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John W. Hickenlooper
Governor

Mike King
Executive Director

RE: The Chatfield Reservoir Reallocation Draft Environmental Impact Statement

Dear Ms. Jarrett:

Thank you for the opportunity to comment on the United States Corps of Engineers' Draft Environmental Impact Statement for the Chatfield Reservoir Reallocation Project ("DEIS"). The following comments have been submitted from the Colorado Department of Natural Resources (DNR) and its Divisions. These Divisions include the Colorado Water Conservation Board (CWCB), and Colorado Parks and Wildlife (CPW).

Colorado Water Conservation Board Comments

This letter is in response to the U.S. Army Corps of Engineers' (Corps) published Notice of Availability of the Draft Feasibility Report and Environmental Impact Statement (FR/EIS) for the Chatfield Reallocation Project in the *Federal Register*. It is our understanding that the Corps taking public comment on the Draft FR/EIS through September 6, 2012. The Colorado Water Conservation Board (CWCB) is pleased to submit the following comments.

Overview

The CWCB has had an important long-term role in the development of the Draft FR/EIS, and serves as the non-federal project sponsor pursuant to a feasibility cost-share agreement with the U.S. Army Corps of Engineers. The CWCB's statutory duties include promoting the greatest utilization of water and working with water providers on the conservation and development of the waters of the state. The CWCB supports the proposed project, and recognizes that one of its tremendous features is to make use of an existing federal reservoir in lieu of constructing an entirely new on-stream reservoir.

Colorado's Water Supply Planning Process

Board of Land Commissioners • Division of Reclamation, Mining & Safety • Colorado Geological Survey
Oil & Gas Conservation Commission • Water Conservation Board • Division of Forestry
Division of Water Resources • Division of Parks and Wildlife

Colorado has a robust water supply planning process based on local basin planning. In 2003, because of Colorado's population increase, the 2002 drought, and potential water shortage issues, the Colorado General Assembly authorized CWCB to implement the Statewide Water Supply Initiative (SWSI). Senate Bill 03-110 authorized SWSI which implemented a collaborative approach to helping Colorado maintain an adequate water supply for its citizens and the environment. SWSI focused on using a common technical basis for identifying and quantifying water needs and issues throughout the state. SWSI formed the basis of Colorado's current water supply planning process.

In 2005, the Colorado General Assembly formalized this statewide water supply planning process through the Colorado Water for the 21st Century Act (C.R.S. 37-75-101 to -107). The Colorado Water for the 21st Century Act, now known as the Basin Roundtable Process, provides a permanent forum for basin level water supply planning. It incorporates and extends SWSI by creating 9 Basin Roundtables based on Colorado's eight major river basins and a separate roundtable for Denver Metro area.

Each Basin Roundtable is charged with developing a basin-wide water needs assessment by analyzing their consumptive (M&I and agricultural) water needs, nonconsumptive (environmental and recreational) water needs, and available water supplies. They are also proposing projects and methods to meet their identified water needs.

SWSI Findings

The SWSI 2010 report indicates that by 2050 Colorado's population will double to roughly 10 million people. About half of this population growth is expected to be due to net migration into the state and the other half due to birth rates exceeding death rates. This growth will create the need for roughly as much as 800,000 acre-feet of municipal and industrial (M&I) water. The South Platte and Denver Metro areas, which could be served by the Chatfield Reallocation project, are projected to need on the order of 300,000 to 500,000 acre-feet of additional M&I water. A significant amount of this could be met through the successful implementation of projects and planning processes that the local water providers are currently pursuing, also called Identified Projects and Processes, or IPPs.

The Chatfield Reallocation Project is one of many IPPs. SWSI found that even if all the IPPs are 100% successful there would still be an unmet need, or water supply "gap." To the extent that the IPPs are not successful the "gap" is obviously larger. SWSI also found that to the extent the IPPs are not successful, Colorado will see a much greater reduction in irrigated agricultural lands as M&I water providers seek additional permanent transfers of agricultural water rights to provide for the demands that would otherwise have been met by specific IPPs.

Upon completion of SWSI the Colorado Water Conservation Board recognized the importance of successfully implementing the IPPs. They adopted the mission statement to "Track and Support Water Supply Projects and Planning Processes."

By 2050, the population is projected to be between 5.8 and 7.1 million people in the South Platte Basin, including the Denver Metro area. This is an increase of 2.5 to 3.8 million people from the basin's 2005 population. Within the South Platte Basin, population will be concentrated in the Denver Metro Area. The largest county populations are projected to be in Adams, Arapahoe, Denver, Douglas and Jefferson Counties. Current and future water needs in the high population areas are substantial.

Identified Projects and Processes

Colorado's water supply planning process has concluded that meeting our state's water supply needs will require a mix of successful IPPs, additional conservation, agricultural transfers, and new water supply development. There is no "silver bullet" solution for our future water needs, and relying solely on any one strategy will not have a favorable result. Even with the successful implementation of the IPPs, Colorado will still have a water supply "gap." Additionally, Colorado will not be able to meet all of its future water supply needs through conservation alone, nor should Colorado rely solely on one or two large water projects.

A significant portion of Colorado's future needs will be met with the implementation of projects and planning processes that the local water providers are currently pursuing. Further, there is growing concern about the continued use of non-tributary groundwater for M&I purposes in the southern portion of the Denver Metropolitan area. Sustainable surface water supplies through projects such as Chatfield Reallocation are critical for reducing demands on non-renewable water sources contained in deep groundwater aquifers.

If successfully implemented, major IPPs in the South Platte Basin and Denver Metro Area that are currently in the NEPA process could yield an average of about 113,000 acre-feet of water. These projects include:

- Moffat Collection System Improvement – 18,000 a.f.¹
- Windy Gap Firming – 30,000 a.f.²
- Northern Integrated Supply Project (NISP) – 40,000 a.f.³
- Halligan-Seaman Reservoir Enlargements – 17,000 a.f.⁴
- Chatfield Reservoir Storage Reallocation – 8,000 a.f.⁵

However, these proposed water supply projects will only meet a portion of the total need. The remainder will need to be met through conservation efforts, local agricultural water transfers, and potential new water supply development projects above and beyond the IPPs. To the extent that water projects (IPPs) developed by local water providers do not move forward, different water projects will need to be considered. If the IPPs fail to move forward, alternative projects may be needed sooner and in larger configurations.

The CWCB has also worked with the IBCC and Basin Roundtables to develop "portfolios" or combinations of strategies for meeting Colorado's water supply needs. The "status quo" portfolio is just one of many that were developed, but it would lead to dry-up of large amounts of irrigated lands in the South Platte and Arkansas River Basins. The CWCB, IBCC and many water stakeholders throughout the state are concerned that this level of agricultural dry-up will have detrimental impacts to Colorado's economic diversity, cultural heritage, rural economies, and wetlands/riparian habitat. Again, it is critical that IPPs such as Chatfield Reallocation can move through the permitting process for implementation.

Conclusions

The U.S. Army Corps of Engineers has been working with the State of Colorado and roughly a dozen water entities who are seeking a portion of the proposed storage space based on a recommended alternative for reallocating 20,600 acre-feet in the reservoir. Chatfield Reallocation can be accomplished through robust on-site and off-site environmental mitigation

¹ An estimated firm-yield based on 1950-1991 hydrology.

² An estimated firm-yield basis based on 1950-1996 hydrology.

³ An estimated firm-yield basis based on 1950-1996 hydrology.

⁴ An estimated firm-yield basis based on synthetic hydrology.

⁵ An estimated average annual yield.

as well as sensible modifications to the existing recreational facilities at Chatfield State Park. All of this would be accomplished with no need to enlarge the existing dam or spillway.

Our basin-wide and state planning efforts indicate that the extent to which local water providers' projects are not successful, the state's overall M&I water supply "gap" is larger. Conservation and agricultural water transfers will be critical in meeting our future water supply needs, but they will not eliminate the need for new water supply development projects. If projects such as Chatfield Reallocation and other IPPs are not successfully permitted, then alternative water supply projects will need to be developed, perhaps at much higher costs and with more environmental challenges.

Overall, the CWCB has a keen interest in tracking reasonable projects developed by local water providers. In the case of Chatfield Reallocation, the CWCB has a vested interest in seeing a successful outcome. It is well understood that that impacts will result from any major water supply project. These impacts will need to be identified, minimized, and mitigated through the NEPA process and the State's own mitigation planning process (C.R.S. 37-60-122.2). Failure to move forward on reasonable, common sense projects such as Chatfield Reallocation will only create bigger and more difficult problems in the future. Many in the water community have stated that Chatfield Reallocation involves a highly inclusive process using a transparent and collaborative approach to project permitting.

Colorado is facing a challenging water supply future. In order for the state to continue ahead with a strong and diversified economy, it is imperative that a combination of conservation, agricultural transfers, identified projects, and new water supply development takes place. All strategies will be critical in meeting our future needs.

Colorado Parks and Wildlife Comments

This letter presents the comments of the Colorado Division of Parks and Wildlife ("Parks and Wildlife") on the United States Corps of Engineers' Draft Environmental Impact Statement for the Chatfield Reservoir Reallocation Project ("DEIS"). We appreciate this opportunity to provide these comments and hope you will find them useful in evaluating the potential impacts and benefits of allocating additional water storage in this reservoir. Parks and Wildlife is a division of the Colorado Department of Natural Resources organized for the purpose of protecting, preserving, enhancing and managing Colorado's natural, scenic, scientific and outdoor recreation areas, including Chatfield State Park, as well as its wildlife and environment for the use, benefit and enjoyment of the people of Colorado and its visitors. The reallocation of any additional storage space within Chatfield Reservoir (the "Reallocated Space") will directly impact one of Colorado's most popular recreational areas, Chatfield State Park, as well as its associated environment. Its close proximity to both the Denver Metro area and the foothills provides a valuable and unique opportunity for the public to connect to the natural world through fishing, camping, boating, hiking, biking, horseback riding and wildlife viewing. It is a vital component of the Colorado Parks & Wildlife system, attracting 1.6 million visitors annually. Further, the South Platte River and its associated riparian corridor, particularly that portion located downstream of Chatfield Reservoir, also provides valuable aquatic habitat and recreational opportunities in metropolitan Denver.

Parks and Wildlife is actively involved in the Reallocation Project (the "Reallocation") and supports the Chatfield Water Providers' objectives. At this juncture, it is our opinion that

additional information and mitigation measures be provided prior to approval of the Reallocation. Our specific comments on the DEIS are as follows.

1. In addition to any mitigation imposed by the DEIS, the Chatfield Water Providers are required to obtain and implement a Fish and Wildlife Mitigation Plan that is approved by the State of Colorado.

Colorado state law requires the Chatfield Water Providers to apply for, obtain and implement a Fish and Wildlife Mitigation Plan pursuant to the process outlined in C.R.S. § 37-60-122.2. We ask that this requirement be contained in the Record of Decision as a condition of the Corps' approval of the Reallocation. This approach was recently followed in the Corps' approval for the Southern Delivery System Project, which is located in the Arkansas River Basin.

2.A significant amount of the impacts to environmental assets and recreation are a result of the expected increase in reservoir fluctuations, and the change of timing of storage and release. A solid mutually agreed upon Coordinated Reservoir Operations Plan could dramatically decrease these impacts and the magnitude of impacts. Such a plan could decrease mitigation costs and increase certainty for the Water Providers, CPW and the Environment.

A relatively high, stable water level is necessary in order to maintain the quality of the recreational experience at Chatfield State Park as well as the existing fish and wildlife habitat, particularly during the summer season. In recognition of this fact, Denver Water (the only entity currently allowed to store and release water from Chatfield Reservoir) and the State of Colorado entered into an agreement in 1979 that governs Denver's ability to store and release water from its allocated storage space (i.e., between elevations 5,423 and 5,432 feet). This contractual arrangement is extremely important to Parks and Wildlife as well as the operation of Chatfield State Park. We strongly suggest that the tenants of this agreement remain intact..

We would like to see more detail regarding how the Water Providers will store and use the water in Chatfield Reservoir specifically;

- How will evaporation losses be allocated between Denver Water and the Chatfield Water Providers?
- Who will bear the loss of any storage space caused by sedimentation?
- How will the storage operation by the Chatfield Water Providers in the Reallocated Space be coordinated with the existing Denver Water storage operation?

Chatfield Reservoir typically fluctuates no more than 5 feet in elevation from Memorial Day to Labor Day. Reservoir fluctuations over this same time period with the approved Reallocation under Alternative 3, could increase up to 17 vertical feet, which in turn greatly increases the horizontal distance to the water from proposed relocated recreational facilities, shade trees and parking areas. We believe that a coordinated operations plan would greatly assist in helping to offset the potential impacts associated with said water level fluctuations. If such a plan could help mimic current reservoir water level fluctuations during the same time frame it would help preserve a similar recreation experience and the existing fish and wildlife. This Coordinated Reservoir Operations Agreement will help ensure that a functionally equivalent recreational experience and preserve the existing fish and wildlife habitat. This Agreement should require maintenance of a relatively stable water level.

The draft Reservoir Operations Plan in the Compensatory Mitigation Plan is a start but more specificity is needed to protect the quality of recreation at Chatfield State Park or preserve the existing fish and wildlife habitat. We believe the draft Reservoir Operations plan does not specifically address operations to mitigate the potential increase in low flow or zero flow days below the reservoir that may occur due to the Reallocation. It also appears to allow the Chatfield Water Providers to withdraw water without regulation for at least the first three years. The draft Reservoir Operations Plan contemplates operations whereby Denver Water would use its existing senior water rights and decreed exchanges to store water in the Reallocated Space to help maintain reservoir water levels and yet there would be “no expectation as to how or when the water is withdrawn.” We agree that use of Denver Water’s resources could help maintain desired water levels. However, the use of Denver’s senior water rights within the Reallocated Space and flow when it is withdrawn may impact the Chatfield State Fish Unit (“SFU”) and its junior water rights and downstream aquatic resources. We ask that you provide additional information as to how this concern may be alleviated or mitigated. Again, a solid and mutually agreed upon operations plan is key to addressing a high number of impacts in the most cost effective and efficient manner.

3. We desire clarification regarding the analysis of **the Upstream, In-Reservoir and Downstream Impacts.**

We are having difficulty determining the nature and magnitude of the upstream, in-reservoir and downstream impacts because we believe the described hydrology (Appendix H) does not incorporate the complex portfolio of water rights that may be stored in the Reallocated Space by the current project participants or the means by which that water will be released for its end use. Parks and Wildlife acknowledges, at the outset, that the Chatfield Water Providers will need both short and long term flexibility to obtain the most benefits from the Reallocated Space. Again, we emphasize that a coordinated reservoir operations plan using a strategy to mimic current reservoir water level fluctuations would greatly assist in offsetting potential impacts of this project.

The hydrologic modeling in Appendix H for the project provides a simplified view of the potential changes that is based on assumptions that we believe may not be accurate. For example, the hydrologic modeling evaluation includes the City of Brighton as a downstream user even though Brighton’s share (appx. 7% of the project) has since been acquired by an upstream user (largely, Centennial Water and Sanitation District); and, therefore, water that would have been passed through downstream by Brighton will now be taken out upstream of the reservoir by Centennial. Therefore, the model assumes a significant portion of the reallocation storage water would be passed downstream when in fact it may not. The model also appears to assume that all downstream water users will use the South Platte River as a conveyance structure for the life of the project. We are unclear if this assumption is currently up-to-date and ask that you clarify this assumption. We also would like to know if the Chatfield Water Providers will be able to lease their storage space to other water users or administratively exchange their water with other water users (such as Denver Water) and, if so, how might that temporary change impact flows below Chatfield Reservoir?

We also have a concern that the definition of water rights for water stored in the reallocated space is unclear. The DEIS begins by stating that the Chatfield Water Providers will store junior, presumably native, water rights. However, the draft Reservoir Operations Plan provides for the potential use of Denver Water’s storage and exchange rights within the Reallocated Space. The origin (i.e., native versus transmountain water rights) and priority of the water rights stored in the Reallocated Space is critical in determining the nature and scope of upstream, in-reservoir and downstream impacts caused by the Reallocation. We believe that this information would greatly

assist in determining whether the impacts have been correctly identified and the proposed mitigation measures are sufficient.

We provide the following example for your consideration: We believe Denver Water's use of its senior right in the Reallocated Space may jeopardize the operation of the Chatfield State Fish Rearing Unit and potentially downstream flows. Denver Water is not part of the Chatfield Water Provider entities and impacts due to the exercise of Denver's water rights and decreed exchanges were not evaluated in the DEIS analysis. We think that a detailed list of the specific water rights (i.e., native and transmountain water rights with their associated priority) that the Chatfield Water Providers intend to store in the Reallocated Space and when/how that water will be released to each end user would help to evaluate potential impacts associated with the reallocation. However, a solid operations plan would likely avoid the need for detailed water rights disclosure.

Upstream Impacts:

The DEIS describes the intermittent inundation of a 0.69 mile reach of the South Platte River above Chatfield Reservoir as a result of the Reallocation, and that the inundation could result in changes in the aquatic habitat of that reach. We believe that inundation of the upstream reach, even intermittently, will almost certainly result in permanent changes negatively impacting stream fishing recreation in this area on Chatfield State Park. This section of the river provides important river fishing opportunities for trout within the Park. The fluctuation in reservoir elevations under Alternatives 3 and 4 will negatively impact the riverine habitat, deposit sediments on the river gravels and may lead to a loss over time of trout habitat in this section of the river. We believe that clarifying the expected water level fluctuations related to the reallocation operations will help identify the magnitude of these potential impacts and the appropriate means of mitigation.

In-Reservoir Impacts:

The DEIS, and more specifically the Recreation Facilities Modification Plan in Appendix M, seems to make it clear that the overall goal of the Chatfield Recreational Modifications is to continue to provide visitors with the same recreational experience following the storage of up to an additional 20,600 acre-feet of water within the reallocated space (5432'-5444'). The Recreational Modification Plan covers most of the facilities within Chatfield State Park but there are still several issues that will need to be discussed and added that will in turn affect the overall cost of the modifications presented in the DEIS. From a recreational standpoint, Parks and Wildlife's largest outstanding concerns are making sure that the public understands that the relocated recreational facilities may often be located a considerable distance from the physical water level and that the 587 acres of land that is intermittently inundated with water stored in the Reallocated Space will become unusable for recreation.

The DEIS states the "average year yield" for the collective 15 water users is 7,000 acre-feet using a period of record from 1942-2000. An "average year yield" does not mean that 7,000 acre-feet of water will be stored in the Reallocated Space each year; rather, it is simply an average. It is unclear how much water will be stored in the Reallocated Space during a wet, normal or dry year. We believe that a coordinated reservoir operations plan could be used to help offset related impacts and address a range of concerns including:

- In a drier year such as 2012 or normal year, will the Reallocated Space be empty or do the Chatfield Water Providers intend to store more senior or transmountain water rights that may come into priority?

- If a particular Chatfield Water Provider does not have water to fill their portion of the Reallocated Space, may they lease that space to another entity with more senior water rights?
- How long will water be stored in the Reallocated Space by each of the Chatfield Water Providers?
- Do the Chatfield Water Providers need to use their water during the summer months?
- How much water do the Chatfield Water Providers anticipate releasing (either downstream or through an off-channel diversion facility) on a daily, weekly and monthly basis?

With regard to aquatic species in Chatfield Reservoir, such species could be harmed by the increased erosion, fine sediment and water quality changes caused by the storage of water within the Reallocated Space and increased water level fluctuations. The water quality analysis presented shows mercury to have exceeded water quality standard in 2004 and it was assumed to be the result of sediment from the Hayman fire. With the increased fluctuation predicted for the reservoir and the increased sedimentation due to erosion and the inundation of vegetation along the fluctuation lines, the increased possibility for methylation of mercury may occur. As vegetation decomposes and depletes or lowers the oxygen, mercury will become available to reservoir food chain. Currently, mercury levels found in fish tissue are well below the advisory level but as water quality changes occur with reservoir fluctuation, the potential for mercury levels in fish will increase. Studies have also shown that reservoir fluctuation has a negative influence on gizzard shad populations, the primary food source for walleyes. With potential decreases in shad populations, walleyes would shift to crayfish as a primary food source. Crayfish are known to be the primary link for mercury into the food chain; therefore, an increase in the utilization of crayfish in the walleye diet may lead to having to mitigate mercury. The Reallocation may also negatively impact other water quality parameters as well, which include, but are not limited to, phosphates, nitrates and dissolve oxygen. Adequately addressing these quality issues and ensuring water quality does not degrade will benefit the Water Providers as well as the environment. Prevention is a cost effective alternative to mitigation. These potential impacts could be appropriately addressed through adaptive management. Finally, the possibility of introducing aquatic nuisance or invasive species from surrounding positive areas, such as the Eurasian watermilfoil from the third gravel pond south of the reservoir (aka Cigar Pond), will be increased during a 10 year flood event.

Increased water level fluctuations dependent of timing may also impact species such as walleye and smallmouth bass that are two of the primary sportfish species anglers pursue at Chatfield Reservoir. Chatfield Reservoir's walleye spawning program produces 30-40 million eggs annually, and will be negatively impacted if storage of water within the Reallocated Space results in larger or more frequent water level fluctuations during the spawning season. Additionally, the smallmouth bass fishery is supported by natural reproduction which will be negatively impacted by more significant water level fluctuations during the spawning season, if dropping water levels dry up smallmouth bass eggs. Increased fish migration out of Chatfield Reservoir could result from more frequent and significant reservoir fluctuations. Chatfield Reservoir was required to move a large volume of water in the spring of 2006, which was completed at the same time as the walleye in the lake were staging to naturally spawn in the area along the dam face. This large movement of water naturally attracts these fish looking for suitable habitat to spawn or reproduce. The end result was the loss of approximately two-thirds of the adult walleyes out of the reservoir. This not only impacted the reservoir fishery for the angling public, but it also had a lasting impact on the State's ability to secure enough walleye eggs that supports not only walleye populations in Colorado, but many other states. It took four years for the adult walleye population to return to the same level that produced the needed

number of eggs and walleye population age structure. Smallmouth bass, supported entirely by natural reproduction, is another important sport fish in Chatfield that is very dependent on stable reservoir levels from mid-May to the first of July to sustain the fish population. A coordinated reservoir operations plan with Denver Water has helped to manage the Chatfield Reservoir, and a separate, but similar plan with the Water Providers would continue to help maintain the levels in the reservoir to continue to provide recreational fishing experiences.

Downstream Impacts:

We are concerned that the analysis of downstream flows may be inaccurate if a primary assumption is that each downstream user will always convey its water through the South Platte River, as opposed to through a pipeline, off-channel conveyance structure or by an administrative exchange or trade of water. The DEIS uses the Denver and Henderson gages to gather historical flow data, even though these gages are located a significant distance below Chatfield Reservoir. These gages are also located below two significant South Platte tributaries (Bear Creek and Cherry Creek), which add water to the river. Thus, we are concerned that the hydrologic modeling does not accurately characterize the changes in streamflow that will occur immediately below the reservoir.

We are concerned that the hydrologic modeling seems to rely heavily on a synthetically reproduced hydrology. It appears that actual historic releases of stored inflow data from Chatfield Reservoir are not assessed and that the releases stored water versus non-flood inflows passing through the reservoir are not factored into the analysis. If this is case, this may suggest that decreases in flow will be greater than what the model predicts, which will result in decreased water quality downstream of Chatfield Reservoir.

The DEIS evaluates changes in annual and mean monthly flows to analyze impacts to downstream flows. We feel a more accurate assessment of impacts could be gained by evaluating changes on a daily and weekly basis. We recommend utilizing daily or weekly time-step information from the Chatfield stream gage, which is located immediately downstream of the reservoir. We are concerned that future operations that drop streamflows below current levels could impact the Chatfield SFU and downstream aquatic resources.

The DEIS predicts reductions in streamflow below Chatfield Reservoir due to the Reallocation in the fall and winter months (Figure 4-12). Currently flows can and do fall below acceptable levels during these periods, and the South Platte River just below the reservoir is frequently dried up. We believe that if further flow reductions occur it will result in additional impacts including but not limited to loss of aquatic life (fish and invertebrate) and potential negative water quality impacts that could reach downstream until additional untreated water is added to the river channel and reduced recreational opportunity. We agree that some of the sportfish found downstream of the reservoir are more typically found in standing water but want to also emphasize that rainbow and brown trout are year round residents in streams with more consistent stream flows, species such as smallmouth bass and walleye could also become year round residents. The reach of river extending from Chatfield Dam to Confluence Park is a very popular angling recreation area; additionally there is interest in a collaborative effort to enhance the recreational use in this stream reach.

The DEIS states that impacts are not anticipated to the Chatfield State Fish Unit located downstream of the Reservoir. We would like to see an analysis of how a coordinated reservoir operations plan will support this claim. We believe this can be accomplished as referenced above by using the daily and weekly flow changes at the Chatfield Stream gage rather than monthly and mean annual streamflows at the Denver and Henderson stream gages. Again, a

Coordinated Operations Plan would help address the impacts in the most cost effective manner. Parks and Wildlife agrees with the assertion in Appendix D (Ecosystem Restoration Evaluation Report) that maintaining a minimum release of 10 cfs could greatly improve downstream habitat. We strongly support incorporating this minimum flow in a coordinated operations plan to protect the Chatfield SFU and downstream aquatic resources. CPW will continue to work closely with the stakeholders in their development of an operations plan that maintains and/or enhances the downstream aquatic resources.

- 4. Adaptive Management may be applied too broadly for mitigation, particularly where impacts are readily identifiable. There must be a more structured, concrete approach to mitigating identifiable impacts.**

We are concerned that the adaptive management approach explained in the Draft Operations Plan within the Adaptive Management Section (7.5.2.1) of the Compensatory Mitigation Plan (Appendix K) (the “CMP”) is not sufficient to mitigate the identified impacts. The CMP identifies the Chatfield Water Providers as the only stakeholders. We feel that the CMP should identify other potential stakeholders that may potentially be impacted by the mitigation. We think that adaptive management is applied too broadly and would be more beneficially applied to mitigate those impacts that are uncertain, either in their occurrence or degree of severity. For example, adaptive management is not an appropriate tool to use to mitigate the adverse impacts to walleye spawning caused by reservoir releases because concrete steps can be taken to limit the drawdown rate during known spawning periods. On the other hand, adaptive management can and should be used as a tool to mitigate potentially unknown water quality impacts and the loss of cottonwoods. Adaptive management increases uncertainty for all the Stakeholders, it is in everyone’s best interest to identify tangible mitigation everywhere possible. We would like to see adaptive management that consists of a developed plan that includes specific benchmarks or desired conditions as criteria to measure whether the mitigation is successful, as well as alternatives for mitigation should the initial attempt fail.

- 5. We believe that the DEIS and associated Recreation Modification Plan may underestimate the impacts to recreation at Chatfield State Park and potentially the costs associated with the mitigation that will be necessary to maintain a functionally equivalent recreational experience.**

The DEIS and associated Recreation Modification Plan appear to identify the nature of most of the impacts to recreational facilities within Chatfield State Park that will need to be mitigated. However, we feel the magnitude of those impacts has been underestimated, which in turn, may have caused certain costs of the proposed modification to be underestimated. We believe that it would be helpful for the DEIS and associated Recreation Modification Plan to further investigate the magnitude of these impacts, include these additional costs and provide for their continued funding for the duration of the project.

We suggest that the Document identify ways to fund the additional costs incurred at Chatfield State Park throughout the entire duration of the project. Most of the direct effects on recreation will occur at Chatfield State Park along with a significant amount of the related costs. Chatfield Reservoir typically fluctuates less than 5 feet in elevation from Memorial Day to Labor Day, which means that recreational facilities, shade trees and parking areas are located in close proximity to the water. If the reallocation project is approved, reservoir fluctuations over this same time period could increase up to 17 vertical feet. Facilities will have to be relocated, significantly increasing the horizontal distance to the water from recreational facilities, shade trees and parking areas. Visitors using the reservoir will have to travel farther from the water to the restrooms and parking areas during periods of low water (i.e., when the Chatfield Water

Providers are storing little to no water in the Reallocated Space). Initial costs will include replacement of facilities, trails, roads and infrastructure at a functionally equivalent level. For example, if Chatfield State Park now has 21 feet of exposed boat ramp at the North Ramp from the height mark of 5432 ft., then after modifications the Park should continue to have 21ft of exposed boat ramp from the high water mark of 5444. Otherwise, many of the relocated recreational facilities will be more vulnerable to flood events and subject to additional temporary closures because these facilities will be constructed within the 10 year floodplain. In addition, Chatfield State Park will be required to increase its daily, weekly and monthly operation and maintenance of those facilities to adjust for the fluctuations in water levels.

Chatfield State Park, and perhaps its concessionaires, will also experience a loss of revenue from decreased visitation; first during the initial mitigation process and later as a result of less usable Park land and watchable wildlife, and more closures of Park facilities located within the 10 year flood plains. We appreciate that the DEIS clarifies that the Water Providers will be financially responsible for lost revenue and increased operational and maintenance costs. We strongly suggest that, an explicit term and condition should be included in the ROD requiring the Chatfield Water Providers to reimburse Parks and Wildlife for all lost revenue and increased operational and maintenance costs throughout the life of the project. A detailed operational and maintenance mitigation plan specifically outlining the types of lost revenues and increased costs that will be reimbursed by the Chatfield Water Providers as well as the process for obtaining reimbursement should be included.

One of the most significant impacts of the Reallocation on visitors to Chatfield is the loss of approximately 587 acres of recreational land and wildlife habitat. This area is considered "lost" because it will be intermittently inundated with water stored in the Reallocated Space and is anticipated to be a large mudflat the remainder of the time. In addition, the reallocated storage space and more specifically the 587 acres of upland area is located at an elevation with more gentle topography, creating shallow water levels with increased boating hazards. Consequently, no additional boatable acreage for motorized vessels is expected to be created within Chatfield Reservoir making these acres a net loss for recreation and wildlife habitat and decreasing the opportunity for viewing wildlife when there are increasing demands for this recreational activity. The DEIS does not clearly define mitigation for the loss of the 587 acres of upland area within Chatfield State Park and opportunities for watchable wildlife. Additional recreational land may become unusable for recreational purposes, including wildlife watching, if proposed borrow pit areas are too large or improperly restored. It is important that loss will be mitigated and/or offset.

We would like to see a few other recreational issues at Chatfield State Park addressed such as the large mud flats (potentially up to 587 acres) that would be created and the associated overall management of the Reallocated Space to include weed and mosquito control, public access issues, erosion control on the cliffs, loss of the tree canopy and the overall aesthetics of the area. In addition, the DEIS should also address the Marina in more detail since the proposed fluctuation from the reallocation would affect the Marina facilities, both on land and on water. The Marina facilities will become unusable at their present location due to inundation and more significant water level fluctuations. Marina facilities will also lose the protection they currently have from wave and ice actions, because the existing breakwater and surrounding land masses will be inundated. Daily, weekly and monthly park and marina operations will need to be significantly modified to account for more frequent and larger water level fluctuations. The Marina should be fully mitigated so that it is able to provide a functionally equivalent recreational experience at the new reallocated lake level and the ROD should include costs for Park's increased daily operations to help keep the Marina operable despite reservoir fluctuations.

6. We would like to see further impact assessment caused by the loss of land currently used by terrestrial wildlife habitat, including a reduction in watchable wildlife opportunities.

Wildlife habitat will be negatively impacted by the inundation of the area upstream of Chatfield Reservoir on Deer Creek, Plum Creek and the South Platte River. In addition, this loss of habitat will have a significant negative impact on the recreational watchable wildlife user at Chatfield State Park. The DEIS states this habitat type is not common in the Denver Metro area, which will make the replacement of this type of habitat difficult, but it does not provide analysis for loss or replacement of this recreational experience. Areas that are designated to replace this habitat that are off site will need to provide for access and similar watchable wildlife opportunities.

Riparian type habitats (areas associated with the stream) are known to harbor the highest diversity of wildlife species of any habitat type. The loss of a multi-aged cottonwood galleries, including mature large trees, will negatively impact a large number of bird species especially cavity nester and migratory birds. When these multi-aged cottonwood areas are replaced or redeveloped it should be with similar diversity of both the trees and the understory. The need to redevelop this type of habitat on Chatfield State Park would provide immediate habitat for displaced bird and other wildlife and potentially lessen the loss of recreation in the area. Replacement habitat that is located off site will need to provide similar age structure of tree and associated habitat diversity.

. There are conflicting estimates of the number of acres of cottonwood bird habitat that would be impacted. The number of impacted acres needs to be clarified. While the CMP indicates 42.5 acres of mature cottonwood bird habitat are impacted, the proposed "Tree Clearing Plan" in a report by Tetra Tech shows 243.5 acres of trees being removed below elevation of 5439 feet. No estimate of additional woodland area that might be impacted between 5439 and 5444 feet has been provided. Adequate mitigation/compensation must be provided to minimize impacts on recreational and wildlife opportunities of the cottonwood within Chatfield State Park.

To mitigate the effects of the mudflats, an agreed upon noxious weed program should also be required as a condition of the Corps' approval of the Reallocation and remain in place for the life of the project; however, the noxious weed program should not include the use of domestic sheep or goats, due to the potential disease transmission to the wild bighorn sheep herd found in Waterton Canyon.

We believe that current data should be collected and used use in the analysis of potential impacts on the Preble's Meadow Jumping Mouse. Mitigation measures could include preservation and enhancement of riparian and adjoining upland habitats in nearby off site areas. Parks and Wildlife along with the U.S. Fish and Wildlife Service should be included in identifying of potential habitat before project approval. If these potential sites are located on private property, then the specific property owners should be identified as willing participants. As a condition of the Corps' approval of the Reallocation, all habitats should be assessed and all conservation or other agreements should be finalized for the acquisition of such habitat prior to storing any water in the Reallocated Space. It also appears that areas that have been identified for enhancement (ex. Sugar Creek) are existing critical habitat. It seems that lost habitat is being replaced with existing critical habitat. If Chatfield State Park loses habitat, such habitat should be replaced with newly created or suitable unoccupied habitat that is not within the already designated critical habitat. If existing critical habitat is enhanced an agreed upon ratio of enhanced acres versus lost acres will need be developed.

CPW understands the importance of the Reallocation Project to the Water Providers and citizens on the Front Range. Additionally Chatfield State Park is clearly an environmental and recreational asset to those same citizens and offers tremendous economic benefits to the State of Colorado. We believe the Project can be a model of cooperation addressing multiple interests and we look forward to working closely with the Providers and the Corps of Engineers to achieve that success.

Parks and Wildlife greatly appreciates this opportunity to comment on the DEIS. Thank you in advance for your time and consideration of these issues. Please contact me if you require any additional information or clarification of the points made in this letter.