Dewberry

MEETING MINUTES

DATE: August 20, 2021

TIME: 10:00 a.m.

LOCATION: Microsoft Teams

PROJECT: Englewood MDP

PURPOSE: Baseline Hydrology Report Review

ATTENDEES:

Dewberry	Mile High Flood District	City of Englewood
Danny Elsner Haley Heinemann Katie Kerstiens	Jon Villines Charlie Pajares	Tim Hoos

Discussion Items:

1) Meeting goals

    a. Discuss how to wrap up Baseline Hydrology report and BLE Pluvial Flood Hazard Memorandum

    b. Discuss next phase of Alternatives

2) Summary of Hydrology and Pluvial Flood Hazard

    a. MDP + Pluvial vs. Calibre study

        i. Level of detail – Compared to the Calibre/TCB hydrology, the MDP baseline hydrology was completed at a larger scale by using subbasin delineations of a larger average size more in line with the CUHP methodology.

        ii. Rain-on-grid vs. point flow – Calibre's 2D point flow results are similar to the rain-on-grid results in terms of flow path and approximate limits of 100-year inundation. This is indicative of the existing storm sewer system's inability to capture a volume of storm water large enough to greatly impact the ultimate 100-year flowpath, as is expected for the existing storm sewer system design capacity.

            1. Discuss: "The Calibre study identified existing piping that is sized to handle 100 year flows and could be the focus of areas of interest. It would be good to pursue this to adjust results that may show larger than expected ponding depths and account for the existing storm sewer's contribution." (Tim Hoos). Dewberry will provide some additional explanation in the memorandum regarding the 100-yr capacity pipes outlined by the Calibre report and their context within the system as a whole. There are some

segments with higher capacities; however, several of these are limited by bottlenecks downstream with much lower capacities.

3) Draft Baseline Hydrology report

    a. Comments were provided by MHFD on 8/19/2021 and the City on 8/20/2021. Dewberry will review and schedule a meeting with MHFD for further discussion.

        i. Items to be discussed further:

            1. MHFD noted that the Baseline Hydrology is currently assuming that the underground flow path and above ground flow path match, as is generally typical of an MDP. Is this a realistic assumption to be made for this situation? Special consideration may be warranted for where the main flow path is overland flow separate from the storm sewer.

            2. Are the assumed storm sewer slopes okay or should survey be considered at some locations where GIS data was particularly limited?

            3. Consider use of FLO-2D

            4. Discuss together the boundaries of other recent studies to make sure we aren't missing any large areas of land. (Harvard Gulch, Big Dry Creek, West Harvard Gulch/ Denver SDMP).

            5. Time noted that the Ulteig Acoma Street Area Drainage Study has been especially helpful for the City by looking at the upper end of the system, optimizing the existing system, and ensuring storm water makes it to the major system. Due to Englewood's unique storm water system, the team determined the Englewood MDP should achieve a higher level of detail than a typical MDP or OSP. While the funding is not available to complete a master plan at an "inlet-level" scale, it was agreed that the Englewood MDP could cover major trunklines and major laterals, along with some suggestions of future locations for detailed studies. As a result, a "traditional" hydrology is needed for conventional planning and FHAD acceptance; however, some additional hydrology will likely be needed at a finer scale to supplement Alternative Analysis for secondary trunklines and laterals. The following plan is suggested:

                a. Dewberry will make a plan for how to complete the "traditional" baseline hydrology and when/how to supplement the baseline hydrology with smaller-scale hydrology for secondary trunklines and laterals.

                b. Following acceptance of the baseline hydrology, Dewberry

will scope Alternative Analysis to include the supplemental work. The scope will also include time for additional team meetings and coordination since this is an atypical study.

6. Discuss possibility of comparing results to Ulteig's recommended improvement areas to verify consistency and adequate design coverage. Phases already under contract will be considered "completed", while others may be verified against the new baseline hydrology.

7. The Alternatives will look into the feasibility of a storm sewer level of service for the 25-year or 100-year.

4) The benefits of including a FHAD was discussed. The delay in project time is not considered an issue, as any capital improvements will first require time to collect project funding.

    a. Tim noted that the resulting flood maps of an Englewood FHAD would be especially helpful for documentation and explanation of current flood risk and why mitigation projects are warranted.

    b. Jon will discuss the concept with Brooke and Stacey to determine the current best practices for 2D-backed floodplain mapping and any other special considerations we should be aware of for an Englewood FHAD.

        i. The BLE Pluvial analysis should be helpful supplemental information to an Englewood FHAD.

5) Draft Englewood BLE Pluvial Flood Hazard Memorandum

    a. Dewberry will wrap up and submit the final memorandum. The memo figures will consist of the raw KMZ files and one static map depicting 100-year flood-prone areas in relation to existing storm sewer infrastructure. More detailed language will be added to explain why the sewer segments with 100-year capacity were not considered in the BLE models.

Action Items:

1) Dewberry – Submit final BLE Pluvial Memo

2) Dewberry – Review Baseline Hydrology comments and schedule meeting with MHFD to review changes and confirm we are on the right track for FHAD and Alternative Analysis.

3) MHFD – Jon will discuss the Englewood FHAD concept with Brooke and Stacey to determine the current best practices for 2D-backed floodplain mapping and any other special considerations we should be aware of for an Englewood FHAD.