



DEPARTMENT OF THE ARMY  
CORPS OF ENGINEERS, NORTHWESTERN DIVISION  
PO BOX 2870  
PORTLAND OR 97208-2870

REPLY TO  
ATTENTION OF

CENWD-PDD

10 May 2010

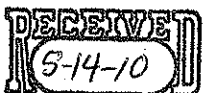
MEMORANDUM FOR Commander, Omaha District (CENWO-PM-A/Eckert Uptmor)

SUBJECT: Cache la Poudre at Greeley, Colorado, Feasibility Scoping Meeting (FSM),  
Guidance Memorandum

1. Reference memorandum, CECW-NWD, 6 April 2010, subject as above (Encl).
2. The enclosed is the final subject guidance memorandum. NWO is commended on the high quality product and the responses to comments. My point of contact for this matter is Mr. Martin Hudson, at 503-808-3851.

DAVID J. PONGANIS  
Chief, Planning, Environmental Resources,  
Fish Policy, & Support Division

Encl





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

CECW-NWD

06 APR 2010


MEMORANDUM FOR Commander, Northwestern Division (CENWD-PDD-B)

SUBJECT: Cache la Poudre at Greeley, Colorado, Feasibility Scoping Meeting (FSM),  
Guidance Memorandum

1. Reference CECW-NWD memorandum, dated 26 February 2010, subject: Cache la Poudre at Greeley, Colorado General Investigation Feasibility Study, Feasibility Scoping Meeting Package (enclosure 1), that transmitted HQUSACE policy compliance review comments to CENWD-PDD for subsequent forwarding to the Omaha District (CENWO-PM-A).
2. District written responses to the policy compliance review comments were provided and a FSM VTC was held Friday, 19 March 2010 to discuss the comments and responses, with participation by representatives of CENWO, CENWD, HQUSACE, and the City of Greeley, the non-Federal sponsor (see enclosure 2).
3. Omaha District staff provided informative presentations, which resulted in meaningful discussion and a productive FSM. The review comments, district responses, FSM discussions, and required actions are documented in enclosure 3 and constitute the subject FSM policy review assessment. A number of policy compliance concerns were resolved by the above actions, while other issues will require revisions/clarifications to be made prior to the Alternative Formulation Briefing (AFB).
4. The Omaha District is commended on their quality product.

FOR THE COMMANDER:

3 Encls  
as

  
STACEY K. HIRATA  
Chief, Northwestern Division  
Regional Integration Team  
Directorate of Civil Works



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

FEB 26 2010

CECW-NWD

MEMORANDUM FOR Commander, Northwestern Division (CENWD-PDD, Jeremy Weber), P.O. Box 2870, Portland, OR 97280-2870

SUBJECT: Cache la Poudre at Greeley, Colorado General Investigation Feasibility Study, Feasibility Scoping Meeting (FSM) Package

1. Reference CENWD-PDD Memorandum dated 2 December 2009 and CENWO-PM-A Memorandum dated 15 December 2009, subject as above.
2. The subject draft feasibility report FSM submittal package has undergone review by this headquarters and your office. HQUSACE policy compliance review comments are enclosed and should be attached as a separate document to review comments from your office for subsequent forwarding to the Omaha District (CENWO-PM-A).
3. Please have the Omaha District provide their written responses electronically to this headquarters so that the HQUSACE Review Team has sufficient time to review prior to the FSM. That information will then be used to constitute the draft Policy Review Assessment for use in the FSM VTC.
4. The HQUSACE review covers only the subject report and does not include any comments or assessments from your office on the current Cache la Poudre General Investigation Feasibility Study. However, the District should also be prepared to discuss these issues at the upcoming FSM.
5. Any questions should be directed to Chuck Moeslein at 202-761-4616.

FOR THE COMMANDER:

Encl

A handwritten signature in black ink, appearing to read "Stacey K. Hirata".

STACEY K. HIRATA  
Chief, Northwestern Division  
Regional Integration Team  
Directorate of Civil Works

FNCL1

## Meeting Attendees

Name	Phone Number	Agency/Organization	Email
Tony Niles	(202) 761-4605	HQUSACE (CECW-NWD)	Anthony.r.niles@usace.army.mil
Leigh Skaggs	(202) 761-5541	HQUSACE (CECW-PC)	Lawrence.l.skaggs@usace.army.mil
Scott Murphy	(202) 761-0035	HQUSACE (CECC-G)	Scott.murphy@usace.army.mil
Robert Wright	(202) 761-5565	HQUSACE (CEMP-CR)	Robert.e.wright@usace.army.mil
Jeanette Gallihugh	(202) 761-0668	HQUSACE (CECW-PC)	Jeanette.l.gallihugh@usace.army.mil
Jeremy LaDart	(202) 761-5450	HQUSACE (CECW-PC)	Jeremy.m.ladart@usace.army.mil
Jeremy Weber	(503) 808-3858	USACE Northwestern Division	Jeremy.j.weber@usace.army.mil
Jim Fredericks	(503) 808-3856	USACE Northwestern Division	Jim.k.fredericks@usace.army.mil
Robert Willis	(503) 808-3863	USACE Northwestern Division	Robert.e.willis@usace.army.mil
Dave Wells		City of Greeley	Dave.wells@greeleygov.com
Steve Bagley		City of Greeley	
Kayla Eckert-Uptmor	(402) 995-2693	USACE Omaha District (PM-A)	Kayla.a.eckert@usace.army.mil
Greg Johnson	(402) 995-2701	USACE Omaha District (PM-AP)	Greg.johnson@usace.army.mil
Dave Brandon	(402) 995-2699	USACE Omaha District (PM-AP)	David.a.brandon@usace.army.mil
Kara Reeves	(402) 995-2688	USACE Omaha District (PM-AE)	Kara.m.reeves@usace.army.mil
Tom Gorman	(402) 995-2324	USACE Omaha District (ED-HB)	Thomas.g.gorman@usace.army.mil
Betty Peake	(402) 995-2686	USACE Omaha District (PM-AE)	Elizabeth.b.peake@usace.army.mil
Doug Clemetson	(402) 995-2340	USACE Omaha District (ED-HE)	Douglas.j.clementson@usace.army.mil
Gary Norenberg	(402) 995-2104	USACE Omaha District (ED-C)	Gary.a.norenberg@usace.army.mil
Brad Thompson	(402) 995-2678	USACE Omaha District (PM-A)	Bradley.e.thompson@usace.army.mil
Chris Fassero	(402) 995-2679	USACE Omaha District (PM-AP)	Christopher.a.fassero@usace.army.mil
Jeff Greenwald	(402) 995-2698	USACE Omaha District (PM-AA)	Jeffrey.r.greenwald@usace.army.mil
Mark Nelson	(402) 995-2703	USACE Omaha District (PM-AP)	Mark.e.nelson@usace.army.mil
Katie Reed	(402) 995-2658	Omaha District (CEHNC-CX-EC)	Margaret.K.Reed@usace.army.mil

**Cache la Poudre at Greeley, Colorado  
General Investigation Study  
Feasibility Scoping Meeting**

**Policy Review Assessment**

**GENERAL**

**HQUSACE Comment:**

1. Issue Paper. An issue paper was included with the Feasibility Scoping Meeting (FSM) submittal regarding plan formulation efforts during problem identification. The paper states that as a prerequisite to signing the Feasibility Cost Sharing Agreement (FCSA), the district formulated flood risk management alternatives to protect a high-damage reach near downtown Greeley as the first phase of the feasibility study. The district should confirm that this formulation work was done after the FCSA was signed. The issue paper also states that subsequent to the signing of the FCSA, Colorado requested that the City and Corps furnish interim "deliverables" or progress reports before they would release funds. This was outlined in a March 2007 memorandum. The district should provide a copy of the memorandum and more detail on how the work that was accomplished for the "high-damage reach" is applicable to the study for the full project area presently underway.

**District Response:**

- a. Confirm that "Decision Point 1" Formulation occurred after the FCSA was signed. – Exhibits 1, 2, 3 as follows:
  - 1) Signed FCSA dated 26 December Document "Signed FCSA.pdf"
  - 2) March 2007 Memorandum - E-Mail  
"Interim\_Deliverables\_March2007.pdf"
  - 3) Memorandum completing Deliverables – E-Mail  
"Completion\_Interim\_Deliverables\_May2008"
- b. Provide a copy of the March 2007 memorandum requesting that the City and Corps provide interim deliverables to the State of Colorado and applicability of "high damage reach "to the full project area. – See Above>
- c. The work that was accomplished for the "High Damage Reach" is applicable to the full project for several reasons:
  - 1) The High Damage Reach is a 3.5 mile reach wholly contained within the full project reach of 17 miles.
  - 2) Economic data which was used to determine many damage reaches within the overall 17 mile total project reach, showed that this is where the damages were concentrated and where the onset of damages began for the

most frequent flooding. Thus any solution to flood risk reduction that would be configured for Greeley had to consider this sub-reach.

- 3) This reach had the most degraded riparian ecosystem within the entire 17-mile reach.

**FSM Discussion:**

Reviewers felt that NWO should clarify wording prior to the AFB that the District did not produce deliverables prior to the FCSA being signed. For some issues, the report is beyond the FSM level (such as the work on the 7 miles reach, but for other issues, i.e. the planning of the project for the full 17- mile reach and the planning of ecosystem restoration, the status is not up to what should be done by the FSM. The measures need to be fully developed and combined into preliminary alternatives. This is discussed further in the subsequent comments.

**Action Required:** The AFB will include clarifying information and documentation as noted in the district response.

**HQUSACE Comment:**

2. Model Certification. EC 1105-2-407 states that, "The use of certified models for planning activities is mandatory". The certified version of HEC-FDA should use this version for future analysis.

**District Response:**

The District intends to use the Certified version of HEC-FDA for post-FSM Analysis.

**FSM Discussion:**

The District needs to show they are using certified models for environmental benefits also.

**Action Required:**

District will address model certification requirements (including need for and status of) in AFB document.

**HQUSACE Comment:**

3. Independent External Peer Review (IEPR). The FSM documentation does not indicate anticipated IEPR. EC 1165-2-209 Paragraph 11(d)(1)(b) defines the requirements for IEPR. Does the district anticipate the need for IEPR on this study?

**District Response:**

EC 1165-2-209 came out after the District submitted documentation to have the FSM. The Cache la Poudre study was the first General Investigation Study to convert from an existing ITR plan to an ATR Plan in 2008. Before the AFB, we understand that we will need to implement the guidance of EC 1165-2-209 and this will require another update to our Peer Review plan. It is noteworthy that the flooding at Greeley has not been viewed as life threatening, solutions are anticipated to cost well below \$45,000,000 and the

project is not viewed as controversial with strong support for project goals indicated by public agencies and NGOs during the Public Involvement process to date.

**FSM Discussion:**

If the District intends to pursue an IEPR exclusion, the request should be developed and transmitted soon. If the exclusion is not granted, or if there's a portion that isn't Federally funded, the schedule and budget should be adjusted and submitted as soon as possible. Type II IEPR ensures that facilities are adequately constructed, and that no problems occur in the future.

**Action Required:**

Vertical team coordination will be needed to determine whether Type I and/or Type II IEPR is necessary, or whether a request for an exclusion will be made.

**HQUSACE Comment:**

4. District Counsel Review. Given the early stage of the feasibility process, substantial additional information will need to be added to the report prior to final approval. In particular, NWO and NWD counsel review and certification of the legal sufficiency of the report should be obtained prior to the next submittal of the report for review. See EC 1105-2-410 paragraph 7.d. (requiring that "decision documents [] be reviewed throughout the study process for their compliance with law and policy") and ER 1105-2-100 Appendix H, page H-2.d.3. ("District and Division Counsel are responsible for ensuring the legal sufficiency of each decision document") ("District Counsel is responsible for the legal review of each decision document and signing a certification of legal sufficiency."). Such counsel review will be crucial in ensuring that the feasibility report adequately addresses all legal requirements for the project, including but not limited to complete discussion and adherence to the project's statutory authorities as well as full treatment of the project's particular implementation requirements, including cost sharing and other local cooperation obligations of the non-Federal sponsor.

**District Response:**

The Feasibility Cost Share Agreement had Counsel Review and was signed by the Assistant District Counsel on 19 December 2005. The current draft at the completion of Problem Identification and early plan formulation has a technical focus and has not yet addressed new legal issues. District Counsel will review the documents before submittal for the AFB, complete with implementation requirements and cost-share provisions.

**FSM Discussion:**

District response accepted.

**Action Required:**

Implement District response.

**HQUSACE Comment:**

5. Local Cooperation, Plan of Implementation. The report does not appear to include a plan of implementation, including a description of cost sharing responsibilities and other

local cooperation obligations of the non-Federal sponsor. These should be added as required by ER 1105-2-100 paragraph 4-3(b)(2) (“The non-Federal sponsor cost sharing requirements, including their responsibilities for implementation and operation of the project must be clearly documented.”).

**District Response:**

The report at the current phase of the study at the end of Problem Identification has not defined the plan of implementation for the next phase. Local Cooperation for this phase is governed by the Feasibility Cost Share Agreement and Project Management Plan which went into effect in December 2005.

**FSM Discussion:**

District response accepted.

**Action Required:**

No action required at this time.

**HQUSACE Comment:**

6. Project Sponsor. The report does not appear to clearly identify a non-Federal sponsor for the project or to document that sponsor’s support for the project. This should be included to ensure that sufficient local support for the project will enable it to be implemented, as required by ER 1105-2-100, Appendix G, at G-9 (“The non-Federal sponsor’s acceptance of, or desired departures from, the terms of the applicable model PCA must be presented, including: 1) applicable cost sharing and financial policies; 2) policies regarding provision and valuation of non-Federal lands, easements, rights-of-way, and disposal areas provided by non-Federal sponsors; 3) policies governing non-Federal project construction; and 4) other provisions required by law and policy for new start construction projects”).

**District Response:**

The Project Sponsor is the City of Greeley and is defined in the Feasibility Cost Share Agreement and Project Management Plan (December 2005) for the current phase of study. The City of Greeley submitted a Letter Of Intent, prior to the FCSA.

**FSM Discussion:**

District response accepted.

**Action Required:**

The non-Federal sponsor will be clearly identified in the report.

**HQUSACE Comment:**

7. Environmental Compliance. Likely due to the early stage of the report, it does not yet appear to include an environmental assessment of the project’s impacts, as required by ER 1105-2-100, Appendix G, at G-9 to G-10 (“Compliance with the NEPA process and other applicable Federal and State environmental laws and regulations is to be fully documented; specific issues that require resolution before the feasibility study is

completed are to be identified; and any environmental compliance matters that may remain and need resolution in preconstruction engineering and design must be specified.”). Inclusion of such an assessment as well as documentation of interagency and state and local coordination requirements will be required prior to final approval of the report.

**District Response:**

As noted in the review comment, the feasibility study is in an early stage and much work remains to identify the NED flood risk reduction plan that will need to be evaluated for environmental compliance. It should be noted that this is a multi-purpose project, with a project goal of riparian ecosystem restoration, so in addition to meeting environmental compliance directives, the PDT will be actively engaged in efforts large and small to improve the environmental health of the Cache la Poudre River and its floodplain.

**FSM Discussion:**

HQ comment was guidance for the next phase of the report, to insure that everything is well documented. Often districts use a Table that lays out all applicable requirements and the status of compliance with such.

**Action Required:**

Implement District response and Discussion.

**MAIN REPORT**

**HQUSACE Comment:**

1. General. ER 1105-2-100 D-3D(2) page D-5 states that, “ All NED costs shall be based on current costs adjusted by the project discount rate...”. The analysis should use up-to-date costs and the FY 2010 discount rate of 4-3/8%.

**District Response:**

Concur - Regarding analysis moving forward, NED costs will be based on current costs and interest rate. Significant time has elapsed since the analysis was completed and the FSM. Was directed to not conduct updates due to shortage of funds and uncertainty of study moving forward. Many updates will need to occur before AFB.

**FSM Discussion:**

District response is accepted.

**Action Required:**

Implement District response.

**HQUSACE Comment:**

2. Location of Initial Study Reach. Section 15.2 provides a good overview of the study reach, but needs to be expanded. Maps and tables describing the study area by delineated economic reach should be added to give the reader a greater feel of the area, and to set up the exiting condition inventory (ER 1105-2-100 Section 3-3c(5)(a)).

**District Response:**

District notes that tables describing the study area by delineated economic reach are in the Economics Appendix. District proposes that an economic reach map be added to the Appendix to augment Table 1 already located in that appendix. District proposes that the level of detail requested is more suitable for the appendix than to the main report and that the Map and table delineating the economic reaches not be added to the main report.

**FSM Discussion:**

District response is accepted.

**Action Required:**

Implement District response.

**HQUSACE Comment:**

3. Socioeconomic Resources. Section 2.12 provides a good overview of the socio-economic resources, but needs to be expanded. A subsection describing demographic information (population, income, race, etc.) should be added to fully describe the existing conditions (ER 1105-2-100 Section 3-3C.(5)(c)).

**District Response:**

Demographic information is in the Economic Appendix and will be brought forward and summarized in the main report prior to the AFB. Tables documenting and supporting the demographic information will be added to the Economic Appendix as appropriate. A detailed socioeconomic analysis will be included in the final report.

**FSM Discussion:**

The following applies to comments 3-5. A lot of data goes back to 2002. The District needs to update it. After sampling is completed, and as up to date data comes on line, drop references to out-of-date data. Some information should be brought into the main report from the appendices, because the appendices can become too voluminous.

**Action Required:**

Implement District response and Discussion

**HQUSACE Comment:**

4. Land Use and Investment Values. Section 2.12.2 provides a good overview of land use and investment values, but needs to be expanded. The economic inventory (structures, structure value, content value, etc.) should be delineated by the economic reaches that will set up the damages (ER 1105-2-100 Section 3-3c.(5)(b)). The report should add maps and tables that further paint the picture for the reader.

**District Response:**

District notes that information and tables describing land use and investment values by economic reach, which are a precursor to damage delineation are in the Economics Appendix. The economic appendix will provide a table that details the land use and

investment value by reach. A reach delineation map and table will be added to the main report.

**FSM Discussion:**

In general, as formulation moves forward we need to think how older data will be updated or re-verified.

**Action Required:**

Implement District response and Discussion.

**HQUSACE Comment:**

5. Discount Rate. Page 32 states that the FY07 discount rate of 4.875% was used in the analysis to calculate expected annual damage. On page 53 the report states that the FY 08 discount rate (also 4.875%) was used to compute equivalent annual physical damages. Aside from the need to be consistent throughout the report in terms of a common year for economic calculations, it is acceptable to display historic discount rates in a report for prior formulation cycles if they are explained; however, the most recent analyses should use the current rate. The current rate for FY10 is 4.375%. Future products should use the appropriate discount rate for the fiscal year in which the package is submitted in accordance with the economic guidance at the following website:  
<http://www.usace.army.mil/CECW/PlanningCOP/Pages/egms.aspx>.

**District Response:**

Concur - Should state FY07 interest rate. Again, significant time has elapsed since the analysis was completed and the FSM. Many updates will need to occur before AFB.

**FSM Discussion:**

As above.

**Action Required:**

Implement District response.

**HQUSACE Comment:**

6. Floodplain Mapping Revisions, Pages 37-38.

a. In Section 2.16.1, the first and fourth paragraphs are duplicative.

b. Section 2.17 notes the DFIRM update and its anticipated results in 2009. The report should provide data from the DFIRM revisions and discuss the impacts, if any, to the previous analysis conducted.

**District Response:**

a. Duplicative paragraphs – Concur. Will remove duplicate.

b. DFIRM Update - The preliminary results of the Weld County DFIRM study were not available to the Omaha District at the time the report was written. Because all the data for the Cache la Poudre River in Greeley being used for

the DFIRM revision was provided to FEMA by the Omaha District, the Feasibility Study has been using the "best available data". The new Weld County FIRM data will be reviewed when it is available, but it should not impact the results of the analysis for the Feasibility Study.

**FSM Discussion:**

DFIRMs can support our planning. County DFIRM is being held up because of one area – it should be finalized soon.

**Action Required:**

Implement District response.

**HQUSACE Comment:**

7. Future Basin Hydrology, Page 40. The last sentences of the second paragraph of Section 3.2.1 describes the potential impacts of early snow melt on flooding, and then states that these potential impacts are outside the scope of the study. Much work has been done on snow pack in recent years by the Operations Division, especially in the mid-western and western districts. This section should be expanded to discuss, in greater detail, the potential impacts of earlier snow melt. For example, does the uncertainty fall within the already defined uncertainty contained in HEC-FDA?

**District Response:**

Concur. This section will be expanded to include a discussion of more recent research on the impact of early snow melt on flood discharges in order to better understand the impact to peak discharges on the Cache la Poudre and to runoff volume. It is likely that impacts will be quantified under risk and uncertainty within the HEC-FDA modeling, as noted in the review comment.

**FSM Discussion:**

Post-Katrina, we are trying to get as much climate change info as possible into Corps levee analysis. The District responded that ED-H will look at the future work done by NWO-OD and expand the discussion and analysis. Climate change could potentially change timing of floods, but the NWO won't know until review of the OD documents. The PM reported that there were no changes at the Ft. Collins gage, re: hydrograph trends that would reflect changes in snowmelt. HQ felt that the slideshow had a good table that showed snowmelt was not changing in FWOP, but rain events were increasing flood events in future.

**Action Required:**

Implement District response and Discussion.

**HQUSACE Comment:**

8. First Paragraph, Page 42. This paragraph states that, "A roughly 30-year period of the projected future without project condition hydrologic analysis was established as 2005-2035..." Does this analysis still hold true for future conditions or should it be updated to reflect current data.

**District Response:**

The relatively small length of the years of newly available data (2006 -2008) compared to the length of the upward trend in flow, which became evident around 1958, makes it likely that it will hold true for the projected future trend shifted a few years to the future. To verify, Cache la Poudre near Greeley stream gage data from recent years, which may be obtained from the State of Colorado Water Conservation Board, will be used to update and extend existing graphs. The updated graphs and data sets can be used to determine if any departure has occurred from the trends discovered in 2009.

**FSM Discussion:**

Include information in response in the report. HQ questioned the use of 3 years of data to assume 30 year forecast. Also the FSM document was not clear on what is driving the increases in damages in the future (structure inventory or hydrologic conditions?). It is the hydrologic conditions. This needs to be explained in the AFB.

**Action Required:** Implement District response and Discussion.

**HQUSACE Comment:**

9. Table 4, Page 43. The report notes in a later section that uncertainty is added into HEC-FDA surrounding discharges. The addition of uncertainty parameters included in this table would be a valuable improvement.

**District Response:**

Another row can be added to the table to show the range in discharge about the computed discharge for each return period for the confidence limits generated by the log Pearson Type III statistical analysis of the streamflow record. The discharge range limits generated using the confidence limits act as the uncertainty parameters from the hydrologic frequency analysis.

**FSM Discussion:**

District should tell the story regarding how residents in Greeley may be impacting the area. The District responded that the entire Front Range has undergone extensive development, and will be increasingly urbanized in the future. As impervious surface increases, so will runoff, and the frequency of the more frequent (2-25 year) flood events, but little impact on 50-100 year events. HQ suggested that a summary of this info from the technical appendices should be moved into the main report.

**Action Required:**

Implement District response and Discussion.

**HQUSACE Comment:**

10. Future Without Project (FWOP) Condition.

a. The FWOP condition forms the basis for which alternative plans are formulated and impacts are assessed. Since impact assessment and benefit analysis are the basis for plan

evaluation, comparison and selection, clear definition and full documentation of FWOP conditions is essential [ER 1105-2-100, paragraph 2-3.b and paragraph E-3.a(2)]. Per the ER, it is necessary to provide a quantitative and qualitative description of future conditions of planning area resources. The discussion of the FWOP condition for the ecosystem (Section 3.1) is very minimal and generally broad. No analysis is provided. Detailed information on the FWOP condition of all relevant resources will need to be presented in the Alternative Formulation Briefing (AFB) document and subsequent versions of the report.

**District Response:**

A considerable portion of the biological FWOP condition within the channel is tied to the sediment-discharge balance in the future. Limited initial evaluation of the future channel morphology has been done. A more rigorous approach to comparing alternatives, including the base condition, will occur during the remainder of feasibility. Also, a contract evaluating the riparian habitat has largely been completed and information from the contractor's biological report will be used to further define the future-without biological condition between now and formulation of the ecosystem restoration alternatives.

**FSM Discussion:**

This was an area lacking in the FSM documentation. HQ stated that the District should provide a full explanation of benefits and impacts for both FRM and Ecosystem Restoration. They should discuss the models to be used in quantifying existing conditions (HEP procedures and HSIs) and the future without project.

**Action Required:** Implement District response and Discussion.

**HQUSACE Comment:**

b. Section 3.4 depicts a base year of 2012. It does not appear reasonable at this point that a project could be built and accruing benefits by 2012. The analysis should be revised to identify a feasible base year. This section also notes several assumptions for the future without project condition, including using the same economic inventory as the existing condition. Are these all of the assumptions that drive the future without economic activity? If not, all assumptions should be clearly documented.

**District Response:**

The base year will have to be changed from 2012, which was our original planned construction year to 2015 or later, based upon delays in the feasibility schedule.

**FSM Discussion:**

District response accepted.

**Action Required:**

Implement District response.

**HQUSACE Comment:**

c. On page 48, the report states that the “future condition year” is 2037. Later in that same paragraph the period of analysis is defined as 50 years. It is confusing why the “future condition year” would be identified as 2037 if future without project conditions are estimated through 2062 (50 years added to the base year, estimated to be 2012). Yes, conditions may be assumed to remain constant from 2037 to 2062, based on the judgment of the study team, but the future without project condition should be estimated and defined for both the base year and the final year of period of analysis. Estimates for intermediate years, such as 2037, are also acceptable, but this year would not be identified as the “future condition year.” Please see ER 1105-2-100, 2-4 j. for a discussion of the period of analysis.

**District Response:**

Concur. The period of analysis was defined consistently as 50 years among all disciplines and will be clarified in the document. The year 2037 was merely used as a future-condition year in FDA in which from this point up to 50-years, conditions assumed to remain constant.

**FSM Discussion:**

District response is accepted, but there is a bit of confusion regarding the use of the 2037 date. The District should clarify that these 2037 conditions will continue through the end of the period of study.

**Action Required:**

As above.

**HQUSACE Comment:**

d. In the same section on page 50, there is a misstatement in the paragraph on “NED Effects of No Action”. Equivalent annual damages expected annually over the long term are not necessarily dependent on *existing conditions* being maintained, as stated, but rather the conditions expected to occur between the base year and the future without project condition year. The No Action Alternative, according to the Planning Manual, page 101, describes the condition expected to prevail in the planning area in the future if no federal action is taken to solve the problem – there is no mention of *existing conditions*. Also see comments pertaining to NED Effects of No Action from page 50 in Economic Appendix Comment 8, below.

**District Response:**

Concur: Equivalent annual damages over the long term are not necessarily dependent on existing conditions being maintained, but rather the conditions expected to occur between the base year and the future without project condition year. The existing without-project conditions were evaluated as an initial step of the planning process. The No Action Alternative was then determined and reflected as equivalent annual damages. This is the condition which is used to compare net benefits for with project alternatives.

**FSM Discussion:**

District response accepted.

**Action Required:**

The AFB will reflect District response.

**HQUSACE Comment:**

e. The expected equivalent annual damages in the without project condition reported on page 50 of \$2.38 million differs considerably from the existing condition equivalent annual damages of \$1.27 million on page 32. Is this due to changes in H&H conditions, additional damage categories, or both? The same section states that changes in land use are not expected, so the increase in damage values from existing to future without project conditions cannot be accounted for due to increased structural or contents damages.

**District Response:**

Yes, the increase is due to changes H&H Conditions rather than additional damage categories. The primary driver is the trend towards larger discharges at the more frequent floods, including the threshold damaging flood in many of the high damage sub-reaches. Also making the future flooding condition worse is a progressively increasing stage for a given discharge due to an upward trend channel aggradation and vegetative encroachment, which has become more evident in the past 20 years.

**FSM Discussion:**

District response accepted. The information should be brought forth to the main report.

**Action Required:**

Implement District response and Discussion.

**HQUSACE Comment:**

f. Also see comment pertaining to Section 3.4, NED Effects of No Action, in the "Economic Appendix" comments, below.

**District Response:**

- a. Increasing Without Project Damages – The primary driver is the trend towards larger discharges at the more frequent floods, including the threshold damaging flood in many of the highly damaged reaches. Also making the future flooding condition worse is a progressively increasing stage for a given discharge due to an upward trend channel aggradation, which has become more evident in the past 20 years.
- b. Businesses inclusion in the without project EAD of \$2.3M - Yes, business damages are included in the HEC-FDA analysis – Data was derived based on output from FDA – will include summary table that includes these details.

**FSM Discussion:**

District response accepted. Information should be brought forth to main report.

**Action Required:**

Implement District response and Discussion

**HQUSACE Comment:**

11. Table 7, Page 53. A similar table showing these damages by event would be very helpful in communicating the story.

**District Response:**

Concur. A similar table will be prepared according to hydrologic frequency, showing the growth in damages as floods progress from the 2 to the 500-year flood event.

**FSM Discussion:**

District response is accepted.

**Action Required:**

Implement District response.

**HQUSACE Comment:**

12. Flooding, Page 59. The second paragraph of Section 4.2.1 describes an overview of flood-warning time. This is a good discussion and should include more data such as estimated time of warning and a description of the system used to warn people within the floodplain.

**District Response:**

Concur. The discussion of the current flood warning could be expanded to include travel times for large flood crests between the Ft Collins gage on the Cache la Poudre and Greeley. If recreational features are developed that are down inside the channel (i.e. bike trails, bird watching areas, etc.) it may be necessary to consider the installation of local automated flood warning gages in addition to the river gages currently operated by the USGS and the Colorado Water Conservation Board, which use DCP telemetry accessible by the NWS for river flood forecasting on the Poudre. The local gages would be positioned to warn river users of in-channel flash floods which hydrologic trends show will become more frequent in the future due to urbanization.

**FSM Discussion:**

District should include more discussion about characteristics of flooding.

**Action Required:**

Implement District response and Discussion.

**HQUSACE Comment:**

13. Recreation, Page 61. The last paragraph of Section 4.2.3 on this page states, "Trails 10 feet wide could be developed on 15-foot wide crests of levees." While it does not appear to be the intent, this statement could be considered a conclusion. Consider changed the wording to, "For example," or some other syntax indicating opportunity rather than a conclusion.

**District Response:**

Concur. Will add “for example” to the sentence cited.

**FSM Discussion:**

District response accepted.

**Action Required:**

Implement District response.

**HQUSACE Comment:**

14. Planning Objectives, Page 65. In Section 4.4, it is suggested that the phrase “to reduce flood damages” be added to the end of the first objective, “Lower flood stages along the Cache la Poudre River channel in urban Greeley.” Currently, reduction of flood damages is not explicitly stated in the planning objectives, although it is implied in at least three of the objectives.

**District Response:**

Concur. Will add so objective reads as “Lower flood stages along the Cache la Poudre River channel and in urban Greeley to reduce flood damages”.

**FSM Discussion:**

District response is accepted.

**Action Required:**

Implement District response.

**HQUSACE Comment:**

15. Secondary Planning Objectives, Page 66. It should also be noted in Section 4.4 that many of the secondary objectives may involve actions that would not be cost-shared by the Corps. Some objectives may be met incidental to measures that are integral to a plan for flood risk management and ecosystem restoration; however, if formulation for objectives that are not in Corps mission areas occurs, we should be clear to the sponsor that implementation would be their responsibility, or the responsibility of some other party (i.e. perhaps a resource agency).

**District Response:**

Concur. Will revise paragraph discussing secondary objectives to include statements regarding how objectives may be met incidental to measures integral to the selected plan, but that some may not be cost-shared and will be the responsibility of others outside of the project effort.

**FSM Discussion:**

District response is accepted.

**Action Required:**

Implement District response.

**HQUSACE Comment:**

16. Development of Alternatives. After identification and combination of management measures for future evaluation, the Federal interest in potential solutions must be assessed based on consistency with Federal laws, regulations, and Executive Orders, specific Corps policies, and Administration budget policy. Who (Corps, another agency, non-Federal interests) has responsibility for addressing the problems/solutions must be indicated (ER 1105-2-100, Exhibit G-4.3.b). Alternative plans shall not be limited to those the Corps can implement directly under current authority. Plans that could be implemented under the authority of other Federal, state, and local agencies and non-governmental interests should also be considered [ER 1105-2-100, paragraph 2-3.c(1)].

**District Response:**

Concur. Once the formulation, evaluation and comparison of plans have been completed for the entire project area, viable alternative plans that may be not be implemented under existing Corps authority will be noted as they are discovered.

**FSM Discussion:**

District response is accepted.

**Action Required:**

Implement District response.

**HQUSACE Comment:**

17. Scope of Preliminary Plan Formulation, Page 68. Section 5.1 does a good job of describing the potential types of measures, and then the report jumps directly into more specific types in the next section. A summary table of management measures should be added at the end of the section for further clarity

**District Response:**

Concur. Information discussed in Appendices A, B & C can be brought forward and summarized in the main report. Perhaps this summary discussion and tabulation of all flood risk management measures could be placed at the end of Section 5.7, following the discussion of all types extending from 5.2 through 5.7 (non-structural, bridge removal, channel improvements, levees, channel and levee combinations and off-channel storage).

**FSM Discussion:**

This gets into telling the story in reports. Explain how the measures were combined, and how they were screened out so the reader knows what aspects were considered.

**Action Required:**

Implement District response and Discussion.

**HQUSACE Comment:**

18. Structural Versus Non-Structural Alternatives, Page 69.

a. In Section 5.2, the report states that "because non-structural alternatives would not meet some of the City's goals, such as reducing the regulatory floodplain and floodway areas, only structural alternatives were evaluated in detail in the initial analysis. Detailed non-structural alternative(s) will be developed later in the Feasibility Study for areas beyond the high damage reach." What does this statement mean? Are all non-structural alternatives going to be dropped in the highest flood-prone areas? This is not sufficient reason to eliminate non-structural alternatives, which per ER 1105-2-100 paragraph 3-3.a(2) must be considered for flood risk management projects and in the determination of the National Economic Development (NED) plan. The NED plan may indeed not meet some of the City's goals; and if so a Locally Preferred Plan (LPP) may need to be developed.

**District Response:**

Non-Structural alternatives have not been ruled out in the high damage reach or elsewhere in the total 17-mile study reach of the Cache la Poudre. In Phase I of the Feasibility Study, basically one alternative (with some sub-alternatives) was evaluated to see if a positive B/C would be likely. The selected alternative was a levee plan, which by no means was the "best" alternative according to all the planning criteria, but seemed likely to provide the largest total flood risk reduction benefit. Moving forward into full project-area plan formulation and evaluation, the additional structural, non-structural and combined alternatives that may be evaluated will not be constrained as the Phase I alternatives were.

**FSM Discussion:**

HQ indicated that this is where talking about "Phase I" is confusing. Phase I does not equal the FSM phase, and it did not comply with normal planning procedures and policy. The District response helps explain the confusion, recognizing that the initial analyses did not include non-structural, but it will be considered in the future. The District needs to more thoroughly explain the formulation process in the report. It needs to be understood that from this point on that the normal planning process will be followed. The District agreed that "Phase I" will not be discussed in future report versions.

**Action Required:**

Implement District response and Discussion.

**HQUSACE Comment:**

b. Section 5.2 also states that structural flood damage reduction alternatives 1, 1A, and 5 all include levees. However, in Table 10 on page 73, it appears that all the alternatives include levees. Are the other alternatives non-structural, or is this an error?

**District Response:**

For Phase I Plan Formulation, all of the alternatives were structural. Those expressed in Table 10 were all levee alternatives. The off-channel gravel pit storage alternatives were noted in Tables 12 and 13.

**FSM Discussion:**

This is confusing. What was the purpose of the Phase I formulation? PM responded that it was to ID that there was at least one project in the high damage reach that was likely to have a BCR  $\geq 1$ . Also, deliverables were produced to meet CWCB requirements. The Sponsor reported that one third of the work effort could give a good demonstration that the other two thirds of the work effort would be more viable. It was acknowledged that this disrupted the Corps normal study process, and, in hindsight, the City wouldn't have made these requirements. HQ felt it was good that the City realizes this. Use of existing info and using shortcuts was reasonable for the City at that time, but everyone understands now what is required for normal Corps process, including updating data and model certification. The District responded that smaller communities have tighter budgets and splitting the work into phases allows the City to ID a potential project. All agree that complete formulation is needed for the report. HQ wanted to know why the study was not limited to the 7 mile high-damage reach. The District responded that the community was interested in having an ecosystem restoration component for the study, and recognized the value in dealing with the entire 17 mile reach as a system.

**Action Required:**

Normal plan formulation procedures and policies will be followed. Confusion with Phase I will be removed from AFB report.

**HQUSACE Comment:**

c. The last paragraph in Section 5.2 states that, "The rules of the NFIP...". What are the base flood elevations for the area?

**District Response:**

The base flood elevations for the Greeley area range from 4639 to 4652 NGVD29. The rules of the NFIP allow induced stages of less than 1 foot for the base flood as the result of development in the 1% annual probability floodplain outside of the regulatory floodway. Development located within the regulatory floodway must be shown by engineering analysis to not cause any increase in the base flood profile. FEMA may allow development in the floodway that increases the base flood profile if certain restrictive conditions given in Title 44 of the Code of Federal Regulations, Section 65.12, are met. One of the major conditions is that there can be no insurable (by the NFIP) buildings impacted by the increased base flood profile. Buildings are considered impacted by the base flood if the base flood elevation is at or above the lowest finished floor elevation (including basement). Impacts to insurable buildings can be mitigated if the buildings are removed from the floodplain or if the lowest floors of residential buildings are raised above the base flood elevation. For Colorado, that would be 1 foot above the BFE.

**FSM Discussion:**

Base flood elevations are important, especially with future development. District responded that base flood elevation just provides topographic elevation – it doesn't provide much meaning – but BFEs and flood depths can be provided. Clarify report.

**Action Required:**

Implement District response and Discussion.

**HQUSACE Comment:**

19. Levees, Page 71. In Section 5.5, the report states that seven alternatives were formulated, but only three were selected for more detailed evaluation, because the other four were not evaluated and were eliminated because they were not “best buy” plans. How could these four alternatives have been eliminated if they were not evaluated? Secondly, the “best buy” terminology is usually used to designate plans that are cost effective and efficient in the production of increments of ecosystem outputs for ecosystem restoration projects (see ER 1105-2-100, E-36). Using the “best buy” terminology for flood risk management alternatives is potentially confusing. Headquarters suggests using the term “non-cost effective” to designate the FRM alternatives eliminated that cost more than other alternatives but delivered fewer flood damage reduction benefits. Headquarters also suggests displaying the results of the screening analysis for these formulated alternatives to demonstrate their lack of cost effectiveness (this also helps explain the range of alternative plans considered). What do Alternatives 2-4 consist of? Finally, in the description of evaluations conducted on the three levee alternatives, please explain what is meant by “parts of the levee system located in the regulatory floodway” (page 72). What is the regulatory floodway?

**District Response:**

- a. Four Plans Eliminated - The four plans that were eliminated were actually earlier versions of the three plans selected for further quantitative analysis. The three plans selected had similar or greater flood risk reduction outputs than the four plans that were eliminated, but with less material quantities and real estate required. The economic damage sub-reaches were used as part of this screening process, and multiple alternatives were initially considered before the optimum placement of levees was determined.
- b. Terminology - “Non-cost effective” will be substituted for “best buy” on flood risk management alternatives.
- c. Data on Alternatives 2 through 4 – Data could be displayed for these alternatives, however, by the AFB; these alternatives will have little value to the formulation of the selected plan, as they were conceived on a limited reach using existing conditions.
- d. Levees in the floodway – The regulatory floodway is the channel of the river and the adjacent lowland areas that must be reserved by locally adopted ordinances, in order to discharge the base (flood with 0.01% chance of occurring in a given year) without cumulatively increasing the water surface elevation of the river by a designated height. Due to previous encroachments into the floodway of the Cache la Poudre, there is a considerable amount of high-value property that can only be protected in place by building a levee or floodwall that encroaches on this zone. Flood stage increases induced by a levee on one river bank, must then be compensated for by protection on the opposite bank. Additional efforts to formulate alternatives that minimize or eliminate floodway encroachment will be sought in the remainder of plan

formulation prior to the AFB. Relocation may offer competitive alternatives to structural solutions, and will be investigated more thoroughly as the Feasibility Study continues.

**FSM Discussion:**

District response is accepted, but District should provide data that led to screening and how the plans were screened. Additionally, the information in the District's response should be included in the report as part of telling the story. The regulatory floodplain should be explained.

**Action Required:**

Implement District response and Discussion.

**HQUSACE Comment:**

20. Levee Alternative 1, Page 72. The first sentence in Section 5.5.1 should be changed from, "...based on existing conditions" to "...based on without project conditions".

**District Response:**

Do not concur "Existing conditions" is more exact than replacing it with the term "based on without project conditions" in this particular context, as without project conditions can refer to current or future without project conditions. The "Decision Point 1" alternatives were formulated based upon current conditions, and did not take into account the future without project conditions. The levee alternatives 1, 1a and 5 would have been formulated differently, had future-without project conditions been used.

**FSM Discussion:**

In the next rendition of the report, this comment will become a moot issue because in the feasibility report the future without project condition (not existing condition or Decision Point 1) will be the term used.

**Action Required:**

The AFB report will utilize FWOP condition.

**HQUSACE Comment:**

21. Tables 14 and 15, Pages 80-81. These tables are very good cost tables. However, the price level should be added to the tables and costs should be based on current prices.

**District Response:**

As the feasibility process continues, and revised alternatives are evaluated and compared, the current price level at the time will be incorporated and MCASES costs will be updated to reflect current prices.

**FSM Discussion:**

District response accepted.

**Action Required:**

Implement District response.

**HQUSACE Comment:**

22. Economic Benefits of Alternatives, Page 83. The paragraph in Section 5.9.3 discusses the existing condition inventory. All references should be changed to without project condition.

**District Response:**

Concur. Could modify “existing condition economic structure inventory data” to read without project condition economic structure inventory data” without loss of clarity.

**FSM Discussion:**

District response accepted.

**Action Required:**

Implement District response.

**HQUSACE Comment:**

23. Comparison of Benefits and Costs, Page 86. In Section 5.9.6, the report states that all three plans evaluated have limited economic feasibility, which apparently implies *some* economic feasibility. However, Table 18 shows Alternative 5 both with and without bridge replacement as having fairly high negative net benefits (compared to the other alternatives). Headquarters suggests including information in the documentation as to why this alternative should be carried forward.

**District Response:**

There were two reasons that Alternative 5 was carried forward. One was that this plan was favored by the local sponsor at the time formulation as the plan that would protect the most people. Secondly, since future-without project conditions had not yet been evaluated, it was felt that there was a chance that it potentially still could have positive net benefits. By the time of the AFB, if an alternative similar to Alternative 5 is in play, we will supply benefit and cost data to support the alternative.

**FSM Discussion:**

District response accepted. Formulation will be re-written and the District will provide data to support formulation.

**Action Required:**

Implement District response and Discussion.

**HQUSACE Comment:**

24. Table 19, Note 6, Page 88. The intent of this note is unclear and therefore, should be more clearly explained.

**District Response:**

Concur. This note is unclear and will be revised.

**FSM Discussion:**

District response accepted.

**Action Required:**

Implement District response.

**ECONOMIC APPENDIX**

**HQUSACE Comment:**

1. General. ER 1105-2-100 D-3D(2) page D-5 states that, “ All NED costs shall be based on current costs adjusted by the project discount rate...” The analysis should use up-to-date costs and the FY 2010 discount rate of 4-3/8%.

**District Response:**

Concur - Regarding analysis moving forward, NED costs will be based on current costs and interest rate.

**FSM Discussion:**

District response accepted.

**Action Required:**

Implement District response.

**HQUSACE Comment:**

2. Land Use, Page 6. The land use data is based on survey data from 2002. This data is out of date and, at a minimum, field verification should be conducted to determine if the survey and all data attained from the survey is still accurate.

**District Response:**

An updated land use study including field verification for Greeley and vicinity was completed in June 2006. Very limited change is expected, but field verification will be conducted before the completion of the Feasibility Study. The study identified residential, commercial, public, and industrial land uses within the 0.002 exceedance flood plain. Sampled – 38.3% of total population from 2002 floodplain inventory. The land use survey included gathering data on structure use, type of construction, structure size, condition, ground elevation, and first-floor elevation for each structure.

**FSM Discussion:**

Response acceptable.

**Action Required:**

Implement District response.

**HQUSACE Comment:**

3. Second Paragraph, Page 8. This paragraph discussed depreciated replacement cost. The data presented is out of date and should be in current price levels. Also, this section should be expanded upon to show, in more detail, the index values used to derive the depreciated replacement costs.

**District Response:**

Concur – Again, significant time has elapsed since the analysis was completed and the FSM. PDT was directed to not conduct updates due to shortage of funds and uncertainty of study moving forward. Depreciated replacement costs will need to be updated to current price levels. This will also include further discussion of the methodology used to derive the depreciated replacement costs.

**FSM Discussion:**

District response is accepted.

**Action Required:**

Implement District response.

**HQUSACE Comment:**

4. First Full Paragraph and Last Paragraph, Page 9. These paragraphs discuss the uncertainty of variables as require by EM 1110-2-1619. These sections need to be expanded to include the quantified uncertainty, and to include a discussion and quantification of first floor elevation uncertainty.

**District Response:**

Quantified uncertainties of first floor, structure values, content values, and depth-damage functions are included in the plates at end of appendix, but could also disclose quantities throughout document.

**FSM Discussion:**

District response accepted.

**Action Required:**

Implement District response.

**HQUSACE Comment:**

5. Appurtenant Uses, Page 10. This section briefly describes the inclusion of this as a benefit category. The ratios of 25-percent for residential structures and 70-percent for mobile homes appears high. This section should be expanded upon to include all of the assumptions that went into this determination. For example, if sufficient lead time is available to warn people about flooding, how much automobile damage would actually be incurred under this benefit category?

**District Response:**

Percentages were based on previous district surveys as well as field sample verifications performed during the study. Will review and verify percentages before AFB as well as include all assumptions that went into this determination.

**FSM Discussion:**

District response accepted. Expand upon in report.

**Action Required:**

Implement District response and Discussion.

**HQUSACE Comment:**

6. Existing Condition Investment Values, Page 10. Reference Main Report Comments 2, 3, and 4, above.

**District Response:**

Comment 2: A damage reach delineation map is included on Plate 1 in the Economics Appendix. A reach delineation map and table will also be added to the main report.

Comment 3: A detailed socioeconomic analysis will be completed. This is to be included in the final AFB Package and will also address "other social effects".

Comment 4: Concur, the economic appendix will provide table that details the land use and investment value by reach. A reach delineation map and table will be added to the main report.

**FSM Discussion:**

District response accepted.

**Action Required:**

Implement District response.

**HQUSACE Comment:**

7. Non-Physical Costs of Flooding, Page 14. The sub-sections including Residential Clean-Up Costs, Emergency Costs, Floodplain Relocation/Reoccupation Costs, and Public Assistance Costs" provide a good overview, but need to be expanded upon. First, the values for each of these categories should be displayed in current dollars. Second, the values must be clearly shown in terms of risk and consequence (probability x consequence) and how that translates to your annual damages in Table 6.

**District Response:**

Concur – the values for non-physical costs of flooding will be displayed in current dollars and these damage-probability relationships will be further discussed in this section.

**FSM Discussion:**

District response accepted.

**Action Required:**

Implement District response.

**HQUSACE Comment:**

8. NED Effects of No Action, Page 20. The following comments pertain to this section:

a. Why are damages so much more in the without-project condition rather than the existing condition when the analysis assumes that only the hydrologic and hydraulic characteristics change between the two conditions and the structure inventory remains constant?

**District Response:**

The primary driver is the trend towards larger discharges at the more frequent floods, including the threshold damaging flood in many of the highly damaged reaches. Also making the future flooding condition worse is a progressively increasing stage for a given discharge due to an upward trend channel aggradation and vegetative encroachment, which has become more evident in the past 20 years.

**FSM Discussion:**

District response accepted.

**Action Required:**

Implement District response.

**HQUSACE Comment:**

b. Businesses - Are these damages included in the without project EAD of \$2.3M? If so, no detail is provided as to how these benefits are calculated by frequency event and attribute to average annual damages.

**District Response:**

Yes, these damages are included in the HEC-FDA analysis. Data was derived based on output from FDA. A summary table will be included that characterizes these details.

**FSM Discussion:**

District used damages to business structures and contents, not income loss. This will be documented in appendices. HQ responded that the methodology was good, but that it needs to have more detail for the reviewer.

**Action Required:**

Implement District response and Discussion .

**HQUSACE Comment:**

9. Table 7, Page 23. This table appears to be out of place. Recommend moving it out of the without-project section and into the alternative screening section.

**District Response:**

Concur - Will either move Table 7 to the alternative screening section or will take out data related to with-project alternatives from Table 7, leaving only without-project info. The objective of this table is to display changes in EAD from 2012 and 2037.

**FSM Discussion:**

District response accepted.

**Action Required:**

Implement District response.

**HQUSACE Comment:**

10. Ecosystem Restoration. There is no discussion about Cost Effectiveness and Incremental Cost Analysis (CE-ICA) methodology that will be conducted. A discussion of the methodology should be included.

**District Response:**

Concur - A discussion of the methodology will be included. This methodology for this analysis has not yet been formulated, will update as analysis gets underway.

**FSM Discussion:**

District response accepted.

**Action Required:**

Implement District response.

**HQUSACE Comment:**

11. Recreation. There is no discussion of the methodology that will be used to calculate incidental recreation benefits. A discussion of the methodology should be included.

**District Response:**

Concur - A discussion of the methodology will be included in the AFB Package. It is expected that the Unit Day Value (UDV) method will be used if the anticipated recreation use meets the UDV criteria in ER 1105-2-100. However, this can not be determined at this point in time because no specific types and amounts of recreation facilities have been identified yet by the City of Greeley or other stakeholders in connection with the alternative plans for FRM and ER considered in detail to date.

There is a separate recreation appendix, but it contains only qualitative information regarding types of recreational activities and facilities in the general project area under existing conditions, anticipated future without project conditions, and potential future with project conditions. Quantitative data regarding recreational activities and visitation within the project area under future without project conditions and recreational facility plan formulation for future with project conditions will be added when available. The economic appendix will include a short statement regarding the recreation analysis that references the recreation appendix so all socioeconomic analyses are connected.

**FSM Discussion:**

District response accepted.

**Action Required:**

Implement District response.

**OTHER COMMENTS****HQUSACE Comment:**

1. NEPA. The type of National Environmental Policy Act (NEPA) document that is to be prepared and whether it will be integrated with the feasibility report needs to be provided. The district response to an Agency Technical Review (ATR) comment indicated that an Environmental Assessment (EA) is the proposed NEPA document. This should be noted in all future versions of the report and review documentation. If it is later decided that an Environmental Impact Statement (EIS) should be prepared, a Notice of Intent (NOI) would need to be promptly published in the Federal Register.

**District Response:**

The type of NEPA document that is to be prepared will be provided once plan formulation has been completed and will be included in the report version submitted for the AFB.

**FSM Discussion:**

HQ noted that an EA is being done if it is unknown whether an EIS is required yet. That is the purpose of an EA. The district agreed and indicated that the EA will be integrated with the feasibility report. They have done a lot of coordination with agencies and the public and feel they have a good idea of concerns; there should not be significant impacts nor will the project be controversial. They do not anticipate at this time needing to do an EIS.

**Action Required:**

Per the discussion, the draft document will include an EA integrated into the feasibility report, unless it becomes apparent that an EIS is warranted.

**HQUSACE Comment:**

2. Ecological Modeling. At the FSM, the district should provide information on the tools that will be used to model FWOP and FWP ecological conditions. An impact assessment for the flood risk management project and a benefit analysis of the ecosystem restoration project will require use of habitat based evaluation methodology. Additionally, EC 1105-2-407 requires the use of certified planning models, and an update on the status of certification should be provided.

**District Response:**

The habitat evaluation procedure (HEP) and habitat suitability indices (HSI) model will be utilized to calculate habitat units (HU) and average annual habitat units (AAHU) for existing conditions and with / without project projections. The U.S. Army Corps of Engineers will coordinate with the United States Fish and Wildlife Service, Colorado Department of Wildlife and other agencies / stakeholders to determine which species

should be evaluated to improve habitat along the Cache la Poudre. A consultant has completed a preliminary habitat analysis that evaluates data to identify primary and secondary ecosystem improvement areas for wetland and riparian habitat throughout the study area. Successful restoration areas would either increase wildlife values or flood storage capacity or, ideally, both.

**FSM Discussion:**

HQ stated that the information should be included in the report. The District responded that they will coordinate with the Ecosystem Restoration Planning Center of Expertise (ECO-PCX), and are anticipating use of HSI. HQ responded that this was fine, as long as it suited the needs of the project.

**Action Required:**

Implement District response and Discussion.