

MEETING MINUTES

Lower Cottonwood Creek Outfall Systems Planning Study

Project Meeting #2

MEC Project #: 07-068
Meeting Date: March 18, 2008
Meeting Location: UDFCD

Meeting Attendees:

Ken MacKenzie	UDFCD
Monica Bortolini	SEMSWA
Ward Mahanke	Lone Tree
Ron Lambert	Mulhern MRE for Inverness WSD
Brad Robenstein	Douglas County
Gary Wilson	Centennial
Melanie Chenard	Muller Engineering Co.
Jim Wulliman	Muller Engineering Co.

The objective of this progress meeting was to review progress to date, present baseline hydrology results, discuss formulation of generally detention alternatives and initial hydrologic results, and confirm next steps. Specific discussion topics are as follows:

Baseline Hydrology

- With the exception of some quality review, Muller has completed the baseline hydrologic models. A chart was developed to show a comparison of the future development condition 2-year and 100-year results from the following models:
 - 1991 OSP published results (modeled with UDSWM and old CUHP)
 - 1991 OSP models converted to CUHP 2005 and EPA SWMM 5.0
 - Updated baseline hydrology to be included in current study
 - Assumed historic flow rates based on 2-year runoff of 0.04 cfs/acre and 100-year runoff of 1.0 cfs/acre (UDFCD maximum allowable release rates for types C&D soils)

This chart is included as Figure 1.

- Ken reiterated that existing detention ponds must be owned or maintained by a governmental entity to be included in the study. The following 14 ponds are currently modeled in the baseline hydrology:
 - Peoria Street Pond – under UDFCD maintenance
 - 3 Inverness ponds: Regional Pond at Easter, Tributary C WQ pond, and Fulton Street Pond at Fulton and Clinton – SEMSWA is obtaining easements from Inverness and will have maintenance responsibility
 - 2 Meridian ponds: Flashboard Dam south of E-470 and South Pond just south of Centennial Airport – maintenance status uncertain – Brad will investigate and report back to Muller

- 3 Rampart ponds: 2 in series south of Easter at Havana, and one north of Easter at Havana – maintenance status uncertain – Monica will investigate and report back to Muller
- 4 Centennial Airport ponds: East Dam and West Dam just north of Easter, and Ponds #1 and #2 from 1991 OSP along western property line – SEMSWA may maintain these in the future – Monica/Muller to investigate
- Skyridge Pond – Lone Tree has a maintenance easement

If any of the listed ponds are found to not meet the maintenance criteria, Muller will remove them from the baseline hydrology and instead include them in the alternatives analysis.

- 2-year and 100-year results from the baseline existing and future models were plotted on a second chart, included as Figure 2, along with the historic flow rates described above and an initial alternative model described below.

Alternatives Analysis

- Muller has identified numerous potential detention facilities and included them in an initial alternative hydrology model. The facilities considered are as follows:
 - 4 Ridgegate ponds: 3 at Lincoln on the mainstem and two tributaries, and one upstream of the existing Skyridge Pond. The upstream facility is already included in planning documents, and Ward confirmed that the three at Lincoln were good assumptions for the ponds Ridgegate would be providing.
 - Airport Tributary pond in Inverness, just south of the county line
 - Havana Tributary pond at Briarwood east of Havana ('Costilla Pond' from 1991 study)
 - Peoria Tributary pond at Arapahoe Road – a proposed development plan (Arapahoe Landing) includes improvements on both sides of the channel but could feasibly incorporate a detention facility. The development plan has been approved by the airport authority but is currently on hold.
 - Mainstem pond at Caley Ave – a school is currently under development on high ground to the southeast of the proposed detention site – Muller will review this location to verify its feasibility.

Results of the initial hydrologic model including these additional facilities as well as retrofitting of the Inverness Regional Pond and the Skyridge Pond for EURV (Excess Urban Runoff Volume) are shown on Figure 2.

- Detention alternatives will be organized as described in Item 5 of the meeting agenda. The 4 planned ponds to be included in Alternative A will be the 4 Ridgegate ponds. Ward confirmed that Lone Tree plans to adopt Douglas County standards as they are updated. Douglas County will be incorporating EURV into their standards, so it is appropriate to model these proposed ponds with EURV.
- Muller will review the routing of ponds in series to try to preclude excessive drain times in downstream ponds

- Other factors to be included in the alternatives analysis are conveyance limitations and stream improvements. The only known conveyance issue is at the Inverness Drive East Medical Building. Stream improvement alternatives will be based on a natural channel approach and will reflect varied costs based on flow rates resulting from the different detention alternatives.
- Stream improvements within the Inverness golf course would not be UDFCD maintenance-eligible, but may be included as recommendations.
- Though stream improvements and conveyance issues in the Douglas County portion of the watershed will not be considered under the scope of this study, detention and sediment control facilities in Douglas County are valid alternatives to include.

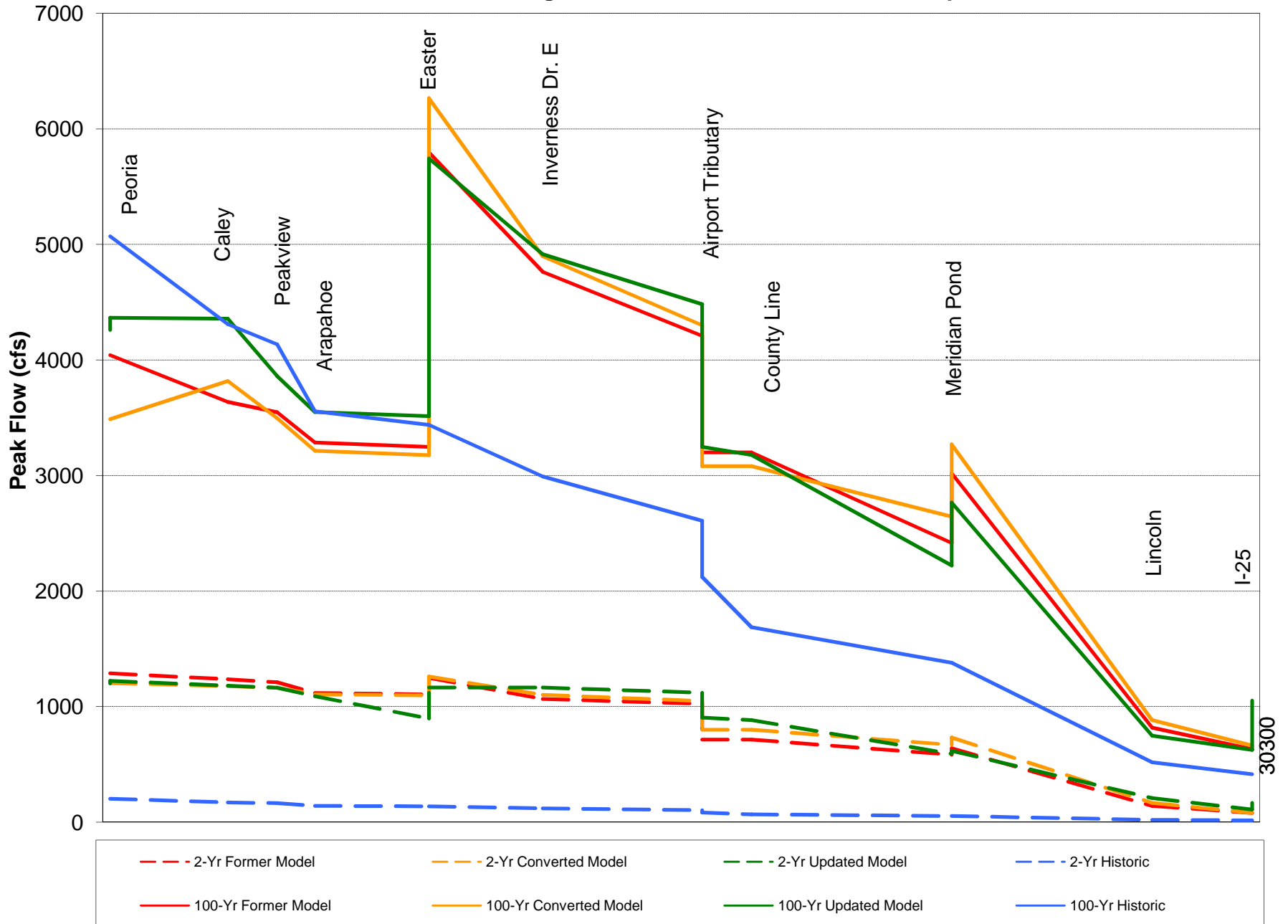
Next Steps

- Muller will proceed with finalization of the baseline hydrology and evaluation of alternatives. The next progress meeting will be a pre-draft meeting to further review the alternatives analysis before completion of the draft alternatives report.
- SEMSWA would like to hold a public meeting following completion of the draft alternatives report. This will be discussed further at the next progress meeting.
- **The next meeting will be held at 8:00 am Tuesday, April 29th at SEMSWA.**

Miscellaneous

- The project website address is <http://projects.udfcd.org/lowercottonwood/>.

**Figure 1 - Lower Cottonwood Creek
Peak Flow Diagram - Future Conditions Model Comparison**



**Figure 2 - Lower Cottonwood Creek
Peak Flow Diagram - Existing, Future, & Alternative Models**

