

WWE
MEMORANDUM

To: Big Dry Creek Major Drainageway Planning and FHAD Project Sponsors

From: Wright Water Engineers, Inc.
Wayne F. Lorenz, P.E. and Derek Rapp, P.E.

Date: March 25, 2010

Re: Big Dry Creek Major Drainageway Planning and
Flood Hazard Area Delineation (FHAD)
Progress Meeting

On Tuesday, March 23, 2010 a progress meeting was conducted at the offices of Urban Drainage and Flood Control District (UDFCD) to address the Big Dry Creek Project. In attendance at this meeting were:

Person	Representing
Kelly Hargadin, P.E.	Adams County
Brett Henry, P.E.	City of Thornton
John Burke, P.E.	City of Westminster
Shea Thomas, P.E.	UDFCD
Bill DeGroot, P.E.	UDFCD
Ken McKenzie, P.E.	UDFCD
Derek Rapp, P.E.	Wright Water Engineers, Inc. (WWE)
Wayne Lorenz, P.E.	WWE

An agenda was distributed at the meeting, as attached. The following information, as organized by the agenda, was discussed at the meeting:

INTRODUCTIONS

- Ken McKenzie asked the city sponsors in attendance how they notified their customers regarding stormwater issues.
- Brett Henry reported that the City of Thornton periodically sends out flyers and utility bill inserts to its customers.
- John Burke reported that the City of Westminster does a direct mail flyer to every business, utility bill inserts at a frequency of once per year, and conducts an annual water festival. In addition, city activities are announced/discussed on the local cable TV channel (Channel 8).

Kelly Hargadin reported that stormwater was addressed on the website, county does an annual Kids Day at the Fair, and the county occasionally partners with the Butterfly Pavilion and the Denver Zoo.

- Ken McKenzie stated that the UDFCD recently spent \$4,000 to send out postcard notification of a public hearing on a recent stormwater master plan. The public hearing was attended by four people.

BACKGROUND INFORMATION FOR FHAD

- Derek Rapp reviewed the list of previous studies (see list on agenda) that were used for this phase of the work.
- A table was distributed at the meeting that summarized the 100-year peak flow rates at locations along the Big Dry Creek main stem profile. The table entitled “Big Dry Creek Main Stem – Peak Flow Rate Comparison” is attached.
- Derek acknowledged that there may be other LOMRs that have been performed in the basin; however, these were conducted at tributary locations and not on the main stem of Big Dry Creek. John Burke verified that the 2003/2005 LOMR between Highway 36 and 112th Avenue was the latest LOMR on the main stem.

HEC-RAS MODEL

- Previous HEC-RAS models from the 1986/1988 FHADs were not available, so Derek developed a new HEC-RAS model using recent LIDAR topography and aerial imagery.
- At this meeting, Derek displayed an AutoCAD layout of the information that was used in the modeling and some of the initial, preliminary results of the modeling effort. Aerial photography from UDFCD was used and reduced in size to be useful in AutoCAD. LIDAR topography from the City of Westminster was used west of Colorado Boulevard. The 2-foot contour LIDAR topography (with 2-foot contours) to the east of Colorado Boulevard was provided by UDFCD. USGS topography (10-foot contours) was used to the north of 168th Avenue.
- The new bridge on Wadsworth Boulevard was not reflected on the topography or aerial maps since it was constructed in 2008 to 2009. Derek reported that the new bridge was surveyed and that he built the embankment for the new bridge based on visual observations. John reported that mapping from the 2003 Jefferson County LOMR would be useful. He will provide this mapping to Derek.
- WWE digitized the Big Dry Creek alignment and cross sections from the previous FHAD to determine where significant changes have occurred. Two major meanders were realigned at Westminster City Park. A meander was also realigned at the Huron Street Bridge.

- The Big Dry Creek alignment to be used in the modeling has a total length that is only 500 feet shorter than what was represented in the old FHAD.
- Using an AutoCAD presentation on the screen, Derek presented the 100-year floodplain delineation based on the WWE HEC-RAS model and compared that delineation to what was presented in the previous FHADs and LOMR. Derek stated that the delineations shown were draft and preliminary. Specific locations (from upstream to downstream) were discussed at this meeting.
- Derek stated that there were 300 cross sections and 56 bridges that were used in the modeling. There were approximately 20 pedestrian bridges that were relatively simple to implement. The geometry of the other bridges was more complex and Derek spent much more time than originally anticipated for developing the geometry in the model.
- The bike path culvert under Wadsworth Boulevard was not modeled since major flows result in tailwater conditions that obstruct the flow.
- John reported on an existing culvert crossing in the Burlington Northern embankment (based on information from FasTracks). John will provide Derek with the information on this culvert crossing; however, it was reported to be a small diameter culvert.
- At Westcliff Parkway the backwater conditions inundate the existing 100-year detention pond. Apparently, a LOMR was not done for this crossing (nor was it a part of the Kiowa LOMR).
- Derek was requested to crop out (and PDF) areas of significant differences and problem areas and send to the project sponsors for review.
- There is more work to be done in the model at the E470 crossing to handle flows down York Street.
- Specific areas that were discussed included locations at Bull Canal headgate, McKay Lake, Sack Creek wetlands, Walnut Creek, Caulkins Ditch, Big Dry Creek wastewater treatment facility, and others.
- Derek also presented the initial, preliminary delineation for the 500-year event. The delineation did not yet account for obstructions to the flow (outside of the 100-year delineation).
- One of the major issues at the meeting was how to handle the 500-year model obstructions. Three approaches were discussed: 1) model each building as an obstruction, 2) model groups of buildings as a single obstruction, or 3) artificially increase Manning's "n" to account for the obstructions. WWE is concerned with the amount of time it will take to enter each house and building in the model. Shea Thomas will contact Michael Baker about how to address this issue.

- John reported that there is a LOMR that exists for the Big Dry Creek wastewater treatment facility. John stated that in the work ICON conducted, the Big Dry Creek wastewater treatment facility is inundated.
- The new CWCB lines state that the 0.5 foot rise (versus a 1-foot rise) floodway will be controlling. Therefore, WWE asked if it was necessary to evaluate the 1-foot rise. Adams County and Thornton still use the 1-foot rise criteria and therefore both will be evaluated
- ICON has a need for the 500-year delineation and floodways to complete their work. The method of addressing obstructions needs to be answered prior to finalizing the work and providing to ICON.

PROPOSED SCHEDULE

- Derek will prepare a project schedule and distribute to UDFCD and project sponsors. The mapping for the Jefferson County DFIRM will be a priority.
- A kickoff meeting for the Alternatives Analysis will also be scheduled. It is anticipated that the kickoff meeting should be attended by the sponsors and stakeholders (engineers working on projects in the Big Dry Creek basin). A public meeting will be conducted after the recommended plan is proposed in the Alternatives Analysis.

BASELINE HYDROLOGY REPORT COMMENTS

- Overall, the draft baseline hydrology report was “really well done and well written.”
- An additional figure was requested as an overview to show tributaries. This figure would be placed at the front of the report. Rather than renumbering all of the figures in the report, it was acceptable to use the titles as Figure 1.1 and Figure 1.2.
- The need for Appendix D and the potential to use model output reports was discussed. It was determined that Appendix D would remain unchanged.
- C_p and C_t will be explained in the text for the North Area Tributaries model

ACTION ITEMS

The following action items were addressed at this meeting:

- Derek will provide a project schedule.
- Shea will contact Michael Baker to resolve the approach to be taken from modeling obstructions. John will provide information on the FasTracks culvert crossing at the Burlington Northern embankment and the LOMR information for Wadsworth Boulevard. In addition, he will provide any other LOMR mapping that may be helpful.

Project Sponsors

March 25, 2010

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These minutes are true and accurate to the best of my knowledge based on notes and recollection. Should any attending party have additions or corrections to these minutes, please forward a hard copy to Wayne F. Lorenz of WWE within one week of the date of receipt. The absence of a response will be considered concurrence and consent to the previous information and these minutes will be considered matter of fact.

cc: All Attendees

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