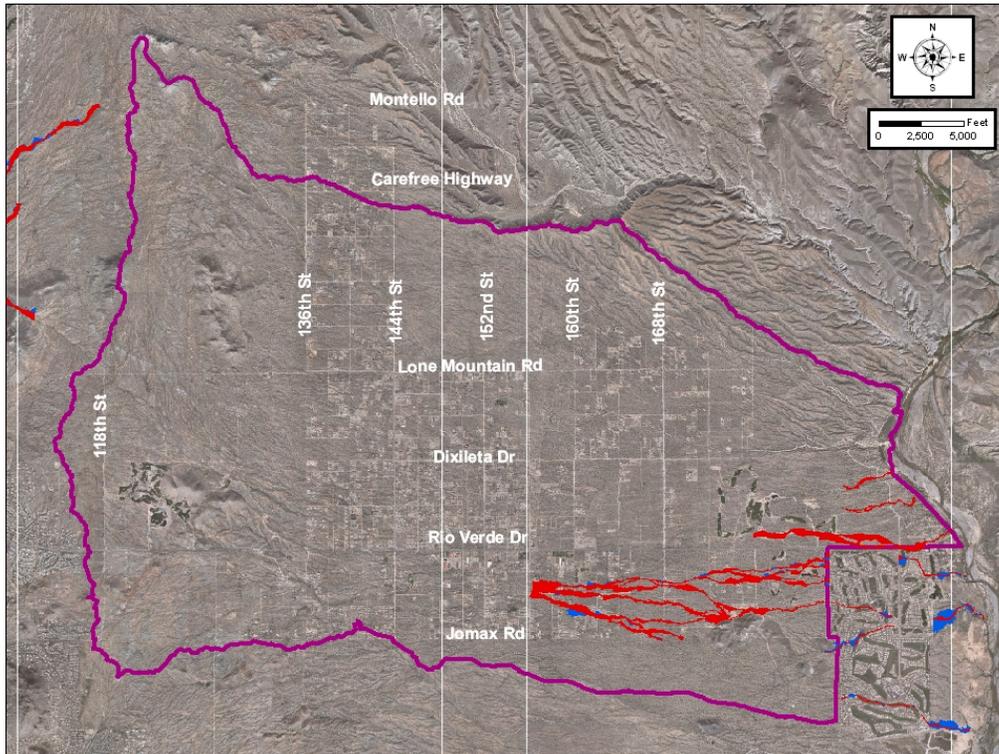




Supervisor Don Stapley, District 2

Rio Verde Area Drainage Master Plan
Floodplain Delineation Study

Public Meeting Presentation
July 19, 2007



Project Limits

The project limits include approximately 40-square miles. The following map shows the existing FEMA floodplain/floodway, which drains to the east to the Verde River.

Area Drainage Master Plan

- Flood control management recommendations to mitigate flood and erosion hazards.
- How an ADMP is Developed
 - Data Collection
 - Alternatives formulation and evaluation
 - Public Involvement
- Recommended Alternative



An area drainage master plan (ADMP) includes an analysis of identifying flood hazards and the generation and evaluation of alternative solutions. With input from involved agencies, the public, property owners and other stakeholders, the result is a recommended alternative to manage the storm water in an area either by structural or nonstructural alternatives.

The purpose of an ADMP is to develop plans to help mitigate the flood hazards in an area. The major components of the ADMP include stakeholder and public involvement, hydrology and hydraulics, engineering analysis, biological and archeological assessments, landscape character assessment, evaluation of multi-use potential, inventory of known hazardous waste sites, and cost estimates for alternative flood protection facilities. The District's objective is to integrate these components to develop solutions that are cost-effective and minimize flooding and erosion impacts to existing and future structures.



Unique drainage character is present in Rio Verde. Drainage in this photographic example in the study area is from left to right. Note that wash bottoms split into multiple channels in the downstream direction. This is referred to as distributive flow, where channels diverge rather than converge as in tributary flow.



An example of sheet flow



An example of erosion



Erosion can cause small gullies to occur naturally.



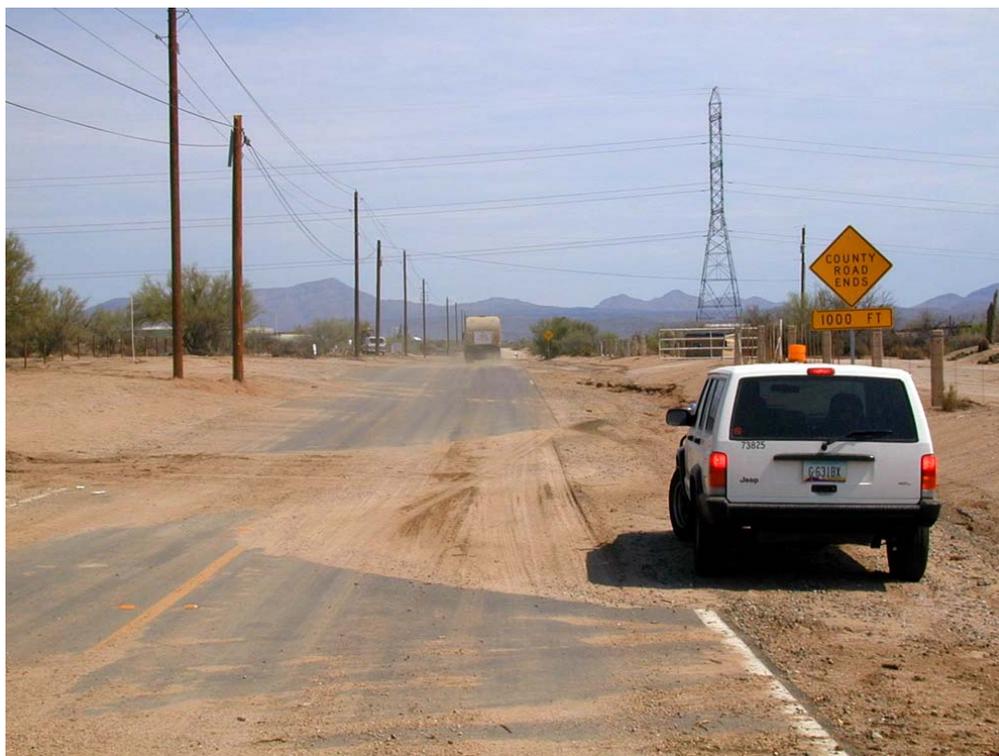
Small debris clogs washes.



Washes have the capability to split.



New washes are formed.



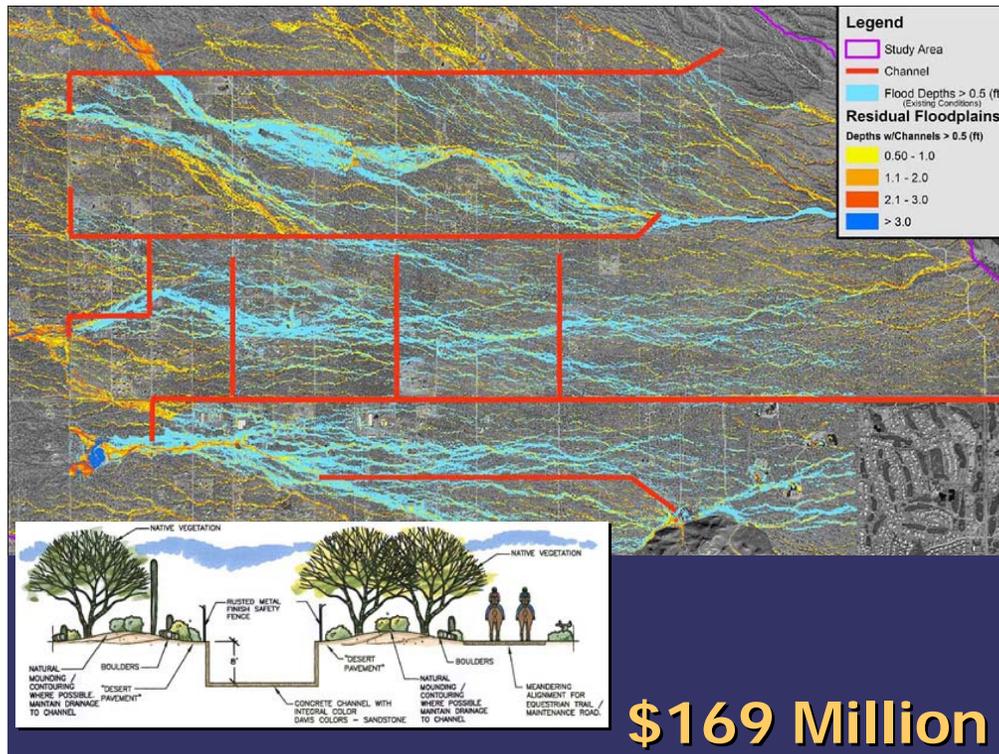
During storms, sediment is deposited.

Management Tools

- Structural Alternative
 - Dams, channels, levees, etc. control flood waters of rivers/washes
- Non-Structural Alternative
 - Floodplain delineations show the limits of the 100-year flood

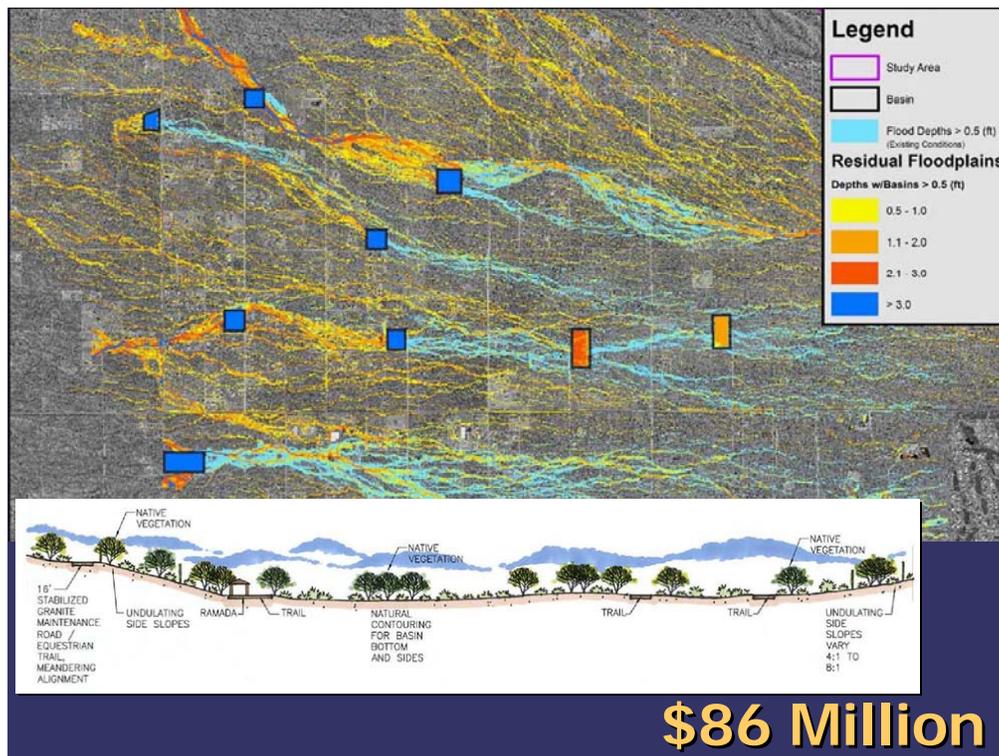


Through the ADMP, structural and non-structural alternatives are developed. From those, the best recommended approach is determined.



Conveyance Alternative

The construction of concrete lined channels, shown as red lines, will reduce the amount of flooding but not abolish flooding. With the completion of this alternative, flooding will still occur. The bright blue color depicts the existing run-off, showing the amount of flow that will be reduced or eliminated after construction. The remaining colors show the amount of water that will continue to flow after construction of the channels. The inset depicts a proposed channel cross-section.



\$86 Million

Detention Alternative

This alternative shows the construction of basins, sited per the black outlined boxes, that will intercept major washes to detain the flow. The light blue depicts the amount of flow that will be decreased or eliminated after construction of the basins. The remaining colors show the flow that will remain after construction of the basins.

Non-Structural Alternative

- Unincorporated Maricopa County
 - Drainage managed by Planning and Development
 - Floodplains managed by Flood Control
- City of Scottsdale
 - Manages both Drainage and Floodplains



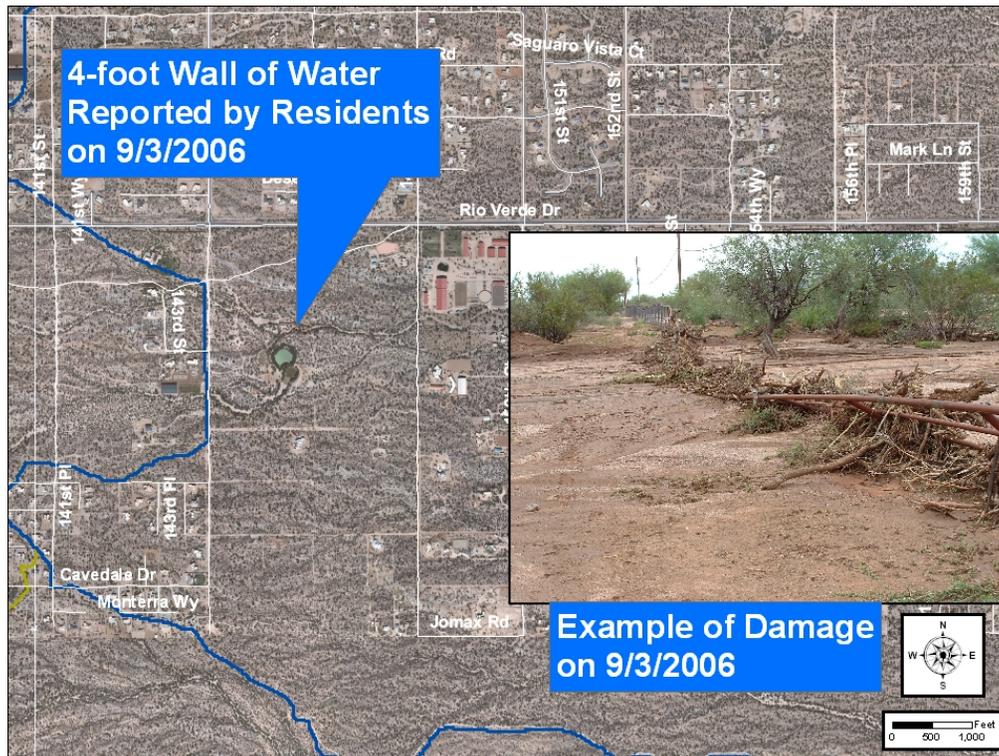
In this case, a non-structural alternative is the delineation and regulation of the 100-year floodplains.

100-year Design Storm

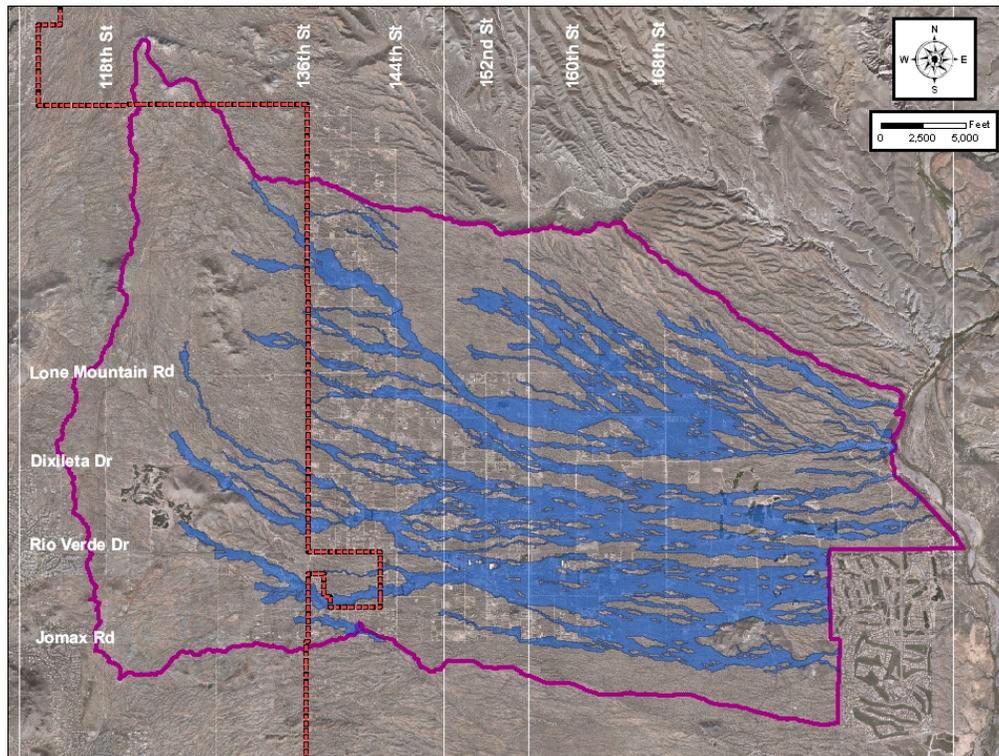
- What does 100-year mean?
 - Storm has a 1% chance of occurring in any given year
 - 4.4-inches within 24-hours
- Storm on September 3, 2006
 - 1.3 inches in 24-hours
 - Less than a 2-year, 50% chance storm

As part of the Rio Verde Area Drainage Master Plan (ADMP), a floodplain delineation study was conducted. This alternative recommended to delineate a Zone AE floodplain with no floodway and to recommend to FEMA to remove the existing FEMA floodways. The floodplain is designated a Zone AE which is a detailed study.

For more information on 100-year Floodplain maps, visit the District's Web site at <http://www.fcd.maricopa.gov/GIS/maps.aspx>



Although 100-year storm flow depths are generally not extreme in the Rio Verde ADMP study area, averaging less than two feet, the potential for damage is high due to steep slopes, highly erodible soils, and debris collected and conveyed by storm water. The damage to this fence was done by flow depths of less than two feet.



100-year Floodplains

Above are the preliminary floodplains in Rio Verde that will be sent to FEMA for approval.

The District is currently regulating to these floodplains since they are the "best technical information" available.

What does this mean for Property Owners?

- Stay out of sandy bottom washes
- No rise in base flood elevation
- Elevate lowest floor 2' above base flood elevation or 18 inches above natural grade
- Erosion protection for fill pad and channelization
- Flood insurance



Applicants for building permits in this area will be required to provide engineering analyses and a drainage report that prove there will be no rise in the base flood elevation on their property as a result of the proposed construction. This will help to prevent adverse impacts to surrounding and downstream properties; in other words, protect the neighbors. In addition, lowest floor elevation and erosion protection requirements will help protect the buildings from damage during flood events. The Flood Control District recommends that all home owners in the Rio Verde area carry a flood insurance policy, regardless of whether or not their home is in the delineated floodplain.

Next Steps

- Currently regulating development with these floodplains
- Submit floodplain study to FEMA in October 2007
- Once approved by FEMA, flood insurance will be required

