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MEMORANDUM



Date: June 6, 2023

To: Planning Commission

Through: Cathy Valencia, PE, Capital Improvements Program Manager

Prepared By: James Beall, PE, Capital Improvement Program Engineer II

Subject: Comanche Creek Master Drainage Plan & Wolf Creek Master Drainage Plan

PURPOSE AND REQUEST

Staff is presenting the Comanche Creek Master Drainage Plan and Wolf Creek Master Drainage Plan to the Planning Commission for questions and comments. Following Planning Commission, Staff will present to the BOCC and request adoption of the two studies.

BACKGROUND AND DISCUSSION

Arapahoe County Public Works & Development (AC PWD) has facilitated master drainage studies in Unincorporated Arapahoe County over the past few years. Each study is intended to research each respective creek, their tributaries, and their overall impact on existing development, Arapahoe County owned assets, and future development.

AC PWD has started in the central portion of Arapahoe County and is progressing easterly with each study. The Kiowa Creek Master Drainage Plan (C15-006) was completed by Bohannon Huston, Inc (BHI) in 2016 to 2017. Next, the Wolf Creek Master Drainage Plan was completed by Bohannon Huston, Inc (BHI) in 2018 - 2019. BHI's contract was extended to include Comanche Creek and Little Comanche Creek Master Drainage Study between 2021 and 2023.

Both Wolf Creek and Comanche Creek run north-south through Arapahoe County and occupy watersheds in both Elbert County to the south and Adams County to the north. Wolf Creek runs about two miles east of Strasburg while Comanche Creek runs on the east side of the heart of Strasburg. Wolf Creek measures about 84 square miles of total watershed area (37 square miles within Arapahoe County) while Comanche Creek and Little Comanche Creek cover approximately 101 square miles of watershed area (of which only 32 square miles are within Arapahoe County).

Each study identified key sets of information such as:

- The overall study captured total land area of each watershed and tributary including the 100year floodplain.
- Descriptions of each land use and associated attributes.

- Flood history, flood risk (based on current installed infrastructure) and flooding impacts.
- Each tributaries channel slopes, vegetation condition, and preservation recommendations.
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- Environmental assessment information was gathered related to biological and organic(vegetative) conditions throughout the drainageway.
- Hydrologic and hydraulic analysis of existing infrastructure modelling each Reach of both Comanche Creek and Little Comanche Creek and Wolf Creek (*separate report*).
- Alternate analysis by modifying design criteria and constraints to create a well-rounded overall analysis of Comanche Creek and Little Comanche Creek.

BHI wrapped-up the study by offering recommendations based off a weighted evaluation matrix. These recommendations included conceptualized designs at each significant reference point along the respective creek.

The study team also facilitated public outreach efforts. Multiple forms included individual correspondence with property owners, mailed flyers & post cards, the use social media, and hosted an in-person, open-house style public meeting at the Arapahoe County Eastern Service Center.