

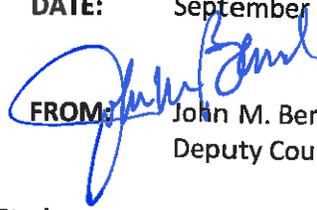


MEMORANDUM

Public Works Administration

DATE: September 15, 2014

TO: Honorable Chairman and Members,
Pima County Board of Supervisors

FROM:  John M. Bernal
Deputy County Administrator

RE: Green Valley Drainageways, Basin Management Study

In 2013, the Pima County Regional Flood Control District (District) commissioned CMG Consultants to prepare a drainage study for all of the Green Valley area. The study has been completed and was the subject of a recent news article (attached).

The study is a broad overview to determine where there may be needs for further, more detailed investigations, as well as future capital improvements and maintenance. The scope of the study included all drainageways and drainage structures in Green Valley. This includes infrastructure that is privately owned, maintained by Pima County or maintained by others, such as I-19 drainage improvements and culverts that are the responsibility of the Arizona Department of Transportation.

The study included evaluation of storm discharge values for various storms including the 100-year storm, which is 2.78 inches per hour. Watersheds were also re-delineated for each drainageway to account for current land use, impervious areas and other factors, such as vegetation, in the determination of updated discharges.

In addition, the study provided for hydraulic routing of the runoff, an evaluation of drainageway and culvert capacities to convey the flows and a generalized mapping of potential areas that may be subject to flooding during a 100-year event. This work was done using 2008 and 2011 aerial based topography.

The District's next steps will be to study potential problem areas in detail. This may include on the ground field surveys, more detailed engineering analysis, geotechnical analysis and locating utilities which will be used to develop capital improvement plans where necessary. The District will be coordinating additional drainage maintenance activities this fall with the Green Valley Traffic & Arroyos Committee.

This link, <https://webcms.pima.gov/cms/One.aspx?portalId=169&pageId=68778>, gives direct access to the report. If you have questions regarding the report, please contact Suzanne Shields, Director, Regional Flood Control District.

JMB:jgs

Attachment

Cc: C.H. Huckelberry, County Administrator
Suzanne Shields, Director, Regional Flood Control District

Drainage ways study a blueprint for future projects

By Kitty Bottemiller kbottemiller@gvnews.com | Posted: Friday, September 12, 2014 5:23 pm

The first comprehensive study of Green Valley's drainage ways in more than 30 years — to be used to prioritize projects involving the system — is available for public review.

The study recently published by the Pima County Regional Flood Control District encompassing watershed, floodplain maps and other engineering documents is about five inches thick. And there's more to come as needs are identified to help determine development of future work, said Chief Hydrologist Brian Jones of the county's Floodplain Management Division.

But what's just been released is a meaty framework for anyone wanting to see how their neighborhood or other areas size up, whether their general elevation has changed over time, and if improvements, maintenance or other attention may be called for.

Homes and buildings settle, natural flood channels shift, land uses change and building codes get revised, Suzanne Shields told Green Valley Council leaders Wednesday during a presentation about the study. Aging concrete work requires maintenance, weighty berms become compacted, channels may need improvements, and culverts upsizing, depending on development that's come or gone in the last three decades. Major storm events hit in the early 1980s and many less-impactive ones since, plus years of freezing in winter and roasting in summer, all of which can affect flood control measures.

A few culverts may need enlarging, Shields said, noting that most here were built to standards of 25 years ago, and some areas were developed with higher density than originally planned.

It was time for a broad area view to help the county plan what needs to be addressed now and eventually, to avoid flood-related problems.

Including a Green Valley Hydrology Study, the undertaking contains aerial photography from 2012 and topography detail accurate to within a half-foot — more would've cost easily more than a half-million dollars, Shields said — but enough to pinpoint spots where engineers will return and conduct more-detailed study and technical review. It also includes calculations to ultimately determine current hydraulic conditions of all Green Valley drainage ways.

It doesn't necessarily note specific addresses of residences in flood plains but shows a FEMA-issued floodplain map of the Santa Cruz River corridor.

Bottom line, you want the water surface lower than your home or building, Shields said. For anyone curious about a specific address, Shields suggests consulting the elevation certificate issued by a surveyor.

Her office has lots of eyes, instruments and partnering agencies watching closely during weather events like Monday's, which largely missed Green Valley but socked Tucson and Phoenix. Retention basins were full but storm flow a fraction of what it could have been in some drainage areas, thanks to functioning controls, Shields said.

Areas of interest

She noted places along Interstate 19 that "pond up," recede fairly quickly and aren't severely affected.

"There's no need for high concern even with heavy rainstorms here, (water) goes away pretty quickly."

The county may look to federal assistance on future development upriver, as FICO's master-planned and possibly other development kicks in, replacing pecan orchards and open desert. Flood control experts are also working with historic Canoa Ranch, where they hope to do some environmental restoration in the floodplain there, including the Anza Trail area.

Should residents be concerned about flood insurance, a GVC Traffic & Arroyos Committee member asked.

"You don't have to be in a floodplain for that insurance, but it probably won't cover erosion damage," Shields said, adding that residents of Pima County should qualify for a discount on such policies because there are almost no homes within FEMA's 100-year floodplain.

What's a 100-year flood? Storm activity with a 1 percent chance of occurring annually. Monday's was about 10 percent, Shields said.

"Rainfall measuring 3.5 inches in less than an hour would qualify. Some parts of Tucson got four."

What's ahead

Adding to the Green Valley study will be research for which Pima County has received FEMA funds, to examine the Santa Cruz River corridor from county line to county line, for a snapshot reflecting recent changes, to include the Green Valley section.

The county is considering seeking cut off for existing Drainage Way 9, the only one extending beyond the mines west of Green Valley and an exceptionally lengthy one, Shields said.

“Right now, Freeport-McMoRan owns the watershed, and we have good communications with them. We may approach the company to see if they can cut off that watershed. That in itself would cut off potential for flooding.”

The drainage ways study so far recommends some maintenance but there's not a lot of places needing significant improvements, Shields said. The next step is where detailed survey work will occur.

“We might even send out notices to homeowners to survey finished floor elevations. Along washes under study we oftentimes find that homes are higher.”

None of these areas will be a surprise, Shields said.

“This is our chance to look at it in detail.”

Kitty Bottemiller | 547-9732