

2.0 OVERVIEW OF EXISTING STORMWATER DRAINAGE SYSTEM

El Paso has an arid, warm climate with hot, low-humidity summers and mild, dry winters. Average daily temperatures range from a high of 55 degrees Fahrenheit (°F) to a low of 33°F in January and a high of 97°F to a low of 72°F in July. The mean annual precipitation is approximately 8 inches with most of it occurring during July through September. Most of the rain in the El Paso area consists of afternoon thunderstorms caused by the monsoonal flow from the Gulf of California. These thunderstorms are high intensity with short duration.

The Franklin Mountains dominate the skyline of El Paso and range approximately 16 miles long and 5 miles wide with a general relief of over 3,000 feet above the surrounding area. The Franklin Mountains are the southernmost extension of a series of north-south ranges across the western U.S. They are comprised of pre-Cambrian to Pleistocene-age rocks and are locally overlain by recent sediment. The rocks consist of granite, rhyolite, marble, quartzite, sandstone, limestone, dolomite, conglomerates, colluvium, and alluvium. The Franklin Mountains are characterized by a single range of knife-edge ridges that are uplifted bedding dipping steeply to the east. The central core of the mountains is comprised of vast exposures of bedrock with little sediment accumulation or soil formation.

The major canyons, from north to south, that flow toward the eastern face of the range are Hitt, Fusselman, and McKelligon and on the western face of the range, the major canyons are Vinton and Avispa.

For the purpose of the SMP, the master plan study area was divided into seven regional study areas:

- Central;
- East Side;
- Mission Valley;
- Northeast;
- Northwest;
- West Central; and
- Mid-Valley.

These study areas were delineated based on the contributing watersheds to unique geographical areas. The regional division of the study area is shown on Figure 2-1 and extends beyond the incorporated limits into the extraterritorial jurisdictional limits.

The study areas were further divided into “systems” based on clearly identified needs, historical flooding problems, structural or systematic deficiencies, and potential solutions. The study areas and systems are discussed in detail in this section.

2.1 Mid-Valley Region

The Mid-Valley Region, as shown on Figure 2-1, is bounded by Boeing Drive and the Ft. Bliss Military Reservation to the north, Caesar E. Chavez Highway (Loop 375 Express Toll Road) to the south, NRE Thomason Loop, Rod Mill Road, and Airway Boulevard to the east, and Interstate 54 (Patriot Freeway) to the west. This area encompasses 5,222 acres (8 square miles) and consists of residential, commercial, industrial, and retail uses. This region was defined in 2009, prior to the Stormwater Master Plan for the Mid Valley Region (MCi, 2021). The 2021 Mid Valley Region covers the full 2009 Mid-Valley Region and includes small portions of the 2009 Central Region and Eastside Region depicted in Figure 2-1.

IH-10 bisects the Mid-Valley Region. Stormwater runoff flows both from north to south and east to west with the elevation drops producing slopes in the range of 0.15% to 2.71%.

This Region has a combination of existing underground and above-ground storm drain systems and drainage basins. These include approximately 17 miles of identified drainage systems consisting of reinforced concrete pipe (RCP) ranging in size from 12 inches to 66 inches; 27-inch by 43-inch arch pipes; concrete box culverts (CBCs) ranging in size from 3 feet wide by 2 feet high to 10 feet wide by 10 feet high); trapezoidal concrete-lined channels; and drainage basins. Due to the flat slopes in the southern area of this region, gravity flow is not always a choice. These flat slopes produce substandard slopes which result in sediment accumulation thus reducing system performance. Further details on the region are in Technical Memorandum No. 3, Stormwater Master Plan, Mid Valley Region (MCi, 2021) appended to this SMP Update as Appendix A. Technical Memoranda Nos. 1 and 2 (MCi, 2021) are also provided in Appendix A.

