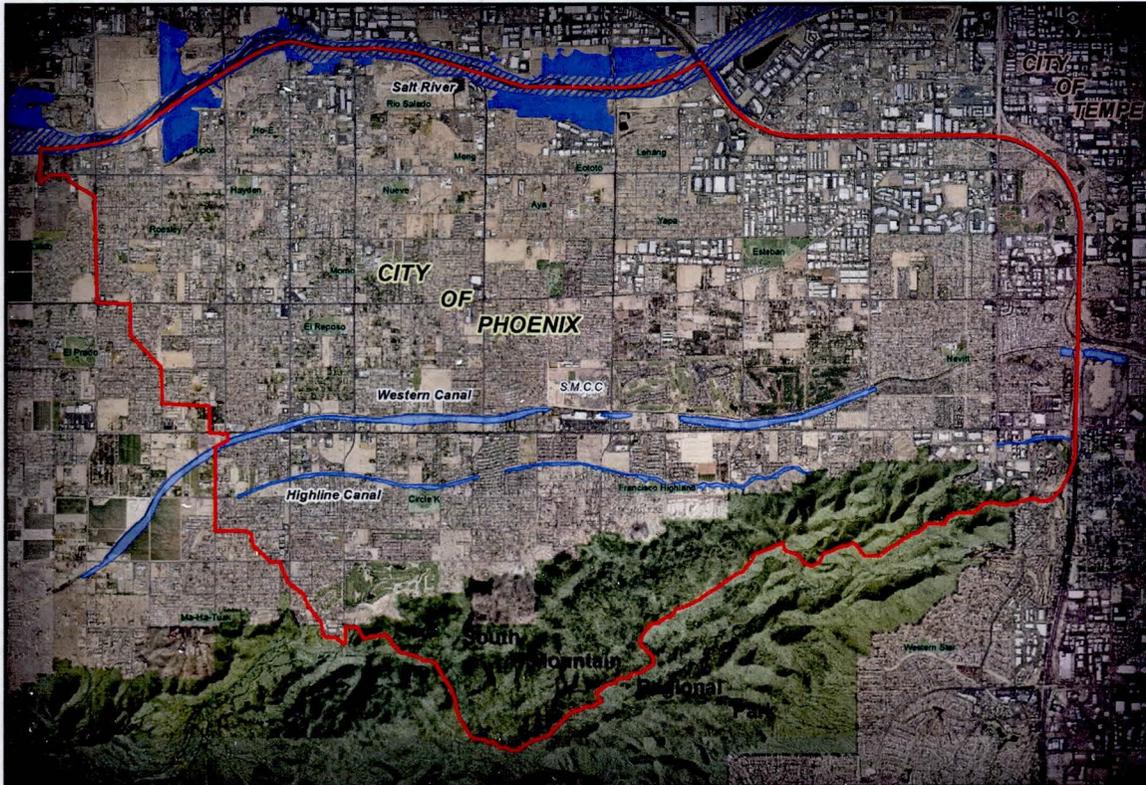


# Hohokam Area Drainage Master Plan Level 3 –Recommended Plan Report Executive Summary

Contract FCD 2009C029

February 2014



Prepared for:



**Flood Control District  
of Maricopa County**  
2801 West Durango Street  
Phoenix, AZ 85009

and



**City of Phoenix**  
200 W. Washington St.  
Phoenix, AZ 85003

Prepared by:

**Stanley Consultants**  
1661 East Camelback Rd, Suite 400  
Phoenix, AZ 85016



**Stanley Consultants INC**

Contributions by:



LOGAN SIMPSON DESIGN INC.



**Civil Engineering Services**



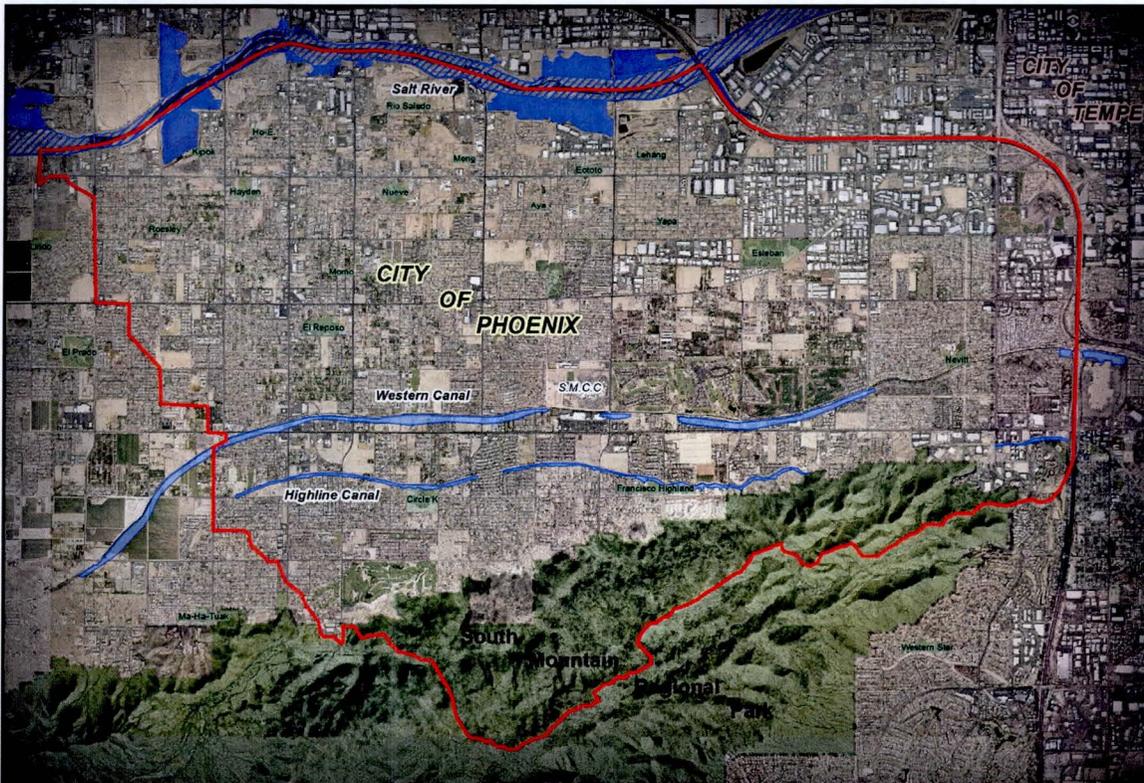
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Expires 3-31-15

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## EXECUTIVE SUMMARY

### PROJECT DESCRIPTION

The Hohokam Area Drainage Master Study/Plan (ADMS/ADMP) was a two-phase regional flood control planning project conducted by the Flood Control District of Maricopa County (District) in association with the City of Phoenix (COP) that identified existing flood hazards; evaluated potential flood mitigation alternatives; and made recommendations for future flood control improvements. Phase I, the Hohokam ADMS, was a comprehensive data collection and investigative effort to identify and quantify study area flood hazards and document archeological, cultural, landscape, and recreational resource opportunities that served as the basis to formulate and assess mitigation alternatives. Phase II, the Hohokam ADMP, utilized the results of the ADMS to evaluate flood mitigation alternatives and proposed recommendations for study area improvements. The ADMP provides a comprehensive plan for future flood control improvements that includes conceptual plans for the recommended improvements, a strategy for implementation and establishes guidelines for landscape aesthetics, re-vegetation and multiple-use functionality.

This Executive Summary provides a brief overview of recommended plan, its estimated cost and the plan for implementation. Details of the recommended plan are provided in the *Hohokam ADMP Level 3 – Recommended Plan Report*.

### PROJECT LOCATION

The Hohokam ADMS/ADMP study area is located within the corporate limits of the COP and the City of Tempe (COT). The area is approximately 28.1 sq. miles in size and bounded by the I-10 to the north and east, the Salt River to the north, South Mountain Park to the south and the eastern boundary of the Laveen ADMS to the west (see Figure 1).

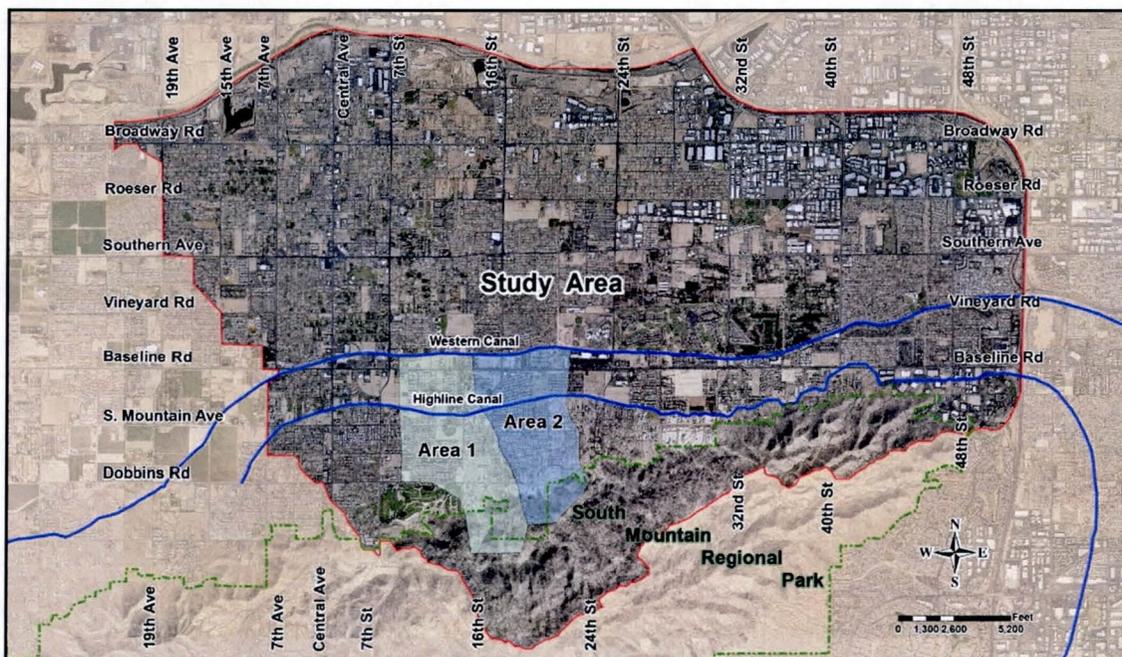


Figure 1: Study Area and Recommended Plan Areas

## RECOMMENDED PLAN

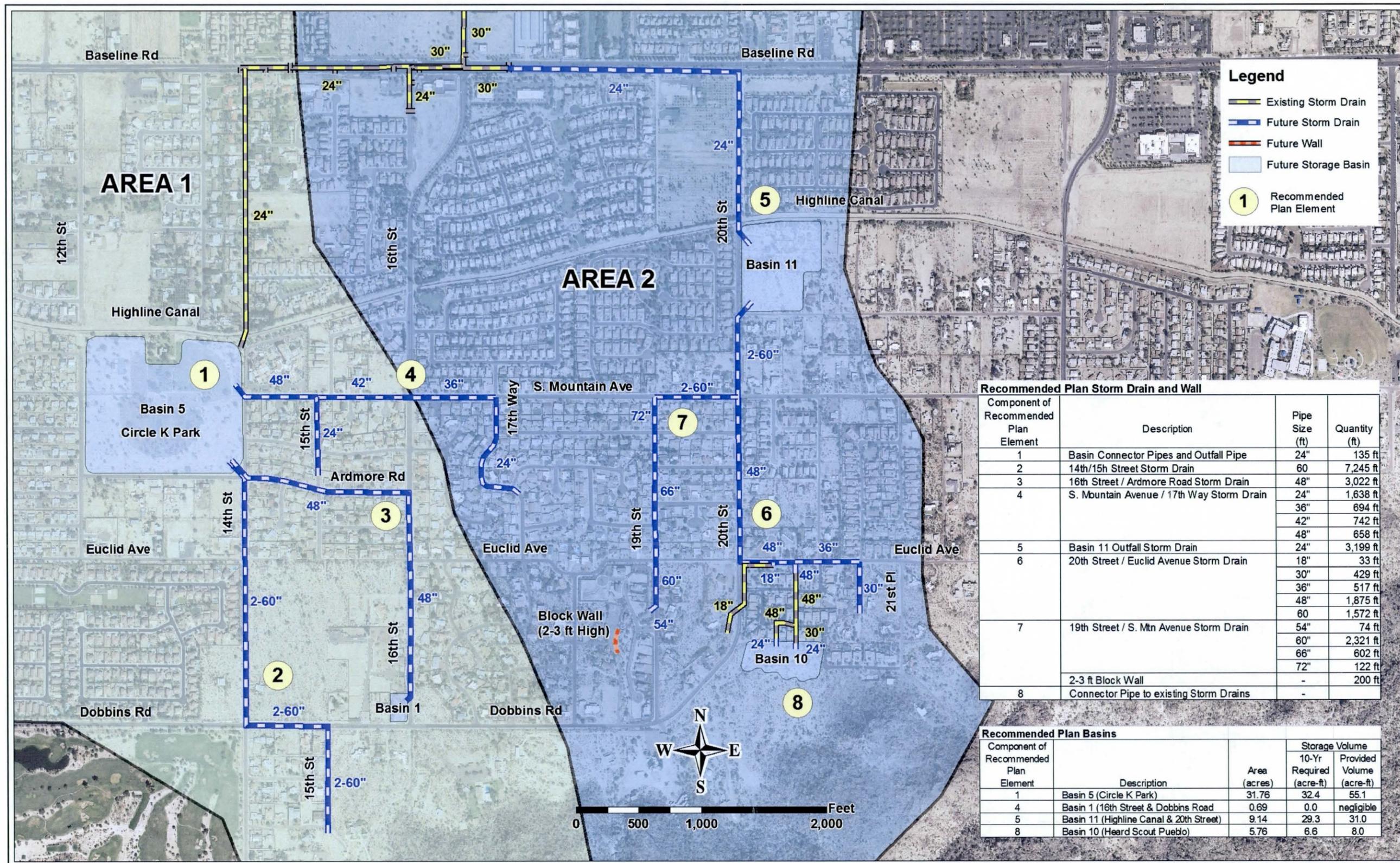
The recommended plan is based upon a 10-year, 6-hour design event and primarily addresses flooding issues between South Mountain Regional Park and the Western Canal that are caused by the lack of drainage infrastructure to capture, convey and attenuate runoff flows from the mountains. The recommended plan is divided into two areas: Area 1 and Area 2 (see Figure 1).

Area 1 is roughly located south of the Western Canal between 7<sup>th</sup> Street and 16<sup>th</sup> Street. The recommended plan for Area 1 includes storm drains to capture and convey stormwater to a proposed detention basin to be constructed within Circle K Park (Basin 5). The detention basin will attenuate flow and be drained by an inlet to an existing storm drain on 14<sup>th</sup> Street.

Area 2 is roughly located south of the Western Canal between 16<sup>th</sup> Street and 24<sup>th</sup> Street. The recommended plan for Area 2 also includes storm drains to capture and convey stormwater and to a new detention basin to be constructed adjacent to the Highline Canal at 20<sup>th</sup> Street (Basin 11). The detention basin will attenuate flow and will be drained to an existing storm drain on Baseline Road. Another detention basin (Basin 10) is proposed to capture mountain runoff and attenuate flows prior to discharging to new storm drain along Euclid Avenue. In addition, a low block wall and channel grading is proposed for an unnamed wash that discharges runoff to 19<sup>th</sup> Street north of Dobbins Road to help contain flow within the channel.

The elements of the recommended plan are depicted in Figure 2 and briefly described below.

- 1) **Basin 5-Circle K Park.** This plan element includes the proposed redevelopment of Circle K Park to incorporate a detention basin that will serve as the outfall for three storm drain systems proposed for Area 1. The basin will be drained to an existing 24" storm drain lateral on 14<sup>th</sup> Street that is connected to a COP storm drain main line along Baseline Road.
- 2) **14<sup>th</sup>/15<sup>th</sup> Street Storm Drain.** This plan element includes a storm drain and a high capacity inlet on 15<sup>th</sup> Street to capture runoff from the mountains prior to 15<sup>th</sup> Street and Dobbins Road. The proposed storm drain ultimately discharges flows to the southeast corner of the proposed detention Basin 5 (Circle K Park).
- 3) **Basin 1 and 16<sup>th</sup> Street/Ardmore Road Storm Drain.** This plan element includes a storm drain, a high capacity drop inlet at the upstream end of the storm drain (intersection of 16<sup>th</sup> Street and Dobbins Road), and a graded basin (Basin 1) to facilitate capturing floodwater into the storm drain. The storm drain eventually discharges flows to the southeast corner of proposed detention Basin 5 (Circle K Park).
- 4) **South Mountain Avenue Storm Drain (West).** This plan element consists of a storm drain system designed to capture drainage along South Mountain Avenue and includes laterals on 15<sup>th</sup> Street and 17<sup>th</sup> Way. The storm drain discharges to the east side of the proposed detention Basin 5 (Circle K Park) at South Mountain Avenue.
- 5) **Basin 11 and Outfall Storm Drain.** This plan element includes a proposed detention basin to be located in the vicinity of the Highline Canal and 20<sup>th</sup> Street (Basin 11) and a storm drain outfall pipe to be connected to an existing storm drain pipe on Baseline Road.



**Recommended Plan Storm Drain and Wall**

Component of Recommended Plan Element	Description	Pipe Size (ft)	Quantity (ft)
1	Basin Connector Pipes and Outfall Pipe	24"	135 ft
2	14th/15th Street Storm Drain	60"	7,245 ft
3	16th Street / Ardmore Road Storm Drain	48"	3,022 ft
4	S. Mountain Avenue / 17th Way Storm Drain	24"	1,638 ft
		36"	694 ft
		42"	742 ft
5	Basin 11 Outfall Storm Drain	48"	658 ft
		24"	3,199 ft
		18"	33 ft
6	20th Street / Euclid Avenue Storm Drain	30"	429 ft
		36"	517 ft
		48"	1,875 ft
		60"	1,572 ft
		72"	122 ft
7	19th Street / S. Mtn Avenue Storm Drain	54"	74 ft
8	2-3 ft Block Wall	60"	2,321 ft
		66"	602 ft
		72"	122 ft
		-	200 ft
8	Connector Pipe to existing Storm Drains	-	-

**Recommended Plan Basins**

Component of Recommended Plan Element	Description	Area (acres)	Storage Volume	
			10-Yr Required (acre-ft)	Provided Volume (acre-ft)
1	Basin 5 (Circle K Park)	31.76	32.4	55.1
4	Basin 1 (16th Street & Dobbins Road)	0.69	0.0	negligible
5	Basin 11 (Highline Canal & 20th Street)	9.14	29.3	31.0
8	Basin 10 (Heard Scout Pueblo)	5.76	6.6	8.0

Figure 2: Recommended Plan

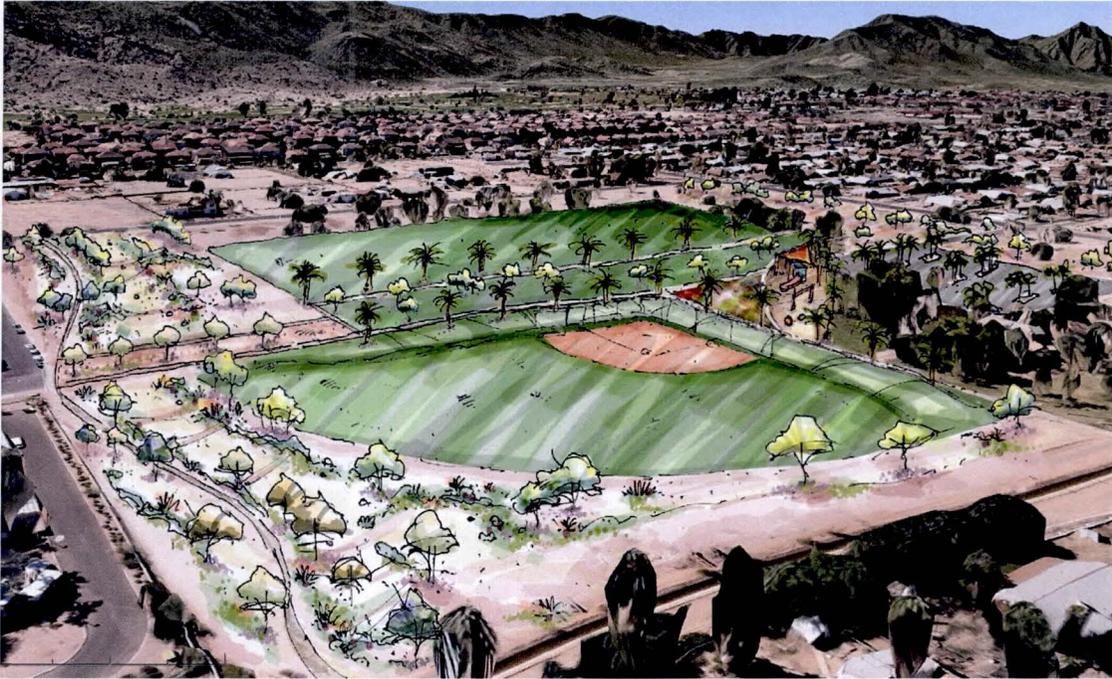
- 6) **20<sup>th</sup> Street/Euclid Avenue Storm Drain.** This plan element consists of a storm drain system designed to capture drainage along 20<sup>th</sup> Street, Euclid Avenue and 21<sup>st</sup> Place. It also connects to two existing storm drain outlets and serves as an outfall to a major lateral on South Mountain Avenue. The storm drain discharges to the southwest corner of the proposed Basin 11.
- 7) **19<sup>th</sup> Street/South Mountain Avenue Storm Drain and Wash Improvements.** This plan element includes a storm drain along 19<sup>th</sup> Street and South Mountain Avenue, a high capacity inlet at the upstream end of the system within the existing wash, and improvements which include grading to the wash and construction of a block wall upstream of an existing box culvert, to help contain flow within the wash.
- 8) **Basin 10.** This plan element is a proposed detention basin located within the grounds of the Heard Scout Pueblo Boy Scout Camp (BSC) just east of 20<sup>th</sup> Street and Dobbins Road. The basin will be drained by two basin outlet pipes connected to an existing storm drain through the downstream development. The existing storm drain is connected to the 20<sup>th</sup> Street/Euclid Avenue storm drain as part of recommended plan element No. 6.

### **LANDSCAPE AESTHETICS AND MULTI-USE CONSIDERATIONS**

Per the "Policy for the Aesthetic Treatment and Landscaping of Flood Control Projects", the District is charged with providing aesthetic enhancements and multiple use opportunities in concert with flood hazard mitigation improvements, whenever possible. The proposed detention basin concepts in the recommended plan allow for open space and multiple use opportunities, while minimizing environmental impacts and providing effective flood hazard mitigation by introducing context sensitive structures and landscape elements that complement the existing community. The ADMP identifies approaches to a variety of enhancements that range from complementing and improving access to the natural areas in and around South Mountain Park, to making recreation contributions to the regional trail system and to existing open space/park amenities. Proposed improvements at Circle K Park will build upon its current use as an important community park with ball fields, playgrounds, picnic areas, multi-use trails and to retain its historic identity as a "desert oasis" (see Figure 3).

Basin landscape concepts for Circle K Park integrate storm water detention facilities with adjacent landscapes by using soft, meandering landforms and 'park-like' or native vegetation. The addition of sidewalks and multi-use paths within street and landscape buffer areas will improve the quality of the streetscape for the adjacent residential neighborhoods. Tree, shrub and accent plantings are intended to reflect the character of the neighborhood and remain consistent with recommended Landscape Design Themes, as illustrated in the ADMP Report.

The landscape design concepts for the other basin areas are intended to restore the Upper Sonoran Desert landscape of the nearby South Mountain Park/Preserve (see Figure 4).



**Figure 3: View of conceptual plan for Circle K Park**



**Figure 4: Plan view of Basin 11 landscaping concept**

**ESTIMATED COST AND IMPLEMENTATION**

The estimated combined construction and land acquisition cost for the Recommended Plan is estimated at approximately \$25.4 million. To facilitate planning and funding, the recommended plan can be separated into smaller project elements that can be implemented over time. These smaller plan elements can be prioritized and constructed as funding is made available.

Implementation of the recommended plan needs to consider the interrelation between the various plan elements. Downstream elements need to be in place to serve as an outfall prior to the construction of upstream elements. Due to the significance of existing flooding conditions, Area 1 is considered the area of highest priority. Table 1 provides a prioritization of recommended plan elements. This prioritization is subject to change due to funding considerations, changes in flooding conditions/needs, or potential opportunities to coordinate plan improvements with other public or private capital improvement projects within the study area. Securing the land for all detention basins might be considered a higher priority than other elements of the ADMP.

**Table 1: Estimated Plan Cost and Recommended Prioritization of Plan Elements**

Plan Priority	Description	Construction Cost	Land Acquisition/ ROW Cost	Total Cost
	<b>Area 1</b>			
1	Element 1 (Circle K Basin)	\$8,290,000	*\$2,767,000	\$11,057,000
2	Element 2 (14th/15th St Storm Drain)	\$3,263,000	\$0	\$3,263,000
3	Element 3 (Basin 1 7 16th St/Ardmore Rd Storm Drain)	\$1,221,000	\$60,000	\$1,281,000
4	Element 4 (S. Mountain Ave/17th Way Storm Drain)	\$1,156,000	\$0	\$1,156,000
	<b>Subtotal Area 1</b>	<b>\$13,930,000</b>	<b>\$2,827,000</b>	<b>\$16,757,000</b>
	<b>Area 2</b>			
5	Element 5 (Basin 11 & Outfall Storm Drain)	\$2,575,000	\$1,194,000	\$3,769,000
6	Element 6 (20th St/Euclid Ave Storm Drain)	\$1,726,000	\$3,000	\$1,729,000
7	Element 7 (19th St/S. Mountain Ave Storm Drain)	\$1,642,000	\$82,000	\$1,724,000
8	Element 8 (Basin 10/Heard Scout Pueblo BSC)	\$933,000	\$502,000	\$1,435,000
	<b>Subtotal Area 2</b>	<b>\$6,876,000</b>	<b>\$1,781,000</b>	<b>\$8,657,000</b>
	<b>Estimated Cost of Recommended Plan</b>	<b>\$20,806,000</b>	<b>\$4,608,000</b>	<b>\$25,414,000</b>

\* Estimated land cost for cost analysis purpose only.