TECHNICAL ASSISTANCE PROJECT FACTSHEET

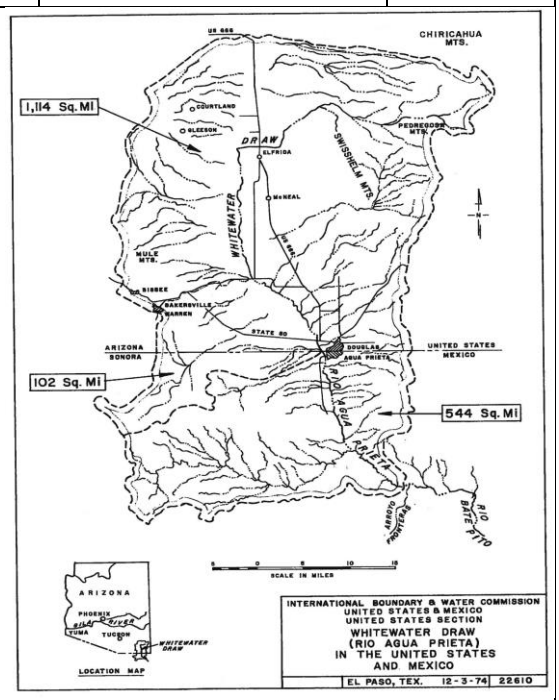
Project Name:	**Evaluation of Flood Mitigation Alternatives for Douglas AZ – Agua Prieta SON**		
TAP Number:	2107	**Start Date:**	05/04/16
Project Location:	Douglas, Cochise County, Arizona Agua Prieta Sonora	**Completion Date:**	12/15/17
Project Sponsor:	Douglas, Arizona Agua Prieta Sonora	**Closeout Report Date:**	1/2/18

TA Fundamental Objective:

Develop a predictive hydrologic model to determine peak discharges and runoff volumes and a hydraulic model to assess the conveyance capacity of the existing channels, washes and storm drain infrastructure. These results will be used to formulate flood hazard mitigation alternatives that have the biggest impact in reducing flood hazards for each community.

TA Scope:

To define the hydrology, a combination of gage analysis and rainfall runoff modeling were employed. For smaller watersheds impacting the communities from both the east and west, HEC-HMS was used to compile hydrology data. For the study area, a two-dimensional hydrology/hydraulic (H/H) model (FLO-2D) was used to route both overland and channelized flow to the ultimate outfall in Mexico along the Agua Prieta River (White Water Draw).



The Results: For each improvement area, up to three mitigation alternatives were developed. Mitigation alternatives consist of combinations of channels, storm drain, basins, culverts, and berms as well as associated costs.

Erosion protection was also specified for channels, culvert outlets, and basin inlet structures based on expected velocities and shear stresses. Annual sediment yield was calculated for each basin to inform maintenance costs. Cost to construct and annual maintenance costs were estimated for each recommended alternative.

Part of the original project scope of work was to incorporate Green Infrastructure (GI) and Low Impact Development (LID) into the recommended alternatives as feasible.

Outcomes	**TA FUNDING: US$**	
Mitigation Alternatives to reduce or eliminate the continued risk to life and property.	**TA Contract Approved:**	**$258,717.80 (as amended)**

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Outputs		Sources of Funding:	
In addition to the H/H Results the Sponsors were provided with a very useful tool, all results are an overlay on a QGIS topographic base map (DTM USGS 2014 LiDAR 20' Contour Intervals) that can be used for further Master-Planning.		**JTAP**: **Other Funds**:	$150,000 MXP$ 1,300,000 (CILA) (US$ 65,877.38) BECC-ADMIN $42,840.42
		Total:	**$258,717.80**
Potentially benefited population	Douglas: 16,600 persons (2016) Agua Prieta: 84,500 persons (2014)	Partnerships: Binational Technical Committee (BTC) formed to review development of (H/H) process and proposed mitigation alternatives. The BTC consisted of members from: Douglas, Agua Prieta, USIBWC, CILA, Cochise County, CONAGUA, USACE, CEA, ADEQ, ADWR, USGS, NRCS, FEMA	