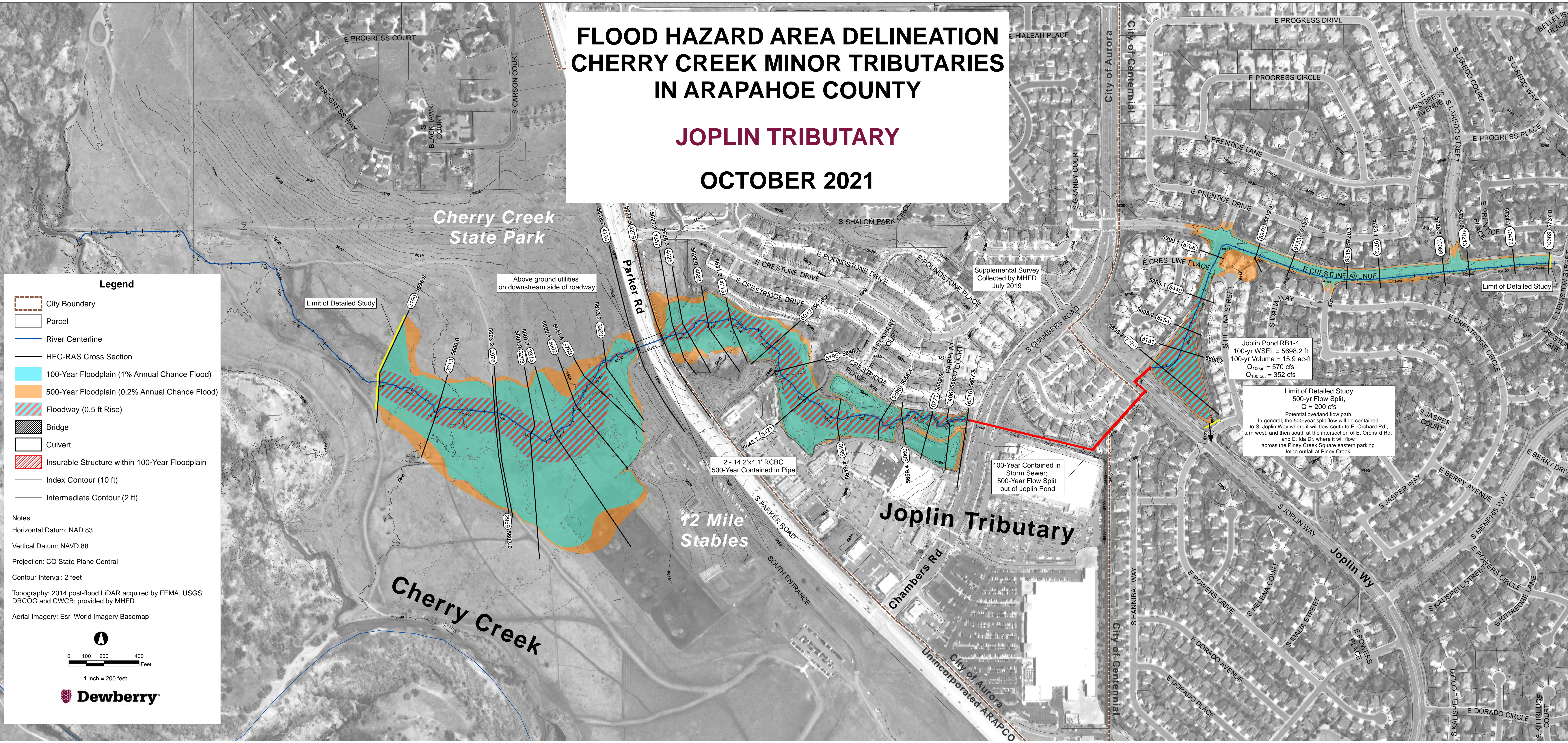


# FLOOD HAZARD AREA DELINEATION CHERRY CREEK MINOR TRIBUTARIES IN ARAPAHOE COUNTY

## JOPLIN TRIBUTARY

OCTOBER 2021



**Legend**

- City Boundary
- Parcel
- River Centerline
- HEC-RAS Cross Section
- 100-Year Floodplain (1% Annual Chance Flood)
- 500-Year Floodplain (0.2% Annual Chance Flood)
- Floodway (0.5 ft Rise)
- Bridge
- Culvert
- Insurable Structure within 100-Year Floodplain
- Index Contour (10 ft)
- Intermediate Contour (2 ft)

**Notes:**  
 Horizontal Datum: NAD 83  
 Vertical Datum: NAVD 88  
 Projection: CO State Plane Central  
 Contour Interval: 2 feet  
 Topography: 2014 post-flood LiDAR acquired by FEMA, USGS, DRCOG and CWCB; provided by MHFD  
 Aerial Imagery: Esri World Imagery Basemap

0 100 200 400 Feet  
 1 inch = 200 feet

Limit of Detailed Study

Above ground utilities on downstream side of roadway

2 - 14.2'x4.1' RCBC  
500-Year Contained in Pipe

Supplemental Survey Collected by MHFD July 2019

100-Year Contained in Storm Sewer; 500-Year Flow Split out of Joplin Pond

Joplin Pond RB1-4  
 100-yr WSEL = 5698.2 ft  
 100-yr Volume = 15.9 ac-ft  
 $Q_{100, in} = 570$  cfs  
 $Q_{100, out} = 352$  cfs

Limit of Detailed Study  
 500-yr Flow Split,  
 $Q = 200$  cfs  
 Potential overflow flow path:  
 In general, the 500-yr split flow will be contained to S. Joplin Way where it will flow south to E. Orchard Rd., turn west, and then south at the intersection of E. Orchard Rd. and E. Ida Dr. where it will flow across the Piney Creek Square eastern parking lot to outfall at Piney Creek.

Limit of Detailed Study

# FLOOD HAZARD AREA DELINEATION CHERRY CREEK MINOR TRIBUTARIES IN ARAPAHOE COUNTY

## SOUTH ARAPAHOE TRIBUTARY

OCTOBER 2021

**Legend**

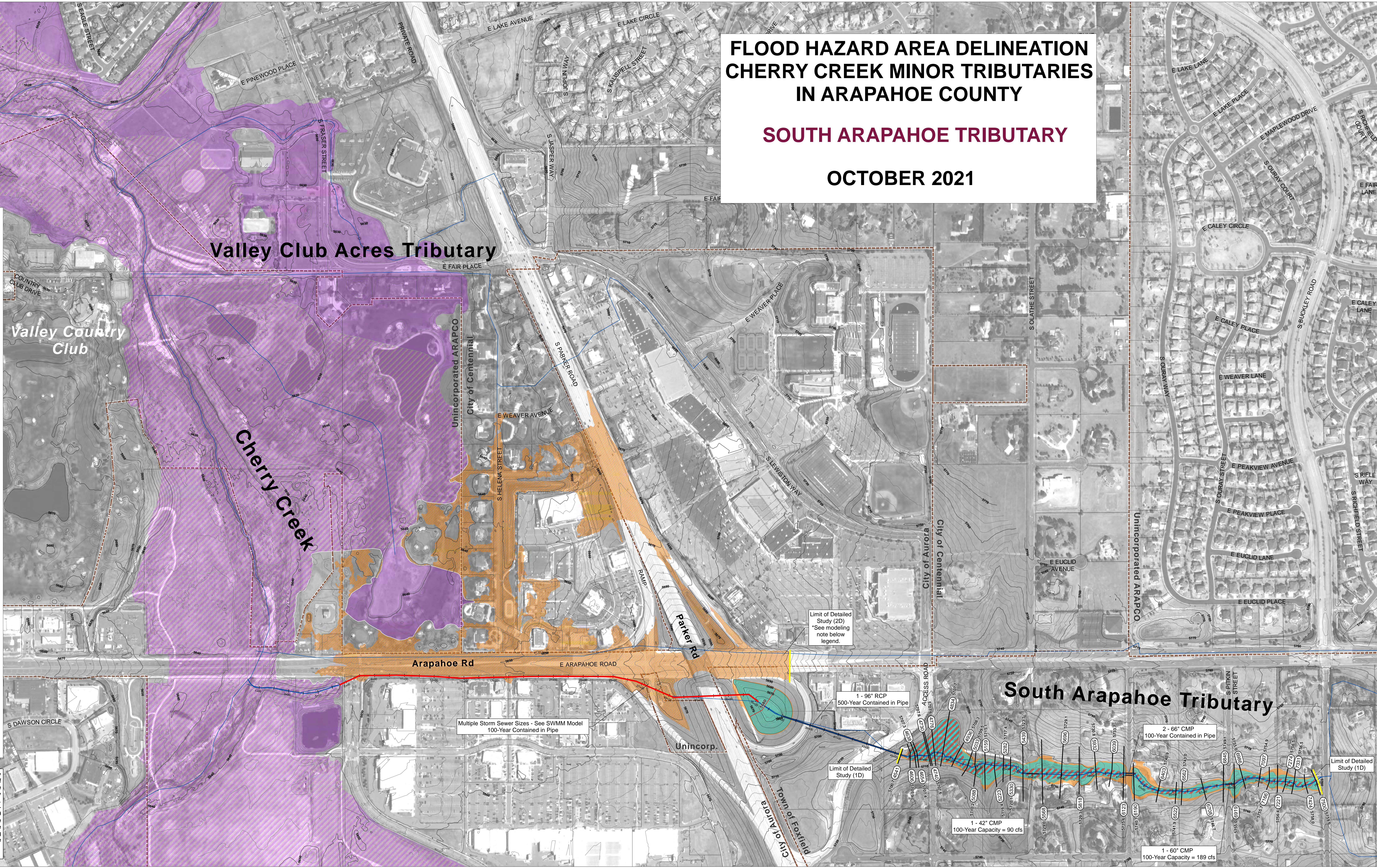
- City Boundary
- Parcel
- River Centerline
- HEC-RAS Cross Section
- 100-Year Floodplain (1% Annual Chance Flood)
- 500-Year Floodplain (0.2% Annual Chance Flood)
- Floodway (0.5 ft Rise)
- 500-Year Shallow Flooding (Avg Water Depth < 1ft)
- Effective Cherry Creek 100-Year Floodplain
- Effective Cherry Creek Floodway
- Bridge
- Culvert
- Insurable Structure within 100-Year Floodplain
- Index Contour (10 ft)
- Intermediate Contour (2 ft)

**Notes:**

Horizontal Datum: NAD 83  
 Vertical Datum: NAVD 88  
 Projection: CO State Plane Central  
 Contour Interval: 2 feet  
 Topography: 2014 post-flood LIDAR acquired by FEMA, USGS, DRCOG and CWCB; provided by MHFD  
 Aerial Imagery: Esri World Imagery Basemap

0 100 200 400 Feet  
 1 inch = 200 feet

**Dewberry**



Valley Country Club

Valley Club Acres Tributary

Cherry Creek

South Arapahoe Tributary

Limit of Detailed Study (2D)  
See modeling note below legend.

Limit of Detailed Study (1D)

Limit of Detailed Study (1D)

Multiple Storm Sewer Sizes - See SWMM Model  
100-Year Contained in Pipe

1 - 96" RCP  
500-Year Contained in Pipe

2 - 66" CMP  
100-Year Contained in Pipe

1 - 42" CMP  
100-Year Capacity = 90 cfs

1 - 60" CMP  
100-Year Capacity = 189 cfs

\* The 500-year shallow flooding areas along Arapahoe Rd and the Cherry Creek floodplain was modeled using HEC-RAS 2D. The upstream limit of the 2D detailed study was chosen based on the estimated location where the baseline hydrology peak flows along Arapahoe Rd would most likely exceed the right-of-way and begin to overland flow toward Cherry Creek. The flow applied to the 2D mesh is based on the baseline hydrology 500-year peak flow associated with the North Arapahoe tributary (Q500 = 339 cfs). The 100-year was not modeled for this area as the 100-year flows are likely contained within the local stormsewer infrastructure or within the Arapahoe Rd right-of-way. For additional detail see the "Modeling Approach for North and South Arapahoe Tributaries" memorandum in the FHAD report appendix.