

## **3.0 STORMWATER MASTER PLAN UPDATE METHODOLOGY**

This section describes in general the methodologies used in refinement of the projects presented within the 2009 SMP and development of new projects not in the 2009 SMP.

### **3.1 Hydrology and Hydraulics**

The hydrologic and hydraulic methods used in the 2009 SMP were documented within the 2009 SMP. These methods comply with the 2008 City of El Paso Drainage Design Manual (DDM), with simplifications in hydraulics methods to reflect the large spatial scale of the 2009 SMP. As individual projects were selected for refined planning and design, this planning and design also proceeded in compliance with DDM guidance. A primary reason for the resizing and reconfiguration of 2009 projects was the use of recent and more detailed LiDAR-based topography, combined with limited ground survey. These new datasets were used to facilitate more detailed hydraulic 1D or 2D modeling, which in turn facilitated refinement of sizing of proposed project components and estimates of their benefits.

Note that the SMP Update does not reflect any upsizing of projects to reflect changes in statistical rainfall associated with the 2018 publication of National Oceanic and Atmospheric Administration's (NOAA) Atlas 14. Should the City and EPWater choose to alter the DDM to specify use of the NOAA Atlas 14 rainfall depths, the costs for projects within this SMP Update would be significantly increased.

### **3.2 El Paso Water 2009 SMP Project Reviews**

As the projects within the 2009 SMP underwent more detailed planning and implementation, EPWater developed extensive experience that has been applied in 2009 SMP project refinement. This experience has been developed through:

- Monitoring of recent performance of the existing (and potentially improved) drainage systems during significant flood events that have occurred since 2009;
- Monitoring effectiveness of completed projects; and
- Monitoring cost effectiveness of the varied strategies being used for drainage improvements.

EPWater Stormwater staff have had a series of internal meetings in which 2009 SMP project configurations have been discussed and assessed. Based upon planning performed internally by EPWater staff or by external engineering consultants, 2009 SMP project configurations have been refined. These refined projects were aggregated into a revised project list in 2017. The refined project configurations were vetted by independent reviewers internally or externally (i.e., by engineering consultants), and finally, by the Focus Group engagement process described in Section 7.

### 3.3 New Projects

New projects have primarily been developed through new major regional stormwater system plans. The new projects from the Mid-Valley Region (not addressed in 2009) have been developed through a process analogous to that applied in the development of the original 2009 SMP projects, notably:

- The existing drainage system was assessed.
- Stormwater problem areas were identified.
- Alternatives for mitigating the problem areas were developed, and costs and benefits of each assessed. Technical methods and design criteria used were consistent with the DDM.
- Alternatives for inclusion in this SMP Update were selected.

Seven of the new or significantly modified projects in this update (MidV1 and MidV5 through MidV10) are located in the Mid-Valley Region, two are located in the Central Region (CE6A and CE6B), and one project (EA11) is in the Eastside Region. The development/modification of all of these projects is documented as part of Technical Memorandum No. 3, Stormwater Master Plan, Mid Valley Region (MCi, 2021). The remainder of the projects were developed as individual projects prior to 2017. These projects were reviewed and prioritized by the Focus Group in 2017-2018. Two projects reviewed by the Focus Group (MidV3 and MidV4) were superceded by new projects. One project (MidV2) has been completed since the Focus Group review.

**MidV1, Clardy Fox Pump Station Improvements.** The recommended improvements consist of adding pumps into three empty pump bays in the Clardy Fox Pump Station. Upgrading the electrical service of the Clardy Fox Pump Station will be required to allow all pumps to run at the same time and convey the 100-year storm event.

**MidV5, Montview Pump Station and Basin Improvements.** This modified project includes the expansion of an existing basin and addition of one new detention basin with interconnecting pipe and a new pump station.

**MidV6, Bassett-Geronimo Improvements.** This modified project includes providing two new retention basins (approximately 1.33 and 1.25 acres) and new storm drain systems in the residential areas to the north of Bassett Place.

**MidV7, Basin A System.** This new project includes reconstruction of a 36-inch corrugated metal pipe storm drain between the intersections of Hunt Court, McAffee Place, and Grissom Lane.

**MidV8, Reynolds Street Drainage Improvements.** This new project includes the construction of a new detention pond with outlet tower, upsizing pipes to 48 and 60 inches, installing new drainage inlets along Reynolds Street, and constructing a new 48-inch pipe extending north to Hastings Drive.

**MidV9, Yandell Drive Drainage Improvements.** This new project includes the construction of 1,200 linear feet of new 36-inch storm drain along Yandell Drive, tying into the existing system located on Paisano Drive and extending to the intersection with Argentina Street.

**MidV10, El Paso Drainage Improvements.** This new project includes the upsizing of the existing storm drain system to 36 inches along El Paso Street.

**CE6A, Altura Avenue Drainage Improvements.** This new project consists of extending the existing storm drain system on Altura Avenue with 150 linear feet of 36-inch storm drain pipe towards Boone Street. New 36-inch storm drain pipe will be installed at the intersection of Boone Street and Altura Avenue and will connect to the existing Boone Street system.

**CE6B, Montana Avenue Drainage Improvements.** This new project consists of tying back into the existing channel at Montana Avenue and Houston Street with approximately 500 linear feet of new 24-inch storm drain system.

**EA11, Avalon Drive Drainage Improvements.** This new project includes approximately 400 and 700 linear feet of 36-inch and 48-inch storm drain pipe, respectively, that connects back to the existing system on Airway Boulevard.