

SOUTHEAST METRO STORMWATER AUTHORITY
acting by and through
SEMSWA WATER ACTIVITY ENTERPRISE

RESOLUTION 25-18
Adoption of Completed Master Plans 2025

WHEREAS, SEMSWA was formed by Intergovernmental Agreement to plan, fund, construct, acquire, operate, and maintain drainage and flood control facilities; and

WHEREAS, Master Plans are defined as Major Drainageway Plans (MDP), Outfall System Plans (OSP), or Flood Hazard Area Delineations Studies (FHAD); and

WHEREAS, SEMSWA has sponsored or co-sponsored Master Plans with Mile High Flood District (MHFD); and

WHEREAS, Master Plans are completed to evaluate a number of factors including channel condition and health, floodplain limits, imperviousness, hydrology and hydraulics, detention, and water quality; and

WHEREAS, Master Plans results are used to inform design, construction, budgeting, and project rankings as well as to define maximum impervious values and channel work required for development in alignment with stormwater and flood control future land use and criteria; and

WHEREAS, two Master Plans have been completed in the last six months including the following:

- Willow Creek Tributaries Upstream of Englewood Dam MDP was completed December 2024
- SJCD (N), SJCD (S) North Tributary & DFA 6100.5 FHAD was completed October 2024; and

WHEREAS, MHFD has approved these MDPs; and

WHEREAS, MHFD and Colorado Water Conservation Board (CWCB) have approved these FHADs.

NOW, THEREFORE, BE IT RESOLVED THAT:

1. The Board adopts the completed Master Plans named above, and as shown in attached Exhibit A and all drainage, flood control and stormwater management infrastructure and practices recommended in said Master Plans shall be used to guide future drainage and flood control planning, land development, and design and construction of all such infrastructure.

SOUTHEAST METRO STORMWATER AUTHORITY
acting by and through
SEMSWA WATER ACTIVITY ENTERPRISE

Date: March 19, 2025

ATTEST:

Secretary

Chairperson

APPROVED AS TO FORM:
Attorney for
Southeast Metro Stormwater Authority

By _____
Edward J. Krisor



Major Drainageway Plan
Willow Creek Tributaries Upstream of Englewood Dam
December 2024

Tributaries Studied	
1	Acres Green Tributary (FHAD)
2	Fox Hill Park Tributary (FHAD)
3	Homestead Tributary
4	Homestead Farms Tributary
5	Jamison Tributary
6	Kettle Tributary
7	Phillips Tributary (FHAD)
8	Spring Creek (FHAD)
9	Spring Creek East - Altair Park Tributaries
10	Spring Creek East - Edgewood Tributaries
11	Trenton Outfall Tributary
12	West Spring Creek
13	Willow Creek East (FHAD)

7000 South Yosemite Street, Suite 120
Centennial, CO 80112
303-221-0802
www.iconeng.com

ICON
ENGINEERING

In cooperation with:



WILLOW CREEK TRIBUTARIES UPSTREAM OF ENGLEWOOD DAM

MAJOR DRAINAGEWAY PLAN REPORT

2.0 STUDY AREA DESCRIPTION

2.1 PROJECT AREA

The study area originates at Englewood Dam and extends upstream along Willow Creek to approximately County Line Road. The basin, generally bounded by Holly Street to the west, Englewood Dam to the north, I-25 to the east, and Park Meadows Drive to the south, has a drainage area of approximately 4.9 square miles and includes tributaries spanning multiple jurisdictions.

The following tributaries outfall into Willow Creek within the study area: Acres Green Tributary, Fox Hill Park Tributary, Homestead Tributary, Homestead Farms Tributary, Jamison Tributary, Kettle Tributary, Phillips Tributary, Spring Creek, Trenton Outfall Tributary, West Spring Creek, and Willow Creek East Tributary. Areas directly tributary to the main stem of Willow Creek were also included in the analysis. The study area includes the communities of the City of Centennial, City of Lone Tree, and areas of unincorporated Arapahoe and Douglas County.

Drainageways within the basin resemble a variety of hydraulic infrastructure originating from development circa the 1980s. Drainageways include a myriad of sections emphasizing open space and native vegetation, manicured blue grass stream systems, boulder revetment, large concrete and grouted drop structures, deep culverts, retaining walls, landscape design features, and concrete baffled dissipation structures. Many, if not most, of the stream systems follow trail segments owned by a combination of South Suburban Parks and Recreation District (SSPRD), neighborhood HOAs, and local business districts.

Currently, the basin is nearly fully developed and includes residential neighborhoods, open space, parks, and commercial business areas. The commercial areas are predominately located along the eastern edge of the basin, with some areas located south of C-470. Elevations within the study area range between 5,572 feet at the Englewood Dam to 5,970 feet in Acres Green Tributary at Wiltshire Drive. The basin is approximately 2.5 miles long along Willow Creek and spans 3 miles at its widest.

The basin is comprised of multiple hydrologic soil types as defined by the Natural Resources Conservation Service (NRCS) (Reference 3). The study area primarily consists of hydrologic soil groups C and D type soil, which possess a lower infiltration capacity than other soil types. HSG Type A and B soils are also present within the basin. The latest soil information was retrieved from the NRCS Soil Survey Geographic (SSURGO) Database in April 2019. More information about the HSG can be found in [Section 3.3.5](#). The distribution of soil through the study area can be found on the interactive map in [Appendix B](#).

Although there are numerous detention facilities within the basin, only five met the criteria to be considered for flood reduction purposes in this study. The numerous other detention basins were further evaluated during the alternative analysis phase. The five detention facilities included in the baseline hydrology are: Panorama Pond, located along Willow Creek East Tributary upstream of South Yosemite Street, Yosemite Pond, located along Phillips Tributary east of Yosemite, Akron Pond, east of South Akron Street on Phillips Tributary, Sam's Club Detention Basin located on Acres Green Tributary just south of C-470, and the detention basin on Spring Creek just upstream of County Line Road.

A study area map, highlighting key features throughout the study area, can be found on [Figure 2-2](#). A watershed map detailing the location of each tributary included in this study can be found on [Figure 2-3](#).

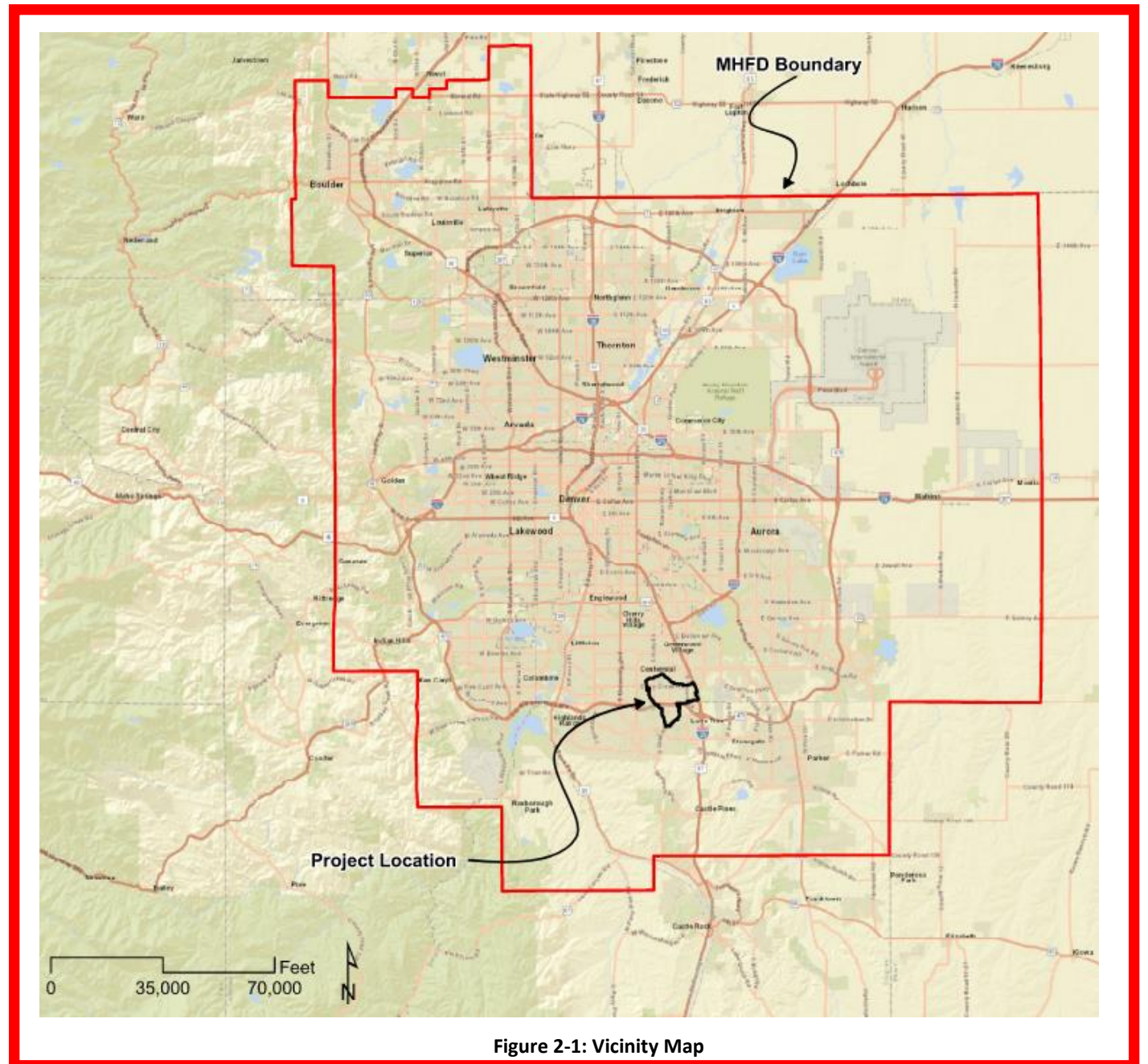


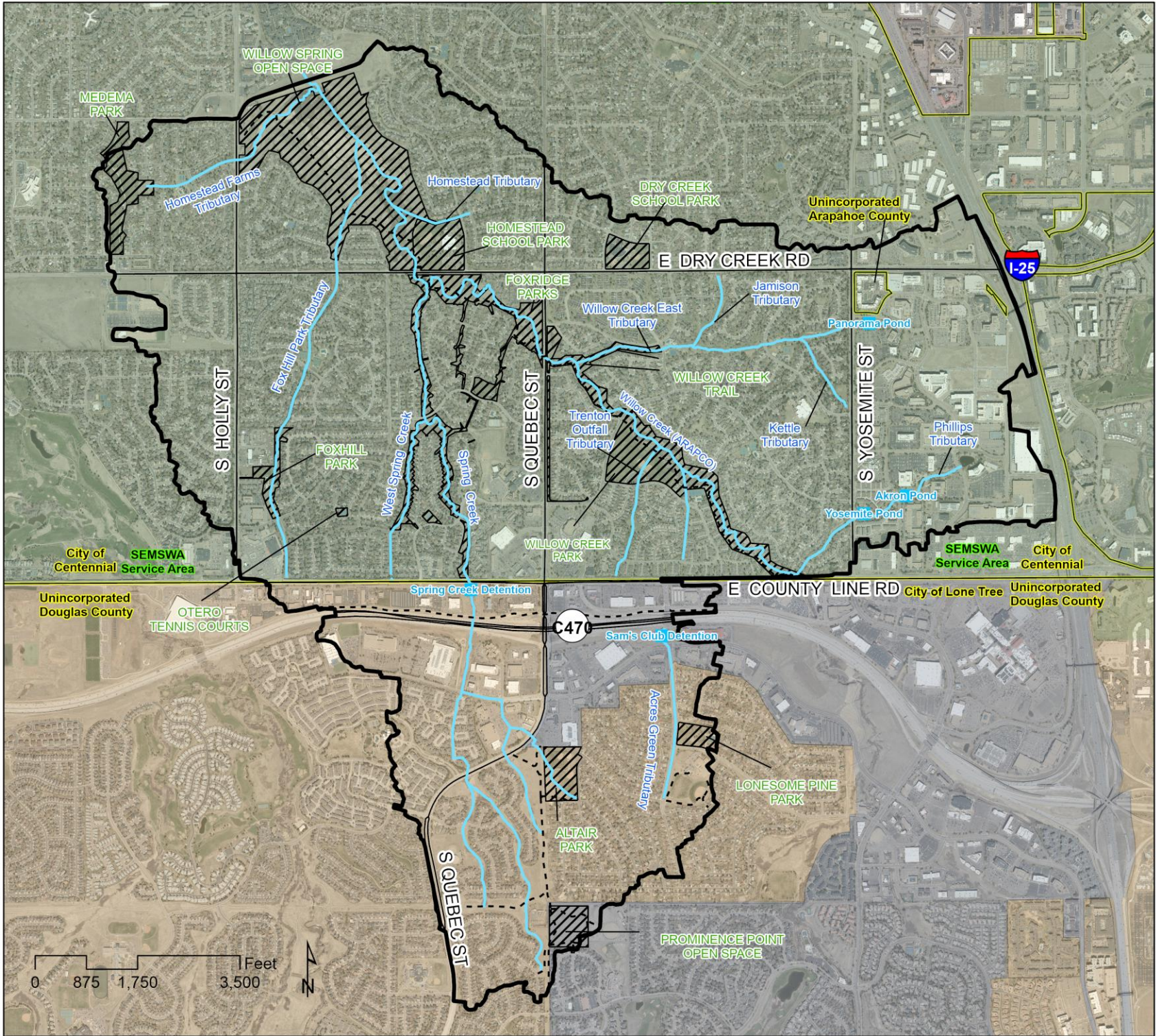
Figure 2-1: Vicinity Map

2.2 LAND USE

Future conditions land use was determined by Comprehensive Plans and zoning data obtained from each jurisdiction. Electronic data was obtained in shapefile format from City of Centennial and City of Lone Tree. Information for unincorporated areas of Arapahoe and Douglas County were digitized from land use maps. After discussion with project sponsors, land use for the C-470 corridor was set at 95 percent impervious.

WILLOW CREEK TRIBUTARIES UPSTREAM OF ENGLEWOOD DAM
MAJOR DRAINAGEWAY PLAN REPORT

Figure 2-2: Study Area Map



Willow Creek Tributaries
Upstream of Englewood Dam
Major Drainageway Plan
Figure 2-2 - Study Area Map

- Detention Basin
- Drainageway
- - - Trails
- Major Roads
- Study Area
- ▨ Parks / Open Space
- SEMSWA Service Area
- Political Boundary
- Douglas County
- City of Lone Tree



FLOOD HAZARD AREAS DELINEATION REPORT SJCD (N), SJCD (S) NORTH TRIBUTARY & DFA 6100.5



Prepared by:

Olsson
1525 Raleigh Street, Suite 400
Denver, CO 80204

olsson

Prepared for:

MHFD
MILE HIGH FLOOD DISTRICT

JEFFERSON
COUNTY COLORADO

Southeast Metro
Stormwater
Authority


ARAPAHOE COUNTY
COLORADO'S FIRST

Town of
Columbine Valley
Colorado


Littleton

October 2024

2. Study Area Description

2.1 Project Area

The study area is located mainly within the Jefferson County and MHFD boundaries as shown in Figure 1. The eastern portion of the study area crosses into SEMSWA's boundary (unincorporated Arapahoe County) and then into the Town of Columbine Valley and the City of Littleton, both of which are in Arapahoe County. The total drainage area is 2.96 square miles and consists of residential development, commercial and light industrial locations, and open space. The average weighted percent imperiousness is 37 percent, and the watershed is considered fully developed. The watershed originates just east of South Kipling Parkway and then progresses through the eastern suburban areas of Jefferson County. There have been no changes to the project area during the course of this analysis.

The soil groupings consist mostly of Type C Hydrologic Soils with scattered outcroppings of Type A near the original drainageways and a cross bed of Type B Hydrologic Soils near the middle of the study area. The lowest elevation in the project area is 5,339 feet and the highest is 5,702 feet. On average, the watersheds are sloped at 0.02 feet per foot. The minimum slope is 0.01 feet per foot and the maximum slope is 0.04 feet per foot.

2.2 Land Use

The SJCD (N) and SJCD (S) North Tributary drainage areas are dominated by single family (residential) developments. Under the National Land Cover Database (NLCD) classifications this is generally defined as Low Density Development. Because the NLCD classifications do not directly line up with the MHFD Drainage Criteria Manual recommendations for percent impervious values, a basin check was developed for single family housing on ¼ acre lots, which have a recommended value of 45 percent imperviousness. Additional details regarding land use determinations are included in Section 3.3.3 of this report. Figure B1:

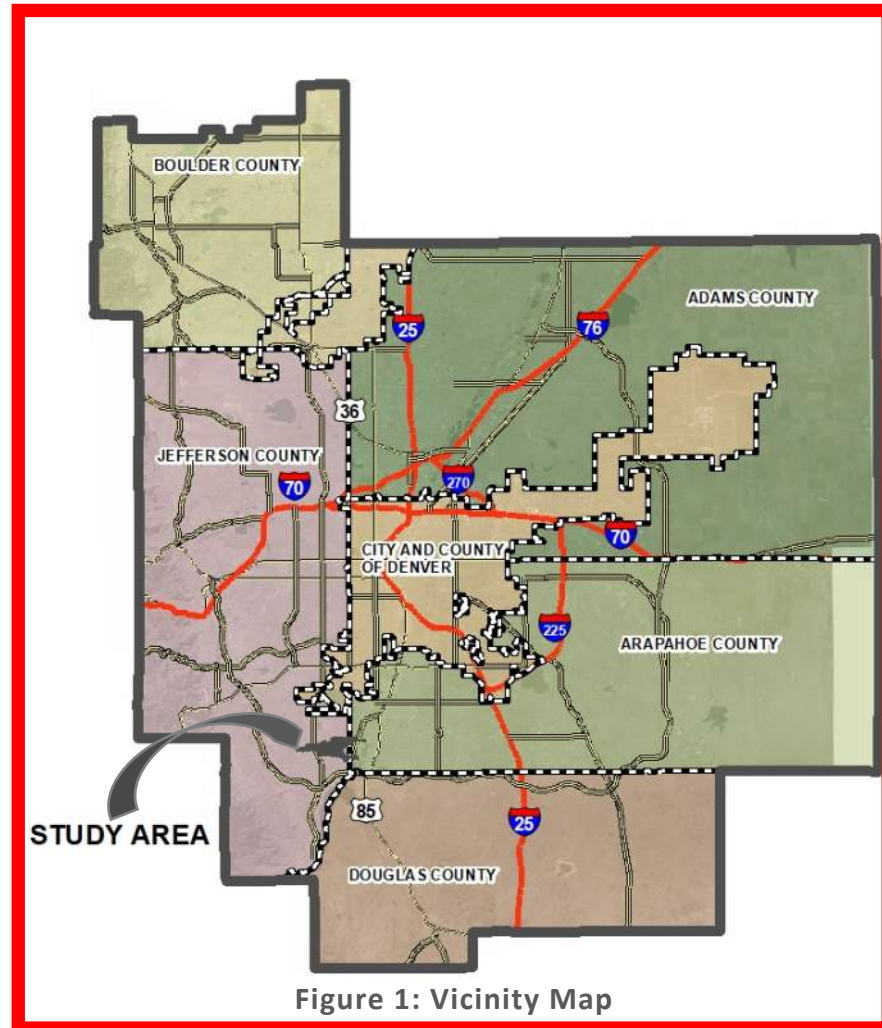


Figure 1: Vicinity Map

Hydrologic Workmap in Appendix B shows the land use classifications for the entire watershed and the percent imperviousness values for each sub-basin.

For purposes of this study, the existing and future land use conditions and percent imperviousness values are considered to be the same. The project stakeholders determined that there are no areas where significant redevelopment is expected in the watershed so evaluating different land uses and percent imperviousness values was unnecessary.

2.3 Reach Description

The SJCD (N) watershed has its origins just east of South Kipling Parkway and generally flows east through unincorporated Jefferson County and the Town of Columbine Valley until it reaches the Cooley Lake Outfall. The SJCD (S) North Tributary watershed begins east of South Wadsworth Boulevard and continues in a southeasterly direction until it reaches the outfall at the mainstem of SJCD (S) along the north end of South Platte Reservoir. SJCD (N) and SJCD (S) North Tributary drainageways are divided into separate reach descriptions, as discussed below. A discussion of Direct Flow Area 6100.5 is also included. Figure 2: Study Area Map is included to graphically show the study limits and reach breaks. This information is also represented on Figure B1: Hydrologic Workmap in Appendix B. Table 3 is a summary of the hydraulic structures located along the SJCD drainageway corridors. Structures 1-23 and 30 are located along SJCD (N), and Structures 24-29 are located along SJCD (S) North Tributary.

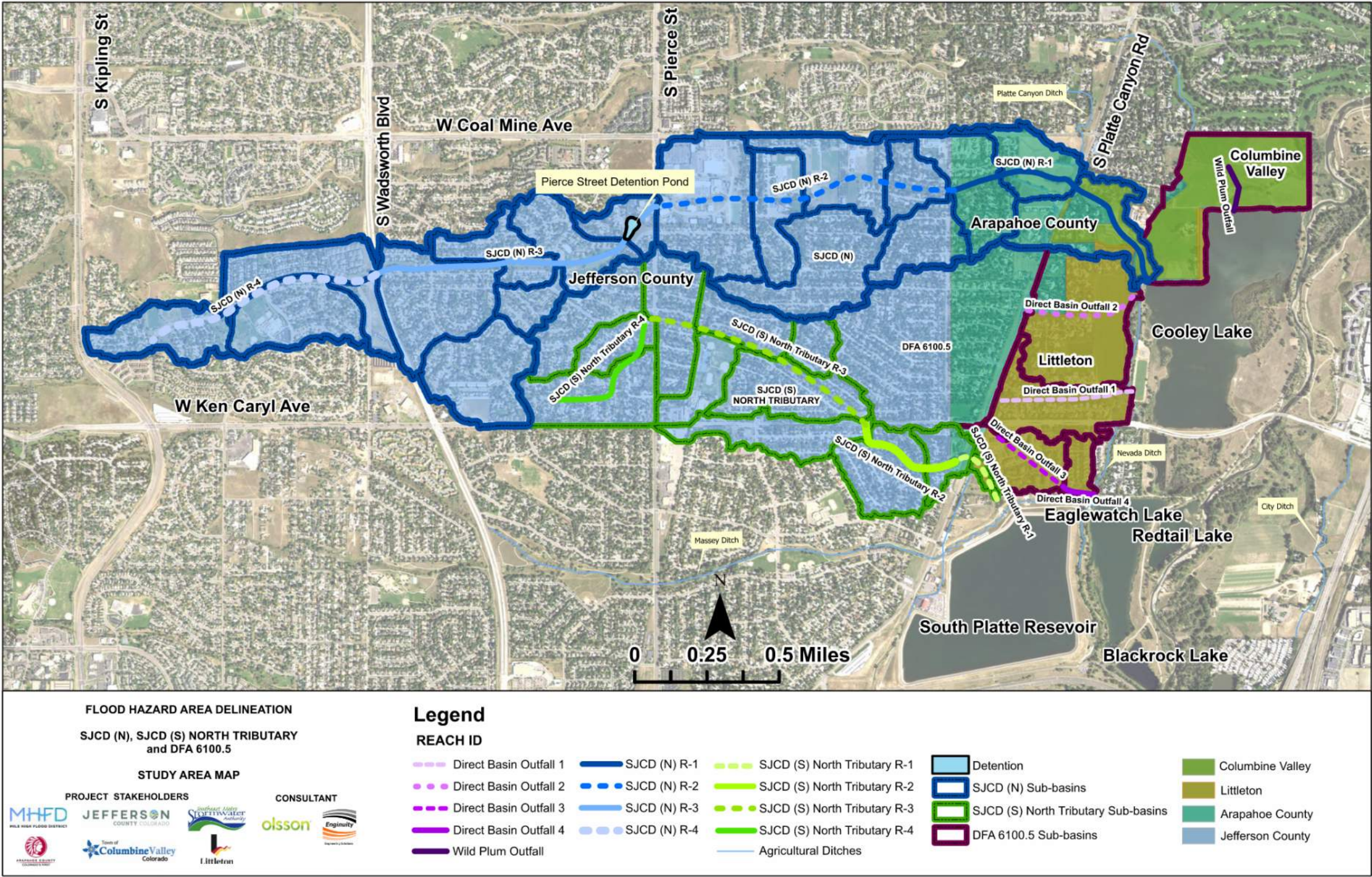


Figure 2: Study Area Map