

PROJECT NARRATIVE

1.1 General

The Rawhide Wash Flood Hazard Mitigation Project (Project) is a partnership between the Flood Control District of Maricopa County, City of Phoenix and City of Scottsdale. The Flood Control District of Maricopa County entered into design intergovernmental agreements (IGA FCD 2018A013) with the Cities of Scottsdale (IGA No. 2018-164-COS) and Phoenix to begin the final design process.

The Project generally includes design of a floodwall and levee system to contain the 100-year flood (1% chance of occurring in any given year) with required freeboard within the Rawhide Wash corridor from ½ mile north of Happy Valley Road to just upstream of Pinnacle Peak Road. The general project limits are shown on Figure 1.

Currently, Rawhide Wash is identified by the Federal Emergency Management Agency (FEMA) as an active alluvial fan floodplain with high flows during major storm events. Over 800 buildings (mostly houses) are located with the FEMA delineated Special Flood Hazard Area (SFHA). The Project was originally formulated as the Conveyance Alternative in the recently completed Pinnacle Peak West (PPW) Area Master Drainage Study (ADMS), which was led by the Flood Control District of Maricopa County (FCD), with the Cities of Scottsdale and Phoenix being key stakeholders. Additional post-PPW ADMS design concept work was performed by the FCD, in cooperation with Scottsdale and Phoenix, to refine the Conveyance Alternative and perform non-destructive testing and evaluation of existing floodwalls and erosion control measures constructed by past development within the project limits, to determine their suitability for incorporation into the Project and certifiability with FEMA. The results from those analyses and other conceptual design work on the Conveyance Alternative, form the basis of the Project.

1.2 Project Scope

The Project will be designed for the 100-year flood and will predominantly contain the washes within its natural condition floodway corridor and remove the flow-path uncertainty associated with the alluvial fan apex. The major Project elements include:

- Construction of new floodwalls and/or earthen levees.
- Modification of existing floodwalls as needed to bring them into compliance with FEMA National Flood Insurance Program (NFIP) standards and requirements for a certified levee system. Existing floodwall modifications may include one or more of the following:
 - Increase the wall height to meet FEMA freeboard requirements.
 - Install new erosion protection or augment existing erosion protection at the base of the walls to protect the wall from erosion (i.e., scour).
 - Retrofit existing floodwalls to increase the structural strength of the walls to withstand the forces of water during a flood.







Figure 1 - Project Concept Map





- Roadway improvements at the Los Portones Drive crossing of Rawhide Wash to provide FEMA certifiable containment (Miller Road crossing will not be improved with this Project). Containment will be provided using a combination of roadway modifications and installation of automatic floodgates.
- Design and construction of interior drainage systems to convey local runoff generated on the land side of the floodwall levee system along and back into Rawhide Wash or other dedicated drainage-ways, using low impact methods and materials that are compatible with Scottsdale's Environmentally Sensitive Lands Overlay and the Natural Area Open Space (NAOS) requirements.
- Application for a Federal Emergency Management Agency (FEMA) Conditional Letter of Map Revision (CLOMR) to revise the floodplain boundaries to reflect the Project improvements.

1.3 Project Schedule

Project schedule anticipates completion of the design process by the end of 2020 and start of construction in early-Spring 2021, both pending continued funding by the Project partners and receipt of a FEMA issued CLOMR.

1.4 Alternatives Considered

During the PPW ADMS conceptual alternative analysis, several alternatives were considered for mitigating the flood risk currently posed by Rawhide Wash. Alternatives considered included:

- Do Nothing
- Structurally stabilize flow breakouts near the current fan apex upstream of Happy Valley Road to remove the flowpath uncertainty and substantially maintain current drainage patterns
- Construct large on-line and off-line regional detention basins to attenuate (reduce) discharges and downstream flood risk, while simultaneously removing the flowpath uncertainty of the alluvial fan apex.
- Construction of terraced channel system with a well-defined low flow channel to convey the 10% probability event (10-year) and full containment of the 1% probability event (100-year) within a wide corridor of overbank. This option was also evaluated for a natural low-flow with grade control structures as well as a fully armored low-flow.
- Creation of a conveyance corridor that leverages the existing floodwalls and improvements and constructs new floodwalls or embankments to created a complete levee system from the fan apex to the downstream connection with the existing bridges and channel at and downstream of Pinnacle Peak Road. This was the alternative that formed the basis of the current project.

All these alternatives and supporting text, graphics and results are summarized in the following PPW ADMS reports. Links to download the reports from the FCDMC online library are included.

• JE Fuller Hydrology and Geomorphology, Inc. (JE Fuller), 2015a, *Pinnacle Peak West Area Drainage Master Study, Rawhide Wash Alternatives*, July 2015. FCD2011C024, Work Assignment No. 3.

http://apps.fcd.maricopa.gov/pub/docs/scanfcdlibrary/A122_114_PinnaclePeakWestADMSRaw hideWashAlternatives.pdf





- JE Fuller, 2015b, Pinnacle Peak West Area Drainage Master Study Work Assignment #3 Flood Hazard, Risk, Prioritization, and Alternatives, July 2015. FCD2011C024, Work Assignment No. 3. <u>http://apps.fcd.maricopa.gov/pub/docs/scanfcdlibrary/A122_113_PinnaclePeakWestADMSFloo</u> <u>dHazardRiskPrioritizationandAlternativeFinalWorkAssignment3.pdf</u>
- JE Fuller, 2016b, Pinnacle Peak West Area Drainage Master Study, Rawhide Wash Alternatives Refinement, June 2016. FCD2011C024, Work Assignment No. 6. <u>http://apps.fcd.maricopa.gov/pub/docs/scanfcdlibrary/A122_118PinnaclePeakWestAreaDraina</u> <u>geMasterStudy_RawhideWashAlternativesRefinement_ADMS.pdf</u>

1.5 Supporting Documentation

The following sections provide brief summaries of the documents and materials provided to support the application.

1.5.1 Site Photos

As seen in Figure 1, the Project covers over 1.7 miles of the 300 to 500-foot-wide Rawhide Wash corridor. A compilation of representative ground photos arranged and referenced to a recent, high resolutions drone-derived aerial photo base (provided by Ninyo & Moore, Inc. – a subconsultant to our project team) have been compiled to illustrate the project elements and existing conditions. Those photos are provided in Appendix A.

1.5.2 Site Plan

The site plan requirements are being met with two-sets of the documents. The first are the 60% design drawings and the second are a series of 40-scale sheet plots of the Project corridor that show information not included on the construction drawings including estimated limits of disturbance, NAOS polygons, and other miscellaneous easement and right-of-way information. The 60% design drawings are included in Appendix B. The 40-scale site plans are included in Appendix C.

1.5.3 Drainage Report

A full design report that includes all drainage analyses for the 60% designs, is included with the submittal package as Appendix D

1.5.4 Revegetation Plan

The Project revegetation plan is shown in the construction drawing landscape architecture sheets, which are part of the Appendix B materials. Further – details related to the revegetation and landscape are summarized in the Project design report included in Appendix D.

1.5.5 Native Plant Submittal

The native plant inventory and submittal package will be submitted under a separate cover.

1.5.6 Cultural Resources Survey

An archaeological survey of the Project area was conducted prior to performance of any geotechnical testing or investigations to ensure compliance with legal standards. A copy of that report is provided in Appendix E.





1.5.7 Citizen Involvement Report

Public Involvement has been an extensive part of the planning and design process for the Project, with efforts going back several years. A Citizen Involvement Report has been prepared for the Project and essentially a living document that is being continuously updated with each public involvement task and communication. Close public involvement will continue through the design and construction phases of the Project. The current version of the Citizen Involvement Report is provided in Appendix F.





APPENDIX A Site Photos





APPENDIX B Site Plans





APPENDIX C 60% Design Drawings





APPENDIX D Project Design Report





APPENDIX E

Archaeological Survey Report





APPENDIX F

Citizen Involvement Report

