

## Technical Report: Floodplains

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The term "floodplain" refers to the lowland and relatively flat areas adjoining inland waters, including at a minimum, that area subject to a one percent or greater chance of flooding in any given year. Executive Order 11988, Floodplain Management, requires federal agencies to avoid direct or indirect support of development in floodplains whenever a practical alternative exists. The base flood (100-year flood) is the regulatory standard used by federal agencies, and most states, to administer floodplain management programs. As described in the Code of Federal Regulations, 23 CFR 650 Subpart A, floodplains provide natural and beneficial values serving as areas for fish, wildlife, agriculture, aquaculture, forestry, natural flood moderation, water quality maintenance, and groundwater recharge.

Information regarding floodplains within the SH 16 study area was obtained from the following materials:

- ▶ *El Paso County-Wide Plan (1998)*, prepared by El Paso County
- ▶ *Fountain Creek Drainage Basin Planning Study (1994)*, prepared by the City of Colorado Springs
- ▶ *The Fountain Creek Watershed Plan (2002)*, prepared by the Pikes Peak Area Councils of Government
- ▶ Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRM) – Unincorporated City of Fountain and El Paso County (March, 1997)

### FLOODPLAINS EXISTING CONDITIONS

Floodplains associated with Fountain Creek and Crews Gulch occur within the study area. The major drainageway through the study area is Fountain Creek. Within the study area, Fountain Creek has a fairly wide channel (approximately 20 to 25 feet). The 100-year floodplain expands well beyond the channel and varies from 70 to 1,500 feet in width within the study area. The SH 16 bridge over Fountain Creek is approximately

387 feet long and 46 feet wide. This bridge was designed to accommodate a 100-year peak flow of 40,000 cubic feet per second (cfs).

The 100-year floodplain associated with Crews Gulch occurs in the northeastern portion of the study area and crosses SH 16 just north of the Willow Springs Ponds. The SH 16 Bridge over Crews Gulch is approximately 217 feet long and 44 feet wide. The Crews Gulch Bridge was designed for a 100-year flow of 10,000 cfs. The bridge has three wall piers and is on grade.

Some modification to these floodplains has been made in recent years by private developers to protect the banks and adjacent new development. Floodplain locations within the study area are shown in **Figure 1**.

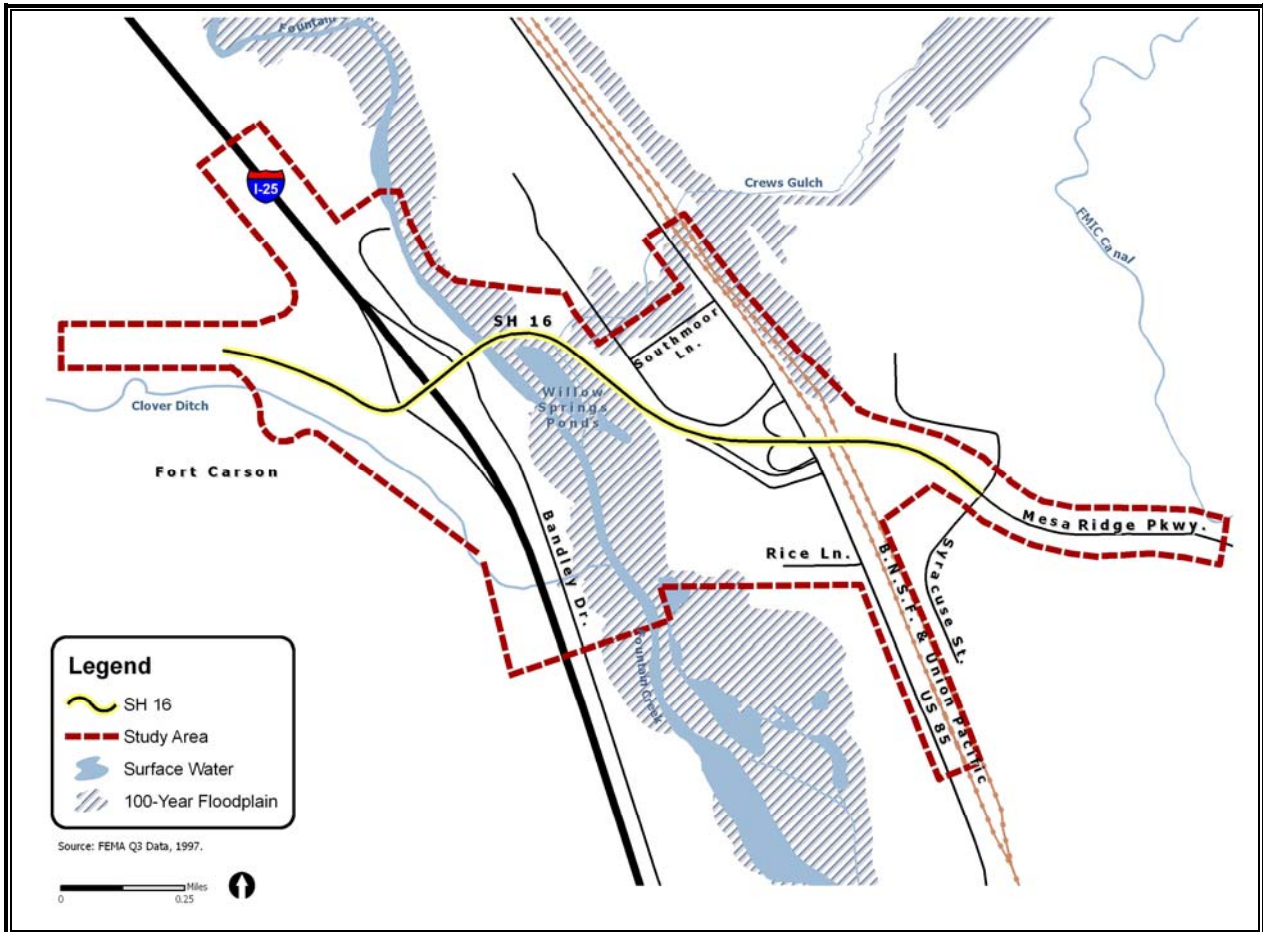
## **FLOOD HISTORY**

Based upon available data, the floods of 1864, 1886, 1935, 1965 and 1999 would be classified as major in terms of destructive capability. The 1935 flood was the highest and most destructive in the history of Colorado Springs and serves as Fountain Creek's flood of record from Colorado Springs to Fountain. The flood resulted from excessive rainfall of short duration over an area of less than 100 square miles in the Monument Creek basin, which feeds into Fountain Creek. The 1965 flood exceeded all known floods below the confluence of Fountain and Monument Creeks to the El Paso County line. While it did not cause appreciable damage at Colorado Springs, it caused severe damage further downstream.

More recently, millions of dollars of damage resulted from flooding that occurred during the last day of April and the first few days of May 1999 when flood flows peaked at 18,900 cfs at the "Fountain Creek at Pueblo" USGS gage. This storm resulted in the declaration of federal flood disaster areas for several counties within and downstream of the Fountain Creek Watershed. Floodwaters washed out bridges, utility lines and agricultural lands. High flows caused wastewater system backups in Colorado Springs and sent floodwater down the main streets of cities and towns in the Lower Arkansas Valley east of Pueblo.

Most of the storm flows in the Fountain Creek Watershed occur during the summer months from May to August. During this period, masses of warm, moist air from the Gulf of Mexico combine over higher land with colder, drier air from the Polar Regions to cause thunderstorm activity. Available records indicate that snowmelt has seldom contributed significantly to flood occurrences on Fountain Creek.

**Figure 1**  
**Floodplain Locations in the Study Area**



**FLOODPLAINS IMPACTS**

**No-Action Alternative**

No direct impacts to floodplains are expected to occur as a result of the No-Action Alternative. Indirect impacts from development surrounding Fountain Creek would occur regardless of this project.

Potential indirect impacts to the 100-Year floodplain would result as development continues to occur adjacent to the floodplain. New development within or adjacent to floodplains is regulated by FEMA for El Paso County and administered through the Pikes Peak Regional Building Department.

### **Proposed Action**

Impacts to floodplains would result from the construction of bridges over Fountain Creek and Crews Gulch. Construction of the Crews Gulch bridge would require the placement of three piers into the 100-Year floodplain associated with Crews Gulch. Construction of the Fountain Creek bridge would require the placement of two piers into the 100-Year floodplain associated with Fountain Creek. Widening of SH 16 would encroach upon 2.8 acres of 100-Year floodplain in the study area. Widening would not restrict current flows.

A hydrologic assessment of the study area was conducted by Moser & Associates Engineering in 2004. Results of the assessment are contained in the August 13, 2004 *Preliminary Hydraulic Report* prepared for this project. Hydrologic Engineering Center (HEC) Modeling conducted for the analysis established that the project would not raise floodplain water surface elevations.

As was also noted for the No-Action Alternative, indirect impacts to the 100-Year floodplain could result as development continues to occur adjacent to the floodplain. New development within or adjacent to floodplains is regulated by FEMA for El Paso County and administered through the Pikes Peak Regional Building Department.

### **FLOODPLAINS MITIGATION**

Floodplain management in El Paso County is subject to federal mandates and is largely a function of the Regional Floodplain Administrator. Coordination is conducted through the Pikes Peak Regional Building Department, which requires a floodplain development permit for new construction, alteration to an existing structure and/or modification to property within an existing floodplain. To mitigate the direct impacts of bridge construction and floodplain encroachment, the Proposed Action will be carried out in accordance with any requirements contained within the floodplain development permit.

Colorado law (CRS 33-5-101, commonly referred to as Senate Bill 40) requires a state agency to obtain certification from the Colorado Division of Wildlife (CDOW) when the state agency plans construction in any stream, its banks, or tributaries. SB 40 certification for the Fountain Creek crossing will be obtained through the CDOW. Measures to eliminate or diminish adverse effects to Fountain Creek and its banks will be included.