Cave Creek Drainage Master Plan

Public Meeting
July 10, 2007
Presenters

Wayne Anderson, P.E.
Town of Cave Creek

Felicia Terry, P.E., CFM
Flood Control District of Maricopa County

David W. Buras, P.E., L.S.
HDR Engineering, Inc.
Tonight’s Agenda

- Drainage Master Plan (DMP) Overview
- Identified Drainage Issues
  - Development impacts to washes
  - Erosion problems
  - Access problems due to flooded roads
- Proposed Elements of the DMP
- Next Steps
Project Team Roles

District – Develop the DMP

Town – Implement the DMP

Public – Provide ideas and feedback
Drainage Master Plan

- Provides recommendations that mitigate identified flood and erosion hazards

- How is a DMP developed?
  - Data collection
  - Drainage, flooding, and erosion problems
  - Alternatives formulation and evaluation
  - Public involvement

- Recommended alternative

Key note: DMP to be used as a tool to manage drainage issues in the area
Study Area

Key:
- Town of Cave Creek
- Study boundary

DMP Overview

Maricopa County

CAVE CREEK

CAREFREE

PHOENIX

SCOTTSDALE
Two DMP Phases

Phase 1
- Identifies flooding hazards
- Develops possible alternatives
- Involves the public

Products
- 2-foot contour mapping
- Flood Response Plan
- Drainage guidelines
- Ocotillo Wash floodplain redelineation
Ocotillo Wash Floodplain Redelineation

Previous Mapping

(Zone A)
Ocotillo Wash Floodplain Redelineation

Redelineation (Zone AE)
Two DMP Phases (continued)

Phase 2
- Evaluates alternatives
- Recommends a preferred alternative
- Involves the public

Products
- Environmental Overview
- Additional floodplain delineations
- Implementation Plan
- Final Drainage Master Plan
Project Schedule

- Project began in April 2006
- First public meeting in July 2006
- Public workshop in October 2006
- Meeting for Ocotillo Wash residents in May 2007
- Public meeting for draft DMP in July 2007
- Final public meeting in September 2007
- Final DMP to Town in October 2007
Major Drainage Issues

Development impacts to existing washes
- Walls and/or buildings in washes
- Fill dirt or debris in washes

Erosion hazard problems
- Houses constructed too close to eroding bank
- Streambeds eroding; affecting roads

Flooded roads
- No crossing during minor flows—hour(s) delay
- No crossing during major flows—day(s) delay
Study Area in 1953

Washes Impacted

Identified Drainage Issues
Study Area in 2006

Washes Impacted

Identified Drainage Issues
Existing Mapped Floodplains

Washes Impacted

Identified Drainage Issues
Typical Development Impacts with Wash Corridors (2006)
Erosion Hazard Problems

Stream Alignment in 1953

All historical stream alignments are shown on a recent aerial

Identified Drainage Issues
Erosion Hazard Problems

Stream Alignment in 1962

All historical stream alignments are shown on a recent aerial

Identified Drainage Issues
Erosion Hazard Problems

Stream Alignment in 1977

All historical stream alignments are shown on a recent aerial

Identified Drainage Issues
Erosion Hazard Problems

Stream Alignment in 1985

All historical stream alignments are shown on a recent aerial

Identified Drainage Issues
Identified Drainage Issues

Erosion Hazard Problems

Stream Alignment in 1992

All historical stream alignments are shown on a recent aerial
Erosion Hazard Problems

Stream Alignment in 1999

Identified Drainage Issues

All historical stream alignments are shown on a recent aerial
Identified Drainage Issues

Roads flooded during heavy rainstorms
Inaccessible areas due to flooded roads

Identified Drainage Issues
Proposed elements of the DMP that will mitigate these drainage issues
Proposed Elements

Development impacts to washes
- Identify wash corridors
- Additional floodplain mapping
- Drainage guidelines
- Wash obstruction removal
- Floodprone Properties Acquisition Program (FPAP)
- Education program

Erosion hazards
- Identify erosion hazard setbacks
- Drainage guidelines
- Education program

Flooded roads during rainstorms
- Flood Response Plan
- All-weather access
- Education program
Proposed Elements of the DMP

Existing Mapped Floodplains
Proposed Elements of the DMP

Existing Mapped Floodplains

New Floodplain Mapping
Existing Mapped Floodplains

New Floodplain Mapping

Wash Corridors

Proposed Elements of the DMP
Drainage Guidelines

Features
- Guides development to ensure safety
- Preserves integrity of existing washes

Problems Addressed
- Development impacts
- Erosion hazards

Proposed Elements of the DMP
**Wash Obstruction Removal**

**Features**
- Allows wash to function naturally
- Minimizes area flooding and ponding
- Helps minimize damage to structures

**Problem Addressed**
Diverted wash — flooding

**Proposed Elements of the DMP**
Voluntary Floodprone Properties Acquisition Program (FPAP)

**Features**
- Homeowners choose to relocate
- Reduced flood losses
- Preserves natural function of washes

**Problems Addressed**
- Flooding of homes within FEMA floodplains
- Public safety

Proposed Elements of the DMP
Erosion Hazard Setbacks

Features
- Maintains natural environment
- Helps minimize damage to structures

Problems Addressed
- Bank erosion
- Public safety
Flood Response Plan

Features

- Improves communication between District and Town
- Provides earlier notification
- Identifies road closures
- Helps minimize loss of life

Problem Addressed
Public safety

Proposed Elements of the DMP
All-Weather Access

Features
- Allows emergency response
- Allows access across major washes

Problems Addressed
- No access due to flooded roads
- Public safety

Proposed Elements of the DMP
Proposed Elements of the DMP
Access after 24th Street and Carefree Highway Improvements

Proposed Elements of the DMP
Access after 24th Street and Carefree Highway Improvements

Cave Creek Culvert Improvements

Proposed Elements of the DMP
Access after 24th Street and Carefree Highway Improvements

Cave Creek Culvert Improvements

All-weather access on School House Road

Proposed Elements of the DMP
Access after 24th Street and Carefree Highway Improvements

Cave Creek Culvert Improvements

All-weather access on School House Road

All-weather access on Spur Cross Road

Proposed Elements of the DMP
Education Program

Problem Addressed

- Public safety

Features

- Educate property owners about potential erosion hazards
- Educate area drivers about not driving in low-water crossings when water is present
- Educate property owners about not diverting water in washes

Proposed Elements of the DMP
Next Steps
Where do we go from here?

- Refine elements of the DMP
- Additional floodplain delineation
- Recommend preferred plan
- Inform the public
- Plan is presented to Town Council for adoption
Questions?
Don't like house in floodplain?