



CHATFIELD WATERSHED AUTHORITY

CHATFIELD WATERSHED SUMMIT MEETING SUMMARY

June 16, 2010

Denver Botanic Gardens, Chatfield Area

10:00 a.m. – 3:00 p.m.

Chatfield Reservoir

3:00 p.m. – 5:00 p.m.

10:00 a.m. – Welcome - Chatfield Watershed Authority Chairman, Larry Moore

Larry welcomed the attendees and thanked everyone for coming to the 2010 Chatfield Summit to discuss the water quality opportunities and challenges that face the Chatfield Watershed and how we can work together to make the reservoir and its watershed even better. Larry also provided a brief overview of the Authority and its mission.

10:15 a.m. – 10:30 a.m. – Birds Eye View of the Watershed - Julie Vlier, PE, Tetra Tech

Julie kicked off the morning with a bird's eye view of the Chatfield Watershed, its challenges, issues and opportunities. A "flyover" of the watershed gave quick highlights on the various features of the watershed coupled with current and proposed projects to promote water quality. Julie described the regulatory requirements, 2009 water quality data, and the 45-year anniversary of the June 16, 1965 flood that was the impetus for the US Army Corps of Engineers to construct Chatfield Reservoir in the first instance. Various project opportunities were also identified to spark collaborative efforts in the watershed.

10:15 a.m. to 11:45 a.m. - A panel discussion of water quality opportunities and funding

- **Joe Shoemaker, The Greenway Foundation**

Joe Shoemaker, Greenway Foundation Executive Director, spoke to the group on how the South Platte River is an urban amenity with multiple uses. Mr. Shoemaker's discussed the recreational and water quality amenities along the South Platte River and the funding and grant mechanisms used to launch projects along the Greenway corridor. Shoemaker discussed his Foundation's willingness to interact and involve the communities and stakeholders on projects in the Chatfield watershed, too. Jeff also discussed the Chatfield Reallocation project and the coalition of interests and supporters for the project that includes instream interests such as the Greenway Foundation. The Greenway Foundation is one of many interests who have joined the collaborative effort to obtain water storage in Chatfield Reservoir.

- **Tom Browning, Colorado Water Conservation Board**

Tom Browning, CWCB project manager for the Chatfield Reservoir Storage Reallocation Study, provided the group with information on the Feasibility Report and an Environmental Impact Statement (FR/EIS) being conducted by the U.S. Army Corps of Engineers (Corps) to increase the amount of water stored for recreation and water supply by reallocating the storage space in Chatfield Reservoir. Due to the fact that the Project is still in the NEPA process (pre-decisional), Tom's presentation materials were approved in advance by the Corps. Tom described why the Project is

needed, citing CWCB's Statewide Water Supply Investigation (SWSI) findings that by 2030 an additional 90,000 acre-feet of water/year will be needed to meet water demand in the front range of Colorado. Tom gave a historical perspective and timeline of the project, from the study start in 1986 when it was initially authorized by the US Congress to 2010, when the FR/EIS is due out to the public. Browning also gave an overview of the 4 proposed alternatives. The proposed action is reallocation for 20,600 AF of storage at Chatfield Reservoir. Over 30 stakeholders, including upstream water providers, downstream water providers, instream interests, and environmental groups, are seeking storage space in Chatfield Reservoir and/or participating in the development in the Reallocation Project. The Project which uses an existing reservoir and facilitates reuse will result in 8500 AF/yr of new water supplies for municipal and agricultural users and reduce the dependency on non-renewable groundwater. Water fluctuations at Chatfield are currently up to 9 feet (unless there is a flood, when the reservoir levels fluctuate more so). The proposed Project could increase the fluctuations an additional 12 feet to a total of 21 feet. The environmental issues associated with the increased inundation and fluctuation are wetlands, Preble's Meadow Jumping Mouse, and riparian and bird habitat. The fishery could be improved and potential water quality impacts are being studied. Recreational facilities are also proposed to be relocated to achieve equivalent recreational experiences. The estimated project cost is \$128 million (\$6,000/AF). The draft FR/EIS is expected for public release later in 2010, with a minimum of 45-day comment period and a 2011 record of decision. According to Tom, there are opportunities for CWCB, as the representative for the Chatfield Reallocation, to work with the Authority to investigate opportunities for water quality improvements that could occur in connection with the Reallocation Project mitigation, such as enhancements for wetlands or Preble's mitigation projects. The CWCB (Chris Sturm, program manager) also awards grant funding for watershed improvements, which the Authority would be eligible for.

- **Larry Vickerman, Denver Botanic Gardens at Chatfield**

Larry Vickerman provided a historical perspective about the Botanic Gardens, including the Hildebrand Ranch, the Green Barn Farm, and the Carol Gossard flower garden. The Botanic Gardens is a multiple use facility that integrates agriculture, horticulture and habitat preservation and conservation. Water quality and water conservation are top priorities for the gardens and are integrated in all aspects of the educational program. The gardens use conservation methods such as drip irrigation to play a key role in reducing water use and improving water quality. Sustainable land management is also practiced in every facet of the operation. Larry also discussed the water quality benefits associated with the stormwater detention facility from the adjacent development and the wetlands ecosystem along Deer Creek.

- **Derick Clemens, Natural Resources Conservation Service**

Derick Clemens informed the group on how the NRCS helps people help the land. Derick discussed NRCS practices that improve water quality, such as conservation tillage, irrigation water management, nutrient management, pesticide management, conservation buffers, rotational grazing, streambank protection, and water control structures. Derick also described the various NRCS programs with funding available, including the Conservation Reserve Program (CRP), Conservation Security Program (CSP), Emergency Watershed Protection (EWP), Environmental Quality Incentives Program (EQIP), Colorado Partnership Program (CPP), Conservation Innovation Grant (CIG), Wetlands Reserve Program (WRP), and

Wetlands Incentive Habitat Program (WHIP). In the Chatfield watershed 22 contracts and funding have been obtained through the WHIP, EQIP, and WRP. Clemens described the Chatfield watershed restoration and sediment control efforts along West Creek and Horse Creek where NRCS partnered with Douglas County to provide over \$200,000 in improvements. A recent Colorado Watershed Input Forum hosted by NRCS at the Douglas County Fairgrounds highlighted the continued priority for NRCS in water quality.

- **Don Kennedy, Denver Water**

Don Kennedy spoke about the water quality impacts of the Buffalo Creek and Hayman fires on Strontia Springs Reservoir. In the last 12 years there have been 7 fires of which four occurred in 2002. The Buffalo Creek fire (May 1996) destroyed nearly 12,000 acres in 4 ½ hours. During the 2" rain storm that occurred 60 days after the fire, Spring Creek ran 10,000 cfs vs. its normal 1.5 cfs, causing significant sediment and debris to enter Strontia Springs Reservoir. Denver Water has plans in place to remove sediment from Strontia Springs Reservoir to protect water quality and its water supply. The estimated cost of dredging project at the reservoir is over \$30 million. Sediment will be dredged from the reservoir starting fall 2010.

Sediment will be conveyed temporarily to Denver Water's historic Kassler site where it will be screened, and moved to a sediment management area for subsequent sale to aggregate companies or for re-grading and seeding on properties. Waterton Canyon will be closed to the public during the time in which the dredging operations occur; Monday, Aug. 2, 2010 until Sunday, Dec. 3, 2010 and Monday, Feb. 28, 2011 until Saturday, Dec. 31, 2011.

11:45 – 1:00 a.m. – Keynote Speaker and Lunch – Barbara Biggs, Metro Wastewater Reclamation District and Colorado Water Conservation Board

Barbara articulated her insights and perspective on water issues in Colorado. She presented the group with a big picture view of water quality and water resources realities in the Chatfield and South Platte River watersheds, including its challenges, collaboration opportunities, and sustainability vision.

1:00 p.m. – 2:45 p.m. - Interactive Breakout Groups – The following breakout groups convened to discuss working together on water quality improvements to accomplish much more in the watershed, including suggested projects and funding opportunities.

- Chatfield Reallocation - enhancing mitigation projects to improve water quality
- Recreation and water quality amenities along the Plum Creek Corridor
- Managing septic systems (ISDS) in the watershed
- Promoting grazing and animal waste management in rural areas to preserve land and water quality

A summary from each break out group is provided below:

Group 1. Chatfield Reallocation – Enhancing mitigation projects to improve water quality

Facilitator: Ronda Sandquist

- Create a sustainable return on investment

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- Conserving Water will protect water resources. The following activities can enhance natural water storage in the watershed and slow stormwater runoff, benefiting conservation and water quality:
 - Forestry Management (looking upstream)
 - ✓ Re-planting
 - ✓ Removal of dead trees and thinning
 - ✓ Green trees (protect what is already there)
 - Community Wild Fire Protection Plan
 - ✓ Identify important areas/prevent future fires
 - Stream Enhancements, ecosystems, restoration
 - ✓ West Creek
 - Conservation by users:
 - Sprinkler System Conservation (Denver Water)
 - Education on sprinklers/watering conservation practices (Pilot projects); Douglas County has pilot projection on new sprinklers
 - Brochure of water usage tips for new homeowners
 - Caldera – heating coil so hot water is instantly hot
 - Water quality issues to consider:
 - Nitrogen/phosphorus/metals – Forestry management would help this
 - When the Reallocation occurs and things get relocated, opportunities for:
 - Stream Restoration
 - ✓ In tributaries to Chatfield to mitigate for lost stream/river bank ecosystem at Chatfield
 - ✓ Wetlands mitigation also can improve water quality
 - Dog Parks
 - ✓ Keeping animals out of Reservoir
 - ✓ Controlling storm runoff
 - ✓ Requiring dogs to be leashed
 - Porous Pavement
 - ✓ Parking lots for new parks areas
 - ✓ Shoreline along Chatfield Reservoir (heavily used areas) new use? Need to conduct tests on how it withstands fluctuations of water. Could prevent shoreline erosion.
 - Promote Education on Water Quality
 - ✓ River Watch
 - ✓ Colorado Foundation for Water Education

Group 2. Recreation and Water Quality Amenities along the Plum Creek Corridor

Facilitator: David Van Dellen

- A Watershed Plan is required prior to recommending any specific projects that address water quality in the basin. The group felt strong that there needs to be a defensible study

conducted within the watershed to identify the water quality issues and sources. This should go beyond just nutrients (phosphorus specifically) and look at all the potentials.

- It was noted that one of the main reasons the Nonpoint Source Committee denied the watershed plan proposal last year was because the plan did not appear to propose a comprehensive analysis of the nine elements of a watershed plan.
- The group identified three components that should be a part of the plan;
 - ✓ Geomorphologic study of Plum Creek,
 - ✓ Habitat analysis, and
 - ✓ A sampling/ monitoring program.
- The group identified the need to get local agencies participation including Douglas County. However, funding opportunities are very limited for them unless a stormwater utility is approved. Funding sources were discussed mainly involving grant opportunities through Source Watershed Protection, NRCS, Section 319, GOCOO etc.
- Recreational opportunities including partnering with the front range regional trail initiatives and potential development of a trail system/eco-part along plum creek that could provide education and public involvement. An example of that Education would be River Watch.

Group 3. Managing Septic Systems (ISDS) in the Watershed

Facilitator: Hope Dalton

- Quantify Contributions
 - ✓ Identify failing ISDS or malfunctioning ISDS
 - ✓ Prove Phosphorus load from ISDS
 - ✓ Monitoring well near ISDS (Quantify leaking, quantity, nutrients, other)
 - ✓ Look at historical studies and those locations with monitoring wells
- Regulatory (Pending 2011 – statutory change to ISDS regulation at State – consistency in state)
 - ✓ Upgrade to Advanced Treatment
 - ✓ Riparian Protection – i.e. Alder removal dumped nutrients (holistic view)
 - ✓ EPA underground vaults i.e. metal finishing
 - ✓ Augmentation use of ISDS (i.e. Denver water)
 - ✓ More enforcement and inspection – strengthen regulations i.e. use permits next year time of sale permit TCHD
 - ✓ > 2000 gpd – state regulatory agency
 - ✓ < 2000 gpd local health
 - Create incentives for POTWs i.e. P credit to sewer ISDS. What should threshold be?
- Opportunities Exist:
 - ✓ Use S. Santa Fe (needs urbanization to pay – may increase P load compared to rural areas) study and feasibility of municipal sewer
 - ✓ Public/private partnerships
 - ✓ Plum Creek WWTP could reuse the sewage from hooking up ISDS (Sedalia)

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- ✓ Have pumpers submit records and track system maintenance
 - ✓ Pumpers do WQ testing
 - ✓ Self-certification similar to POTWs – identifies if a problem exists – could charge fee
- Funding Opportunities:
 - ✓ Impact Fee on ISDS to fund WQ Projects
 - ✓ Problem: Who pays? New vs. old
 - ✓ Fees could be put into fund to help those who can't afford repair or replacement or construction of new sewer

Group 4. Grazing and Animal Waste Management

Facilitator: Andy Hough

- Problems/Largest Impacts:
 - ✓ Sedimentation
 - ✓ Manure runoff
 - ✓ Slight-fertilizer/chemical runoff-usually only in large, intensive farming operations
- General Solution – Holistic Land Management
 - ✓ Vegetation
 - ✓ Drainage
 - ✓ Erosion
 - ✓ Wildlife habitat
 - ✓ Air quality
 - ✓ Nutrient uptake
- Best Management Practices (BMPs)
 - ✓ Filter strips
 - ✓ Livestock exclusion
 - ✓ Bioswales
 - ✓ Wetlands
 - ✓ Traditional detention
 - ✓ Drainage way improvement (wider, slower flow, vegetated, drop structures, bank stabilization, correcting sinuosity for current flow conditions)
 - ✓ Composting, manure spreading, recycling
- Implementation
 - ✓ Education – Provide brochure of BMPs and include Authority guidelines for amounts of phosphorus, ammonia and potassium generated from stables and livestock (see chart below)
 - ✓ Website and web links, small acreage webinar
 - ✓ Promotions by agencies and interest groups
 - ✓ Tours of model projects
 - ✓ Acknowledgement of BMPs in land use code

- ✓ Interpretive signage, tours, and website virtual tours
- ✓ Promotions/incentives/grants
- ✓ Projects – model projects, possibilities include:
 1. Glendale Farms Dog park
 2. Small acreage landowner

Table 1. Approximate quantity per 1000 lb animal equivalent per year and fertilizer nutrient composition of various types of animal manure at time applied to the land

| Type of livestock | Bed vs. no bedding | Manure Tons | Dry matter | Total Nitrogen | Ammonia | Phosphorus | Potassium |
|------------------------|--------------------|-------------|------------|------------------|---------|------------|-----------|
| | | | % | lb/ton of Manure | | | |
| Swine | w/bedding | 6.1 | 18 | 8 | 5 | 3.08 | 5.81 |
| | w/o bedding | 6.1 | 18 | 10 | 6 | 3.96 | 6.64 |
| Beef cattle | w/bedding | 2.6 | 50 | 21 | 8 | 3.52 | 21.58 |
| | w/o bedding | 2.5 | 52 | 21 | 7 | 1.76 | 19.09 |
| Dairy cattle | w/bedding | 9.1 | 21 | 9 | 5 | 1.76 | 8.3 |
| | w/o bedding | 10.6 | 18 | 9 | 4 | 1.76 | 8.3 |
| Sheep | w/bedding | 6.5 | 28 | 14 | 5 | 3.96 | 20.75 |
| | w/o bedding | 6.5 | 28 | 18 | 5 | 4.84 | 21.58 |
| Poultry | w/litter | 4.4 | 75 | 56 | 36 | 19.8 | 28.22 |
| | w/o litter | 7.3 | 45 | 33 | 26 | 21.1 | 28.22 |
| Poultry deep pit | (compost) | 4.3 | 76 | 68 | 44 | 28.2 | 37.35 |
| Turkey | w/litter | 7.2 | 29 | 20 | 13 | 7.04 | 10.79 |
| | w/o litter | 9.5 | 22 | 27 | 17 | 8.8 | 14.11 |
| Horses/ Mules/ Donkeys | w/o bedding | 8.2 | 21 | 12 | 2 | 2.8 | 7.5 |
| | w/bedding | 9.7 | 46 | 19 | 4 | 1.76 | 11.62 |

2:45 p.m. Next Steps – A Call to Action - Larry Moore, Chatfield Watershed Authority Chairman

On behalf of the Chatfield Watershed Authority Larry thanked everyone for participating and sharing ideas to protect water quality at the Authority’s first Water Summit, including the speakers and sponsors for helping to make this event happen. He reminded attendees that the summary of the Summit will be sent via the email and also posted to the CWA website. He then announced that the next portion of the Summit would be convened at the Reservoir itself, where the Paul Grundemann bench dedication for the water quality leader and past-Authority Chairman would occur, followed by the Chatfield fishery tour hosted by Division of Wildlife.

3:00 p.m. – 4:00 p.m. - Memorial Dedication for Paul Grundemann – A memorial bench and plaque for Paul Grundemann, Chatfield Watershed Authority Board Member and Colorado Water Quality Leader, was dedicated at the Chatfield Reservoir Marina.

4:00 p.m. – 5:00 p.m. – Interactive Boat Tour on Chatfield Reservoir – Paul Winkle, Colorado Division of Wildlife

Paul Winkle, Division of Wildlife, gave attendees a tour of the reservoir, describing the prolific walleye fishery and fisheries management at Chatfield.