand and assess the value of the property as mitigation. The applicant shall submit a report and map that outlines the specifics of the property, which lands are part of the OLA and how they will be managed in the long-term to ensure that the important environmental resources identified on them would be protected for the term of the OLA and project, if not in perpetuity.
2. As there is no enforcement condition as part of many of the proposed mitigations, the County would like to see a mechanism that ensures progress and implementation of the variety of mitigation measures and enhancement agreements. This could be implemented as a monitoring and reporting agreement showing progress towards establishment, spending and completion of the variety of restoration and mitigation progress as agreed to in this 1041 application. Land in Boulder County is being impacted directly by this development, and so, it is in the county interest to know that the variety of resource mitigations both within and outside of Boulder County are on track to be completed.

BCCP Designations

While BCPOS staff has assessed the impacts of the project primarily on natural resources in the previous sections, an important component of the 1041 review is an examination of the project's effect on environmental resources that are identified in the BCCP. The project will result in the loss of 243 acres of the Winiger Ridge ECA, approximately seven percent of the ECA. The proposed project would significantly and negatively impact the Winiger Ridge ECA through habitat degradation and fragmentation from reservoir developments and would substantially increase the cumulative impacts occurring in the ECA. Indeed, not only would 465 acres of forest and riparian areas be permanently impacted, but a substantial amount of these acres—those subject to the annual filling and draining of the reservoir (the so-called “bathtub ring” which results in large areas of land that are neither aquatic nor upland habitat, but are essentially sterile rock, gravel, and sand) —would have nearly no habitat value.

The project will create direct and indirect impacts on wildlife and their habitats, and these could be significant. Small mammals, reptiles, and amphibians in particular are disproportionately impacted by what are essentially barriers – long fingers of flooded valleys (or an unvegetated, extremely xeric bathtub-ring environment during drawdown) on at least three drainages -- S. Boulder Creek, Winiger Gulch, and Forsythe Gulch.

The Winiger Gulch High Biodiversity Area in the BCCP (also designated a Potential Conservation Area (PCA) in the parlance of CSU's Colorado Natural Heritage Program, CNHP) is ranked as “B3 – of high biodiversity significance.” B3 areas are of global

importance (Survey of Critical Biological Resources in Boulder County, Colorado, CNHP, 2009). This area includes “B – Good Viability” occurrences of two community types (thinleaf alder/mesic forb riparian shrubland and foothills riparian shrubland) and an “A – Excellent Viability” occurrence of *Carex sprengei* (Sprengle’s sedge). This sedge is ranked as “S2”, defined as there being only six to 20 populations in the state. This ranking means that the species is imperiled in the state due to its rarity. The application states that the project “...may affect the viability of [Sprengle’s sedge] forestwide.” All three of these occurrences/populations would be permanently lost due to the project and represent a significant negative impact to the overall viability of these communities and species and would further imperil these elements. A total of 3.8 percent of the entire HBA would be permanently lost, representing a significant negative impact from the proposal.

Comments:

1. BCPOS staff finds the project to have major, significant impacts on environmental resources identified in the BCCP.
2. The application does not provide information about many critical elements of Boulder County’s BCCP-identified environmental resources—especially county wildlife and plant species of concern. Without this information, BCPOS staff cannot fully assess the project’s impact on these important and crucial components of the area’s biodiversity.

Part 2. Specific comments about Conformance with the BCCP and 1041 Standards
BCCP

In BCPOS staff’s 20+ years of environmental docket review, there has never been a project that remotely approaches the following permanent impacts from the subject proposal:

465 acres of forest habitat

243 acres of a BCCP Environmental Conservation Area

71 acres of a BCCP High Biodiversity Area

465 acres of both severe elk winter range & elk migration corridor

269 acres of elk winter concentration area

6 acres of wetlands

4 acres of riparian habitat

There has never been a project with such a magnitude of impacts since before the county’s first Comprehensive Plan was written in 1978, 42 years ago. These significant impacts are expanded upon below. The application (page 65) states that “Denver Water has concluded that the Project is consistent with the [Boulder County] Comprehensive Plan.” Staff disagrees; the proposal is not in conformance with the Comprehensive Plan. The application’s conclusion appears to be based on a comparison of “...the Project area and potential impacts with the resource maps included in the Comprehensive Plan.” Staff addresses these map comparisons below, after presenting some of the Comprehensive Plan’s fundamental language.

There are three “Purposes and Intent” in the Article 8 regulations that relate to the Comprehensive Plan:

8-202.B.4 -- “Conserve soil, water, forest resources, and Environmental Resources.” The capitalized “Environmental Resources” refers to the mapped resources in the Comprehensive Plan (see Article 18-143A).

8-202.B.16 -- “Ensure that the site selection...will conform to the Boulder County Comprehensive Plan....”

8-202.B.18 -- “Ensure that development involving all areas and activities designated hereunder is consistent with these regulations [and] the Boulder County Comprehensive Plan....”

One of the Guiding Principles of the Comprehensive Plan is to:

- “Encourage and promote the respectful stewardship and *preservation of our natural systems and environment* by pursuing goals and policies that achieve significant *reductions* in our environmental footprint” (emphases added). Based on resource maps and the application’s quantifications of impacts, the subject proposal would significantly *add to* negative environmental footprints.

The first paragraph of the Environmental Resources Element states that:

- “Boulder County values and strives to preserve, conserve and restore the unique and distinctive natural features, ecosystems and landscapes of the county using sound resource management principles and practices *at both a site-specific level and on a broader, landscape scale*” (emphasis added). And that, “Boulder County’s important environmental resources include naturally occurring ecosystems and their native species populations.”

Goal B2 of the Environmental Resource Element states that:

- “Boulder County sustains and protects native species, natural ecosystems and the biodiversity of the region by designating High Biodiversity Areas..., Critical Wildlife Habitats, Species of Special Concern, Wetlands, [and] Riparian Areas.”

And Goal B7 states that:

- “Boulder County shall conserve and preserve Environmental Conservation Areas (ECAs) in order to perpetuate native species, biological communities, and ecological processes that function over large geographic areas and require *a high degree of connectivity* to thrive” (emphasis added).

Environmental Conservation Area (ECA)

The description of Environmental Conservation Areas, on page 148 in the application, is incorrect. The Comprehensive Plan states that, “Environmental Conservation Areas (ECAs) encompass the largest remaining relatively natural...forest...landscapes in Boulder County. [In the county,] broad shifts in animal and plant communities are occurring as a result of *development, habitat degradation*, climate change, and the exclusion or disruption of natural processes. ECAs are a planning tool developed...for analyzing land use and land management decisions in the context of the *cumulative effects of development*, roads, trails and increased human presence at a landscape-scale on these large and complex ecosystems. ...[L]and use and land management decisions...can be made within a framework that seeks to: protect species that may be wide-ranging, ecologically specialized or disturbed by human presence; encourage the return of species lost from the county; *prevent additional habitat fragmentation*; and limit increases in invasive non-native species in these ecologically-significant areas” (emphases added).

Other Local Government Plans

The Magnolia Area Environmental Preservation Plan is incorporated by reference into the Boulder County Comprehensive Plan, listed as a local government plan. The application does not discuss or conclude how the project conforms with the plan.

1041 Standards for Approval

8-511.B.5.f – Terrestrial and Aquatic Life (see p. 326 in the application)

Staff disagrees with the application's narrative for this section. The Project *will* significantly degrade the quality of terrestrial and aquatic life, based on the above discussions of 1) elk migration corridors; 2) elk winter concentration areas; 3) elk severe winter range; 4) the Environmental Conservation Area; 5) the High Biodiversity Area; and 6) habitat fragmentation from the impact of enlarging the reservoir to small and medium-sized mammals, reptiles, and amphibians. Further, it is unknown what impacts would occur to numerous terrestrial and aquatic county wildlife species of concern (Exhibit 17) that have not been inventoried nor addressed in the application.

8-511.B.5.f.iv – Changes in the Number of Threatened or Endangered Species

The application states that the project *may affect* Preble's meadow jumping mouse, a threatened species. As discussed above, BCPOS needs more information on this species in the project area to determine the impact of the proposal on threatened species. 8-511.B.5.f.v – Habitat and Critical Habitat Necessary for Protection and Propagation of Terrestrial Animals Staff disagrees that this standard for not significantly degrading this aspect of terrestrial life can be met. Referencing the above discussions, all three of the elk habitat types (migration corridor, winter concentration areas, and severe winter range) are critical elk habitats. Yet the proposed mitigation of preserving summer range on the Gilpin County Toll property site does not and cannot compensate for these losses of winter and migration habitats. Summer range is not a limiting factor for elk and cannot be compared to the critical habitats for which there is *no* mitigation of those losses proposed in the application.

8-511.B.5.g – Terrestrial and Aquatic Plant Life

Staff does not agree with the application's conclusion that the project will not significantly degrade the quality of terrestrial and aquatic plant life. As noted above, staff is unable to determine what impacts could occur to at least 13 county plant species of concern that have not been inventoried nor addressed in the application. Additionally, there are plant community types of county concern that are not addressed.

8-511.B.5.g.iii – Changes in Advancement of Succession of Desirable and Less Desirable Species

The application states that completion of an Aquatic Invasive Species Monitoring Plan and an Invasive Plant and Noxious Weed Species Management Plan for Forest Service lands in consultation with the USFS would meet this standard, yet neither the Monitoring Plan or Management Plan has been submitted nor reviewed by the county. Without the plan, staff is unable to assess if simply completing such a plan would be adequate to meet this standard. The reservoir does represent a substantial potential host site to several invasive species already known from Colorado.

Attachment 1

Preble's Meadow Jumping Mouse Gross Reservoir Expansion 1041 Review and Suggested Mitigation Measures

Susan Spaulding, Senior Wildlife Biologist, Boulder County Parks and Open Space

Tim Shafer, Wildlife Biologist, Boulder County Parks and Open Space

Based on the confirmation of Preble's Meadow Jumping Mouse (Preble's) occupied habitat in close proximity to Gross Reservoir and confirmed suitable habitat within Winiger Gulch, Boulder County disagrees with the determination by Denver Water and concurrence by U.S. Fish and Wildlife Service (2006 Biological Opinion) that '*project activities impacting these sites should not have direct adverse affects to Preble's or Preble's habitat.*'

Excerpt from USFWS Biological Opinion dated 9/14/06-

U.S. Fish and Wildlife Service (Service) is responding to your letter of August 18, 2006, requesting review of two reports regarding the Preble's meadow jumping mouse, *Zapus hudsonius preblei* (Preble's) as related to the Moffat Collection System Project. They are: 1) a 2005 trapping survey at Leyden Gulch, Jefferson County, Colorado (Section 20, Township 2 South, Range 70 West) and 2) a habitat evaluation of three streams (Forsythe Gulch, Winiger Gulch, and South Boulder Creek) that are tributaries to Gross Reservoir, Boulder County, Colorado (Section 19, Township 1 South, Range 71 West and Section 30, Township 1 South, Range 72 West). The following comments are provided under the authority conferred to the Service by the Endangered Species Act of 1973 (ESA), as amended (16 U.S.C. 1531 et seq.). Based on the information provided, the Service finds the reports acceptable and concurs that populations of Preble's are not likely to be present within the subject areas. Therefore, the Service concludes that project activities impacting these sites should not have direct adverse affects to Preble's or Preble's habitat.

Should additional information regarding listed or proposed species become available, this determination may be reconsidered under the ESA.

The above referenced habitat assessment of Forsythe Gulch, Winiger Gulch and South Boulder Creek (Ensign Technical Services Inc., 2005), concluded that suitable Preble's habitat exists within Winiger Gulch, but stated that this suitable habitat was disconnected from occupied habitat with the construction of Gross Dam and any potential historic PMJM populations therefore were isolated and likely no longer in existence. USFWS concurred with this assessment in their 2006 BO, with the caveat that if additional information regarding listed or proposed species become available, their determination may be reconsidered under the ESA.

Subsequent to this determination, small mammal trapping was conducted in Tom Davis Gulch, which is located 0.75 miles east of the eastern shore of Gross Reservoir (Figure 2). This trapping effort was conducted by the Colorado Natural Heritage Program in 2007 and resulted in the positive capture of one individual. Trapping occurred August 20-21, 2007, and the captured Preble's was a lactating female.

In 2015, BCPOS biologists conducted additional small mammal trapping to further assess Preble's population status within Tom Davis Gulch. The post-fire recovery (Walker Ranch Fire 2000) of vegetative conditions both within Tom Davis Gulch, and in the surrounding uplands had resulted in increased shrub and willow development, as well as a more diverse and dense understory

herbaceous cover. This trapping effort resulted in the capture of 33 individuals. Trapping occurred August 4-6, 2015.

As a result of the increased population numbers of Preble's found in 2015, small mammal trapping was conducted further north in Meyers Gulch in 2018. This trapping was conducted to determine connectivity through less suitable habitat contiguous to suitable habitat between Tom Davis Gulch and Meyers Gulch. This effort led to the capture of two Preble's mice. Of note, Meyers Gulch and Tom Davis Gulch are separated by Flagstaff Road, so it appears Preble's can navigate roadways in dispersal movements.

Prior to the Walker Ranch Fire in 2000, no Preble's trapping had occurred in Tom Davis Gulch or Meyers Gulch. However, suitable habitat did exist within the burned area. It is possible therefore that individual mice within the fire footprint were displaced or killed. The fire burned 1,100 acres including the entire length of Tom Davis Gulch and part of Meyers Gulch. The subsequent documented captures and then increased presence could be considered as evidence of their resiliency and ability to disperse and move either away from, or back into areas with changed conditions. As referenced in the U.S. Fish and Wildlife Preble's Recovery Plan, dispersal has been documented via telemetry studies, as follows:

The subspecies has also displayed an ability to travel long distances both along riparian areas as well as overland. Mark-recapture studies conducted at the Academy from 2000 – 2002 documented 10 percent of all jumping mice tagged along Monument Creek moving at least 1/3 mile from their location of first capture, sometimes at distances greater than 2.5 miles (Schorr 2003). Further, a radio-collared mouse at Rocky Flats was observed moving 764 feet from its point of original capture in Rock Creek perpendicularly into a tributary in a 24-hour period, indicating likely overland movement.

The habitat conditions and quality of Meyers Gulch and parts of Tom Davis Gulch are similar to that found in Winiger Gulch, as confirmed by a site visit conducted at Winiger Gulch on October 15, 2020 by BCPOS biologists Tim Shafer and Susan Spaulding (Figure 1 and photos 1-4). Site conditions include a well-established understory comprised of a multi-storied, native composite (snowberry, rose, grasses). Overstory is comprised of native willows, alder and tall shrubs. Additionally, the areas separating less suitable stretches between suitable areas is similar, related to connectivity and potential Preble's dispersal. All assessed habitat in Winiger Gulch occurred below approximately 7,600' in elevation.

Winiger Gulch is part of a Colorado Natural Heritage Program designated High Biodiversity Area (B3-High Biodiversity Significance) in their survey of critical biological resources in Boulder County. As such, additional information on plant composition and associations is available due to their assessment of the area. The habitat description is as follows:

Winiger Gulch supports a dense, diverse mix of tall shrubs, within a narrow gulch, that overhang the stream banks and provide shade. The overstory is dominated by thinleaf alder (*Alnus incana*) and water birch (*Betula occidentalis*) at 20-30% cover each. Throughout the length of the stream, cover of individual species varies. In some places, thinleaf alder is the clear dominant. In other locations, water birch provides greater cover. Additional tall shrubs include Rocky Mountain maple (*Acer glabrum*), Bebb's willow (*Salix bebbiana*), and park willow (*Salix monticola*). The mixed mesic understory has no dominant species, but is primarily native.

There is a mixed understory along the stream with mesic forbs dominating in some areas and a sparse graminoid cover throughout.

Biodiversity Significance Rank Comments (B3): This site supports a good (B-ranked) occurrence of a globally rare (G3/S3) thinleaf alder (*Alnus incana*) / mesic forb community, an excellent (A-ranked) occurrence of the state rare (G5?/S2S3) Sprengel's sedge (*Carex sprengelii*) and a good (B-ranked) occurrence of a state rare (G4?/S2) *Betula occidentalis* / *Maianthemum stellatum* riparian shrubland. (CNHP, 2009)

It is therefore reasonable to conclude that Preble's could be present in Winiger Gulch, as evidenced by known populations in close proximity, as well as more current information on dispersal distances including upland movements. Winiger Gulch is potentially connected Tom Davis Gulch and Meyers Gulch via ephemeral drainages, and undeveloped upland areas. The habitat condition and specific plant composition within Winiger Gulch, as confirmed both by the site visit on 10/15/20, and the detailed assessment by CNHP, reconfirm the suitability for occupation by Preble's. Additionally, the documented response of Preble's to disturbance events, and their subsequent re-colonization and/or recovery after the Walker Ranch Fire shows their ability to disperse to suitable habitat from source populations, or to recover in population size after disturbance.

Notification of Trapping Results Provided to Denver Water:

Information on Boulder County's trapping results was presented to Denver Water on June 19, 2019 during a meeting with Denver Water representatives. Information was also conveyed to Denver Water during the Draft EIS public comment period in 2010. (Comment #779-21, ID 5035).

Comment #779-21 (ID 5035): The Draft EIS analysis of potential impacts to Preble's Meadow Jumping Mouse should be revised to consider new information concerning potential Preble's existence at higher elevations, including those drainages feeding Gross Reservoir from the west. A new Determination of Effect should be undertaken that considers this new information.[28]

FOOTNOTE: [28] See id. at Chap. 3, pages 171 - 196; Chap. 4, page 290.

Recommendations:

Given that additional information regarding Preble's, as outlined above, has become available, Boulder County requests Denver Water re-initiate consultation with USFSW in accordance with the 2006 Biological Opinion.

Denver Water's HCP and Recommended Mitigation Measures:

Denver Water completed a Preble's Habitat Conservation Plan in 2003 (Denver Water, 2003). HCPs are required for activities having the potential to impact threatened and endangered species under the authority of section 10 of the Endangered Species Act (ESA) of 1973, as amended. Denver Water's HCP for Preble's provides guidance for Denver Water's operations and management decisions for a thirty-year timeframe. It was based on the most current scientific knowledge available at the time. It is acknowledged within this HCP that modifications to the HCP might be necessary based on new information over time.

Excerpts from Denver Water's HCP:

Section 5. a. ii Biological Goals

(c) To the extent practicable, protect corridor linkages (between separate drainages) for populations or potential populations of Preble's on Denver Water and neighboring properties; (d) To the extent practicable, provide habitat connections to existing Occupied or Potential Habitat on Denver Water and neighboring properties;

This stated goal outlines protections measures for habitat connections or corridor linkages within Denver Water's ownership and adjacent neighboring properties.

Trapping efforts conducted by Jefferson County Open Space on Coal Creek in 2019 resulted in confirmed Preble's captures within approximately 1.4 miles of Leyden Gulch. This area is located directly adjacent to Denver Water owned property located south of Highway 73, and west of Highway 93. This property contains Leyden Gulch, which is referenced in Denver Water's HCP as follows:

XI. Adaptive Management

D. Habitat Suitability Determinations

*2. **Leyden Gulch, Platte Canyon Reservoir, and Ralston Creek below Ralston Reservoir***

Leyden Gulch, Platte Canyon Reservoir, and Ralston Creek below Ralston Reservoir currently have Unsuitable Habitat based on negative trapping surveys, although all three sites have vegetative conditions suitable for Preble's. It is possible that these sites may become Potential or Occupied Habitat in the future. If Denver Water has future projects at these sites that may affect habitat, a site evaluation will be conducted. If the evaluation determines that vegetative conditions are suitable for Preble's, a trapping survey will be conducted according to the latest FWS guidelines. A negative survey demonstrates Unsuitable Habitat for a minimum of 3 years.

Leyden Gulch has been trapped for Preble's presence by Ensign Technical Services. These trapping efforts occurred in 1997 and were repeated in 2005. (Ensign, 1997, 2005). As outlined in these two separate trapping efforts conducted by Ensign Technical Services, Inc., there was a significant decline in riparian condition, and resultant decline in small mammal abundance and diversity between the 1997 and 2005 efforts. This decline in riparian condition was attributed to 'heavy' impacts from cattle grazing. At present, it is unknown if Leyden Gulch has any areas fenced off from cattle grazing, but observations of the site indicate that when cows are present, they have full access to all riparian areas, including wetlands and riparian corridors.

It is recommended that Denver Water adhere to their stated objectives in the HCP and make efforts towards improving Leyden Gulch habitat values, as riparian corridors are critical for several species, and general development along the foothills transition zone along the Front Range has impacted many riparian corridors. Further, improvement of the habitat conditions along Leyden Gulch could off-set losses of suitable habitat in Winiger Gulch with inundation caused by the expansion project. Additionally, as Preble's were documented in 2019, just 1.5 miles north and within dispersal distance to Leyden Gulch, protecting and enhancing this habitat is consistent with stated objectives in the Denver Water HCP.

Further, current active construction (North System Renewal) by Denver Water adjacent to Ralston Creek below Ralston Dam has impacted upland habitat adjacent to Ralston Creek. Ralston Creek is known to be occupied by Preble's, although farther west than the disturbance footprint of this project. However, due to this permanent alteration of land adjacent to Ralston Creek, improvement or enhancement of Leyden Gulch and the surrounding upland areas is of increased importance.

Boulder County has achieved successful enhancement of riparian and upland areas by removing cattle grazing practices. On some properties, installation of riparian corridor fencing with an upland buffer, to exclude cattle, has been implemented with success as well. As per Denver Water's stated objectives (Denver Water HCP), this effort seems to qualify as realistically 'practicable' on behalf of Preble's.

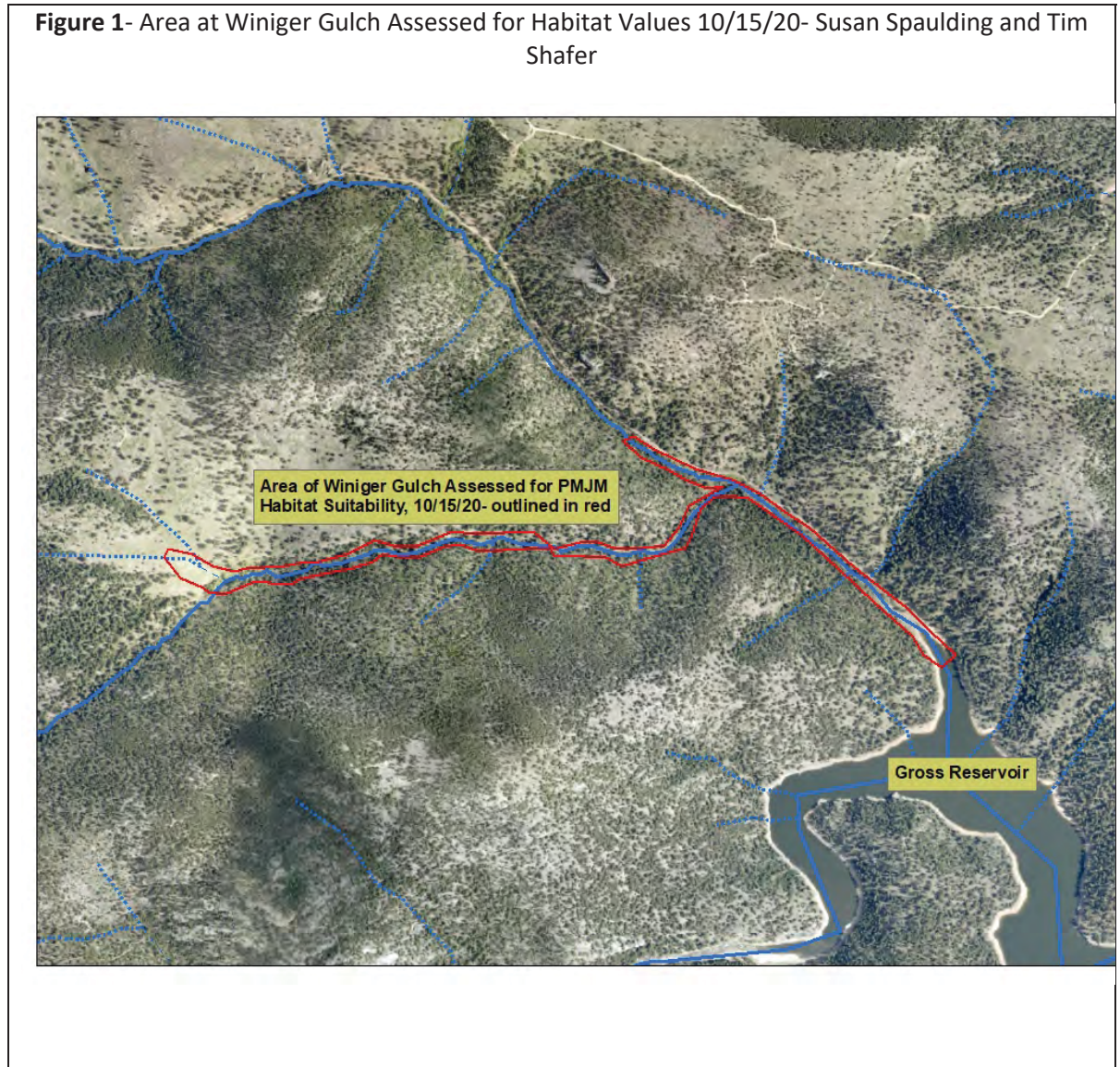


Photo 1- Winiger Gulch Site Visit 10/15/20



Photo 2- Winiger Gulch Site Visit 10/15/20



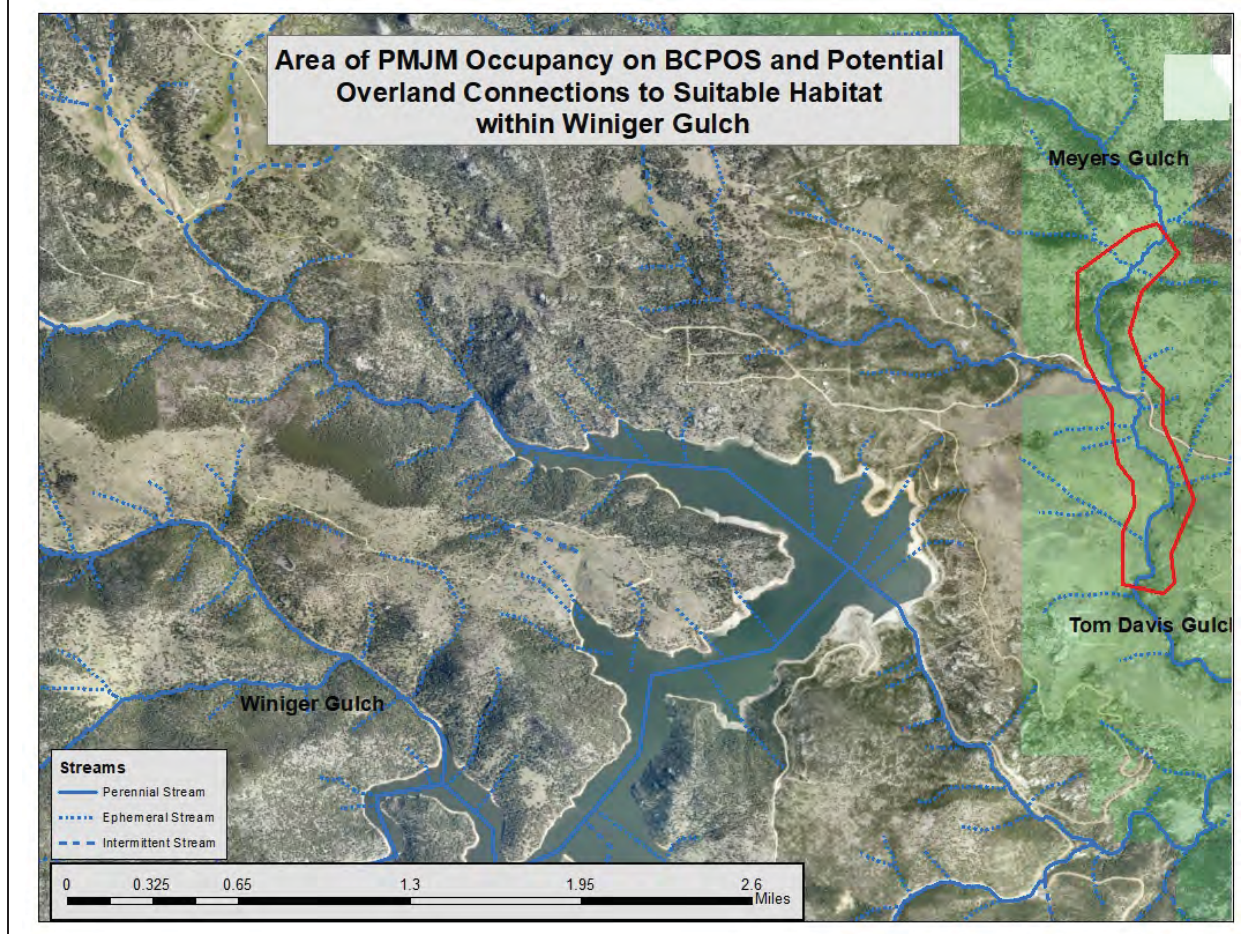
Photo 3- Winiger Gulch Site Visit 10/15/20



Photo 4- Winiger Gulch Site Visit 10/15/20



Figure 2- Occupied Preble's Habitat- Tom Davis Gulch/Meyers Gulch and Potential Riparian and Overland Connectivity to Winiger Gulch



References:

Denver Water. 2003. Habitat Conservation Plan for the Preble's Meadow Jumping Mouse. Prepared for the City and County of Denver's Board of Water Commissioners. 106 pages.

Enight Technical Services, Inc., 2005. Habitat Evaluation of Potential Preble's Meadow Jumping Mouse Habitat at Gross Reservoir, Boulder County, Colorado.

Enight Technical Services, Inc., 2005. Presence or Absence Survey for Preble's Meadow Jumping Mouse at Leyden Gulch, Jefferson County Colorado.

Enight Technical Services, Inc., 1997 Presence or Absence Survey for Preble's Meadow Jumping Mouse at Leyden Gulch, Jefferson County Colorado.

Neid, S., J. Lemly, K. Decker and D. Culver. 2009. Final Report: Survey of Critical Biological Resources in Boulder County 2007-2008. Colorado Natural Heritage Program, Fort Collins, CO.

Schorr RA. 2003. Meadow jumping mice (*Zapus hudsonius preblei*) on the U.S. Air Force Academy, El Paso County, Colorado: populations, movement, and habitat from 2000-2002. Report of Colorado

Natural Heritage Program, Colorado State University to U.S. Air Force Academy, Fort Collins, Colorado.

U.S. Fish and Wildlife Service. 2018. Preble's Meadow Jumping Mouse Recovery Plan, Colorado. Region 6, Lakewood, Colorado. 148 pages.

U.S. Fish and Wildlife Service. 2004. Survey Report Form for Preble's Meadow Jumping Mouse. 21 pages.

Attachment 2. Review of Proposed Toll Property Mitigation**Susan Spaulding, Senior Wildlife Biologist, Boulder County Park and Open Space****Mitigations per land swap as referenced in the 1041 Areas and Activities of State Interest Application, Table 6 Mitigation Measures:**

Denver Water references a 539-acre land conveyance (Toll Property) to the USFS multiple times as mitigation for lost acres due to inundation by the expansion project. The 539-acres is centered around the CNHP designated Mammoth Gulch PCA (Figure 1), which encompasses areas of rare or imperiled plant associations as well as a historic occurrence record of boreal toads. However, according to the Gilpin County Assessors information, parcels 170723100003 (account R012135) (Figure 3) and 170712400002 (account R012136) (Figure 2) are in the City and County of Denver's ownership as of 2/3/2015. These parcels comprise the heart of the CNHP designated Mammoth PCA including Teller Lake and the Mammoth Creek reservoir area and the majority of the Mammoth Gulch drainage. Additionally, parcel 170723100003 (Mammoth Placer) encompasses almost the entire length of Mammoth Creek, so seems to represent a configuration conducive to future water conveyance planning efforts (last sale date denotes 6/18/2017, per Gilpin County Assessors Records).

Recommended Mitigation Measures:

It is unclear why Denver Water has retained the two parcels noted and has not conveyed them to the USFS as part of the Denver Water/USFS Settlement Agreement. Multiple reference is made regarding the 539-acre land conveyance surrounding these two parcels as the main mitigation measure undertaken by Denver Water to off-set habitat loss due to the implementation of the Moffat Collection System Project. However, the two parcels containing the most valuable habitat features within the Mammoth Gulch PCA were not conveyed to the USFS. As such, Boulder County requests that Denver Water make firm commitments to maintain or enhance the habitat values within these parcels, long-term. Steps towards habitat enhancement or maintenance can be accomplished by consulting with CPW or USFS aquatic biologists towards creating habitat conditions that could support the recolonization or relocation of boreal toads to the Mammoth Creek drainage, including the ponds around Teller Lake. Additionally, protecting these parcels from human disturbance in the form of social trails, dispersed camping or motorized vehicles is strongly encouraged.

Additional mitigation measures recommended include encouraging Denver Water's continued partnership with the USFS, both through the Forests to Faucets program, but also through consideration of funding additional USFS staff positions. The USFS is critically challenged by a lack of staff positions. As the conveyance of the 539 acres is referenced as the main mitigation measure to offset habitat loss, it is imperative to acknowledge that the USFS lacks the resources to 'protect' these areas. Increased recreational pressure within USFS lands has become difficult for the agency to manage, due to this lack of staffing. It is therefore unclear if this land conveyance will result in the enhanced protections of this area, based on a lack of staffing resources available to ensure these protections.

Figure 1- Mammoth Gulch PCA



Colorado Natural Heritage Program
Colorado State University
1474 Campus Delivery
Fort Collins, CO 80523-1474
<http://www.cnhp.colostate.edu>

Map Date: 03/17/2011

0 0.2 0.4 Miles



Legend

PCA Boundary

Denver West, 39105-E1

30x60 Minute Digital Raster
Graphic Produced by the
U.S. Geological Survey

Location in Gilpin County



Map 3. Mammoth Gulch Potential Conservation Area, B2: Very High Biodiversity Significance

Figure 2- Parcel ID- 170712400002- Manilla Placer containing Teller Lake, Mammoth Gulch Reservoir area, and small ponds.

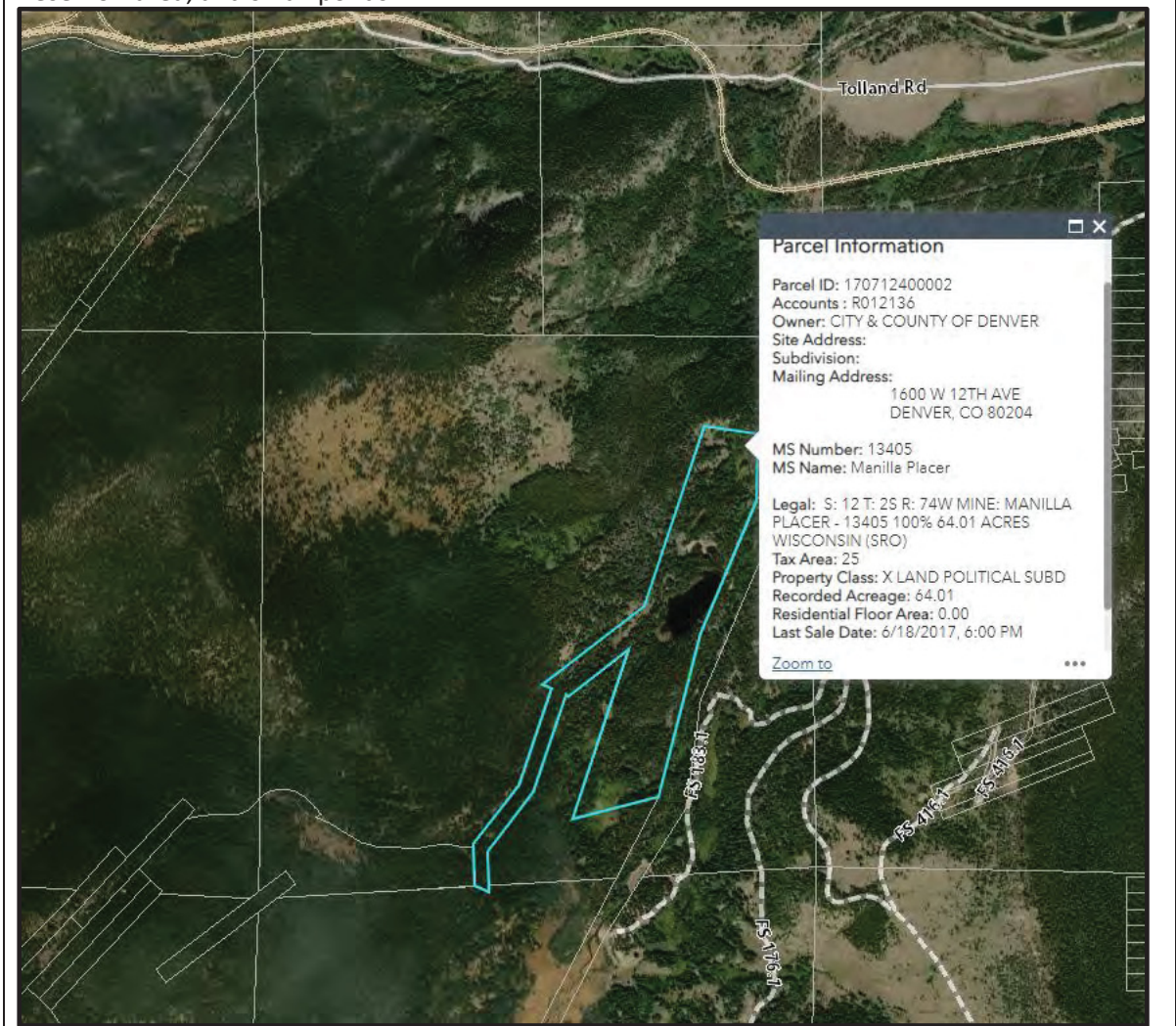
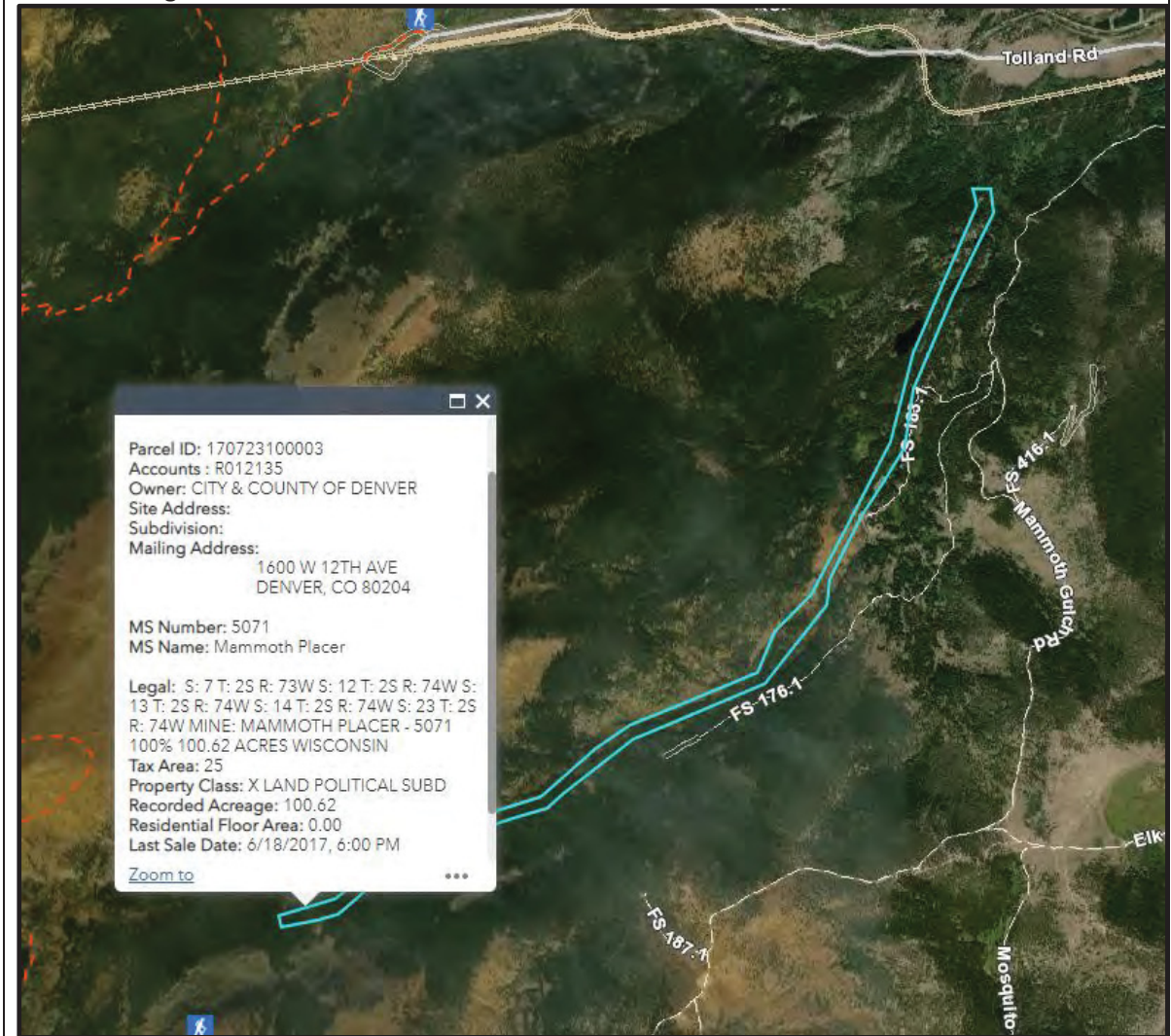


Figure 3- Parcel ID- 170723100003- Mammoth Placer- contains the majority of the Mammoth Creek drainage.



BCPOS Plant Ecology Staff review of proposed mitigation measures

One of the main mitigations for this project, as specified in (Table 6; Mitigation Measures for the Project; 1041 Application) is the purchase and transfer of the 539-acre Toll property to USFS. This agreement with the USFS is used as mitigation for a variety of impacts. Those related to plants include:

- Permanent impact due to removal of approximately 456 acres of vegetation, including forest vegetation, from construction and inundation.
- Permanent impacts to sensitive habitats from inundation, including 71.3 acres of Winiger Gulch Potential Conservation Area (PCA) (3.8 percent of total PCA area) and 243.4 acres of Winiger Ridge Environmental Conservation Area (ECA) (7 percent of total ECA area).

- Loss of 3.9 acres of Arapaho and Roosevelt National Forests (ARNF) plant communities (river birch/mesic forb, foothills riparian shrub, and thinleaf alder/mesic forb riparian shrubland) of local concern due to inundation. Moderate impact due to loss of biodiversity, but not substantially affecting overall distribution or abundance. (These are not just ARNF species of local concern, but of County concern, and both State vulnerable and imperiled communities tracked by CNHP as well).
- Minor impact due to a loss of about 1 acre (0.1 percent) of old growth ponderosa pine on the Roosevelt National Forest due to inundation.
- The mitigation for inundation of 4.08 acres of riparian habitat and 0.04 acres of temporary impact.

The Toll property is also used as mitigation for some of the wetland impacts, totaling 5.78 acres, including:

- Permanent impacts to 2.24 acres of Corps jurisdictional wetlands surrounding Gross Reservoir and 0.21 acres of temporary impacts.
- Permanent impacts to 3.54 acres of Corps jurisdictional Other Waters of the U.S. and 0.50 acre of temporary impacts to Other Waters of the U.S.

Additional mitigation measures for wetland impacts include purchasing credits in the Four Mile Mire wetland mitigation bank as part of the 404 permit conditions, and the creation of the 5,000 AF Environmental Pool. Boulder County has previously asked that any wetland mitigation credit is used in the South Boulder Creek watershed, but it is unclear if and where this would occur.

While we have not been able to find details about this purchase and transfer agreement between Denver Water and the USFS, it does seem reasonable that Boulder County could request a seat at the table in management decisions about this parcel and any protections it may receive. There is no assurance that the resources of this property, which I would agree are substantial (though I have limited information) will be further protected in the custody of the USFS than they were in private ownership. In fact, increased visitor use, including the potential for OHV use, may further jeopardize the natural resources of the Toll parcel. In fact, the CNHP Level 4 Potential Conservation Area (PCA) Report for Middle and Upper South Boulder Creek referenced in Table 6, recommends management protection to prevent stream and wetland degradation in areas currently managed by Roosevelt NF with dispersed recreation. With further knowledge of the resources of the property and adjacent uses, it may be reasonable for Boulder County to ask for limiting public access or constructing fences to protect the resources present that provide for much of the natural resource mitigation of Denver Water's proposed project.

Attachment 3.

Gross Dam Expansion -Wildlife Impact Mitigation Memo, Mac Kobza, 11/10/20

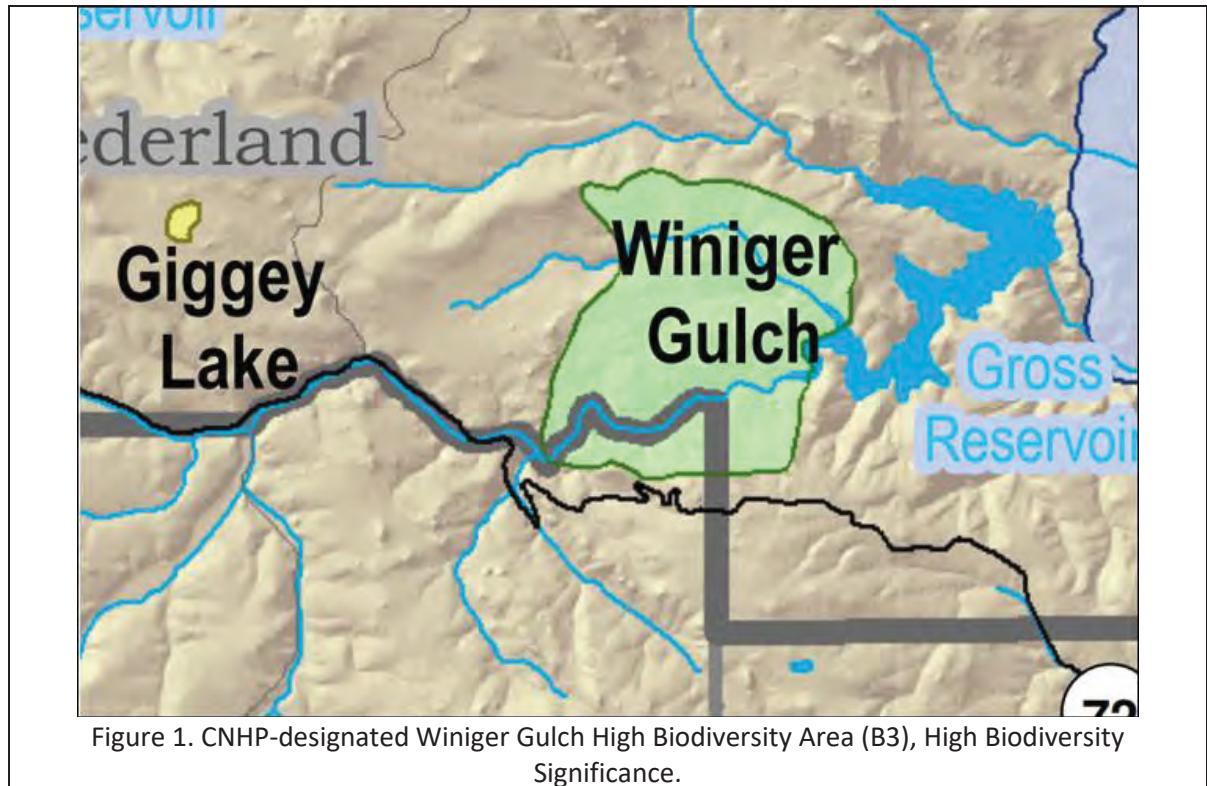
RE: (1) CNHP Winiger Gulch PCA, (2) CNHP Targeted Inventory Areas (Upland, Wetland, Zoology) and (3) Boulder County ECA #6, Wildlife Migration Corridor #95 and Natural Landmark #26, (4) Fish Stocking, (5) Assurance of mitigations.

1. Winiger Gulch PCA – expansion will damage a significant natural area

In 2006-2009, the Colorado Natural Heritage Program (CNHP) “systematically identified the locations of rare species and significant natural plant communities in Boulder County, and also identified and prioritized areas of critical habitat (Potential Conservation Areas) for these species and communities” to, among other reasons, “provide data for development review purposes through the Boulder County Land Use Department” (CNHP, 2009).

The Winiger Gulch Potential Conservation Area (PCA) was identified as a “B3”, or High Biodiversity area of Significance – having among the highest priority for conservation actions. This site represents an area which CNHP recommends for protection in order to “preserve the natural heritage of Boulder County”.

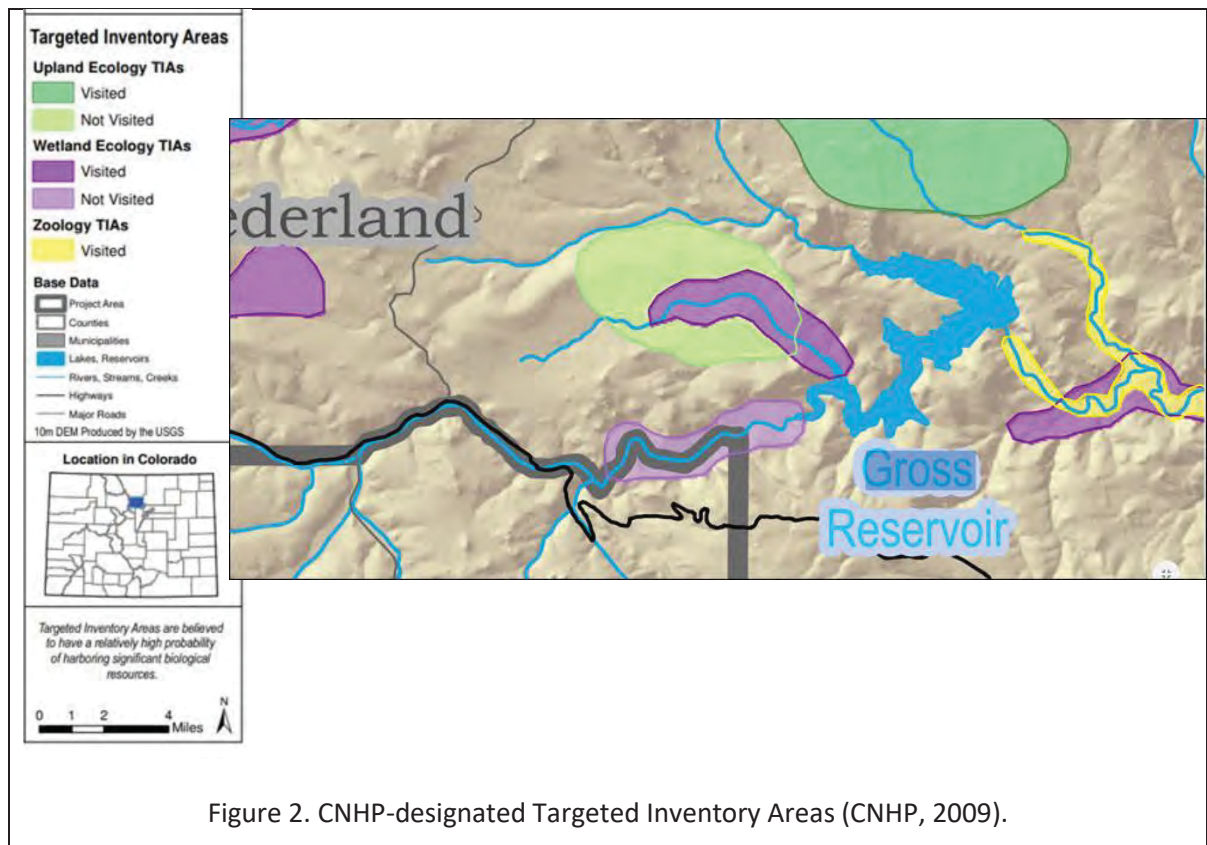
As of 2009, this PCA was given a Protection Urgency of “P2”, meaning “Protection actions may be needed within 5 years”. It was estimated, in 2009, that current stresses may reduce the viability of the elements in the PCA within 5 years. Winiger Gulch was also assigned a Management Urgency of “M2”, meaning that “new management actions may be needed within 5 years to prevent the loss of the element occurrences within the PCA”. These rankings were based on the anticipated Gross Dam expansion, and potential recreation impacts.



2. Winiger Gulch Targeted Inventory Areas – requires assessment of significant natural resources

CNHP designates Targeted Inventory Areas (TIAs) at locations likely to have a high probability of harboring significant biological resources. There are six (6) TIAs located nearby to Gross Reservoir. Three TIAs are located along the western region of Gross Reservoir, and **two of these have not been visited**. An Upland Ecology TIA along Winiger gulch, and a Wetland Ecology TIA along South Boulder Creek remain to be assessed.

These TIAs are areas having the highest potential for supporting rare or imperiled species or significant plant communities, and are the largest, least fragmented, and relatively free of visible disturbances such as roads, trails, fences, and quarries. CNHP had limited time, and other constraints, to complete the assessment of these TIAs at Gross Reservoir. Therefore, **CNHP recommended, and staff request**, that subsequent surveys be made in Boulder County to assess and verify the resources at these TIAs, especially at these sites which have a known and high degree of imperilment.



3. Winiger Ridge Environmental Conservation Area #6, Wildlife Migration Corridor #95, and Natural Landmark #26

The Environmental Resource Element of the Boulder County Comprehensive Plan establishes Environmental Conservation Areas (ECA), Critical Wildlife Habitats (CWH) and Migration Corridors, and Natural Landmarks as critical planning tools for preserving native species and natural ecosystems and for protecting scenic resources for the citizens of Boulder County. ECAs are large and less developed areas of the County that possess a high degree of naturalness, high quality or unique landscape features, and have significant restoration potential. They remain our best planning tool to address landscape and habitat fragmentation. Wildlife Migration Corridors are Critical Wildlife Habitats that preserve vital habitat that is required to complete the life cycle of migrating species. Natural Landmarks are a landscape feature designated solely for its visual and scenic prominence that distinguishes a specific locality in Boulder County.

The Winiger Ridge ECA #6 contains the Winiger Ridge CWH #95, Winiger Ridge Natural Landmark #26, and the Winiger Gulch CNHP-PCA. Impacts associated with the Gross Dam expansion will directly impact the quality and uniqueness of each of these important conservation areas. The extensive inundation of Forsythe Canyon and Winiger Gulch will significantly impact the elk migration corridor and force animals to traverse closer to developed areas near county road 68 and more high-use recreation areas along FSR 359, and perhaps the use of less-optimal migration habitat. The associated disturbance with this project will be a serious impact to the health of the migrating elk and overwintering elk herd for the duration of the project. Overwintering elk are already stressed, so it is vital that the project consider impacts and mitigations.

The tree cutting and removal methods associated with the Gross Dam expansion will require the development of haul roads and skid roads. These roads, unless fully mitigated by long-term, monitored reclamation, will increase fragmentation in an area that is currently relatively undisturbed.

The aspiration of the Winiger Ridge ECA #6 is to limit or reverse habitat fragmentation and allow free movement of wildlife. The effective core preserve of this ECA is jeopardized by the scope and magnitude of the Gross Dam expansion project.

Recommended Mitigations:

As the Winiger Gulch PCA is currently relatively undisturbed, Boulder County requests that recreation remains an emphasis on the east side of Gross Reservoir and is not emphasized on the west side. Although the west side of Gross Reservoir is open to the public, it currently has limited recreation occurring. The concern with the addition of several skid roads and haul routes associated with the tree removals is that these temporary roads often lead to the development of social trails and more access. If recreation increases due to the implementation of the Gross Dam expansion, the habitat values for wildlife such as elk will decrease and will lead to an amplification of impacts over time.

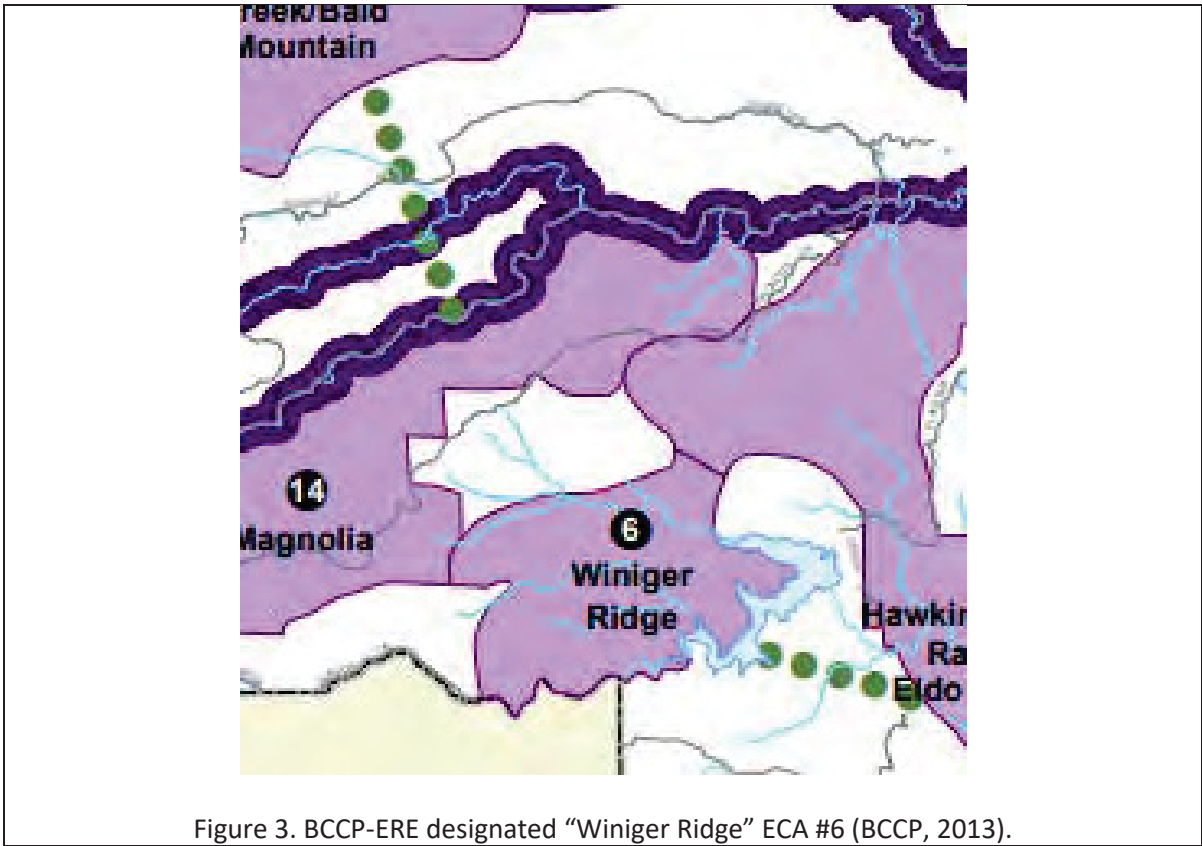


Figure 3. BCCP-ERE designated "Winiger Ridge" ECA #6 (BCCP, 2013).

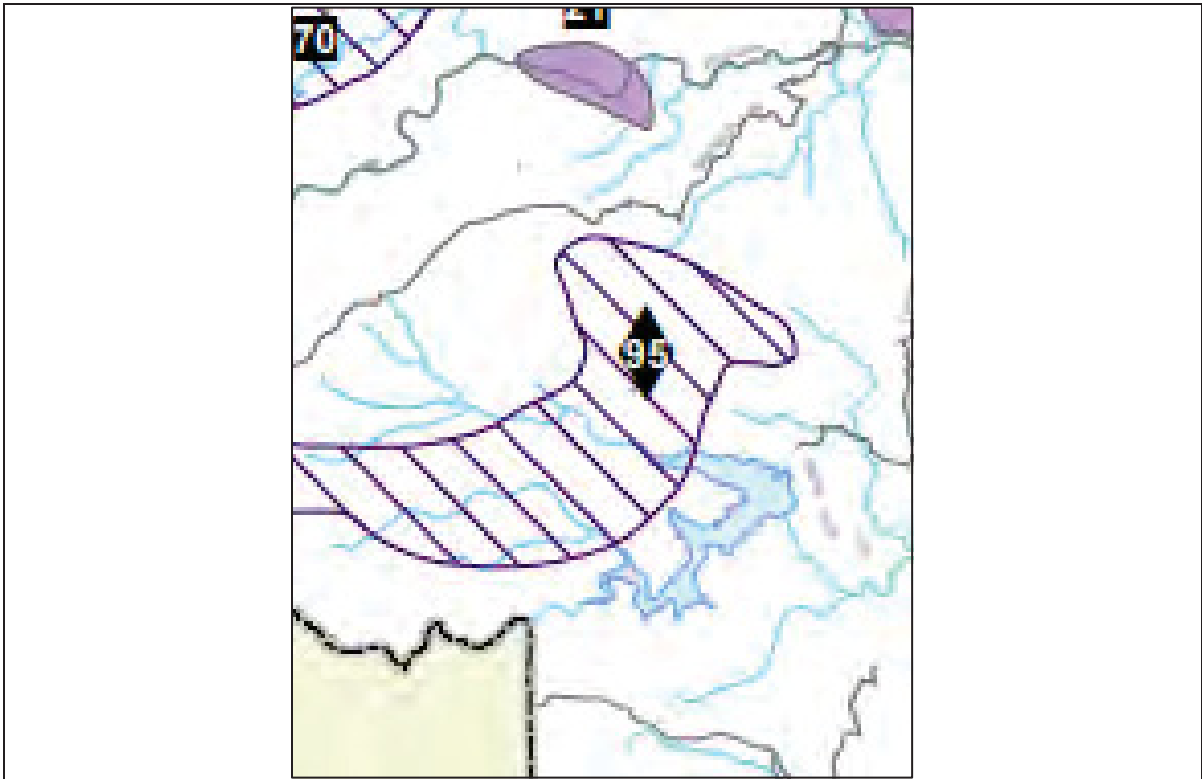
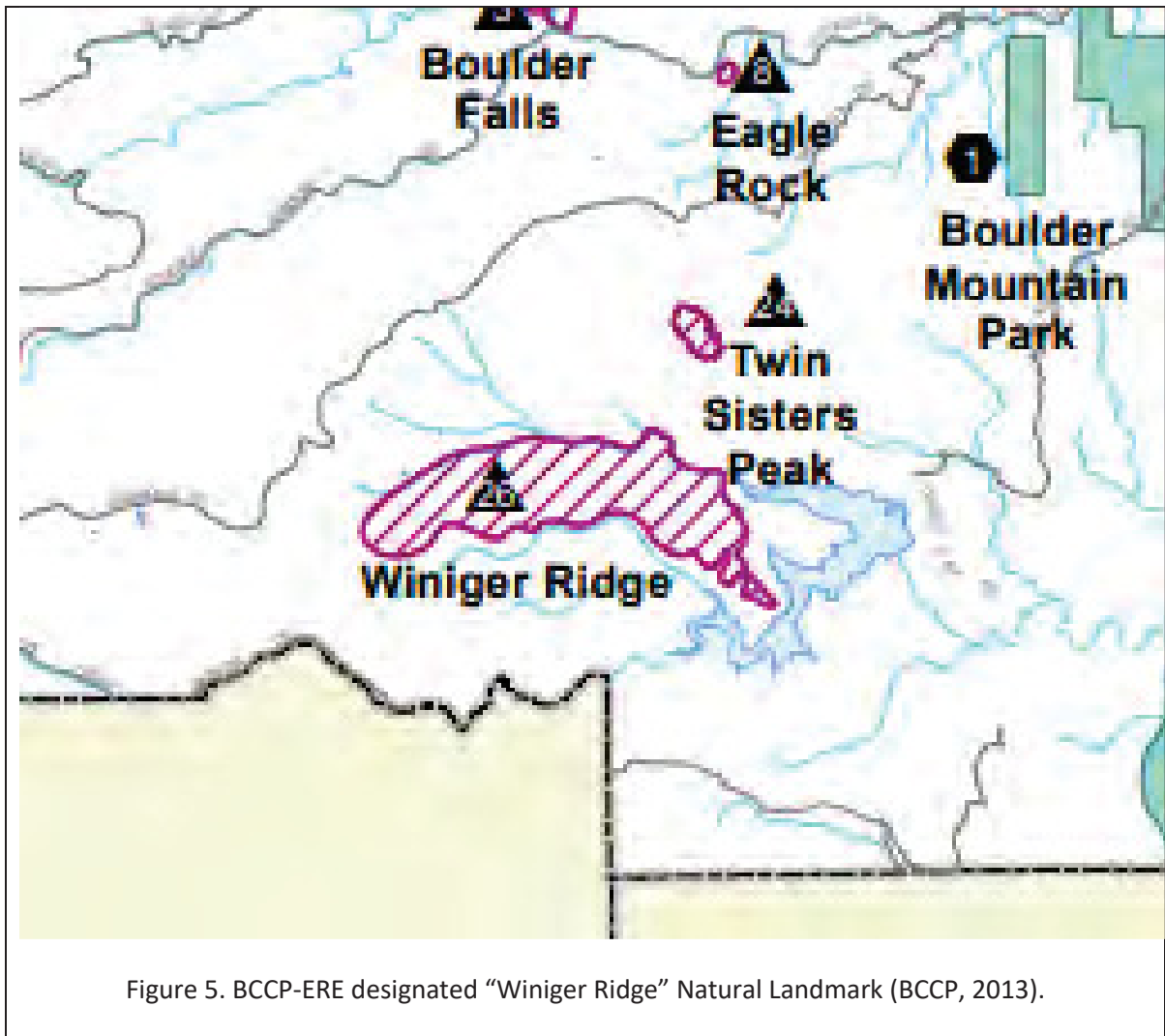


Figure 4. BCCP-ERE designated "Winiger Ridge Elk Herd" CWH-Migration Corridor (BCCP, 2013).



4. Fish stocking in Gross Reservoir

The 1041 application materials noted that “additional fish species” may be established at Gross Reservoir after completion of expansion. Staff requests that no “new” gamefish species be added to those already established. This is in keeping with the South Boulder Creek mitigation and stream restoration for native fish. Introduced game fish are the primary threat, along with low minimum stream flows, to the survival of state-listed native fish species. Escapement downstream, and migration upstream, of these newly introduced species of non-native game fish will only serve to exacerbate the threats to native fish of county and state concern.

5. Assurance of Mitigations

As there is no enforcement condition as part of many of the proposed mitigations, the County would like to see a mechanism that ensures progress and implementation of the variety of mitigation measures and enhancement agreements. This could be implemented as a monitoring and reporting agreement showing progress towards establishment, spending and completion of the variety of restoration and mitigation progress as agreed to in this 1041 application. Land in Boulder County is being impacted directly by this development, and so, it is in the county interest to know that the

variety of resource mitigations both within and outside of Boulder County are on track to be completed.

Boulder County Land Use Department. 2013. Boulder County Comprehensive Plan, Environmental Resource Element. Land Use Department, Boulder, CO. <https://www.bouldercounty.org/property-and-land/land-use/planning/boulder-county-comprehensive-plan/update/environmental-resources-element/> (Accessed 11/10/2020).

Neid, S., J. Lemly, K. Decker and D. Culver. 2009. Final Report: Survey of Critical Biological Resources in Boulder County 2007-2008. Colorado Natural Heritage Program, Fort Collins, CO. https://cnhp.colostate.edu/wp-content/uploads/download/documents/2009/BoulderCoReportFINAL_6-26-2009.pdf Accessed 11/10/2020).

Attachment 4. Boulder County Plant Ecology Review of Plant Species of Concern and Significant Natural Communities

Plant Ecology staff reviewed Exhibit 18 of the 1041, (*Boulder County Plant Species of Interest Boulder County Rare Plant Species and Significant Natural Communities Species of Special Concern List*), with a focus on species and communities that may be present on within the project site. Denver Water ranked each of these species and communities with a likelihood to occur of 1 to 5. One being ‘not present’ and a five noting ‘known or likely to occur; key habitat features present’. In general we agreed with much of their assessment, though we did make some slight upward changes for a few species and communities, utilizing internal data from vegetation mapping, herbarium records via SEINnet, and I-Naturalist observations.

The majority of those shifts were slight, just one rank upward. A shift from 1 to 2 (not present to unlikely) would not require any further assessment, whereas a shift from 2 to 3 (unlikely to potentially present) or a 3 to 4 (potentially present to known or likely to occur) may require some further assessment. A species or community ranked 4 or a 5 seem to be fairly synonymous as known or very likely to occur and are not included for further assessment.

Per our assessment, ten species shifted from a 2 to 3 or a 3 to 4. They include:

State Scientific Name	State Common Name	CNHP Global Rank*	CNHP State Rank*	Potential for Occurrence in the Project Area**	POS Rank
<i>Botrychium virginianum</i> (<i>Botrypus virginianus</i> ssp. <i>europaeus</i>)	Rattlesnake fern	G5	S1	2	3
<i>Calypso bulbosa</i>	fairy slipper orchid	G5		3	4
<i>Carex oreocharis</i>	grassslope sedge	G3	S1	2	3
<i>Carex torreyi</i>	Torrey sedge	G4	S1	2	3
<i>Lilium philadelphicum</i>	wood lily	G5	S3S4	2	3
<i>Malaxis brachypoda</i> (<i>M. monophyllos</i> ssp. <i>brachypoda</i>)	white adder mouth orchid	G4Q	S1	2	3
<i>Piperia unalascensis</i>	slender-spire orchid			2	3
<i>Potentilla ambigens</i>	silkleaf cinquefoil	G3	S1S2	2	3
<i>Pyrola picta</i>	whiteveined wintergreen, pictureleaf wintergreen	G4G5	S3S4	2	3
<i>Selaginella weatherbiana</i>	Weatherby feets Spike-moss	G3G4	S3S4	3	4

Many of these species have records of occurrence within OSMP lands east of the project area, including three species found on Green Mountain. That location is well known to harbor unusual and relict plant species and provides habitat that may not be wholly present within the project area. However, due to its proximity to the project area, those species, and others found at similar elevations in Jefferson or Boulder County deserve a “potential to occur” ranking of 3.

Two of those species increased from a 3 to a 4 ranking, including *Calypso bulbosa*, which has been seen within the project area by a BCPOS plant ecologist, though perhaps above the new proposed water level, and *Selaginella weatherbiana*, which has multiple collection records south of the project area in Jefferson County and would appear to have appropriate habitat.

It is noted that the 1041 application includes an assessment of Other Special Status Plant Species (Table 51; 1041 Application). That list includes USFS Region 2 sensitive species, ARNF plant species of local concern, and CNHP-listed species. However, this list is missing 32 of the species listed on the County's list in Exhibit 18, including many that do have a CNHP ranking. It does not appear if any of these 32 species were formally assessed or surveyed for within the project area as perhaps those within Table 51 were. Of those 32 species, 13 could possibly occur (ranking 3 or more) within the project site, including:

<i>Argyrochosma fendleri</i>	Fendler feets false cloak-fern	G3/S3
<i>Astragalus sparsiflorus</i>	Front range milkvetch	G3?/S3?
<i>Calypso bulbosa</i>	Fairy slipper orchid	G5/
<i>Carex oreocharis</i>	Grassyslope sedge	G5/S1
<i>Carex saximontana</i>	Rocky Mountain Sedge	G5/S1
<i>Mirabilis linearis</i>	Narrowleaf four o'clock	G5/S1
<i>Packera pseud aurea var. flavula</i>	Falsegold groundsel	G5T2T4/SNR
<i>Pediocactus simpsonii</i>	Mountain ball cactus	G4
<i>Phacelia denticulata</i>	Rocky Mountain phacelia	G3/SNR
<i>Potentilla ambigens</i>	Silkyleaf cinquefoil	G3/S1S2
<i>Selaginella weatherbiana</i>	Weatherby feets spike-moss	G3G4/S3S4
<i>Sidalcea neomexicana</i>	Salt spring checker bloom	G4?/SNR
<i>Smilax lasioneura</i>	Blue ridge carrionflower	G5/S3S4

The *Sidalcea neomexicana*, for example, was noted to be present along South Boulder Creek, below the dam, within sample point SBC-1 (FEIS, 3-316). Despite having no State ranking and a global rank of G4 (secure), this species and the others, if present could be included as part of the proposed relocation plan to be developed with USFS, or a separate similar plan developed with BCPOS.

CNHP has updated some of the species rankings above since the last update to the Boulder County list of species of concern. Some, such as *Mirabilis linearis* and *Packera pseud aurea* are no longer on the list. Others, such as *Calypso bulbosa* and *Pediocactus simpsonii* are also no longer on the CNHP list, but are of continued concern to Boulder County, namely due to threats from illegal collection. Of the seven USFS sensitive species included in the proposed relocation plan only one is tracked by CNHP (*Carex sprengei* G5/S2), highlighting the fact that inclusion on the current CNHP, list is not the only criteria given to the species of concern.

In all, 14 species of ARNF sensitive plant species were found in the project area (8 flowering plants and 6 fern species) all of which were associated with riparian areas and associated lower slopes of Winiger and Forsythe Gulch and other tributaries, highlighting the importance of those riparian habitats.

Additionally, as widely discussed there are significant vegetative communities present on the site, particularly in the Winiger Gulch PCA, which the application acknowledges "supports a good (B-ranked) occurrence of a globally rare (G3/S3) thinleaf alder (*Alnus incana*) / mesic forb community, an excellent (A-ranked) occurrence of the state rare (G5?/S2S3) *Sprengel's sedge* (*Carex sprengei*) and a good (B-ranked) occurrence of a state rare

(G4/S2) Betula occidentalis / Maianthemum stellatum riparian shrubland.” Unlike other wetland communities that may be able to re-establish along a new high water elevation, depending on the topography present at that line, these riparian communities will not be able to move up in elevation, due to the fact that that landscape is already occupied and may preclude establishment of the community of species impacted.

Additional state rare communities likely exist on site in the uplands, and are denoted as such with an occurrence ranking of 4, such as the G3/S3 ranked *Pinus ponderosa/Leucopoa kingii* woodland, which is present on nearby Walker Ranch, and the State imperiled G4G5/S2 *Pinus ponderosa/Muhlenbergia montana* woodland. The FEIS, Chapter 3, mentions Ponderosa pine with an understory of grasses, including mountain muhly (*Muhlenbergia montana*), which may correlate to the latter community. It does not appear that these communities, which could potentially occupy a significant amount of acres are mitigated in any way other than the Toll property acquisition.

Attachment 5. Boulder County Forestry Staff Review of RESIDUE (PRODUCTS AND SLASH) REMOVAL & UTILIZATION

Boulder County strongly advises against the use of Air Curtain Destructors as the primary means of residue disposal. The manufacturers stated throughput volume is best case scenario and not normally realized, at least in our region. The S-220 that Boulder County utilizes at its Community Forestry Sort Yards, consuming primarily slash, averages 2-4 tons throughput per hour. If the Gross Reservoir used the largest unit ACB produces, the S-327, an average throughput of 6 tons/hour could be expected based on past performance of other units in the region. With 5 ACD's working simultaneously, each burner would require 1,800 hours of peak operation efficiency, ~ 9,000 hours cumulatively, to consume the estimated volume of biomass generated by the project. In addition, although these units combust material much more efficiently than open burning, there will still be significant smoke production at times. 5 units running concurrently would produce significant particulate matter, especially at the start-up, shut-down, and loading periods. During times of low atmospheric pressure and/or thermal inversion, the smoke generated would flow directly down the drainage of South Boulder creek into the Eldorado area and City of Boulder airshed. While ACDs' may be an attractive and viable option for partial disposal of the slash generated from the project, the units should not be used for stem wood or as the only means of slash disposal.

Boulder County recognizes that utilization by local markets is problematic. The bark beetle epidemic which has affected the region over the past few years has created a severe excess of material that can't be absorbed by an already depressed market. That being said, there are limited diverse opportunities that may help alleviate at least some of the disposal & utilization issues associated with this project.

The USFS Long Term Stewardship Contract currently underway on the Arapaho and Roosevelt and Pike National Forests being implemented by West Range Reclamation is an example of utilization possibilities. Stem wood that is of traditional value is shipped to regional mills. Excess stem wood and tops are processed through a chain flail delimeter/debarker then processed into pulp quality and transported to out of state markets. De-barked wood is also the preferred material for the production of livestock shavings at a nearby facility. The bark & needles have limited markets locally either as landscape material or for soil augmentation.

Other local options would include the 5 local biomass heating plants that are within reasonable transportation distances from the project. These include: Gilpin County Transportation Building, NREL in Golden, Boulder County Jail, Boulder County Parks and Open Space & Transportation Complex, and the Foothills Facility at CSU. Local firewood

sales are also an option but would be small-scale relative to the disposal & utilization needs of the project.

Comments specific to the proposed use of Air Curtain Burners/Destructors to be used for slash and tree disposals:

- Manufacture's estimates of 1 to 15 tons are off due to many reasons including moisture content of recently cut wood. Our experience at the Nederland Sort Yard is 2 tons per hour. While our air curtain burner may have been a smaller model, there may be some major differences as to what is expected and what is reality. We think that an estimate of twice the required processing time will be needed.
- There are a reduced number of days that an ACB/D can be used due to air quality restrictions and burning restrictions, this may strongly hinder the project and timeline. We as the County were required to have water on site for emergency purposes.
- If any large material (i.e. whole tree material) is being slated for the ACB, there is a good chance that the "air curtain" will be breached causing increased emissions, and more dangerous burning scenarios (embers). Processing time of material may need to increase yet again to allow for this scenario.
- While ACB/D's do a great job in reducing the waste tonnage by 96-98%, the amount of usable Biochar is negligible and should not be relied upon as a product from this operation especially since it would need to be separated from regular ash.

Cable Yarding: Some areas were identified for Cable yarding. A few comments below:

- While these areas may be suitable for cable yarding based on slope, there was minimal discussion related to the need to create access roads for this type of removal. These access roads are typically larger than a typical skid trail and would undoubtedly increase resource damage.

Boulder Log Yard discussed in Section 3.1.7: Since we run this yard we have a little more information regarding its availability and operation.

- The Nederland Community Forestry Sort Yard (CFSY) would not be capable of adding 24,000 tons to their operation. Currently we process 1500 tons in a year between two sort yard locations (Nederland/Meeker Park).
- Additionally, we do not charge for taking material since it is a County service, but we do pay between \$2.75 to \$4.00 per cubic yards for tipping fees for material that we process. Overall the plan looks like it could be accomplished, but the removal, processing, and outlets for the 24,000 tons of material may be difficult in the markets along the Front Range of Colorado.



**Parks & Open Space Advisory Committee
MINUTES**

October 22, 2020
6:30 p.m.

Virtual Meeting

Call to Order

The meeting was called to order at 6:30 p.m. by James Krug

Members:

- Scott Miller
- Heather Williams (arrived 7:30 p.m.)
- James Krug
- Jenn Archuleta
- Paula Fitzgerald
- Steven Meyrich
- Trace Baker
- Ann Obenchain
- Tony Lewis

Staff:

- Eric Lane
- Jeff Moline
- Renata Frye
- Nik Brockman
- Vivienne Jannatpour
- Stefan Reinold
- Therese Glowacki

Approval of the August 27, 2020 Meeting Minutes

ACTION REQUESTED: Minutes Approval

ACTION: Baker moved approval of item. Archuleta seconded the motion.
VOTE: **AYES:** Miller, Krug, Archuleta, Fitzgerald, Meyrich, Baker, Obenchain, Lewis

Presentations

Study Session on Gross Reservoir & Dam Expansion Docket SI-20-000

ACTION REQUESTED: None, Information item only
PRESENTER: Jeff Moline, Resource Planning Manager

Open Space-Related Midterm Updates to the Boulder Valley Comprehensive Plan

ACTION REQUESTED: Recommendation to Planning Commission
PRESENTER: Jeff Moline, Resource Planning Manager

POSAC decided to postpone this recommendation until staff can look at the inaccuracies regarding the Twin Lakes parcel designations.

Public Comment:

Jessica Hartung, 6868 Twin Lakes Rd., Boulder. She is a Twin Lakes resident. She spoke of the wildlife values in that area and the need to assign new designations to parcels near Twin Lakes.

Donna George, 4661 Tally Ho Ct., Boulder. She is a Twin Lakes resident and spoke about inaccuracies on the BVCP Land Use map.

Dinah McKay, 4695 Portside Way, Boulder. She was unable to be heard during the meeting, but in the written chat she asked that the Open Space Land Use designation be corrected from OS-O to OS-A on the BVCP Land Use Map.

ACTION: Fitzgerald moved to postpone recommendation of item. Archuleta seconded the motion.
VOTE: **AYES:** Miller, Krug, Archuleta, Fitzgerald, Meyrich, Baker, Obenchain, Lewis, Williams

Director's Update

Eric Lane and Stefan Reinold provided an update to POSAC on the impact of the CalWood fire on Heil Valley Ranch infrastructure and forest ecosystem.

Adjourn

The meeting was adjourned at approximately 8:46 p.m.



Public Health

Environmental Health Division

November 12, 2020

TO: Staff Planner, Land Use Department
FROM: Jessica Epstein, Environmental Health Specialist
SUBJECT: SI-20-0003: Gross Reservoir & Dam Expansion project
OWNER: Denver Water Board City & County of Denver

PROPERTY ADDRESS: 3817 Gross Dam Road, at parcel 157928000006

SEC-TOWN-RANGE: 28 -1S -71

The Boulder County Public Health (BCPH) – Environmental Health division has reviewed the submittals for the above referenced docket and has the following comments.

OWTS:

1. Before beginning construction, the contractor must determine the location of all the existing approved OWTS components in the project area. The documents are scanned into septicmart.org. If there are unapproved OWTS, there may not be any information online. In this case, the owner should help with the general location of the system.
2. Heavy equipment should be restricted from the surface of the absorption field during construction to avoid soil compaction, which could cause premature absorption field malfunction. Caution should be used in conducting trenching and excavation activities so that sewer lines and other OWTS components are not damaged.

Air Quality:

1. BCPH has reviewed the Air Quality Impact Study for the Gross Reservoir Expansion Project and found that it was performed properly and demonstrates that the project can be completed without violating applicable air quality and air pollution regulations. The ability to perform the work and stay within the emission limits identified in the analysis will be highly dependent on the content and implementation of the Fugitive Dust Plan and BMPs adopted for the project and referenced in the Impact Study. BCPH therefore requests to be a participant in the review and approval process for these documents.

Drinking Water/Health Equity

In consideration of Article 8 Section 202 B. 3, 6,7, and 8:

1. In Exhibit 2, Denver Water’s (DW) Integrated Resource Plan, it discusses evaluation of water supply and planning to meet future needs. It reviews increasing source water supply, conservation measures, and use of rates as measures to meet increasing

demand until projected buildout of their service communities. While conservation measures and supply were covered in detail throughout this document there is insufficient information to understand how rates are impacting this plan. Review of this information is important to understand the necessity of the project. It is important to state that increasing cost of water utility can be a barrier to accessing clean and healthy drinking water and create health equity issues disproportionately affecting already marginalized populations. Affordability is a foundation of DW in that "... Denver citizens to approve a city-owned water utility that would be non-political, autonomous from other city interests and agencies, and instructed by amendment to the city charter to charge the lowest rates possible consistent with good service."

2. Ensuring adequate investment in infrastructure to support and maintain current water services is important to balancing health equity impacts for water access. Exhibit 2 discuss significant infrastructure CIP projects that will be needed in the coming years since a large portion of the distribution system was installed in the 1940's. There is no discussion about the impact on future rates from these CIP projects and/or the project to expand capacity at Gross Reservoir.
3. After reviewing the provided documentation, it was not demonstrated if water conservation plans will prevent rebound effect of more supply - less conservation. Based on the information provided by DW in this application it appears they have taken measures to reduce waste and several consumer programs have been implemented. However, information provided about conservation programs date back to the 1990's and do not discuss current efforts.

This concludes comments from the Public Health – Environmental Health division at this time. If you have additional questions, please do not hesitate to contact Jessica Epstein at (303) 441-1138.

Cc: OWTS file, owner, Community Planning and Permitting Department



Community Planning & Permitting

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Wildfire Mitigation Team

MEMO

TO: Summer Frederick, AICP, Planning Division Manager
FROM: Kyle McCatty, Wildfire Mitigation Specialist
DATE: December 10, 2020
RE: Referral for SI-20-0003, Gross Reservoir & Dam Expansion project at 3817 Gross Dam Road, at parcel 157928000006

Thank you for the referral. We have the following comments for the applicants:

Decades of catastrophic wildfires, research, and case studies have shown that extreme wildfires are inevitable in the forests of Boulder County and across the Western US, but loss of life and property does not have to be inevitable. The conditions that principally determine if a structure ignites occur within 100 feet of the structure, including the structure itself. That is why Boulder County has such strong wildfire mitigation requirements in our Land Use and Building Code, and why Boulder County encourages all property owners to voluntarily take responsibility to mitigate their own home and/or structure’s risk of igniting in a wildfire through Wildfire Partners.

The biggest risk to loss of life and property in a wildfire is the increase and intensity of activity that could start a wildfire. As such, all regulations involving fire prevention, including following Fire Bans, must be followed. Also, all existing and new structures on Denver Water property, or on National Forest Service land and used by Denver Water for this project, will need to have a Wildfire Partners certificate. All roads on Denver Water property, or on National Forest Service land and used by Denver Water for this project, the forest must be thinned within at least 30 feet of either side of the roads for safer ingress/egress according to the Colorado State Forest Service publication [Protecting Your Home from Wildfire: Creating Wildfire-Defensible Zones – 2012 Quick Guide](#) (strongly recommend using [Fuelbreak Guidelines for Forested Subdivisions & Communities](#), but that would require the forest to be thinned approximately 150 feet on either side of the road).

Timeline

After applying for, but prior to issuance of any permits associated with this project, a Boulder County Wildfire Mitigation Specialist will contact you to schedule a Wildfire Partners assessment and defensible space marking.

Before scheduling rough framing inspections, the defensible space of the plan must be implemented and inspected. All trees marked for removal must be cut and all slash, cuttings, and debris must be removed and/or properly disposed.

At the time of final inspection, all remaining required items in the Wildfire Partners Assessment report are to be fully implemented and inspected. Ground surfaces within three feet of both existing and new structures, and at least 2 feet beyond the driplines of decks, bay windows, and other eaves and overhangs, must be covered with an allowable non-combustible ground cover over a weed barrier material.

If the applicants should have questions or need additional information, we'd be happy to work with them toward solutions that meet minimum land use and building code requirements. I can be reached at 720.564.2625 or via e-mail at kmccatty@bouldercounty.org.