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Appendix T
National Economic Development (NED)
Recreation Benefit Analysis

**METHODOLOGY AND RESULTS OF THE RECREATION BENEFIT ANALYSIS
 USING THE CORPS' UNIT DAY VALUE METHODOLOGY TO DETERMINE
 THE EFFECT OF REALLOCATION OF STORAGE AT CHATFIELD RESERVOIR
 ON NED RECREATION BENEFITS AT CHATFIELD STATE PARK – FEB 2013**

Background. The Chatfield Storage Reallocation Feasibility Report/EIS (FR/EIS) is assessing the feasibility of two storage reallocation alternatives at Chatfield Reservoir. Alternative 3, the Selected Plan, would reallocate 20,600 acre-feet of storage between the elevations of 5432 feet above mean sea level (msl) and 5444 ft msl, resulting in a 12-foot rise in pool elevation. Alternative 4 would reallocate 7,700 acre-feet of storage between the elevations of 5432 feet msl and 5437 feet msl, resulting in a 5-foot rise in pool elevation. Both these alternatives would result in water inundating recreation facilities at Chatfield State Park (SP). Recreation modifications in-kind, with the same number/size of facilities that would be inundated, are needed to avoid a Section 6(f) conversion from outdoor recreation use. Plans for these in-kind recreation modifications for Alternatives 3 and 4 were prepared at the conceptual (master plan) level by EDAW under contract with Colorado State Parks. These recreation modification plans are included in the FR/EIS as Appendix M and Appendix 5 of Appendix M, respectively. Visitation at Chatfield SP for Fiscal Years (FY) 2005 through 2012 is shown in Table 1.

Table 1. Chatfield State Park Visitation Data, Fiscal Years 2005 through 2008

Time Period	Chatfield State Park Visits¹	Chatfield SP Visitor Hours²
FY 2005 (FY05)	1,643,436	7,834,232 (4.8 hrs/visit)
FY 2006 (FY06)	1,402,887	6,663,814 (4.8 hrs/visit)
FY 2007 (FY07)	1,655,972	7,926,991 (4.8 hrs/visit)
FY 2008 (FY08)	1,671,378	8,921,403 (5.3 hrs/visit)
FY 2009 (FY09)	1,684,763	7,568,213 (4.5 hrs/visit)
FY 2010 (FY10)	1,663,878	7,347,825 (4.4 hrs/visit)
FY 2011 (FY11)	1,493,675	not available
FY 2012 (FY12)	1,614,002	not available
Mean	1,603,749	7,710,413 (4.8 hrs/visit)
FY07 % Compared to Mean	103 %	103 %
Calendar Year 2007 (CY07)	1,664,148	
CY07% Compared to Mean	104 %	

¹ Source: Chatfield State Park monthly visitation data.

² Source: Corps of Engineers visitation data; = annual visitor hours for Chatfield Project minus the sum of annual visitor hours for the Arboretum and South Platte Visitor Center. Data is from Corps' Operations and Maintenance Business Information Link (OMBIL).

Comparisons of calendar year 2007 visitation, which was used in this recreation benefit analysis, with the 8-year mean values show that calendar year 2007 (like FY 2007) was typical of the 8-year period.

Rationale for Using the Unit Day Value (UDV) Method. The conceptual plans prepared by EDAW do not address impacts to recreational enjoyment, which need to be disclosed in the FR/EIS. Colorado State Parks desired that impacts on recreation enjoyment be quantified in dollars. This can be done using the UDV method, which is detailed in Engineer Regulation (ER) 1105-2-100. UDV analyses are ordinarily prepared for entire projects or recreation areas within a project, with a maximum of 750,000 annual visits. Although the annual visitation at Chatfield SP as a whole exceeds 750,000 (Table 1), use of either individual primary activities or individual recreation sites within Chatfield SP as the unit of analysis for assigning UDV point values would meet the criterion of a maximum of 750,000 annual visits. Because Chatfield SP visitor counts are activity-based, and because the effects of reallocation would be expected to differ among recreational activities, use of UDV for individual activities (instead of recreation sites) was approved by the vertical team. Vertical team approval of these modifications for the Chatfield UDV study, compared to the typical UDV methodology in ER 1105-2-100, involved discussions among Corps staff from the Omaha District, Northwestern Division (Portland, Oregon), Institute for Water Resources (Alexandria, Virginia), and Headquarters (HQUSACE; Washington, DC) for their input and concurrence. Headquarters determined that use of UDV was a suitable method for quantifying National Economic (NED) benefits/ losses for project recreation in the June 22, 2009 Alternative Formulation Briefing Project Guidance Memorandum, Item 20.c.

Chatfield State Park Market Area. Based on Design Memorandum PC-46, Master Plan, Chatfield Lake, Colorado, Updated January 2002, the Chatfield SP “market area” consists of Adams, Arapahoe, Denver, Douglas, and Jefferson counties, within which 92 percent of Chatfield visitors reside. This market area includes two other Corps reservoirs (Bear Creek Lake in Lakewood, CO; and Cherry Creek Lake in Aurora, CO). According to Colorado State Parks, the recreation demand meets or exceeds the supply of recreation facilities at Chatfield and Cherry Creek State Parks, especially on summer weekends.

Chatfield State Park Primary Recreation Activities. For each activity and month, the number of visits in 2007 that were spent participating primarily in that activity was estimated during 2008 by Chatfield SP staff, Corps Tri-Lakes staff, and Linda Perry, co-owner of the Chatfield Marina. The estimates of visitors participating in primary activities other than sightseeing were based on data such as trail user counts, vehicle and boat/trailer counts, average number of persons per vehicle, and average number of participants in scheduled group activities. For each trail, Chatfield SP staff provided preliminary estimates of percent use by different types of users. Table 2 displays the estimated primary trail visits. Table 3 provides the visitors per month for each activity and trail at Chatfield SP. These visitor estimates are subject to revision. The totals and the sum of visitation entries may differ slightly due to rounding.

Table 2. Estimated Visits for Different Types of Primary Activities Using Trails

Trail	Hike, Jog or Walk	Bicycling	Horse Riding	Dog Exercise Area	Total Visitors
Deer/Plum Creek Entrances	705	13,403	0	0	14,108
C-470 East Trail	11,143	66,857	2,229	31,200	111,428
C-470 West Trail	18,587	44,608	0	11,152	74,346
Greenway (trail)	11,571	57,855	0	46,284	115,710
Trailmark	33,212	14,234	0	0	47,445
Water Board Road (trail)	8,003	6,860	8,003	0	22,867
Other trail use not in counts	370	555	2,775	0	3,700
Total	83,591	204,372	13,007	88,636	389,604

The most popular primary recreational activity at Chatfield SP is trail bicycling, with 204,372 primary participants in 2007. Chatfield SP also had up to 721,102 sightseers (who do not participate in any other activities) in 2007; this is also less than the maximum 750,000 visitors allowed for UDV analyses as stipulated in ER 1105-2-100.

Recreation Assessment Workshops for Assigning UDV Points. Approximately 69 members of the recreating public, in addition to two marina owners, four horse stable operators/wranglers, and the campground hosts were contacted to invite them to participate in one of the workshops at which information regarding the proposed recreation modifications would be presented, after which they would complete UDV assessments of recreation at Chatfield SP. Only a few declined the invitation. Invitees were contacted primarily because of their participation in one particular activity, but many volunteered to assign UDV points for additional activities that they participate in at Chatfield. The goal was to obtain at least four or five UDV ratings for each activity, to achieve a robust statistical analysis. To meet this goal for certain activities that would otherwise have had relatively low sample sizes, Chatfield SP and Corps' Tri-Lakes staff knowledgeable about these activities volunteered to assign UDV points.

Two recreation assessment workshops were held at the Corps' Tri-Lakes Visitor Center at Chatfield on April 16, 2009, at 10:00 am and 2:00 pm. These April 16 workshops were attended by the following persons assigning UDV points: 43 Chatfield SP recreationists, two marina owners, seven Chatfield SP staff, and two Corps' Tri-Lakes staff. Scott Sinn of EDAW presented slides showing the existing recreation areas at Chatfield that would be inundated by the two reallocation alternatives, and the concept plans for the recreation modifications that would be constructed for those areas under the two alternatives. Adam Orens, the lead preparer of a study BBC Research & Consulting (BBC) conducted under a contract with Colorado State Parks, presented a few slides. This BBC study, "Chatfield Reservoir Reallocation Project Regional Economic Development and Other Social Effects Analyses," analyzes impacts of reallocation on visitation to Chatfield SP and on the income of Colorado State Parks, Chatfield SP concessionaires, and local businesses and is included as Appendix U to the FR/EIS. Adam Orens also requested information from recreationists at the workshops that would provide input for the BBC study. Elizabeth Peake, the Corps' NEPA Coordinator,

biologist, and recreation economist for the FR/EIS, presented six slides on Corps NED recreation benefits and the role of UDV points in the calculations of these benefits and losses. She also provided instructions for assigning UDV points, defined various terms, identified various items the raters needed to consider in assigning UDV points, and helped attendees who needed clarifications or other assistance while they were assigning UDV points. Attendees were able to refer to color printouts of the EDAW slides while they were assigning UDV points. Assumptions used in assigning point values to the five criteria (accessibility, carrying capacity, environmental, recreation experience, and availability of opportunity) for the three alternatives and two time periods were based on: general instructions received from the Corps; the EDAW slides; responses by EDAW and Colorado State Parks staff to the attendees' questions; and individual perspectives of the raters. Because the concept plans were pre-decisional and needed to remain confidential, attendees were asked to hand in the slide show printout with the UDV forms when they left the workshop. The forms provided for assessing General Recreation and Special Recreation are provided as Exhibits A and B, respectively.

An additional presentation by Corps Tri-Lakes and Chatfield SP staff was made to 10 Chatfield recreationists on April 23, 2009. The attendees viewed the EDAW slides of the conceptual plans for recreation modifications, and Chatfield State Park Manager Keith Kahler provided additional information in response to their questions. These individuals were emailed the UDV forms and instructions regarding items to consider when assigning UDV points, and nine of them provided their UDV points by email, facsimile, or over the phone to Elizabeth Peake. A list of all persons who assigned UDV points and their organizational affiliations is provided as Exhibit C.

Recreation Comments from the General Public. Comments provided to the Corps that are relevant to existing recreation activities at Chatfield SP and potential effects of reallocation on these activities are compiled in Exhibit D. They include comments made via: telephone during invitational calls and while providing UDV points by phone; email; facsimile; and written comments on the UDV forms during the April 16 workshop.

Estimated Reductions in Visits to Chatfield State Park with Reallocation. The Corps recreation benefit analysis uses data from the BBC study (Appendix U) regarding recreation participation at Chatfield SP and at substitute recreational sites in the region. The BBC study provided percentages of Chatfield SP visitors for different activities (or groups of activities) who would continue recreating at Chatfield SP, for the two reallocation alternatives, and for three time periods (the 2-year construction period, and 1-5 years and 6-50 years post-construction). For each activity, the BBC study estimated the percentage of those not continuing to recreate at Chatfield SP who would recreate at substitute sites instead. Because the availability and desirability of substitute sites differed only by activity, the percentage of Chatfield SP visitor reductions using substitute sites varied by activity but not by alternative or time period. The percentages provided in the BBC study are based on information gathered from recreationists at the April 16 workshop and professional judgment of BBC and Colorado State Parks staff, including their knowledge of the capacity, by activity, of nearby substitute sites to accommodate visitors who expected to use substitute sites instead of Chatfield SP.

Tables 4 and 5 display the estimated visitation losses for the 5-foot and 12-foot reallocation alternatives, respectively. For each recreational activity, Tables 4 and 5 include: a) the 2007 annual visitation assumed for without-reallocation conditions; and b) with reallocation, the percentage of that visitation and number of visitors remaining at Chatfield SP and the percentage of the visitation reduction and number of visitors transferring to substitute sites during three time periods. These time periods consist of: 1) during construction prior to reallocation; 2) during 1-5 years after implementation of reallocation; and 3) during 6-50 years after implementation of reallocation. If Chatfield SP has 0 percent reduction in visits, no substitute sites need to be used. ▲

Tables 4 and 5 indicate that most of the post-construction impacts on Chatfield SP visitation would be expected to occur during the first 5 years after reallocation. During this period, nearly half of the primary activities are expected to have the same number of participants at Chatfield SP as occurred pre-reallocation, and only six primary activities would be expected to have participation less than 85 percent of what occurred pre-reallocation. Training dogs for tracking and for search and rescue are projected to lose 100 percent of visitation to Chatfield SP during construction (due to safety concerns) and after reallocation, based on a worst-case scenario (because Colorado State Parks is uncertain whether Chatfield SP open areas available after reallocation would meet users' criteria for these specialized purposes). Swimming and swim beach use are projected to lose 25 percent of visitation to Chatfield SP during years 1-5 after reallocation, but all these "lost" visitors would be accommodated at substitute sites in the region, and 100 percent would be expected to return to Chatfield SP during years 6-50. Visitation for group picnicking, non-group picnicking, and wildlife viewing/photography are projected to decline by over 42 percent at Chatfield SP during 1-5 years after reallocation, but at least half of the reduction in visitors for these three activities would be expected to use substitute sites. Based on comments of recreationists in Exhibit D, these activities all involve riparian trees along the lakeshore, which provide shade for picnickers and habitat for wildlife that is viewed and photographed. Most trees within the reallocated pool would be expected to die from inundation, and saplings that are planted (at a higher elevation) to take their place, as part of recreation modifications or the environmental mitigation plan, would require a number of years to mature. During the period extending 6 to 50 years after reallocation, visitation would be expected to rebound to 90 percent of pre-reallocation visitation for the two picnicking activities and increase somewhat to over 63 percent of pre-reallocation visitation for wildlife viewing/photography, and over half the "lost" Chatfield SP visitors for these activities would be expected to use substitute sites.

Sightseeing. Sightseeing was not included as an activity for which UDV points were assigned because participants in this activity are anonymous. Sightseers participate in no other recreational activities at Chatfield SP. The number of primary sightseers in 2007 was determined by subtracting the number of visitors in 2007 engaging in primary activities other than sightseeing (estimated by the process explained previously) from the total Chatfield SP visitors in 2007. Chatfield SP staff estimated that approximately 4.5 percent of the primary sightseeing visitation may consist of nearby residents with annual

Colorado State Parks passes who commute to and from work through the SP so they can enjoy scenic views from their cars while driving through the SP, including views of the Front Range mountains unobstructed by buildings. Enjoying aesthetic views while traveling by vehicle is a common, recognized form of outdoor recreation. The reduction in sightseers was assumed to be the same as the average reduction in Chatfield SP visits for activities other than sightseeing. Tables 4 and 5 display sightseeing visitation for the 5-foot and 12-foot reallocation alternatives, respectively, for Chatfield SP and substitute sites during the different time periods. Compared to visits in 2007, annual visits to Chatfield SP for sightseeing and for other activities are estimated to decrease by 14.1 to 17.6 percent for the 5-foot and 12-foot alternatives, respectively, during construction; 8.0 to 9.4 percent during the first 5 years after reallocation; and 3.3 to 4.1 percent during years 6-50 after reallocation. Chatfield SP staff felt that the number of sightseers was overestimated, and OMBIL indicates that sightseers comprise only 29 percent, not 43.333 percent (721,102/1,664,148), of total Chatfield SP visitors. Therefore, sightseers' annual recreation benefits for each time period and alternative were multiplied by 29/43.333.

NED Recreation Benefit Calculation Methodology. Changes in recreation benefits under reallocation for any given primary activity result from two components: 1) changes in the number of annual visits to Chatfield SP, discussed earlier in regard to picnicking and wildlife viewing/photography; and 2) changes in the UDV for that activity. A worksheet was compiled for each of the 29 recreational activities (other than sightseeing) at Chatfield to calculate the annual recreation benefits for the following 10 scenarios: a) with no reallocation – years 1-10 and years 11-50; b) with 5-foot reallocation – during construction of recreation modifications and during years 1-5, 6-10, and 11-50 after reallocation; and c) with 12-foot reallocation – during construction and during years 1-5, 6-10, and 11-50 after reallocation. The UDV points assigned to each of the five criteria were added, and this sum was converted to FY 2013 dollars per day for that activity in accordance with Economic Guidance Memorandum (EGM) 13-03, Unit Day Values for Recreation, Fiscal Year 2013, dated February 13, 2013. In EGM 13-03, which is included as Exhibit E, the UDVs for General Recreation ranged from \$3.80 for 0 points to \$11.39 for 100 points; the UDVs for General Fishing and Hunting ranged from \$5.36 for 0 points to \$11.39 for 100 points; and the UDVs for Special Recreation ranged from \$15.43 for 0 points to \$45.09 for 100 points. For each activity, the Excel Analysis ToolPak was used to calculate summary descriptive statistics for all the UDV dollar values of the three alternatives for years 1-10 and years 11-50. Table 6 shows the UDV mean and standard deviation for each activity and scenario. The UDV mean was used as the willingness to pay for the portion of the 2007 primary activity days for that activity remaining at Chatfield during years 1-10 and 11-50. The UDV dollar value for 0 UDV points for General Recreation, \$3.80 (EGM 13-03), was assumed as the sightseers' willingness to pay for all scenarios.

Willingness to pay of visitors transferring to substitute sites was assumed to be equal to the mean UDV minus half a standard deviation; this lower value is equivalent to the 30.85th percentile. This lower value is appropriate due to the visitor having to settle for a "second choice" site and perhaps having to pay additional travel costs, yet not so low that they would forego recreating. During construction, however, it was assumed that almost

all visitors who remained at Chatfield SP had the same willingness to pay as those whose visitation was transferred. This lower value during construction (equal to the mean minus half a standard deviation of the UDV during years 1-10 without reallocation) is appropriate due to the noise, dust, views of heavy equipment, potential difficulty of access, and potential for having to use a less-preferred area/facility, yet it is high enough to be consistent with the relatively high percentage of visitors expected to continue to recreate at Chatfield SP during construction. The two exceptions were visitors at Spring Gulch and the no-leash dog exercise/dog training area, both of which would be relatively isolated from these inconveniences during construction around Chatfield Reservoir.

Table 6 displays the mean UDVs and (except during construction) the standard deviations for each activity, alternative, and time period. For each primary activity, UDVs for the 5-foot reallocation were generally intermediate between the without-reallocation and 12-foot reallocation alternatives. Activities in which UDVs for the 12-foot reallocation decreased more than \$1.00 during years 1-10 and 11-50 compared to without reallocation are: interpretation and environmental education, down 28 and 25 percent, respectively; wildlife viewing/photography, down 34 and 30 percent, respectively; and horseback riding on social trails in riparian woodlands, down 22 and 20 percent, respectively. Based on comments in Exhibit D, a major factor for these decreases in UDVs may be loss of much of the mature riparian woody vegetation along the shores of Chatfield Lake and along the banks of the South Platte River and Plum Creek that flow into Chatfield Lake. Activities with UDVs decreasing more than \$1.00 with the 12-foot reallocation only in years 1-10 are: equestrian trail use, down 10 percent; shore fishing in the reservoir, down 12 percent; and search and rescue dog training, down 16 percent. Decreased UDVs for equestrian trail use is mainly due to fewer mature trees along trails for the first 10 years after reallocation. In the latter two activities, recreationists would need to make adjustments in finding and using new sites after reallocation. Shore anglers would need to find new lakeshore access points that result in good fishing success at various different lake elevations, and search and rescue dog training would need to relocate to a different site because it currently occurs in an area of Plum Creek that will be inundated.

Based on the mean minus half a standard deviation, the percent reduction in UDVs during the 2-year construction period ranged from 0 to 7.4 percent and averaged 3.8 percent. This reduction was applied to Chatfield SP visitors year-round in calculating reductions in annual recreation benefits during the construction period. The relatively low reduction in UDVs during construction are consistent with: a) the high percentage of recreationists at the April 16 workshop who expected to continue using Chatfield SP rather than using substitute sites; and b) adoption by the Colorado Department of Natural Resources (which will be constructing the recreation modifications) of an innovative construction schedule designed to minimize impacts to visitors. These innovations include off-season (September to May) construction schedules for the marina area and swim beach. In addition, Chatfield SP has at least two of each other type of recreational facility needing modifications; for any site closed during the construction period, a Chatfield SP site offering similar recreation opportunities will remain open.

Comparison of Annual Recreation Benefits among Alternatives. Table 7 displays annual benefits for each activity under the aforementioned 10 scenarios. Also displayed are present values of benefits for each alternative over the 50-year period of analysis, which would begin when reallocation is implemented after the recreation modifications are completed. During the 2-year construction period, benefits were assumed to occur at the midpoint of each year, and interest of 3.75 percent was compounded annually using the Interest During Construction Calculator in IWR Planning Suite 2.0.6.0 (USACE certified September 2010). The reduction in benefits, including interest, for each reallocation alternative (compared to without reallocation) during the 2-year construction period was subtracted from the present value of benefits for that alternative accumulated over 50 years after reallocation.

Data in Table 7 indicate that without reallocation, changes in annual benefits between years 1-10 and 11-50 were 2 percent or less (not significant) for most activities. Changes in annual benefits in years 11-50 that exceeded 2 percent were all reductions: 3 percent for scuba diving; 3 percent for using the no-leash dog exercise area; 4 percent for dog tracking; 9 percent for horseback riding on non-official (social) trails; and 10 percent for equestrian trail use. These decreases can all be explained by crowding, which participants in these activities expect to get worse in the future, as noted in a number of comments in Exhibit D. Crowding at Chatfield SP may result more from an increase in the average length of a visit than from an increase in the number of visits. The average number of hours spent per visit at Chatfield SP rose from 2.0 in 1997 (USACE, Natural Resource Management System data) to 4.8 hours in 2007 (Table 1). ▲

As shown in Table 7, at FY13 price levels the present value of NED recreation benefits foregone during the 2 years of construction of the recreation modifications prior to reallocation is \$1,331,485 for the 5-foot reallocation and \$1,505,332 for the 12-foot reallocation. These NED benefits foregone are subtracted from the present value of recreation benefits over 50 years for the respective reallocation alternative. Compared to nearly \$232.4 million in NED recreation benefits over 50 years without reallocation, the 5-foot reallocation shows a reduction in NED recreation benefits of nearly \$13.2 million, and the 12-foot reallocation (the Selected Plan) shows a reduction in NED recreation benefits of approximately \$15.6 million. The updated cost of storage at January 2013 (FY2013) price levels for Alternative 3 was calculated to be approximately \$39.2 million, far greater than the NED recreation benefits foregone. Therefore, the Cost of Storage to be paid by the water providers is to be based on the updated cost of storage rather than on the NED benefits foregone. Because the dependable yield is so low and the storage cost is so much higher than the Corps' national average cost, the ASA (CW) approved the special exemption which reduces the Cost of Storage amount to 41 percent of the calculated updated cost of storage (see Appendix O). The reduced Cost of Storage based on the exemption is approximately \$16.0 million, slightly more than the \$15.6 million in NED benefits foregone. Even if the NED benefits foregone were slightly higher than the updated cost of storage with exemption, they would not be used for the Cost of Storage because the method for determining user cost was based upon comparing NED benefits foregone against the updated cost of storage without the special ASA (CW) exemption.

Economic Justification. Table 7 indicates that the present value of recreation benefits over 50 years for the Selected Plan is \$216,726,638. The recreation benefits of the in-kind recreation modifications, which include nearly all the facilities at Chatfield SP, closely approximate the recreation benefits at Chatfield SP over 50 years with reallocation and all recreation facilities. This is because without recreation modifications, only minimal visitation would be expected at the few recreation facilities not inundated after reallocation; when these minimal recreation benefits are subtracted from those of the Selected Plan, the latter's recreation benefits would be reduced by an insignificant amount. The cost estimate for the recreation modifications for the Selected Plan at November 2009 price levels in Appendix 1, Cost Estimate Details, of Appendix M and an additional \$1.6 million for tree removal costs were updated to October 2012 (FY 2013) price levels using the Civil Works Construction Cost Index System (CWCCIS) index for recreation facilities. Table 4 of updated Appendix O shows that the updated cost of the in-kind recreation modifications is \$47,303,435; this includes construction, engineering and design, supervision and administration, and contingencies, but it does not include interest during construction (IDC). Table 4 of updated Appendix O also shows that the IDC for the recreation modifications was calculated to be \$1,954,590 over the 2 years of recreation facility construction, at the FY13 Federal interest rate of 3.75 percent. Therefore, the total first cost (investment cost) of the in-kind recreation modifications is \$49,258,025. Colorado State Parks indicated that no additional OMRR&R costs would result from reallocation at Chatfield SP. The annual cost of OMRR&R for the new recreation facilities is not expected to be greater than that expended for the existing recreation facilities, many of which are approximately 30 years old; therefore, Table 5 of updated Appendix O cites the additional OMRR&R costs for the recreation modifications as \$0. The benefit-cost ratio (BCR) for the recreation modifications is 4.40 based on the present value of recreation benefits and costs, both at FY 2013 price levels. The costs would have to be over 4.4 times the current estimated cost to result in a BCR less than 1.0 and have negative net annual benefits. Therefore, it can be concluded that the recreation modifications are economically justified. 📌

TABLE 4. SIGHTSEERS AND OTHER VISITORS REMAINING AT CHATFIELD DURING CONSTRUCTION, AND DURING YEARS 1-5 & 6-50 AFTER 5-FT REALLOCATION

ACTIVITY	7/1/2010 Chatfield SP Visits Per Year in 2007	2-YR CONSTRUCTION PERIOD				YEARS 1 THROUGH 5				YEARS 6 THROUGH 50			
		% Reduct. in Visits Construction Period	Chatfield Visits during Construc. Period	% Chatfield Reduction at Alter- nate Site	Visits at Alternate Sites in Const.	% Reduction in Visits, 5 yr Incomplete Reallocation	Chatfield Visits during 5 yr period	% Chatfield Reduction at Alternate Site yrs 1-5	Visits at Alternate Sites in Yrs 1-5	% Reduction in Vistis after Stabilization, Years 6-50	Chatfield Visits during Years 6-50	% Chatfield Reduction at Alternate Site yrs 6-50	Visits at Alternate Sites in Yrs 6-50
TRAIL USES:													
Hiking / Jogging / Walking	83,591	17.50%	68,963	81.80%	11,966	11.10%	74,312	81.80%	7,590	6.40%	78,241	81.80%	4,376
Bicycling on Trail	204,372	28.30%	146,535	80.00%	46,270	10.90%	182,095	80.00%	17,822	8.20%	187,613	80.00%	13,407
Dog Exercise Area	88,636	0.00%	88,636	0.00%	0	0.00%	88,636	0.00%	0	0.00%	88,636	0.00%	0
Equestrian Trail Use	13,007	4.90%	12,370	25.00%	159	2.60%	12,669	25.00%	85	2.60%	12,669	25.00%	85
Personal Interpretation	2,570	17.50%	2,120	81.80%	368	11.10%	2,285	81.80%	233	6.40%	2,406	81.80%	134
Non-Personal Interpretation	10,083	17.50%	8,318	81.80%	1,444	11.10%	8,964	81.80%	915	6.40%	9,438	81.80%	528
Environmental Education	1,244	17.50%	1,026	81.80%	178	11.10%	1,106	81.80%	113	6.40%	1,164	81.80%	65
Camping	94,758	15.00%	80,544	81.80%	11,627	7.50%	87,651	81.80%	5,814	0.00%	94,758	81.80%	0
GRAVEL POND USES:													
Canoeing and Kayaking	414	1.80%	407	50.00%	4	0.00%	414	50.00%	0	0.00%	414	50.00%	0
Long-Distance Swim Training	9,400	1.80%	9,231	50.00%	85	0.00%	9,400	50.00%	0	0.00%	9,400	50.00%	0
Open Water Swim	16,300	1.80%	16,007	50.00%	147	0.00%	16,300	50.00%	0	0.00%	16,300	50.00%	0
Shore Fishing	2,497	1.80%	2,452	50.00%	23	0.00%	2,497	50.00%	0	0.00%	2,497	50.00%	0
Primary Picnicking (non-group)	3,350	1.80%	3,290	50.00%	30	0.00%	3,350	50.00%	0	0.00%	3,350	50.00%	0
Water Rescue Dog Training	230	1.80%	226	50.00%	2	0.00%	230	50.00%	0	0.00%	230	50.00%	0
Scuba diving	3,628	1.80%	3,563	50.00%	33	0.00%	3,628	50.00%	0	0.00%	3,628	50.00%	0
Swimming/Swim Beach	50,235	25.00%	37,676	100.00%	12,559	25.00%	37,676	100.00%	12,559	0.00%	50,235	100.00%	0
SURFACE WATER RECREATION:													
Boat Fishing	54,318	3.70%	52,308	70.00%	1,407	3.50%	52,417	70.00%	1,331	0.00%	54,318	70.00%	0
Other Motorcraft Use	68,156	3.70%	65,634	70.00%	1,765	3.50%	65,771	70.00%	1,670	0.00%	68,156	70.00%	0
Other Non-Motorcraft Use	43,545	3.70%	41,934	70.00%	1,128	3.50%	42,021	70.00%	1,067	0.00%	43,545	70.00%	0
Jet Skiing	29,856	3.70%	28,751	70.00%	774	3.50%	28,811	70.00%	732	0.00%	29,856	70.00%	0
Water Skiing	44,164	3.70%	42,530	70.00%	1,144	3.50%	42,618	70.00%	1,082	0.00%	44,164	70.00%	0
FISHING:													
Ice Fishing at Reservoir	2,300	11.00%	2,047	83.30%	211	0.00%	2,300	83.30%	0	0.00%	2,300	83.30%	0
Shore Fishing at Reservoir	32,340	11.00%	28,783	83.30%	2,963	0.00%	32,340	83.30%	0	0.00%	32,340	83.30%	0
Hot Air Ballooning	4,404	0.00%	4,404	33.30%	0	0.00%	4,404	33.30%	0	0.00%	4,404	33.30%	0
Flying Model Airplanes	15,570	7.50%	14,402	25.00%	292	0.00%	15,570	25.00%	0	0.00%	15,570	25.00%	0
Group Picnicking	10,000	50.00%	5,000	50.00%	2,500	50.00%	5,000	50.00%	2,500	10.00%	9,000	50.00%	500
Non-Group Primary Picnicking, Lake	4,270	50.00%	2,135	50.00%	1,068	50.00%	2,135	50.00%	1,068	10.00%	3,843	50.00%	214
Dog Tracking	1,764	100.00%	0	16.70%	295	100.00%	0	16.70%	295	100.00%	0	16.70%	295
Search and Rescue Dog Training	100	100.00%	0	16.70%	17	100.00%	0	16.70%	17	100.00%	0	16.70%	17
View Birds / Wildlife; Photography	8,806	59.30%	3,584	66.70%	3,483	42.70%	5,046	66.70%	2,508	36.70%	5,574	66.70%	2,156
EQUESTRIAN USE:													
Horseback Riding - Spring Gulch	2,548	0.00%	2,548	25.00%	0	0.00%	2,548	25.00%	0	0.00%	2,548	25.00%	0
Horseback Riding (not in trail counts)	36,590	4.90%	34,797	25.00%	448	2.60%	35,639	25.00%	238	2.60%	35,639	25.00%	238
SUBTOTAL, NON-SIGHTSEERS:	943,046		810,221		102,390		867,833		57,639		912,236		22,015
Sightseeing	721,102		619,537		78,293		663,590		44,074		697,543		16,834
TOTAL	1,664,148	14.08%	1,429,758	77.09%	180,683	7.98%	1,531,423	76.63%	101,713	3.27%	1,609,779	71.45%	38,849

TABLE 5. SIGHTSEERS AND OTHER VISITORS REMAINING AT CHATFIELD DURING CONSTRUCTION, AND DURING YEARS 1-5 & 6-50 AFTER 12-FT REALLOCATION

ACTIVITY	4/8/2010 Chatfield SP Visits Per Year in 2007	2-YR CONSTRUCTION PERIOD				YEARS 1 THROUGH 5				YEARS 6 THROUGH 50			
		% Reduct. in Visits Construction Period	Chatfield Visits during Construc. Period	% Chatfield Reduction at Alter- nate Site	Visits at Alternate Sites in Const.	% Reduction in Visits, 5 yr Incomplete Reallocation	Chatfield Visits during 5 yr period	% Chatfield Reduction at Alternate Site yrs 1-5	Visits at Alternate Sites in Yrs 1-5	% Reduction in Vistis after Stabilization, Years 6-50	Chatfield Visits during Years 6-50	% Chatfield Reduction at Alternate Site yrs 6-50	Visits at Alternate Sites in Yrs 6-50
TRAIL USES:													
Hiking / Jogging / Walking	83,591	23.30%	64,114	81.80%	15,932	14.80%	71,220	81.80%	10,119	8.50%	76,486	81.80%	5,812
Bicycling on Trail	204,372	37.70%	127,324	80.00%	61,638	14.50%	174,738	80.00%	23,707	10.90%	182,095	80.00%	17,822
Dog Exercise Area	88,636	0.00%	88,636	0.00%	0	0.00%	88,636	0.00%	0	0.00%	88,636	0.00%	0
Equestrian Trail Use	13,007	6.50%	12,162	25.00%	211	3.50%	12,552	25.00%	114	3.50%	12,552	25.00%	114
Personal Interpretation	2,570	23.30%	1,971	81.80%	490	14.80%	2,190	81.80%	311	8.50%	2,352	81.80%	178
Non-Personal Interpretation	10,083	23.30%	7,734	81.80%	1,921	14.80%	8,591	81.80%	1,220	8.50%	9,226	81.80%	701
Environmental Education	1,244	23.30%	954	81.80%	237	14.80%	1,060	81.80%	151	8.50%	1,138	81.80%	87
Camping	94,758	20.00%	75,806	81.80%	15,503	10.00%	85,282	81.80%	7,751	0.00%	94,758	81.80%	0
GRAVEL POND USES:													
Canoeing and Kayaking	414	3.70%	399	50.00%	8	0.00%	414	50.00%	0	0.00%	414	50.00%	0
Long-Distance Swim Training	9,400	3.70%	9,052	50.00%	174	0.00%	9,400	50.00%	0	0.00%	9,400	50.00%	0
Open Water Swim	16,300	3.70%	15,697	50.00%	302	0.00%	16,300	50.00%	0	0.00%	16,300	50.00%	0
Shore Fishing	2,497	3.70%	2,405	50.00%	46	0.00%	2,497	50.00%	0	0.00%	2,497	50.00%	0
Primary Picnicking (non-group)	3,350	3.70%	3,226	50.00%	62	0.00%	3,350	50.00%	0	0.00%	3,350	50.00%	0
Water Rescue Dog Training	230	3.70%	221	50.00%	5	0.00%	230	50.00%	0	0.00%	230	50.00%	0
Scuba diving	3,628	3.70%	3,494	50.00%	67	0.00%	3,628	50.00%	0	0.00%	3,628	50.00%	0
Swimming/Swim Beach	50,235	25.00%	37,676	100.00%	12,559	25.00%	37,676	100.00%	12,559	0.00%	50,235	100.00%	0
SURFACE WATER RECREATION:													
Boat Fishing	54,318	3.70%	52,308	70.00%	1,407	3.50%	52,417	70.00%	1,331	0.00%	54,318	70.00%	0
Other Motorcraft Use	68,156	3.70%	65,634	70.00%	1,765	3.50%	65,771	70.00%	1,670	0.00%	68,156	70.00%	0
Other Non-Motorcraft Use	43,545	3.70%	41,934	70.00%	1,128	3.50%	42,021	70.00%	1,067	0.00%	43,545	70.00%	0
Jet Skiing	29,856	3.70%	28,751	70.00%	774	3.50%	28,811	70.00%	732	0.00%	29,856	70.00%	0
Water Skiing	44,164	3.70%	42,530	70.00%	1,144	3.50%	42,618	70.00%	1,082	0.00%	44,164	70.00%	0
FISHING:													
Ice Fishing at Reservoir	2,300	11.00%	2,047	83.30%	211	0.00%	2,300	83.30%	0	0.00%	2,300	83.30%	0
Shore Fishing at Reservoir	32,340	11.00%	28,783	83.30%	2,963	0.00%	32,340	83.30%	0	0.00%	32,340	83.30%	0
Hot Air Ballooning	4,404	35.70%	2,832	33.30%	523	0.00%	4,404	33.30%	0	0.00%	4,404	33.30%	0
Flying Model Airplanes	15,570	10.00%	14,013	25.00%	389	0.00%	15,570	25.00%	0	0.00%	15,570	25.00%	0
Group Picnicking	10,000	50.00%	5,000	50.00%	2,500	50.00%	5,000	50.00%	2,500	10.00%	9,000	50.00%	500
Non-Group Primary Picnicking, Lake	4,270	50.00%	2,135	50.00%	1,068	50.00%	2,135	50.00%	1,068	10.00%	3,843	50.00%	214
Dog Tracking	1,764	100.00%	0	16.70%	295	100.00%	0	16.70%	295	100.00%	0	16.70%	295
Search and Rescue Dog Training	100	100.00%	0	16.70%	17	100.00%	0	16.70%	17	100.00%	0	16.70%	17
View Birds / Wildlife; Photography	8,806	59.30%	3,584	66.70%	3,483	42.70%	5,046	66.70%	2,508	36.70%	5,574	66.70%	2,156
EQUESTRIAN USE:													
Horseback Riding - Spring Gulch	2,548	0.00%	2,548	25.00%	0	0.00%	2,548	25.00%	0	0.00%	2,548	25.00%	0
Horseback Riding (not in trail counts)	36,590	6.50%	34,212	25.00%	595	3.50%	35,309	25.00%	320	3.50%	35,309	25.00%	320
SUBTOTAL, NON-SIGHTSEERS:	943,046		777,182		127,417		854,054		68,522		904,224		28,216
Sightseeing	721,102		594,274		97,430		653,054		52,395		691,417		21,575
TOTAL	1,664,148	17.59%	1,371,456	76.82%	224,847	9.44%	1,507,108	77.00%	120,917	4.12%	1,595,641	72.68%	49,791

RECREATION ANALYSIS — CHATFIELD STORAGE REALLOCATION FEASIBILITY REPORT / EIS

Name _____ Affiliation _____

Activity Rated _____ Phone (_____) _____ Email _____

Table 1: Guidelines for Assigning Points for General Recreation, Economic Guidance Memorandum 09-03, 8 Nov 08

CRITERIA	JUDGMENT FACTORS:				
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ACCESSIBILITY Total Points: 18	Limited access by any means to site or within site	Fair access, poor quality roads to site; limited access within site	Fair access, fair road to site; fair access, good roads within site	Good access, good roads to site; fair access, good roads within site	Good access, high standard road to site; good access within site
Point Value:	(0-3 points)	(4-6 points)	(7-10 points)	(11-14 points)	(15-18 points)

POINTS: Without Reallocation		With Reallocation (5' Pool Raise)		With Reallocation (12' Pool Raise)	
Short-Term (Existing/for 10 Yrs)	Long-Term (in 11-50 Years)	Short-Term (First 10 Years)	Long-Term (11-50 Years)	Short-Term (First 10 Years)	Long-Term (11-50 Years)

CARRYING CAPACITY* Total Points: 14	Minimum facility for development for public health and safety	Basic facility to conduct activity(ies)	Adequate facilities to conduct without deterioration of the resource or activity experience	Optimum facilities to conduct activity at site potential	Ultimate facilities to achieve intent of selected alternative
Point Value:	(0-2 points)	(3-5 points)	(6-8 points)	(9-11 points)	(12-14 points)

POINTS: Without Reallocation		With Reallocation (5' Pool Raise)		With Reallocation (12' Pool Raise)	
Short-Term (Existing/for 10 Yrs)	Long-Term (in 11-50 Years)	Short-Term (First 10 Years)	Long-Term (11-50 Years)	Short-Term (First 10 Years)	Long-Term (11-50 Years)

* Value should be adjusted for overuse.

ENVIRONMENTAL Total Points: 20	Low esthetic factors** that significantly lower quality***	Average esthetic quality; factors exist that lower quality to minor degree	Above average esthetic quality; any limiting factors can be reasonably rectified	High esthetic quality; no factors exist that lower quality	Outstanding esthetic quality; no factors exist that lower quality
Point Value:	(0-2 points)	(3-6 points)	(7-10 points)	(11-15 points)	(16-20 points)

POINTS: Without Reallocation		With Reallocation (5' Pool Raise)		With Reallocation (12' Pool Raise)	
Short-Term (Existing/for 10 Yrs)	Long-Term (in 11-50 Years)	Short-Term (First 10 Years)	Long-Term (11-50 Years)	Short-Term (First 10 Years)	Long-Term (11-50 Years)

** Major esthetic qualities to be considered include geology and topography, water, and vegetation.

*** Factors to be considered to lowering quality include air and water pollution, pests, poor climate, and unsightly adjacent areas.

Activity Rated _____ Have you participated? _____ Name _____

Table 1: Guidelines for Assigning Points for General Recreation, Economic Guidance Memorandum 09-03, 8 Nov 08

CRITERIA	JUDGMENT FACTORS:				
RECREATION EXPERIENCE* Total Points: 30 Point Value:	Two general activities** (0-4 points)	Several general activities (5-10 points)	Several general activities; one high quality value activity*** (11-16 points)	Several general activities; more than one high quality value activity (17-23 points)	Numerous high quality value activities; some general activities (24-30 points)

POINTS: Without Reallocation		With Reallocation (5' Pool Raise)		With Reallocation (12' Pool Raise)	
Short-Term (Existing/for 10 Yrs)	Long-Term (in 11-50 Years)	Short-Term (First 10 Years)	Long-Term (11-50 Years)	Short-Term (First 10 Years)	Long-Term (11-50 Years)

* Value for water-oriented activities should be adjusted if significant seasonal water level changes occur.

** General activities include those that are common to the region and that are usually of normal quality. This includes picnicking, camping, hiking, riding, cycling, and fishing and hunting of normal quality.

*** High quality value activities include those that are not common to the region and/or Nation, and that are usually of high quality.

AVAILABILITY OF OPPORTUNITY**** Total Points: 18 Point Value:	Several within 1 hr. travel time; a few within 30 min. travel time (0-3 points)	Several within 1 hr. travel time; none within 30 min. travel time (4-6 points)	One or two within 1 hr. travel time; none within 45 min. travel time (7-10 points)	None within 1 hr. travel time (11-14 points)	None within 2 hr. travel time (15-18 points)
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POINTS: Without Reallocation		With Reallocation (5' Pool Raise)		With Reallocation (12' Pool Raise)	
Short-Term (Existing/for 10 Yrs)	Long-Term (in 11-50 Years)	Short-Term (First 10 Years)	Long-Term (11-50 Years)	Short-Term (First 10 Years)	Long-Term (11-50 Years)

**** Likelihood of success at fishing and hunting.

OPTIONAL: PLEASE PROVIDE ANY COMMENTS BELOW; ADDITIONAL SHEETS ARE ALSO AVAILABLE. ♪♪♪♪

RECREATION ANALYSIS — CHATFIELD STORAGE REALLOCATION FEASIBILITY REPORT / EIS

Name _____ Affiliation _____

Activity Rated SCUBA DIVING Phone (_____) _____ Email _____

Table 2: Guidelines for Assigning Points for Special Recreation, Economic Guidance Memorandum 09-03, 8 Nov 08

CRITERIA	JUDGMENT FACTORS:				
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ACCESSIBILITY Total Points: 18	Limited access by any means to site or within site	Fair access, poor quality roads to site; limited access within site	Fair access, fair road to site; fair access, good roads within site	Good access, good roads to site; fair access, good roads within site	Good access, high standard road to site; good access within site
Point Value:	(0-3 points)	(4-6 points)	(7-10 points)	(11-14 points)	(15-18 points)

POINTS: Without Reallocation		With Reallocation (5' Pool Raise)		With Reallocation (12' Pool Raise)	
Short-Term (Existing/for 10 Yrs)	Long-Term (in 11-50 Years)	Short-Term (First 10 Years)	Long-Term (11-50 Years)	Short-Term (First 10 Years)	Long-Term (11-50 Years)

CARRYING CAPACITY* Total Points: 14	Minimum facility for development for public health and safety	Basic facility to conduct activity(ies)	Adequate facilities to conduct without deterioration of the resource or activity experience	Optimum facilities to conduct activity at site potential	Ultimate facilities to achieve intent of selected alternative
Point Value:	(0-2 points)	(3-5 points)	(6-8 points)	(9-11 points)	(12-14 points)

POINTS: Without Reallocation		With Reallocation (5' Pool Raise)		With Reallocation (12' Pool Raise)	
Short-Term (Existing/for 10 Yrs)	Long-Term (in 11-50 Years)	Short-Term (First 10 Years)	Long-Term (11-50 Years)	Short-Term (First 10 Years)	Long-Term (11-50 Years)

* Value should be adjusted for overuse.

ENVIRONMENTAL Total Points: 20	Low esthetic factors** that significantly lower quality***	Average esthetic quality; factors exist that lower quality to minor degree	Above average esthetic quality; any limiting factors can be reasonably rectified	High esthetic quality; no factors exist that lower quality	Outstanding esthetic quality; no factors exist that lower quality
Point Value:	(0-2 points)	(3-6 points)	(7-10 points)	(11-15 points)	(16-20 points)

POINTS: Without Reallocation		With Reallocation (5' Pool Raise)		With Reallocation (12' Pool Raise)	
Short-Term (Existing/for 10 Yrs)	Long-Term (in 11-50 Years)	Short-Term (First 10 Years)	Long-Term (11-50 Years)	Short-Term (First 10 Years)	Long-Term (11-50 Years)

** Major esthetic qualities to be considered include geology and topography, water, and vegetation.

*** Factors to be considered to lowering quality include air and water pollution, pests, poor climate, and unsightly adjacent areas.

Table 2: Guidelines for Assigning Points for Special Recreation, Economic Guidance Memorandum 09-03, 8 Nov 08

CRITERIA	JUDGMENT FACTORS:				
RECREATION EXPERIENCE Total Points: 30 Point Value:	Heavy use or frequent crowding or other interference with use (0-4 points)	Moderate use, other users evident and likely to interfere with use (5-10 points)	Moderate use, some evidence of other users and occasional interference with use due to crowding (11-16 points)	Usually little evidence of other users, rarely if ever crowded (17-23 points)	Very low evidence of other users, never crowded (24-30 points)

POINTS: Without Reallocation		With Reallocation (5' Pool Raise)		With Reallocation (12' Pool Raise)	
Short-Term (Existing/for 10 Yrs)	Long-Term (in 11-50 Years)	Short-Term (First 10 Years)	Long-Term (11-50 Years)	Short-Term (First 10 Years)	Long-Term (11-50 Years)

AVAILABILITY OF OPPORTUNITY* Total Points: 18 Point Value:	Several within 1 hr. travel time; a few within 30 min. travel time (0-3 points)	Several within 1 hr. travel time; none within 30 min. travel time (4-6 points)	One or two within 1 hr. travel time; none within 45 min. travel time (7-10 points)	None within 1 hr. travel time (11-14 points)	None within 2 hr. travel time (15-18 points)
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POINTS: Without Reallocation		With Reallocation (5' Pool Raise)		With Reallocation (12' Pool Raise)	
Short-Term (Existing/for 10 Yrs)	Long-Term (in 11-50 Years)	Short-Term (First 10 Years)	Long-Term (11-50 Years)	Short-Term (First 10 Years)	Long-Term (11-50 Years)

* Likelihood of success at fishing and hunting.

OPTIONAL: PLEASE PROVIDE ANY COMMENTS BELOW; ADDITIONAL SHEETS ARE ALSO AVAILABLE. ♣♣♣♣♣

EXHIBIT C

PERSONS ASSIGNING UNIT DAY VALUE POINTS FOR RECREATION ACTIVITIES AT CHATFIELD STATE PARK (SP) UNDER 3 ALTERNATIVES AND 2 TIME PERIODS

PERSONS WHO RECREATE AT CHATFIELD SP AND THEIR AFFILIATIONS:

Marcia Anziano – Colorado Masters Swimming Association
Michael Anziano – Dog owner who uses No-Leash Dog Exercise Area at Chatfield SP
Verle Beucke – Dog owner who uses No-Leash Dog Exercise Area at Chatfield SP
Ann Bonnell – Audubon Society of Greater Denver; Sierra Club (South Platte group);
Volunteers at Audubon Center and to lead bird and plant walks at Chatfield SP
Julie Chaney – Back Country Horsemen of Colorado
Doug Chestnutt – Equestrian who lives near Chatfield SP and accesses it on horseback
Heather Chestnutt – Douglas County 4-H Horse Project participant
Justin Chestnutt – Douglas County 4-H Horse Project participant
Michele Chestnutt – Equestrian who lives near Chatfield SP and accesses it on horseback
Eric Coe – Colorado Walleye Association
Gery DeKoevend – Owner, Fantasy Balloons; Organizer, Rocky Mountain Balloon
Festival
Ginger DeLaney – Chatfield Balloonport Association
Emily Distler – Central Colorado Eventing Club; Volunteer who maintains equestrian
jumps at Spring Gulch
Luke Eachus – Colorado Walleye Association; Fishing guide
Tom Elliot – Jefco Aeromodelers
Dave Evans – Bike Jeffco
Carole Joy Evert – Owner, Blue Springs & Katydid Dog Training Center
Lee Farrell – Part-time professional wildlife photographer
Gennifer Giustina – Central Colorado Eventing Club
Mike Haverland – Jefco Aeromodelers
Jean Hilbig – Denver Foothills Tracking Association
Ron Horn – High Country Newfoundland Club; Newfoundland Club of America; Denver
Foothills Tracking Association
Mike Ihrig – Owns and trains Portuguese water rescue dogs
Lynn Kaemmerer – Pembroke Welsh Corgi Club of the Rockies; Denver Foothills
Tracking Association
Frank Kafka – Chatfield Balloonport Association
Joey Kellner – American Birding Association; Colorado Field Ornithologists; Denver
Field Ornithologists; Volunteer naturalist who leads birding walks at Chatfield SP
Robert Kline – Chatfield Sailing & Yacht Club
Peter Lyddon – Scuba diving instructor; Owner, Gobe Divers
Jeff Magouirk – Colorado Masters Swimming Association
Robert Malouff – Chatfield Sailing & Yacht Club
Dave Martinache – Scuba diving instructor; Owner, Colorado Scuba

Roisin McEwen – American Quarter Horse Association; American Buckskin Registry Association; Chatfield Community Association; Douglas County 4-H Horse Project Leader

Marv McKinley – Chatfield Balloonport Association

Joe Onofrio – Chatfield Sailing & Yacht Club

Vincent Phelan – Scuba diving instructor for the fire department

Jerry Raskin – Audubon Society of Greater Denver; The Nature Conservancy; North American Nature Photographers Association

Bruce Ream – Jefco Aeromodelers

Jennifer Riefenberg – Chatfield Community Association; Wildlife expert and observer

Judy Siel – Bicycle Douglas County

Ross Simpson – Chatfield Sailing & Yacht Club

Lou Skoglund – Volunteer, Corps Tri-Lakes Visitor Center; Organizes bicycle tours

Jim Smith – Retired Operations Manager, Chatfield SP

Jerry Stabrava – Equestrian who lives near Chatfield SP and accesses it on horseback

Tracy Stabrava – Colorado Horse Council; Back Country Horseman; American Paint Horse Association; American Quarter Horse Association

Ken Tadolini – Chatfield Balloonport Association; Owner, Rocky Mountain Hot Air LLC

Scott Taylor – Scuba diving instructor; Owner, A-1 Scuba & Travel Center

Kent Wiley – Audubon Society of Greater Denver; Retired Park Manager, Chatfield SP

Susan Yasuhara – Tri-athlete; Team CWW

Nathan Zelinsky – Colorado Walleye Association; Fishing guide; Co-owner, Tightline Outdoors

Stephanie Zelinsky – Co-owner, Tightline Outdoors

Sue Zgol – Water Trial Judge for Portuguese Water Dogs

Bill Zimmerman – Jefco Aeromodelers

CHATFIELD MARINA OWNERS AND OPERATORS:

Linda Perry – Co-owner, Chatfield Marina

Roger Perry – Co-owner, Chatfield Marina

COLORADO STATE PARKS STAFF:

Keith Kahler – Park Manager

Christina Bradshaw – Senior Ranger

Obadiah Broughton – Ranger

Colin Chisholm – Ranger

Crystal Dreiling – Ranger

Ryan Eggelton – Ranger

Glenn Honaman – Ranger

U.S. ARMY CORPS OF ENGINEERS' TRI-LAKES STAFF:

Ray Child – Ranger

Karen Sitoski – Ranger

EXHIBIT D

COMMENTS MADE BY PERSONS INVITED TO ATTEND WORKSHOPS TO ASSIGN UNIT DAY VALUE (UDV) POINTS TO ASSESS ENJOYMENT OF RECREATION ACTIVITIES AT CHATFIELD UNDER THREE ALTERNATIVES AND TWO TIME PERIODS

LAND-BASED ACTIVITIES ▲

DOG TRACKING (High Quality Value Activity)

1. (Activity participant) Dog tracking has not been addressed in the plans presented today. Both the 5-foot and 12-foot options take away the fields that we use. No information was provided to tell us if we will get fields to replace what we lose. There will be revegetation problems with the 12-foot reallocation. There are no other areas in the Front Range [where] we can hold events (space & permission [are required]).

Dog tracking needs have not been addressed by the plans presented. We use the open fields to walk tracks and run dogs on the tracks. We use the fields on either side of the park road from Deer Creek to Heronry parking lot. We use the water service road 8-10 weekends a year for tests, to access the fields from Deer Creek north to the dam. These were taken away from us 2 years ago due to Homeland Security issues.

[Dog tracking] includes about 50 people year-round. We train year-round. There are 2 large (15-20 dogs) classes each week (Tuesday & Saturday). There are individuals training in the park almost every day. There are 8-10 tests a year that include testing up to 12 dogs each. These take 2 days and are usually on weekends.

Most of the fields we need for a test or training are those between Deer Creek and the Platte River Bridge. Plans presented today eliminate most of those fields as potential tracking areas. Options for giving us access to enough fields to train / test:

- 1) Give us permission to use the fields on the west side of the main park road from Deer Creek to the Dam.
- 2) Provide a parking area (4-6 cars) and [an] opening in [the] fence to access the fields south of the Gravel Ponds.
- 3) Provide road access & parking at [the] end of Proposed Emergency Road on east side of Gravel Pond – giving us access to south fields.
- 4) Give [us] permission to use more fields (and closed campgrounds in winter) on [the] east side of [the] Park (where there are no prairie dogs). (Written comment provided 4-16-09.)

2. (Activity participant) There can be no loss in amount and characteristics of dog tracking areas in the future. Each dog needs its own track. Each novice dog needs at least 5 acres of field, and each advanced dog needs at least 10 acres of field. A total of 60-80 acres is needed for a tracking test and 120 acres for one annual double tracking test. Currently, dog trackers are able to use at least 120 acres. American Kennel Club-sanctioned clubs hold 10-15 tests (15 weekends) per year plus 2-4 days per week for local practices year-round. Dogs can co-exist with horses. I am grateful to be able to park adjacent to the park road during non-summer months. (Telephone comment provided 1-8-09.)

3. (Activity participant) We, the tracking dog community, has had a great deal of land restricted from our use already; with the 5 foot pool [reallocation], the [remaining tracking area] is already gone. Reseeding prairie grass to date has been totally unsuccessful with the water pipeline; with all the soil/land moving, I foresee a weed patch – no true vegetation for acres and acres, not even fodder fit for deer or elk. [There will be] habitat loss for fox and coyotes with loss of trees – in dry Colorado, who is going to water the future shade trees? (Written comment provided 4-16-09.)

4. (Activity participant) There is not enough information provided today as to whether there will be any accessibility for our activity with this project. [What are the plans for] mitigation of trees and vegetation?? (Written comment provided 4-16-09.)

5. (Activity participant) It is important that adequate flat area and area with high local relief (hills and swales) for obstacles are both available for tracking competitions. The area adjacent to the Water Board Road is frequently used for dog tracking. (Telephone comment provided 1-7-09.)

6. (Activity participant) I am concerned that the raised lake level will reduce the ability to work with dogs in fields because water will fill swales. Also, inundated areas and areas for relocated recreation facilities may result in less area in the State Park being available for dog tracking. (Telephone comment provided 1-8-09.)

DOG SEARCH AND RESCUE (High Quality Value Activity)

1. (Activity participant) This is a very “limited” activity. State SAR [Search and Rescue] group uses the park for a ‘winter’ training area. (Written comment provided 4-16-09.)

2. (Activity participant) The area near Plum Creek that the search and rescue dogs use now will be inundated by the reallocation. I request that after reallocation occurs, the search and rescue dogs be assigned to use another equivalent area at Chatfield State Park. (Telephone comment provided 2-2-09.)

HOT AIR BALLOONING (High Quality Value Activity)

1. (Activity participant) Ballooning is both a general recreation and commercial activity, ideal and safe within the park. FAA [Federal Aviation Administration] controls us and we obey Park rules. Our present site has been determined by prevailing winds. (Written comment provided 4-16-09.)

2. (Activity participant) River rock from Waterton Canyon creates an eddy that spins the air so balloons can launch vertically at the present launch site and can also land near the launch site. If balloons launched from the south side of Chatfield Lake, the wind is strong and the balloons will usually not be able to land near the launch site, or even within Chatfield State Park. (Telephone comment provided 1-8-09.)

3. (Activity participant) If balloons launch even a short distance away from the present launch site, on the north side of Deer Creek, the balloons will be blown north and can't land in Chatfield State Park. (Telephone comment provided 1-8-09.)
4. (Activity participant) Thanks for not moving [the] hot air balloon launch – but please try to keep the size intact. (Written comment provided 4-16-09.)
5. (Activity participant) [My concern is] the loss of landing site[s] by having [flood] water [rise above the reallocation elevation]. (Written comment provided 4-16-09.)
6. (Activity participant) After recreation modifications and reallocation, there may be a big mosquito problem in lower areas of the balloonport site, and in swales that may develop in the fill. (Telephone comment provided 1-8-09.)
7. (Activity participant) I am glad that the fill in the balloonport area would bury goatheads (burrs). (Telephone comment provided 1-8-09.)
8. (Activity participant) Please ensure that the parking lot at the balloonport is sized adequately, because balloonists use much of the swim beach overflow parking lot also. (Telephone comment provided 1-8-09.)
9. (Activity participant) Heavy balloon activity occurs during all of October and through the middle of November, and starts again in April. Please keep this in mind when scheduling construction in the balloonport area. (Telephone comment provided 1-9-09.)
10. (Equestrian who lives near Chatfield State Park) The Rush Soccer stadium that Sterling Ranch proposed to develop at the intersection of Roxborough Park Road and Titan Road would impact ballooning because Homeland Security regulations state that balloons can't fly near stadiums. (Telephone comment provided 4-30-09.)

BICYCLING ON TRAIL

1. (Activity participant) I would like the recreation modifications to include a trail along the road that bridges the South Platte, so the bicycle trail goes all the way around the lake. I would like to review the entire trail system and for trails that would need to be relocated, I would volunteer to provide information regarding where redundant trails could be relocated in areas without trails. (Telephone comment provided 1-13-09.)
2. (Activity participant) [There are] plenty of other bike trails in [the] area if Chatfield trails are not available. (Written comment provided 4-16-09.)
3. (Activity participant) “Bathtub ring” will be ugly. (Written comment provided 4-16-09.)
4. (Activity participant) Natural topography from high-dry prairie drops off cliff-like to high quality grassy basins of ancient flood plains that then transition to wetland and

ivers. These transitions and diversity of experiences provide for a very unique experience riding trails of varied soils and terrains. The vast majority of the lowland trail systems will be lost and no real chance of replacement due to natural topography [of the transitions being inundated]. (Written comment provided 4-16-09.)

5. (Activity participant) Bicyclists do not like to use the trails because they have goatheads (puncture vines) growing through the cracks and tires get punctured. Therefore, most cyclists ride on the road. The roads are currently in poor condition, except the road between the balloonport and Chatfield Dam is excellent and contains a separate bicycle lane. The trail bridge over the South Platte River, on Corps property downstream of the dam, where the C-470 Trail connects with the South Platte Trail, is rickety and splintery.

Esthetic views are important to cyclists. I enjoy seeing the birds. Even under the reallocation with a 5-foot pool rise, a lot of trees would be lost by inundation, and replacement trees may not be at the edge of the lake. (Telephone comment provided 4-30-09.)

6. (Activity participant) Cycling, like most activities in Chatfield S.P., has identical requirements [and characteristics] with no water reallocation, a 5 foot rise, or a 12 foot rise in any year 1 through 50. (Email comment provided 5-5-09.)

BIRD & WILDLIFE VIEWING, NATURE OBSERVATION, PHOTOGRAPHY

1. (Activity participant) [This activity will be affected by] wide fluctuation in water levels, loss of habitat overall, and loss of species [diversity and abundance]. (Written comment provided 4-16-09.)

2. (Activity participant) Sandbars (islands, which are predator-free and have little human disturbance) used by shorebirds will disappear because the water is higher with reallocation. (Telephone comment provided 1-9-09.)

3. (Activity participant) I am concerned about the effect of reallocation on the shoreline and potential displacement of birds that occupy that area. (Telephone comment provided 1-12-09.)

4. (Activity participant) The higher pool elevation and the relocation of roads and services will eliminate much habitat for wildlife and a number of nesting and migrating bird species, including the old-growth cottonwood forest. Wilder animals would have to become less wild or move elsewhere, and migrating and nesting waterfowl would no longer use the gravel ponds. (Email comment provided 2-6-09.)

5. (Activity participant) I am concerned with the loss of wildlife habitat at Chatfield; that much of the lost habitat would be mitigated for outside of, rather than in, Chatfield State Park; and that the mitigation sites would not have the same quality of habitat. Wildlife migration in the South Platte corridor would be disrupted, resulting in a decrease in biodiversity at Chatfield. (Telephone comment provided 1-7-09.)

6. (Activity participant) [There will be a] loss of many miles of trails along riverbeds and loss of significant wetlands, 50-100-year-old trees of high density / quality, and overland migration of elk, deer, bear, etc. As a wildlife photographer [and] nature viewer / studier, the losses of high quality riparian land is significant and there is no apparent effort ongoing to acquire additional, adjacent land (happens to be owned / controlled by [the] controlling entity of one of the water providers). Without replacement of lost acreage, the losses are severe! (Written comment provided 4-16-09.)

7. (Activity participant) As an equestrian who enjoys viewing wildlife, I am concerned with the proposed (but not yet approved) Shea Homes development on land adjacent to Chatfield State Park. The loss of open space wildlife areas should be replaced by acquisition of lands adjacent to the State Park at least equal in acreage to those lands from which wildlife is displaced. (Telephone comment provided 1-14-09.)

8. (Activity participant) I feel the open space wildlife habitat within Chatfield State Park that is lost to recreation facility relocations should be replaced by acquiring equivalent acres adjacent to Chatfield State Park. (Telephone comment provided 1-13-09.)

9. (Activity participant) Even without reallocation, there will be more crowding and congestion in the future from increased visitation due to population increases in the area near Chatfield. (Telephone comment provided 4-27-09.)

10. (Activity participant) Acquire adjacent land to mitigate acreage lost at this resource! (Written comment provided by facsimile 4-30-09.)

11. (Activity participant) With the 12-foot reallocation, woody vegetation and wildlife habitat along the South Platte, Plum Creek, and the shores of Chatfield Reservoir will decrease. Unofficial bridle paths through the wooded area adjacent to the South Platte will be inaccessible due to inundation or muddy conditions. In addition, handicapped access to mature woody vegetation with lots of wildlife along the east side of the South Platte will be gone even if the trail that meets Americans with disabilities Act standards for access is reestablished just above elevation 5444 ft msl. (Telephone comment provided 4-27-09.)

CAMPING

1. (Activity participant) [Although the campground itself is not affected by reallocation, many campers engage in secondary recreational activities that will be affected by reallocation.] Bicycling may decrease, and hiking and wildlife observation will decrease because there will be less open space / wildlife habitat available. Fishing and boating may fluctuate with the water level. (Written comment provided 4-16-09.)

EQUESTRIAN TRAIL USE

1. (Activity participant) How many land acres (unreplaceable) will be lost at 5 feet and 12 feet [of inundation]? Carrying capacity will be extremely impacted. [Will there be replacement of the] Plum Creek bridge [to] open space on east side of [the] creek? Cannot replace trees [in short-term that currently] gives shade & blocks wind. Trail mileage lost in treed areas (75-80%) cannot be replaced.

[I] wish we had someplace we could camp with our horses in the park. (Written comment provided 4-16-09.)

2. (Activity participant) The Plum Creek area is so variable that it is not a good place for paved trails or recreational buildings, which should be located elsewhere under reallocation, but equestrian trails or nature trails in the Plum Creek area would be compatible with reallocation. (Telephone comment provided 1-14-09.)

3. (Activity participant) Many equestrians from the low-density neighborhoods south of the State Park use the trail along the Highline Canal to enter Chatfield State Park on horseback. Even without reallocation, it is doubtful that the trail along the Highline Canal will remain, or remain available to horseback riding, in the future due to the proposed Shea Homes development in which houses will be set back only 200 feet from the canal and hikers, joggers, and dog walkers using this trail will conflict with equestrian use. The equestrian trail along the South Platte will remain, but even without reallocation, it will become increasingly crowded in the future because of increased equestrian visitation from population growth in areas near Chatfield.

After reallocation, relocation of inundated trails to the remaining non-inundated trail areas will result in higher equestrian densities. With reallocation, trails relocated to upland areas will not have mature trees and shade for a long time. (Telephone comment provided 4-27-09.)

4. (Activity participant) Currently I enter Chatfield State Park on horseback from my home south of the State Park by riding on the Highline Canal Trail, then in the drainage swale along Roxborough Park Road. Even without reallocation, my access via horseback will be limited due to rerouting of a segment of Roxborough Park Road proposed by a gravel pit owner, Shea Homes, Sterling Ranch, and Rush Soccer to accommodate development south of Chatfield State Park. The gravel pit adjacent to the southeast end of the park is proposed to be excavated and turned into a small reservoir; Shea Homes proposes residential development on both sides of the Highline Canal; and Rush Soccer Stadium is proposed for the intersection of Roxborough Park Road and Titan Road. Roxborough Park Road is proposed to swing east (to the west side of the gravel pit) and then run along the State Park boundary up to where it currently crosses the State Park boundary, rather than continuing to run north-south through the proposed Shea Homes area. The proposed traffic circles for the new road alignment will not accommodate horse trailers. Because of population growth in the Chatfield area, in the future the horse trails will be crowded and finding a trailer spot in any parking lots near the horse trails will be difficult.

The highlight of a 2-hour trail ride that begins at the stables is to ride for about 40 minutes on trails through the wooded riparian areas. The 5-foot and 12-foot reallocation will result in a loss of some and most of these wooded areas, respectively. The trail segments in the wooded bottomlands that are lost would be redeveloped, but they would be relocated to upland areas. There would be no mature shade trees along the relocated trails for a long time and even when these planted trees are mature, they would not provide the closed canopy shade and wildlife habitat that the current bottomland trails provide. Based on my experience working at a stable, I feel that many people would not spend money to go on a trail ride for 2 hours if the trail ride spends little or no time going through the riparian woodlands after reallocation.

Established trails accommodate large groups, including rides to benefit muscular dystrophy and cancer research and for Boy Scout, Girl Scout, and 4-H groups. They also accommodate endurance riding, for which a minimum of 25 to 30 miles of riding on established trails per day year-round is needed to condition a horse for endurance trials. Endurance riders use Chatfield trails heavily all winter, when fewer trails are open than in the summer. A horse trail is needed on the east side of the South Platte. This trail could be accessed from the South Platte parking lot, but a formal trail crossing of the South Platte is needed to join it to trails on the west side of the South Platte. With reallocation, much of the South Platte within Chatfield State Park will be too deep for horses to be ridden across, so a way will be needed for horses to cross the South Platte. A special trail bridge could be constructed to link trails east and west of the South Platte. If the crossing will use a special lane along the road that goes over the South Platte on a bridge, the trail lane must be separated from the road by a high fence to ensure safety, as the horses may be spooked by the traffic. In 2002, mitigation for Preble's meadow jumping mouse resulted in many former horse crossings to be cut off. With reallocation, a bridge road crossing will further concentrate traffic of all types (motor vehicles, bicycles, pedestrians, and horses), so safety is important. (Telephone comment provided 5-2-09.)

5. (Activity participant) Chatfield Recreation Area is home to a widely diversified set of uses and even within a given use such as "Equestrian," there are many facets of users. There are the Stables within Chatfield that cater to all riding abilities and long strings often of Girl Scout Troops. Other large group riders include riding clubs such as the Lakewood Riding Club or Buffalo Bill Riding Club, and the park also hosts organized rides for charity such as Muscular Dystrophy and Breast Cancer. Then there are endurance riders who use Chatfield heavily in the winter to keep their horses fit. There are those who trailer in 100 or more miles to ride here and some of us who are lucky enough to be able to ride to the park from our backyard. Some pull wagons and carts and train teams to drive to harness or give hay rides. It is estimated that there are over 500 horses and mules housed within 5 miles of the park whose owners appreciate and use park trails. If all the equestrians riding their horses into the park had to trailer in, the horse trailers would use up all the unpaved parking lots.

Chatfield has 24 miles or more of equestrian trails and many more if you count the "social" or informal trails in the woods. It is probably the most heavily used equestrian area in the [Denver] Metro area and ranks in the top 5 in all of the Front Range of Colorado. Many of the current trails are shared use trails and have experienced little conflict between users, but as the urban encroachment surrounds the park and the water

level is raised, pushing clustered high density users back into more limited forest space, this can become problematic. Many class 3 trails today, which are shared by pedestrians, bicycles, and equestrians as well as have handicap access for wheelchairs and strollers may, under a more compact park design and higher usages, become class 4 or higher. In addition, primary trails that flank the park and provide pedestrian and horse access such as the Highline Canal [Trail] may become more populated with urban encroachment, which will force more people to trailer to the park for safety rather than ride into the park mounted.

To be safe, trails should have wide crossings, places to yield to other traffic, visibility to other users, a soft trail track, and wooded scenic loops. The Forest Service Equestrian Design Guidebook for Trails, Trail Heads and Campgrounds is very credible and valuable reference for equestrian safety on multi-use trails. Trails should be routed away from disturbing objects (balloons, bikes, airplanes, large boats and RV's, fishing and scuba people) who often can cause animals to shy in heavy traffic. 6-8 feet of "shy" distance with a visual vegetative barrier is recommended. Narrow winding trails or underpasses require additional consideration and may at certain points require a stretch of separated trails to pass the obstacle.

The stable will be impacted if the distance to the available tree sheltered trails in the cottonwood forest is lengthened. Most riders do not enjoy the period in the flat open [area and] sun from the stable to the trees as much as they enjoy the wooded trails. As riders pay by the hour (both in money and discomfort if inexperienced), lengthening the time to the trees from the stable and reducing the access to the 100-year-old cottonwood forest and its beauty will adversely impact their income and choice as a riding venue for many people. (I used to volunteer there and lead rides for Girl Scouts.)

In addition to the 12-foot rise option, a safe and separate equestrian crossing will be needed by the South Platte trail head, as a river crossing will probably not be viable as it is today, and there is too much traffic to have equestrians share the bike or hard surface roads there for crossing. Sharing horse trails with mountain bikers has proven possible in many areas, and often a rotation of days is used to give each an option without the other. Chatfield, however, is a very popular spot for road cyclists who move at high speeds and often in large groups. Crossings and side-by-side trail use with that type of cycling is dangerous. Today most of the multi-use designated trails are single tread. In sloping or heavily curving and vegetated areas, the suggestion to mitigate more density in the woods would be to have some equestrian and pedestrian only trails. Vegetation and distance can help separate users and minimize conflicts. The minimum easement width for horse trails adjacent to a public right-of-way should be 25 feet. Bollards to prevent non-motorized travel should be at least 5 feet apart to allow stock to pass, or use a 6-inch-high rail [that] a horse or bike can step over. (Email comment provided 5-3-09.)

6. (Activity participant) After reallocation, there will be very little carrying capacity left in the riparian woodlands. Trails through woodlands can't be re-created in upland areas. The relocated trails would be near yucca and other cactus, and/or rocks. The soils on uplands are not nearly as good as those in the river bottomlands, so the same vegetation that grows along the trail in the bottomlands would not be able to grow in the uplands. (Telephone comment provided 5-4-09.)

EQUESTRIAN USE AT CHATFIELD NOT ON TRAILS

1. (Activity participant) Chatfield is the #1 usage area for equestrians in all of Colorado because of the accessibility of parking – even on weekends; year-round access; variety of riding areas; protection of trees; water & wildlife attraction, location [near] to our homes, etc.

How many land acres (unreplaceable) will be lost at 5 feet and 12 feet [of inundation]? Carrying capacity will be extremely impacted. [Will there be replacement of the] Plum Creek bridge [to] open space on east side of [the] creek? Cannot replace trees [in short-term that currently] gives shade & blocks wind. Trail mileage lost in treed areas (75-80%) cannot be replaced.

[I] wish we had someplace we could camp with our horses in the park. (Written comment provided 4-16-09.)

2. (Activity participant) On trail rides, horses stay on the trails, but on hayrides the horses go across the fields. The Plum Creek bed between Titan Road and the reservoir has risen 9 feet since 1999, so if the water level rises, even more sediment may be deposited that could affect the stable grounds and relocated recreation facilities even though they are at a high elevation. About 75% of the stable property had been out of the 100-year flood plain, but due to the rise in sediment, in 2002 the new FEMA maps showed that 100% was in the floodway. The new Titan Road Bridge has three box culverts instead of one; therefore, instead of having one main channel, the channel locations are unpredictable and cause Plum Creek to spread out so far it loses scouring power and deposits more sediment. I would like State Parks or the Corps to dredge sediment from Plum Creek so further sediment buildup from higher Plum Creek stages with reallocation do not further damage the stable's value and functionality. (Telephone comment provided 1-13-09.)

3. (Activity participant) I ride in the park quite often myself, and I see many other riders. By my calculations there are [at least] 205 horses ridden in the park on a regular basis. If the lake is raised, I cannot see the park surviving as the primo riding destination that it is now. I ride with a number of different friends and they all prize the trails that wind through the woods on both sides of the river. Many of these people have stressful jobs and value the getaway that the peace and serenity of the woods provides. I do not think that any of these wooded trails are officially shown on maps of the park. In fact, there are numerous well established but “unofficial” trails that wind through all of Chatfield Park. Adding even 5 feet to the level of the lake will flood out many of these trails and significantly damage a true Colorado jewel.

Also, changing the status of the lake from flood control to water storage has the side effect of causing major lake level fluctuations. Given the gentle rise of the land to be flooded, the side effect of these fluctuations will be to create mud flats which are unsightly, smelly, and provide ideal breeding grounds for flies and mosquitoes. Of course, nobody is going to take a horse into these muddy, boggy areas. Dillon Reservoir is a good example of this dynamic. I understand the need to find more ways to store water. However, I do not think it is [the] wisest solution to significantly damage a wonderful Colorado resource to serve this end. (Email comment provided 4-17-09.)

4. (Activity participant) Even without reallocation, there will be increased visitation for all types of activities at Chatfield State Park due to population growth in areas near Chatfield. In the future, the density of car and bicycle traffic on Roxborough Park Road will be so high that horseback riders may encounter safety problems when using the drainage swale next to Roxborough Park Road for entering Chatfield State Park. Because the new proposed development south of Chatfield State Park will include residential lots where horses may be stabled, the number of equestrians along Roxborough Park Road will increase, further worsening the potential safety problems.

With the 12-foot reallocation, equestrians will not be able to ride along the riverbank due to inundation. In addition, inundation of the vegetation will displace birds, deer, and elk from this wildlife habitat, and the vegetation that replaces it will not be of the same quality for wildlife habitat. (Telephone comment provided 4-27-09.)

5. (Activity participant) Even without reallocation, in the future the trails used by joggers will become more crowded due to increased number of trail visitors as the population in the Chatfield State Park area grows. This crowding may result in joggers (as well as mountain bikers) using the equestrian trail, creating potential conflicts with horseback riding on the trail. (Telephone comment provided 4-30-09.)

6. (Activity participant) Currently, more horse trailer parking is needed; anglers use the Kingfisher parking lot that most horse trailers formerly used. Even without reallocation, in the future Chatfield State Park will be more crowded due to the growth in population of nearby areas. This will result in no place to park horse trailers and in greater potential safety problems to horses and their riders from cyclists riding above the posted speed limit on park roads. When the Highline Canal is full of water, I have to ride in the borrow ditch along Roxborough Park Road, and horses frightened by cyclists exceeding the speed limit on that road may buck the rider.

During the summer, horseback riders ride in sub-standard, narrow pathways in the wooded area where the closed canopy of trees provide shade for both horses and riders. I avoid riding my horse through fields to prevent the horse from grazing on grass and thus destroying wildlife habitat in the park. Horse trails need to be wider than a tire width because if a horse loses its footing and bucks you off, injuries can be more serious if your body falls on ground that is at two different elevations (the incised trail and the higher elevation of the grass-covered ground next to it). With reallocation, much or most of the mature riparian trees will be gone; the bottomlands will be muddy; and the vegetation planted near trails relocated to more upland areas will lack maturity for a long time. However, Chatfield State Park is the only place I could ride; Sharptail Trail 3 miles away from my home has too many hikers and bicyclists that would compete for parking spaces with my horse trailer, and there are only 4 horse trailer parking stalls at Waterton Canyon.

Two noxious weeds interfere with horseback riding and grow easily in disturbed areas (such as the construction zones for recreation modifications needed prior to implementing reallocation). Therefore, weed control after construction activities at Chatfield State Park is very important. Goat heads (puncture vines) [*Tribulus terrestris*] interfere with bicycling as well as horseback riding. Goat heads grow through the cracks in the concrete trails. Goat heads are woody, and each goat head has 2 horns a quarter-

inch long that can puncture tires and skin. Cyclists ride on the roads to avoid the goat heads on the trails; this affects road safety because 2 cars plus a bicycle require more total width than the paved road surface currently has. Sand burrs (round, with prickles one-eighth inch long) get on horses' legs and tails; horse owners braid their horse's tail so they won't transport the sand burrs back to their homes and yards, and the skin on a rider's fingers can be punctured when trying to remove sand burrs from horses. (Telephone comment provided 4-30-09.)

7. (Activity participant) Even without reallocation, proposed development south of Chatfield State Park will result in fewer areas in the future for horseback riding off official trails. My neighborhood is just south of Chatfield State Park, and I ride my horse from my house to Chatfield. With reallocation, the deer trails in the wooded riparian areas that I ride on would be inundated or muddy. If proposed development south of Chatfield State Park prevents my accessing Chatfield on horseback from my home, I may not ride at Chatfield because it takes 1 hour to pack my horse trailer. (Telephone comment provided 5-2-09.)

8. (Activity participant) The park is flanked on the south side by a number of private and boarding equestrian facilities, all of which host riders who ride into the park without being included in trail counts. On the southern reaches of the park, away from much of the formal infrastructure, is where the greatest appeal for equestrian use is for many who cherish the park. As the water level rises, the density of park use is being shoved farther back to those realms and will reduce the "isolated" area and feeling of being in the woods undisturbed, enjoying wildlife and birding and fishing access on horseback. This is an area of high concern because you can't mitigate in most of our lifetimes the damage and reduction in size of the 100-year-old cottonwood forests and the habitat and solitude they provide. From horseback in every type of weather I ride the park at least twice a week in the non-designated areas and see many other equestrians as well, but not so many that I can't run into elk, coyote, fox, deer, and (at least once a season) a bear. I may be treated to heron, crane, owls, or eagles as well, and I frequently visit a thriving beaver pond on the Plum Creek side. Although the water boundary is set on the map, the resulting reduction in flow and alluvial fanning will wipe out significantly more equestrian and wildlife area than is reflected on the map in your presentations. The social and wildlife trails I love to ride through the park change every year based on flooding, stream cuts, down timber, bog, and other natural factors. Between the water level and the urban encroachment on the park boundaries, there will be more human intervention in these areas, which will pressure and reduce the quality of my trail experience. As the formal areas for equestrians become reduced, more people will explore the woods, which are less patrolled. You can't plant new trees on less land and call it mitigation. It is destructive to the whole treasure of the park that is less traveled. Thanks for the opportunity to share the equestrian perspective. (Email comment provided 5-3-09.)

9. (Activity participant) Trash is a big problem that significantly lowers aesthetic quality in the bottomlands where I ride my horse. In the future, even without reallocation, there will be crowding, and reallocation will worsen the crowding by flooding much of the bottomlands. Alternative sites are the Sharptail Trail and Waterton Canyon, but there is

hardly any horse stall parking and a lot of competition for parking spaces from hikers, joggers, and fishermen. (Telephone comment provided 5-4-09.)

EQUESTRIAN USE AT SPRING GULCH

1. (Activity participant) Spring Gulch will not be affected by reallocation. State Parks is negotiating currently with Highlands Ranch Metro Park District to [manage] this area under a lease agreement. (Written comment provided 4-16-09.)

2. (Activity participant) There will be no impact on Spring Gulch at all because the lake is completely separated from our area. I would like to urge the Corps to utilize the acres of 3 foot [high] piles of composted horse manure for the areas [where] dirt has to be removed in Chatfield to restore organic matter and help grow better grass. It could help both of us because we need the extra acres [this manure removal] would provide for the course and for parking. (Written comment provided 4-16-09.)

3. (Activity participant) Removing the old manure piles from Spring Gulch would be of high value in two ways. 1) The manure is so old it is basically rich dirt, well seasoned / composted, [and] very helpful [because] it is close (less cost [to transport] to the park, and free. 2) Because it is composted, the soil is too soft [for] horses and they can't be ridden across this area. They fall through the soft areas. (Written comment provided 4-16-09.)

FLYING MODEL AIRPLANES

1. (Activity participant) We fly radio-controlled airplanes, and this [reallocation] has little effect on us. (Written comment provided 4-16-09.)

2. (Activity participant) Access to the radio-controlled [model airplane] field can all be handled through the Plum Creek Park Entrance (south end). Reallocation will not prevent radio-controlled [model plane] users from full access and use of their flying site. Borrow areas (nearby) [would be] a bigger impact. (Written comment provided 4-16-09.)

HIKING, WALKING, AND JOGGING ON TRAIL

1. (Activity participant) [Wildlife is viewed while walking on the trails.] There will be loss of habitat and acreage [for wildlife] and loss of species [diversity] due to the wide fluctuation in water levels beyond the current fluctuation. (Written comment provided 4-16-09.)

2. (Activity participant) Loss of acreage and significant trails in bottomlands leads to overcrowding and far fewer opportunities to use trails. Also, the loss of distances is significant. Land should be acquired to replace losses – even if land [acquired] is not of [the] same quality. (Written comment provided 4-16-09.)

3. (Activity participant) [I have] used this park for 34 years. Bird watching [is engaged in while trail walking]. Full mitigation for wildlife species and habitat may not be on site. (Written comment provided 4-16-09.)

4. (Activity participant) I walk to Chatfield State Park from my home south of the State Park boundary. Even without reallocation, in the future I feel there will be fewer access points for walking into Chatfield State Park because there will be residential development instead of open space fields on the adjacent lands. The proposed development of nearby areas will also result in more trail visitors and crowding. Reallocation will bring inundation or muddy conditions to the bottomland woodlands where I walk. Therefore, if I have to drive (instead of walking) between my home and Chatfield, I may drive to Roxborough State Park or another site to walk instead. (Telephone comment provided 5-2-09.)

INTERPRETATION AND ENVIRONMENTAL EDUCATION

1. (Activity participant) I used this park for 34 years and led [interpretive / educational] bird and plant walks here since about 1980. [Environmental education is conducted] in [the] main Park area, not at Audubon Center which is not inundated by reallocation. (Written comment provided 4-16-09.)

2. (Activity participant) Bus parking in the existing parking lots is a problem for school groups, and it is very crowded in the [campground] amphitheater. In addition, I had to park in the campground and walk a long distance to visit the historic cabin. (Telephone comment provided 4-30-09.)

3. (Activity participant) Honey production by domestic beehives is greatly affected by inundation and drought. Hives on my property, in a neighborhood just south of Chatfield State Park, produce 260 pounds of honey normally, but only 60 pounds during drought and only 38 pounds last year. This year I had to pay \$200 to replace the queen and other bees in two hives that were vacated by the bee colonies. During drought, bees leave their hives to swarm to wooded areas in Chatfield State Park, where they reestablish a hive. Permanent removal of these wooded areas due to inundation from reallocation would leave no place for swarming bees to establish new hives during drought. (Telephone comment provided 4-30-09.)

4. (Activity participant) The Chatfield Community Association (CCA) includes 400 residents in 6 neighborhoods south of Chatfield State Park (Sunshine Acres, Tindall Acres, Polo Estates, Plum Creek Acres, View Ridge, and Braley Acres) in addition to many residents living near to, but unaffiliated with, these subdivisions. Dennis Larratt, Chairman of the CCA committee for Shea Homes issues, previously spoke with State Parks officials about the subdivision proposed by Shea Homes to be developed on both sides of the Highline Canal south of Chatfield State Park that is at the pre-submittal level. He and CCA Treasurer Mary Kay Mansfield spoke with Shea Homes a few weeks ago and requested a swap of lands to be designated as open space. They proposed that the current lands designated as Highlands Ranch Open Space, which has only a trail, be

developed and that in return, the area proposed for the Shea Homes development be designated as Highlands Ranch Open Space lands and donated to Chatfield State Park for wildlife habitat and related recreational uses. The developers replied that they may agree to this request. (Telephone comment provided 4-30-09.)

5. (Activity participant) Nearby Roxborough Park has very different ecosystems [from the ecosystems at Chatfield State Park] to enjoy and learn from; so does the Arboretum or Deer Creek Canyon areas. (Written comment provided by facsimile 4-30-09.)

NO-LEASH DOG EXERCISE / DOG TRAINING AREA USE

1. (Activity participant) If and when the main road as we know it now [is relocated], is it possible to open Deer Creek Road, to be able to bypass the construction, or have the new road constructed before the old road is torn up.

Open up other landing areas for the balloons. (Written comment provided 4-16-09.)

2. (Nature observer) Impacts to the mature cottonwood forest along the South Platte upstream of the reservoir should be mitigated by enhancing the South Platte River riparian zone downstream from Chatfield Dam, in the area currently used as a dog exercise area, which has erosion and free access to the State Park. I feel this enhanced riparian area could become a good area for nature study and a nature trail if the dog exercise area were relocated to the uplands on the east side of the reservoir. (Telephone comment provided 1-14-09.)

3. (Activity participant) Even without reallocation, there will be crowding at the dog exercise area in the future due to increased visitation resulting from population increases in the areas near Chatfield. (Telephone comment provided 4-27-09.)

4. (Activity participant) Even without reallocation, the dog exercise park will become more crowded in the future because the population of Douglas County is growing. There will be more cyclists on the trail, and some dogs chase cyclists, since there is no fence between the trail and the dog exercise area. With reallocation, the area would become even more crowded because many people would want to picnic under the mature trees at the dog exercise park instead of in picnic areas at the reservoir which lost their tall shade trees. (Telephone comment provided 5-2-09.)

PICNICKING (GROUP PICNICKING)

1. (Activity participant) If the pool level changes during the summer, it will be a problem. (Written comment provided 4-16-09.)

PICNICKING AT THE GRAVEL PONDS

1. (Activity participant) Picnicking at the gravel ponds takes place along with several special activities: kayak classes, baptisms, fishing classes, scuba, water dogs, horseback

riding. The majority of special activities take place on weekends. (Written comment provided 4-16-09.)

PICNICKING (NON-GROUP PICNICKING AT THE RESERVOIR)

1. (Activity participant) “Day use” picnic areas are rarely full except on holiday weekends. Lack of mature trees for shade will reduce the recreation experience at all impacted facilities. (Written comment provided 4-16-09.)

WATER-BASED ACTIVITIES

SCUBA DIVING / OPEN WATER DIVE CERTIFICATION TRAINING (Specialized Recreation Other than Hunting and Fishing)

1. (Activity participant) Scuba currently uses the gravel pond, along with many other users. Regardless of whether the level is raised 5 feet or 12 feet, please consider access to the water in the form of dirt roads, parking areas, and capacity for increasing number of users.

Also, consider allowing scuba, [water rescue] dog training and triathlon swimmers to use other parts of Chatfield. Scuba needs to have a minimum water depth of 20 feet; deeper is better.

Substitute sites for scuba are Santa Rosa in New Mexico (6.5 hour drive); Jefferson Lake (1.5 hour drive). Jefferson [Lake] is of limited use due to very short season and cold water – beginning divers need more benign conditions. (Written comment provided 4-16-09.)

2. (Activity participant) Adequate parking near the scuba pond is a concern because parking lots are full on summer weekends now, and the number of people using the gravel pond is growing. More beach areas near the gravel ponds are needed because they are also used by water rescue dog trainers. (Telephone comment provided 1-7-09.)

3. (Activity participant) The northeast corner of the pond is optimal for diving. The depth, contour, and gravel bottom provide good diving conditions. In addition, it allow[s] divers the ability to park close to the water and easy access to unloading / loading heavy equipment. It also allow[s] for ease of access for people in wheelchairs.

I would like there to be continued easy access to the northeast corner via a wide & flat trail, drop off area, and if possible limited parking for the disabled. It would also be advantageous to have access to restroom facilities.

One final point – Though diving is safe, there is potential for a diving emergency. Therefore it seems critical that [there be] emergency vehicle access to the dive site. (Written comment provided 4-16-09.)

4. (Activity participant) The gravel-bottomed area must be maintained free of sediment for diving, and that a scuba diver’s equipment may weigh 100 pounds, necessitating a drop-off point near the pond. To avoid conflicts between divers and water rescue dog

training, either separate areas of the gravel pond should be designated or these activities should be scheduled at different times during the summer. (Telephone comment provided 1-8-09.)

5. (Activity participant) There should be road access to the northeast corner of the gravel pond because shore anglers use the sandy beach on the north edge of the gravel pond and the gravel parking lot (10-12 cars) on the northeast corner of the pond. (Telephone comment provided 1-8-09.)

6. (Scuba diving instructor) It would be nice to have a change house with at least two stalls, each with a bench, where swimmers and divers can change out of their wet bathing suits. No running water would be necessary. (Telephone comment provided 6-10-09.)

LONG DISTANCE / OPEN WATER SWIMMING AT THE GRAVEL POND (High Quality Value Activity)

1. (Activity participant) The Masters long-distance swimming group grew from 20 over 8 years ago to 500-600 now. The gravel pond is currently meeting the group's needs. The water is clean, the temperature is good, and no motorized boats are allowed. I currently park at the Kingfisher parking lot and am concerned about adequate parking in the future. (Telephone comment provided 1-7-09.)

2. (Activity participant) The Gravel Pond will be affected by the 5 or 12 foot reallocation. We will likely lose some esthetic value, but the swimming will be close to the same except the loss of the gravel bar, which is well used. (Written comment provided 4-16-09.)

3. (Activity participant) I want no decrease in parking areas for the gravel ponds because from June to August 10, swimmers crowd the gravel ponds. (Telephone comment provided 1-8-09.)

4. (Activity participant) My team has 100-150 of its 300-400 members using Chatfield, and I am concerned primarily with safety. I also want to ensure that parking is adequate. Currently, rangers monitor the parking during high-use times. I feel that conflicts can be reduced if scuba divers and non-group-member swimmers were informed by rangers about boundaries of the swimming sector versus the scuba sector. There are a lot fewer picnickers at the gravel ponds than there were 4-5 years ago due to crowded conditions. (Telephone comment provided 1-13-09.)

WATER RESCUE DOG TRAINING AT GRAVEL PONDS (High Quality Value Activity)

1. (Activity participant) We have a lot of equipment to carry – boats, rafts, crates, and water equipment. (Written comment provided 4-16-09.)

2. (Activity participant) The water rescue dog trainers need parking close to the water because they have to unload boats and heavy equipment for practices and trials. (Telephone comment provided 1-9-09.)

3. (Activity participant) For the “underwater retrieve” task, access is needed to the northeast corner of the gravel pond where the slope is gentler and articles to be retrieved don’t get lost. (Telephone comment provided 2-1-09.)

4. (Activity participant) Ensure the area is for water training, not dog water play. (Telephone comment provided 1-9-09.)

FISHING (BOAT FISHING)

1. (Activity participant) If the water level change from April 1 to September increases from the current 9 feet to 14 feet or 21 feet, this will potentially affect the spawning and fishing success, especially walleye. This also provides no basic expansion of fishing opportunity in the reservoir and will diminish the experience. (Written comment provided 4-16-09.)

2. (Activity participant) The large water drop will adversely affect the beauty of the State Park and not enhance or expand the resource, so I’m actually against it due to the potential large water draw down. (Written comment provided 4-16-09.)

3. (Activity participant) I feel that fishery production will greatly increase with the 12-foot pool rise, if no inundated trees are cut (so they can provide fish habitat) and these areas are buoyed for boater safety. (Telephone comment provided 1-16-09.)

4. (Activity participant) I would like as much submerged vegetation to remain in place as possible. In 2007, two thirds of the female walleye recuperating near the intake tower for a week after spawning on the dam face were flushed through the dam during high releases for flood control. If vegetation is submerged with reallocation, many species would spawn there, and fish that now spawn by the dam would not be affected by high releases. (Telephone comment provided 1-9-09.)

FISHING (ICE FISHING)

1. (Activity participant) Higher water would provide more areas for ice fishing. (Written comment provided 4-16-09.)

2. (Colorado Walleye Association member and fishing guide) I’m against the change due to the large water draw downs that could happen. (Written comment provided 4-16-09.)

FISHING (SHORE FISHING AT THE GRAVEL PONDS)

1. (Activity participant) I shore fish at the teardrop-shaped gravel pond southeast of the large gravel pond. I currently walk to that gravel pond from my house south of Chatfield

State Park. Few people fish at that pond now, and it gives me the feeling of being in the wilderness. I think the 5-foot reallocation would force more hikers into the gravel pond area. With the 12-foot reallocation, the gravel pond I use would be inundated and would become part of Chatfield Reservoir. If access is provided to the pond site, a lot more people will fish at the pond after the Chatfield pool level decreases and the pond is once again separated from the reservoir, even if the inundation results in decreased water quality. (Telephone comment provided 5-2-09.)

2. (Activity participant) Too much of a water draw down in a season to make it desirable to me. The water users could affect the level too much for my endorsement on this project. (Written comment provided 4-16-09.)

3. (Activity participant) I park at the parking lot by the large gravel pond and walk to one of several nearby gravel ponds for shore fishing. The teardrop-shaped gravel pond that will be inundated by the 12-foot reallocation has lots of turtles and frogs as well as fish. Fishermen leave a lot of trash around the gravel ponds, and I pick up as much of their trash as I can fit in a plastic bag. In the future, even without reallocation, the State Park will become more crowded due to the population growth in the vicinity, and I may need to walk farther to find a gravel pond that has any fish left in it. (Telephone comment provided 5-4-09.)

4. (Activity participant) More trash cans, preferably bear-proof trash cans, are needed at all the gravel ponds, and along the ADA-accessible fishing access trail, for fishermen to use. (Telephone comment provided 5-4-09.)

FISHING (SHORE FISHING AT RESERVOIR)

1. (Activity participant) Too much of a potential water draw down for me to be for this project. If it was additional surface acres it would be an enhancement, but the potential to be drawn down 23 feet makes it an unwanted change and I'm against it. (Written comment provided 4-16-09.)

2. (Activity participant) Fluctuating water levels, smell, [and] mud will negatively impact this activity. (Written comment provided 4-16-09.)

3. (Activity participant) [The] shoreline near the Heron Viewing Area will not recover like other shoreline[s]! Dredge to displace and replace land to increase acre-feet of water storage! Need deeper colder water for trout. There are plenty of warm water fish in the lake already. (Written comment provided by facsimile 4-30-09.)

JET SKIING

No comments regarding this activity were received.

MOTORCRAFT USE AT THE RESERVOIR FOR PLEASURE BOATING

1. (Activity participant) Even without reallocation, population growth in the Chatfield area will result in an increase in the number of boats and a longer wait in the line at the boat ramp. With reallocation, the water level will fluctuate, and a longer boat ramp will be needed, so it will be more difficult to get on and off. The mudflats along the shoreline caused by the changes in water levels will bring sand flies, so people won't like to use the area near the shoreline as much. (Telephone comment provided 5-2-09.)

NON-MOTORCRAFT USE AT THE RESERVOIR (SAILING)

1. (Activity participant) [My] primary activity is sailboat racing. [It is] not practical to move to Cherry Creek or Carter [Lake during marina closure for reconstruction]. (Written comment provided 4-16-09.)

2. (Activity participant) I am very concerned with drawdowns and the potential "bathtub ring" appearance of the banks. (Telephone comment provided 1-8-09.)

3. (Activity participant) I favor a bigger lake that reallocation would bring but am also concerned about lake level fluctuations. I would need longer lines on my anchors. The marina plumbing pipes might break when the lake level is too low. (Telephone comment provided 1-8-09.)

4. (Activity participant) I am concerned that water elevation changes will prevent the marina from continuously operating functionally. (Telephone comment provided 1-8-09.)

NON-MOTORCRAFT USE AT THE RESERVOIR (KAYAKING)

1. (Activity participant) The loss of trees and visual aesthetics around the lake will make a huge impact on kayaking and canoeing enjoyment. (Email comment provided 3-27-09.)

2. (Activity participant) [I have been a] Park user for 34 years. Full mitigation for wildlife species and habitat may not be on site. (Written comment provided 4-16-09.)

3. (Activity participant) In the future, even without reallocation, the parking lot will be crowded due to the high population growth in the Chatfield area, and there will be a lot more boats on the lake (and a lot more trash discarded in places other than trash cans). I hope that some parts of Chatfield Lake will remain closed to motorboat use in the future. I enjoy seeing the wildlife as I kayak on Chatfield Lake, and I am concerned that the loss of vegetation (that is, wildlife habitat) around the lakeshore will result in fewer birds and other wildlife using the lake (except beavers). (Telephone comment provided 5-4-09.)

NON-MOTORCRAFT USE AT THE GRAVEL PONDS (CANOEING & KAYAKING)

1. (Activity participant) We carry our kayaks from our car to the large gravel pond. Because I avoid coming on weekends, I am able to park my car in the parking lot next to the large gravel pond. That parking lot is very crowded now, especially on weekends, and it will become even more crowded at times other than weekends in the future as the population in the Chatfield area grows and results in an increase in visitors to Chatfield State Park. (Telephone comment provided 5-4-09.)

SWIM BEACH USE

1. (Activity participant) Fluctuating water level / “bathtub ring” will negatively impact this activity. (Written comment provided 4-16-09.)

2. (Activity participant) Cherry Creek [swim beach area] is already overcrowded and dirtier. (Written comment provided by facsimile 4-30-09.)

WATER SKIING AND TUBE-TOWING

1. (Activity participant) Current crowded conditions make [water] skiing at Chatfield difficult. It’s possible that raising the water level will decrease the crowded conditions. (Written comment provided 4-16-09.)

2. (Activity participant) Even without reallocation, there will be more boats on the lake and longer waiting lines at boat ramps due to higher visitation from increases in the population in the areas near Chatfield. (Telephone comment provided 4-27-09.)

3. (Activity participant) [With reallocation, there will be] less shoreline area for beaching [during] boating breaks and mounting [the] tube by less experienced swimmers. (Written comment provided by facsimile 4-30-09.)

4. (Activity participant) In the future, the lake will be crowded with boats. Although the lake surface would be greater with reallocation, there may be boating accidents because much of the increase in lake surface area will be in shallow areas. Water skiing will have even more conflicts with jet skiing than occurs now due to the crowding. (Telephone comment provided 5-2-09.)

EXHIBIT E
Economic Guidance Memorandum
(EGM) 11-03



REPLY TO
ATTENTION OF

DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS
441 G STREET, NW
WASHINGTON, DC 20314-1000

CECW-P

13 February 2013

MEMORANDUM FOR PLANNING COMMUNITY OF PRACTICE

SUBJECT: Economic Guidance Memorandum, 13-03, Unit Day Values for Recreation for Fiscal Year 2013

The enclosed information is provided for immediate use. Questions related to this memorandum should be addressed to Mr. Bruce Carlson, CECW-P, at [REDACTED] or by telephone at [REDACTED].

Harry E. Kitch, P.E.

Deputy Chief, Planning and Policy Division
Directorate of Civil Works

Encl

Unit Day Values for Recreation, Fiscal Year 2013

The national economic development (NED) benefit evaluation procedures contained in [ER 1105-2-100](#) (22 Apr 2000), Appendix E, Section VII, include three methods of evaluating the beneficial and adverse NED effects of project recreation: travel cost method (TCM), contingent valuation method (CVM), and unit day value (UDV) method.

The criteria for selecting the appropriate method are described in paragraph E-50b(4) and Figure E-10 of ER 1105-2-100 and in the attached document. If the UDV approach is used, the range of unit day value for FY 2013 studies is:

General Recreation	\$ 3.80	\$ 11.39
Specialized Recreation	\$ 15.43	\$ 45.09

If, when using the UDV method, evidence indicates a value outside the published range, use either TCM or CVM to evaluate recreation benefits.

The attached document provides a detailed description of the application of the UDV method. The tables provided in the attachment are constructed as guidance for planners in the selection of unit day values for particular recreation activities. Tables 1 and 2 illustrate a method of assigning a point rating to a particular activity. Point values are assigned based on measurement standards described for the five criteria of activities, facilities, relative scarcity, ease of access, and aesthetic factors.

Table 1 covers general recreation, involving relatively intensive development of access and facilities. The specialized recreation category, covered in Table 2, includes such unique experiences as big game hunting, wilderness pack trips, white water canoeing, and other activities generally categorized by more extensive, low density use.

Values provided for FY 2013 may be used to convert points to a UDV dollar amount if the point assignment method is used. The table was adjusted from Table K-3-1, Federal Register Vol. 44, No. 242, p.72962, December 14, 1979, and the subsequent [Table VIII-3-1](#) "Conversion of Points to Dollar Values", Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies, March 10, 1983, using the Consumer Price Index (CPI) factors published by the Bureau of Labor Statistics. The CPI basis of Table VIII-3-1 from Principles and Guidelines is July 1, 1982 (CPI value = 97.5). The FY 2013 CPI basis is September, 2012 (CPI value = 231.407).

As a special note of warning, it is important to recognize that all specialized recreation activities claimed will require a regional model or a site-specific study, the results of which would probably not agree with the specialized values in the attached [table](#). The only exception would be in those specific cases for which the unreliability or

Unit Day Values for Recreation, Fiscal Year 2013

infeasibility of TCM or CVM can be stated convincingly.

Conversion of Points to Dollar Values

Point Values	General Recreation Values (1)	General Fishing and Hunting Values (1)	Specialized Fishing and Hunting Values (2)	Specialized Recreation Values other than Fishing and Hunting (2)
0	\$ 3.80	\$ 5.46	\$ 26.58	\$ 15.43
10	\$ 4.51	\$ 6.17	\$ 27.29	\$ 16.38
20	\$ 4.98	\$ 6.65	\$ 27.77	\$ 17.56
30	\$ 5.70	\$ 7.36	\$ 28.48	\$ 18.99
40	\$ 7.12	\$ 8.07	\$ 29.19	\$ 20.17
50	\$ 8.07	\$ 8.78	\$ 32.04	\$ 22.78
60	\$ 8.78	\$ 9.73	\$ 34.89	\$ 25.16
70	\$ 9.26	\$ 10.21	\$ 37.03	\$ 30.38
80	\$ 10.21	\$ 10.92	\$ 39.87	\$ 35.36
90	\$ 10.92	\$ 11.16	\$ 42.72	\$ 40.35
100	\$ 11.39	\$ 11.39	\$ 45.09	\$ 45.09

(1) Points from Table 1 in attachment.

(2) Points from Table 2 in attachment.

Unit Day Method

1. Overview. The unit day value (UDV) method for estimating recreation benefits relies on expert or informed opinion and judgment to approximate the average willingness to pay of users of Federal or Federally assisted recreation resources. If it can be demonstrated that more reliable TCM or CVM estimates are either not feasible or not justified for the particular project under study, the UDV method may be used. By applying a carefully thought-out and adjusted unit day value to **estimate** use, an approximation is obtained that may be used as an estimate of project recreation benefits.

2. Implementation.

(a) When the UDV method is used for economic evaluations, planners will select a specific value from the range of values provided annually. Application of the selected value to estimated annual use over the project life, in the context of the **with- and** without-project framework of analysis, provides the estimate of recreation benefits.

(b) Two categories of outdoor recreation days, general and specialized, may be differentiated for evaluation purposes. “General” refers to a recreation day involving primarily those activities that are attractive to the majority of outdoor users and that generally require the development and maintenance of convenient access and adequate facilities. “Specialized” refers to a recreation day involving those activities for which opportunities in general are limited, intensity of use is low, and a high degree of skill, knowledge, and appreciation of the activity by the user may often be involved.

(c) Estimates of total recreation days of use for both categories, where applicable, will be developed. The general category comprises the great majority of all recreation activities associated with water projects, including swimming, picnicking, boating, and most warm water fishing. Activities less often associated with water projects, such as big game hunting and salmon fishing, are included in the specialized category. A separate range of values is provided annually for each category and for fishing and hunting to facilitate adoption of a point system in determining the applicable unit values for each individual project under consideration.

(d) When employing this method to determine recreation benefits, select appropriate values from the range of values provided. If evidence indicates a value outside the published range, use the TCM or CVM method.

(e) In every case, planners are expected to explain the selection of any particular value. To assist in explaining a specific value, a point rating method may be used. The method illustrated here contains five specific criteria and associated measurement standards designed to reflect quality, relative scarcity, ease of access, and esthetic features. Since the list of criteria and weights assigned may vary with the situation,

Unit Day Method

public involvement should occur in the value determination process. Planners are also expected to make appropriate use of studies of preferences, user satisfaction, and willingness to pay for different characteristics. When these studies are used, particular efforts should be made to use estimates derived elsewhere from applications of the TCM and CVM techniques, to support the value selected.

(1) General recreation (Table 1). Activities in this category are those associated with relatively intensive development of access and facilities as compared to the specialized recreation category. Generally, progressively higher physical standards for each unit of carrying capacity is involved in selecting higher unit values, and these may be accompanied by larger related non-project costs.

(2) Specialized recreation (Table 2).

(a) This category includes those activities whose values are generally lowered, if not actually excluded, by the type of development that enhances activities in the general recreation category. Thus, extensive or low-density use and development constitutes the higher end of this range of values (e.g., big game hunting, and wilderness pack trips). Also included in the upper end of the range are relatively unique experiences such as inland and marine fishing for salmon and steelhead, white water boating and canoeing, and long-range boat cruises in areas of outstanding scenic value. Examples of activities to which values at the lower end of the range would be assigned include upland bird hunting and specialized nature photography.

(b) The unit day values to be used for both the general and specialized recreation categories should be further adjusted to reflect additional quality considerations expected to prevail at various project sites in various regions of the Nation, and weighted according to their importance to users. For example, a reservoir that is expected to carry a relatively heavy load of suspended silt or is expected to be used beyond optimum capacity would be less desirable, and therefore of lower unit value, than one that will have clear water and be less crowded.

(c) Hunting and fishing may be treated either as general recreation (Table 1) or specialized recreation (Table 2) depending upon whether it is associated with developed areas or back country areas, respectively. In either case, the recreation experience (criterion "a" in the tables) will be given points according to the additional consideration of the chances of success; the midpoint of the value range is associated with the region's average catch or bag. Other criteria may be modified if appropriately based on available evidence about the preferences and willingness to pay of hunters and fishermen for different recreation quality factors.

Unit Day Method

(d) The degree to which alternative non-project opportunities are available to users is also considered in the assignment of values. Higher values should be assigned if the population to be served does not have existing water-oriented recreation opportunities. If water-oriented recreation opportunities are relatively abundant, as compared to other outdoor recreation opportunities, lower unit values should be assigned, even if a large number of visitations are expected at the proposed development.

(e) The choice of a unit day value must account for transfers to avoid double counting of benefits. The net value of a transfer of use from one site to another is the difference in unit day values for recreation at the two sites. If recreation activities at the two sites are comparable, travel cost savings are the only NED benefits associated with the transfer. Use at the site must therefore be disaggregated according to the proportion of total estimated use that would not have occurred without the project and the proportion of total use that represents transfers from existing sites. The respective types of uses must then be assigned different daily values as indicated.

(f) Unit values selected are to be considered net of all associated costs of both the users and others in using or providing these resources and related services.

3. Estimating Use.

(a) Using the ranges of values requires the study of estimates of annual use foregone and expected at recreation sites. Use can be estimated by a use estimating equation or per capita use curve as discussed above, but when these means are available, the second step of the travel cost method should generally be used instead of UDV's to derive the benefit.

(b) The capacity method is an alternative method of estimating use, but it has severe limitations. The capacity procedure involves the estimation of annual recreation use under without project and with project conditions through the determination of resource or facility capacities (taking into consideration instantaneous rates of use, turnover rates, and weekly and seasonal patterns of use). Seasonal use patterns are dependent on climate and culture and probably account for the greatest variation in use estimates derived through this method. In general, annual use of outdoor recreation areas, particularly in rural locations and in areas with pronounced seasonal variation, is usually about 50 times the design load, which is the number of visitors to a recreation area or site on an average summer Sunday. In very inaccessible areas and in those known for more restricted seasonal use, the multiplier would be less; in urban settings or in areas with less pronounced seasonal use patterns, the multiplier would be greater. In any case, the actual estimation of use involves an analytical procedure using instantaneous capacities, daily turnover rates, and weekly and seasonal use patterns as specific data inputs.

Unit Day Method

(c). Because the capacity method does not involve the estimation of site-specific demand, its use is valid only when it has been otherwise determined that sufficient demand exists in the market area of project alternatives to accommodate the calculated capacity. Its greatest potential is therefore in urban settings where sufficient demand obviously exists. Additionally, its use should be limited to small projects with (1) a facility orientation (as opposed to a resource attraction), and (2) restricted market areas that would tend to make the use of alternative use estimating procedures less useful or efficient.

4. Calculating Values.

The estimates of annual use are combined with the selected unit day values to **derive** an estimate of annual recreation benefits. The value assigned to each activity or category of activities is multiplied by the number of recreation days estimated for that activity. The products are then summed to obtain the estimate of the total value of an alternative. Recreation days to be gained and lost or foregone as a result of a particular alternative are listed and valued separately, not merely shown as net recreation days. Transfers of recreational users to or from existing sites in the region must be calculated, and the net regional gain or loss used in the final benefit estimated. Adequate information must appear in the discussion of the use estimation and valuation procedure or elsewhere in the report concerning the alternative being considered, so that the reader can derive a similar value for each activity.

Unit Day Method

Table 1: Guidelines for Assigning Points for **General Recreation**

Criteria	Judgment factors				
Recreation experience¹ Total Points: 30 Point Value:	Two general activities²	Several general activities	Several general activities: one high quality value activity ³	Several general activities; more than one high quality high activity	Numerous high quality value activities; some general activities
	0-4	5-10	11-16	17-23	24-30
Availability of opportunity⁴ Total Points: 18 Point Value:	Several within 1 hr. travel time; a few within 30 min. travel time	Several within 1 hr. travel time; none within 30 min. travel time	One or two within 1 hr. travel time; none within 45 min. travel time	None within 1 hr. travel time	None within 2 hr. travel time
	0-3	4-6	7-10	11-14	15-18
Carrying capacity⁵ Total Points: 14 Point Value:	Minimum facility for development for public health and safety	Basic facility to conduct activity(ies)	Adequate facilities to conduct without deterioration of the resource or activity experience	Optimum facilities to conduct activity at site potential	Ultimate facilities to achieve intent of selected alternative
	0-2	3-5	6-8	9-11	12-14

Unit Day Method

Table 1: Guidelines for Assigning Points for **General Recreation** (Continued)

Accessibility Total Points: 18 Point Value:	Limited access by any means to site or within site 0-3	Fair access, poor quality roads to site; limited access within site 4-6	Fair access, fair road to site; fair access, good roads within site 7-10	Good access, good roads to site; fair access, good roads within site 11-14	Good access, high standard road to site; good access within site 15-18
Environmental Total Points: 20 Point Value:	Low esthetic factors ⁶ that significantly lower quality ⁷ 0-2	Average esthetic quality; factors exist that lower quality to minor degree 3-6	Above average esthetic quality; any limiting factors can be reasonably rectified 7-10	High esthetic quality; no factors exist that lower quality 11-15	Outstanding esthetic quality; no factors exist that lower quality 16-20

¹Value for water-oriented activities should be adjusted if significant seasonal water level changes occur.

²General activities include those that are common to the region and that are usually of normal quality. This includes picnicking, camping, hiking, riding, cycling, and fishing and hunting of normal quality.

³High quality value activities include those that are not common to the region and/or Nation, and that are usually of high quality.

⁴Likelihood of success at fishing and hunting.

⁵Value should be adjusted for overuse.

⁶Major esthetic qualities to be considered include geology and topography, water, and vegetation.

⁷Factors to be considered to lowering quality include air and water pollution, pests, poor climate, and unsightly adjacent areas.

Unit Day Method

Table 2: Guidelines for Assigning Points for **Specialized Recreation**

Criteria	Judgment factors				
Recreation experience¹ Total Points: 30 Point Value:	Heavy use or frequent crowding or other interference with use	Moderate use, other users evident and likely to interfere with use	Moderate use, some evidence of other users and occasional interference with use due to crowding	Usually little evidence of other users, rarely if ever crowded	Very low evidence of other users, never crowded
	0-4	5-10	11-16	17-23	24-30
Availability of opportunity² Total Points: 18 Point Value:	Several within 1 hr. travel time; a few within 30 min. travel time	Several within 1 hr. travel time; none within 30 min. travel time	One or two within 1 hr. travel time; none within 45 min. travel time	None within 1 hr. travel time	None within 2 hr. travel time
	0-3	4-6	7-10	11-14	15-18
Carrying capacity³ Total Points: 14 Point Value:	Minimum facility for development for public health and safety	Basic facility to conduct activity(ies)	Adequate facilities to conduct without deterioration of the resource or activity experience	Optimum facilities to conduct activity at site potential	Ultimate facilities to achieve intent of selected alternative
	0-2	3-5	6-8	9-11	12-14

Unit Day Method

Table 2 **Guidelines for Assigning Points for Specialized Recreation** (Continued)

Accessibility	Limited access by any means to site or within site	Fair access, poor quality roads to site; limited access within site	Fair access, fair road to site; fair access, good roads within site	Good access, good roads to site; fair access, good roads within site	Good access, high standard road to site; good access within site
Total Points: 18					
Point Value:	0-3	4-6	7-10	11-14	15-18
Environmental	Low esthetic factors ⁴ that significantly lower quality ⁵	Average esthetic quality; factors exist that lower quality to minor degree	Above average esthetic quality; any limiting factors can be reasonably rectified	High esthetic quality; no factors exist that lower quality	Outstanding esthetic quality; no factors exist that lower quality
Total Points: 20					
Point Value:	0-2	3-6	7-10	11-15	16-20

¹Value for water-oriented activities should be adjusted if significant seasonal water level changes occur.

²Likelihood of success at fishing and hunting.

³Value should be adjusted for overuse.

⁴Major esthetic qualities to be considered include geology and topography, water, and vegetation.

⁵Factors to be considered to lowering quality include air and water pollution, pests, poor climate, and unsightly adjacent areas.