



ADOBE DAM/DESERT HILLS

AREA DRAINAGE MASTER PLAN

September 2004

Welcome to the public meeting for the Adobe Dam/Desert Hills Area Drainage Master Plan (ADMP). The Flood Control District of Maricopa County (District) is addressing regional drainage and flooding problems in the study area (see Study Area map). The ADMP study team has completed an extensive public information-gathering and alternative evaluation effort that resulted in the creation of the Recommended Alternative presented in this handout. The purpose of tonight's meeting is to listen to your feedback, concerns, and comments regarding this Recommended Alternative.

Members of the study team are available to listen to your comments and address your specific concerns. If you wish to submit your comments in writing, comment sheets are available and can be returned tonight or mailed or faxed to the address and/or number listed on the comment sheet.

STUDY PURPOSE

This ADMP is a comprehensive evaluation of drainage and erosion issues in the study area. The goals of the ADMP include:

- Identifying and developing alternatives to address drainage and flooding issues in residential areas
- Defining building setbacks to protect residents from erosion hazards along several active washes
- Identifying and evaluating the level of hazard for homes located in regulatory floodways
- Ensuring that activities by new residents do not increase runoff to Skunk Creek or negatively impact downstream neighbors
- Establishing a watershed-wide flood response plan
- Updating specific floodplain delineation maps to reflect latest information

STUDY AREA

The study area is bounded by the Tonto National Forest to the north, the Adobe Dam to the south, the 40th Street alignment (north of Carefree Highway) and the Seventh Street alignment (south of Carefree Highway) to the east, and the watershed boundary between Skunk Creek and the New River to the west.



STUDY PROGRESS

Since receiving citizen input from public meetings held in November 2002 and November 2003, the Adobe Dam/Desert Hills ADMP study team has:

- Modeled hydrologic conditions
- Delineated new floodplains
- Identified erosion hazards
- Developed and evaluated structural and nonstructural measures to address existing and future flooding and drainage problems
- Evaluated environmental, aesthetic, and multiuse opportunities associated with the various measures
- Met with other public agencies for their input
- Established a watershed-wide flood response plan for use by emergency response agencies
- Developed a Recommended Alternative

STUDY PROGRESS (CONTINUED)

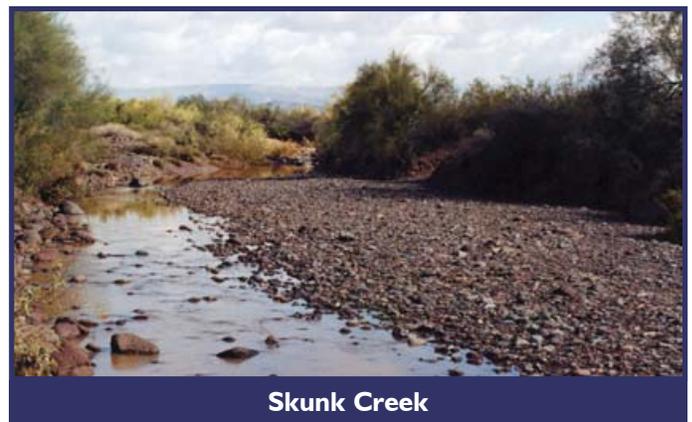
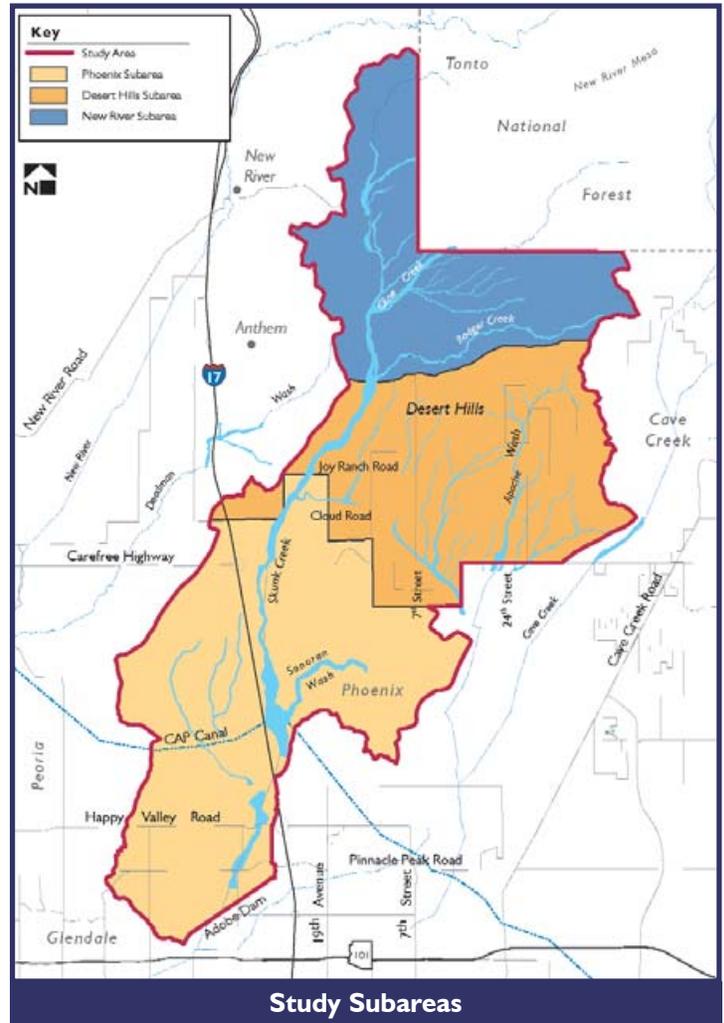
The analysis of all the collected data allowed the ADMP study team to develop and evaluate numerous potential drainage alternatives. These were evaluated based on a range of criteria, including:

- Public safety
- Community acceptance
- Environmental impact
- Multiuse opportunities and aesthetic quality
- Agency acceptance
- Implementation cost
- Maintenance cost
- Cost-share opportunities

The results of the initial alternatives evaluation formed the basis for the Recommended Alternative, which is presented here tonight for your review and comment. During the development of the drainage alternatives, meetings were held with various agencies, including the City of Phoenix, the Arizona State Land Department, the Maricopa County Department of Transportation, the Town of Cave Creek, the Central Arizona Project, and the Arizona Department of Transportation, to get their feedback on the project and proposed alternatives.

RECOMMENDED ALTERNATIVE

The study area has been divided into three subareas: Phoenix, Desert Hills, and New River (see Study Subareas map). These areas were identified based on their jurisdictional boundaries and similar watershed characteristics. The Recommended Alternative is focused on designing cost-effective regional drainage alternatives that are sensitive to natural and cultural resources and are acceptable to the community. After an extensive public involvement process, the study team has identified a Recommended Alternative to address the existing drainage and erosion issues and to reduce future floodway and drainage problems as the area develops. The Recommended Alternative consists of watershed-wide structural and nonstructural components. These components would be implemented by the District, with cost-sharing partners, and by others such as the Arizona Department of Transportation, the Maricopa County Department of Transportation, the Arizona State Land Department, and the City of Phoenix. The Recommended Alternative is summarized on the following pages.





Phoenix Subarea

RECOMMENDED ALTERNATIVE

PHOENIX

Drainage/Erosion Issues

- Flows break out of the Skunk Creek channel upstream of the Pinnacle Peak Road bridge, flooding Pinnacle Peak Road and 35th Avenue alignment
- Flows break out of the Skunk Creek channel between the Central Arizona Project (CAP) Canal and upstream end of the existing levees, flooding the residential and commercial areas immediately downstream of the CAP Canal
- Combined Skunk Creek and Sonoran Wash flows pond at the upstream side of the CAP Canal, flooding I-17 to the west and flow along the canal embankment to the east

Structural Components

- Connect channel banks from the Pinnacle Peak Road bridge upstream to the location where Skunk Creek flows out of the landfill area to keep all streamflow in the channel passing through the bridge opening
- Construct new grade-control structure in the Skunk Creek channel upstream of the Pinnacle Peak Road bridge to prevent erosion of the channel bottom
- Construct new levees immediately downstream of the CAP Canal from the end of the existing levees up to CAP Canal overchutes to keep all streamflow in the channel and prevent flooding of the residential and commercial areas
- Construct new levees immediately upstream of the CAP Canal overchutes to keep all streamflow in the channel and prevent flooding of I-17 and allow it to flow along the upstream side of the canal embankment

Nonstructural Components

- Flood Response Plan (see page 6 for description)
- Upper Buchanan Wash Floodplain Delineation Study (see page 7 for description)

Benefits

- Protects Pinnacle Peak Road and 35th Avenue alignment from flooding
- Protects residential and commercial areas immediately downstream of the CAP Canal from flooding
- Protects I-17 from flooding
- Prevents potentially damaging flows along the upstream side of the CAP Canal embankment
- Opportunity for aesthetic improvements near 35th Avenue alignment
- Opportunity to improve degraded habitat in Skunk Creek downstream of the landfill area
- Trail linkage opportunities to Adobe Dam Recreation Area, Thunderbird Park, Paseo Highlands Park, and CAP Canal regional trail

Disadvantages

- Impact to natural landscape with construction of levees, particularly north and south of the CAP Canal
- High-quality habitat affected along Sonoran Wash
- Requires acquisition of one business north of the CAP Canal

RECOMMENDED ALTERNATIVE

DESERT HILLS

Drainage/Erosion Issues

- Flows in Skunk Tank Wash cause flooding of residences
- Flows in Skunk Tank Wash impact roadway accessibility on 7th Avenue, Joy Ranch Road, and Maddock Road
- Flows in Desert Lake Wash cause flooding of residences downstream of Cloud Road
- Flows in Desert Lake Wash impact roadway accessibility on 7th Street, Joy Ranch Road, Cloud Road, and Galvin Street
- Flows in Desert Lake Wash, Desert Hills Wash, Apache Wash, Paradise Wash, and their tributaries impact accessibility on Carefree Highway
- Flows in Apache Wash impact roadway accessibility on 24th Street
- Flows in Skunk Creek impact roadway accessibility on Desert Hills Drive
- Flows in Skunk Creek impact roadway accessibility at 27th Avenue/Cloud Road bend

Structural Components

- Construct new roadside interceptor channel along east side of 7th Street north of Joy Ranch Road to prevent flooding of 7th Street
- Construct new culvert at the intersection of Joy Ranch Road and 7th Street to prevent flows from continuing south along east side of 7th Street and causing flooding of residences southwest of 7th Street and Cloud Road intersection
- Construct new roadside interceptor channel along south side of Joy Ranch Road west of 7th Street to collect flows from multiple small channels

- Construct new detention basin on the State Trust Land parcel to reduce peak streamflow
- Construct new channel through the State Trust Land parcel from Joy Ranch Road to Cloud Road to reduce the floodplain area and to direct flows to improved culvert crossing at Cloud Road
- Realign 24th Street roadway out of the Apache Wash floodplain to prevent interrupted access to residential areas to the north of Cloud Road
- Construct new bridge at Desert Hills Drive crossing of Skunk Creek to prevent interrupted access to residential areas west of Skunk Creek

Nonstructural Components

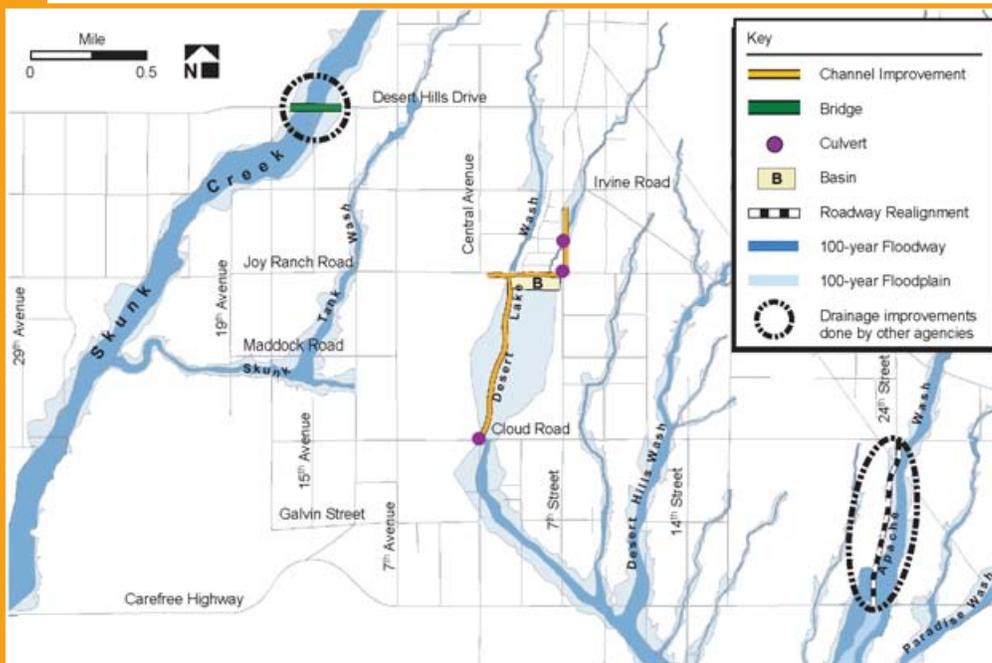
- Floodprone Properties Acquisition Program (FPAP) for floodway residents along Skunk Creek, Skunk Tank Wash, Desert Lake Wash, Desert Hills Wash, and Apache Wash (see page 6 for description)
- Flood Response Plan (see page 6 for description)
- Drainage Guidelines (see page 7 for description)

No Action Components

- No improvements planned at 27th Avenue/Cloud Road bend
- No improvements planned along Carefree Highway

Benefits

- Removes Skunk Tank Wash floodway residents from flooding hazard through FPAP
- Removes Desert Lake Wash floodway residents downstream of Cloud Road from flooding hazard through voluntary acquisition program

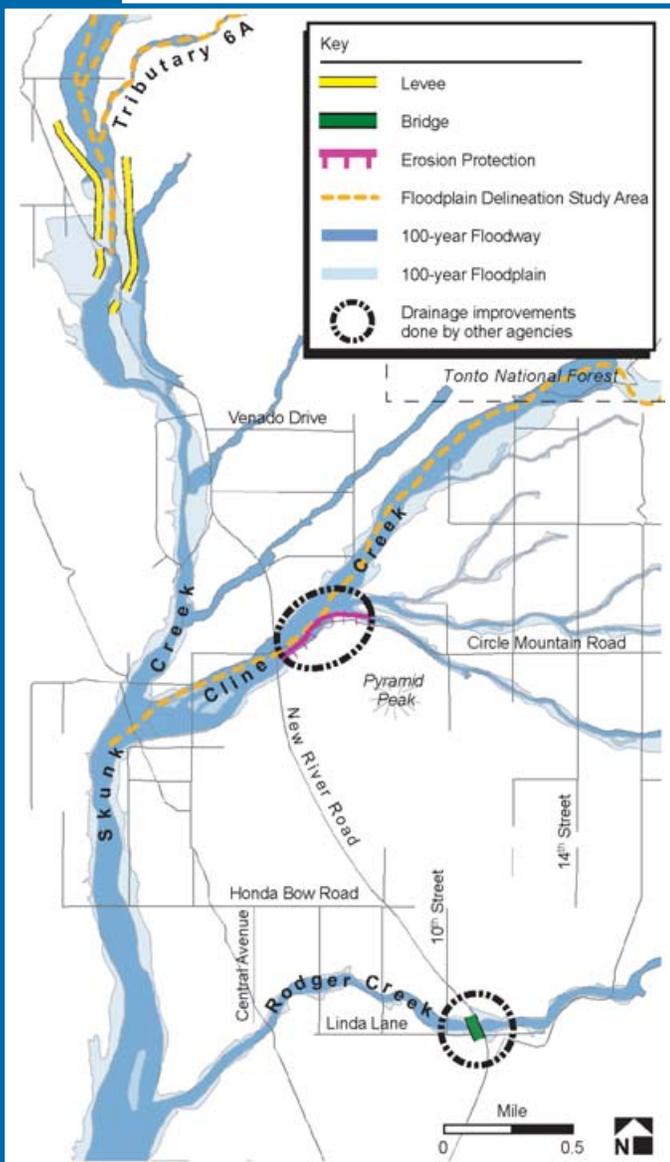


Desert Hills Subarea

- Protects 7th Street and Cloud Road from Desert Lake Wash flooding
- 24th Street removed from Apache Wash flooding
- Protects Desert Hills Drive from Skunk Creek flooding
- Opportunity to create long wildlife corridor along Desert Lake Wash to link to trails and open space at Desert Mountain Middle School and State Trust Land parcel
- Opportunity to improve aesthetic quality of wash corridor
- 24th Street shifted from high-quality habitat along Apache Wash to low-quality habitat in adjacent upland area

Disadvantages

- Street flooding at 7th Avenue, Joy Ranch Road, and Maddock Road not addressed



New River Subarea

RECOMMENDED ALTERNATIVE

NEW RIVER

Drainage/Erosion Issues

- Flows in Rodger Creek impact roadway accessibility on New River Road
- Potential erosion of Circle Mountain Road embankment along Cline Creek impacts access to/from entire Cline Creek residential area
- Flows in Rodger Creek, Cline Creek, Skunk Creek, and Tributary 6A cause flooding of residences
- Flows break out of the Skunk Creek channel upstream of the New River Road bridge, causing flooding of residences and impacting roadway accessibility on New River Road west of the bridge

Structural Components

- Construct new bridge at the New River Road crossing of Rodger Creek to prevent interrupted access between Desert Hills and New River
- Construct bank protection at Circle Mountain Road embankment to control erosion resulting from flows in Cline Creek and maintain access to residential area
- Construct new levees along Skunk Creek upstream of the New River Road bridge to prevent flow breakouts, flooding of residences, and interrupted access on New River Road
- Construct channel improvements in Skunk Creek in the vicinity of the New River Road bridge to keep all streamflow in the channel passing through the bridge opening

Nonstructural Components

- Floodprone Properties Acquisition Program (see page 6 for description)
- Flood Response Plan (see page 6 for description)
- Drainage Guidelines (see page 7 for description)
- Upper Skunk Creek and Tributary 6A Floodplain Delineation Study (see page 7 for description)
- Cline Creek Floodplain Delineation Study (see page 7 for description)

Benefits

- Removes Rodger Creek, Cline Creek, Skunk Creek, and Tributary 6A floodway residents from flooding hazard through voluntary acquisition program
- Protects New River Road from Rodger Creek flooding and maintains access between New River and Desert Hills
- Protects Circle Mountain Road from Cline Creek flooding and maintains access to residential area
- Protects New River Road from Skunk Creek flooding
- Opportunity to link to regional trail proposed for New River Road

- Opportunity to build bridge compatible with proposed regional trail from Lake Pleasant to Cave Creek
- Bridge crossing more wildlife-friendly than existing culvert at Rodger Creek
- Opportunity for more improved aesthetic design of terraced bank protecting Circle Mountain Road at Cline Creek

Disadvantages

- Levees impact high-quality habitat along Skunk Creek
- Levee impacts the landscape's scenic integrity and substantially alters existing character of setting

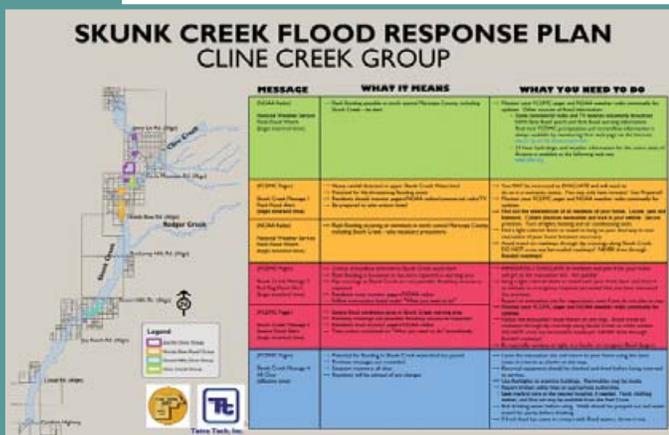
NONSTRUCTURAL COMPONENTS OF THE RECOMMENDED ALTERNATIVE

The nonstructural components of the Recommended Alternative for the Adobe Dam/Desert Hills ADMP include the Flood Response Plan, Floodprone Properties Acquisition Program, Drainage Guidelines, and Floodplain Delineation Studies. These nonstructural components are intended to:

- Reduce existing drainage and flood hazards to residents and emergency responders in the study area
- Guide future development in the watershed so that runoff conditions are improved or maintained at current levels
- Provide the best available information for regulation of the floodways and floodplains in the study area

The Flood Response Plan and Floodprone Properties Acquisition Program are focused on helping residents currently living in the study area. The Drainage Guidelines and Floodplain Delineation Studies would generally apply to development for future conditions in the study area. The applicability of the nonstructural components to existing and future conditions is described in more detail below.

EXISTING CONDITIONS

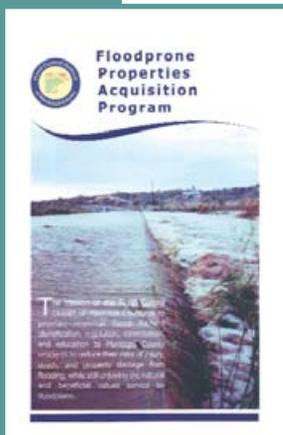


Example of Flood Response Plan

FLOOD RESPONSE PLAN

The purposes of the Adobe Flood Response Plan are to:

- Assess rainfall and streamflow data from existing and new gages in the watershed so that imminent floods can be detected and appropriate flood response actions triggered
- Facilitate the sending of timely and informative flood warning messages to emergency response agencies and area residents
- Communicate critical information to law enforcement and fire protection agencies and roadway barricade crews to assist them in carrying out emergency flood response activities in minimal time and with maximum safety



FPAP Brochure

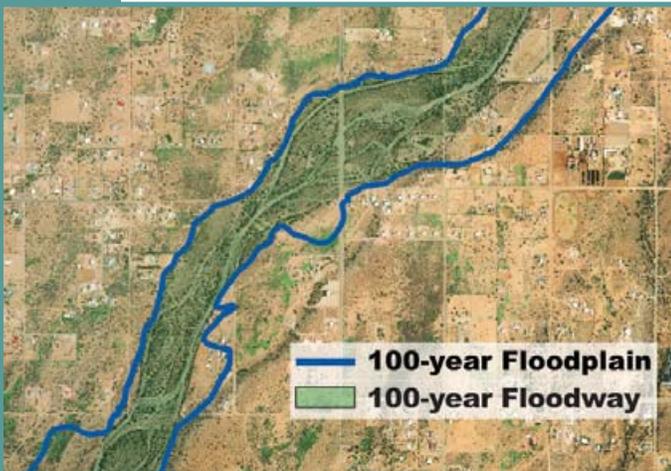
FLOODPRONE PROPERTIES ACQUISITION PROGRAM (FPAP)

To reduce the occurrence of repetitive loss to property and to protect the public, the District works with property owners on projects to remove them from harm's way. Regional structural projects are not always feasible; therefore, the District developed a proactive program called the Floodprone Properties Acquisition Program (FPAP). The FPAP provides limited funding for the voluntary buyout of residences which are at high risk for flooding.

The study team has identified homes that are located within the Federal Emergency Management Agency (FEMA) designated floodways within the study area. An engineering assessment has been performed for these residences to further determine the level of flooding risk. Eligible homeowners who apply for the program may choose to accept the buyout offer proposed by the District or remain in their homes.



Drainage Problems In Study Area



Floodplain Delineation

FUTURE CONDITIONS

DRAINAGE GUIDELINES

The Drainage Guidelines will establish rules for single-family development on individual lots within the unincorporated portion of the study area. The purposes of these guidelines are to avoid problems resulting from the effects of development on local drainage and to maintain runoff to area watercourses at current levels. The guidelines address the following elements of single-lot development:

- Drainageways
- Erosion hazard setbacks
- Finished floor elevations
- Disturbance envelopes
- Culverts, driveways, and roads
- Wall, fences, and berms
- Retention basins

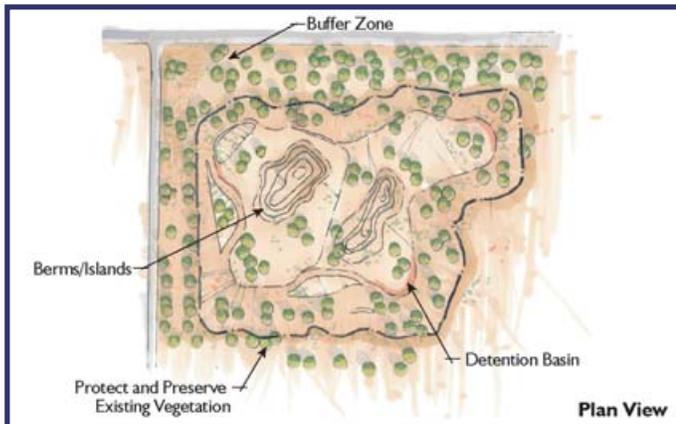
FLOODPLAIN DELINEATION STUDIES

The Floodplain Delineation Studies provide information used to update existing FEMA Flood Insurance Rate Maps (FIRMs). The purpose of the Floodplain Delineation Studies is to provide the best available information to local and regional planners and floodplain administrators to further promote sound land use practices and floodplain development. In this manner, future development within mapped floodways is prevented and construction within floodplains is regulated to enhance public safety in floodprone areas.

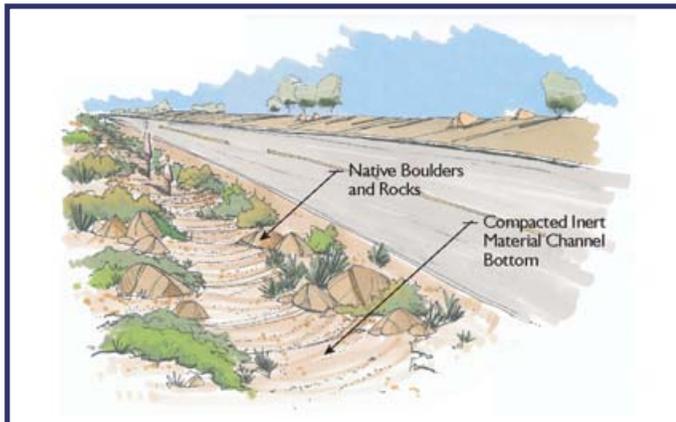
RECOMMENDED ALTERNATIVE PRELIMINARY COST ESTIMATE

Recommended Alternative Component	Cost Range ^a
Structural Components	\$51–\$81 Million
Nonstructural Components	\$13.5 Million
No Action Components	\$0
Total for Recommended Alternative	\$64.5–\$94.5 Million

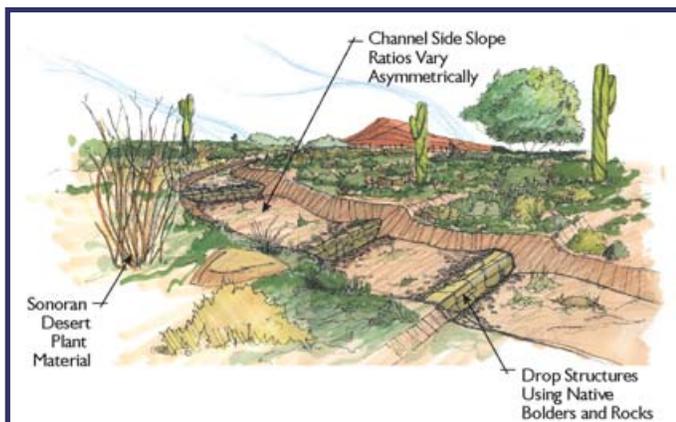
^a Lower limit of cost range reflects minimal land acquisition costs based on purchase solely of the footprint of the structural component (i.e., levees, grade-control structure, basin, channel, bank protection, bridge). Upper limit reflects maximum land acquisition costs for purchase of entire parcels crossed by structural components.



Example of Basin Aesthetic Treatment



Example of Channel Aesthetic Treatment



Example of Channel Aesthetic Treatment

AESTHETIC TREATMENT

An important part of the development and design of the Recommended Alternative has been the consideration of the visual impacts and opportunities to improve the aesthetic quality of drainage control measures. The illustrations shown here reflect the possible design and treatment of facilities that could be included to integrate this alternative into the community and surrounding landscape. Design guidelines will be developed as part of the Adobe Dam/Desert Hills ADMP to ensure that the aesthetic treatments' ideas are considered in the design.

NEXT STEPS

Please take the time to complete a comment form and either leave it with us tonight or mail it to Afshin Ahouraiyan at the address listed below. You may also fax your comment sheet to him at 602-506-4601 or e-mail him at afa@mail.maricopa.gov. Comments on the Recommended Alternative will be considered at the next stage of design.

Before the Recommended Alternative can be implemented, it has to be approved by the Flood Control Board of Directors, and funding for this project must be available.

PLANNING AND IMPLEMENTATION PROCESS



* Nonstructural recommendations include Drainage Guidelines, Flood Response Plans, Floodplain Delineations Studies, Floodprone Properties Acquisition Program, or other elements.

CONTACT

Afshin Ahouraiyan, Project Manager
 Flood Control District of Maricopa County
 2801 West Durango Street
 Phoenix, AZ 85009
 Phone: (602) 506-1501
 E-mail: afa@mail.maricopa.gov

Please visit the Flood Control District of Maricopa County's Web site for updated project information:
www.fcd.maricopa.gov/projects/adobedamadmp.