

**DATE:** May 8, 2018

**TO:** C. H. Huckelberry  
County Administrator

**FROM:** Suzanne Shields, P.E. *FOR*  
Director

**SUBJECT:** Santa Cruz River Capacity Restoration Phase II – 29<sup>th</sup> Street to Mission Lane

Now that Phase I of the Santa Cruz River Capacity Restoration Project has begun, the Regional Flood Control District (District) would like to continue the discussion with respect to the need to restore capacity of the river from 29<sup>th</sup> Street to Mission Lane (Phase II). The District wants to begin this conversation with the City of Tucson (City) and interested stakeholders at an early date in order to ensure ample review prior to the beginning the sediment removal activities.

To summarize the overall project, the 2014 Intergovernmental Agreement (IGA) with the City transferred maintenance responsibility of the Santa Cruz River to the District. At that time, the District evaluated the aggradation of the river from Silverlake to Grant roads and its impact on the channel's flood carrying capacity. The results of the evaluation revealed that the aggradation, which has occurred over 30 years, has the potential to flood an additional 146 structures and additional property with an estimated assessed value of \$69 million.

The District evaluated numerous scenarios in order to gain insight regarding the consequences of leaving otherwise desirable vegetation within the channel. Keeping vegetation means that the sediment underneath the vegetation cannot be removed. These scenarios and the results of vegetation surveys will be used to determine where and how much of the desired vegetation can be preserved while reducing the risk to property and structures.

#### **PHASE 1 – SPEEDWAY BOULEVARD TO GRANT ROAD**

To recap, after consideration of these factors in Phase I, the resultant grading plan preserved approximately six acres of vegetation, which included all but one of the active bird nests surveyed. The District anticipates the removal of over 90,000 cubic yards of material from the river with about 40,000 cubic yards left in place. It is anticipated that, upon completion of this sediment removal project, the 51 structures that are impacted by the floodplain in today's conditions (22 commercial, 20 residential, and 9 governmental structures) will be reduced to six or fewer structures. In addition, it is possible that once the lowest finished floor of these structures, which are owned by the State of Arizona, are measured that one or more will be elevated such that there is no flood damage to the interior.

In addition, the receiving area for the sediment from the river, an old meander north of Grant Road on the west bank that has been cut off from the river, is planned to become a restoration project after this phase of the sediment removal project is completed. This area, currently a sparsely vegetated hole, will be turned into a neighborhood scale water-harvesting project that will serve as an amenity to the adjacent Silver Creek II subdivision as well as a node on The Loop. The placement of the sediment from the river will occur in a way that results in a multi-acre water-harvesting basin with terraces that provide for a lush mesquite bosque in the lower areas with hardier desert species in the upper terraces. The diversion of flow from an adjacent small watershed will reduce the need for long-term irrigation while containing the full flow volume of the 100-year flood.

C. H. Huckelberry, County Administrator

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**PHASE II – 29<sup>TH</sup> STREET TO MISSION LANE**

When measured in terms of public safety and flood damage potential, the flood risk reduction associated with Phase II is comparatively small. However, there are benefits for completing this project in a timely manner, including the stated goal by Tucson Water to begin recharging reclaimed water in this reach by Memorial Day 2019. The District's preference is to have performed the necessary maintenance prior to the discharge of reclaimed water.

With respect to trying to balance the desire to preserve vegetation with the need for public safety, the District is approaching the project the same way as Phase I. To date, both the aggradation evaluation and vegetation survey are complete, which have been used to develop a recommended grading plan (see attached three maps). There is a net aggradation of approximately 131,000 cubic yards of material in the Phase II reach. Based on the recommended plan, the amount of material that will remain in the preservation areas after completion is approximately 54,000 cubic yards, with approximately 77,000 cubic yards removed. The preservation area covers an area of 5.5 acres compared to total river bottom of 24 acres.

Upon completion of this phase of the project, the nine structures impacted by the floodplain in today's conditions (8 residential and 1 governmental structure) will be reduced to zero structures impacted by flooding. This will allow for the discharge of reclaimed water and associated growth of riparian vegetation without risk to adjacent structures. The existing conditions and post-project floodplain maps are attached.

Since this is City-owned property and is subject to the IGA, we will submit the recommended grading plan to them for comment. In addition, the District will request that the City identify the location of the receiving area so that we can develop a plan for the disposal of the material and for any mitigation required as part of the project. It is anticipated that the sediment from this reach will be deposited at the A-Mountain Landfill or adjacent locations as the City desires. Once a proposal for the receiving area has been developed, the District will solicit input from adjacent neighborhoods and other relevant stakeholders regarding both the grading plan and the receiving area. After this discussion and completion of any modifications to the grading plan and/or receiving area that results from this discussion, the District will submit a final recommended plan to the Pima County Board of Directors and the City Council.

SS/tj

Attachments

c: Carmine DeBonis, Deputy County Administrator – Public Works  
Eric Shepp, P.E., Deputy Director – Regional Flood Control District  
Andy Dinauer, P.E., Deputy Director – Regional Flood Control District