



**THE FOUNTAIN CREEK WATERSHED
TECHNICAL ADVISORY COMMITTEE**

Meeting Memory

May 16, 2008

PPACG Lower Level Conference Room

INTRODUCTIONS & WELCOME VISITORS

Meeting Participants

Bill Alspach
Carol Baker
Dan Bare
Perry Cabot
Barbara Dallemand
Dennis Darrow
Duane Greenwood
Kim Headley
Kevin Houck
Brandon James
Brittany Jorgenson
David Longrie
Dennis Maroney
Rex Miller
Bob Miner
Rich Muzzy
Annie Oatman-Gardner
Gary Rapp
Ken Sampley
Jack Speer

Representing

City of Woodland Park
Colorado Springs Utilities
City of Colorado Springs
Colorado State University
El Paso County DOT
Pueblo Chieftain
City of Fountain
Pueblo County
Colorado Water Conservation Board
Office of US Senator Ken Salazar
Genesis Fluid Solutions
Colorado Springs Utilities
City of Pueblo
Central Colorado Soil Conservation District
Town of Palmer Lake
Pikes Peak Area Council of Governments
Office of US Senator Ken Salazar
Recycling Coalition of Colorado Springs
City of Colorado Springs
Genesis Fluid Solutions

REVIEW OF FEBRUARY 20, 2008 MEETING MEMORY

The Meeting Memory was accepted as written.

**ARMY CORPS OF ENGINEERS WATERSHED STUDY RESULTS OF
PROJECT EVALUATION**

Charles Wilson, Gary Rutherford, and Ryan Reynolds, Army Corps of Engineers Albuquerque District, participated in the meeting via conference call. Gary stated that he would be reviewing the preliminary results for the flood control and channel stability projects as well as some of the eco-system restoration project. At this point projects have mainly been

reviewed to see if they meet Corps criteria for funding. However, other agencies will be considered as they apply to each of the 14 projects.

The first flood control project reviewed was the Pueblo levee. Currently the watershed study indicates that the levee is providing a 100-year level of protection. However, sedimentation and vegetation is greatly affecting channel capacity. The study looked at what is happening to channel capacity, how quickly it is happening, and what sort of projects might negate the impacts. The preliminary results are based on nine cross sections over a 20-year period. The estimate is that approximately 500,000 cubic yards of sedimentation has been added over the 20-year period. Unless there is a yearly clean up, it will obviously affect channel capacity. The cost of clean up to maintain existing channel capacity, including excavation costs, is estimated to be approximately \$235,000 a year. A potential Corps authority for funding would be section 216. A section 216 is for modification of completed projects where the initial design did not account for certain conditions, in this case, a natural river process. It is cost shared similar to a GI study. The first \$100,000 is federal and then a 905b in done and the cost share becomes 50/50 for feasibility and the project itself will be a 65/35 cost share. The outputs are a detailed sediment study including removal costs and alternatives. Potential cost shared projects could be channel modification and levee height adjustments.

Dennis Maroney inquired if the cost of \$235,000 a year to maintain existing channel capacity included any vegetation components since vegetation affects sediment deposition. Gary Rutherford replied that it did not and the reason was any removal of vegetation is considered a local sponsor activity. However, you cannot remove sediment without also removing vegetation.

Jack Speer inquired how the sediment would be removed. Ryan Reynolds replied that the Corps has only quantified the amount of sediment. There have been no proposals for fixes at this time. The estimated cost only includes the cost to excavate the sediment using heavy equipment. Dennis Maroney added that the equipment needs to work in unstable soil conditions and tract equipment is the only thing that can be used in the channel.

Carol Baker asked if the option of reshaping the channel to carry the sediment instead of it dropping out was being considered. This would mean less channel maintenance over the next 20 years. Ryan Reynolds replied that the option had not been reviewed as of yet but it is something that will be considered. Carol added another option would be dropping the level where it hits the Arkansas River so it does not build up. Gary Rutherford stated that the goal of this study is to spin projects off to other Corps authorities. The removal process would be defined by the 216 authority.

Ken Sampley asked if there is a Corp authority that assists with annual maintenance funding. Gary Rutherford said there are no authorities that would assist with operation and maintenance. Ken asked how the current level of request compares to funds available for

section 216 projects. Charles Wilson stated that section 216 acts like a congressional pad and it does not have an annual allotment. It is not like section 14 but more like the watershed study itself in the way that it would be funded.

Duane Greenwood inquired if there would be funding available for design and installation of structures or equipment that remove sediment on an ongoing basis instead of allowing it to build up or trying to flush it down. Ryan Reynolds replied that he believes it would be an option that will be looked at under section 216.

Dennis Maroney asked if the Corps has a copy of the recent FEMA/Anderson Consulting study that reflects freeboard deficiencies on the existing levee system. Ryan Reynolds replied that he has the model and preliminary results but not the report. This report is not yet finalized. Dennis stated that he feels this study shows a time constraint for action to be taken at Fountain Creek. If issues with freeboard deficiencies are addressed, issues with channel capacity must be addressed concurrently if the levee system is to be certified.

The next project reviewed was the Highway 24 corridor. In this project, sections of Highway 24 as well as property located in the 100-year floodplain were reviewed. An on going CDOT/CH2M Hill study looks at cost estimating and the Corps has been working with them and using their data for this project. Currently, 187 properties have been identified as being in the 100-year floodplain. The Corps is not involved with the Highway 24 elevation aspect of the study however; CH2M Hill has identified approximately \$65 million in additional costs to remove properties from the flood plain.

This project was viewed with flood control and ecosystem restoration benefits in mind. Ecosystem restoration status in this area was lost due to lack of connectivity and sensitive species as well as the challenging issue of trying to restore an urban area back to a historic condition. In terms of flood control, this area was broken into six different reaches where potential benefits for each reach were considered. The reaches are defined from bridge to bridge. A maximum Corp supported cost was calculated for each reach. All but two of the reaches were not likely to meet the Corps benefit/cost criteria. The two reaches that could meet criteria are from Ridge to 31st and I-25 to 8th Street. The reach from I-25 to 8th Street has benefits that would support a cost of approximately \$5 million. The reach from Ridge to 31st has benefits that would support a cost of approximately \$7 million. The costs have not been identified by reach but CH2M Hill has calculated an estimate by doing a simplistic division of costs by linear feet. The costs for I-25 to 8th Street are estimated at \$7 million - \$7.5 million. The costs for Ridge to 31st are estimated at \$10.5 million. Both of the reaches costs currently exceed the benefits but the method of determining the costs was very simplistic and will most likely change considerably once more review is done. The Corps recommendation is that while costs are being scoped keep in mind the benefit totals. Either of the above-mentioned reaches would be eligible for a section 205 if the costs drop down. The projects are about a 0.66 on the cost/benefit ratio.

Rich Muzzy requested an overview on what is driving the costs so high and the benefits so low. Gary replied that he would not be able to break the costs down other than to say that there is work needed on some of the bridges and erosion control mixed in with gradient changes. They will be several drop structures involved and the location of the drop structures is critical as far as the cost. If they are not in the defined reaches costs could be lower. Gary believes that the benefits are not currently low.

Ken Sampley inquired if the bridge on US-24 between I-25 to 8th Street was funded by CDOT would the cost benefits be reanalyzed since costs would be greatly lowered. Gary replied that if it were part of the same project it would still have to be included in the total project cost regardless of who funded it. However, if the entity funding reduces benefits but does not take them all away and substantially reduces the cost then the remaining cost could be compared to the remaining benefits. Ken also asked how successful benefit/cost ratios of approximately 1.1 are in terms of receiving federal funding. Gary replied that the Corps experience with the section 205 program is that as long as the benefit/cost ratio is greater than one there are no restrictions. In terms of receiving recommendation from the Corps to the President, the Corps is likely to choose the highest benefit/cost ratio projects first. The vast majority of projects are named congressionally and if it is over 1/1 then the project is considered valid. Ken inquired what the national yearly average for section 205 funding would be. Gary replied that it has gone up to \$50 million.

Bob Miner asked if contingencies were built into the cost estimates. Gary replied that they were. For the Highway 24 corridor, cost estimates were taken from CH2M Hill and they included hefty contingencies. Bob asked if contingency plans include catastrophic events. Charles replied that typically planned contingencies include items like unexpected material needs during construction but not catastrophic events.

Dennis Maroney asked if a written summary of all the projects would be provided for the committee's review before the next TAC meeting in June. Gary replied that a summary would be provided to the committee.

The next project reviewed was Cheyenne Creek. The Corps has reviewed Cheyenne Creek before and used information from FEMA regarding hydrology. It was determined that there are approximately \$25 million - \$30 million in costs, which took it out of the continuing authority range. The Corps re-reviewed the project after all the hydrology had been completed through URS using gauge data. The Corps disagreed with the FEMA study in terms of what the flood plain should like. The current analysis shows that the CFS for a 100-year event would fall around 1,500 and 2,000. As a result, the flood plain should be significantly reduced. The Corps redid the benefits and costs based on the CFS for the 100 year event and the benefits would support a project of about \$12 million but the costs were still running at about \$25 million. The Corps recommendation is that a hydrology study should be

conducted and the FEMA flood plains should be revised as opposed to a hard structure project.

The next project reviewed was Fountain/ Monument Confluence at the city limits. Gary stated that this project has three distinct areas the power plant, mixed commercial residential, and a wastewater treatment plant. The project was looked at in terms of floodwalls for protection and the Corps looked up to the 100-year event in terms of cost. In the primary area which is the mixed commercial residential property between the power plant and wastewater treatment plant. Benefits for this project could support a cost of \$4 million in construction and construction costs were estimated to be \$1.4 million. The cost to protect the power plant was \$800,000 and the cost to protect the wastewater treatment plant was \$900,000. The Corps estimated they could justify construction costs at a minimum of \$1.3 million for the wastewater treatment plant. Conditions for using section 205 funding are favorable. As for the power plant's benefits, they do not accrue until almost up to the point of the 100-year event so it is difficult for the benefits to support the cost. The Corps recommendation for all three areas is to be included in a section 205 with the expectation that the mixed commercial residential area and the wastewater treatment plant would be looked upon favorably because of their benefit/cost ratios. If the Corps can obtain damage curves for the power plant, it may improve its benefit/cost ratio.

Ken Sampley asked for a brief explanation of section 205. Gary replied that the process is similar to that of a GI except smaller in terms of the maximum amount of expenditures. It is \$100,000 in federal and the cost sharing for feasibility study is 50/50. It goes directly from the feasibility study to an implementation stage, which is 65/35 with the 65 portion being federal.

The next project reviewed was the dam on Fountain Creek. It was re-analyzed on the section that was optimized in the last report, which is near college park. The bulk of the sediment is caught at this point. A dam that assumes no levees are in place is not needed if the dam is downsized to capture sediment and a peak flow that is between the 100 and 500-year event. The benefits were updated based on the newer values, growth in the flood plain, and new procedures such as refined damage curves and risk based analysis. The Corps could support a project of \$22 million. The value could rise to \$26 million assuming that the \$200,000 of sediment removal does need to be done in between the Pueblo Levee. The costs, not including relocation costs, are \$186 million. The cost is substantially higher than what the benefit can justify. Earthwork accounts for \$52 million of the cost and the rest is outlet work and spillway. The Corps recommendation is that any dam or series of dams would have to be pursued under a multipurpose. It does not lend itself as a Corps project unless there is specific directing legislation.

Carol Baker asked if the \$22 million - \$26 million could be applied toward sedimentation basins for flood reduction off stream. Gary replied that if a sediment basin could be

accomplished within that price range that captured the same type of flow then it would possible.

Dennis Maroney asked if the levee systems in Pueblo could not be certified how would it affect the cost/ benefit ratios relevant to a dam being constructed for flood control purposes only on Fountain Creek. Gary responded that the Corps assumption is that the Pueblo levee currently protects against the 100-year event and that maintenance at a cost of \$200,000 per year is needed to keep channel capacity at the 100-year event. The cost/benefit ratio would be changed somewhat if the capacity was less than the 100-year because of the additional increment of benefits. Another added benefit is flood insurance payments.

Rich Muzzy inquired about the previous cost to benefit ratio of the dam. Gary replied that it was previously 0.12. Carol Baker asked what the capacity of the dam was in acre ft. Ryan Reynolds responded that for flood control and sediment pool the capacity would be 57,000 acre feet, of which 40,000 acre feet would be sediment storage for the 100-year.

Ken Sampley would like to see if projects could be funded by other sources besides the Corps such as FEMA and NRCS.

The committee requested that they have time to review the written summary of the Corps recommendations before the next meeting so they may better comment on them. Rich will coordinate with Charles and Gary to get the information to the TAC as well as when the next TAC meeting will be held.

FOUNTAIN CREEK WATERSHED VISION TASK FORCE UPDATE

None

OTHER TOPICS AND ANNOUNCEMENTS

None

DATE OF NEXT MEETING

Rich Muzzy will send an e-mail to announce the date of the June meeting.

ADJOURNMENT - The meeting adjourned at 11:00 a.m.