Flood Control District of Maricopa County

Flood Control Advisory Board

Meeting Minutes for August 27, 2014

Board Members Present: Hemant Patel, Chairman; Melvin Martin; DeWayne Justice, Secretary; Ray Dovalina; Bob Larchick, Ex Officio

Board Members Absent: Dallas Tanner, Vice Chairman

Staff Members Present: Bill Wiley; Wayne Peck, General Counsel; Christopher Fazio; Patrick Schafer; Chandra Miller, Steve Water Frank Brrown, Dave Degerness, Daniel Henz, Scott Vogel, Analia Summers, Anna Medina; and Ed Raleigh, Ken Proksa.

Guests Present: Jeff Minch, Wood/Patel; Dave Jensen, Olsson Associates; Geoff Brownell, Baker; Jock Moody, SHG; Brian Schalk, Atkins; Doug Both, Hoskin Ryan; Nick LaFronz, HDR; Raj Shafi, RPA; Stephanie Munoz, Dibble; Patrick Wolf, RPA; Ricky Holston, Sunrise Engineering; Pat Quinn, JE Fuller; Doug --, Baker; Nathan Ford, Baker; Brian Wahlen, WEST; Randy Hugel, Fountain Hills; Hasan Mushtaq, City of Phoenix.

1) CALL TO ORDER

Hemant Patel called the meeting of the Flood Control Advisory Board (FCAB) to order at 2:00 p.m. on Wednesday, August 27, 2014.

2) PLEDGE OF ALLEGIANCE

The Pledge of Allegiance was recited.

3) APPROVE THE MINUTES OF APRIL 23, 2014

ACTION: It was moved by Mr. Justice and seconded by Mr. Dovalina to approve the minutes as submitted. The motion carried unanimously.

4) GUADALUPE FRS REHABILITATION PROJECT, RESOLUTION FCD 2014R001

Presented by Dave Degerness, Project Manager

STAFF RECOMMENDS THE FOLLOWING ACTION: Endorse and recommend that the Board of Directors of the Flood Control District of Maricopa County adopt Resolution FCD 2014R001, for the Guadalupe FRS Rehabilitation Project.

Mr. Degerness began by presenting an inset picture depicting a storm that occurred on July 13th, 2008, during which approximately 2.8 inches of rainfall occurred over a one hour span. It

represented a 200-year one hour rainfall event. He noted that if the flood retardant structure had not been constructed, the result would have been the flooding of the Town of Guadalupe.

Mr. Degerness identified the existing 22 flood retardant structures on an area map, noting that Guadalupe FRS is located just off of I-10. The earth-fill flood retarding structure was constructed by NRCS in 1976. It was modified in 1986. It is operated and maintained by the District. AWR is the regulatory partner. The structure is 3,152 feet long. Its crest height is 27 feet from its base. He then discussed a vicinity aerial photograph of the location, identifying Guadalupe Road to the north, Baseline Road to the south, Interstate 10 to the east and the Town of Guadalupe.

He next reviewed deficiencies, including exposure and corrosion of the reinforcement steel, cracking of the decorative façade of the intake structure, deterioration of the principal spillway, structural defects of the principal spillway downstream of the tow of the dam as well as the lack of a filter diaphragm around the spillway and the dam embankment, which could lead to failure of the dam. He then reviewed a series of photographs that depicted the deficiencies in greater detail.

He explained that a firm was hired to develop alternatives, which were provided to selection committees in order to select criteria for a final design. The criteria was based upon flood protection, performance and aesthetics. He reviewed a slide depicting a 15 percent concept level of the solutions for the dam embankment sections. This includes a new intake riser upstream of the dam as well as slip winding a 30 inch reinforced concrete pipe through the dam. The next photograph displayed an aerial view downstream of the dam and Mr. Degerness identified the location of the tow of the dam as well as the location of the first manhole downstream. He discussed in detail the slip lining process and the proposed locations of new manholes.

He went on to discussed the proposed construction, including replacement of the intake structure with an updated design standard, installation of a filter diaphragm around the pipe in the interior of the dam, slip line the existing principal spillway through the dam and slip line the principal spillway down stream of the dam.

The total cost assumes procurement of funding. The final design and investigation is estimated to be $400,000 and construction totaling $2.1 million, for a total cost of $2.5 million. Because the pipeline must be prepared, NRCS will take part in this process. As such, the cost sharing is estimated to be $1.1 million. Out of this, NRCS will cost share 65 percent, or $750,000. This would leave the District's share at $385,000.

Board Member Martin asked what year the structure was built. Mr. Degerness replied that it was built in 1976. Board Member Martin asked whether the District had salaried engineers that could design the project? Mr. Degerness answered that it was possible, however, the process would be significant lengthier, due to the multiple duties of staff engineers. He added that using design consultants expedites the process significantly.

Chairman Patel asked about how the issues were identified. Mr. Degerness identified the intake structure, explaining that the land was sold to Gosnell Development Corporation, who built the existing resort in the area, which includes a golf course. Continued watering of the golf course led to failure of the intake structure, the cracking and the corrosion of the rebar. He pointed out that Gosnell has since gone out of business. When the final design is completed, it will include an exclusion zone around the intake structure, setting back any sprinkler that the golf course may put back in, in order to prevent the existing structure from being constantly wet. As far as the

principal spillway through the pipe dam section, he surmised that this was due to loading from the dam that has led to the pipe failure. The damaged pipe downstream of the flow is due to geotechnical borings and other activities in the area by individuals who were unaware that the pipe existed when they drilled. He added that the structures are nearly 40 years old at this time.

Chairman Patel agreed that the structures area aged, but noted that the cost of over $2 million was excessive to correct the mistake of people drilling through the pipes.

Chairman Patel asked who owns the golf course at this time. Mr. Degerness replied that it is now owned by Arizona Grand Resort. He added that the District is working with the Resort.

Chairman Patel asked whether the Resort is partnering on the project. Mr. Degerness confirmed that they are not sharing the costs, but they are partnering as far as helping to select the criteria. They will also participate in the final design process and will be notified when construction will occur.

Chairman Patel asked about whether the Resort will be educated to not do additional harm to the structure going forward. Mr. Degerness stated that staff works with them on this.

Board Member Martin asked whether the District originally sold the land to Gosnell. Mr. Degerness stated that ADOT sold them the land and that the structure was built prior to the purchase of the land.

Tom Renckly, Flood Control District employee addressed the Board.

Mr. Renckly added that the District had an easement from ADOT when it built the structure. Subsequently, ADOT sold the underlying fee land and the easement went with it. This allowed Gosnell to proceed with development. He termed it a worse case development within an impoundment structure. Because the District did not acquire the land in fee, their options were limited. He explained that for this reason, as the District acquires land needed for dams, they always first attempt to acquire the land in fee. If this is not possible, they proceed with an easement. He also discussed the condition of the pipe, noting that the boring that was done, which resulted in damaged pipes was done so without the knowledge of the District. He added that the majority of damage relates to the age and condition of the pipe.

He stated that the technology associated with the filter was good at the time. However, the seepage collars have since been discovered to cause dam failures. Those will be modified to current standards. He clarified that the necessary work to be done is an overall modification of the structure, rather than a rehabilitation, since at this time, there is no need to do anything to the dam embankment itself, other than the localized filter. As far as design costs, he noted that this includes geotechnical investigation costs. These are fixed costs that require the hiring of a geotechnical firm. This represents approximately half of the design consulting costs.

ACTION: It was moved by Mr. Martin and seconded by Mr. Justice to approve the item as submitted. The motion carried unanimously.

5) ASHBROOK WASH IMPROVEMENTS CONSTRUCTION IGA WITH FOUNTAIN HILLS IGA FCD 2014A007

Presented by Scott Vogel, P.E., Project Manager

STAFF RECOMMENDS THE FOLLOWING ACTION: Endorse and recommend that the Board of Directors of the Flood Control District of Maricopa County approve IGA FCD 2014A007 for the Ashbrook Wash Improvements Project.

Mr. Vogel began by stating that the District has been partnering with the Town of Fountain Hills in the development of the project. This IGA is the final step needed to move forward with construction. The project is located in the Town of Fountain Hills, north of Fountain Park. Ashbrook Wash extends across the town from the west to the east to the Verde River in the Fort McDowell Yavapai Indian Community. It is located in the intersection of Saguaro Boulevard and Grand Boulevard.

In 1997, the Fountain Hills Area Drainage Master Study identified flooding problems and solutions. In 2011, at the request of the Town, the District underwent a detailed study of this particular area and verified flooding conditions via a technical memorandum. The project was approved through prioritization procedure. Last year, a resolution was put in place and earlier this year, a design IGA was entered into with the Town to proceed with design. Design is nearly complete, with the next step being construction.

He next discussed the issues requiring remediation. There are approximately 13 homes that would be subject to flooding during a hundred year storm event. Two culverts are inadequate for a hundred year event. There is also thinning of vegetation required in the wash. Mr. Vogel identified the project area on the area map. Ashbrook Wash runs across the project area. On the left is Bayfield Drive. Saguaro Road is in the center and on the right is Del Cambre Avenue. He identified the floodplain, as delineated by FEMA. The technical memorandum identifies that based on current hydrology and water shed conditions, in addition to what would be inundated within the FEMA delineated floodplain, there are approximately 13 structures adjacent to Ashbrook Wash that are anticipated to also be inundated with a hundred year storm event.

He noted that at Bayfield Drive, the hundred year design flow is approximately 2,300 cubic feet per second. At Saguaro Boulevard, it is 3,400 cfs. Further downstream, the flow is restricted by heavy vegetation and the channel cross section itself, further pushing flows out of the Wash at the cul-de-sac of Aloe Drive. The project would replace the culverts at Saguaro Boulevard and Bayfield Drive. They would be replaced with reinforced concrete box culverts, six cell, 10 feet wide and five to six feet high. In addition, the work would include thinning vegetation between Saguaro Boulevard and Del Cambre to lower the water surface. He next presented photos of the area.

He went on to discuss that the IGA identifies that the District would be the lead for the design of the project, including, construction, construction management and utility relocations. The work would take place during the next calendar year, 2015. The Town would be responsible for operation and maintenance of the culverts and the wash itself. The estimated project cost is $1.9 million, of which the construction is $1.6 million with the remainder being utility relocations and construction management. This would be cost shared 50-50 between the District and the Town.

Chairman Patel asked for confirmation that the Town is currently responsible for maintaining the wash. Mr. Vogel confirmed this, noting that the Town owns the wash as well as the crossings. Chairman Patel asked how the District could better reinforce the maintenance requirement for the

existing vegetation, which is causing some of the flooding. Mr. Vogel discussed that in general, the Town has a fairly good program of vegetation removal. Funds are allocated each year for this maintenance. In this particular area with the high groundwater, there are a number of non-native palm trees that are growing. Fires and other conditions have caused additional seeding, creating a more significant blockage of the channel. For this project, all the District is looking to remove are the non-native palm trees. This effort is likely beyond the capability of the Town to perform themselves.

ACTION: It was moved by Mr. Justice and seconded by Mr. Dovalina to approve the item as submitted. The motion carried unanimously.

6) THE LIKELY RETURN OF EL NINO, IMPLICATIONS FOR THE 2014 MOONSOON SEASON AND BEYOND

Presented by Daniel Henz, Meteorologist

Mr. Henz was present to discuss expectations in terms of rainfall and other weather conditions in Arizona as a result of the return of El Nino, if predictions come to pass. He identified El Nino as the positive or warm phase of the El Nino southern oscillation. It is a large scale oceanic and atmospheric climate response, occurring in the equatorial Pacific Ocean. The response ebbs and flows on a three to ten year cycle. The oceanic response is a building up of warmer than average waters from the central and eastern parts of the Pacific Ocean. The atmospheric response tends to favor increased thunderstorm activity from the Central Pacific all the way to the Eastern Pacific.

The Climate Prediction Center indicates that through the remainder of the year, there is a 55 percent chance of El Nino developing in Arizona starting in the summer. The probability increases up to 65 percent extending into the winter. The numbers have since decreased slightly. However, the general model consensus is an anticipation that El Nino is already underway now and will extend into the winter of 2015. In terms of the atmospheric response, the El Nino climate signal is much more evident during the November through April months. This results in a persistent extended Pacific jet streak with increased frequency of mid latitude storm complexes that bring winter rains. The main area where they form shift further south off the west coast of California, rather than the Pacific Northwest. The end result is a wetter and colder winter across the southern half of the U.S.

He then reviewed a history of El Nino activity, noting 16 episodes of El Nino from 1950 until present time. He compared the episodes to rainfall values in Arizona. He noted that in the occurrences discussed, El Nino got off to a late start and was very weak. He then reviewed the rain gauge network, consisting of over 300 rain gauges spread throughout the county and the average rainfall during the last 30 years. The 30 year average was 4.4 inches. He noted that the last major winter rain time event of regional flooding occurred in 2010 during the January storm. He explained that El Nino helps to create a favorable upper level pattern that can increase the frequency of storms that will move across the desert, however it does not enhance the thunderstorms themselves. He then discussed the Climate Prediction Center's three month outlook, beginning in October and ending March. The predictions indicate increased chances for above average rainfall. Based upon the information that there will be a moderate El Nino lasting

into 2015, it is anticipated to see 150 percent of average when taken across all the Maricopa County rain gauges, which equates to approximately 6.5 inches.

PURPOSE: Information and discussion item only. No formal action is required.

7) COMMENTS FROM THE CHIEF ENGINEER AND GENERAL MANAGER

Presented by William Wiley, P.E., Chief Engineer and General Manager

PURPOSE: Information and discussion item only. No formal action is required.

Mr. Wiley introduced himself and provided a biography, noting that he has been employed by the District for approximately two and a half months.

He went on to discuss that staff has been quite busy with some substantial flooding events. On August 12th, strong rainfall along South Mountain in the Dobbins area resulted in damage to dozens of homes. Staff has been involved in assessing the damage and working with the city of Phoenix to provide relief to homeowners and property owners. He surmised that the originating storm may have been in the range of 960 year recurrence interval for part of the intensity of the storm. The basin at 43rd Avenue and Baseline was completely full, as a result. A basin at 43rd Avenue and Southern was close to 60 percent full. He discussed another event on August 19th farther north in the New River/Cave Creek area. Tower's Mountain had over five inches of rainfall with substantial resulting damage. In addition, there have been smaller storm events in different parts of the Valley.

He went on to discuss that the County is in the process of convening an ad hoc task force to work on improving processes throughout the County departments. It began with the planning and development department and has moved over to environmental services. The ad hoc task force has begun work with the District and was present on August 21st, at which time they provided 17 recommendations to staff for implementation. They ranged from improving permitting processes to improving the website and taking payments online as well as various other improvements. He added that staff will have completed approximately 65 percent of the recommendations by October. There will be a public meeting with the Board of Supervisors, where the final 17 recommendations and the resolutions will be adopted by the Board of Supervisors on September the 8th.

He informed Board Members that staff is in the midst of strategic planning as well as looking at the budget. He pointed out that the Department is currently, "living on its bank account," with approximately $20 million coming out of the bank this year. He stated that this was not sustainable and that efforts would be needed to come to a solution moving forward. He added that more details and options would be presented at the next meeting.

Board Member Martin asked about projects in the Dobbins area that have been adopted but not yet built. Mr. Wiley confirmed that there are a couple of existing projects, one on which the engineering has been completed. It is currently planned to be funded in 2017. Again, this may have some risk due to funding.

Board Member Dovalina commented that the city of Phoenix is grateful for the work performed by the Flood Control District. Plans are being assessed for collaboration with the District on existing planned projects. He added that the funding will be a challenge, as the City has not performed a bond program.

Mr. Wiley went on to discuss that the Board of Directors of the Flood Control District today approved five IGAs that allow the District to accept $81.1 million in natural resource conservation service funds to rehabilitate four existing SCS dams. They include the White Tanks Number 4 FRS, the Buckeye Number 1 as well as the Power Line and Vineyard locations. The District has four years to complete all work necessary to successfully obtain the funds.

He announced an upcoming public meeting on September 24th in reference to the lower Gila River delineation. Lower Gila River goes from Bullard Avenue to Painted Rock. There have been changes in the floodplain primarily due to salt cedar growth in the area, causing a raising and spreading out of the floodplain.

Board Member Justice asked about any further discussion regarding a beetle infestation in eastern Arizona, which is attacking the Tamarac trees? Mr. Wiley confirmed that staff is aware of the problem, however any such activity would not help to remediate the growth problems in the near term. He added that the resulting debris would not be helpful either. Board Member Justice stated that the beetles devour the trees, leaving the stalks of young trees. He added that mature trees will actually come back after an infestation.

Mr. Wiley announced meetings in Pinnacle Peak West to work on an area drainage master study. The master study will identify the location of the hazards and how significant they are in relation to future developments. Another subject will be the possible location of controls. The meetings will occur on September 16th and 18th. He added that as part of the task force discussed earlier, staff has been asked to place signs when studies are being conducted. The first signs will be placed in these areas to indicate study locations.

He went on to discuss a significant project being worked on, which is the 303 outfall located at the I-10 down through the Gila River. Staff member Degerness indicated that the majority of work will be completed in December.

Mr. Wiley stated that as part of his position, he was asked to improve relations with stakeholders, customers and citizens. He suggested the formation of a stakeholder group to inform members of current events. Meetings would be for discussions only. He proposes a flood stakeholder group. The first meeting will be held on September 11th at 2 p.m. Finally, he encouraged members to view the updated website. Work will continue on making the website more user friendly.

No formal action is required.

8) SUMMARY OF RECENT ACTIONS

Presented by William Wiley, P.E., Chief Engineer and General Manager

PURPOSE: Information and discussion item only. No formal action is required.

9) OTHER BUSINESS AND COMMENTS

Presented by: William Wiley, P.E., Chief Engineer and General Manager

PURPOSE: Information and discussion item only. No formal action is required.

The meeting adjourned at 3:00 p.m.