

CACHE LA POUFRE AT GREELEY, CO GI STUDY  
POUDRE RIVER ADVISORY COMMITTEE MEETING SUMMARY  
U.S. Army Corps of Engineers  
1530 6 May 2008

I. OVERVIEW

The purpose of this meeting was to present the results of the Decision Point (Phase I) analysis of the feasibility of a project for flood damage reduction and ecosystem restoration along the Cache la Poudre at Greeley to the Poudre River Advisory Committee. Additionally, information on the past and present project scope, schedule and cost were presented and discussed. The information presented will be evaluated by the Committee and the city of Greeley to determine if the entire feasibility study should be completed.

II. MEETING ATTENDANCE

<u>NAME</u>	<u>ORGANIZATION</u>	<u>PHONE NO.</u>
Dave Wells	C. Greeley, CO, Public Works	970-350-9796
Ron Hogland	C. Greeley, CO, Stormwater	970-336-4031
Rick Brady	City of Greeley, CO	970-350-9755
Mark Nelson	Plan Formulation / PM	402-995-2703
Katie Reed	Ecosystem Restoration	402-995-2687
Levi Denton	Terracon, Inc.	970-484-0359
Jason Mapes	Terracon, Inc.	970-351-0460
Brandon Muller	CO Division of Wildlife	970-692-9530
Tom Weld	Island Grove Park	970-350-9522
Joe Busto	CO Water Conservation Board	303-866-4807
Myron Hora	CO Dept. of Transportation	970-350-2263
Bert Lieautaud	C. Greeley, CO, Stormwater	970-336-4121
Joel Hemesath	C. Greeley, CO, Communications	970-350-9269
Steve Bagley	C. Greeley, CO, Public Works	970-350-9792
Sarah Boyd	C. Greeley, CO, Parks	970-336-4180
Karen Scopel	C. Greeley, CO, Communications	970-350-9783
Ginny Lightsey	Poudre River Trail	970-336-4044
Don Dunkle	Weld County	970-304-6496-3749
Connie Davis	Aggregate Industry	970-336-6526
Larry Lang	Interested citizen.	303-517-1574

III. MEETING TOPICS

A. Presentation of Decision Point I Flood Damage Results. – *Mark Nelson*

The Corps recommends proceeding with the study. A “Federal Interest” in proceeding with a Flood Damage Reduction project has been found for a “High Damage Reach” of the Cache la Poudre in Greeley, extending from just downstream of 8<sup>th</sup> Avenue to just upstream of Island Grove Park. The B/C ratios were around 1.0 for 2 alternatives evaluated.

- a. Corps does not include benefits that result from economic development of areas that become protected by the project.

- b. Sponsor B/C ratio is higher, as the Federal Government picks up 65% of the Construction Cost.
- c. The reason that a higher B/C ratio was hard to attain included:
  - 1) As a result of flood plain management steps already taken by city, damages do not begin until around the 20-year event. Frequent flooding increases annual damages and the potential B/C.
  - 2) Backwater from bridge road & railroad approaches and bridge contractions prevent a channel-only project from providing 100-year flood protection. More expensive levees must be employed.
- 1. The GI authorizes the study of ecosystem restoration and flood damage reduction. Significant opportunities for ecosystem restoration exist within the 17 mile reach of the Cache la Poudre. Recreational opportunities exist which can be integrated with the overall flood protection and ecosystem project.
- 2. Maximum cost of project that could be built justified by all property within the 500-year flood plain is about \$25,000,000. Most of those damages are concentrated in the “High Damage Reach”. Within that reach, potentially feasible channel and levee projects have undergone preliminary formulation and are estimated to cost between \$6,320,000 and \$14,460,000. Ecosystem restoration and recreational component costs have not yet been evaluated.
- 3. Initial Evaluation of using Gravel Pits for storing the flood peak indicates unfavorable economics.
  - a. 100-year flood volume is too large to store.
  - b. A 50-year flood peak could be reduced to a 20-year flood in the High Damage Reach, but at a high cost.
- 4. Initial Evaluation of Flood Bypass Channel thru Highway 85 Expressway.
  - a. Indicated drops in the water surface upstream of the Expressway ranging from 0 to 1.0 foot in the reach up to the UPRR Bridge.
  - b. Reduction in the water surface from adding a channel does not extend upstream of the railroad bridge.
  - c. While not cost effective based on flood protection, a bypass channel would greatly enhance the ecosystem restoration and the recreational opportunities along the Cache la Poudre.
- B. Ecosystem Restoration and Recreation PowerPoint Presentation - Katie Reed
  - 1. Numerous ecosystem restoration opportunities upstream of Island Grove Park and downstream of Ash Avenue
  - 2. Cost-effective restoration alternatives are limited in High Damage Reach due to space availability.
  - 3. American Rivers has listed the Cache la Poudre as the 3<sup>rd</sup> most endangered river in the United States.
  - 4. For the Entire 17-Mile Reach, Restoration Opportunities Include:
    - a. Create a Continuous Riparian Corridor with Native Vegetative Buffer Zones
    - b. Conserve / Create Riverine Features such as Wet Meadows, Forested Wetlands, and Open Wetlands
    - c. Expand Riverine Wetlands for Biodiversity

- d. Pursue a Diversion Channel around the Sewage Treatment Plant for Habitat Connectivity.
  - e. Reestablish Riparian Connections to Tributaries for Wildlife Migration.
  - f. Ecosystem Recovery and Restoration has Economic Benefits. Americans spent \$45 billion observing, feeding and photographing wildlife in 2006, according to the U.S. Fish & Wildlife Service.
5. Environmental Goals Include:
    - a. Hydrologic Reconnection of River to Flood Plain.
    - b. Reintroduction of Both In-Channel and Flood Plain Large Woody Debris for Riparian Habitat.
    - c. Restoration of a Native Forested Floodplain Plant Community.
    - d. Restoration of Native Aquatic and Terrestrial Habitat.
    - e. Manage / Control Aquatic Nuisance Species and Terrestrial Exotics.
  6. Stream Restoration Features Include
    - a. Riparian Buffer Zones
    - b. Low Water Channel Meanders and Increased Sinuosity
    - c. Anchored Large Woody Debris
    - d. Pool / Riffle Complex
    - e. Expanded Wet Meadow Complexes
  7. Recreation Features
    - a. Trails on or Along Levees
    - b. Wetland Ecosystem Interpretive Features
    - c. Recreation Integration with Ecosystem Restoration of Gravel Pits
    - d. Multi-agency / multi-purpose solutions at the Highway 85 Expressway.
- C. Feasibility Evaluation Proposed for Remainder of Study - Mark Nelson
1. Complete the Corps Feasibility 6-Step Study Process.
    - a. Evaluate Economics of “Future-Without Project Conditions”
    - b. Formulate & Refine Alternative Plans.
    - c. Evaluate and Optimize Effects of Alternative Plans
    - d. Compare Alternative Plans
    - e. Select Recommended Plan
  2. Seek Cost savings from initial estimates:
    - a. Earthwork
    - b. Closure structures
    - c. Pumps
- D. Near Term Tasks – Corps and Sponsor
1. Corps Tasks
    - a. Assist CWCB with Amendment
    - b. Evaluate “Future-Without Project” Conditions
    - c. Completion of Feasibility Report Draft thru Future Without Project Conditions
    - d. Independent Technical Review
    - e. Public Involvement
    - f. Feasibility Scoping Meeting
    - g. Revise Draft Report to Include Input from all sources
  2. City of Greeley Tasks

- a. City Council Working Group Approval to Continue Study
- b. Assist Colorado Water Conservation Board (CWCB) with Amendment
- c. Public Involvement
- 3. CWCB Tasks
  - a. Develop 2 Page Amendment to Cache la Poudre Study.
  - b. Get input from Greeley and Corps
- E. Phase I Scope, Schedule and Budget – *Mark Nelson*
  - 1. Scope of Work
    - a. Scope expanded due to:
      - 1) Fact that there was no feasible “channel only” solution to 100-year flooding.
      - 2) Backwater from bridge cross sections (bridge approach embankments and relatively narrow bridges) results in a need for levees. The Highway 85 Expressway and the UPRR were the largest flood plain backwater generators in the high damage reach.
      - 3) Levee and associated real estate costs made it difficult to formulate a plan with a B/C > 1.0
      - 4) Ultimately 6 channel / levee and 2 storage alternatives as well as non-structural components were considered before 2 potential flood control project were formulated in the high damage reach.
    - b. Included much plan formulation and technical analysis that was anticipated for post Phase I.
      - 1) Hydraulic Engineering – Additional cross sections for detailed economic analysis in high damage reach & resulting additional HEC-RAS calibration.
      - 2) Economic Analysis – Detailed delineation of stage-damage curves in high damage reach. Additional B/C computations
      - 3) Geotechnical Engineering – Extensive preliminary design of multiple levee alternatives & evaluation of cut, fill borrow and spoil.
      - 4) Real Estate – Moderately detailed real estate cost estimate.
    - c. Included extensive report compilation and writing. Much work towards the Feasibility Report has been done as a result of preparing the CWCB Deliverables 2 – 4, which were not in the original scope of work.
  - 2. Schedule
    - a. Project is behind the schedule in the Project Management Plan. This is due to:
      - 1) Increased scope.
      - 2) Reduced funding in FY 2006.
      - 3) Removal of project team members to military and other construction projects in FY 2007.
    - b. Phase I completed.
  - 3. Budget
    - a. Total spent on Study thru early April 08 = \$769,800
      - 1) Federal cash = \$582.3
      - 2) Sponsor cash = \$145.4
      - 3) Sponsor In-Kind Services = \$42,100

b. PMP Cost Estimate was \$484,127

F. Scope, Schedule and Budget Going Forward – *Mark Nelson*

1. Remaining Feasibility Study Scope

a. Formulate Alternative Plans

- 1) Complete Future Without Project Evaluation
- 2) Update Feasibility Report
- 3) Public Involvement
- 4) Independent Technical Review
- 5) Feasibility Scoping Meeting

b. Evaluate & Compare Alternative Plans

- 1) Optimization between Ecosystem and Flood Protection.
- 2) Optimization of levee and channel in high damage reach.
- 3) Flood Protection for other parts of Greeley
- 4) Ecosystem Restoration of 17 mile reach and tributary confluence
- 5) Recreational opportunities as part of a State and Local Comprehensive plan.
- 6) Evaluate Multi-purpose solution near Highway 85.
- 7) Further study of Gravel Pit reach, upstream of Island Grove Park.

c. Select Recommended Plan

- 1) Alternative Formulation Briefing
- 2) Congressional Support for Design and Construction.

2. Current Projected Schedules

- |                                    |               |
|------------------------------------|---------------|
| a. Decision Point I Completed      | May 2008      |
| b. Feasibility Scoping Meeting     | March 2009    |
| c. Draft Feasibility Report and EA | February 2010 |
| d. Final Feasibility Report        | April 2010    |

3. Projected Budget – Cost growth on 4% inflation alone would be an increase from \$1,560,608 in 2005 to \$1,825,691 total by 2009.

G. Discussion Points During and Following Presentation - *All*

1. The Colorado Department of Transportation is in a time of budget restrictions and would not likely have money to offer any time soon. The Highway 85 Expressway Bridge is not up for immediate replacement, though it is relatively old. CDOT Planning will continue to participate in order to be aware of any participation that may be possible in the future. – *Myron Hora, CDOT.*
2. Public Involvement should continue fairly soon, before moving beyond the initial plan formulation for the High Damage Reach. – *Mark Nelson, Corps.*