

Meeting Date: August 05, 2019

Time: 3:00 pm

Location: MHFD

Meeting Lead: Danny Elsner

Project: Cherry Creek Minor Tributaries in Arapahoe County FHAD

Purpose: Arapahoe Road Modeling and FHAD Submittal 1 Comments Review

Attendees: Jon Villines/MHFD, Shea Thomas/MHFD, Stacey Thompson/ SEMSWA, Allie Beikmann/Dewberry, Katie Kerstiens/Dewberry, Danny Elsner/Dewberry

Discussion Items

1. Arapahoe Road/ Valley Club Modeling
 - a. Background information (hand out)
 - i. Danny discussed the basin hydrology of Valley Club Acres (VCA) and the flooding that occurred on Helena Street in June. Danny introduced the handouts which show the magnitude of flows spilling along North Arapahoe to VCA, starting at Lewiston Way. An estimated 378 cfs spills to VCA.
 - ii. Stacey mentioned that local residents called to inform SEMSWA that flooding occurred, however, the specifics, including what houses and the source of flooding, are unknown.
 - iii. The group agreed there is a need to further assess the flood risk in this area and identify something that the state will approve for designating flood hazard areas. Best approach TBD.
 - b. Options to move forward (hand out)
 - i. Danny introduced five (5) alternatives to address mapping floods in this area at Arapahoe Road and Valley Club Acres. Discussion was summarized as follows:
 1. The first option was no FHAD for NA, conduct a storm sewer analysis and design infrastructure with sufficient 100-year capacity, and assume there are no longer basin transfers to VCA.
 - a. Shea noted that with this option it falls to MHFD to notify owners of flood risk.
 2. The second option included option one plus a storm sewer alternatives analysis for VCA.
 - a. Not ideal. Infrastructure in VCA is relatively sufficient and doesn't appear to cause the flooding and a larger pipe at Caley won't alleviate the flooding issues.
 - b. Shea asked if the basin was greater than 130 acres and Danny clarified that it is however, both basins combined are less than 200 acres.

3. The third option was a modified FHAD for NA and SA with 1D upstream modeling and 2D downstream modeling excluding VCA inflows.
 - a. This option gained traction to evaluate the spills.
 - b. Shea noted that they need to produce something that the state will approve for local governments to have legal authority to regulate these flood hazard areas. Currently, 2D models can't become approved FHADs because FEMA doesn't recognize 2D approaches yet. Ideally would be a 2D informed 1D model.
 - c. Dewberry indicated they would look into this further.
 4. The fourth option included option three plus a storm sewer analysis for VCA and 2D model inflow.
 - a. Not ideal (same reason as No. 2).
 5. The fifth option included option four plus hydrology routing (SWMM or unsteady).
 - a. Not ideal (same reason as No. 2).
 - ii. A modified option three was selected to move forward with. Shallow flooding will be looked at and if the flooding is 6 inches or more, then a flow path will be designated. Dewberry will look into a 2D informed 1D model to see if that's a possibility. Will first model from Lewiston to outfall with a 2D and send MHFD results and items for discussion before proceeding with any next steps.
 - iii. MHFD also noted that in cases like the 20 cfs basin transfer on Lewiston, both basin models should include the flow unless it is known that the infrastructure will be modified to remove the transfer.
 - iv. Shea and Stacey indicated they will look into what can be accepted by the state as, for instance, approximated flood risk assessments can't become regulatory.
 - v. It was determined that SEMSWA will try to obtain additional information to help this assessment, including:
 1. As-built or survey information for pipe sizes on the north side of Arapahoe Rd., which are currently indicated by SEMSWA GIS data to be about 42" near the Cherry Creek outfall.
 2. Additional information regarding the specific homes that were flooded.
 3. Monitoring well data during the time of the storm (Dewberry | J3 will look into data for local wells).
2. FHAD Model Resubmittal: Comments that need more clarification/explanation were addressed.
 - a. Submittal 1 comments
 - i. Kragelund

MEETING MINUTES

1. Comment 3 – Future flows are to be used for FHAD and existing will be used for a separate model submittal.
 - a. Jon will talk to Terri to confirm this approach and determine when this review of the existing conditions model will take place.
 2. Comment 31F – Use split flow to confirm shallow flow depth is 6 inches or less, start with 2D model to get a sense of what is happening and send results to MHFD.
 3. Comment 31G – Refer to Comment 31F. It was discussed to send a surveyor out to confirm berm/levee elevations.
- ii. Chenango
1. Comment 25A – Jon is good with the LOB but needs clarification on the IEFA for the ROB. Haley to follow up with Jon for discussion.
 2. Comment 26A – Danny explained that the crossing is extended since there is split flow that travels down the ditch, pools, and eventually overtops the road to make its way back to the main channel. Jon recommended modeling this split flow. Look at risk to adjacent homeowner. Alternatives could include filling in the ditch.
 3. Comment 34B – Keep culvert as is, do not want to decrease capacity.
 4. Comment 34C – Keep culvert as is, do not want to decrease capacity.
- iii. North Arapahoe
1. Comment 1A – Jon said the flows are okay.
 2. Comment 4A – Jon said the placement is okay but requested a follow up with Haley to discuss.
- iv. Joplin
1. Comment 6 – Okay, Allie explained figure to Jon who is good with the modeling approach since it doesn't impact the floodplain.
 2. Comment 7A – Jon approved the assumptions for flow through the new development at Joplin Way and Granby Way (overflow at manholes upstream of development). For purposes of documentation, we need to show the main channel following the 72" pipe with overflow along the Granby Way curb and gutter.
- b. Floodway runs: Jon mentioned this is not necessary for submittal, but can be run for more information.
- c. Resubmittal schedule: Schedule was reviewed and everyone agreed on the dates (see following page).
- d. Next steps

Action Items

1. Dewberry will look into a 2D informed 1D model to analyze shallow flooding and will send results to MHFD.
2. Shea and Stacey to look into what can be accepted by the state.
3. Stacey will try to get further information on the homes that were flooded and will back check the pipe size on the north side of Arapahoe Road.
4. Dewberry will look into monitoring well data during the time of the storm.
 - a. Update: Allie looked into this on 8/6/19 and did not see any continuously monitored well levels in the area.
5. Jon will talk to Terri regarding the following:
 - a. Confirm the use of future flows for the FHAD and exiting flows for a separate model submittal.
 - b. Confirm the shallow flow depth (6" or 12").
6. Dewberry will model the split flow and look at the risk to adjacent homeowner regarding Chenango Comment 26A.
7. Dewberry will show the main channel following the 72" pipe with overflow along the Granby Way curb and gutter in regards to Joplin Comment 7A.
8. Haley will follow up with Jon regarding:
 - a. Chenango Comment 25A – IEFA for the ROB
 - b. North Arapahoe Comment 4A – verify placement

Current Estimated Schedule

1. Model submittal for approval
 - a. Dewberry – piecemeal, all by 8/19/19
 - b. MHFD Review – 9/9/19
2. 100-year floodplain submittal
 - a. Dewberry – 10/7/19 (+1 week for CASFM)
 - b. MHFD Review – 10/28/19
3. Floodway and 500-year floodplain submittal
 - a. Dewberry – 12/2/19
 - b. MHFD Review – 1/6/20 (+2 weeks for Holidays)
4. Full Review Submittal
 - a. Dewberry – 2/10/20
 - b. MHFD Review – 3/2/20
5. Final Submittal
 - a. Dewberry – 3/30/20